

Control Shift

European Industrial Heritage
Reuse in review

VOLUME 2

Theodora Chatzi
Rodopoulou



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Control Shift

European Industrial Heritage Reuse in review

Dissertation

for the purpose of obtaining the degree of doctor
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chair of the Board for Doctorates
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by

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Introduction

This thesis examines the Reuse of Industrial Heritage in Europe, through the concept of ‘Control Shift’. This is a reinterpretation of the contemporary conservation axiom ‘Managing Change’, which on the one hand places emphasis on the practice’s shifting Components and on the other, on the Actors and Factors that exercise influence and control.

Due to the wide scope of the doctoral research, this dissertation is composed of two Volumes

Volume 1 introduced the research problem and explained the rationale of the thesis (Ch.1); it provided the theoretical framework of the subject under investigation (Ch.2); it presented the research methodology (Ch.3) and it developed the academic analysis (Ch.4 – Ch.7). Finally, it presented the products of the research, offering a framework of guidelines that can be used for the enhancement of industrial heritage reuse practice (Ch.8).

This Volume aspires to dive deeper into the subject in question, analysing in detail twenty selected case studies of best practice, ranging from early to recent examples, in the four European countries presented in Volume 1. The following scheme presents an overview of the case studies to be analysed and their position on the map.

A large amount of information presented in this Volume is also available on the ReIH website (reindustrialheritage.eu), developed by the author (Chatzi Rodopoulou and Floros, 2018).

OVERVIEW OF SELECTED CASE STUDIES



	UNITED KINGDOM	THE NETHERLANDS	SPAIN	GREECE
EARLY CASES	1 Ironbridge Gorge Museums (IGM)	6 Het Jannink	11 National Museum of Science and Technique of Catalonia (mNACTEC)	16 Centre of Technical Culture (CTC)
	2 Great Western Railway's Works (GWRW)	7 TextielMuseum Tilburg	12 Bodegas de Jerez de la Frontera (BJF)	17 Technopolis Athens
LATER CASES	3 Stanley Mills	8 Westergasfabriek	13 22@, Ca L' Aranyó	18 Lavrion Technological & Cultural Park (LTCP)
	4 Ancoats District	9 DRU Industriepark	14 La Tabacalera of Madrid	19 Tsalapatas Complex
RECENT CASES	5 King's Cross	10 Energiehuis	15 Bombas Gens	20 Mill of Pappas

The close analysis and evaluation of the selected reused industrial sites provides a tangible image of the past and current practice, it brings to the light original evidence and it serves at the same time as a point of reference for clarifying the complexities of the discussion.

All case studies are structured as shown in the following scheme.

STRUCTURE OF CASE STUDIES

- Fact Sheet
- Summary

PART 1: ANALYSIS

- Historic use
- Reuse Preparation
- Reuse process (Implementation)
- Occupation and management
- Shifts

PART 2: EVALUATION

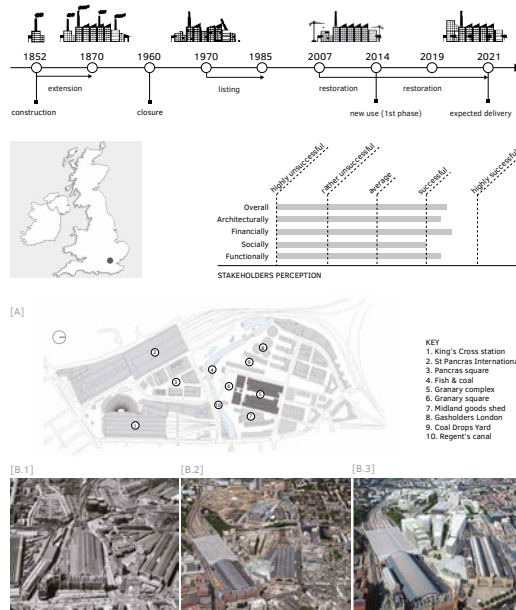
- Process
- Programme
- Architecture
- Cultural significance
- Finance
- Social component
- Functionality
- Stakeholders' evaluation

In order to facilitate the readability of the case studies and allow comparisons between them, a Fact Sheet and a Summary precedes each case's Analysis. In the Fact Sheet, a wealth of case study information is provided in a clear and direct way.

COMPOSITION OF FACT SHEETS

5. King's Cross

Location: London, England, UK
Historic use: Transport and goods-handling complex
Architect/Engineer: Lewis Cubitt
New Function: Mixed use (education, retail, residential, offices, HoReCa)
Reuse architect: Stanton Williams architects (Goods Yard)
Status: Grade II (Goods Yard)



Every Fact Sheet includes:

- A set of key information over the project (Name, Location, Historic Use, Architect(s), New Use, Reuse Architect(s), Status).
- A timeline summarising the developments that took place from the construction of the historic site to its operation;
- The location of the project on the map;
- A graph* visualising the quantitative results of the assessment of the case's stakeholders interviewed in this research;
- The masterplan of the project (unless stated otherwise);
- Three characteristic images.

* The graph summarizes the data collected per case study via this study's qualitative research, using the questionnaires Type 3 and Type 4 (see Vol. 1. Appendix 2).

The aim of Part 1 is to offer a comprehensive overview of the Reuse process, shedding light to all its stages, from its preparation to its occupation and management. Part 2 offers an assessment of the project's Components. Every case study closes with a graph visualizing the qualitative results of the assessment of its stakeholders interviewed in this research.

1. Ironbridge Gorge Museums

Location: Shropshire, England, UK

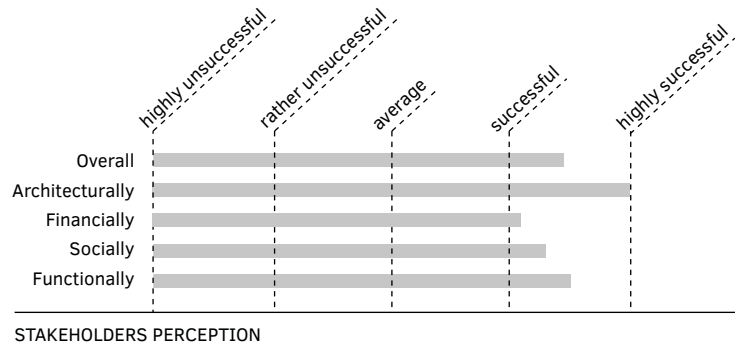
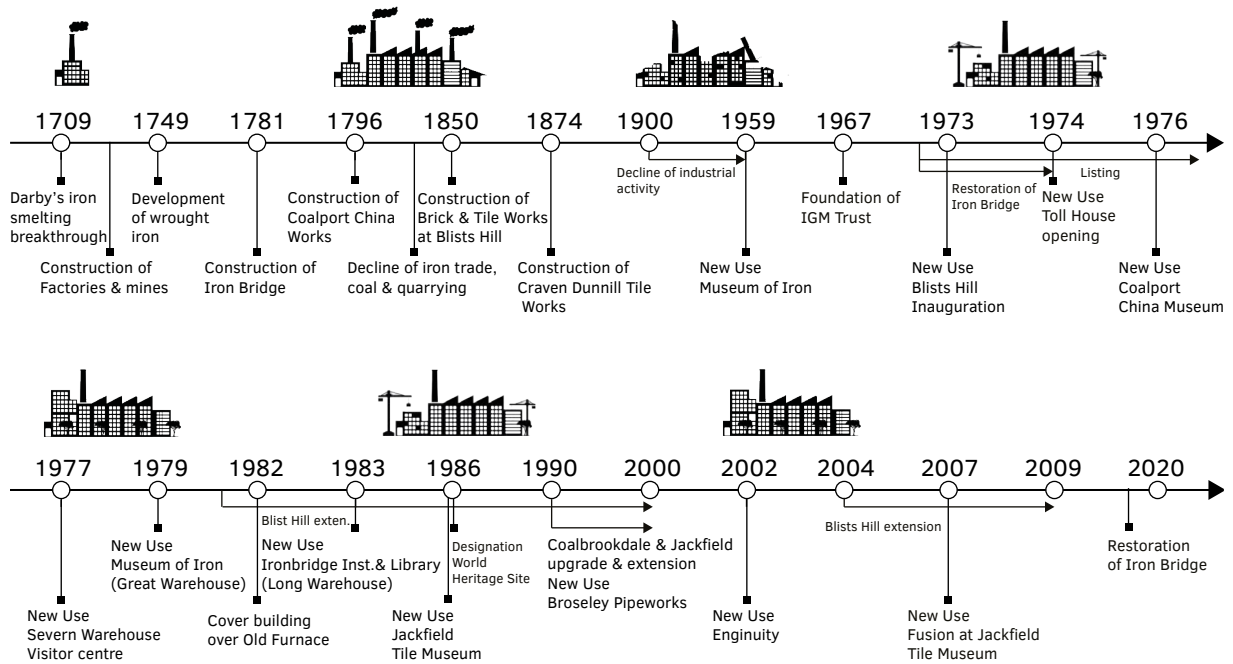
Historic use: Various industrial activities

Architect: Various

New Function: Network of industrial museums and visitor attractions

Reuse architects: Various

Status: World Heritage Site and National Monument



[A.1]



[A.2]



[A.3]



FIG. 1.1 Ironbridge Gorge Museums Fact Sheet

1 Ironbridge Gorge Museums

SUMMARY

The Ironbridge Gorge Museums (IGM), created and managed by the Ironbridge Gorge Museum Trust, is a reference case of Industrial Heritage Reuse with global appeal. The IGM, that has been characterised as the birthplace of Industrial Archaeology, is one of the earliest and most celebrated examples of Industrial Heritage regeneration at a landscape scale. With more than fifty years of operation, the IGM has a lot to teach. Its strengths include its transformation and operation process, its programme, financing and the exemplary preservation of its cultural significance while its architectural outcome and its functionality are controversial.

1.1 Analysis

1.1.1 Historic use

The Ironbridge Gorge, located in the Severn Valley in Shropshire, England, is an area of special importance, being the birthplace of industrialisation as well as the origin of the systematic care of Industrial Heritage in the 20th century.

The preindustrial origins of the area can be traced back to the late 16th century when large scale exploitation of coal began. Coalbrookdale, “*the name by which the whole area was known before the Iron Bridge was built across the River Severn*” (The Ironbridge Gorge Museum Trust, n.d.-a) was an attractive location for preindustrial and later industrial activity due to its abundance of natural resources and the transportation opportunities offered by the river Severn. In 1709, Abraham Darby I began smelting iron using coke instead of charcoal, creating an affordable and high quality ground-breaking product. His discovery and the development of wrought iron by Abraham Darby II, forty years later, paved the way for the Industrial Revolution (Beale, 2014, 8, The Ironbridge Gorge Museum Trust, n.d.-a).

LEGEND FIG. 1.1 Ironbridge Gorge Museums

- A.1 Aerial photograph of Coalbrookdale Works, 1925 (IGM Archive).
- A.2 The Old furnace in Coalbrookdale, after its covering (IGM Archive).
- A.3 Ceramic making and decorating workshop in Coalport China Museum, 2015.



FIG. 1.2 Oil painting The Cast Iron Bridge near Coalbrookdale by William Williams, commissioned by Abraham Darby III in 1780 (IGM Archive).



FIG. 1.3 The Iron bridge symbol of the IGM in 2015. The bridge was restored and repainted red brown in 2018 as part of a £3.6m Conservation project by English Heritage.

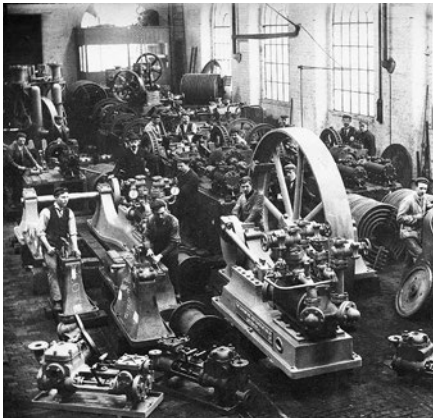


FIG. 1.4 Coalbrookdale Co. Ltd erecting Shop in 1900-1905 (IGM Archive).

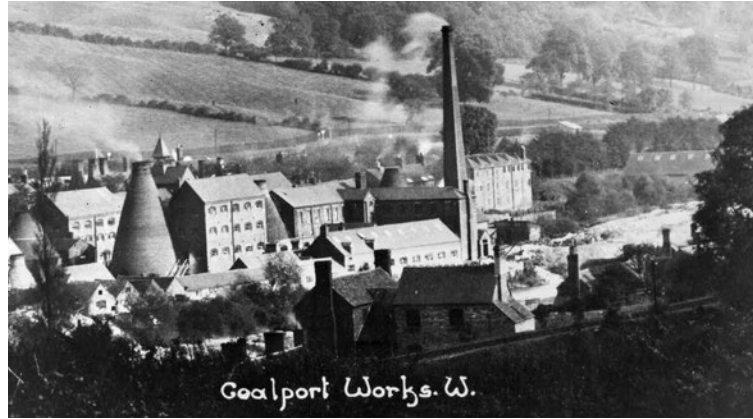


FIG. 1.5 Coalport China Works in the 1900s (IGM Archive).

By the 18th century, the industrial activity of the Gorge included potteries, saltworks, lead smelters clay pipe, porcelain and glass factories, as well as mining activity, coal, brick, lime and iron production (Trinder, 1993, 363). The Iron Bridge -symbol of the area- was built in 1777-1781 and designed by Thomas Farnolls Pritchard, under the supervision of Abraham Darby III (FIGS. 1.2, 1.3). It was the first major bridge in the world to be made of cast iron, and was greatly celebrated after construction due to its new material use. Other important developments of the 18th century included the construction of the Shropshire Canal through the Blists Hill iron making, mining & brickmaking site, and the 305m long Hay Inclined Plane (The Ironbridge Gorge Museum Trust, n.d.).

The following century saw the decline of the iron trade, coal and quarrying activity and the flourishing of art castings in iron and tile manufacturing (Beale, 2014, 8). Specifically, that period is described as the heyday of the Coalbrookdale Ironworks (FIG. 1.4) and the Coalport china factory (built in 1796) (FIG. 1.5). In the same century, the Severn Valley line of the Great Western Railway opened, offering tremendous opportunities to the local industries for accessing new markets in a fast and easy manner. As a result, more industrial installations were developed in the area, such as the Craven Dunnill tile works (1874) and the Maw & Co Benthall Works (1883) in Jackfield as well as the brick and tile works of the Madeley Wood Company at Blists Hill (1850).

The advantage of the Gorge's Industries was lost in the 20th century, opening an era of decline for Ironbridge. During the first half of the century, the factories closed in quick succession, the furnaces were blown out, the mining was ceased and people started abandoning the area (Smith, 1989, 1). Even the most prominent structures such as the Iron Bridge and Darby's historic furnace were threatened with demolition (Beale, 2014, 8-10).

1.1.2 Reuse Preparation

The first steps for the protection of the area and the prevention of its industrial installations' clearance, besides the scheduling of the Iron Bridge in 1934, were taken in the mid-20th century and were mainly led by the Darby family descendants, amateur industrial archaeologists, industrialists and enthusiasts. Those steps were the first ripples of what would soon become a wave of concern across Britain for the future of dying industrial era relics.

After World War II, the engineer and historian Dr Arthur Raistrick was commissioned the research of the Darby family's industrial legacy and the Coalbrookdale Company, which was still operating at the original site. A group of iron industrialists, Quakers, academics and Darby family descendants, interested in capturing the history of the Company before it was gone and preserving the Darby's Historic Old Furnace that was threatened with demolition, was formed around him. The full account of the developments during this critical period is analysed in detail by M.S. Darby (2009). In parallel with the action of the aforementioned parties, the Coalbrookdale Archives Association was established by locals and focused on the assembly of artefacts and local memories. The aforementioned groups were the precursors of the massive influx of enthusiasts attracted by the historic site.

The base of the IGM was set in 1959. On the occasion of the 250th anniversary of the coke smelting breakthrough, the old Furnace at Coalbrookdale was excavated, a small museum was established and several events were organised. The initiative was taken by the owners of the Coalbrookdale company, with the support of the University of Birmingham and the Coalbrookdale Archives Association and funding by the Allied Ironfounders (Darby, 2009). According to Shane Kelleher (2013, 2), this occasion *"represents a starting point for the structural and artefactual remains of industry being presented for, and appealing to, a mass audience."* The interest and enthusiasm demonstrated in that period in the industrial past of the area was unprecedented yet not sufficient for reversing its declining course.

It took almost another decade for the emergence of the necessary conditions which would facilitate the formulation of one of the most celebrated museums of the world. At that time the prolonged economic decline of the area had turned it into a dilapidated landscape. The same reason however had led to a remarkably small change of the historic setting due to the lack of new investment (Douet, 2012, 9). By the mid-1960s a set of four key developments shifted the situation, paving the way for the foundation of the IGM.

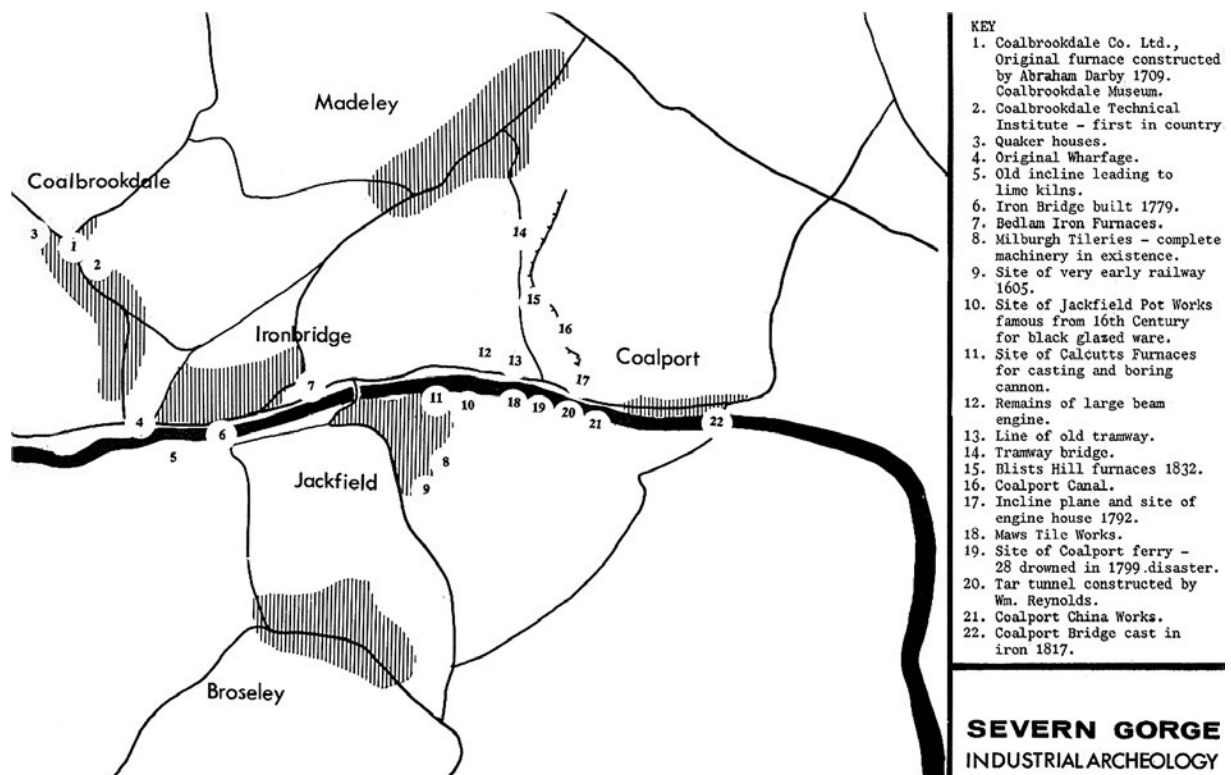


FIG. 1.6 The industrial archaeology sites of the Severn Gorge, presented by the working party in their final report (IGMT - Final report of working party, 1967).

Firstly, the creation of a new town was announced, encompassing on its southern extremity the Ironbridge Gorge and Coalbrookdale. Dawley new town -later to be named Telford- was designated in 1963 and was developed by the Dawley New Town Development Corporation. The remit of the corporation was the revival of the economic and social fortunes of the wider East Shropshire coalfield area. *"This was one of the first to deliberately choose a derelict area for regeneration as part of the wider new town development initiative"* (The Ironbridge Gorge Museum Trust, n.d.-b).

Secondly, by 1965 a proposal was presented to the Dawley New Town Development Corporation for the creation of an Open Air Museum in Blists Hill, Madeley. By the mid-1960s, the success of the few existing examples of such museums in the UK, had set a solid foundation, facilitating the support of more relevant projects (Beale, 2014, 18-19).

Thirdly, in the same period, the developments in the area had attracted a number of influential people and scholars who had realised the historic sensitivity of the area, including, among others, Dr Arthur Raistrick, Michael Rix, Tom Rolt and Michael Darby. The high potential of the site had also been recognised by the Dawley New Town Development Corporation. The lobbying of the aforementioned parties and individuals resulted in the formation of a working party, which in turn founded the Ironbridge Gorge Museum Trust in 1967.

The objective of the Trust was: *"the preservation, restoration and maintenance of features and objects of historical and industrial interest in the area...including the provision of an industrial museum and the organisation of meetings, exhibitions, lectures, publications and other forms of instruction..."* (Beale, 2014, 21).

The former working party became Directors and legally, Trustees. It is important to stress their not-for-profit drive, as they were all volunteers. The Ironbridge Gorge Museum was founded on five principles:

- *“The Museum would be a charitable Trust and not rely on Funding from local or central government.*
- *It would be funded from its visitors as far as the day to day operations were concerned.*
- *A development Trust would be established in order to raise capital from industry and elsewhere for the development of the museum.*
- *It would be based in the local community and therefore a strong supporters group, later to be called Friends, would be established.*
- *It would be a Museum based on a multiplicity of sites which related to the original industries of the Gorge rather than being housed in a Museum building in the conventional sense.”*

(Smith, 1989, 1-2).

Those principles demonstrate that the innovation and vigour of the Museum as well as its financial strategy were formulated from the outset of the project.

The fourth condition which helped the Museum to take off was the formation of the ‘Friends of the Ironbridge Gorge Museum’ in 1968. The aim of the organisation was to support the Trust through fundraising, subscriptions and practical labour (Beale, 2014, 27).

1.1.3 Reuse process, occupation and management

The conservation and reuse action of the numerous installations and buildings of the Ironbridge Gorge Museums started in the late 1960s, culminated in the period 1970s -1980s and continued with a slower pace up to the 21st century. It was a lengthy evolutionary process driven by the determined and passionate action of the Trust and supported by an increasing number of volunteers. An analysis of the key developments per decade is presented in the following section.

1970s

The establishment of the Ironbridge Gorge Museum Trust was followed by a period of frenetic activity. In the 1970s a great number of sites were restored and opened to the public. Capital for the works was raised from various sources. A 1 million pound appeal in British companies was launched in 1969; a development Trust for raising funds was developed 1971; multiple buildings were made available to the Trust while grants were offered for the restoration of certain sites by the local and national government (The Ironbridge Gorge Museum Trust, n.d.-b, Beale, 2014, 23-26). Crucial were the donations attracted as well as the labour offered by the Friends of the Ironbridge Gorge Museum, that counted 500 members in 1973, a number that was doubled five years later (Beale, 2014, 30, 40).



FIG. 1.7 The clearance and the levelling of Blists Hill site in the early 1970s (Beale, 2014,30).

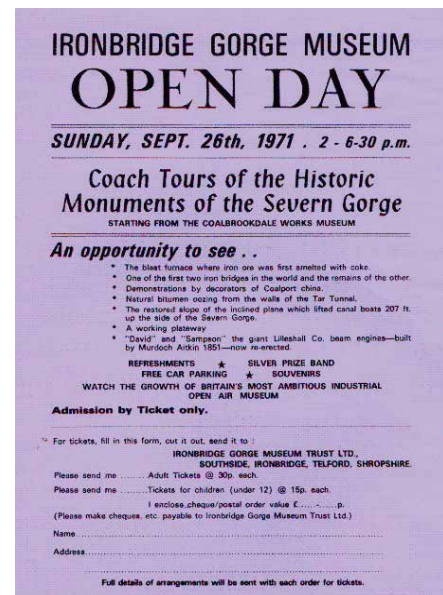


FIG. 1.8 Invitation to the annual Open Day of 1971 (Beale, 2014,29).

From 1969 to 1972 during the works, annual open days were organised including guided tours to major attractions such as the Coalbrookdale museum of iron, Blists Hill, Bedlam furnishes, Coalport china works, the tar tunnel, the inclined plane and the Iron Bridge (FIG. 1.8). Those events, attracting thousands of visitors, played a key role in sustaining enthusiasm and engaging volunteers.

The works were accelerated when Neil Cossons, formerly Deputy Director of Liverpool Museums, was appointed Director of the Museum. His attention was focused mainly on three points: the timely redevelopment of Blists Hill, the best harnessing of volunteers and later the Manpower Services Commission¹ workforce as well as the establishment and dissemination of the worldwide standing of the area.

To accelerate the opening of Blists Hill, Cossons appointed a team of full time staff with curatorial, engineering and construction skills.² The works included the context delimitation, marking and tidying up (FIG. 1.7), the excavation of the Hay inclined plane and the cleaning of the slope, the restoration of the historic furnaces masonry, the re-erection of the Shelton Tollhouse as well as the reconstruction of the headstock of a mine pit and the winding house (Ironbridge Gorge Museum Trust, 1978). The preparations of the site were not problem free. According to Beale (2014, 31) not all the details of the plan had been carefully studied and resolved. Nevertheless, the commitment of the Museum Trust, the employees and the volunteers outweighed any fears for the outcome of the works.

¹ In 1973 the Manpower Services Commission was established by the UK Government. The workers of the Commission played an instrumental role in the IGM 's development, working in all their departments and conducting archaeological work until the mid-1980's. In 1983, the Trust was counting nearly 350 workers of the Manpower Services Commission and 60 Youth Training Scheme workers. A year later the Trust was commended for being the first employer in Great Britain to convert a Manpower Services Commission young person's training Workshop into a commercial company. Due to government budget cuts in the late 1980s hardly any Manpower Services Commission workers had been left to the IGM. Those vital to the Museums' operations were hired by the Trust (Beale, 2014, 67,73).

² Among them was Stuart Smith, who succeeded Cossons as the Museum's Director a decade later. It is noteworthy that the members of that team not only fulfilled their role but they also stayed committed serving the museum until their retirement in their large majority.

Blists Hill Open Air museum was inaugurated in 1973 with unprecedented media coverage. Radio and television helped to attract 78.000 visitors during the first season while boosting fundraising. The idea of the interpretation of Blists Hill as a Victorian era museum with demonstrations and costumes was captured since the first year of its opening (Beale, 2014, 30-36). In the years that followed, the site was transformed step by step to a little Victorian town by restoring structures and installations found in situ, reassembling buildings and industrial machinery which were transferred from other parts of the UK and creating replicas of existing buildings on site.

Only a month after Blists Hill's opening, Cossons continuing his innovative plan, organised the First International Congress on the Conservation of Industrial Monuments. The congress attracted international scholars from eight countries and gave birth to a new committee, that would play a major role in the safeguarding of Industrial Heritage at an international level. The International Committee on the Conservation of Industrial Heritage (TICCIH) was founded five years later.

Other significant developments in the same decade included the restoration of Iron Bridge between 1972-1974 by the Ironbridge Gorge Museum Trust, Shropshire County Council and the Department of the Environment (Smith, 1989, 4); the opening of the Bridge's tollhouse as a Tourist information centre and shop in 1974; the listing of almost every building in the Gorge that had survived unaltered by the Department of the Environment; the acquisition, restoration and reuse of the 18th century china factory to the Coalport China Museum in 1976 (The Ironbridge Gorge Museum Trust, n.d.-a) as well as the acquisition, repair and transformation of the 19th century gothic revival Severn Warehouse to a visitor attraction in 1977 (Beale, 2014, 49). By 1978, the Museums reached a record-breaking number of 220.000 visitors.

The next addition to the Museum network was a set of two 19th century warehouses in Coalbrookdale, acquired by the Trust by 1979. The Great Warehouse, after a long period of obsolescence became the new house of the Museum of Iron in the Summer of 1979 (FIGS. 1.9, 1.10). The previous structure housing the museum was demolished to leave room for car parking.



FIG. 1.9 The Great Warehouse in 1964 (IGM Archive).



FIG. 1.10 The Great Warehouse in 2015 housing the Museum of Iron.

The urgent need of the IGM for the beginning of systematic archaeological recording and its determination to play a formative role in the development of the newly established discipline of industrial archaeology coupled with the immense interest and enthusiasm for industrial relics, in an era when industries were hardly considered part of heritage, presented an opportunity for another novelty. A working party, composed by heritage and engineer scholars, prepared the proposal for the formation of a new research institute attached to the Ironbridge Museum (Kelleher, 2013, 3).

In 1978, the Institute of Industrial Archaeology was established. Run jointly with the University of Birmingham, it was the first to offer a post-graduate diploma in Industrial Archaeology as well as the opportunity to gain hands-on experience by working at the Gorge on archaeological and conservation works. In the words of Neil Cossons (2009, xiii):

The Institute was set up “as a means of providing a research and teaching base as well as scholarly gravitas to the museum, as an investment in the future of industrial archaeology and a means of ensuring a future source of knowledge and expertise.”

In the years that followed, the new educational facility was transferred to the Long Warehouse. The same building, which was largely converted by the Telford Development Company, also housed the Museums' Library and the storage space for the Elton Collection (Smith, 1989, 5). The same period also saw the formation of the Ironbridge Gorge Museum Trust Archaeology Unit, born out of a number of conservation and restoration projects which were being carried out at the time (Kelleher, 2013, 3).

The 1970s was a decade of major development and growth for Ironbridge. IGM, winning several prizes, had succeeded to establish its position as a highly respected institution while its stakeholders were showing confidence for its future. Nevertheless, the following decade did not see a similar progress.

1980s

The early 1980s was a period of retrenchment with visitor numbers dropping and the professional staff suffering pay-cuts. The anticipated demise of Telford Development Corporation was intensifying pressure, as the IGM was not ready to be financially independent yet (Beale, 2014, 60,62). In order to tackle the financial problems, new goals were set by the Trustees, including raising visitor numbers, tightening financial control and strengthening IGM's academic part (Smith, 1989, 5).

In 1983, Neil Cossons left the museum to become Director of the National Maritime Museum, Greenwich and was succeeded by Stuart Smith. The new Director continued the expansion of the Museum with the available financial means.

Key developments of the 1980s included the purchase of the Coalbrookdale Literary & Scientific Institution and its transformation into classroom facilities and a youth hostel in 1980; the covering of the Old furnace with a modern structure (FIG. 1.17); the purchase of the Dale house in 1982; the opening of the transformed Coalbrookdale Long Warehouse and the purchase of the Craven Dunnill tile works in Jackfield in 1983; the redevelopment of the latter and the inauguration of the first phase of the Jackfield Tile Museum³ in 1986 (FIG. 1.11) and the extension of the Blists Hill Open Air museum with multiple edifices. The most significant among those buildings was the relocation of Britain's last working wrought ironworks, which served as an operational installation used for demonstrations, since 1988 (FIG. 1.22).

³ An important innovation was the creation of the Jackfield Tile Workshop. The workshop, staffed with Manpower Services Commission personnel, produced and sold copies of tiles exhibited in the galleries, getting also commissions for tile' restoration (Beale, 2014, 73).



FIG. 1.11 The Jackfield Tile Works converted in the Jackfield Tile Museum, 2015.

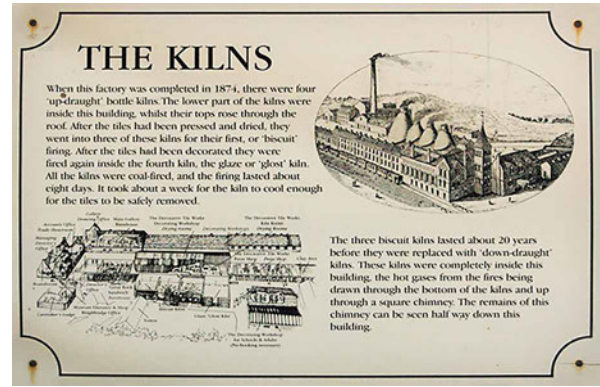


FIG. 1.12 Interpretation material at the Jackfield Tile Museum.

The level of intervention and the conservation approach followed for the aforementioned structures differed. In certain cases, such as the covering of the old furnace, a rather bold action was followed that was later met with criticism (Blockley, 1999). However, those initiatives examined under the prism of their contemporary available knowledge base, illustrate a pioneering character in the preservation and interpretation of industrial sites.

In regard to the archaeological work carried out in the Gorge, the 1980s saw the implementation of an archaeological survey known as the Nuffield Survey. Its aim was to create a comprehensive inventory of the industrial archaeology of the area, including the historical geography and historic buildings, of the Ironbridge Gorge. As S. Kelleher (2013,3) argues:

“At the time this approach was ground-breaking and forward thinking [...] and it forms the basis of archaeological understanding in the Ironbridge Gorge today.”

In 1986, the Ironbridge Gorge was designated a World Heritage Site, becoming the first industrial area in the UK with such a status. Two years later, the Museums reached 404.000 visitors, the highest figure since the peak of 1978 (Beale, 2014, 71). On the one hand, the designation bolstered IGM 's worldwide reach, projecting the area's outstanding values (UNESCO, n.d.), facilitating at the same time the attraction of grants. On the other hand though, it highlighted the deficiencies of the Museums' facilities and their limitations.

According to D. de Haan, Ironbridge Gorge Museum Trust curator and later director (1978-2012):

“When the Ironbridge became a World Heritage site there were more problems. The local population resented the new status because it was bringing tourism. A lot of consultation and a lot of meetings were done but the issue is still not resolved. The genuine locals appreciate what the Trust has done; the ones annoyed are the people who came with the development of the new town.” (Resp. no 4, Interview, 8/6/2015).

Apart from the action of the Museum Trust, the late 1980s saw the formation of other groups interested in the reuse of the area's industrial assets. An example of this action worth mentioning was the case of the Tile factory Maw & Co Benthall Works.⁴ In the early 1980s, part of the historic industry that was owned by the Telford Development Corporation, was converted to small businesses and flats. In 1988, upon the projected winding up of the Corporation, a limited company was formed by a group of tenants in order to buy the site and prevent further destruction (Mugridge, 1997).

The 1980s was a period of extension of the Museum's facilities and collections. The World Heritage status had cemented its international appeal, bringing to surface however several issues. By the end of the decade a condition report revealed the urgent need for the repair and conservation of several Museum Sites. At the same time a flood of the river Severn, a major landslide at Blists Hill and a fire that gutted part of Coalport were alarming signs, creating doubts for the future of the Museum (Beale, 2014, 77-78).

1.1.4 Shifts

1990s

After almost twenty years of operation, the IGM found itself struggling to preserve its immense legacy in an era of major reformations. The repercussions of the disbandment of the Telford Development Corporation, that had been supporting the action of the Trust intellectually, financially and in kind since its foundation, posed a major challenge. In addition, the size, complexity and condition of the IGM's assets and the rising competition from other heritage sites were calling for a new strategy that would secure its future.

In order to face the mounting challenges, Ironbridge Gorge Museum Trust shifted its approach, becoming more financially-driven. A Chief executive was appointed, reporting to the Trustees in place of a Director, reflecting the new priorities of the Trust. As the first core team of the Museum instigators was leaving Ironbridge, the Institution moved also from a personality-driven to a process-driven structure. A rationalisation process followed. All the aspects of the institution were reviewed including buildings, collections, staff levels, volunteers, funding etc. and a systematic recording of artefacts took place (Beale, 2014, 80,83).

In 1991, the Ironbridge Gorge Museum Trust inherited the former Telford Development Corporation properties occupied by the IGM, combining them with those that the Trust was running since 1967. The transfer into the care of the Ironbridge Heritage Foundation⁵ generated the need of another

⁴ The Tile factory Maw & Co Benthall Works after almost a century of operation, closed in 1970. Its redundant facilities were purchased by Telford Development Corporation in 1974 that proceeded to their demolition. Much of the machinery was scrapped yet the mould collection of plaster masters and a few tile presses were rescued by the Friends of the Ironbridge Gorge Museum. Due to policy changes within the Corporation in 1977 the demolition stopped and one third of the buildings survived. In the early 1980s, the Telford Development Corporation converted some of the remaining buildings into small business units and others into flats. The rest of the site was lent to the Museum for a period until the opening of the Craven Dunnill tile works. The buildings were then let out for light industrial use until 1988 (Mugridge, 1997). In the years that followed the site was converted into a mixed use development named Maws craft centre. The latter is comprised by a number of studios, shops and offices and a café while its residential part includes twelve flats (<http://www.mawscraftcentre.co.uk/lettings.php>).

⁵ The Ironbridge Heritage Foundation was a charitable trust set up to hold properties for the Ironbridge Gorge Museum Trust.

archaeological project. The Severn Gorge Repairs Project included a multi-disciplinary approach where conservation was led by archaeological interpretation and understanding, *“setting an example that was to be followed by English Heritage and other heritage bodies, and perhaps more importantly, legislation relating to heritage protection and development since”* (Kelleher, 2013, 4).

In order to make the property transition as smooth as possible, IGM secured a 4 million pound endowment by the Department for the Environment for the adoption and upkeep of the sites in addition to 3.25 million pounds for conservation works. In addition to these funds and the support of private grant-making bodies, further funds were needed for the continuation of the Trust's work. Corporate money, sourced since the 1980s was decreasing due to the contraction of the manufacturing sector. Furthermore, the independent status of IGM did not allow for regular funding from central or local government.

In the years that followed, focus was cast on revenue yielding. The Trust, grasping the new opportunities rising in the 1990s, attracted funds by newly developed international, national and regional organisations. Major funders of that time included the European Regional Development Fund, the Heritage Lottery Fund (HLF) (see Vol. 1, § 6.2.9) and the Advantage West Midlands (which was the newly established Regional Development Agency).

Besides sustaining the financial viability of the Museum, the action of the Trust in the 1990s included the upgrade and conservation of the IGM's buildings and its modest extension with the acquisition of new sites. Attention was focused predominantly in four key sites: Blists Hill, Coalbrookdale, Coalport and Jackfield.

In detail, Blists Hill was further developed and equipped with new facilities and exhibits. In Coalbrookdale conservation, infrastructure work and upgrade of the exhibitions was prioritised. The last part of the Coalbrookdale Company⁶ that was in the ownership of Glynwed Ltd was purchased by the Trust. Part of it was repaired and converted into the Trust's offices and exhibition space for the museums' largest machines. The Methodist chapel, the Upper forge, the Rose cottages and the former boring mill were transformed into workshops and rentable accommodation.

At Coalport, the China museum complex and the adjacent installations were repaired while their context was regenerated. In 1997, the John Rose building opened as a hostel, café and rentable workshop, with the financial support of the HLF. In the same period the restoration of the Jackfield Tile Museum, its extension and the enrichment of its collection with new exhibits began. A key development with a special symbolic, historic, technical and financial significance, was the installation of a company producing Encaustic Tiles in the complex (Beale, 2014,90-93).

In regard to the incorporation of new sites to the Ironbridge Gorge Museums, the 1990s saw the addition of Broseley Pipeworks to the portfolio of the Trust. The former clay tobacco pipe factory, closed since the 1950s, was converted into a museum with the financial support of the HLF, European and other grants.

Lastly, in the same decade, emphasis was placed on the organisation of events for attracting more visitors and securing return visits. Those included annual spectacles, evening openings and demonstrations. Featuring in multiple TV programmes, IGM was further promoted.

⁶ That included the storage sheds behind the Long warehouse referred to as North Lights, two 19th century engine erecting sheds and the old office buildings of the Coalbrookdale Company.

The review of the developments taking place in the 1990s testify for a notable shift of the IGM to a more financially-driven approach based on a firm economic and promotion strategy. The passion of the early period was receding, giving its place to a firm structure, prioritising the economic viability of the project.

21st century

The IGM entered the new millennium with dynamism, rebranding and reinventing itself for retaining its financial viability, sustaining its relevance and its competitive position between the numerous British heritage attractions. P. Gossage, Director of Marketing and PR of the IGM, discussing the new strategy, claims:

“People get tired of seeing the same things again and again. We keep on looking for alternative methods of raising funds and keep reinventing ourselves.” (Resp. no 15, interview 15/5/2015).

The IGM sites which were ‘reinverted’ in the first decade of the 21st century were Coalbrookdale, Jackfield and Blists Hill. In the first one, a new attraction was introduced, inspired by the latest tensions in museology. ‘Enginuity’, housed in one of the former engine erecting sheds, opened in 2002 (FIGS. 1.13, 1.14). It was funded by various sources including the HLF and the European Regional Development Fund, while most of its exhibits were gifted or sponsored by renowned companies (Beale, 2014, 101-102). With interactive educational activities and a fab-lab, Enginuity offered a fresh tone to the complex while reinforcing the Museum’s appeal for new and old visitors. Apart from the aforementioned redevelopment, the neighbouring shed was restored and extended for housing temporary exhibition space and corporate events.



FIG. 1.13 Interior view of Glynwed Building in 1991 (IGM Archive).



FIG. 1.14 The Glynwed Building converted into ‘Enginuity’, 2015.

In Jackfield, a new building was erected, after the demolition of the corrugated iron stores. ‘Fusion’, inaugurated in 2007, was created as an artistic workshops space for hire (FIG. 1.21). The 7.5 million pound project was funded by Advantage West Midlands, the HLF and the European Regional Development Fund (Beale, 2014, 108).



FIG. 1.15 Map of Blists Hill Victorian Town after its extension of the late 2000s (IGM Archive).

The biggest project undertaken by the Trust during the period in question was the regeneration of Blists Hill Open Air Museum. The 12 million pound scheme took place from 2004 to 2009, involving the addition of a new entrance building, the integration of an audio visual exhibition, installations and services improvement as well as the construction of new buildings in the town, a lift and a mini railway (FIG. 1.15). The Advantage West Midlands, the European Regional Development Fund and the government's new Renaissance in the Regions programme funded a big part of the project (Beale, 2014, 104-106).

The aforementioned developments brought a number of awards to the IGM, resulting also in a major increase in visitor numbers, reaching half a million both in 2010 and 2011. The continuous growth of the project however did not only present merits but also posed challenges. D. de Haan elaborating on those, argues:

"In the beginning of the venture fundraising was easy, especially because the area was industrial. Back then nobody else was fundraising for projects like this. Now things have changed. We are responsible now for too many museums and it is very hard to fund them. Blists Hill is the only one that is easy. With the profit we make at Blists Hill we run the rest of the sites." (Resp. no 4, Interview, 8/6/2015).

Besides the aforementioned development, the same period also saw the continuation of innovative archaeological work carried out in the Gorge by the Ironbridge's Archaeology Unit as well as the employment of cutting edge technology (GIS and LiDAR) by the IGM for managing, understanding and monitoring its buildings (Kelleher, 2013, 6).

Grasping the opportunities stemming from collaboration and networking in the 21st century, the Trust strengthened the relationship of the IGM with other museums. Since 2008, IGM also became part of the ERIH, taking advantage of its cross-marketing strategy and its publicity benefits.

Other important developments that took place in the same period involved the restructuring of the Institute of Industrial Archaeology's programme and its relocation to the Birmingham University campus in Birmingham. In 2012, the Institute was renamed 'Ironbridge International Institute for Cultural Heritage'. The restructuring despite raising the Institute's international profile, shifted its focus from Industrial archaeology to Heritage management, resulting in the weakening of its conceptual and spatial link to Ironbridge.

In the years that followed, various steps were taken for sustaining the financial viability of IGM. Broadening its scope by organising visual art exhibitions, it attracted more visitors, becoming at the same time eligible for extra funding. Furthermore, the commercial opportunities of its assets were exploited with the hire of spaces for events and the development of items for sale. The Trust also created favourable conditions for attracting future support by demonstrating a careful stewardship of its grants.

The vital bond of the Museum and its volunteer base was sustained and strengthened in the first decades of the 21st century. The Friends keep attracting funds, supporting the operation of the site, while volunteers continue working in various positions providing hands on support. The coordination and the recruitment of the latter group has been greatly enhanced. As a consequence, IGM is supported today by hundreds of volunteers ranging from retired professionals to young and unemployed and from those taking a career break to corporate volunteers.

After half a century of operation, the IGM has been established as one of the largest independent museums worldwide. Consisting of ten sites (FIG. 1.16), it is still run by the Ironbridge Gorge Museum Trust, which takes care of 36 scheduled monuments and listed buildings as well as numerous collections of national importance that include valuable historic machinery and archival material. The Trust currently employs c. 200 people and is supported by more than 500 volunteers. Receiving over half a million visitors every year, it has an annual turnover of seven million pounds (Beale, 2014, 8-9). During the years of its operation, the IGM has been celebrated for its pioneering, dynamic, flexible and durable character. Its significance as a stepping stone for the establishment of the discipline of industrial archaeology and its influential role as a reference for the future generations of industrial museums is indisputable.

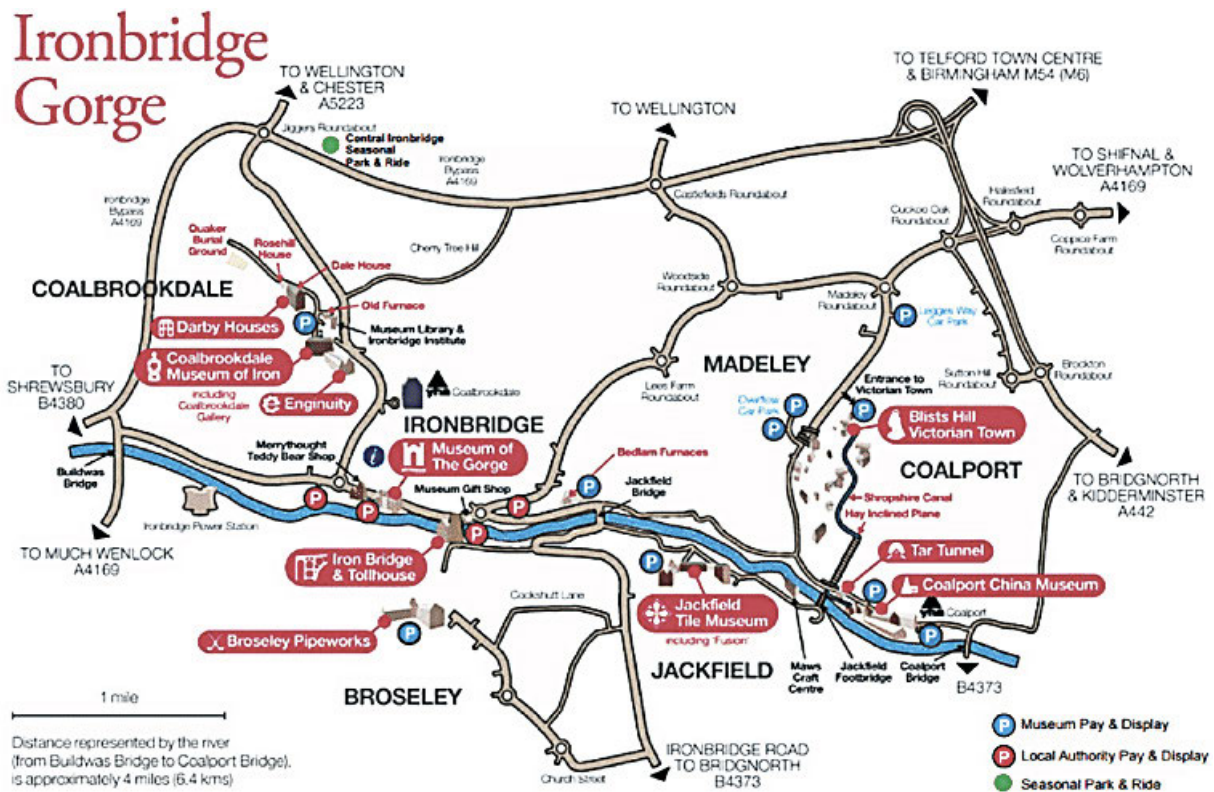


FIG. 1.16 Map of the IGM attractions, 2015 (IGM Archive).

1.2 Evaluation

1.2.1 Process

Being one of the earliest examples of Industrial Heritage Reuse in Europe at a landscape scale, the case has a lot to teach in respect to both transformation and operation process. D. de Haan, discussing the role of the case and the challenges it has been facing, states:

“The strength of the case is its identity and ability to break old rules and make new ones. It is a model case, one that is almost impossible to do now. It is easy to be a pioneer but very difficult to stay one. The expectations are very high.” (Resp. no 4, interview, 8/6/2015).

The process followed for the creation of the IGM is a strong Component of the case. Despite being mainly top-down, in an era with no experience in relevant ventures, it was characterised by a great deal of flexibility and adaptability. Those features, along with the introduction of consecutive innovations, rendered IGM durable, topical and able to respond effectively to the shifting conditions and rising challenges over its lengthy period of transformation and operation.

The metamorphosis of the Gorge took place in multiple phases from the 1950s on and was the product of a continuous group effort; an effort that is still ongoing today. The positive effects of organic growth, continuous investment and constant re-invention of the transformed site is an important lesson offered by IGM.

The case also highlights the catalytic effect of voluntarism and influential personalities in the preparation, transformation and operation of the project. The Museum owes its establishment, growth and current position to the endeavours of a Charitable Trust that has been always supported by numerous volunteers and skilled staff. In the first decades of its operation, IGM's progress was defined by the action and decisions of key personalities such as Neil Cossons and Stuart Smith. D. de Haan, reflecting on the alterations of the characteristics of the project from its outset until today, argues:

"In the beginning people were driven by excitement and passion. Now most of them see it just like a job. They do not share the same passion." (Resp. no 4, interview, 8/6/2015).

De Haan's view, also reflected in Beale (2014, 98), reflects the maturing of the case and its operation from a spontaneous, dynamic personality-driven organization to a more structured, financially-driven institution. This critical transitional phase, even though challenging, did not have a negative impact on the essence of IGM, as the void left from the enthusiastic endeavours of the Actors initially involved with it was filled by a firm structure that has been keeping it afloat ever since.

1.2.2 Programme

The programme of IGM is also among its strengths. Being much more than a museum, it is characterised by great diversity. In detail, it offers an extensive network of industrial monuments and ruins, museums and visitor attractions that stretches in 10 locations, across an attractive natural setting of 3.840 acres, dominated by the river Severn (FIG. 1.16). As a World Heritage Site, the case has an international appeal, attracting a wide variety of audience. Combining a set of varied interpretations of historic sites and processes with imaginative poles of education and recreation, IGM caters to the needs of a wide array of visitors that range from specialists to families. The wide variety of permanent activities and temporary events offered makes the case appealing to people of every age while securing return visits.

The elevated appeal of the cultural and recreation functions, along with the commercial uses, such as the spaces for hire, contribute largely to the financial viability of IGM. Another important feature of the new programme is its close relation and its reference to the historic industrial function of the location. The merits of that relation will be analysed in the section 'cultural significance' (§ 1.2.4).

1.2.3 Architecture

The architectural outcome of the transformation is a controversial aspect of the case. Its positive characteristics involve the preservation of historic industries and installations at a landscape scale. This approach, which facilitates the understanding of the vast scale and complexity of industrial activity, when examined in the context of the 1970s and 1980s is proved to be revolutionary.

ATTRACTIONS	LOCATION	TYPE OF ATTRACTION	INTERVENTION APPROACH
Blists Hill Victorian Town	Blists Hill	Open air museum	Mothballing, relocation and reconstruction, extensions
Enginuity	Coalbrookdale	Science and innovation centre	Shell conservation and extensive interior retrofit
Jackfield Tile Museum	Jackfield	Industrial museum	Shell conservation extensive interior retrofit and extension
Coalport China Museum	Coalport	Industrial museum	Shell and interior conservation, minimal interventions
Coalbrookdale Museum of Iron	Coalbrookdale	Museum	Shell conservation and extensive interior retrofit
Museum of The Gorge	Ironbridge	Museum	Shell conservation and interior retrofit
Darby Houses	Coalbrookdale	Visitor attraction	Shell and interior conservation
Tar Tunnel	Coalport	Industrial monument	Conservation
The Iron Bridge & Tollhouse	Ironbridge	Industrial monuments	Conservation and retrofit of the tollhouse
Broseley Pipeworks	Broseley	Industrial museum	Shell and interior conservation, minimal interventions
OTHER FACILITIES			
The Old Furnace	Coalbrookdale	Ruins	Conservation and extension
Long warehouse	Coalbrookdale	Library/ Archive/formerly Institute of Industrial Archaeology	Conservation and extensive interior retrofit
The Engine Shop	Coalbrookdale	Events location	Conservation and interior retrofit



FIG. 1.17 The cover building of the Old furnace dominating the industrial ruins, 2015.



FIG. 1.18 The new entrance building at Blists Hill, imitating industrial typologies, 2015.

Along with that, the combination of conservation approaches employed in the various sites of the IGM (conservation, restoration, retrofit, relocation and reconstruction, conversion, extension) listed in the table above, is evaluated positively by the author as it offers the visitors the opportunity to witness and use historic industrial buildings in various ways. According to the results of the qualitative research of this study, the architectural outcome of the case is its strongest feature (FIG. 1.1).

On the other hand, there are several aspects of the architectural approach that have been criticised. In the opinion of the critics, parts of the site have been treated with little sensitivity (e.g. the Coalbrookdale old Furnace covered by a new structure, (FIG. 1.17) (Blockley, 1999, 144, R. White, Resp. 18, Interview, 9/9/2015); the authenticity of others has been compromised (e.g. Blists Hill, FIG. 1.18) (I. West, Resp. no 14, interview 15/5/2015) while there are cases where the transformation was only taking into account functional needs with little attention into the spatial values of the building (e.g. interior of the Long warehouse, FIGS. 1.19) (J. Smith, Resp. no 16, interview, 15/5/2015). Elaborating on the last point J. Smith, Museum registrar since 1990, states:

“The building’s transformation (referring to the Coalbrookdale Long Warehouse) is piecemeal. It was transformed in bits whenever there was money to do it. However we are ok. We prioritise constantly. If there is a problem and there is no money we do it ourselves.” (Resp. no 16, interview 15/5/2015).



FIG. 1.19 Interior of the converted Long warehouse after its retrofit. The character of the building has been largely influenced by the intervention, 2015.



FIG. 1.20 Exterior of the converted Long warehouse after its conservation. The exterior intervention has respected the historic fabric, 2015.



FIG. 1.21 Fusion, the new extension of the Jackfield Tile Museum presents little compatibility with the historic structures, 2015.

Field research showed that the above criticism is not utterly unsubstantiated. In general, the envelope of several buildings was carefully restored, while their interior was transformed with less attention to heritage values (FIGS. 1.19, 1.20). In contrast, there are also cases of complexes, such as the Coalport China Works and the Coalbrookdale Museum of Iron, where both the exterior and the interior of the edifices in their largest extent were treated sympathetically. As for the new structures in Coalbrookdale and Jackfield, there is indeed a lack of compatibility between the historic fabric and the additions (FIG. 1.21). Blists Hills, after its latest expansion can be confused for a pastiche of authentic and made-up structures. However, it should be highlighted that the on-site interpretation clearly marks the distinction between authentic components preserved in situ, relocated buildings and new-built structures, informing the visitor about the extensive intervention in the original setting.

In the author's opinion, the merits of the architectural intervention outweigh its pitfalls. In order to objectively evaluate the constraints of the case, its architectural outcome should be assessed against the expertise available at the time of the intervention, the existing financial means as well as the massive scale of the project.

1.2.4 Cultural significance

One of the biggest assets of the case is the preservation of the historic site's cultural significance. As mentioned in the analysis, the project has special importance as it served as a testing ground for the newly developed discipline of industrial archaeology. Shane Kelleher (2013, 1-2) discussing the role of the case, notes:

“Over the years archaeologists from the Ironbridge Gorge Museum Trust have played such an important role in understanding, valuing, conserving and interpreting the industrial archaeology, monuments, and buildings of the Ironbridge Gorge and beyond. Their work has pushed the boundaries, not only of our knowledge of the important part that this special valley in the East Shropshire Coalfield played in the development of the modern world, but also in developing the methods, techniques and knowledge that underpin industrial archaeology as a discipline today.”

Furthermore, multiple publications portray Ironbridge as a showcase of effective and comprehensive cultural significance preservation (Douet, 2012, Stratton, 2000, Price, 2006). Indeed, in the IGM an integrated approach was followed, resulting in the preservation of a whole landscape and its history. This consisted of both tangible heritage elements, including buildings, installations, machinery, objects and archival material as well as intangible elements, such as production processes, knowhow and social aspects of the industrial era.

Lastly, the case also serves as an exemplar of integrated interpretation. IGM provides a comprehensive understanding of the historic industrial landscape employing a multileveled and diverse interpretation in its various sites, including location, machinery, process, product, skill and social environment interpretation (FIGS. 1.12, 1.22, 1.23, 1.24) (Price, 2006, 118).



FIG. 1.22 Process interpretation in IGM. The Blists Hill Ironworks steam hammer in operation (Beale, 2014, 68).



FIG. 1.23 Building, machinery and object interpretation as part of the exhibition of the Coalport China Works, 2015.



FIG. 1.24 Skill interpretation at Blists Hill, 2015.

1.2.5 Finance

Financial considerations played a formative role from the outset of the case and were prioritised over other Reuse Components since the 1990s. The financial independence of the IGM from the local or central government and its economic viability based on its own means were among its founding principles. As a result, the Trust formed and applied a strategy for attracting funds, earn revenue and covering expenses in multiple ways. Those included income raised from ticket sales and space hiring; attraction of grants from the Private and Public sector at a local, regional, national and European level; receiving donations and harnessing volunteer power. A key organisation with a big contribution in the financial scheme of the Museum was the 'Friends of the IGM'.

Even though during its lengthy transformation and operation period, the IGM went through both financial difficulties and economic prosperity, it has preserved its autonomy without compromising its legacy, character and role. There are two key factors that contributed to this achievement. Firstly, the constant adaptability of its financial strategy to the changing socioeconomic conditions of the UK, which secures the continuity of the influx of assets and grants despite the alterations or the disbandment of funding institutions along the way. Secondly, the continuous enrichment and reinvention of its offered activities that keeps the site attractive, relevant and competitive to the growing heritage offer while securing return visits despite the rather limited catchment area of the site.

1.2.6 Social component

Since its foundation the IGM has offered significant social added value at a local, national and international level. During its operation it has transformed a dilapidated problematic area into a highly evaluated point of attraction, restoring the pride of the local community and offering employment in a direct and indirect manner.

Despite being a top-down venture, the project always looked for ways to connect and engage the local community. J. Smith explains:

“There are local people working for the museum and are passionate on what they do. They do not do this just for the money because the Museum would not have survived if they did. They have a genuine interest in it.” (Resp. no 16, interview, 15/5/2015).

A number of respondents working for IGM also stressed the bond created between the members of its workforce. Expressing the relation of IGM's staff with the project, D. de Haan emphatically argues that *“Ironbridge is a way of life...”* (Resp. no 4, Interview, 8/6/2015).

Besides the positive effects of the museum on the local community there are also certain problematic facets in this coexistence. The repercussions of the touristic wave that flooded the area especially after its nomination as a World Heritage site occasionally creates tensions between the two parties. J. Smith, elaborating on the issue, states:

“The main complaints of the community against the museum is the touristic flow which causes traffic and parking problems especially during the bank holidays. Privacy issues are raised as well when you have people take pictures of your house.[...] The curators and the museum staff when talking to community members they explain the Museum's situation and they seem to understand and calm down.” (Resp. no 16, interview, 15/5/2015).

Apart from the social added value at a local level, the museum has offered a lot at a national and international scale as an accessible timeless source of innovation, knowledge and education.

1.2.7 Functionality

The functionality of the converted sites of the IGM differs across sites. In general, over the years there is an attempt to modernise the facilities of the Museum, enhancing its functionality. On average, according to the respondents of this research (Resp. no 4, 9, 14-28, interviews, Spring 2015) the functionality of the site is satisfactory. Nevertheless, complaints were expressed over shortcomings in the inner comfort and accessibility of certain buildings such as the Coalbrookdale Museum of Iron, the Coalbrookdale converted Long Warehouse and the Coalport China Works.

1.2.8 Stakeholders' evaluation

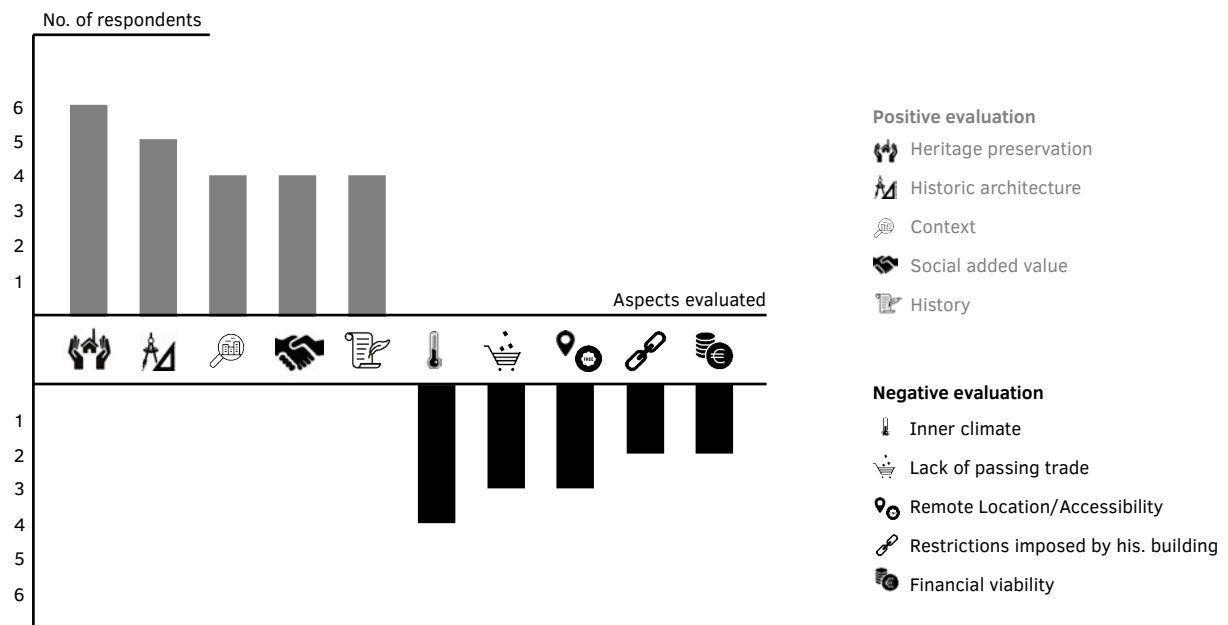


FIG. 1.25 Respondents' evaluation of the strong and weak Aspects of the case of IGM (Number of respondents: 27).

2. Great Western Railway's Works

Location: Swindon, England, UK

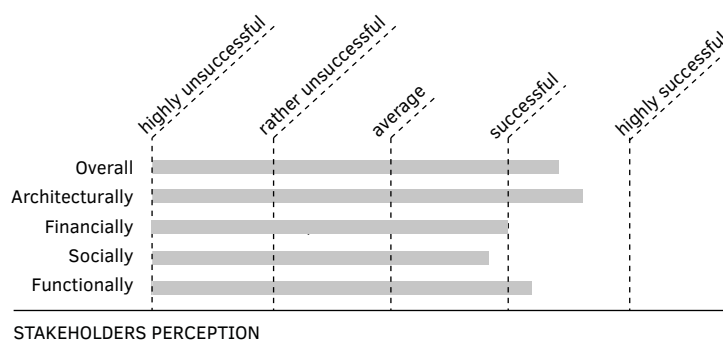
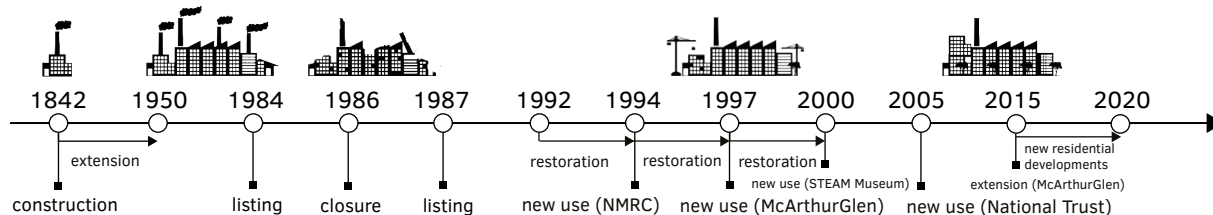
Historic use: Railway Works

Architect/Engineer: Isambard Kingdom Brunel, Joseph Armstrong

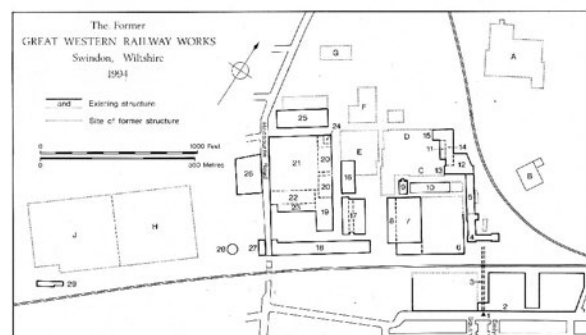
New Function: Mixed use (industrial museum, administration, retail, offices)

Reuse architect: D.Y.D. Davies Associates

Status: Grade II*, Grade II listed, Conservation area

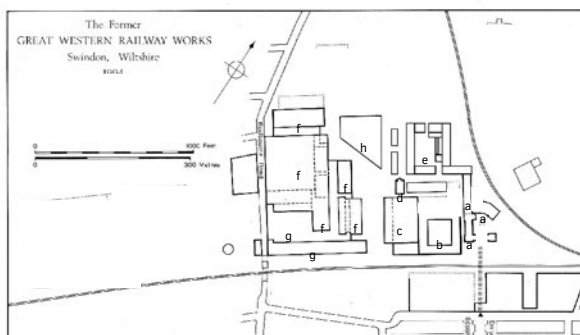


[A.1]



- Key:
- 1. Work's entrance
 - 2. Carriage works
 - 3. Subway
 - 4. General offices building
 - 5. Original machine and fitting shop
 - 6. Screen wall (of the B shop)
 - 7. R shop
 - 8. Machine and fitting shop
 - 9. Works manager's office
 - 10. Traversing table
 - 11. Test house
 - 12. Spring shop
 - 13. Gable wall
 - 14. Smith's range
 - 15. Gable wall (of the hammer shop)
 - 16. Q shop
 - 17. K shop
 - 18. Foundry
 - 19. Brass foundry
 - 20. Machine shops
 - 21. V shop
 - 22. Tool room
 - 23. Pattern makers shop
 - 24. Central power house
 - 25. Tender and paint shop

[A.2]



- Key:
- a. National Monuments Record Centre (now Historic England Office and Archive)
 - a'. Archive store of the NMRC
 - b. New-built retail and residential units
 - c. STEAM Museum
 - d. Offices
 - e. Offices and apartments
 - f. 1st phase McArthurGlen Designer Outlet Great Western
 - g. 2nd phase McArthurGlen Designer Outlet Great Western
 - h. National Trust

[B.1]



[B.2]



[B.3]



FIG. 2.1 Great Western Railway's Works Fact Sheet

2 Great Western Railway's Works, Swindon

SUMMARY The transformation of the Great Western Railway's Works (GWRW) into a mixed used complex is a celebrated early case that paved the way for the reuse of similar projects across the UK and Europe. Combining an outlet centre, public administration offices, an industrial museum as well as newbuilt office and residential developments, the reborn historic site attracts more than five million visitors per year. The case illustrates the role of documentation and legislative protection as well as the significance of a good cooperation between Actors. Its strengths include its transformation process, new programme, architectural result, preservation of cultural significance, social and financial impact while its weaknesses are limited to operational issues.

2.1 Analysis

2.1.1 Historic use

The former Great Western Railway's Works (GWRW) is located to the north-west of Swindon Borough town centre (FIG. 2.2). The historic complex is currently surrounded mainly by residential areas while separated from the southern and eastern districts by two railway lines.

The story of the GWRW began in 1842, when Isambard Kingdom Brunel built a relatively small Locomotive maintenance depot, for the new railway connecting London to Bristol. The building was constructed about a mile away from the little town of Swindon, close to a canal junction. This establishment was expanded several times, becoming by the beginning of the 20th century one of the largest engineering complexes in the world. Along with the industrial complex, Brunel also designed a railway village for the complex's workers.

LEGEND FIG. 2.1 Great Western Railway's Works, Swindon

- A.1 The Railway Works before their transformation, 1994 (Cattell and Falconer, 1995, 141).
- A.2 The Railway Works after their transformation, 2018 (Cattell and Falconer, 1995, 141/ Edited by the author).
- B.1 The 'V' Shop in 1994 before its conversion to the McArthurGlen Designer Outlet Great Western (Cattell and Falconer, 1995, 149).
- B.2 The 'Q' Shop after its conversion to the McArthurGlen Designer Outlet Great Western, 2015.
- B.3 The extension of the Designer Outlet to the foundry building, 2015.

market in 1988 and the recession that followed. During that turbulent period, only a few individually funded projects were undertaken, such as the conversion of the former Works manager's office for Tarmac's own use. Apart from those, the listed buildings were left abandoned; most of the unlisted buildings, including the early 20th century A shop, were demolished while the cleared areas further away were sold off for supermarket and residential development (FIG. 2.1: A.1, A.2) (Falconer, 2007, 83).

2.1.3 Reuse process

The catalyst for the complex's redevelopment was finally the result of an initiative from the Public Sector. The RCHME selected the General offices of the GWR's Works for housing its new National Monuments Record Centre (NMRC) getting a twofer. On the one hand, it centralised its activities in a suitable venue close to a main line station in Southern England, with room for extension and on the other, it brought back to life a derelict site of high historic and architectural significance.

In the early 1990s a decision like that was far from easy. Nevertheless, the secretary of the Commission, prompted by the impassioned pleas from the RCHME's staff, decided to support the idea of moving to Swindon, ignoring the advice of the project team that was leaning towards other more conventional and economical solutions (Falconer, 2000, 22-23).

The reuse of the building took place from 1992 to 1994. It was a challenging venture as it involved a structure, constructed in 1842 which was extended and remodelled repeatedly (Cattell and Falconer, 1995, 142-145). K. Falconer, Head of RCHME Southern Regional Office at the time of the reuse, elaborating on the challenges, states:

"In its last historic phase the building was subdivided into numerous rooms, though open-plan was being considered. What made things worse was the poor planning advice given to the architects that allowed them to avoid preserving any timber features, partitioning and panelling the interior of the building." (Resp. no 1, interview, 30/6/2015).

The reuse of the 1990s carefully preserved the facades and volumes of the historic building. In the interior a wealth of historic elements were also retained (e.g. cast iron columns of 1868, some original floor trusses, wooden queen post roof trusses etc.). Nevertheless, field research shows that the aesthetic result of the building's interior, with some exceptions, is more a result of a compromise between new functional needs and past invasive interventions than a balanced redesigned space with a strong historic character.

An interesting feature of the development was the creation of an extension of the building, for housing the NMR archive store of the Record Centre. The D.Y.D. Davies Associates, responsible for the project, chose a completely contrasting architectural language, a geometry inspired from the railways, and modern materiality for the new addition. M. Stratton (2000, 53) has included this case in the list of *"carefully proportioned and meticulously detailed modern designs in relation to the British industrial archaeology"*.

The reuse process of the building was conducted in parallel with a project of historic research for the architecture of the complex and Swindon Village. This led to the publication "Swindon: The legacy of a Railway Town" (Cattell and Falconer, 1995) which was used to support the upgrade of the protection status of certain elements of the site in Grade II* and inform the project of the complex's reuse.



FIG. 2.3 The D Shop of GWRW converted into the STEAM Museum, 2015.



FIG. 2.4 The interior of the STEAM Museum is characterised by the grandiose halls of the former D and R shops, 2015.

The NMRC opened its doors in 1994, housing the head office of the RCMHE and the architectural, archaeological, air-photography and maritime archives that make up the National Monuments Record.⁸ The reuse project not only made a piece of heritage accessible to the public but it also triggered further developments. In the same year BAA McArthurGlen, an international company specialising in the construction and operation of retail outlet centres, expressed interest for the site.

Along with the growing momentum stemming from the RCMHE's initiative, the location of the GWR's Works, the cheap price of the venue and the lack of similar retail activities in the area also played an important role for the choice of the historic complex by the company. An additional reason, that can be seen as a happy coincidence that influenced the reuse result, was the interest in heritage of the Chief executive of BAA McArthurGlen UK Ltd, J. W. Kaempfer. The new Locomotive Works of J. Armstrong, designed in the mid-1870s, proved to be the most suitable venue for the company's flagship development in the UK.

The works for the creation of the development of the Great Western Designer Outlet village started in 1994 and involved the conversion of a series of buildings including the Q and K shops, the brass foundry, the machine shops, the V shop, the tool room, the pattern makers shop, the central power house and the tender and paint shop (FIG. 2.1: A.1, A.2).

In the words of K. Falconer (2000, 23):

"Working closely with the local authority and the heritage agencies, the company respected the structural integrity of the buildings to such an extent that none of the immense cast iron columns were removed, most of the overhead cranes were retained as features of the circulation malls and original detail was preserved wherever possible." (Resp. no 1, interview, 30/6/2015).

Furthermore, the facades of the converted buildings were carefully preserved after the removal of recent additions. Reversibility was prioritised. As a result, all the partitioning was hanged from the existing structure in order to be easily removable. Despite the sincere attempts for a respectful transformation, certain characteristic features of the complex were finally sacrificed in favour of the new function. The most important of those was the unity of grandiose spaces such as the V shop, compartmentalised for housing the retail units.

⁸ After the restructuring of the heritage Services of England in the 2010s, the building became known as Historic England Office and Archive.



FIG. 2.5 Aerial view of the former GWRW, Swindon, shortly after closure (RCHME, 1987).



FIG. 2.6 Aerial view of the former GWRW, Swindon after the completion the 1st phase of the Designer Outlet and the STEAM Museum, 2003 (Google Earth).



FIG. 2.7 Aerial view of the former GWRW, Swindon in 2018. The complex's character is shifting with new residential, office and retail developments taking place after 2015 (Google Earth).

During the creation of the Designer Outlet, another party expressed interest for an underused part of the complex. The Swindon Borough Council, taking advantage of the favouring conditions analysed above, took the first steps for moving the Great Western Railway Museum from the town centre to the former GWRW. The site selected was the Grade II* listed machine and fitting shop (D Shop) designed in 1846 by Brunel and the R shop designed by Armstrong.

According to T. Bryan (Resp. no 73, interview, 27/7/2015), curator of the GWR Museum at the time, a number of reasons converged for the selection of the historic site for housing the museum. Those included the availability of the buildings, their location, size, architectural value and the relevance of their former use with the museum's scope. What greatly facilitated the transfer of the museum was the donation of the buildings to the local authority by Tarmac, the securing of a funding by the HLF for the realisation of the project and the support of BAAMcArthurGlen and local companies.

During the transformation, the volumes, facades and structural elements of the buildings were preserved. The new function also allowed to retain to a large extent the large dimensions of the industrial units (FIG. 2.4). Moreover, the additions were materialised in a modern architectural language, facilitating the distinction between the historic fabric and the new features. The museum's website offers further details about the conversion works realised in the 1990s (STEAM Museum of the Great Western Railway, n.d.).

The transformation of the GWRW into a mixed use venue demanded the enhancement of the premises' pedestrian and car accessibility. As a result, certain buildings that were forming the northern part of the complex, were dismantled or demolished (FIG. 2.6) (Cattell and Falconer, 1995, 137). A long stretch of railway tracks was also removed, breaking the historic connection of the site with the railway, isolating it from railway access while creating big obstacles in the future operation of the GWR Museum.

2.1.4 Occupation and management



FIG. 2.8 Locomotive exhibited in the halls of the McArthurGlen Designer Outlet Great Western, 2015.



FIG. 2.9 Preserved machinery exhibited in the halls of the McArthurGlen Designer Outlet Great Western, 2015.



FIG. 2.10 Overhead crane preserved in situ in the halls of the McArthurGlen Designer Outlet Great Western, 2015.

The McArthurGlen Designer Outlet Great Western was inaugurated in 1997, welcoming 4.5 million visitors in its first year of operation. Covering an area of 16.536m² with more than 100 shops, a food court, a playground, a crèche and parking facilities for over 1850 cars and coaches, the new shopping centre quickly became an attraction on a national level (BAAMcArthurGlen, 1998).



FIG. 2.11 Historic pictures exhibited in the halls of the McArthurGlen Designer Outlet Great Western.



FIG. 2.12 Interpretation signs explaining the function of retained the overhead cranes.



FIG. 2.13 Interpretation signs explaining the function of the historic buildings.

Housed in a carefully preserved historic complex, featuring original materials, machinery retained in situ (FIGS. 2.9, 2.10) as well as movable heritage elements (FIG. 2.8) the site kept the atmosphere of its past life alive, providing a unique experience to its visitors.

It is worth highlighting that the preserved spaces and retained features were not just left as an enigmatic ornamental scenery but there was a serious effort to interpret them, too. As shown in the Figures 2.11, 2.12, 2.13, multiple signs, short texts and historic pictures were incorporated to the reused space, explaining the former function of the industrial buildings. The big success of the venture led to the generation of expansion plans in the years that followed while paving the way for similar projects across the UK.

The new century saw the rebirth of another set of buildings in the former industrial complex. The STEAM Museum of the Great Western Railway (FIG. 2.3) opened its doors in 2000, serving as a substantial link between the past, the present and the future of the site and the town. Its collection includes an interpretation of the former function of the historic buildings housing it, recreations of several spaces of the GWRW, a presentation of the finished product (the GWR locomotive, no. 4073 Caerphilly Castle), interactive exhibits related to the creation and operation of the railway, a station platform featuring GWR and Western Region locomotives, scale models, archive films and oral testimonies from former GWR workers.

Discussing the STEAM's content, T. Bryan states:

"The museum is also presenting the social history of the place. It is about the people who worked in the factory rather than simply a railway museum. The workers who are now visiting the museum recognise something of themselves in it. The visitors love it." (Resp. no 73, interview, 27/7/2015).

2.1.5 Shifts

For a period of five years no further large scale developments were realised on site. In 2005 though, two important shifts took place bringing once more the project to the forefront. The first one was the construction of a new building. The National Trust Headquarters, designed by Feilden Clegg Bradley Studios was constructed at the north of the Designer Outlet covering a massive area of 7.107 m² (FIG. 2.14). According to the architects, the newbuilt construction which was awarded with multiple sustainability prizes, attempted to form a dialogue with the historic buildings through its form and scale (Feilden Clegg Bradley Studios, n.d.).



FIG. 2.14 Aerial view of the National Trust Headquarters (Feilden Clegg Bradley Studios).



FIG. 2.15 The extension of the Designer Outlet to the foundry building, 2015.

The second shift regarded the ownership of the Outlet centre. In 2005 the centre was bought by a new group of investors who started planning its extension. However, the financial crisis of the late 2000s postponed those plans. According to L. Leighfield, Office Manager at McArthurGlen Group, during the recession the visitor numbers dropped (Resp. no 70, interview, 1/7/2015). The extension finally took place in the following decade.

The shopping centre extended southwards incorporating a former parking space and the historic foundry building, constructed between 1873 and 1921 (FIGS. 2.7, 2.15). The first space created a new inner courtyard, improving the route in the shopping centre. The second one was used for increasing the number of retail units. The second phase of transformation according to Laura Leighfield was aiming to enhance the customers' experience featuring more HORECA spaces and adjusting the complex to the shifting needs of the customers. The new section of McArthurGlen Designer Outlet Great Western opened its doors to the public in 2015.

In the opinion of K. Falconer:

"The 2015 re-fit looks more commercial. It has obscured some of the spatial arrangements of the historic buildings and features; though sight of a short section of the columns and roof structure of the Long Shop (foundry) has been preserved in the M&S unit." (Resp. no 1, interview, 30/6/2015).

2.2 Evaluation

2.2.1 Process

The Reuse process of the former GWRW is one of the strong Components of the case. Excluding the grandiose plans of the late 1980s which were finally abandoned and led to demolitions, the project was based on a progressive development and a good collaboration between its stakeholders.

It should be emphasized that the three main parties implicated in the project had a profoundly important and supplementary role. Firstly, the national heritage bodies (RCHME and English Heritage) secured the future of the site by recording and listing it while catalysing its redevelopment with the transformation of the General offices of the GWRW. At a later stage they also guided and monitored the transformation of the other listed buildings.

In the words of K. Falconer (2000, 23), “...the value of recording leading to informed assessment and management can seldom have been more effectively demonstrated.”

Secondly, the large investment of a private company combined with a rare sensitivity for Industrial Heritage allowed the revival of a vast part of the complex with minimum compromises. Lastly, the local authority not only facilitated the project providing planning permissions but also took a proactive approach adding to the reused site a much needed cultural and historic use.

A key characteristic of the process was its flexibility. Stressing its significance J. W. Kaempfer (1999, 16) states:

“Where you have sites -like this one- derelict, contaminated, abandoned and difficult to use, flexibility and creativity were essential -from us and from the governmental agencies and local groups [...] If we had not been prepared to adapt and adjust at every level none of what you see here could have been achieved.”

2.2.2 Programme

The new programme housed in the former GWRW is also among the strengths of the case. Its mixed use character, combining administration, a museum, a large shopping centre with HORECA facilities and offices, attracts a wide range of people not only from Swindon but from the whole country, too.⁹ The new uses strengthen each other, offering multiple alternatives to the visitors.

In the author's opinion the new programme was compatible with the architectural characteristics of the historic buildings. With only a few exceptions, which include parts of the shopping centre and the context of the buildings, the programme did not require drastic interventions which would compromise the character of the site.

⁹ An online research in Autumn 2018 showed that between 2015 and 2018 there were new developments on site. Those included mainly newbuilt residential units between the STEAM Museum and the NMRC and on the east of the National Trust Headquarters (FIG. 2.7).

Moreover, an important feature of the programme is the balance achieved between commercial and cultural functions. That secures the financial viability of the project while encouraging its openness, establishing a link with the local community and ensuring its historic continuity.

2.2.3 Architecture



FIG. 2.16 The traversing table is one of the very few elements in the context of the former GWRW reminding its former function, 2015.



FIG. 2.17 The transformed context of the former GWRW, 2015.

As analysed above, the statutory protection of the buildings, the active involvement of the national heritage bodies and the respectful approach of the involved investors and architects contributed to a sympathetic reuse retaining to a large extent the architectural characteristics of the historic complex. In general, the exterior of the preserved buildings was carefully restored while new additions were harmoniously incorporated to the complex, adopting the form and the size of the existing structures. At the same time, the aforementioned additions were made distinguishable from the historic buildings through their architectural language and materialisation.

In the interior of the buildings an effort was made to preserve as much of the original fabric and detailing as possible. The field research shows that this was achieved to a large extent. Exceptions to that rule, as discussed in the analysis, include parts of the NMRC and the Outlet Centre. Despite the compromises made for the extension of the Outlet Centre, at the time of the field research (2015) it had a fresh look, combining the rough industrial spaces with architectural features of the late 20th and 21st century. In contrast, in the author's opinion, parts of the STEAM museum, which was in continuous operation for fifteen years without any renovations, presented an outdated look.

A downside of the reuse was the redesign of the outdoor spaces of the complex. Apart from the traversing table preserved east of the former manager's office (FIG. 2.16), all the elements testifying for the historic use of the site were eliminated for facilitating the new functions. The large majority of the railway tracks that were once corrugating the site were replaced by streets for the pedestrian and car circulation. This has not only altered the aesthetics of the site, but it has also a profound impact to the operation of the STEAM museum.

2.2.4 Cultural significance

The reuse of the GWR's Works respected to a large extent the cultural significance of the historic site. Key aspects for that outcome were the availability of an analytic documentation by the RCHME guiding the transformation; the restrictions imposed by the site's protected status; the respectful approach of the involved Actors and the creation of an industrial museum related to the former use of the complex. As presented in the analysis, apart from the immovable heritage aspects, many parts of mechanical equipment as well as movable heritage elements were preserved in all the converted parts of the complex. Furthermore, a noteworthy effort was made to project the history of the GWRW, through interpretation texts and historic pictures in the renewed spaces. Lastly, the creation of the STEAM museum played a key role in the preservation of the GWRW cultural significance, serving as a source of awareness while propagating its historic, technological and sociocultural value.

2.2.5 Finance

The financial aspects of the case are also among its strengths. The redevelopment was financed by a mix of private and public funds. The new programme, attracting c. 5 million people annually, contributed to the creation of new jobs and to the regeneration of the local economy. Counting almost two decades of operation, the project has withstood the test of time, proving economically viable. As expected though, only the outlet centre is profitable. The NMRC and the STEAM museum are funded by National and Municipal funds respectively. As a result, they have been subjected to the repercussions of the Public Sector's shrinking budget. Attempting to increase its revenue, the STEAM museum offers for hire multiple spaces for private and corporate events.

2.2.6 Social component

The transformation of the historic complex offered significant social added value. The site became accessible to the public providing a wide range of cultural, educational and leisure facilities. Besides the financial parameters discussed in the previous paragraph, the local community has been greatly benefited from the project. T. Bryan, elaborating on that issue, states:

"The museum provided a worthwhile commemoration of the factory. The project had an influence on the city, bringing pride and a sense of place. The memory of the former character of the site was safeguarded, something that was really important for a community the large majority of which was depended on the factory." (Resp. no 73, interview, 27/7/2015).

2.2.7 Functionality

The weakest aspect of the case according to the qualitative research of this study is the functionality of the reused spaces (FIGS. 2.1, 2.18). The issues reported differ for each part of the complex. According to L. Leighfield (Resp. no 70, interview, 1/7/2015), the restrictions imposed by the historic fabric and its protected status as well as its maintenance presents a challenge for the Designer Outlet. Regarding the building of the Historic England Office and Archive, the problems reported include the internal climate and the accessibility of the disabled people. Lastly, the most significant issues expressed in relation to the functionality of the STEAM Museum were the difficulty to transfer locomotives in and out of the building, due to its isolation from the railway network and the lack of room for expansion.

2.2.8 Stakeholders' evaluation

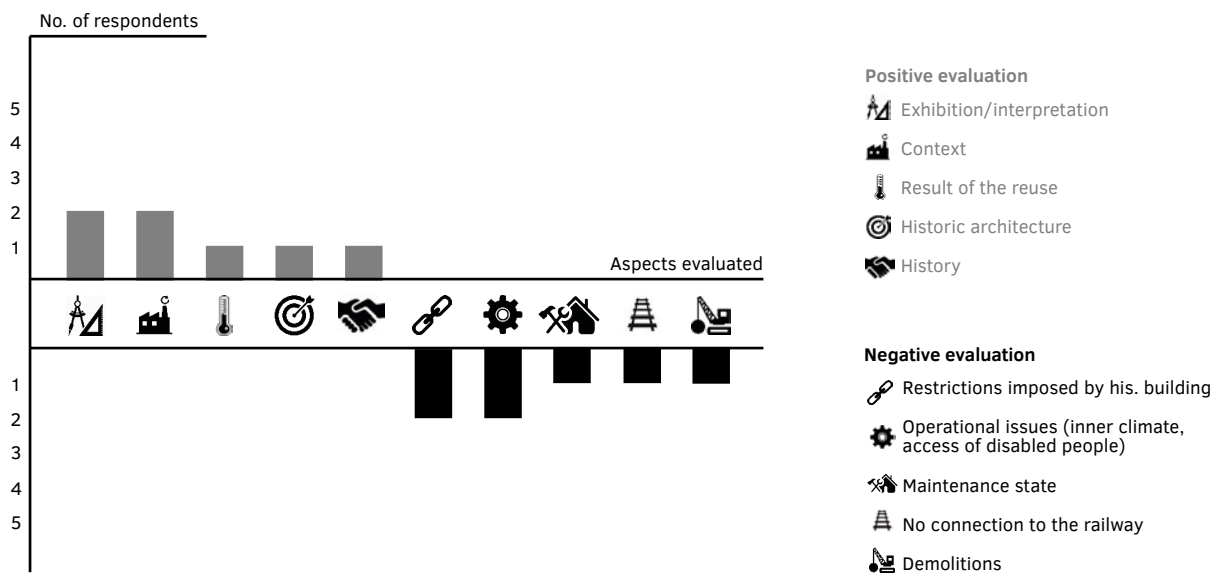


FIG. 2.18 Respondents' evaluation of the strong and weak Aspects of the case of GWRW (Number of respondents: 5).

3. Stanley Mills

Location: Perthshire, Scotland, UK

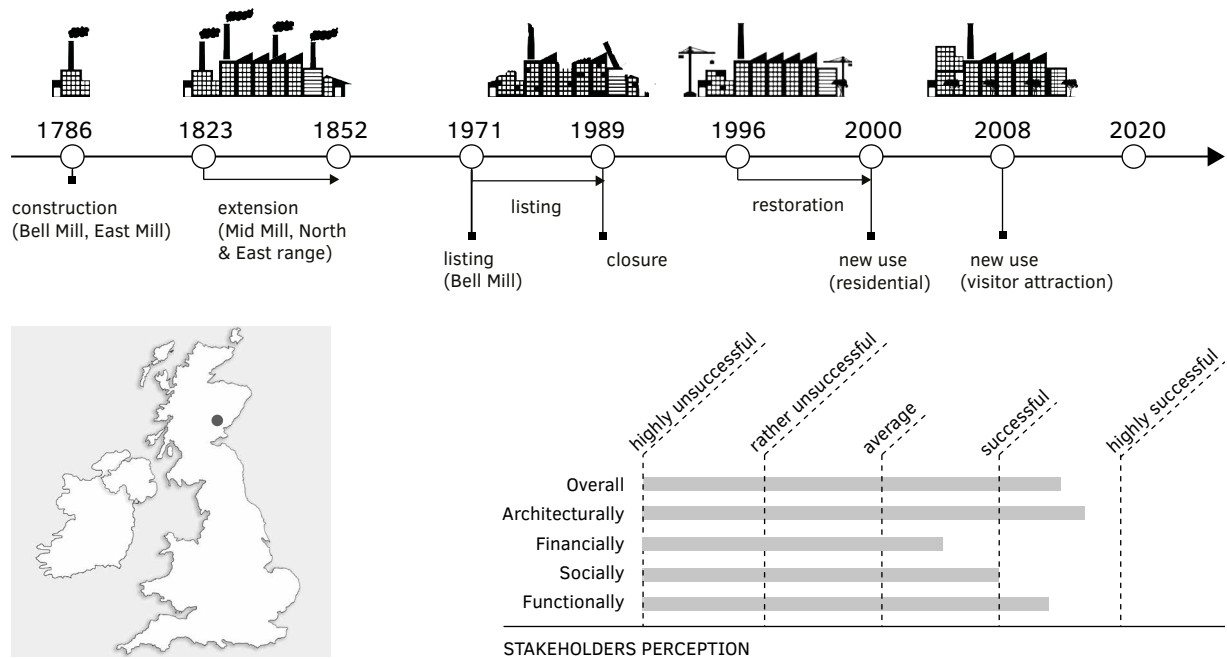
Historic use: Textile Mill

Architect: Richard Arkwright

New Function: Visitor attraction, residential, office

Reuse architects: LDN architects

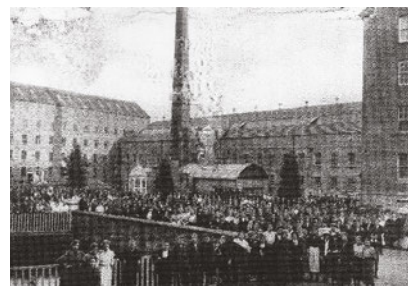
Status: National Monuments (Category A and Category B)



[A]



[B.1]



[B.2]



[B.3]



FIG. 3.1 Stanley Mills Fact Sheet

3 Stanley Mills

SUMMARY

Stanley Mills is a complex of exceptional historic value, being “*one of the most complete surviving early cotton mill complexes in the UK.*” (Stratton, 2000, 218). After 200 years of textile manufacturing and a short period of obsolescence, the complex was reborn housing a mixed use programme including a residential and a visitor attraction part. The project showcases the catalytic impact of the formation of bodies such as the HLF and the Phoenix Trust in the UK of the 1990s and the merits of the national heritage agency in the role of developing partner. It also highlights the challenges of Industrial Heritage Reuse in a remote location. The strengths of the Stanley Mills’ transformation include its process, programme, architectural outcome and cultural significance preservation while its weaknesses involve its social outcome and the financial viability of the visitor attraction.

3.1 Analysis

3.1.1 Historic use

Stanley mills is located at a remote peninsula on the banks of the river Tay, surrounded by woodland. It is positioned close to the Stanley Village in Perth, Scotland. The first building of the mill complex dates back to 1786. It was erected next to the remnants of a corn mill, built c. half a century earlier, taking advantage the tremendous water power of the river. The establishment of the mill was initiated by a company of seven partners including Richard Arkwright, the so-called “father of the English Cotton Industry” (Historic Scotland, 2008, 1).

Stanley Mills complex is formed by five parts, arranged around an irregular courtyard, which were built and extended in different eras. The oldest one, -the Bell Mill- was a water powered textile mill. The five storey building is “*one of the best preserved 18th century workspaces anywhere in the world*” (Historic Scotland, 2008, 14). Its first two floors were used for cotton spinning, the third and fourth for the preparation of the spinning process (carding, drawing and roving) while the top floor was used for operations carried out on the finished product (Cressey and Fitzgerald, 2011, 24).

LEGEND FIG. 3.1 Stanley Mills

- A Perspective view of Stanley Mills (on site interpretation)
- B.1 Workforce outside Stanley Mills, 1916 (Perth Museum & Art Gallery).
- B.2 Staff involved in the conservation and interpretation of Stanley Mills, with their families outside the complex, 2008 (Cressey and Fitzgerald, 2011, 20).
- B.3 The Bell Mill reflected in the lade, 2008 (Historic Scotland).

In 1790 the six-storey East Mill was erected, for processing flax to make linen yarn. The mill was burned down nine years later, yet it was repaired and reopened by 1802. After a turbulent period, resulting in a temporary cease of operations, a change of ownership brought a prosperous era in the mill's operation. From 1823 to 1852 the new owners carried out an ambitious extension plan. This included the extension of the East Mill and the erection of the four-storey Mid mill (1823-5) used for cotton carding, spinning and weaving; the extension of the latter fifteen years later; the construction of gasworks (c. 1825) at the mills' square; the addition of the North range (1823-52) which was originally housing the company offices and other departments; and the erection of the East range (1823-1840) used as a warehouse and weaving and bleaching department.

In 1852 the complex changed hands once more. The following two decades were a period of decline for Stanley Mills. The unscrupulous attitude of the new proprietor S. Howard and the repercussions of the American Civil War resulted in the temporary closure of the complex. Its reopening is owed to F. S. Sandeman, who proceeded in the modernisation of the mills and the introduction of new products manufacturing. The most important developments taking place in the turn of the 20th century included the shift to the electric power, the introduction of cotton-belted as a staple of production and later the introduction of cigarette tape as another new product of the mills.

The Stanley complex survived both World Wars, yet it succumbed to the European textile sector crisis of the second half of the 20th century. After a short period of experimentation with new products manufacturing, the complex closed its doors in 1989, falling into a state of dereliction (Historic Scotland, 2008, 26-31).

3.1.2 Reuse preparation

The exceptional value of the historic industry in question had been recognised before its closure. The Bell Mill and the gatehouse lodge had been listed as Category A as early as 1971 while a decade later, the Mid Mill was listed, too (Historic Environment Scotland, n.d.). Nevertheless, a great part of the complex had been left without statutory protection, leaving the possibility of its demolition open. Upon the mill's cease of operations in 1989, that possibility became an actual threat. The proactive action of Historic Scotland's ¹⁰ clerks however, who upgraded the Mid mill's status and listed the rest of the buildings, finally prevented their loss (M. Watson, Resp. no 2, interview 11/6/2015).

From 1989 to 1994, Colin Dracup, the last owner of Stanley Mills, tried to interest developers in redeveloping the site. According to M. Watson, Historic Scotland's clerk at the time (Resp. no 2, interview, 11/6/2015), the attempts of Dracup were met with negativism both from the private and the public sector, due to the remote location of the complex and the perception that there would be no market for a prospective new use. During that period the mills were squatted and vandalised, dilapidating at a fast pace (Historic Environment Scotland, 2017). The state of decay was aggravated in 1995, when a fire gutted the North range.

¹⁰ Now named Historic Environment Scotland (see Vol.1, § 6.2.1.1).

This declining course was reversed later that same year. The establishment of the Heritage Lottery Fund (see Vol.1, § 6.2.9), that was able to provide the needed capital for such a large-scale project, served as a catalyst for the reuse of Stanley Mills. Equally important was the determination of Historic Scotland and the newly established Phoenix Trust (see Vol.1, § 6.2.4), to undertake the redevelopment of the site.

Historic Scotland channelled its interest in the elements of greatest cultural significance that included the Bell Mill, the lades and the associated waterwheel pits. It bought the building with a Fund from the HLF, in order to investigate, conserve and convert it into a visitor attraction. As for the involvement of the Phoenix Trust in the project and the selection of the new use, D. MacLehose, Former Deputy director of Phoenix Trust, explains:

“It was the first project undertaken by the Trust. It fitted the Trust’s purpose, which was to reuse old large-scale industrial buildings. Historic Scotland was a willing partner because it considered the project important. Also, the HLF was willing to help and was looking to support projects particularly in Scotland at that time. [...] The Director of the Trust had long experience in finding new uses for old large buildings. [...] The location was ideal for residential purposes: the buildings were beside the river Tay in a rural spot, in the outskirts of a village, so the essentials were available for the potential new residents.” (Resp. no 56, interview, 10/6/2015).

3.1.3 Reuse process

The first stage of the complex’s transformation started in 1996. It involved the recording, historical investigation and external conservation of the Bell Mill, the North Range and the East Range. Prior to those works, a number of secondary structures which had been considered unsafe or unsuitable for reuse, had been demolished. The posed structures built mainly in the 20th century, had been surveyed before their demolition (Cressey and Fitzgerald, 2011, 15) (FIG. 3.2). Two years after the start of the works, the HLF offered Historic Scotland and the Phoenix Trust further funds for conservation work on site.

During construction, Historic Scotland organised open days for the public. By means of temporary interpretation panels, the historic function of the complex was explained to the visitors. Those events proved to be particularly important as they engaged the public, they provided information for the use of the mills’ machinery and they helped in the accumulation of material and donations for the upcoming museum. Elaborating on the developments of that period, M. Watson, states:

“We also had open days when people who used to work in the Mill would come in, explaining what different machines were for, because we had got all the machines as well as the buildings when we acquired the site. We did scrap a lot of the machines because we could not lose all of the space they were taking up but we also kept some carding machines and a tar proofing device in situ.” (Resp. no 2, interview 11/6/2015).

The second stage of the redevelopment involved the conversion of the East Mill to thirty apartments and part of the Mid Mill into five four-storey houses and four maisonettes by the Phoenix Trust. Furthermore, part of the North Range was converted into office space. According to LDN architects, responsible for the restoration and the conversion of the Mills:

“The new flat plans were designed around services cores in bathrooms and kitchens that allow maximum flexibility in the planning of other spaces. A lightweight construction approach was used to minimise damage to the existing fabric whilst meeting current building standards regulations. Existing historic features were retained throughout and added to the character of the development that won the Scottish Property Awards Residential Property Award on completion.” (LDN Architects, n.d.).



FIG. 3.2 Aerial photograph of Stanley Mills before demolitions. The building and features highlighted with yellow have been demolished (Cressey and Fitzgerald, 2011, 17).



FIG. 3.3 The excavated waterwheel pits (Historic Environment Scotland).



FIG. 3.4 The restored Bell mill and the excavated waterwheel pits in 2015.

Besides those works the lade system and waterwheel pits of the complex was repaired and consolidated. The final stage involved the conversion of the Bell Mill into a visitor attraction (Cressey and Fitzgerald, 2011, 15, 29).

According to the involved stakeholders (LDN Architects, n.d., M. Watson, D. MacLehose, interviews, summer 2015), interdisciplinarity and the eventual establishment of a good cooperation between Historic Scotland and the Phoenix Trust, played an instrumental role in the redevelopment of the complex. The heritage agency oversaw the full course of the transformation, prioritising the preservation of the complex’s cultural significance. M. Watson, commending of the reuse process, states:

“Regular meetings were taking place during the works. Things were being discovered and we were learning from the site. We had the flexibility to make adjustment as things were found but that was complicating the financial situation. We bore the costs and the HLF financed it but we saved on other things. HLF was a sympathetic and flexible monitor.” (Resp. no 2, interview 11/6/2015).

Prior and during the works, careful research, survey and archaeological work took place while a wide range of specialists including industrial archaeologists, rot and infestation experts, exhibition designers, education experts, hydrological experts and de-contamination consultants, were involved, contributing their expertise to the project (LDN Architects, n.d.).

Despite the complexity of the case and the involvement of numerous Actors, the problems during the reuse process reported were limited. They mainly involved some financial parameters as well as minor construction issues. In detail, the expenses of the archaeological work caused a clash between the two developing partners which was nevertheless resolved (M. Watson, Resp. no 2, interview 11/6/2015). The construction issues concerned the poor condition of a big number of windows and the decay of certain wooden parts affected by dry rot. Lastly, during the works, scepticism was expressed by various individuals from the local authority, Historic Scotland and the land property industry for the successful operation of the project (D. MacLehose, resp. no 56, interview, 10/6/2015).

3.1.4 Occupation and management

The inauguration of the converted complex took place in the first decade of the 21st Cent., belying the fears for the fate of the project. The first transformed part of Stanley Mills was the residential one (FIGS. 3.5, 3.6). It was inaugurated in 2000, and despite its units' high price, it scored high occupancy rates as soon as it became available on the market (Mackay, 2008).

The residential units were rented or sold mainly to middle-class new-comers. The locals were unable to join the new group of residents of the complex due to the price of the units and the absence of provisions for social housing. The latter was due to the large availability of Housing Association properties in what used to be houses provided by the company (M. Watson, D. MacLehose, Resp. no 2, no 56, interviews Summer 2015).



FIG. 3.5 The complex after its restoration from the opposite bank of Tay (visitscotland.com).



FIG. 3.6 The restored East Mill in 2015.

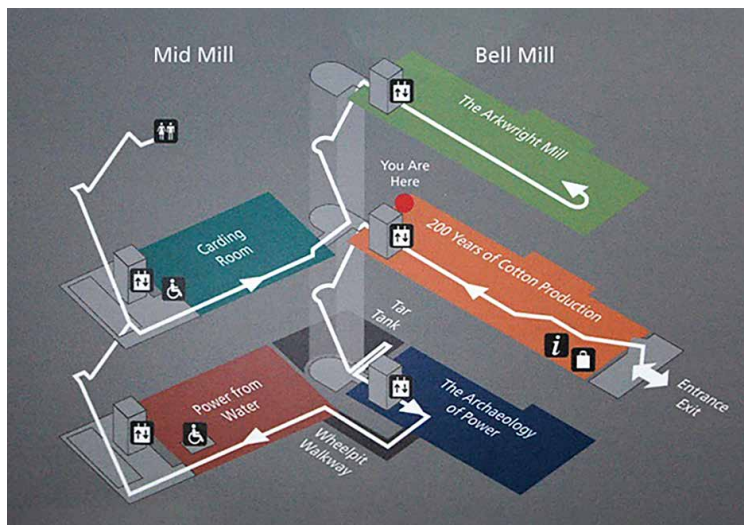


FIG. 3.7 Diagram of the Stanley Mills' exhibition (HES).



FIG. 3.8 Scale model explaining the operation of a typical Arkwright Mill, 2015.



FIG. 3.9 Machinery forming part of the Stanley Mills' exhibition, 2015.



FIG. 3.10 Projection showing the operation of the lost waterwheels at their original position, 2015.

Eight years after the inauguration of the residential part, the visitor attraction part of Stanley Mills was opened to the public. The visitor attraction was met with enthusiasm by the national and international heritage experts, winning a Europa Nostra prize in 2009. With its rich collection, exceptional interpretation as well as its interactive character, Stanley Mills attracts a wide range of groups and individuals of various ages (FIGS. 3.8, 3.9, 3.10).

The visitor attraction extends both to the basement and first two floors of the Bell Mill as in a part of Mid Mill (FIG. 3.7). Through its collection visitors can explore the following themes:

- The archaeology of power
- 200 years of cotton production
- The Arkwright mill
- The power from water
- The carding room

It is worth highlighting that the visitor attraction offers a holistic view of the historic function of the mill presenting and interpreting the carefully restored Category A buildings; the excavated waterwheel pits, historic and modern textile and hoisting machinery and the story of 200 years of

cotton production at Stanley Mills with references in the people, the products as well as the social and economic parameters of the industry in question (Undiscovered Scotland, n.d.).

The architectural outcome of the reuse was greatly benefited from the interdisciplinary approach of the reuse process, resulting in a respectful intervention to the mills. In detail, the exterior of the buildings was carefully restored. All the windows that were not in a poor condition were repaired while the rest were replaced. In the interior, there was a conscious effort to preserve as much as possible from the original fabric and detailing. Nevertheless, a clear difference of approach between the residential and museum part and varying levels of attention to the preservation of the industrial character of the complex were observed. Lastly, it is worth stressing out that all required changes in both parts were made identifiable in order to avoid authenticity falsification.

3.1.5 Shifts

With the opening of the visitor attraction (2008), Stanley Mills maintained their momentum. This resulted in the conversion of the North Range into more flats by a private developer. The remote location of the complex though in the years that followed, kept casting its shadow to further redevelopment opportunities for the remaining part of the Mills, complicating at the same time the operation of the reused parts. The economic recession at the end of the first decade of the 21st century aggravated the situation. As a result, today almost two decades after the inauguration of the Mid and East Mills, the East Range (or Back Shop), the bleach works and the bleach field remain abandoned, despite the various proposals for their conversion (BRICK Work, n.d., M. Watson, resp. no 2, interview 11/6/2015).

In regard to the operational issues in the reused parts, the visitor attraction seems to struggle. Commenting on the subject, L. Elliot, Visitor Services manager of Stanley Mills' visitor attraction, states:

"We are rather unsuccessful in meeting commercial targets. We do not have a lot of visitors nor a lot of money. When we first open in 2008 we had 20.000 visitors, a number that dropped to 7.500 in 2014. The amount of money invested in the project was phenomenal but we need continuous investment to attract visitors. [...] We can become more successful with the right strategy. We try to make it more appealing using social media and posters (on the local area). We hosted an exhibition of the Edinburgh college of art that helped publicise the site. We have also formed relationships with other industrial sites..." (Resp. no 58, interview, 12/6/2015).

In a quest to overcome those issues and gain publicity Stanley Mills visitor attraction became an anchor point of the European Route of Industrial Heritage (ERIH) in 2017 (European Route of Industrial Heritage, n.d.).

As for the occupancy and the current condition of the residential part, P. Sanderson, Factor of East and Mid Mills' households, explains:

"There are 3 types of residents: Less than 50% are owners who live there full time, there is a percentage of people who own their apartment but use it only as a holiday house and there are also people who rent their apartment. It is quite expensive to live there at the moment. Their maintenance cost is now £100 per month for the flats and £120 per month for the houses. [...] People seem happy to be part of the complex." (Resp. no 59, interview 23/6/2015).

3.2 Evaluation

3.2.1 Process

The reuse process of Stanley Mills was top down and linear yet it allowed for flexibility when required. The project showcases the catalytic impact of the formation of bodies such as the HLF and the Phoenix Trust in the UK of the 1990s. It also provides evidence to the great merits of a national heritage agency's action, not only as a monitoring institution but also as a developing partner. The cornerstones of the process, which is one of the strong features of the case, are the close cooperation of the Actors and the interdisciplinary approach followed.

D. MacLehose argues:

"We had the right team of consultants, we worked as a team and we were determined to make it work." (Resp. no 56, interview, 10/6/2015).

3.2.2 Programme

The combination of the complex's considerable size, elevated cultural significance and remoteness were Attributes that complicated its conversion. The mixed use programme that was finally selected though, addressed those complexities effectively.

On the one hand, with the conversion of the Bell Mill and part of the Mid Mill to a visitor attraction, the totality of tangible and intangible heritage values of the complex's oldest parts were preserved. The former industrial relic was reborn and it was opened to the public. It should be highlighted, that the use in question allowed the retention and interpretation of challenging features and details that would have otherwise been lost. A small drawback of the visitor attraction is the lack of a recreation space, such as a café, that would aid in increasing visitor numbers in such a remote place.

On the other hand, the conversion of the Mid and East Mills to residential units, despite the considerable interventions it involved, provided a good solution for compensating the elevated conservation costs. The said use also reinforced the durability of Stanley Mills, as ownership was split into a number of accounts, making users more prone to stay in the complex and support its maintenance.

The mixed use programme, attracting a number of permanent residents as well as visitor groups, aspired to keep the complex alive on a permanent basis, around the clock. Regrettably, that was only partially achieved. This is due to the seasonal opening of the museum (from April to October only) and the seasonal use of a great deal of residential units.



FIG. 3.11 Views from the interior of an apartment in the East Mill. The used materialisation and atmosphere hardly draw any inspiration from the industrial character of the complex, 2015.



FIG. 3.12 The form and materialisation of the new balconies of the Mid Mill hardly establish any relation with the existing historic fabric, 2015.



FIG. 3.13 Detail of the floor of the Bell Mill. The original wooden floor boards have been retained where possible, 2015.



FIG. 3.14 The transparent interpretation panels allow the visibility of the full size of the space, which is one of its main qualities, 2015.

The architectural outcome of the reuse is one of the strengths of the case. The results of the qualitative research of this study reveal high levels of appreciation for the architectural approach towards the monumental complex (FIGS. 3.1, 3.15). As presented in the analysis, the conversion was in general respectful, preserving the volumes, outer envelope, structure, detailing and materialisation of a big part of the complex.

Nevertheless, close observations during the field research revealed a clear distinction of approach between the interventions in the interior of the residential and the visitor attraction part. In the former one, some extended interventions were performed for the needs of the residential use, with compartmentalisation of the mills' halls being the most prominent one. Apart from that, the selected materialisation of the residential units appeared to have hardly any reference to the industrial atmosphere of the complex (FIGS. 3.11). This contradiction became also apparent, yet with far less intensity, in the exterior of the Mid Mill and in specific in the formation of the new balconies (FIG. 3.12).

In contrast, in the interior of the visitor attraction the sum of the subtle details were preserved. An insightful museographical design left the grandiose halls untouched (FIG. 3.14). Furthermore, the patina of time, as well as the evidence of industrial use on the floor and walls of the mill were retained (FIG. 3.13).

3.2.4 Cultural significance

The preservation of the complex's cultural significance is one of the assets of the project. In spite of being reused before the issue of the relevant international conservation principles, the complex complies to the greatest extent with them. In detail, the outcome of the reuse was greatly benefited from the research, survey and archaeological work that preceded the reuse. Those allowed an informed value assessment and in turn the retention of the most significant values of the complex as well as proper use of its spaces. This view is also verified by the Statement of Significance of Stanley Mills (Historic Environment Scotland, 2017). According to that:

"The Bell Mill is perhaps the best preserved example of the earliest type of cotton mill, and one with which the inventor was directly involved."

Furthermore, immovable and movable tangible elements as well as intangible heritage aspects were preserved, interpreted and disseminated through the retention of the majority of buildings and installations and the creation of a visitor attraction in the premises. As mentioned in the analysis, the new elements added are identifiable. M. Watson, commenting on the subject, states:

"It is a palimpsest of different periods that are evident in that building (the Bell Mill) which is not all restored back to one single gear" (Resp. no 2, interview, 11/6/2015).

Compromises include the partial loss of the mechanical equipment for maximising the usable space and the blurring of the industrial atmosphere of the buildings in the interior of the residential units.

3.2.5 Finance

The transformation of the Stanley Mills was realised with the support of the HLF, the Phoenix Trust, the Historic Scotland, the National Heritage Memorial Fund and a loan from the Architectural Heritage Fund (Stratton, 2000, 218). Those parties made possible the realisation of a project *"which would have never been achieved without grants."* (D. MacLehose, resp. no 56, interview, 10/6/2015).

The outcome of the reuse in respect to its financial durability should be examined separately for the residential and the visitor attraction part of the complex. The former one appears to be financially viable as the occupancy of the units remains in high levels. In contrast, the latter part faces problems in financing its operation. As a result, the visitor attraction is steadily dependent on subsidies. This issue is common for the majority of such sites in Europe yet the financial situation of the visitor attraction in question is aggravated by a number of other Aspects. Those include its remote location, which complicates the accessibility of visitors, and its competition with other industrial heritage attractions nearby, such as the New Lanark World Heritage Site.

The incorporation of the site to the ERIH network opens new possibilities for Stanley Mills. The challenge is to take advantage of the current momentum created for taking further steps and at the same time for alleviating existing operational problems. The redevelopment of the underused parts of the complex and the introduction of a function, which would channel part of its profits to the visitor attraction, could be one of those steps.

3.2.6 Social component

The social outcome of the case is one of the weaker Components of Stanley Mills. As revealed in the qualitative research of this study, it has not engaged enough the locals, after its conversion. In the words of L. Elliot:

“The local community has not been able to engage. The residents of the complex have little interest in the museum, only a few bring people over occasionally. Historic Scotland ‘s offices in Sterling tries to engage the community but so far they have not been very successful. The local school comes down often.” (Resp. no 58, interview, 12/6/2015).

In addition to that, the price of the residential units, both upon their delivery and currently, contributes to the exclusion of local prospective residents, who belong predominately to the working class and are thus unable to afford them.

Lastly, issues were detected in the relationship between the users of the complex. The majority of respondents confirm the generation of community spirit between the residents of the East and Mid Mills. However, problems are reported between them and the residents of the North Range. P. Sanderson, explains:

“The North range is a bit detached from the rest of the complex. In my view it was Historic Scotland’s fault that sold it off to a developer. We do not know anything about the people living in the North range. They have no factor as they have hardly any communal space. I think this issue has to do mainly with lack of communication.” (Resp. no 59, interview 23/6/2015).

Despite the aforementioned problems, the elevated educational and cultural returns of the project that have created social added value should not be overlooked.

3.2.7 Functionality

In contrast with the majority of cases examined, Stanley Mills do not face significant functionality issues. Field research confirms that the complex is at a good state of maintenance. Minor problems reported in the qualitative research are the energy efficiency of the single glazed windows, parking, recycling and some restrictions imposed by the status of the complex. A resident of the complex reflecting on the functionality of the residential part, argues:

“People seem to enjoy living here, there are no major issues apart from the parking and the recycling...The sound insulation is not perfect, but that is the case everywhere and you get to accept it when you live in an apartment block.” (Resp. no 57, interview, 12/6/2015).

3.2.8 Stakeholders' evaluation

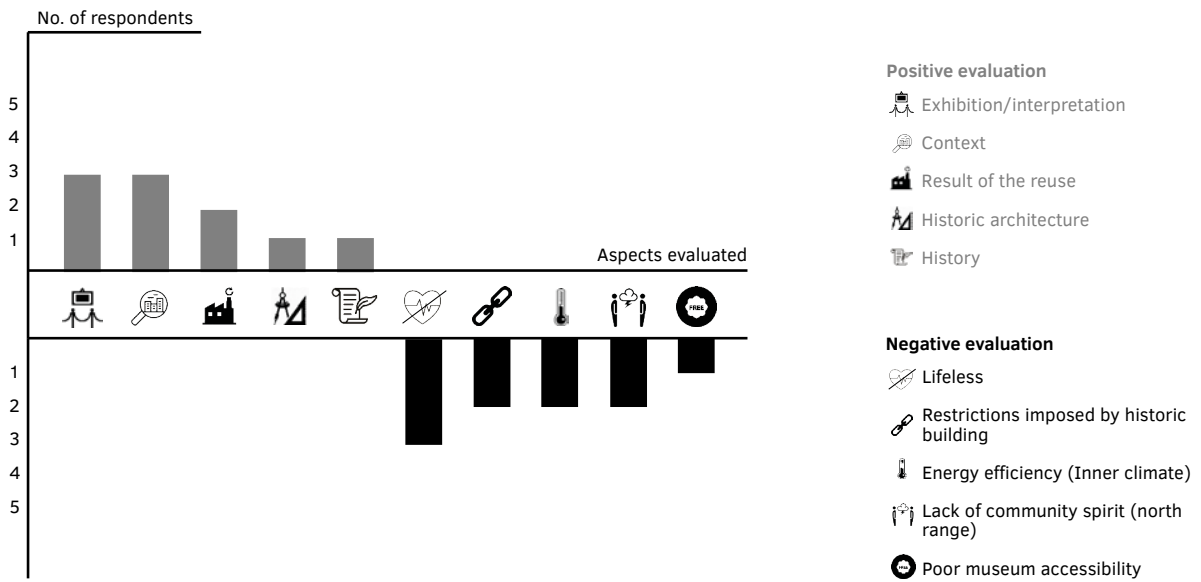


FIG. 3.15 Respondents' evaluation of the strong and weak Aspects of the case of Stanley Mills (Number of respondents: 10).

4. Ancoats District

Location: Manchester, England, UK

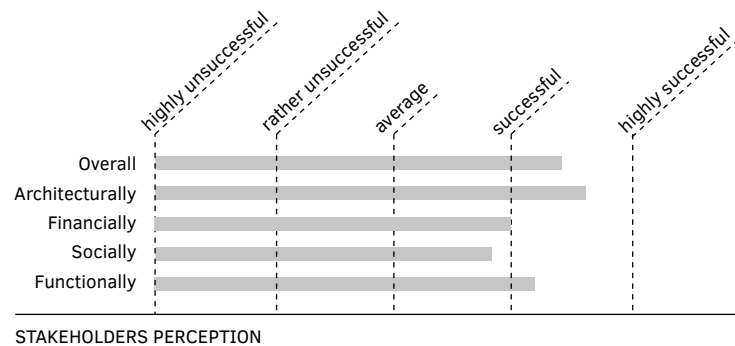
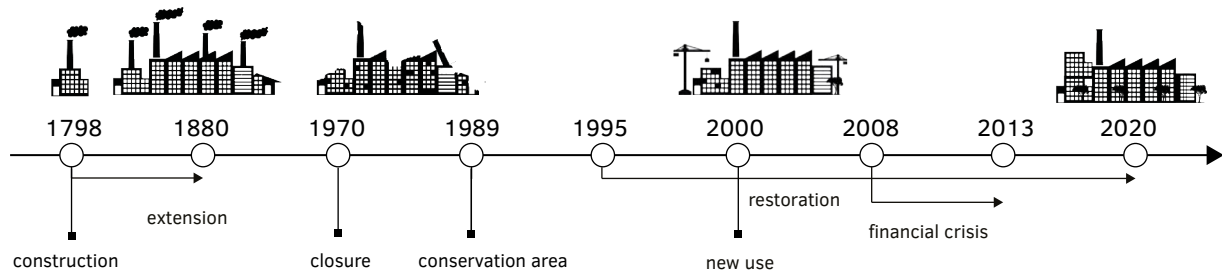
Historic use: Industrial district (textiles production)

Architect: -

New Function: Residential

Reuse architects: Various

Status: Conservation Area



[A]



KEY

- 1. Rochdale Canal
- 2. Murray's Mills
- 3. Royal Mills
- 4. MMII
- 5. Cutting Room Square
- 6. 41 Bengal Street
- 7. Ice Plant
- 8. Victoria Square
- 9. Worker's cottages
- 10. Daily Express site
- Ancoats Conservation area
- New Built
- 1996-2000 redevelopment
- 2000-2004 redevelopment
- 2004-2008 redevelopment
- 2008-2012 redevelopment
- 2012-2016 redevelopment
- Other buildings

[B.1]



[B.2]



[B.3]



FIG. 4.1 Ancoats district Fact Sheet

4 Ancoats district

This text has been largely based on the article: Chatzi Rodopoulou T. & Hunt J. 2017. Urban regeneration of former industrial cities. A cure or a curse? The case of Ancoats Conservation Area in Manchester, England. In: COUCEIRO DA COSTA ET AL. (ed.) Architectural research addressing societal challenges. Taylor & Francis Group.

SUMMARY

The case of the Ancoats district is of particular importance due to its elevated cultural significance. Ancoats -the world's first industrial suburb- has been in a process of regeneration since the late 1990s. The large majority of the legendary textile mills in the area have been converted into residential units. The case highlights the positive and negative implications of an urban regeneration process with a duration of three decades, characterised by shifts in the power balance of the involved stakeholders. The positive features of the regeneration include mainly the physical enhancement and the preservation of tangible inherited assets of the district whereas the negative concern the issue of gentrification and the loss of intangible heritage values. The decisive factor that can influence the balance between the two appears to be the stance of Actors, such as the local authority and the local community.

4.1 Analysis

4.1.1 Historic use

Manchester's development

Established in the late 15th century, Manchester became the world's first industrial city, growing at an incredible rate throughout the 18th and 19th centuries. At that time it earned the nickname 'Cottonopolis', in acknowledgment of its role as the globe's preeminent producer of cotton. The impetus for this unprecedented growth was the development of a number of technological processes, most importantly the evolution of steam power applications in industry. Simultaneously, Britain's position as head of a global empire enabled it to source raw materials from around the world.

LEGEND FIG. 4.1 Ancoats district

- A Phases of redevelopment of the Ancoats district.
- B.1 Murray's Mills at their early peak, depicted in a print that has become a classic image of the Industrial Revolution (Austin and Gahey 1835. Manchester Archives and Local Studies m52534).
- B.2 Murray's Mills before their restoration, 1992 (Chris Allen).
- B.3 Murray's Mills after their restoration, 2015.

The resulting economic, technological and trade boom had a profound impact on Manchester's urban tissue. Large textile mills and warehouses were erected to enable production on an 'industrial scale' whilst the city's growing population, attracted by increased employment opportunities, generated the need for the creation of housing.

With industrial levels of production came industrial levels of grime and dirt and the city's influx of new workers experienced slum conditions in the hastily constructed residential dwellings. Ancoats, a district north of the city centre (FIG. 4.2), epitomised this phenomenon and was one of the areas visited by Frederick Engels during his research 'Conditions of the Working Class in England' in 1844. There he witnessed "*the defiance of cleanliness, ventilation and health*" which mill hands were subjected to both at work and home. Briefly, Ancoats was the heart of the "*world's most futuristic city*", its "*repetition, inhuman scale and industrial materials of its mills*" offering a "*prophecy of the architecture of the future*" (Hatherley, 2010, 115). Manchester gave birth to the industrial age and soon cities across the globe were replicating its growth in productivity, population and poverty.



FIG. 4.2 Ancoats location.

Ancoats' Rise and fall

As the world's first industrial suburb, Ancoats is a district of huge historic significance (Hartwell et al., 2005, 106). It evolved as a result of the necessity for new modern textile mills and the subsequent increased housing demand from the area's growing population (Ancoats Buildings Preservation Trust, 2004a). From its inception it was a mixed use district, with workers' housing extending on its north-west side and industrial sites covering its south side. Although the area's roots can be traced to the late 18th century (FIG. 4.3), its development gained real momentum in the 19th century (FIG. 4.4). Ancoats' proximity to the Rochdale Canal (FIG. 4.1: A, No:1), completed in 1804, combined with the development of land for the construction of new mills, saw the district cement its position at the heart of the industrial revolution. In the first three decades of the 19th century its population tripled, reaching more than 56,000 by 1861 (Rose et al., 2011, 33).

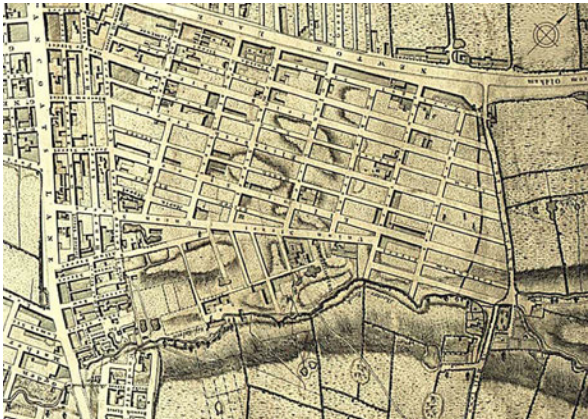


FIG. 4.3 The Ancoats district in 1793 before the creation of the Rochdale Canal. Detail from Laurent (Digital Archives Association).

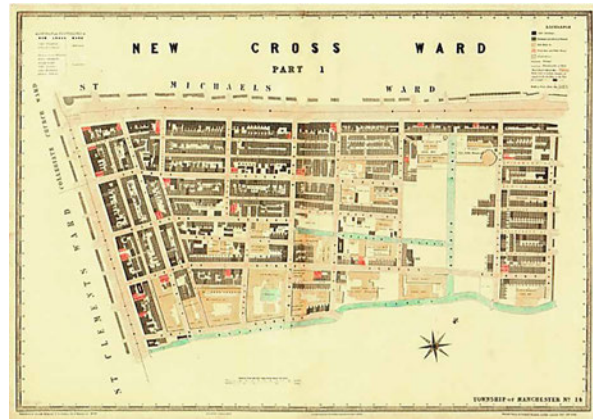


FIG. 4.4 The Ancoats district in 1851 after the installation of the legendary cotton mills by the Rochdale Canal (Digital Archives Association).

This 'golden era' of Ancoats is defined by two contrasting physiognomies. The first revolves around the district's industrial wonders. Ancoats was the site of the urban factory system's inception (Hartwell et al., 2005). From 1797 until the mid-19th century revolutionary steam powered cotton mills were erected in the area including Murrays Mills (FIG. 4.1: A, No:2). In contrast, Ancoats' alternative physiognomy was defined by poverty, overcrowding and slum-living (Nevell, 2014).

In the second part of the 19th century, Ancoats was subjected to a prolonged process of housing renewal. The local authority, in response to the notorious social profile of the district, established a set of new by-laws to address the problem. As described by Nevell (2014), a series of 'unhealthy' housing rehabilitation and demolitions took place, intended to improve the sanitation level of the district. In 1897 slum demolition enabled the construction of Manchester's first model tenement block in Victoria Square (FIG. 4.1: A, No:8), as well as the adjacent worker's cottages (FIG. 4.1: A, No:9). The new accommodation was of much higher quality but came with a significantly higher rental value, making it inaccessible to the district's poorest residents. This first wave of demolition and renewal by Manchester City Council (MCC) set a precedent that was to be repeated in cities all over Britain.

Towards the end of the 19th century Ancoats' industries began a slow process of degeneration as a result of increasing competition from cheaper international manufacturers, which simultaneously caused a reduction in population. With the exception of the interwar period, the 20th century saw Ancoats falling into terminal decline. During the 1930s the district was subjected to expansive demolition schemes; communities were broken and removed; factories razed to the ground, schools

and churches closed and the mills -formerly symbols of prosperity- were left vacant, neglected and forgotten. By the early 1960s, a time when the cotton spinning era came to an end, Ancoats ceased to be a residential area.

In the late 20th century Manchester acquired the epithets Madchester and briefly Gunchester, both of which were at least partly connected to the deindustrialisation that began during the post war years. Manchester's mills and warehouses represented outmoded structures that emerging technologies and cheaper labour in developing countries quickly replaced. As a result, Cottonopolis became a hollowed out city. By the 1970s, the city centre was home to fewer than 400 residents (Hatherley, 2010, 116) yet its industrial origins cast a long shadow over its contemporary deindustrialised simulacrum:

"The final disfigured, sighing remnants of the mighty industrial past had yet to be completely demolished, the statuesque warehouses and factories that had survived yet to be postmodernised as part of a glossy revitalisation of Manchester's historical enterprise." (Morley, 2009, 9).

The coup de grâce for Ancoats was administered in 1987. The closure of the Daily Express site (FIG. 4.1: A, No:10) exacerbated the sense of abandonment in a city that was experiencing increased levels of crime and gang related violence, resulting in its Gunchester moniker. However, it simultaneously provided a wakeup call. The regeneration of Ancoats, which is still ongoing, has its roots in that moment.



FIG. 4.5 The Royal Mills in decay in 1970 (heritagephotoarchive.co.uk).



FIG. 4.6 Interior view of the Royal Mills in decay in 1980 (heritagephotoarchive.co.uk).

4.1.2 Reuse Preparation

The turning point for Ancoats came in 1989, when MCC designated it a Conservation Area, recognising for the first time its historic significance (Manchester City Council, 2016). In the following years the work of the MCC in collaboration with English Heritage (now Historic England) along with the action of the Ancoats Buildings Preservation Trust (ABPT) laid the groundwork for the district's rebirth.

The listing of historic buildings and the small scale interventions on the scarred urban environment, made possible by the Conservation Area Partnership Grant (CAP) from English Heritage, put an end to the district's decline. Arguably the greatest impact on Ancoats resulted from the work of the ABPT, established in 1995. The Trust in its early days helped MCC to acquire the CAP grant,

raised public awareness of Ancoats and argued for a proactive approach to the preservation and restoration of historic buildings (Ancoats Buildings Preservation Trust, 2004a).

A year later, the Ancoats Urban Village Company was created by MCC, named after its first vision for the revival of the district. The Urban Village concept was based on the idea of a mixed use area with a strong sense of community. The establishment of the company, that aimed to attract commercial development to Ancoats was a facet of MCC's readiness to support the private sector (Blakeley and Brendan, 2013).

A contrasting process that occurred alongside the increased acknowledgement of Ancoats' history was the struggle of MCC to redefine Manchester's global profile. As a result, MCC led the city's bids for the 1996 and 2000 Olympics, hoping the interest and finance generated by a global event would redress Manchester's image as a grim post-industrial city. These aspirations took a toll on Ancoats, prolonging its withering, as big parts of property, bought speculatively, were left abandoned after the announcement of the bids' failure.

4.1.3 Reuse process, occupation and management

The first period established the foundation as well as the limitations of Ancoats' regeneration. At the dawn of the century, new players such as the North-West Regional Development Agency (NRDA) appeared, as a result of State policies (Blakeley and Brendan, 2013, 24).

The decisive move of the NRDA to acquire large parts of Ancoats with Compulsory Purchase Orders paved the way for a frenetic period of redevelopment. As shown in Figure 4.1: A, between 2000 and 2007 a plethora of historic buildings' conversions and newbuilt projects was realised. Furthermore, a public realm enhancement began in 2004, including the streetscape of most streets within Ancoats, changes to the Traffic Regulation Orders, two public squares and the integration of artworks (Landscape Institute, 2016). Perhaps the most important and ambitious project that set the tone for the conversion of the historic mills of the area was the restoration of Grade 2* listed Murray's Mills, undertaken from 2003 to 2006 by the ABPT.

"Everybody who wanted to develop at Ancoats wanted to know what is happening to Murrays Mills. [...] It was critical to get the complex repaired because people did not want to try to develop a new flat that looks out over a derelict site while there was vandalism happening... It was the catalyst that made everything else happen", states K. Dickson, former Director of ABPT (Resp. no 49, interview, 15/6/2015).

In addition to the conversion of historic buildings, new developments started appearing in Ancoats, beginning with the erection of the residential complex MMII in 2003 (FIG. 4.1: A, No:4). D. Ratcliffe (Resp. no 10, interview, 15/6/ 2015), Historic Places adviser for Historic England, describes the MMII development:

"Facing on to the main road and being the closest to the centre, the developer felt able to deal with that and sell it without being affected by what was behind, because it was very difficult to develop something in a rundown area. [...] And also with it being newbuilt, the developers were able to set a value to the land and the units which could then transfer into the mills. So they were setting a market rate with the new development."

After almost a century of decline, Ancoats appeared to be on the rise again. Once this process began however, the romanticism of the previous decade started to fade. MCC's desire to see the district's improvement resulted in too much trust being placed in developers. D. Ratcliffe (Resp. no 10, interview, 15/6/2015) recognises this tendency saying:

"The Council was prepared to accept an outline application on MMII with no design!"

The concept of the Urban Village gradually gave way to a new idea, 'the Heart of Ancoats'. Even though the new concept was organised around a new public amenity –a square in front of the newly re-stored Saint Peter's Church- (FIG. 4.1: A, No:5) it lacked the social qualitative characteristics of the previous scheme. In the years that followed, other less sympathetic schemes such as 41 Bengal Street (FIG. 4.1: A, No:6) were built in Ancoats. An important characteristic of the development of the area at the time, common for both conversions and newbuilt projects, was the dominance of the residential function.

4.1.4 Shifts

The financial crisis that hit Britain in 2008 put a temporary halt to the rapid regeneration of the district. New development ceased; ongoing schemes were paused; conversions abandoned. With property developers withdrawing, folding or turning their attention to other parts of the UK, the willingness to favour a largely uncontrolled property development-led regeneration started to backfire.

Two cases highlight the essence of the period's stagnation and the impact of property development-led regeneration on the historic fabric. Firstly, Murray's Mills; after a successful three year restoration by ABPT and a £10million investment from the Heritage Lottery Fund and the NRDA (Ancoats Buildings Preservation Trust, 2004b), the complex was about to be sold to a developer, selected via competition. The Trust decided not to engage in the reuse of the Mills due to their limited financial means and the massive scale of the complex. K. Dickson, (Resp. no 49, interview, 15/6/2015) describing the events that followed the developer's selection, explains:

"The developer (once selected) wanted things changed and it was already too late to have that conversation...So it became a very acrimonious and difficult relationship. Finally, when the project came to an end the developer changed his mind and decided not to take it on..."

At the time of the field research of this study in the Summer of 2015, the project remained still uncompleted (FIGS 4.7).



FIG. 4.7 Murrays Mills in a state of abandonment in 2015.



FIG. 4.8 Royal Mills in 2015 (Own archive).



FIG. 4.9 Royal Mills in 2015 (Own archive).



FIG. 4.10 The atrium of Royal Mills in 2015.

Secondly, the Royal Mills complex scheme (FIGS. 4.1: A, No:3, 4.8, 4.9), was left unfinished. ING development which implemented the first stage of the scheme in 2006, withdrew from the UK during the crisis. Residents and professionals working in the Royal Mills complex interviewed for this research, commented on the developer's indifference.

"ING did not care. After 8 years there are still empty units on the ground floor" (Royal Mills professional, Resp. no 47, interview, 17/6/2015).

Another respondent adds: *"The atrium is lovely but it only works as a hallway. It is never used. They should have thought it through..."* (Royal Mills professional, Resp. no 46, interview, 17/6/2015) (FIG. 4.10).

Such claims are bolstered by P. Collings, Senior Area Manager Greater Manchester HCA: *"ING transformed the building to put in office space, but they were not interested in fitting it out. They left the ground floor just a shell and it remained an unused space."* (Resp. no 48, interview, 25/6/2015).

By 2012, Britain still reeling from the financial crisis began a slow process of recovery. The crash caused major upheavals in Ancoats stakeholders' pool, redefining its former major Actors' roles. While the ABPT saw its influence wane and the NRDA was closed down by the Coalition Government (Blakeley and Brendan, 2013, 24) new actors such as the Homes and Communities Agency (HCA) entered the scene.

As highlighted in Figure 4.1: A, a new wave of development began. HCA, which acquired the assets of the NWCA, once again encouraged commercial investment in Ancoats. Important historic buildings such as the Ice Plant (FIGS. 4.1: A, No:7, 4.11), were converted, while schemes halted by the crisis, like the Royal Mill complex, were completed.



FIG. 4.11 The reused Ice Plant in 2015.



FIG. 4.12 View of Murry's street. At the left part of the picture, the converted historic Royal Mills. In the middle the newbuilt part of Royal Mills. At the right, newbuilt developments. 2015.

A shared characteristic of this phase with the period prior to the crisis is the dominance of the residential function in the developments. P. Collings explains the reason for this mono-functional tendency and clarifies MCC's position,

"In the Manchester market the residential uses are more valuable than the office uses. The local authority insisted on having a mixed use scheme." (Resp. no 48, interview, 25/6/2015).

Discussing the Royal Mills conversion, the same respondent also highlights another parameter of the residential development:

"The housing offered is not affordable. The average price is £200.000. The project is socially exclusive." (Resp. no 48, interview, 25/6/2015).

Collings' claim is confirmed by our comparative data analysis presented in FIG. 4.13. The average rental price in Ancoats is considerably more expensive in relation to Manchester's average. Of equal interest is the comparison of the converted historic complexes' rental value with Manchester's average figures. The results of this comparison clearly demonstrate the gentrification tendency of the current regeneration schemes (Home.co.uk, 2016, Zoopla, 2016).

Closing the analysis of the Ancoats district regeneration, it is important to refer to recent developments and future plans. The most important development predicted to have a decisive impact on the socio-spatial fabric of Ancoats, is the establishment of Manchester Life Development Company (MLDC) in 2014. MLDC is a residential development joint venture company between MCC and Abu Dhabi United Group (Manchester Life, 2015).

The residential redevelopment of Ancoats and the neighbouring New Islington is the focus of the MLDC's agenda which has promised the development of more than 6.000 new homes by 2024. With the first phase of 'Manchester Life' underway, involving the process of planning applications for the reuse of three sites in Ancoats, including Murray's Mills, concerns have been expressed by the local community. The residents remain sceptical about the programme of new projects while highlighting a need for more amenities, claiming:

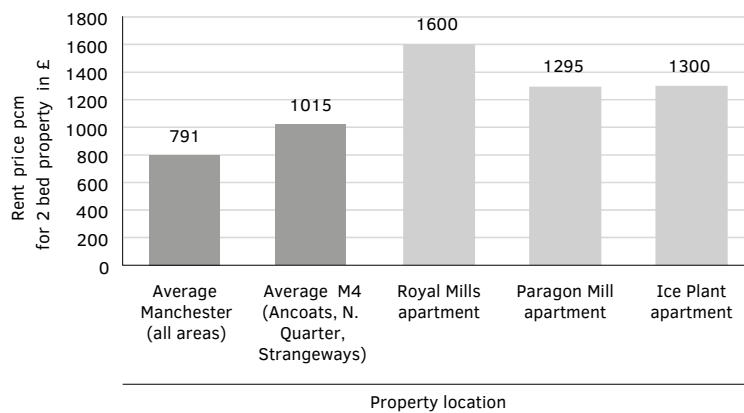


FIG. 4.13 The comparison of the rent price in Ancoats and Manchester reflects the district's gentrification tendency.

“The area is increasingly appealing to both young couples with children as well as older ‘empty nesters’ – it is no longer just about young professionals. Therefore, it is important to provide safe play spaces, recreational spaces and green spaces for the needs of a more diverse community.” (Tomlinson, 2015).

A press coverage review of Ancoats in Spring 2016 revealed that there are plans for some modest development of small-scale supplementary uses around the Cutting Room Square and across Great Ancoats Street. The degraded state of the north-eastern part of the conservation area receives less attention.

4.2 Evaluation

4.2.1 Process

The transformation process of Ancoats was instigated by a bottom up boost, yet it continued as top down. Its evolution was deeply influenced by the generalised changes in the socio-political realm of Britain, namely the growing power transfer from the public sector to commercial developers. As such, the case highlights the enormous impact of the stakeholders both from the public and the private sector, who steered the direction of the regeneration.

In detail, it shows how Actors from the voluntary sector, such as the ABPT, can exercise influence and achieve results for securing the district's historical and cultural sustainability. The case also demonstrates the considerable power of the local authority and illustrates the impact of its fluctuating priorities. As shown in the Analysis, the growing power of commercial developers is evident. The case highlights the risks of the commercial developer-led regeneration model in times of crisis. It also shows how the aforementioned power can be fortified or controlled depending on the political will of the local and national authority and the community engagement.

4.2.2 Programme

The new programme of the regenerated district¹¹ is largely mono-functional. As discussed in the analysis, the principal function offered both in the converted mills and in the new constructions was high-end housing. The scarcity of supplementary commercial and recreational amenities and the absence of green spaces were highlighted as shortcomings of the regeneration in this study's qualitative research (FIG. 4.19).

A professional who works on the Royal Mills, summarising the views of the respondents interviewed in this research, states: *"There is nothing in here that would draw your attention. Now they are developing a coffee shop."* (Resp. no 47, interview, 17/6/2015).

4.2.3 Architecture

The architectural result of the regeneration is the strongest feature of the case. According to the field research and the results of the qualitative research, a physical enhancement of the district was achieved. Nevertheless, the implementation of that physical enhancement was a result of piecemeal gestures rather than a product of a comprehensive plan. Consequently, after almost two decades, there is still a lack of amenities and evident spatial discontinuities (FIGS. 4.17, 4.18).

Focusing on the reuse of the former mills, it is evident that most of the interventions, with some notable exceptions, were respectful to the historic fabric that once defined Ancoats' character. In detail, much attention was placed to the preservation of the shell of the mills. In contrast, their interior was treated with less restrictions, resulting in the compromise of some of their spatial values.

The analysis of the interviews conducted during this research, provides further information about the appreciation of the regeneration (FIG. 4.19). It is notable that the respondents appreciated features of the regeneration involving Ancoats' intrinsic characteristics. The aesthetics, atmosphere and spatial qualities of the Victorian industrial complexes, boosted by their rehabilitation, were singled out as the most successful features of the respective schemes. Most of the positive comments, also acknowledged the historic structures and their safeguarding (heritage preservation, listings, reuse of historic buildings, successful blend of old & new, revival of a run-down area) whilst the majority of respondents referred to the advantageous location of the district in relation to Manchester's city centre, as one of its core qualities.

Reflecting the aforementioned views, a resident of the Old Sedgwick Mill (part of Royal Mills), claims:

"A listed structure in a city not famed for its unsympathetic upkeep of listed structures and in an area of great deprivation is a success. Outsiders have seen the potential for a long time in Ancoats. The people who grew up aware of its industrial past and poverty have taken some time to realise what is on their doorstep." (Resp. no 50, interview, 24/6/2015).

¹¹ The evaluation refers to the situation as examined in the Summer of 2015.

4.2.4 Cultural significance

The preservation of the Ancoats district's cultural significance was only achieved to a limited extent. As presented above, the shell of the tangible immovable heritage sites was restored in a respectful manner. For the needs of the new residential use however, the interior of the mills was compartmentalised, losing its original grandeur.

Moreover, in their striking majority, the mills were deprived of their most valuable characteristic -the industrial machinery- in order to maximise the space for residential development. A very limited number of machinery has been retained and placed in display in the common areas of the Royal Mills and the Ice Plant (FIGS. 4.# 14, 4.15) serving more as sculptural objects rather than an intrinsic element of the buildings' past use.



FIG. 4.14 Machinery in display in the interior hall of the Ice Plant, 2015.

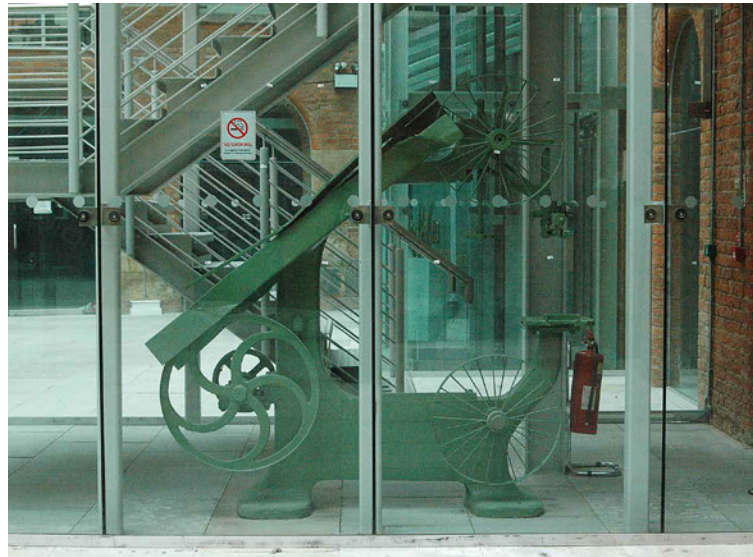


FIG. 4.15 Machinery in display in the atrium of the Royal Mills, 2015.

Little or no attention has been given to the intangible heritage characteristics of the area. The limited interpretation of the history of the area and its legendary mills in conjunction with the sleek new developments place Ancoats in danger of becoming a sterilised common Mancunian district with a few romantic Victorian features.

4.2.5 Finance

The financial outcome of the regeneration is nuanced. As revealed in the analysis, in the 2000s there was a large investment for the conversion of the former industrial buildings that failed to provide the aspired returns. The commercial developer-led model that had been supported by the MCC in that period was deeply influenced by the outbreak of the financial crisis, resulting in negative developments. These can be clearly identified in the two most important Industrial Heritage Reuse projects that began in that decade. In the case of Murray's Mills, the large investment of public funds resulted in the careful conservation of the building's shell, which yet still remains underused. K. Dickson, evaluating the financial result of Murray's Mills conversion states:

“I guess it was not that successful since we had to use £11.8 million of public Lottery money in restoring a building that is still not in use several years later. You could say that that was a huge waste of money. On the other hand, we have saved something that in the future can be reused. It is really difficult to say if it was good value for money.” (Resp. no 49, interview, 15/6/2015).

As for the conversion of the Royal Mills, it can be inferred that its first phase was also problematic. P. Collings elaborating on the subject states:

“The first phase of the conversion was average. The North West Regional Development Agency had to support ING by offering grant money.” (Resp. no 48, interview, 25/6/2015).

The recovery of the economy in the decade that followed shifted the situation. Additional investments were made by commercial developers both in the conversion of historic fabric and in newbuilt construction. The popularity of the spaces offered for sale or rent and their exceptionally high prices brought a high return to the investors.

It is worth highlighting that the completed reused historic buildings, housing residential units, and specifically those that were available for sale, are expected to be financially sustainable due to their particularly durable new function.

4.2.6 Social component

The social outcome of the case is among its weakest features. During the course of Ancoats' regeneration process considerably more focus was placed on the resolution of spatial rather than social problems. It was evident that, apart from the early vision of the Urban Village, all other concepts -driven mainly by partnerships with commercial developers- prioritised a development vision that sought to enhance only the built environment.

As a result, Ancoats is gradually becoming a gentrified and socially exclusive area. The converted mills are sold or rented at extravagant values, limiting the potential residential clientele. Furthermore, their residential use renders them, in their vast majority, completely inaccessible to the public.

In the qualitative research analysis the lack of community spirit was highlighted as an issue of the regenerated district. Apparently, the mono-functionality of Ancoats district creates hardly any room for the generation of social added value.

The only significant social advantage of the regeneration that should not be overlooked is the attraction of people in what was formerly a no-man's land. Given that the redevelopment of Ancoats has not yet been completed, attention should be paid to the addition of social amenities and the reinforcement of community building.

4.2.7 Functionality

The functionality of the converted mills is satisfactory, according to the results of the qualitative research (FIGS. 4.1, 4.19). Most of the respondents highly commended the reuse for the inner comfort, the accessibility, the state of maintenance and the amenities of the offered spaces. Certain problematic aspects reported include some spatial restrictions of the historic buildings as well as problems in the inner climate and sound insulation of certain spaces in the Royal Mills. Furthermore strong dissatisfaction was expressed over the poor use of the atrium of Royal Mills.

In regard to the functionality of the district as a whole the situation still has great room for improvement. Besides the need for a mix of uses, there is also a need to balance the asymmetry between the southwestern and northeastern part of Ancoats. In the latter there is still a number of historic structures awaiting a second chance (FIG. 4.16), standing next to empty lots, poor quality housing and warehouses (FIGS. 4.17, 4.18)



FIG. 4.16 Abandoned former industrial building located at the northeastern part of Ancoats. 2015.



FIG. 4.17 Warehouses and empty lots behind the Cutting Room Square. 2015.



FIG. 4.18 Spatial asymmetries in Ancoats. 2015.

4.2.8 Stakeholders' evaluation

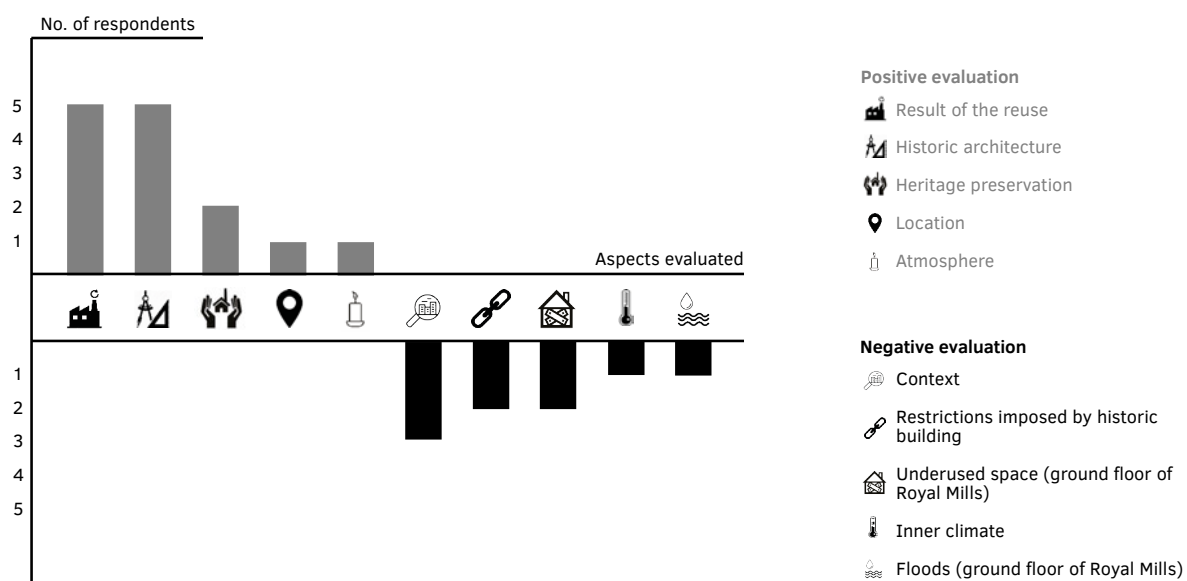


FIG. 4.19 Respondents' evaluation of the strong and weak Aspects of the case of Ancoats district (Number of respondents: 11).

5. King's Cross

Location: London, England, UK

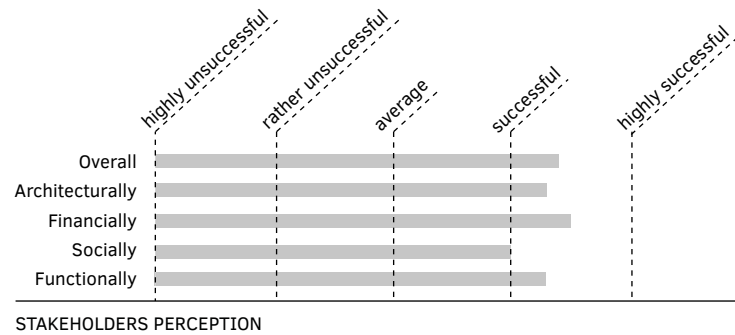
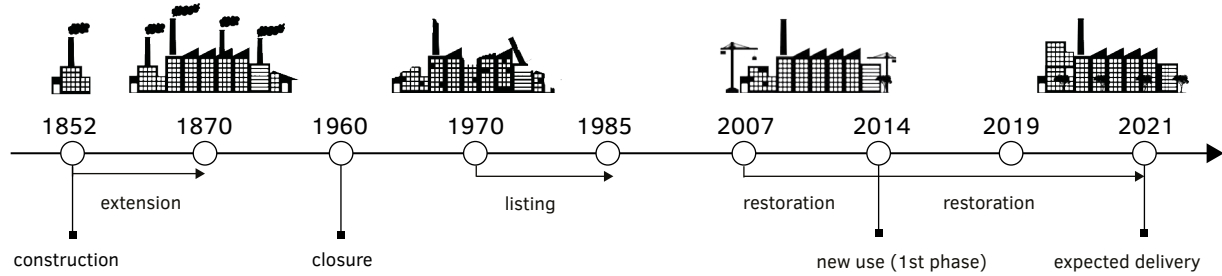
Historic use: Transport and goods-handling complex

Architect/Engineer: Lewis Cubitt

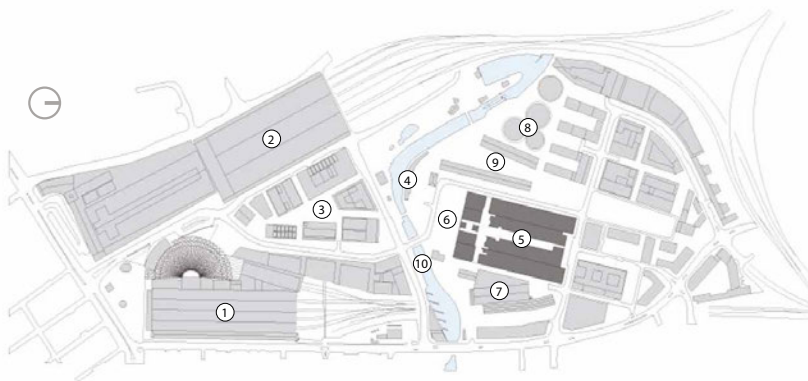
New Function: Mixed use (education, retail, residential, offices, HoReCa)

Reuse architect: Stanton Williams architects (Goods Yard)

Status: Grade II (Goods Yard)



[A]



KEY

1. King's Cross station
2. St Pancras International
3. Pancras square
4. Fish & coal
5. Granary complex
6. Granary square
7. Midland goods shed
8. Gasholders London
9. Coal Drops Yard
10. Regent's canal

[B.1]



[B.2]



[B.3]



FIG. 5.1 King's Cross Fact Sheet

5 King's Cross

This text has been largely based on the article: Chatzi Rodopoulou, T., 2016. "Heritage-led regeneration in the UK — Preserving historic values or masking commodification? A reflection on the case of King's Cross, London". In Carola Hein (ed.) International Planning History Society Proceedings, 17th IPHS Conference, History-Urbanism-Resilience, TU Delft 17-21 July 2016, V.04 pp. 75-87, TU Delft Open.

SUMMARY

The King's Cross is a 21st century case of particular significance due to its location in the heart of a European metropolis and its size. The ongoing mega - redevelopment is transforming a brownfield area of 67 acres that used to operate as a transport and goods handling complex in the 19th and 20th century. The first phase of the mixed use development was delivered in 2014 and constitutes the focus of this case study. Its strengths include its architectural and financial outcome as well as its programme. Its process, its social added value and the approach of cultural significance preservation are issues which have generated controversy.

5.1 Analysis

5.1.1 Historic use

King's Cross echoes the most important stages of London's history since the early Victorian era. Its urban and social fabric narrates the divergent realities of the prosperous era of industrialisation and the succeeding deindustrialisation period of withering. The area of King's Cross is located at the north fringe of central London, in the borough of Camden (FIG. 5.2). Initially a rural zone, King's Cross started to develop after 1756. The construction of the Regent's canal in 1820, and the establishment of Pancras Gasworks in 1824 gave the area the impetus for its transformation into an industrial landscape (FIG. 5.4).

Being London's 'laboratory' of industrialisation, King's Cross quickly embraced railway, the new symbol of revolution. In 1846, the Great Northern Railway (GNR) purchased a vast part of the area, building an imposing transport and goods-handling complex, many parts of which were designed by the architect Lewis Cubitt (Camden, 2004). The King's Cross passenger station was erected in 1852 at the south of the Regent's Canal. Right next to it, a luxurious hotel opened its doors in 1854, mainly to address the needs of the railway patrons.

LEGEND FIG. 5.1 King's Cross

- A Site plan of the regenerated area of King's Cross upon its completion in 2021. The Goods Yard complex is highlighted with dark grey colour (Stanton Williams Architects).
- B.1 King's Cross Station, St Pancras Station, the Pancras Gasworks and the Goods Yard complex in 1947 (<http://www.britainfromabove.org.uk/image/eaw006467>).
- B.2 The King's Cross area under redevelopment in 2015 (Google maps).
- B.3 Visualisation of the King's Cross area after its redevelopment (King's Cross Business Partnership Limited).

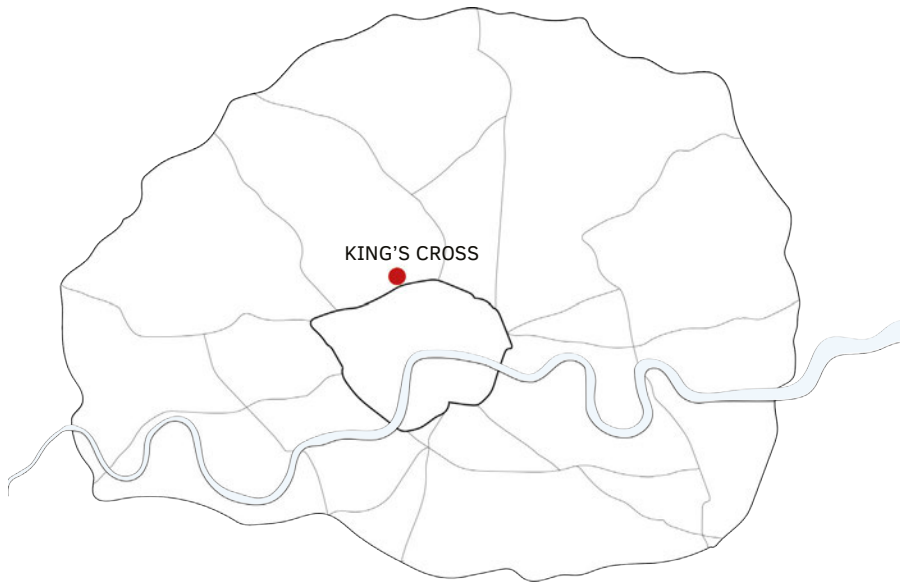


FIG. 5.2 King's Cross position in the fringe of central London.

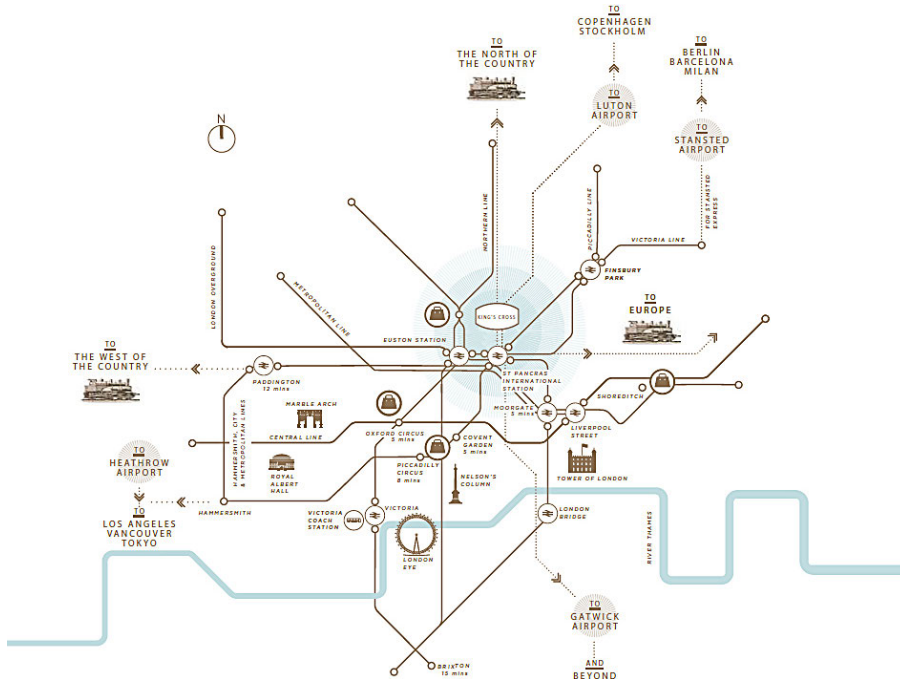


FIG. 5.3 King's Cross position in relation to London's main attractions and transport hubs. (<https://www.kingscross.co.uk/media/Coal-Drops-Yard-Brochure.pdf>)

The property at the north side of the canal housed the goods-handling facilities of the company, which included a Goods Yard complex, various sheds and offices. The Goods Yard complex, built in 1852 and designed by Lewis Cubitt, comprised the Granary, the Train Assembly Shed, and the Eastern and Western Transit Sheds. The Granary was mainly used to store grain, while the sheds were used to transfer freight from or to the rail carts. Coal was stored in the adjacent complex known as Coal drops, erected between 1851 and the 1860s (FIG. 5.1: A). Other goods, such as potatoes and fish, were stored and transported through the complex. All those activities were supported by mechanical equipment powered firstly by horse and later by hydraulic power (King's Cross Central Limited Partnership, n.d.-a, King's Cross Central Limited Partnership, 2016).

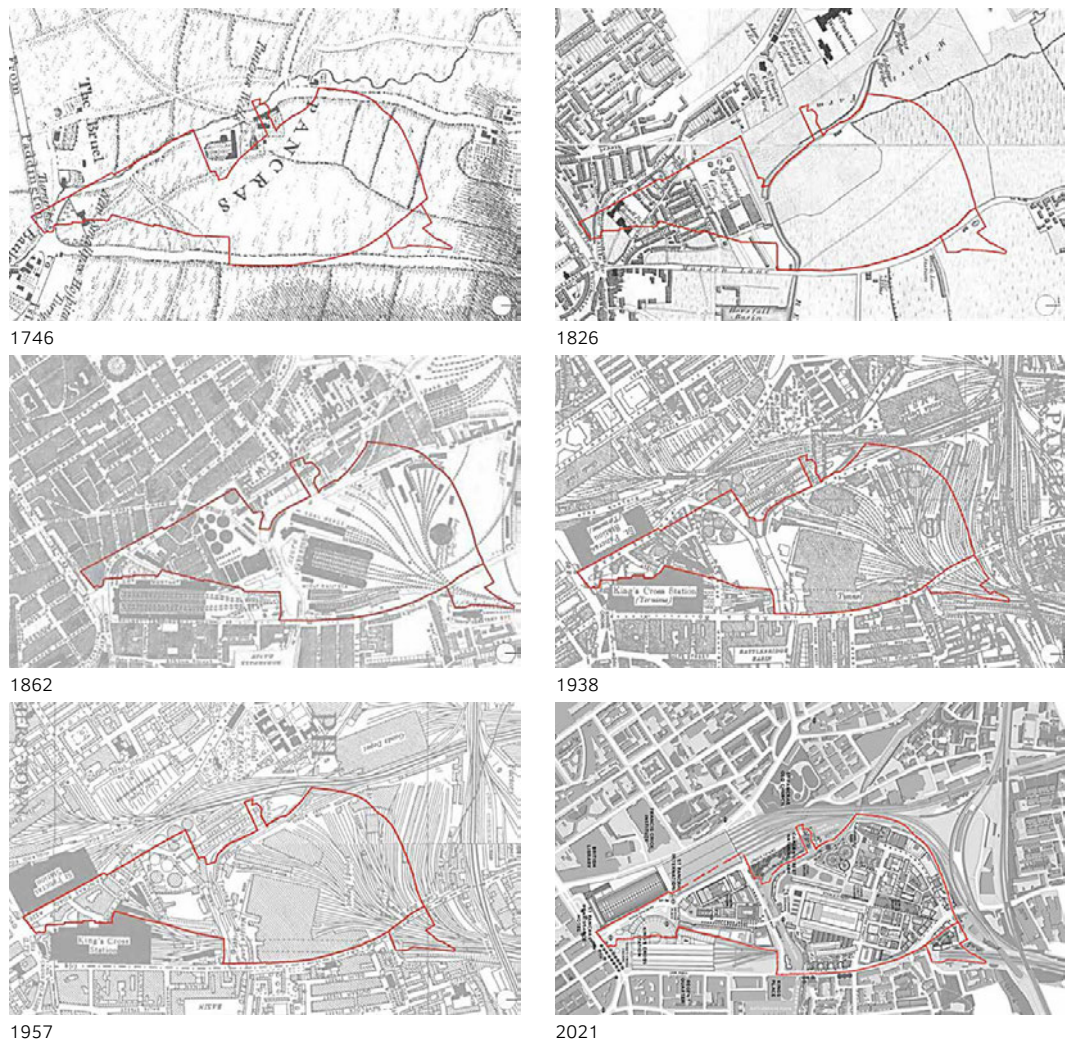


FIG. 5.4 The redevelopment area in 1746, 1826, 1862, 1938, 1957 and 2021 (Source of maps: King's Cross Business Partnership Limited).

The following decades saw both the industrial and the residential expansion of King's Cross area. Important industrial developments included the Metropolitan Railway (1860s), the erection of St Pancras station (1868) and the extension of Pancras Gasworks (1880s and 1900s) (FIG. 5.4) while poor quality residential developments were erected, aimed at housing industrial workers.

By the end of the 19th century King's Cross fully embodied the bilateral nature of industrialisation. Its built environment, dominated by imposing architectural and engineering advances, was testifying for the capital's economic power. Its social profile however, was revealing a much less memorable reality; a reality of poverty, social deprivation and slum living.

During the first part of the 20th century the area retained its mixed character with emphasis on the industrial activity. Minor developments were added to the existing urban tissue without altering its Victorian setup (FIG. 5.4). King's Cross, started declining after World War II. Gradually the roaring industrial hub hushed, paving the way to the deindustrialisation era (King's Cross Central Limited Partnership, n.d.-b).

From the 1970s to the 1990s the area epitomised the essence of the British urban deindustrialisation period. King's Cross, stigmatised as '*London's red light district*' (Griffith, 2011), was notorious for drug-dealing, prostitution and street crime (Young et al., 2006). Its population consisted mainly of working class people, council tenants and squatters. The photographer Mark Cawson, who lived at King's Cross in the 1980s, notes:

"There were gangsters, pimps, bikers, working girls and red light flats, but functional families too. Artists, alternative sorts, junkies, dealers; it was just a crazy mix." (Franklin, 2015).

As Cawson insinuates, the tarnished social character and low financial status of the area did not only have negative implications. King's Cross, became a field of artistic expression, influencing alternative forms of culture. Furthermore, its industrial legacy managed to remain hidden under the veil of its notorious reputation. Protected from ambitious investors' plans, it escaped the bulldozer.

Besides the described unfavourable conditions, another development that protected the historic area from demolition was the listing of several buildings in the late 1970s and during the 1980s.¹² The significance of the area's historic built environment is highlighted by Robert Carr (n.d.), member of the Greater London Industrial Archaeology Society:

"The area to the north of King's Cross and St Pancras Stations was generally regarded as the best in London for industrial archaeology..."

The current redevelopment plan of the historic district was not created in a vacuum. Numerous studies explain in detail the successive planning proposals developed and recanted since the late 1980s, setting the scene for the present situation (Edwards, 2009, King's Cross Railway Lands Group, 2004, Scott, 2014). The following paragraphs summarise the main incidents that took place from 1987 until 2007.

The first application for planning permission at King's Cross was submitted in 1989. The cornerstone of the plan, led by the London Regeneration Consortium (LRC), was the terminal station for the Channel Tunnel Rail Link (CTRL). Bearing the signature of starchitect Sir Norman Foster, the scheme had strong corporate office emphasis and entailed extensive demolitions. Strongly opposing the developers' aspirations, the King's Cross Railway Lands Group (KXRLG),¹³ in collaboration with other local stakeholders campaigned against the LRC proposal. It is worth mentioning that the KXRLG was not simply a source of criticism but offered alternative planning applications. Finally, due to several reasons with the crash of property market being the most important, the LRC's scheme was abandoned in 1992 (Holgersen and Haarstad, 2009).

The late 1990s saw London recovering from the recession and marching towards its future as one of the world's leading financial centres. In a climate of investment fever, older schemes including the CTRL, resurfaced. In turn, pressures for the area's redevelopment re-emerged, backed this time

¹² With the exception of King's Cross station listed at Grade I as early as 1954, most of the industrial buildings discussed were listed at Grade II level in the late 1970s and during the 1980s. (e.g. Granary, 1978 [L.E.No:1379215]; eastern coal drops, 1983 [L.E.No: 1379214]; Great Northern Hotel 1984 [L.E.No: 1113244] Gasholder 8 1986 [L.E.No: 1423467] (Historic England. n.d.).

¹³ The KXRLG was formed in 1987. According to Edwards (2009, 9): *"The group brought together tenants' associations, resident groups, small and medium businesses, conservation and transport campaigners, a homeless group and others [...]"*

by national and local policies. Three features are singled out as the most prominent developments of that period (Edwards, 2009, 8-19).

Firstly, in 1996 a new alignment of the CTRL was adopted by the government. LCR, a private consortium, won the bid for the construction and operation of the work. The consortium was granted a £5.7 billion government subsidy in the form of fixed assets along with the right to develop them for profit (Holgersen and Haarstad, 2009, 356). This political choice would create high aspirations for the project's returns. In 2007, the renovated St Pancras station, opened its doors as the terminal station of the CTRL.

Secondly, from 1996 to 2003 the government financed the 'King's Cross Partnership', comprised of the railway companies, the Camden and Islington Councils and a small part of the 'local community' in a subordinate role. The partnership played mainly the role of the image-maker for the area, launching a programme of small scale street face-lifting along with a rebranding campaign, to cast away King's Cross notorious profile. Its action was combined with a heavy investment of £37m in CCTV (Goodchild, 1999).

Thirdly, a number of developments in the immediate surroundings of the area were realised in the turn of the century. The two most prominent ones include the Regent Quarter and King's Place. These projects, along with a variety of smaller ones, prepared the ground for the new development. According to Young et al.(2006, 32):

"Regeneration and social control initiatives have altered the social landscape of King's Cross. From being an area notorious for sex, drugs, crime and the blighted dilapidation of its physical space, King's Cross has slowly begun to gentrify".

Summing up, the current project landed in an area with a history of two centuries. The physical environment of King's Cross was still largely dominated by the industrial era's wonders, while selected points had been renovated, contributing to the creation of its new image. Socially, albeit still stigmatised from its past infamy and the poverty of its inhabitants, the first signs of transition had become apparent. The 'undesirable elements' (Young et al., 2006, 33) had been chased away from the streets, starting to be replaced by 'desirable' middle class people.

Another important characteristic of King's Cross at the time was the presence of an active local population resisting fickle and speculative schemes.

5.1.3 Reuse process

The successive described developments, along with persisting pressures for investment in the London flourishing market, created favourable conditions for the approval of a large-scale scheme in the area in the first decade of the 21st century. The plan, branded as King's Cross Central (KCC), involved a long period of preparations, before granted planning permission in 2006.

Argent Group Plc was selected in 2001 by the landowners LCR and DHL as a developing partner. The development phase finally started in 2008 and its completion is expected by 2021 (FIG. 5.9). The King's Cross Central Limited Partnership (KCCLP),¹⁴ is developing the area marked on FIG. 5.1: A.

¹⁴ King's Cross is developed by the King's Cross Central Limited Partnership which brings together: Argent King's Cross Limited Partnership, London & Continental Railways limited, DHL Supply Chain and AustralianSuper.



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FIG. 5.5 The masterplan of KCC (King's Cross Business Partnership Limited).

According to the KCCLP, their plan is based on two characteristics: flexibility and consultation. Specifically, the flexibility refers to the developers' permission to build 'up to' a certain number

of square meters, while remaining free to select most of the uses themselves. On the other hand, consultation with the local community, government and other stakeholders is promoted as the main formative feature of their masterplan.

The area under development covers 67 acres, 60% of which will be built space. As depicted in FIG. 5.6, Argent's plan has a mixed use character, with office space being the principle use. A key characteristic of KCC is its attention to the existing historic structures and the public realm. The development is expected to renovate and reuse twenty listed buildings, while creating ten new public spaces. KCC preserves and reuses the historic industrial landscape as a whole, incorporating challenging structures such as the gasholders, with relatively few compromises.

Another significant characteristic of the regeneration is its strong association with global and national celebrity enterprises. Google and Luis Vuitton are only some of the star-businesses that have secured office space in the area. The design of the KCC is also conceived by renowned architects, such as David Chipperfield et al.¹⁵ (King's Cross Central Limited Partnership, 2015).

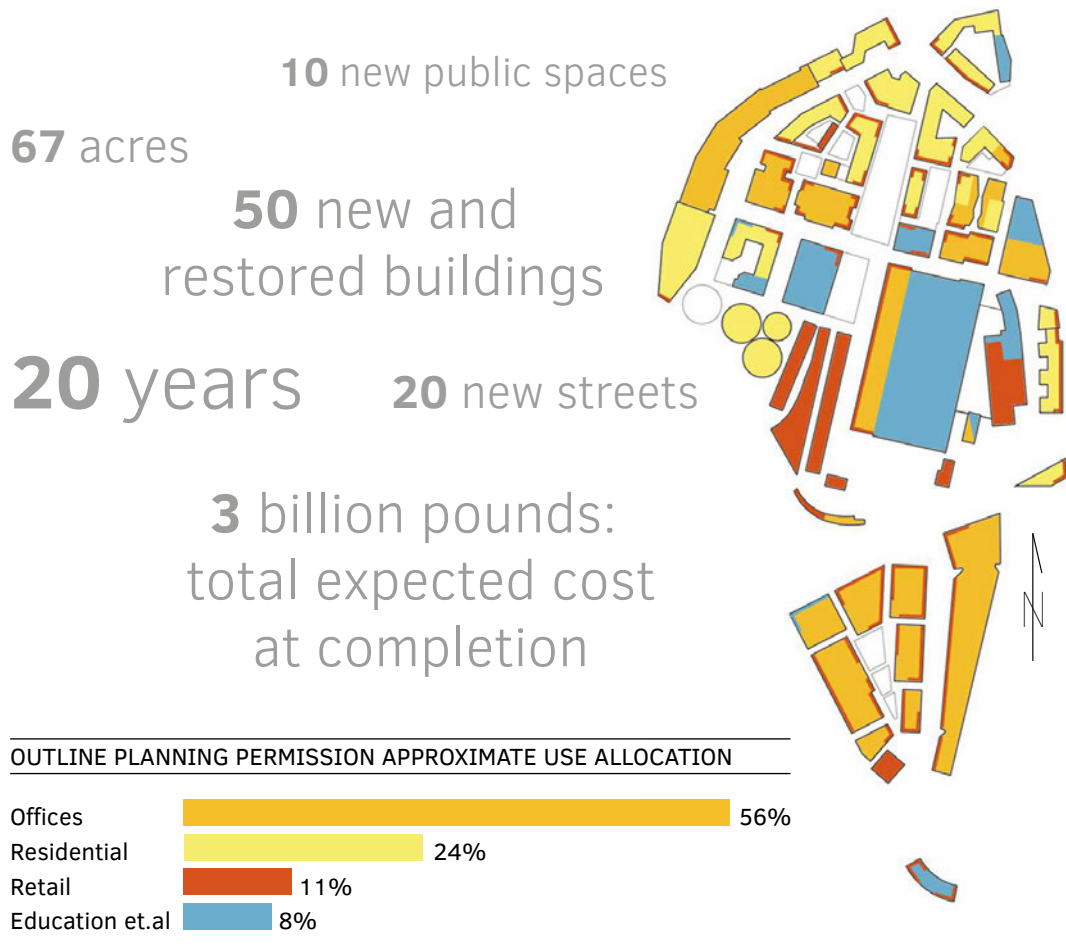


FIG. 5.6 Facts and figures and programme distribution.

¹⁵ The full list of the stakeholders and designers involved in the development and delivery of the case can be found at: <https://www.kingscross.co.uk/whos-developing-kings-cross>

The first phase of the ambitious project was delivered in 2014, with the converted Goods Yard complex and its context as its centrepiece. The historic complex, transformed by Stanton Williams architects, housed the Central Saint Martins College (part of University of the Arts London), offices and restaurants. Its context was redesigned into a mixed use space of diverse qualities with emphasis on the Regent's Canal. The scheme brought to King's Cross c. 5.000 students and university staff as well as a high number of office clerks and restaurants' visitors. Placed in contact with one of the biggest transport hubs of Europe¹⁶ in a central area of London, the project's location and connectivity offer it a tremendous advantage (FIG. 5.3).

Four characteristics define the first phase of the redevelopment outcome and will be further analysed. Firstly, the careful delivery planning; secondly, the attention to the public realm; thirdly, the respectful architectural approach and lastly, the emphasis on the place marketing and the organisation of events.

Developing and delivering the project in phases was a challenging yet rewarding decision of the KCC partnership. Apart from offering significant financial advantages, it served as a means for attracting powerful tenants to the scheme while familiarising the public with the redevelopment. In the words of L.A. Scott (2014, 13) *"Bringing the University of the Arts London to King's Cross is seen by Argent as crucial in defining a creative, lively, and quirky tone to the place that encouraged other tenants to follow."*

The same aims drove the creation of a network of open spaces and its delivery in the first phase. According to Ken Trew, senior project director at Argent, *"Many tenants don't understand plans, so seeing the public spaces defined at the outset was very important in helping them understand what the scheme would be like."* (Scott, 2014, 8). The new open spaces range from big paved civic zones, to grass planting and small gardens. Also pop-up installations and urban equipment were used, encouraging visitors to use the transforming space (FIG. 5.11, 5.12). In collaboration with renowned landscape designers, such as Townshend Architects and Dan Pearson, the project features attractive mixed use open spaces with surprising elements and a strong presence of the element of water (FIG. 5.10). In regard to the circulation, emphasis has been put on walking, cycling, and public transport.

Regarding the architectural outcome of the case, the redevelopment is characterised by an approach which respects the existing industrial historic stock while combining it with new architectural forms and structures. The Goods Yard complex, which was the first transformed historic complex of the project, set the tone for careful yet rather extrovert interventions. In detail, the historic complex's volumes and facades have been retained to a large extent. The only part demolished was a central shed which was replaced by a new dynamic purpose-built space for the University (FIG.5.8). That houses studios, workshops and lecture theatres arranged around a broad covered street. Walkways and bridges create fluid routes between different departments (FIGS. 5.13, 5.14, 5.15). According to the architects, their approach was based on three principles: a warehouse concept, respect for the historic buildings and sustainable design (Stanton Williams Architects, 2011).

¹⁶ This transport hub is expected to support 63 million passengers a year from 2021, offering access to six London Underground lines, two national mainline train stations, and an international high-speed rail connecting Eurostar passengers to Paris in just over two hours.



FIG. 5.7 View from the roof of Five Pancras Square, to the Fish and Coal Office, the Granary Square and the transformed Goods Yard. On the left, the image illustrates the Coal drops yard still underused and the re-erection of the first gasholder (John Sturrock).



FIG. 5.8 The north side of the transformed Goods Yard. The new volume, housing the Saint Martins College comes in a sharp contrast to the historic structures (Stanton Williams architects).

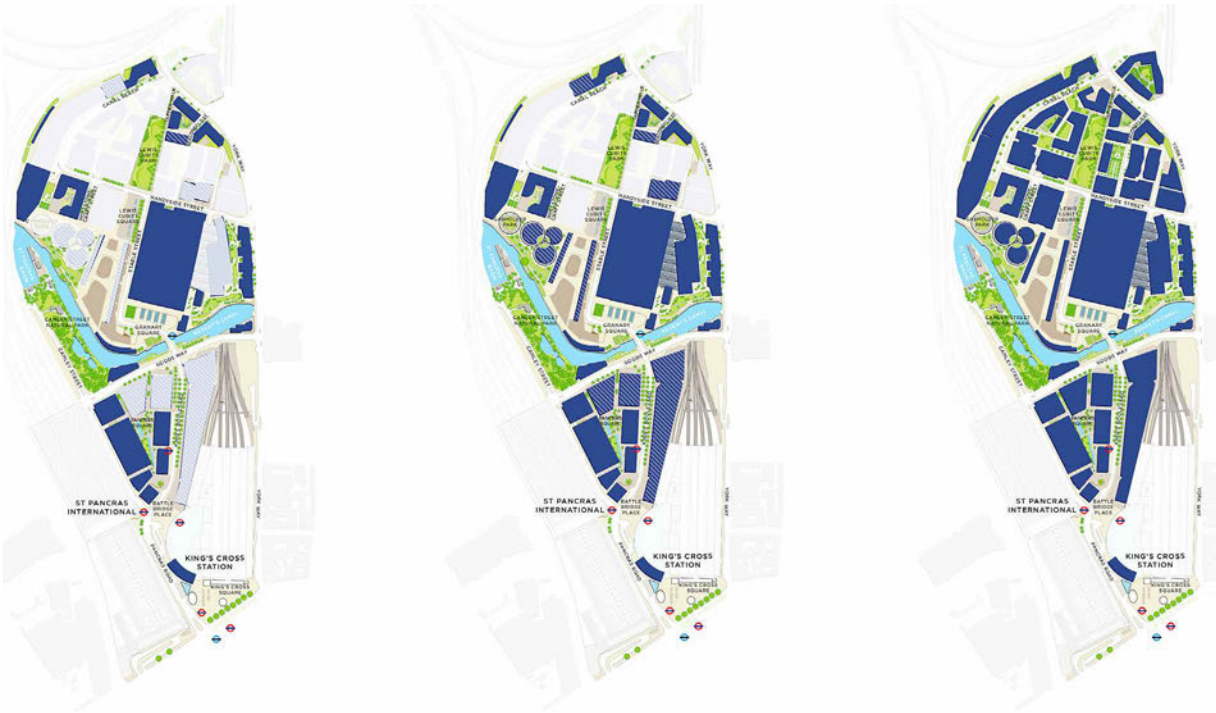


FIG. 5.9 Development phases (King's Cross Business Partnership Limited).

Another key component of the project, that started during the construction period yet was culminated upon the delivery of the first phase, was the continuous marketing efforts and the organisation of events for the promotion of the reborn King's Cross district. As explained by Scott, (2014,12) marketing and Public Relations promoted the place rather than the individual buildings. It is worth underlining that heritage was largely used as one of the project's strongest selling points. A diverse events programme was launched since the early days, inviting various age groups to visit the district, turning it into a destination even before its completion.



FIG. 5.10 The design of the Granary Square offers opportunities for relaxation, recreation and playing, 2015.



FIG. 5.11 The KC pond, a temporary construction, offered for a period during the redevelopment opportunities for swimming and relaxation, 2015.



FIG. 5.12 Temporary urban equipment for resting at King's Boulevard, encouraging visitors to familiarise with the space prior to the buildings' operation, 2015.



FIG. 5.13 Interior view of the Goods Yard complex, illustrating the retention of the patina and the contradiction between old and new (Stanton Williams architects).

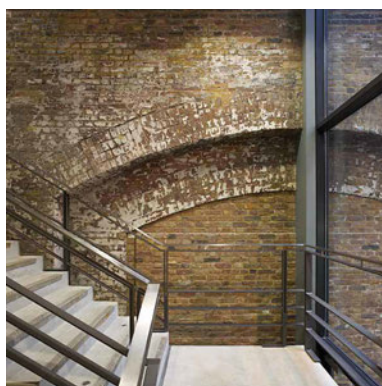


FIG. 5.14 Interior view of the Goods Yard complex, illustrating the contradiction between old and new (Stanton Williams architects).

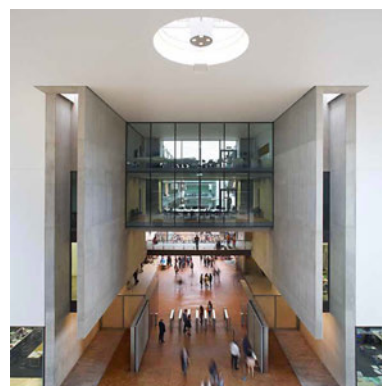


FIG. 5.15 Interior view of the Goods Yard complex, illustrating the new addition housing Saint Martins College (Stanton Williams architects).

5.1.5 Shifts

Given that the research on the discussed case was conducted in summer 2015, at a time when KCC redevelopment was still ongoing, many shifts have occurred while many more are expected in the near future. Already, the delivery of the residential units and the garden in the Gasholders in 2016 (King's Cross Central Limited Partnership, n.d.-a) as well as the inauguration of the retail and cultural centre in the Coal Drops Yard in 2018 (King's Cross Central Limited Partnership, n.d.-c) have refreshed the image of the area. Upon its completion the project is expected to attract 42.000 people (residents, students and employees) in a high density mixed use development composed of 316.000m² of office space, 46.400m² of retail and leisure space, and close to 2.000 homes.

A feature that has already started to be evident is the differentiation of functions and atmosphere between the south and the north bank of the Regent's Canal. The former one which is situated in direct relation to the transportation hub, has a corporate character, containing mostly offices and a hotel building. In contrast, the latter one houses a mixture of functions including retail, leisure, housing units and the University of the Arts campus. In both zones the ground level, in its bigger extent has been leased to leisure and HoReCa activities for maximising the liveliness of the scheme and its function around the clock.

Up to this day, the project has won multiple awards and has been progressively embraced by the public (Regeneris Consulting, 2017). According to the report by Cushman & Wakefield and Nash Bond (2017), there is a 40% footfall increase each year since 2014, reaching 8 million people in 2016. By 2021, 30.000 people are expected to be working in King's Cross while 7.000 people are expected to live in the available residential units of the redeveloped area.

5.2 Evaluation

It has only been six years since the first delivery phase of KCC and yet it has provoked great controversy. The scheme has been an object of both admiration and dispute among stakeholders and specialists. Taking into account those contrasting views and cross examining them against the results of the field and qualitative research of this study, a critical evaluation of the case is attempted below.

5.2.1 Process

The process of the regeneration project is presented by the KCCLP and various researchers (e.g. Scott, 2014, Regeneris Consulting, 2017) as highly successful. Yet, numerous studies contest this standpoint. In what follows, both strengths and weaknesses of the case's process are analysed.

The process of the KCC regeneration was organic and flexible. According to T. Giddings (Resp. no 65, interview, 6/7/2015), it resulted in the delivery of the first phases on time and on budget. The planning allowed the emergence of specific details over time, leaving room for change, negotiation and experimentation. Those characteristics along with the delivery of the project in phases had direct and indirect financial advantages, minimising the risks for the team of developers, while enabling them to respond to the shifting market demands. As analysed above, breaking the delivery in various phases also helped engaging the public while attracting prestigious tenants.

The basic principles of the scheme -flexibility and consultation- have been proudly promoted by KCCLP (T. Giddings, Resp. no 65, interview, 6/7/2015). However, a review of studies on the subject reveals some angles of those features that cannot be ignored. Flexibility is portrayed by Holgersen and Haarstad (2009, 358-359) as a medium of economic return maximization for the property owners. It is described as a tool available only to the developer but not to the local authority. As such the study notes:

"Local residents experienced Argent's flexibility as uncertainty." (Holgersen and Haarstad, 2009, 359) (FIG. 5.16).



FIG. 5.16 Opposition to the 'flexibility' of the development. Winter 2004 (KXRLG journal cover).



FIG. 5.17 Protests by King's Cross neighbours. Sian Berry, 18 April 2015 (camden.greenparty.org.uk/).

The criticism extends also to the widely published consultation process. No party negates that a lengthy consultation process took place. Yet, there are voices (including Edwards, 2009 & Holgersen and Haarstad, 2009) which question its essence and result, describing the process as one-way and stressing the lack of the developer's accountability. Expressing these concerns Edwards (2009, 23) states:

"Both Argent and Camden have prided themselves upon their extensive and innovative programmes of consultation and have won awards for their efforts. Those who remain dissatisfied are essentially reflecting their lack of influence in the consultation process: they are endlessly listened to but have no detectable power to determine the outcome."

Referring to the consultation process, frustration was also expressed from the developer's side. The respondent describes the opposing voices as '... only 5-6 individuals.' who were 'negative and anti-everything...' (T. Giddings, Resp. no 65, interview, 6/7/2015).

Taking into account the aforementioned discussion, it is evident that the process followed by the KCCLP is different from the conventional approach followed in other projects across Europe. The main shift concerns the regeneration's decision-making, from a top down approach to one which is based on stakeholders' consultation. Yet, it has been demonstrated that the change only refers to the process and not the result. In other words, there is only a minimum transfer of power to the underprivileged stakeholders while ultimate decisions are still taken by the ones who hold financial and property power. Therefore, it is argued that the decision-making process, albeit pluralistic, is not yet as democratic and horizontal as presented.

5.2.2 Programme

The programme is one of the assets of the case. Mixed use, diverse and surprising, it combines a wealth of functions for every age group. Examining the whole area of redevelopment, it is evident that the allocation of functions prevents the creation of dead zones, promoting the use of the space around the clock. It is also worth stressing the active and complementary role of the open spaces to the operation of the project. Those spaces have not been treated as voids between the buildings, but rather as useful areas hosting different activities (sitting, relaxing, playing, swimming etc.) or as extensions of the buildings' functions (restaurants, cafes, outdoors cinema etc.). Important downsides of the programme, that will be further analysed in the following paragraphs, include its big ratio of functions addressed mostly to higher social strata and its qualitative characteristics.

5.2.3 Architecture

With respect to the architectural result of the project and the approach of the scheme towards heritage, there seems to be a consensus between stakeholders and specialists. As shown in the figures 5.1 and 5.21, the architectural outcome is among the strengths of the case. English Heritage has included King's Cross in multiple publications (English Heritage, 2013a, English Heritage, 2013b) as an example of best practice, describing it as:

"a model of constructive conservation that captures the special quality of London" (King's Cross Central Limited Partnership, n.d.-a).

The respondents of this study share the same view, highlighting however some shortcomings that will be analysed in the following paragraph. O. Dimitriou, architect and tutor in the Saint Martins College, reflecting on the architectural result of the Goods Yard complex, states:

"The blend of the new and the old is very successful. The distinction between the two, the architectural concept as well as the intervention is very clear." (Resp. no 66, interview, 22/7/2015).

Field research, focused on the Goods Yard complex reinforces the established perception for a sympathetic heritage approach. The existing buildings have been carefully restored, preserving structural elements, the detailing and the patina acquired during the years (FIGS. 5.13, 5.14). The new structure follows the footprint of the demolished historic shed and works in harmony with the complex in terms of volume, contrasting strongly however in terms of materials and architectural language.

5.2.4 Cultural significance

King's Cross has been branded as 'one of England's 20 Best Heritage-Led Developments' (King's Cross Central Limited Partnership, n.d.-b). However, there is evidence to support that the preservation of historic values has only been partly achieved. On the one hand, the tangible immovable heritage has been carefully preserved to a surprisingly large extent. Even challenging structures have been retained and reused. The ensemble of the converted historic buildings, positioned mainly in the north of the Regent's canal, contributes to the preservation of the sense of place.

In contrast to the approach towards the tangible immovable heritage however, the mechanical equipment of the complex and the site's intangible heritage has been preserved rather poorly. A member of the AIA, emphasising these limitations argues:

"The Granary complex has been gutted [...] Very little of its industrial archaeology has survived. The building has been sterilised. Also, some of the restored things just do not line up. If we take for example the re-installation of the railway lines we will see that they have not been put down correctly. All this makes it too difficult to understand what was there in the past. [...]"

This is a general trend that has been going on nowadays. People who realise these schemes look at industrial archaeology as a collection of aesthetical objects. Whenever features of industrial archaeology are kept, they are preserved as sculptural elements. The preservation is piecemeal and their interpretation is almost always absent." (R. J. M. Carr, Resp. no 9, Interview, 28/10/2015).

R.J. M. Carr's position is backed by other respondents' views (M.T.Tucker, Resp. no 67, interview, 30/11/2015) and the field research, too. In the delivered part there is indeed a striking lack of preserved mechanical equipment, historic and technical interpretation.¹⁷

5.2.5 Finance

The financing aspects of the case are its strongest feature. Even though the project was developed during the financial crisis of the late 2000s and involved the costly preservation and conversion of 20 historic structures, the KCC partnership managed to deliver the first phases on budget (T. Giddings, Resp. no 65, interview, 6/7/2015), leading to what is described to be a very profitable investment (Regeneris Consulting, 2017, 53,61).

The careful planning, the delivery phasing, the attraction of prestige occupants and the marketing, sales and leasing strategy were key components of the successful economic scheme of the project. In detail, KCC partnership sold or had committed more than half the potential development and commercial space by 2013. The occupation of space was extremely fast with 97% of all space completed, being taken up by mid-2016 (Regeneris Consulting, 2017, 59). According to Scott (2014,12):

"Rents for both offices and residential have outperformed expectations so far with office tenants now paying in excess of £60 per square foot. Housing sales started at £700 per square foot, and this rate has almost doubled since the outset. Long lease disposals to the London borough of Camden, Google, and BNP Paribas were done on the basis that these occupiers were long-term owners and investors that won't trade out."

T. Giddings evaluating the financial aspects of the case adds:

"It has been pretty good. I think you could have made more money per se but I do not think that you would have got the true value. The true value is going to come in the future as well. If you look at it as a straight return, another developer might have made much more money of it. We are pushing a lot of that money into it that we are earning back." (Resp. no 65, interview, 6/7/2015).

¹⁷ A wealth of information about the history of the complex is presented in the website of KCC. Nevertheless, even online the focus is mainly casted in the buildings and not the industrial activity of the complex and its sociocultural implications.

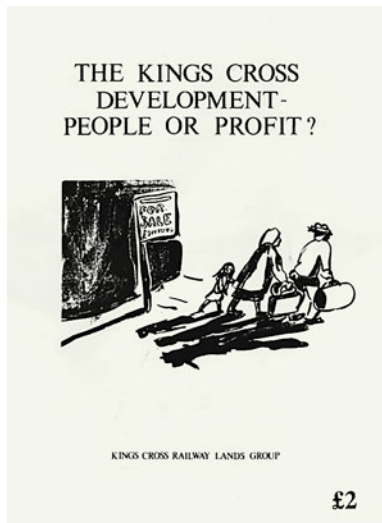


FIG. 5.18 Cover of King's Cross Railway Lands Community Development Group report.



FIG. 5.19 Promoting material stressing the socially inclusive character of the project (Overview, 2015, 27).

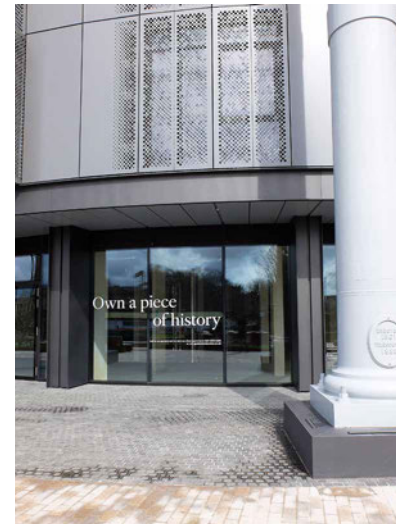


FIG. 5.20 Heritage commodification. Reused Gasholders at King's Cross, 2018.

The social ramifications of the project have been met with much controversy. On the one hand, the development team emphasises the heterogeneous, socially-inclusive profile of the project, with catchwords such as *'inclusive'*, *'welcoming'*, *'safe'*, *'secure'* featuring strongly in all their publications and promotion material (FIG. 5.19) (King's Cross Central Limited Partnership, 2015, 1, King's Cross Central Limited Partnership, 2014, 47). Furthermore, according to the evaluating report of Regeneris Consulting (2017), the KCC project has important social added value, offering high employment rates, engaging a vast number of visitors and volunteers while outperforming other inner London 'opportunity areas' in terms of employment and growth in residential and commercial values.

On the other hand, there is a set of studies that conclude that KCC will eventually lead to gentrification and displacement of a great part of the local community (FIG. 5.18) (Edwards, 2009, Holgersen and Haarstad, 2009, Young et al., 2006). The claims of these studies are substantiated by the actions taken by KCCLP in 2015.

As revealed in Camden New Journal (McLennan, 2015), KCCLP is pushing for a considerable reduction of affordable housing and its replacement with high-end flats (FIG. 5.17). Such actions come in sharp contrast with the acclaimed socially-inclusive profile of the regeneration scheme, demonstrating that the arguments of the aforementioned studies have a solid base.

As a result, it can be supported that the project offers indeed social added value yet not for everyone. Despite the embellishment in the rhetoric of decision-makers, complex social issues, such as those of gentrification and displacement, have not been resolved in the case of King's Cross.

The qualitative characteristics of the project's spatial features have also been subject of controversy. KCCLP, the City Council and a number of press releases praise the newbuilt environment of King's Cross as an *'exemplar of urban renewal'* (Duke, 2015). On the other hand, close field observations, the results of this study qualitative research and a handful of articles paint a different picture. KCC appears to be not as open and accessible as described while the preserved heritage is used as a commodified asset (FIG. 5.20). Supporting this argument Wainwright (2014) notes:

"London has built many fine new public spaces over the last decade, but they are not in fact public – they are extensions of the privatised realm, to which the public is granted conditional access. 'Welcome to King's Cross,' reads a sign in front of the new fountain-fringed Granary Square. 'Please enjoy this private estate considerately.'..."

O. Dimitriou, adds: *"The complex offers a great architectural experience, yet it is too controlled and sterile... The building is certainly a very good marketing trap for the students"* (Resp. no 66, interview, 22/7/2015).

Field research to the transformed Goods Yard complex verifies these claims. Public access is restricted in the biggest part of the complex while the dominance of the private over the public is notable.

Moreover, a review of KCCLP promoting material clearly illustrates the use of heritage; more as a medium of producing surplus value rather than a cultural and educational asset (King's Cross Central Limited Partnership, 2015, King's Cross Central Limited Partnership, 2014, King's Cross Central Limited Partnership, 2011).

It is therefore argued that the regeneration of King's Cross, positioned within the complex socio-economic conditions of the historic city of London, contributes to the enhancement of the urban fabric and to the restoration of lost spatial connections. However, it is suggested that this enhancement takes a heavy toll on the qualitative characteristics of the offered spatial product.

¹⁸ The delivered outcome of the Goods Yard complex cannot yet be further evaluated in terms of functionality from the present study, due to its very short period of operation (at the time of the research) and the small number of respondents participating in the qualitative research.

5.2.8 Stakeholders' evaluation

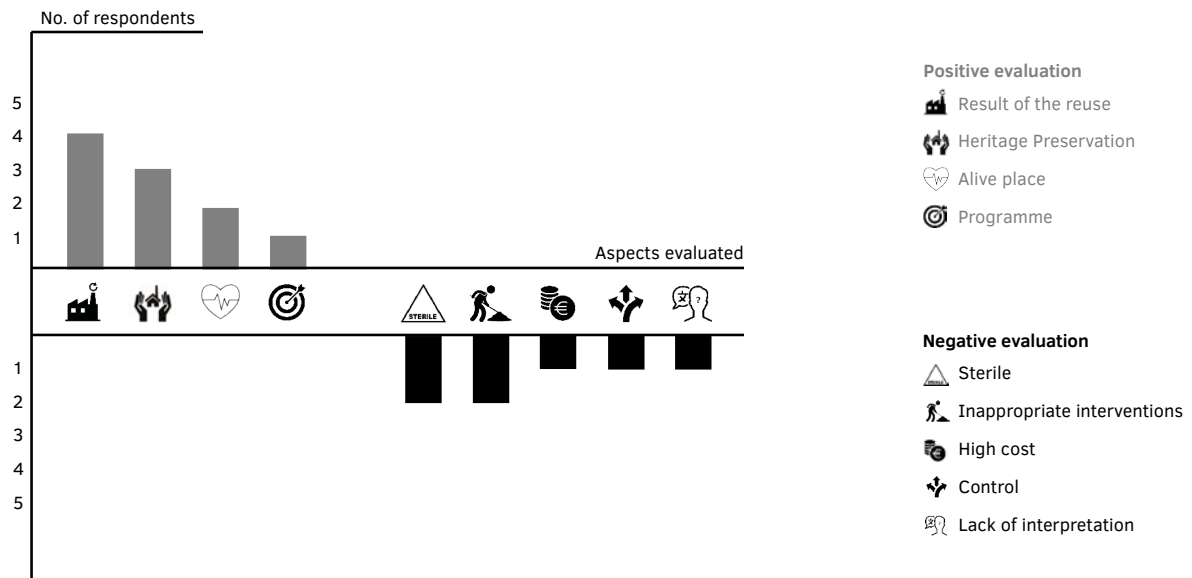


FIG. 5.21 Respondents' evaluation of the strong and weak Aspects of the case of King's Cross (Number of respondents: 6).

6. Het Jannink

Location: Enschede, the Netherlands

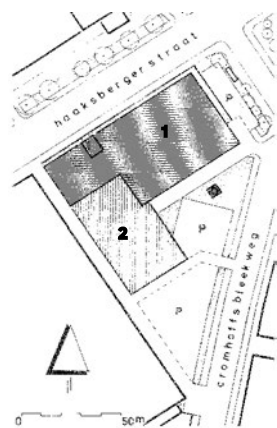
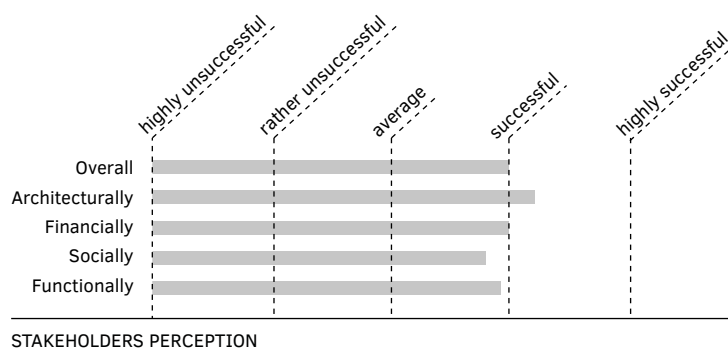
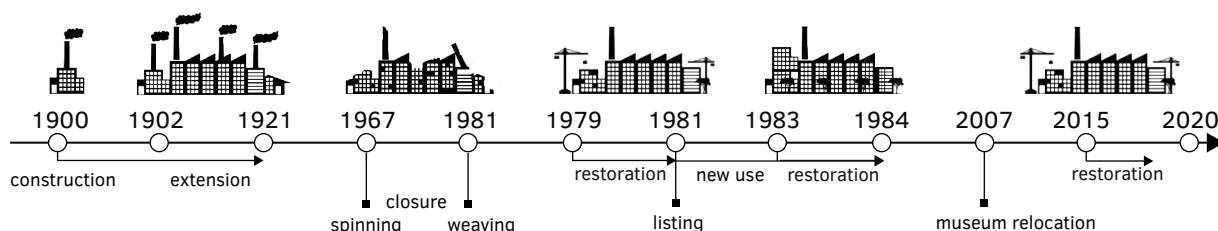
Historic use: Textile mill

Architect: Philip Sidney Stott, Henry Reijgers

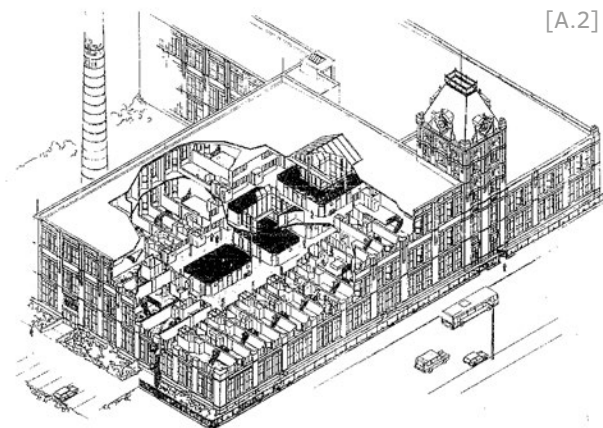
New Function: Mixed use (residential, museum)

Reuse architect: de Boer architectural office (residential part), A. Verhoeven (museum part)

Status: National monument



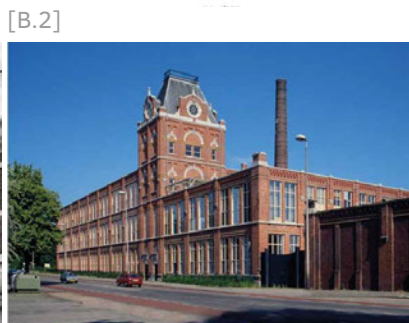
[A.1]



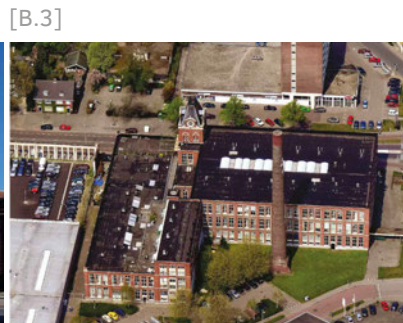
[A.2]



[B.1]



[B.2]



[B.3]

FIG. 6.1 Het Jannink Fact Sheet

6 Het Jannink

SUMMARY The Jannink complex, transformed in the late 1970s, is a very important case of early Industrial Heritage Reuse in the Netherlands. Jannink's Reuse is taking place in an era with different socioeconomic and architectural conditions and it is evaluated as such. The former textile mill has been celebrated for its mixed use programme, the preservation of its historic and architectural values, its social relevance as well as for its financial durability. Since 2007 however all the aforementioned points have been severely impacted. It is worth examining the case's comparatively long history of operation, focusing on the effect of important developments and shifts such as the recurring incidents of vacancy and renovation.

6.1 Analysis

6.1.1 Historic use

The Jannink complex is located at the south-west part of the centre of Enschede. It was built as a spinning and weaving mill producing manchester fabrics, in what used to be a textile town. Founded by the industrialist Gerhard Jannink, it was part of the Gerhard Jannink & Zonen firm, one of the largest textile companies in the Netherlands in the early 1900s (Hesselink, 1983, 9). The spinning unit of the complex was built in 1900, to be followed by the weaving unit two years later. For two decades after its construction, the mill kept being adjusted to house the growing needs of production (FIG. 6.2). The catalyst for its construction at the specific plot was the development of the Southern Railway, connecting Enschede with Ahaus in Germany.

Jannink was designed by the English architect Philip Sidney Stott, who had a vast international experience in the design of textile mills, in collaboration with the local architect Henry Reijgers. It is a Lancashire-style mill (de Boer et al., 1995, 31) which albeit elegant is not unique. The complex presents several similarities with other works of the architect as well as bearing high resemblance to catalogue model-drawings (Stenvert, 2011, 10-11). The design was led by the principles governed by functionality and the restrictions posed by the machinery allocation rather than aesthetic choices. A detailed architectural description of the historic complex is given by Stenvert (2011, 10-22).

LEGEND FIG. 6.1 **Het Jannink**

- A.1 Reuse phases of the Jannink complex (Buro de Boer, 1979).
- A.2 Isometric perspective of the reused Jannink complex (Buro de Boer, 1979).
- B.1 The north-west elevation of Jannink, c.1970 (<https://cultureelerfgoedenschede.nl>).
- B.2 The north-west elevation of Jannink after the reuse of the complex (<http://www.hetjannink.nl>).
- B.3 Aerial photograph of the Jannink complex after its reuse (<https://cultureelerfgoedenschede.nl>).

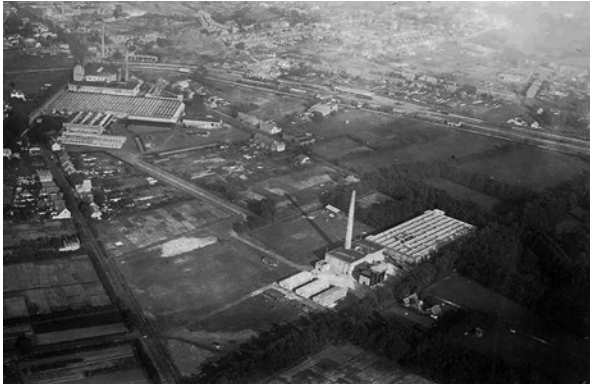


FIG. 6.2 Het Jannink in 1925 (top left of the image) (Image courtesy of Archief stichting Edwina van Heek).



FIG. 6.3 The Jannink after the bombing of 1943 (Image source cultureelerfgoedenschede).

After having been damaged in WWII (FIG. 6.3), the mill was repaired and kept fully operational to cover the large post-war demand for textiles. Its decline started in the late 1950s. After a merge with another company it finally closed its doors in 1967. The adjacent weaving unit remained operational until 1982 when its owner went bankrupt (Stenvert, 2011, 13).

6.1.2 Reuse Preparation

In a time when brownfields all over Europe were seen as a menace, getting substituted by new developments or sitting unused, the case of Jannink differed, showing an alternative way. A series of events, starting with the availability of the complex for purchase in 1974, finally led to the reuse of its spinning unit. The latter was made possible by two main factors: the decisive action of key stakeholders and the need for certain functions in the area that found a place in the former mill.

The initiative for this 'unusual' approach was taken by the architect S. B. (Sake) de Boer along with the urban renewal consultant C.F.L.M. Heerkens (de Boer et al., 1995, 31, de Boer and Heerkens, 1975, Schuiling, 1986, 444). The parties that acted on it were the housing association "Vooruit" and the municipality of Enschede. The latter one, acquired the complex in December 1976 from the investor-contractor Belco Hengelo, saving it from the intended demolition and rebuilding. The stance of the central government which facilitated the project, providing funds for its reuse, was also significant.

According to de Boer and Heerkens (1975, 2), the conditions formulated for the reuse of the complex were the following:

- "1. The building is only to be maintained, if a meaningful and functional destination is found, which will be permanent.*
- 2. There should preferably be a relationship between the complex and its new use.*
- 3. The new use should meet a current need, tailored to the functions belonging to the area delimited by the canals.*
- 4. Efforts should be made for the incorporation of several different functions within the building to encourage liveliness."*

Indeed, the functions' selection conformed to all the above principles. Jannink was turned into a mixed use complex, combining youth housing -in deficit at the time in Enschede- with the 'Twente-Gelderland Textile museum' that was looking for suitable room to expand.

6.1.3 Reuse process

Jannink's reuse took place in two phases (FIG. 6.1: A.1), after a revision of the standing zoning plan in 1977. In the first phase which started in 1979 and was completed two years later, part of the building's ground floor was turned into the 'Twente-Gelderland textile museum'. The museum's design was prepared by the architect A. Verhoeven and was realised with funds from the CRM Ministry (Ministerie van Cultuur, Recreatie en Maatschappelijk). The upper floors were transformed into youth housing by the architectural office of De Boer, receiving funding from the municipality and subsidies from VRO Ministry (Ministerie van Volkshuisvesting).

The second phase of the reuse took place from 1983 to 1984 and consisted of the transformation of the rest of the building into a variety of housing units. This project bore once again the signature of De Boer's office. An important development that took place in 1981 was the inclusion of the complex in the national monuments list (Monumentnummer: 15299) (Rijksdienst voor het Cultureel Erfgoed, 2017), making it eligible for more subsidies.

Through this process the spinning mill including the water tower and the chimney were preserved intact while the boiler house and certain secondary structures were demolished. As S.B. de Boer explains:

"Our ambition was the preservation of the factory and the chimney, and we succeeded in that. The building has retained the image of a textile factory and through its location has a prominent place in Enschede." (Resp. no. 99, interview, 11/10/2016).

The shell of the spinning mill and the chimney were preserved without significant compromises on a volume level. On the contrary, on a detail level the intervention was rather invasive. The cleaning of the brickwork, the selection of the new bricks and mortar have somehow altered the skin of the mill and thus its aesthetic outcome (Stenvert, 2011, 16). Significant changes in the facades were the substitution of the iron window frames with wooden ones and the replacement of some windows with a V-shaped inwardly projecting window for accommodating the new interior apartments' subdivision.

Internally, the mill was subdivided into residential units with prefabricated material, typical for the era (FIG. 6.6). The grandeur of the original space was only retained in the museum section and partly in the interior patios. The three first floors of the water tower were used for the main service core of the building, equipped with a staircase and a new lift. The original water tank was preserved in the attic while some pieces of the mill's machinery were retained and put in display in the museum (Stenvert, 2011, 22).

6.1.4 Occupation and management

For c. 30 years, since the early 1980s, Jannink functioned as a mixed use complex. Its residential part, which remains essentially unaltered to this day, is comprised of 121 apartments for social housing. The 76 units that were delivered in 1981, can accommodate one or two people while the remaining 47 belong to different typologies for housing nuclear families, couples and elderly people. The design also provides room for storage in the roofed common patios, a terrace on the upper floor as well as parking for visitors and inhabitants.

The offered apartments' characteristics in combination with their low rent and Jannink's location, made them very appealing to the local market. As S. B. de Boer explains:

"The Housing Association has never had to deal with vacancies, something that we were initially afraid of." (Resp. no. 99, interview, 11/10/2016).

Despite the obsolescence of the transformation that counts already more than 35 years, the apartments remain occupied to this day (H. Jannink, Resp. no 100, interview, 12/12/2016). According to this study's qualitative research, most of the residents who selected Jannink to live in,¹⁹ did so for its historic architecture, its central location and its low price.

As far as the museum part of Jannink is concerned, its official opening took place in May 1984. Part of the former mill's ground floor was transformed into the 'Twente-Gelderland Textile museum'. Five years later, its name changed to 'Museum Jannink'. Its exhibition illustrated the development of Twente from 1600 to this day with emphasis on the textile industry since 1850. Focus was cast on the impact of this development in relation to the workers' lifestyle and the evolution of the textile machinery. There was an exhibition of industrial equipment from different eras, including some pieces of the former Jannink mill (Michelin, n.d.). Along with the interesting exhibits, the relevance of the existing structure with the museum, its spatial characteristics as well as its location made the museum attractive on a provincial level.

6.1.5 Shifts

Since the beginning of Jannink's operation, three main shifts have taken place. The first one involved the change of the complex ownership. In 1994, due to a change in the housing law ('bruterings regeling') social housing ownership was given to housing associations. As a result, the ownership of Jannink was passed from the municipality Enschede to the Housing Association De Woonplaats.

The second shift which has only taken place recently is the renovation of the building. Almost 30 years after its first transformation, Jannink was in need of a refurbishment. As H. Jannink, sr. project manager of De Woonplaats points out:

"For a long time we didn't have a straight goal with this building. So we kept the maintenance on a low level which resulted in a leaking roof, rotten window frames, broken bricks, rusty steel structure, etc..." (Resp. no 100, interview, 12/12/2016).

¹⁹ For a number of residents, living in Jannink was not a matter of choice but an issue of availability of a social housing unit, managed by the housing corporation.



FIG. 6.4 Het Jannink under renovation, 2016.

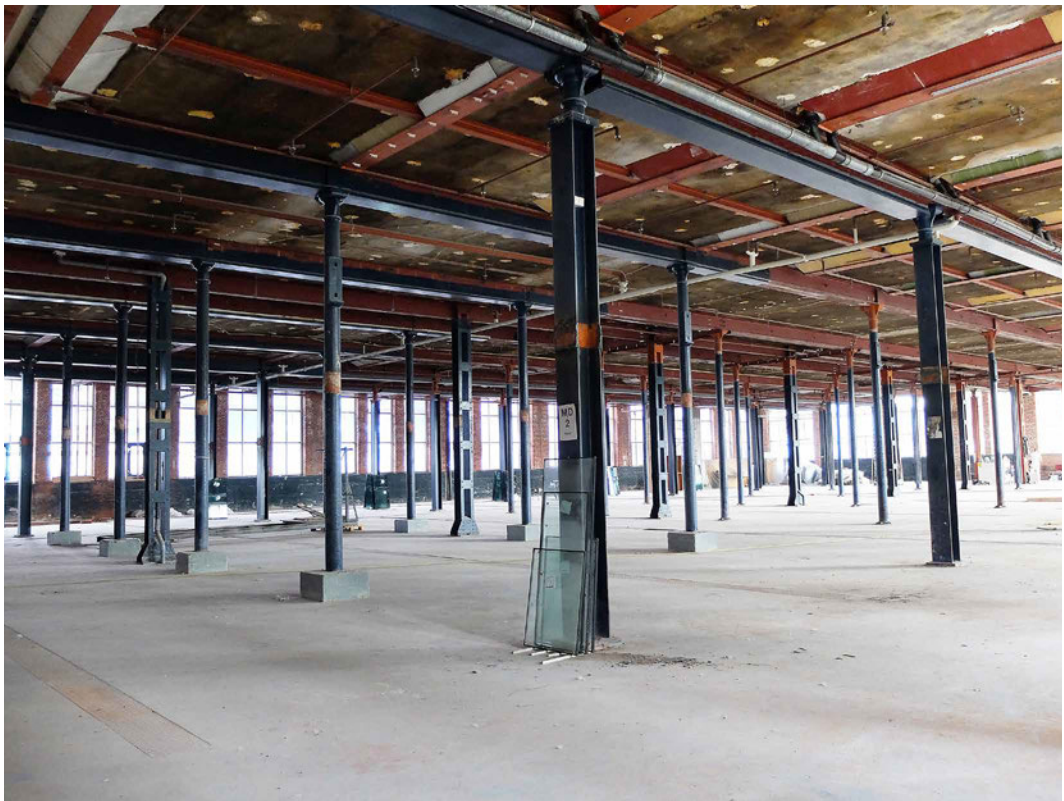


FIG. 6.5 Interior view of the ground floor space formerly housing the Jannink museum, 2016.

In consultation with the residents, de Woonplaats decided to move on with the restoration of the building (FIG. 6.4). The works which are underway since 2015, have a dual scope. Firstly to restore the character of the historic building and secondly to enhance the building's inner climate and comfort standards. Important works involve: masonry work (repointing and replacement of damaged bricks), restoration of window sills, substitution of concrete elements and replacement of single glazing windows (Woonplaats, n.d.).

The third and most important shift that took place in 2007 was the merge of the Jannink museum in the Museum TwentseWelle. The departure of the museum, on the one hand deprived the building from an important function that was facilitating its historic and technical interpretation and on the other, opened a new circle of vacancy for a large part of the building; a problem that still remains unresolved (FIG. 6.5). Woonplaats examined several scenarios for the exploitation of the underused space but they all collapsed in the years of the financial crisis. The current scenario, which appears to be mature and thus probable enough, is the sale of the property to a commercial developer and its transformation into a medical care facility. A. Haer, Municipal Monuments Office employee, appears optimistic over the new transformation pointing out that the new plan respects the monumental values of the site and has a semi-public character, preventing the exclusion of the public from the monument (Bert Haer, Resp. no 98, interview, 12/12/2016).

6.2 Evaluation

6.2.1 Process

The process of Jannink's reuse was quite effective and problem free, yet being top-down and linear, it presents no particular interest. What is worth highlighting though, is the importance of visionaries, such as S.B. de Boer and C.F.L.M. Heerkens, for the initiation of such a process. Their input and initiative is deemed exceptionally important, given the era when the project was realised and the standing 'immature' attitude of the specialists and public at the time. The case also demonstrates the importance of public sector parties in the safeguarding of Industrial Heritage.

6.2.2 Programme

The original programme of Jannink is considered as one of its stronger features. Its mixed use character produced a quadruple positive effect. Firstly, meeting the local needs, it was welcomed as a useful addition to the local market. Secondly, the residential function offered durability to the project allowing at the same time its use around the clock. Thirdly, the museum function opened the monument to the public, encouraging accessibility to a big part of the building. Last but foremost, the museum function interpreted the history of the monument to the public, offering historic continuity while communicating its intangible values as well. The only problem reported (S.B. de Boer, resp. no 99, interview, 11/10/2016), stemming from the combination of these functions was the noise restrictions which prohibited the development of the idea of a "working museum".

The departure of the museum took a heavy toll on the aforementioned well-balanced situation, cutting off the complex from the public and depriving it of the merits of the described interpretation. Moreover, the long-term vacancy of the space generated certain problems in the structure.

It is encouraging that currently there is a defined plan for the reuse of the posed space as a medical care facility. The new function appears to be compatible with the existing residential use while it opens to some extent the building again to a wider public. In the opinion of officials from Woonplaats and the Municipality of Enschede, the new project is carefully designed in relation to the monument's values. Nevertheless, in the author's opinion the loss of the interpretation of the complex's technical and intangible values, caused by the reallocation of the museum deprived the project of one of its most special features.

6.2.3 Architecture



FIG. 6.6 Interior patio, 2016.

The evaluation of the complex' intervention needs to take into account the standing architectural and urban planning ideas of the late 1970's in the Netherlands. In a time when *Stadsvernieuwing* (urban renewal: the radical top-down process of demolition and reconstruction of deprived urban areas) was still in vogue, the preservation of an industrial site can only be seen as revolution.

Even though the complex has not survived intact, the building's shell, water tower, inner structure and chimney have been preserved. The losses include: the weaving unit,²⁰ the boiler house and secondary structures, the inner layout which was largely compartmentalised as well as parts of the façade's detailing. In respect to the last point S. B. de Boer (1995,31) states:

"During the reuse process inexpensive solutions were favoured at the cost of quality."

The current refurbishment, apart from a necessary maintenance stage is expected to restore some of the detailing flaws.

While Jannink's new identity is not expressed in its outer envelope, the intervention is very evident in its interior. The architect was inspired by the standing principle of functionality and successfully attempted to reapply it while retaining the industrial character of the site. The new design takes advantage of the spatial characteristics of the former mill, offering luminous apartments with mezzanines. It also offers inner patios, which leave the original cast-iron columns exposed and make use of the roof skylights and openings for providing natural light.

In the author's view, the materiality and aesthetics of the intervention are rather dated. Nevertheless, this is not expressed in the positions of the interviewed residents (Resp. no 102-113, interviews, Autumn 2016). On the contrary, the mix of the building's intrinsic characteristics and some of the features of the new design appear to be one of the buildings' assets from their point of view.

6.2.4 Cultural significance

The Jannink is a highly important testament of Enschede's industrial past, being one of the few textile mills that survived demolition. As mentioned above, the preservation of its historic values suffered a severe blow with the reallocation of the museum in other premises. Today Jannink's history is only expressed through the safeguarding of its tangible elements. The chimney, the water tower and an embossed portrait of H.E. Jannink on its façade serve as the most eloquent elements of its former function. The removal of the mill's machinery and the complete lack of interpretation are seen as the downsides of the current situation as they obscure the mill's intangible historic dimensions.

6.2.5 Finance

In the case of Jannink, financing has never been a critical issue. The standing socioeconomic situation of the late 1970s, the prominent role of the public sector, the support from various local parties and the scarcity of such projects were factors that contributed in the availability of funds for the mill's transformation from public bodies. In respect to the building's revenue, the functions selection and particularly the residential one, was critical for its financial sustainability. According to H. Jannink:

²⁰ Part of the weaving units façade has been retained and has been listed as a municipal monument (<http://cultureelerfgoedenschede.nl/monumenten/industrieel-erfgoed/fabrieksmuur-jannink-complex.html>).

“There are almost never empty apartments. Exploiting Jannink has never been a problem in relation to the investments we did.” (Resp. no 100, interview, 12/12/2016).

After the reallocation of the museum in 2007 and during the financial crisis the project managed to survive financially, entering however a period of decline. This was manifested by the abandoned ground floor across the Haaksbergerstraat and the poor state of maintenance of the building. The recent refurbishment works, supported economically by the Province of Overijssel, in combination with the scheduled sale of the vacated space to a commercial developer, intend to put a halt to the site's decline while preserving its financial durability.

6.2.6 Social component

The social added value of Jannink's reuse, albeit not its most important feature, was certainly a significant characteristic of the project. On the one hand, the selection of social housing prohibited the development of an elitist character, allowing several social groups to inhabit the historic premises. Fortunately this social status still stands and as H. Jannink reports *“The people who live in the apartments are proud to live there.”* (Resp. no 100, interview, 12/12/2016). On the other hand, the museum turned the building into an amenity of the community making it accessible to a large audience while reflecting a celebrated historic period of Enschede. Since 2007 the project's social impact has been largely undermined. Jannink is at the moment only accessible to its residents. The scheduled transformation is expected to enhance the project's social value re-establishing in a way Jannink's link with Enschede's larger community.

6.2.7 Functionality

The transformed building is viewed as a functional space that accommodates to a large extent the needs of its users. Nevertheless, its performance and comfort level are highlighted by the subjects of this research as Jannink's most problematic features (FIG. 6.7). The posed problems are expected to be solved or at least improved by the current refurbishment. Other issues that are also described as problematic are: the limited outer space (balcony/terrace) and the moderate condition of the roof terrace as well as operational issues such as the cleaning of the common areas (Bewoners van het Jannink complex, 2016).

6.2.8 Stakeholders' evaluation

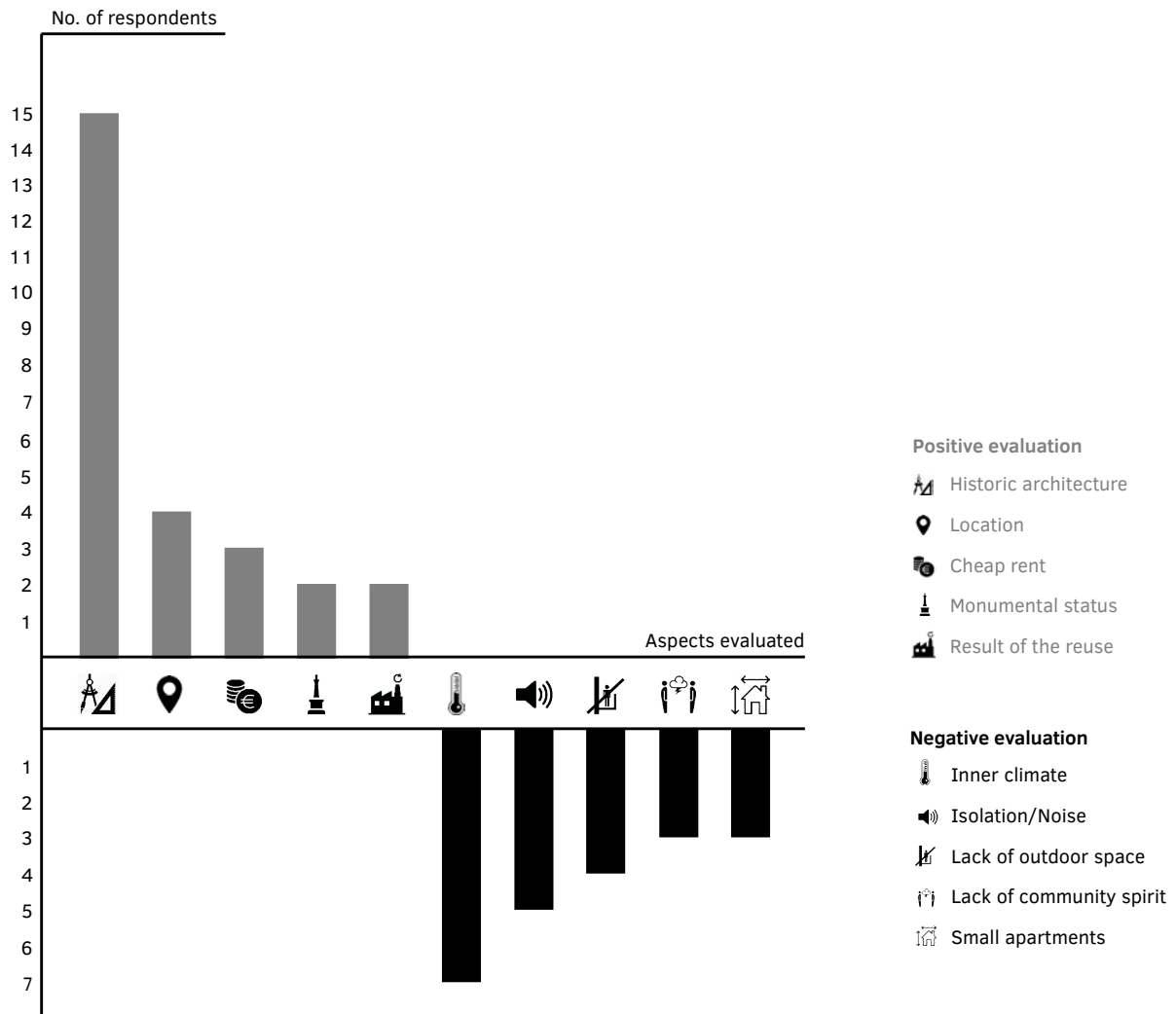


FIG. 6.7 Respondents' evaluation of the strong and weak Aspects of the case of het Jannink (Number of respondents: 15).

7. TextielMuseum

Location: Tilburg, the Netherlands

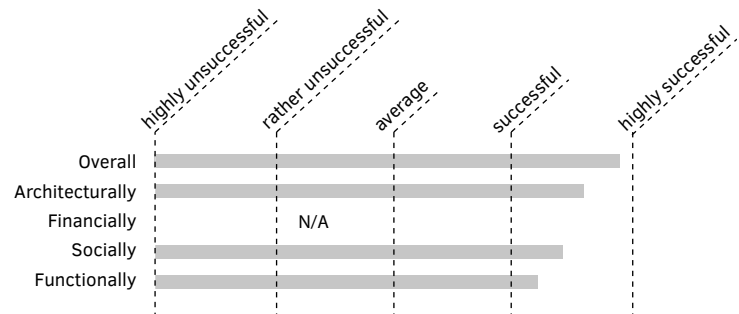
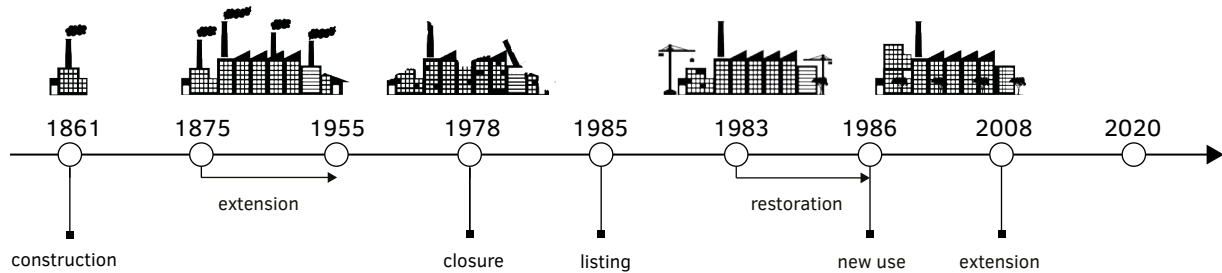
Historic use: Textile mill

Architect: -

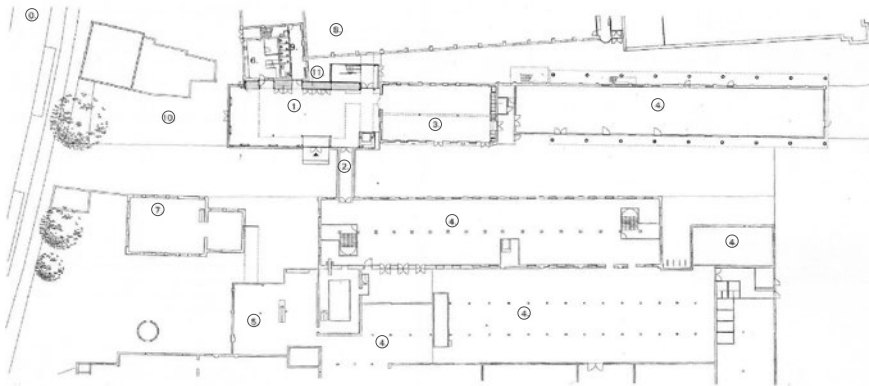
New Function: Industrial museum, Textile Lab

Reuse architects: Van Oers, De Boer (1986), Cepezed (2008)

Status: National monument



[A]



KEY

- 0. Goirkestraat
- 1. Entrance hall and museum cafe
- 2. Passageway
- 3. Museum shop
- 4. Exhibition
- 5. Children and education
- 6. Kitchen
- 7. Museum Offices
- 8. Prospective exhibition of the Tilburg town museum
- 9. Cloak room
- 10. Museum sidewalk cafe
- 11. Installations zone

[B.1]



[B.2]



[B.3]



FIG. 7.1 TextielMuseum Tilburg Fact Sheet

7 TextielMuseum Tilburg

SUMMARY The conversion of C. Mommers & co woollen textile mill to the TextielMuseum Tilburg is one of the earliest Industrial Heritage Reuse cases in the Netherlands. The project showcases the importance of a continuous process of innovation and investment during the operation phase. Through such a process the TextielMuseum Tilburg, housed in the former mill, has remained topical and relevant for a period that exceeds thirty years. Putting in practice the concept of a 'working museum', it does not only safeguard and display the past technology, but it actively contributes to the production of the future. The strengths of the case include its process, programme and cultural values preservation while its weaknesses are restricted mainly to functional issues.

7.1 Analysis

7.1.1 Historic use

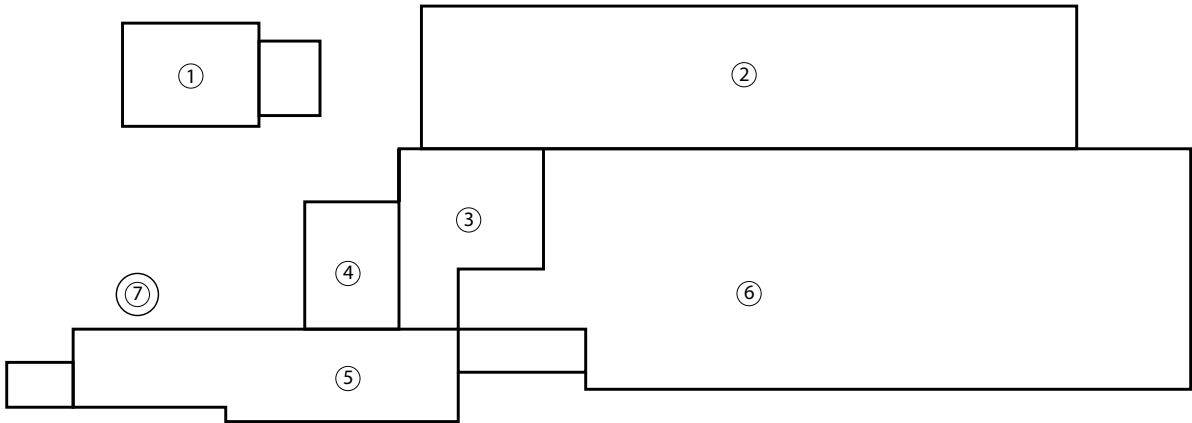
The TextielMuseum is housed in the former textile mill C. Mommers & co. Located in the district Oud Noord of Tilburg²¹ at Goirkestraat street, once an industrial axis, it is now surrounded mainly by low-rise housing projects. The story of the factory dates back to 1861, when Christian Mommers started the production of wool fabrics, using wooden man-powered weaving looms at a small workshop. In 1875, the construction of a new steam powered factory started. The new premises built on site included a boiler room and a weaving shed.

The Mommers factory was extended several times during the 19th and early 20th century, taking the form of the complex illustrated in Figure 7.2. The additions included spinning and weaving halls, a second boiler room housing the second steam engine that was installed by 1885, and an office-villa. In 1920, the two chimneys of the factory were demolished and replaced by the one that survives up to this day (van Dijk, 1996).

²¹ From 1800 to 1950, from a small village, Tilburg was turned into an industrial city of 130.000 inhabitants. Steam engines -the new symbol of power- were introduced to the new-built factories in 1827, giving rise to the rapid industrialisation of the city. The principal industrial activity of Tilburg which flourished between 1860-1920, was wool manufacturing. By 1871, the city counted c. 125 textile factories, gaining its nickname as the wool-city (van Dijk, 1996, van der Veen et al., 2008,24).

LEGEND FIG. 7.1 TextielMuseum Tilburg

- A The ground floor floorplan of the TextielMuseum (Reijseger, 2008).
- B.1 The C. Mommers & co woollen textile mill in operation (<https://wikimiddenbrabant.nl>).
- B.2 The entrance building of the TextielMuseum designed by cepezed.
- B.3 The woollen blanket factory exhibition housed in the former spinning mill.



1. Villa (1889) / 2. Tall building (1885-1894) / 3. Second Boiler room (1907) / 4. First Boiler room (1875) / 5. Factory (1880) / 6. Shed (1875-1877, 1904) / 7. Chimney (1920)

FIG. 7.2 Floorplan of Mommers textile mill. Drawing (van Dijk, 1996).



FIG. 7.3 The Mommers textile mill in operation in 1950 (Textielmuseum Tilburg).

The 1950s saw shifts in the ownership of the complex. In 1950, Mommers built a new factory in the industrial estate Kraaiven and moved the production there²² (Wiki Midden-Brabant, n.d.). Thereafter, part of the Goirkestraat factory was sold to George Dröge while four years later, another part of it was purchased by Brouwers-Van Glabbeek. During that period, the complex was extended once more. Nevertheless, its growth was not meant to last. The downturn of textile industry in the Netherlands during the decades that followed resulted in the profound shrinking of the textile sector in Tilburg (van Boom and Mommaas, 2009, 76-77). The complex in question influenced by the crisis, followed a declining course and finally closed its doors in 1978.

²² The Mommers company housed in the Kraaiven factory survived up to 1995 (Wiki Midden-Brabant, n.d.).

7.1.2 Reuse Preparation

In the years that followed, a set of circumstances arose, leading to the conversion of the factory to an industrial museum. Those were both extrinsic, reflecting the first steps of the realisation of the value of Industrial Heritage in the Netherlands, and intrinsic. Analytically, the large-scale demolitions in the Dutch inner cities during the 1970s, had provoked concerns for the fate of industrial relics. In specific, after the demolition of the Pieter van Dooren's factory and the organisation of the Monuments' year in 1975 (monumentenjaar 1975), Tilburg started rethinking its textile legacy (Robben, 2013). When the historic factory of Mommers fell into dereliction, forward-thinking politicians, such as the Alderwoman Miet van Puijenbroek, who had realised the importance of the textile sector and its connection to the city's identity, supported its reuse (van der Veen et al., 2008, 29).

Apart from the rise of a climate of concern, Mommers escaped demolition due to its intrinsic characteristics, including the building's high historic value. It is noteworthy that the complex had been placed in the municipal monuments list since 1978. In 1985, the mill was declared a national monument, due to its national importance in terms of industrial and technical history, as a representative of one of the earliest large scale and mechanised branches of the Dutch national History (Rijksdienst voor het Cultureel Erfgoed, n.d., Geerts, 2009). Furthermore, according to B. Nieuwenhuis, Project manager & fundraising coordinator of the TextielMuseum (Resp. no, 114, interview, 7/10/2016) the rather good condition of the complex and its location in an area of high historic significance that needed a boost, also played a role for its selection for reuse over other industrial carcasses around it.

Lastly, the conversion of Mommers did not just take place as a result of favouring conditions and its own elevated potential but also as the ideal fit for serving an urgent need of the city. By the late 1970s the Dutch Textile Museum²³ was looking for an appropriate space of large dimensions to house its rapidly growing collection. The Mommers complex had both the historic connection and the adequate space to house such a demanding use.

7.1.3 Reuse process

The reuse of the former industry to a museum started in 1983, with a subsidy from the Province of North Brabant. The restoration architects, selected by the municipality that instigated the project, were the local firm Van Oers in collaboration with Buro De Boer from Enschede (architect of the Jannink complex, too, (see § 6.1.2). Apart from those, the Dutch Textile museum, the National Conservation Department (RDMZ), the Municipal Monuments Committee and an industrial archaeologist were also involved in the reuse process. It should be stressed at this point that the complex in question became the first subject of industrial archaeological research in the Dutch history (Robben, 2013).

²³ The Textielmuseum Tilburg Foundation set up the Dutch Textile Museum in 1958 in the villa of the mill owner Janssens van Buren. The wool industry crisis in Tilburg of the sixties and seventies however, offered unprecedented opportunities to acquire an extensive collection of textile machines, creating the need for the rehousing of the museum to a larger space (Wiki Midden-Brabant, n.d., van Oudheusden, 2014). In 1970 the Museum became a municipal institution (van der Veen et al., 2008,17).

In 1984, Ton Wagemakers, project manager, in collaboration with the architects, formulated a vision for the restoration of the former textile mill. The main points of this vision were the preservation of all phases of the historical development of the complex; the addition of new elements as long as they would be distinguishable from the authentic fabric; the careful maintenance of the interior of the high-rise and the shed buildings as close to their original state as possible and the preservation of small details that refer to the complex's industrial past. Lastly, the building was thought to serve as the largest museum object (Robben, 2013).

According to de Boer (Resp. no 99, interview, 11/10/2016), Robben (2013) and van der Veen et al. (2008, 17), the reuse process was not problem free. On the one hand, the local community was protesting, feeling that the project was a top down decision imposed to them. There were also many former workers for whom, the textile industry was a painful memory and did not wish to see such a project through. On the other hand, there were internal quarrels within the stakeholders team over the preservation of key elements. Nonetheless, the posed problems did not become a reason for abandoning or altering the vision analysed above.

7.1.4 Occupation and management



FIG. 7.4 19th and 20th cent. textile production machinery forms part of the TextielMuseum woollen blanket factory exhibition, 2016.

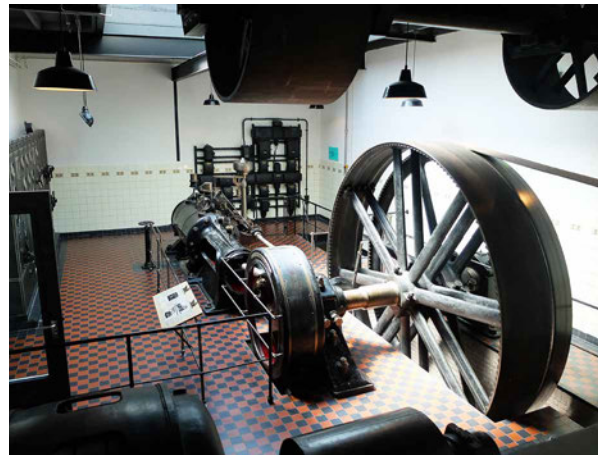


FIG. 7.5 The Louis Smulders & Co steam engine of 1906 forms part of the woollen blanket factory TextielMuseum exhibition, 2016.

The museum opened its doors to the public in 1986, extending in six out of the eleven buildings of the former Mommers complex. During its first phase of operation (FIG. 7.6), it presented the technical development of the textile sector and the small scale production of textiles, showcasing among other exhibits, textile machinery of various mills of the Brabant area. Furthermore, the museum's exhibitions covered related socioeconomic aspects as well as textile art and design issues (van Doremalen, 1991, 7-9). The live demonstrations of machinery made it attractive for a wide audience of different ages (van Dijk, 1996). Furthermore, the large extent of the themes presented, provided for the first time a comprehensive visualization of the important moments in the textile history of Tilburg and Brabant.



FIG. 7.6 The TextielMuseum in 1991 (Textielmuseum Tilburg).



FIG. 7.7 The TextielMuseum in 2016.

7.1.5 Shifts

The redefinition of the museums' role in the turn of the 21st century and the changing social, spatial and political conditions in the Netherlands called for the reinvention of the established museums. The TextielMuseum Tilburg, responding to the new challenges, underwent various changes in the early 2000s regarding its concept, programme and physical space.

Specifically, the institution departed from a conventional museum concept and put in action a progressive plan that would turn it into a 'working museum' (museum in bedrijf). In order to achieve that, parts of the complex were refurbished in 2004. A year later, a new Textile Laboratory was launched. The TextielLab, placed in the old weaving shed, functions as an in-house workplace (FIG. 7.8). With its establishment, the textile production was reintroduced to the old textile mill. Equipped with a range of high tech, computer aided machines, the lab produces experimental textiles, developed and manufactured with innovative yarns and materials. Weaving, knitting, printing, embroidery, laser and tufting are the six main techniques used (de Jonge, 2013, 16). The "beating heart of the museum". (de Jonge, 2013, 16) is a point of attraction for students, designers, interior architects and artists. What is more, the whole creative and production process conducted in the TextielLab is open to the museum's visitors.

In respect to the spatial shifts that took place in the TextielMuseum, during the first decade of the 21st century, they regard both the incorporation of historic industrial fabric and the construction of a new-built extension. Specifically, in 2002 a neighbouring industrial facility located to the north of the museum was incorporated to it (FIG. 7.1: A). The posed facility included the Koninklijke Damastweverij (Royal Damask Weaving mill), the tapestry workshop and the Textile Conservation Atelier of the DSW (van der Veen et al., 2008).



FIG. 7.8 The textielLab, housed in the former Mommers weaving shed (wikkie.nl).



FIG. 7.9 The wooden looms exhibition, housed in the former Damask Weaving mill, 2016.

Besides that, in the same period another project that would greatly influence the image of the complex was also put in motion. T. Wagemakers, museum director between 2003-2011, discussing the subject explains:

“The association with old machinery, the old techniques and with people from ‘the old days’ remained, whereas the museum had started to innovate and experiment, cherishing an authentic workplace. This new additional focus was invisible from the outside. The museum had to breathe the combination of a free, public domain, an open and safe sanctuary for experimentation, knowledge and inspiration. A place for artists, designers and students to freely associate modern creativity with old craftsmanship. [...] In 2000 a rigorous solution was decided: between the ‘closed’ factory buildings an ‘open’ Entrance Building made of glass would be placed.” (Reijseger, 2008, 3).

Apart from refreshing the image of the museum and reflecting its dynamism, the planned extension was necessary for housing its growing activities, too. In detail, the brief of the extension's programme included a new spacious entrance hall, the museum's café, an auditorium with its foyer extra meeting room space and a panorama deck.

The design of the new building was commissioned to the architectural firm cepezed by the City Council, which provided also funds for its realisation, along with the Province and private parties. Cepezed's design proposal was met with great enthusiasm from the direction of the museum and the funding parties (Reijseger, 2008), yet it took multiple alterations and almost a decade to be implemented. As a result, the required budget was inflated. The reason behind the delay was the objections of the national and local heritage services to several aspects of the new building (B. Nieuwenhuis, Resp. no 114, interview, 7/10/2016). Finally, after the requested modifications, the construction started.

Cepezed designed a glass multi-storey building arranged in parallel with the historic spinning mill of Mommers and in line with the Damask Weaving mill (FIGS. 7.10, 7.12). According to the architects:

“The expansion had to provide a number of new functions and also give the museum a recognizable appearance. To achieve these aims, we did not go for an addition in the style of the existing building, but instead chose explicitly for a modern construction that contrasts sharply with the original properties. Strategically positioned at the head of the complex, a striking, abstract and almost scale-free glass building has risen, with a prominent steel construction that has been left completely visible. Inside, a second, smaller volume for gatherings, meetings and educational purposes appears to be almost freely suspended in the space” (cepezed, n.d.).



FIG. 7.10 The entrance building designed by cepezed (cepezed, n.d.).



FIG. 7.12 The TextielMuseum after its extension, 2016.



FIG. 7.11 The TextielMuseum before its extension (cepezed, n.d.).



FIG. 7.12 The TextielMuseum after its extension, 2016.



FIG. 7.13 The installation 'Groeimonumen't designed in the back yard of the TextielMuseum by the studio NEXT architects (Next architects).



FIG. 7.14 The depository for the Regional Archive, designed by cepezed, 2016.

The interior of the new building was designed by the Studio Muller van Tol. Using colorful textile applications, the latter attempted to make the glass and steel volume warmer and more welcoming, providing at the same time multiple references to the textile background of the museum complex (Reijseger, 2008, 3, 12-15).

The new volume communicates with the spinning mill through a transparent corridor made of glass (FIG. 7.12). According to B. Nieuwenhuis (Resp. no 114, interview, 7/10/2016), this connection, which is rather problematic, was a result of a compromise between the architects and the monuments commission.

Along with the new structure, cepezed also designed a depository for the Regional Archive that was merged with the Textile Museum in 2004. The new function is housed in a new closed volume placed on steel columns above the Damask Weaving mill (FIG. 7.14). Lastly, the context of the complex was redesigned by the architectural studio Inside Outside and decorated with an installation designed by the studio NEXT architects (FIG. 7.13).

The inauguration of the 'refreshed' TextielMuseum took place in 2008.²⁴ Since then, the reused complex has become a cultural hotspot with international appeal; a creative and stimulating meeting place for visitors, students, designers and artists where the past and present of the city meet. The growing appeal of the museum is reflected in the series of awards won recently, including the BankGiro Lottery Museumprice in 2017 and the international prize "the Best in Heritage" in 2018.

Today, the former industrial complex houses a rich mixed use programme which includes an Industrial museum (featuring a semi-permanent display of the woollen blanket factory (FIG. 7.4), the Damask weaving atelier (FIG. 7.9) and 7 temporary exhibitions/year), the TextielLab, a library, administration facilities, the textielshop, a cafe, an auditorium for hire, meeting rooms and an archive depot. The analysed shifts in the concept, programme and the physical appearance of the Textielmuseum have transformed it from a conventional industrial museum to a celebrated creative industry. Aiming to further extend and improve, the Textielmuseum has formed a new agenda for the future, which is analysed in detail in the TextielMuseum Bidbook (de Jonge, 2013, 27-37).

7.2 Evaluation

7.2.1 Process

The process of the historic mill's reuse was linear and top down, features that characterise early conversion projects. The case highlights the catalytic role of the local authority as an instigator, funder and owner of the complex as well as the impact of forward thinking personalities in key roles such as M. van Puijenbroek and T. Wagemakers.

An important lesson that can be drawn from the project's process regards the merits of a continuous effort of innovation and investment. In contrast with a series of early reuse projects realised in the 1980s in Europe, the TextielMuseum in Tilburg was not left to roll back to obsolescence. In contrast, the museum managed to keep up with its era and remain topical through several changes in its concept, programme and facilities, realised in the 2000s.

²⁴ The same year the museum was privatised.

7.2.2 Programme

The programme of the project is one of the strongest features of the case. The shifts of the 2000s and the formation of the 'working museum' concept opened a new period in the complex's operation. Since then, the Textielmuseum being a lot more than an industrial museum, both presents the historic process of textile production and it reinterprets it, making it topical for the current era. B. Nieuwenhuis, explains:

"We give commissions to artists and designers to create our own textile line. We have R&D. We are a knowledge and an expertise centre. We want to give attention to the history but we also want to give the museum a new mission." (Resp. no 114, interview, 7/10/2016).

The combination of an industrial museum with a modern production space linked by the common thread of textile manufacturing and enriched with educational and recreation functions has multiple merits. As posed above, it attracts a wide audience of different ages and backgrounds. Secondly, it reinforces the project's financial viability. Lastly, the programme fits the historic character of the complex both in terms of spatial requirements and in terms of symbolism.

7.2.3 Architecture

The architectural result of the complex's transformation is among the strengths of the case. Yet, the extension of the 2000s, is seen as an ambiguous aspect of the project.

The literature review as well as the qualitative and field research confirm that the historic fabric has been respectfully restored and preserved as a whole (volumes, facades, interior, materialisation etc.). Only certain details, such as the patina of time, in the interior of the buildings have been lost. The interventions in the historic buildings (e.g. the installation of the Texiellab in the Mommers shed) are not invasive, fitting the industrial character of the building while respecting its spatial qualities. This positive outcome can be attributed to the fruitful collaboration of the architectural team with the national and municipal heritage services.

As opposed to this approach, the extension of the 2000s branded by cepezed as '*harmony in contrast*' (Robben, 2013), is subject of controversy. In the opinion of the large majority of the interviewees of this research (Resp. no 99, 114-125, interviews, Autumn 2016), the new extension is highly successful. It effectively meets the needs of the extended programme and "*it communicates accessibility and enlarges the recognition of both the museum and its entrance*" (Reijseger, 2008, 4). This positive opinion is also shared by a large number of publications (Reijseger, 2008, cepezed, n.d., van der Veen et al., 2008, de Jonge, 2013).

This study suggests that the new building, despite satisfying the aforementioned needs, should be evaluated prudently. The extension, in the authors' opinion, fits more the signature-architecture of cepezed than establishing any type of dialogue with the existing historic fabric. As such, and through its scale position and materialisation, the extension becomes more prominent than the historic fabric, overshadowing it. Furthermore, the connection between the two presents weaknesses.

Cepezed has stated that they “took as a starting point the power of the original and the retention of all the distinctive and characteristic elements” (cepezed, n.d.). Nevertheless, a close study of the new structure reveals that the latter draws hardly any inspiration from the historic complex, neither in terms of volume, nor in terms of morphology or materialisation.

In conclusion, this study supports that the architectural intervention of the 2000s on the one hand has covered effectively the growing needs of the project's enriched programme while attracting required attention and putting the Textielmuseum back on the map. On the other hand however, little attention and sensitivity was shown to the integration of the extension in an important historic ensemble.

7.2.4 Cultural significance

One of the biggest assets of the case is the careful preservation of the complex's cultural significance. As presented in the analysis, the transformation not only involved the preservation of the tangible immovable heritage elements, such as the buildings and the chimney, but it also retained the remaining parts of the mill's machinery, combining them with a rich collection of 19th and 20th century machinery from factories across Brabant. It is also important to stress that the transformation of the Mommers complex drew from the extensive research carried out on the subject since 1977 (van Doremalen, 1991, 8). Furthermore, the programme of the project allowed the interpretation and dissemination of the historic function of the space, its production process and product, along with the related sociocultural and artistic ramifications of the textile production.

An important innovation of the case, which is in line with the current theoretical conservation framework, is the introduction of the function of the textielLab. The high-tech production space bears a special significance, reinterpreting the historic function of the complex with modern means and machinery that reflect the advances of the 21st century. The combination of all the aforementioned aspects testify for the high standards of preservation of the complex's cultural significance. In the words of V. Cerruti,

“This way, the sense of place: the DNA of the place from the past, generates a new identity for encounters and bonding between new residents, entrepreneurs, users and visitors.” (Robben, 2013).

7.2.5 Finance

The Mommers factory conversion and its operation was funded until 2008 by public sector funds mainly from the North Brabant Province and the local authority. In 2008, the museum was privatised (van der Veen et al., 2008). Nevertheless, it is still subsidised from the two aforementioned parties as well as from a number of other institutions (TextielMuseum TextielLab, n.d.).

As posed above its multifunctional programme facilitates its financial viability. J. van Elk, Librarian of the TextielMuseum, elaborating on the subject, states:

“We do not make profit. We are subsidised by the City Council. The museum functions well. There are no shortages.” (Resp. no 116, interview, 7/10/2016).

7.2.6 Social component

The new function of the Mommers textile mill has produced significant social added value. Despite the initial negative reaction of the local community in the 1980s, the operation of the TextielMuseum over the years has inverted the climate of mistrust. Offering a combination of educational, cultural and recreational activities with emphasis on the textile production, the reused site has become a popular destination of a national range. It is a meeting place and a source of employment. It is also an accessible, innovative space which invites its visitors to become users, by allowing them to get involved with the craftsmanship and creativity (van der Veen et al., 2008, 39). It is a space where expertise of textile fabrics is passed on to the next generations.

Lastly, the TextielMuseum, exhibiting one of the most important aspects of the Brabant history, contributes not only to the restoration of the spatial fabric but to the identity of Tilburg and its residents, too.

7.2.7 Functionality

The functionality of the project is one of the weakest features of the case. The most important functionality issues reported by the interviewees of this study include problems with the inner climate of the complex as well as routing matters (FIG. 7.15). G. Boekhorst, Museum registrar, elaborating on the subject, argues:

“We struggle with the inner climate... It is not easy to make a logical routing through the museum... The buildings always need attention.” (Resp. no 115, interview, 29/11/2016).

Other issues revealed during the qualitative and field research were the problematic accessibility of the museum due to its location in the periphery of Tilburg and the need for further enhancement of the security and the depository. (B. Nieuwenhuis, Resp. no 114, interview, 7/10/2016).

7.2.8 Stakeholders' evaluation

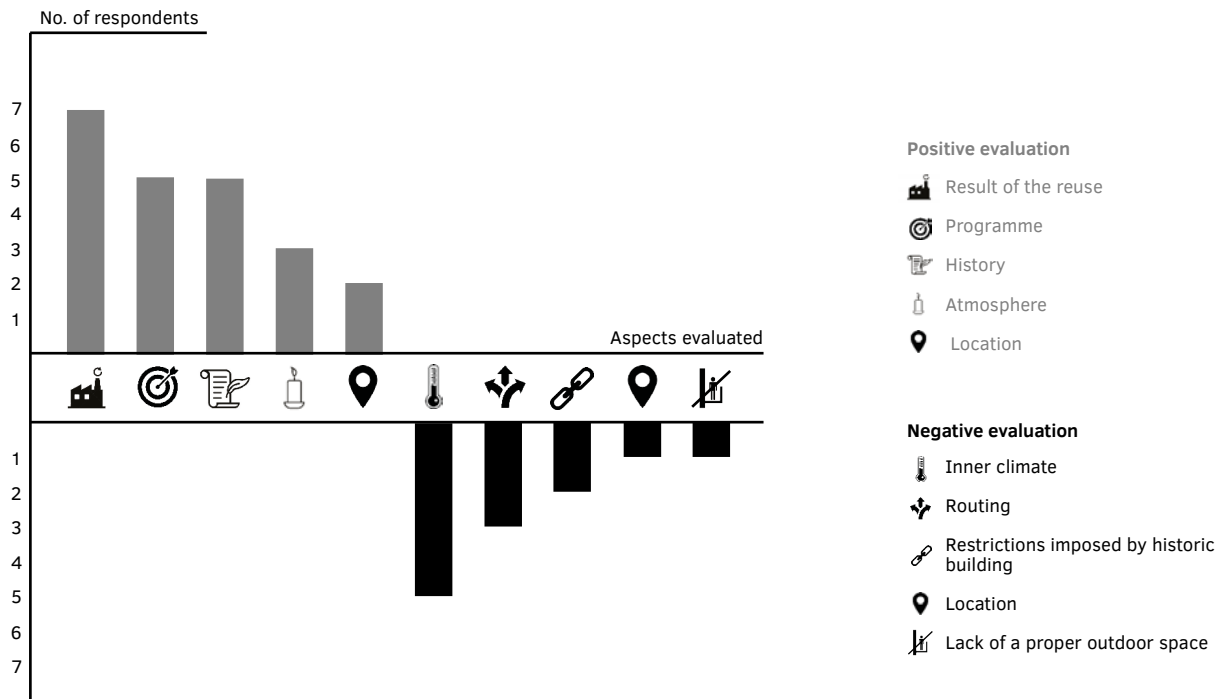


FIG. 7.15 Respondents' evaluation of the strong and weak Aspects of the case of TextielMuseum (Number of respondents: 13).

8. Westergasfabriek

Location: Amsterdam, the Netherlands

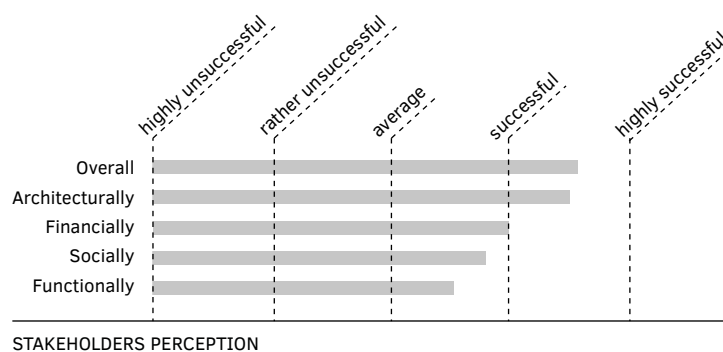
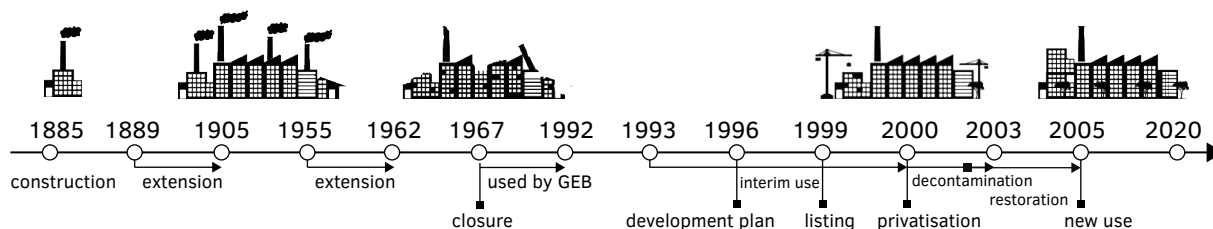
Historic use: Gasworks

Architect: Isaac Gosschalk

New Function: Cultural park

Reuse architect: Braaksama & Roos, Gustafson (park design)

Status: National monument



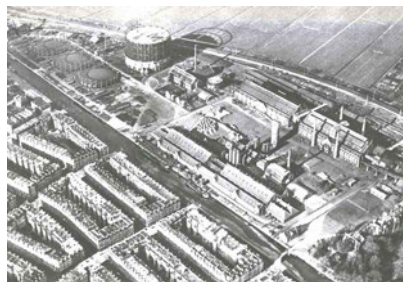
[A]



[B.1]



[B.2]



[B.3]



FIG. 8.1 Westergasfabriek Fact Sheet

8 Westergasfabriek

This text has been largely based on the article: Chatzi Rodopoulou, T. Reloading 21st century cities with cultural energy: The transformation of gas factories into cultural hotspots in Amsterdam and Athens. Proceedings of the International Conference on Changing Cities III: Spatial, Design, Landscape & Socio-economic Dimensions, June 26-30 2017 Syros, Delos, Mykonos Islands, Greece. pp. 1786-1796.

SUMMARY

Westergasfabriek is seen as a turning point for Industrial Heritage Reuse in the Netherlands. Its most special feature involves its innovative non-linear redevelopment process. Westergasfabriek is appreciated for its sympathetic and careful reuse, its appealing programme, its financial durability and its social impact. The functionality of the complex and the preservation of its historic significance are perceived as weaker points. The growing commercialisation of Westergasfabriek is seen as a key risk that puts in jeopardy multiple dimensions of the project.

8.1 Analysis

8.1.1 Historic use

The Westergasfabriek is located northwest of the centre of Amsterdam.²⁵ It was one of the two coal gas factories of Amsterdam, founded by the Imperial Continental Gas Association (ICGA). Its construction was completed in 1885 and its product was originally used for street lighting. Designed by the architect Isaac Gosschalk, the complex was built in the Hollandse Neorenaissance style with some eclectic features and innovative structural methods (Somer and Lankamp, 1998).

In 1898 the Westergasfabriek was passed to the hands of the city of Amsterdam. The following years saw the increase of the production and the successive extension of the complex with new structures including the large gasholder (1902), the boilerhouse (1903) and others (FIG. 8.1:B2). From 1955-1962 the plant was expanded again, to become redundant only five years later.

²⁵ The complex is surrounded today by the Westerpark bordering with the railway lines, a canal system and the residential areas of Staatsliedenbuurt and Centrale Markt.

LEGEND FIG. 8.1 Westergasfabriek

- A The Masterplan of the Westergasfabriek and the Westerpark (Gustafson Porter + Bowman).
- B.1 The former office building of Westergasfabriek, 2016.
- B.2 Aerial photograph of the Westergasfabriek in operation in 1927 (Somer and Lankamp, 1998, 20).
- B.3 Aerial photograph of the Westergasfabriek after its reuse, 2017 (Google earth).

An important step towards the reuse of the plant, taken by the District Council (D.C) in 1990, was the establishment of the project-office Westergasfabriek, directed by Evert Verhagen. In 1992 the reuse process was accelerated by the hasty departure of the Municipal Energy Company, that was using the premises as workshops and storage since the late 1960s. Mobilised by the fear of having the complex squatted, the local authority decided to move on immediately with an interim use.

It is worth mentioning that despite the intent for a horizontal venture, the final decisions for the reuse of the buildings were rather top-down. When the shortlisted intended main permanent tenant withdrew in 1995, the D.C. decided to stop the consultation approach and proceed with what had been proved successful in the interim use.

8.1.3 Interim Use

In 1992 E. Verhagen, Project Manager of Westergasfabriek (1990-2005), appointed L. Jansen as a project leader for events. Jansen, who had an extensive network in the artistic community of Amsterdam, was asked to find temporary users in less than two weeks. Despite the frenetic pace of the tenants selection process, she managed to set criteria for achieving an interesting cultural atmosphere, preserving the character of the buildings and creating conditions for social interaction between users and visitors (Cerutti, 2011, 90).

L. Jansen discussing the critical decisions that drove the interim use states:

“We figured that art & culture would show the potential of the buildings. I made sure that we would not need any subsidy by hosting commercial events which paid for the rent so to say. As a result, we came up with the solution of combining permanent lease and temporary events. Also, since the buildings were not listed yet, there was the danger of demolition. A cultural spot attracts a lot of people, generates interest about the site and thus is a good way to prevent demolition.” (Resp. no 127, interview, 30/9/2016).

The public was allowed in the complex the 1st of June 1993 and responded with great enthusiasm. The interim use was planned to be only a one-year temporary phase however it finally lasted seven years. During this period no action was taken for the preservation of the complex yet a lot was achieved.

E. Verhagen, highlighting some of the merits of the interim use, argues:

“The temporary use taught us how to use the buildings and make the park a connector between functions. It also showed us that culture, in the form of cultural enterprise, was a financially sustainable use.” (Resp. no 128, interview, 29/6/2016).

The interim use had a threefold positive contribution to the project. Firstly, it served as a test phase highlighting a financially and socially sound future use and operational challenges. Secondly, it generated interest and awareness among various Actors on a local and national level. This was used as an indirect pressure point for the listing of the complex, materialized in 1999 (Nationale Agenda Herbestemming, 2015b). Thirdly, it prevented vacancy and in turn the structural deterioration of the complex.

This phase, though rewarding was not problem free. Operational problems, such as the resolution of safety issues were rising. Moreover, after the first year a tension started to be building up among the tenants who were gradually demanding a more stable position in the complex.

8.1.4 Reuse process

The location, scale and status of the Westergasfabriek, the growing appeal of its interim use as well as the vigorous action of the local community for the Westerpark development made the project more and more important for the D.C. and the C.C. of Amsterdam as well as the Central Government. The engagement of the C.C. with the process in the mid-1990s was expressed with the appointment of Edgar Peer as project alderman. This development had a massive impact on the future direction of the process, as the alderman instigated its privatisation and the development of 3.500m² of new buildings in the eastern part of the terrain.

From 1996 to 2000 three very important decisions took place. Kathrin Gustafson was selected as the architect of the park, a development plan that was assigning a cultural function to the complex was passed by the D.C. and the complex was sold to the development company MAB with the obligation to restore and make it fit for its future cultural function (Koekebakker, 2003, 51).

The transfer of the ownership from the public to the private sector was, according to the respondents of this research, quite hard. The developer was perceived both by the D.C. and the local community with suspicion and unease. The D.C. and MAB co-signed a carefully drafted contract that had a double function. Firstly, it analysed the delegation of responsibilities between the two parties and secondly it set some standards in terms of the nature and character of the future function, the operation of the complex and the profit margins.

As soon as MAB took over, they set up Westergasfabriek B.V., a management and operating company for the complex. L. Jansen, who had played an important role in the interim use was offered the position of the managing director. Another key decision was the selection of the architectural office Braaksma and Roos for the redesign of the complex. I. Kalisvart, CEO of MAB at the time argues:

“We felt the need to change architects and not to move on with Mecanoo. Our goal was to maximise flexibility for future uses and preserve the authenticity. Stay truthful to the industrial architecture but find the best manner to accommodate future uses. For that we needed an architectural office to restore and not somebody who would be focused on adding something new.” (Resp. no 130, interview, 11/7/2016).

The construction of the park and the decontamination of the terrain started in 2000 while the restoration and reuse of the buildings begun two years later. This period was the most challenging phase of the project. The decontamination process proved to be far more complex, expensive and in turn lengthier than anticipated. The miscalculation of the needed funds for the decontamination resulted in a reduced budget for the restoration of the buildings.



FIG. 8.3 Building of Westergasfabriek before and after its transformation (Liesbeth Jansen).

“When we started we wanted to restore the buildings for at least 50 years but we had to review our ambition and go for a restoration of 20-30 years at the most. So we had to adjust the philosophy of the restoration because of the polluted situation.”, claims O. Graeven, project architect in Braaksma & Roos (Resp. no 83, interview, 15/7/2016).

Furthermore, according to E. Vehagen, the decontamination drove away some of the users, it created some unease in the neighbourhood and most importantly, it caused significant problems with the developer. The mutual obligations defined in the aforementioned contract and the courage of the D.C. to be the guarantor so that the developer could secure a loan from the National Restoration Fund, finally saved the project from collapsing. The decontamination process and the construction of the park were completed in 2003 while the restoration and transformation of the buildings was completed by 2007 (FIGS. 8.3).

The philosophy of the architects was decisive as it determined the character and aesthetics of the complex. J. Roos, partner and co-founder of Braaksma en Roos architectenbureau, explains:

“The vision for the restoration was to leave it as it is. You really do not want to polish the dirt... You do not want to do too much. However, you have to understand the buildings very precisely because then you can decide what to do and what not to do. [...] We wanted to have everything open for future use and at the same time to preserve the heritage values. [...] You bring architecture with the most societal relevance. It is not so much about the design itself, it is about the use. There were a lot of iconic things already so you do not have to be so iconic. You just have to go with what is there...” (Resp. no 83, interview, 15/7/2016).

8.1.5 Occupation and management

Since the mid-2000 when the terrain was opened again to the public, the Westergasfabriek has been functioning as a cultural hotspot of Amsterdam. In combination with the Westerpark, it is a pole of attraction with a massive appeal on a local and national level. The terrain is managed by a private-public collaboration. The buildings, owned by the Meijer-Bergmans couple, are managed by the Westergasfabriek BV while the Westerpark is owned and managed by the D.C.



FIG. 8.4 The Zuiveringsgebouw (Purification Building) after its transformation in a multifunctional space (Liesbeth Jansen).

The mixed scheme of permanent tenants and temporary events, which had been proven to be successful during the interim use, has been retained. The permanent tenants include mainly cultural and entertainment organisations and cultural entrepreneurs such as creative companies (Westergasfabriek BV, 2015). According to N. Abdulkadir, Marketing Communication manager, Westergasfabriek BV, the company organises in average 250 events per year, excluding those organised by the permanent tenants. These events, which vary from a meeting of 10 persons to a conference of 3000 people, attract more than 650.000 people yearly in the event buildings, excluding the visitors of the tenants and park visitors.

Currently, two new developments are taking place in the terrain on the initiative of Westergasfabriek BV. The first one is the sustainability upgrade of the complex, that includes improvements in the isolation of the buildings, enhancement of their energy consumption and an innovative waste management method. The second one is the transformation of the historic office building (FIG. 8.1: B1), that served formerly as the DC headquarters, to a hotel. Aiming to foster sustainability as one of the core characteristics of the complex, Westergasfabriek BV has chosen Conscious Hotels, an eco-friendly hotel chain for this venture (Abdulkadir, N., Resp. no 126, interview 5/7/2016).

Another action that is currently under way, organised by the Friends of the Westerpark is the formulation of a small core of public facilities for the neighbourhood in the park. These will include a canteen, a tennis court, table tennis and toilets. *“It will be a non-for-profit social place”* states J. van Lieshout, member of the Friends of Westerpark (Resp. no 129, interview, 5/7/2016).

In the course of the operation of the Westergasfabriek a lot has changed. The shifts can be traced more on an administrative, programme and social level than on a spatial one. In the opinion of N. Abdulkadir, the shift is a natural process, related also to the owner's agenda and the change in the company's director, that took place in 2010. She explains *"we have gotten more mature, more professional and you can see that also in the kind of tenants we attract and we can host, too."* (Resp. no 126, interview, 5/7/2016).

The posed professionalism has two opposite sites. On the one hand, it secures the project's durability, offering the owner higher rents and more reliable business partners.²⁶ On the other hand though, it significantly affects the new identity of Westergasfabriek. Since 2010, a continuous corrosion of the cultural character of the complex is taking place, giving way to commercial functions. This development seems to cause serious concerns among the striking majority of the project's stakeholders as shown from their statements:

"There is a tendency for more money making. The place is becoming progressively less underground and more a business. It is becoming more and more commercial. Formerly, the events were organised by artists and now as you see they are organised by big corporations like Nike," explains a tenant of Westergasfabriek since 2006 (Resp. no 136, interview, 5/7/2016).

"We had agreed that the function would be cultural and there would be a differentiation in the rent prices, offering both low rent spaces and commercial spaces. Nowadays, the complex has become too expensive for cultural users. There are still festivals but they are all commercial now. I still believe that it is successful because it is mixed but there is too much HORECA." states M. Fransman, D.C. Alderwoman (1998-2001) (Resp. no 131, interview, 11/7/2016).

"The district made some rules that were never applied. For example, they set a maximum amount of retail and restaurants. They did that in order to keep start-ups in house. Nowadays, most of the start-ups have been kicked out because they cannot afford the high rent. They prefer leisure and HORECA as they generate more profit. So I am afraid that the project is being commercialised." argues E. Verhagen (Resp. no 128, interview, 29/6/2016).

In parallel with the mutation of the Westergasfabriek's character a continuous process of gentrification is taking place in the surrounding neighbourhood.

"A PhD study showed that after the reuse of the complex the values of the area have risen more than any other area in Amsterdam in the past 10 years. So on a more statistical level you see the upgrade of the residential area. Also, the neighbourhood has become more popular, which is a good outcome. On the other hand, along with the neighbourhood the type of people who come to live here changes. I do not know if that is a good or a bad thing." states N. Abdulkadir (Resp. no 126, interview, 5/7/2016).

²⁶ The quality of the offered events is not the object of this study and thus it is not evaluated.

8.2 Evaluation

8.2.1 Process

Westergasfabriek is a bright example of an effective process of Industrial Heritage Reuse. Three significant points should be highlighted in relation to that. Firstly, in contrast with a typical project, the posed process was open-ended and flexible. This allowed to deal successfully with surprises, which is a typical characteristic of Industrial Heritage Reuse, and come up with solutions on the spot. Due to this attitude, it was possible to organise the interim use which, as analysed above, offered the project multiple lessons. Secondly, some safeguards were put in place for the smooth conduct of the process. These included the legal documents which made explicit and binding the responsibilities of key Actors. Finally, the process was characterised by extensive collaboration between a multitude of stakeholders. Even though this caused delays, it certainly enhanced the result, making it relevant not only for the owner and the users but also for the local community and the City of Amsterdam.

8.2.2 Programme

The programme of the Westergasfabriek is one of the case's strong Components. Even though it is perceived as a monofunctional project with a cultural character, in reality it is characterised by a vast diversity. It houses a variety of culture forms, creative industries and recreational functions. It hosts public activities while also housing enterprises that work in relative seclusion. Furthermore, it combines permanent tenants who offer continuity and security to the project with incidental tenants who refresh the image of the site. Lastly, it welcomes a variety of audiences that differ in size and age.

What reinforces vastly the programme of Westergasfabriek is its relation to the Westerpark. Despite the thorny relationship between the managers of the complex and the park, the tenants and users argue that the combination of the two elements makes the project unique and dynamic (FIG. 8.6).

The recent shift in the programme of Westergasfabriek towards more commercial functions at the expense of cultural ones, is seen as a risk for the future of the project. According to a tenant:

"It has become a bit too commercial. Creative parties do not have a lot of budget so they do not come here. It is too expensive for them. We would like to see independent companies staying here. The cycling shop for instance does not fit the concept. The place attracts more and more restaurants... The creative people have gone to Amsterdam Noord." (Resp. no 134, interview, 5/7/2016).

A similar tendency is also noted for the events organised in the park by the D.C. The character of the events and their growing frequency cause unease to the neighbours and aggravate their perception and attitude towards the project.

8.2.3 Architecture

The complex has been carefully preserved from an ensemble to a detail level with minimum compromises occurring mainly before its listing. The additions are limited and they match the industrial character of the terrain, adding a distinctive layer which is expressed with contemporary materials and architecture. The modesty of the architects' approach and their respect to the historic features of the complex allow the current users and visitors to grasp the industrial character of the terrain. The selected function does not require high compartmentalisation, allowing several buildings to retain their original grandeur of their volume intact.

8.2.4 Cultural significance

The history of Westergasfabriek has been partially safeguarded mainly through the preservation of tangible immovable elements of the complex. While most of the historic buildings have survived, all the machinery of the gas factory is lost. O. Graeven, explains:

"There was really an intention to preserve the space like it was because all machinery was gone when we started. That was very important. We did not have to make choices about what to keep and what not to keep. Since the machines were gone, you were left with a big open space that could be reused." (Resp. no 83, interview, 15/7/2016).

The retention of the historic names of the buildings and the complex serve as one of the few references to the site's former use. Unfortunately, in situ interpretation is missing. There is a wealth of information online, focusing however more on the developments that took place after the 1970s rather than the plant's historic function (Stadsdeel Westerpark). E. Verhagen referring to the preservation of the complex's cultural significance argues:

"The history of Westergasfabriek is gone. There is not enough interpretation. Unfortunately you could not force them to do it." (Resp. no 128, interview, 29/6/2016).

8.2.5 Finance

The reuse of Westergasfabriek and Westerpark required significant investments from the C.C., D.C., MAB and other parties. The collaboration and mutual trust between the implicated parties were crucial requirements for the bankrolling of the project. As posed above, the decontamination cost was a substantial expense that took a toll on the remaining budget for the complex restoration. Westergasfabriek since its official opening is self-funded, based on the principle of cultural entrepreneurship. According to Westergasfabriek BV, the modest profit of the company is invested back in the maintenance of the complex. Since 2010, there is a tendency for raising the company's profit, evident in the rise of rents and the successive commercialisation of the complex. This development is clearly placing the cultural character of Westergasfabriek in jeopardy. Prioritising the financial durability of the project seems to come at odds with the preservation of its cultural identity.



FIG. 8.5 Commercial events organised in the Westergasfabriek, 2016.

The reuse of Westergasfabriek has offered social added value. In conjunction with the park, the complex is a destination for local and national visitors. A big part of the former factory is accessible to the public, that has the opportunity to experience the historic buildings and enjoy their quality. Furthermore, primarily the park and secondary the recreational functions housed in the historic buildings are an amenity to the surrounding neighbourhood. The reuse has turned a brownfield to a lively hotspot, offering employment, pride and the conditions for the formation of a new community. Albeit this significant positive impact, the growing commercialisation of the both the park and the buildings (FIG. 8.5) is influencing its social sway, raising concerns among neighbours and activists:

“The owner of Westergasfabriek has a financial interest and has become a bit greedy. So if a building is not enough they offer the event 1 or 2 terraces to build tents. As a result, the public space is blocked by the private events. There is a conflict between the neighbourhood and these gated parties.” highlights J. van Lieshout, member of the Friends of Westerpark (Resp. no 129, interview, 5/7/2016).

8.2.7 Functionality

Functionality seems to be the weakest point of Westergasfabriek (FIGS. 8.1, 8.6). On the one hand, after the reuse, the historic buildings have been equipped with all the needed amenities. According to the users, they are functional and can accommodate well their needs. On the other hand though, the state of maintenance and the inner climate of the premises appear to be highly problematic. The current sustainability update project is thus deemed a necessary positive development.

On a complex scale, several problems are noted. Firstly, there is lack of an information point to welcome and guide visitors in the complex. As a result, there is a disorientation of people causing confusion and discomfort. Secondly, both the logistics and the operation of the events present multiple challenges. The most significant ones involve: parking issues, high internal traffic before and during the events, littering issues and visual disruptions from the use of tents accommodating the events.

8.2.8 Stakeholders' evaluation

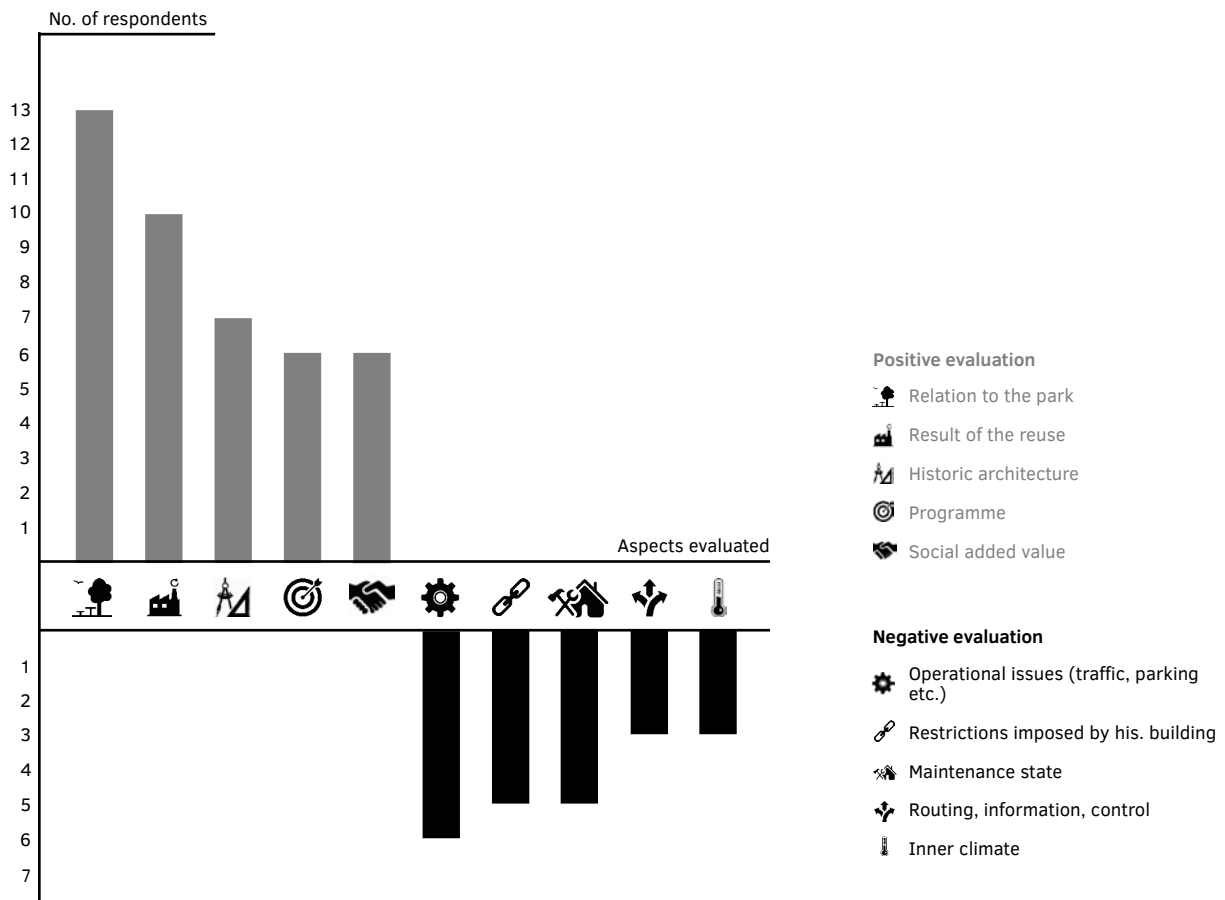


FIG. 8.6 Respondents' evaluation of the strong and weak Aspects of the case of Westergasfabriek (Number of respondents: 19).

9. DRU Industriepark

Location: Ulft (Municipality Oude IJsselstreek), the Netherlands

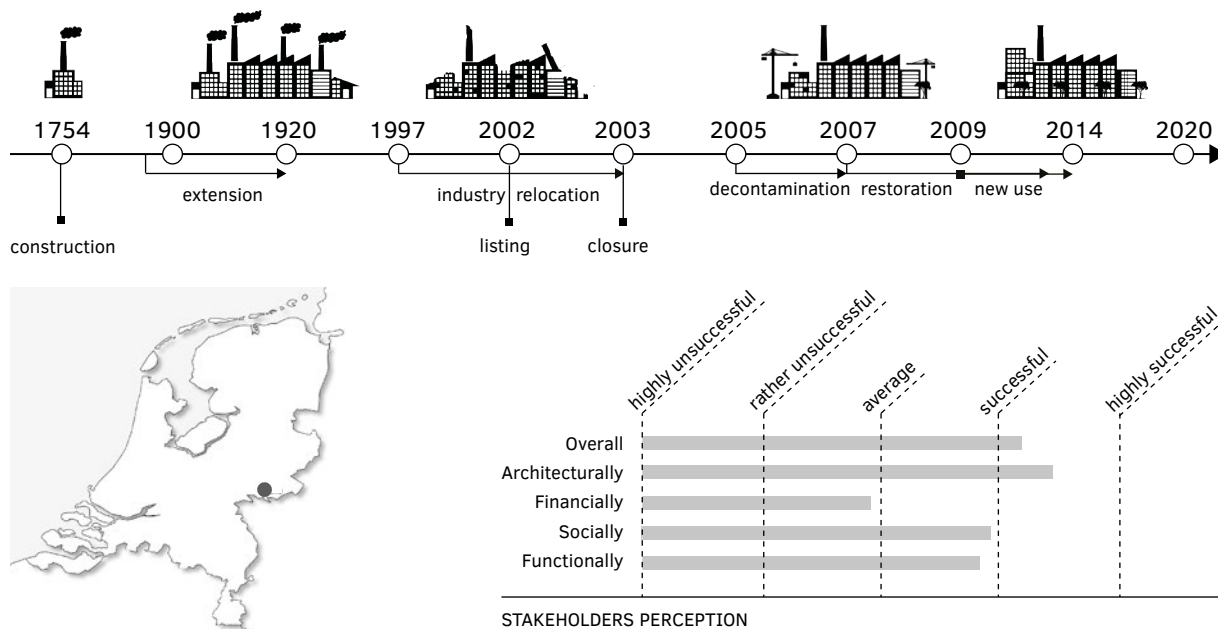
Historic use: Iron industry

Architect: Gerrit & Arend Beltman

New Function: Mixed use

Reuse architect: Hurenkamp Architecten & Adviseurs, Velp & Clevis-Kleinjans Architecten

Status: National monument



[A]



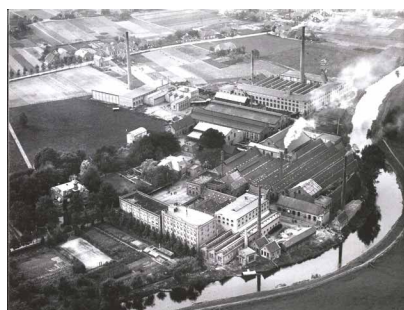
KEY

- Portiersgebouw:
DRU Cultuurfabriek:
 - theatre
 - concert hall
 - art gallery
 - library
 - classrooms
 - meeting rooms (the Municipality Oud IJsselstreek, Turkish cultural center, Regional associations)
 - Grand cafe
- Beltman complex:
 - housing
 - wonion offices
- SSP hall:
 - events hall
- Loongebouw
 - regional radio station
 - coffee roaster
- Afbramerij:
 - Innovation centre ICER (industry, education, culture, recreation)
- Boiler and pumphuis:
 - temporary exhibitions/events

[B.1]



[B.2]



[B.3]



FIG. 9.1 DRU industriepark Fact Sheet

9 DRU industriepark

SUMMARY The DRU Industrial Park is a valuable example of 21st century Industrial Heritage Reuse at a remote location. The case provides valuable lessons for the stakeholders' impact from the preparatory to the occupation and management phase. It is celebrated for a number of reasons including its rich mixed use new programme, the respectful architectural conversion approach, the preservation of tangible and intangible cultural values and its notable social added value. The functionality of DRU is regarded as a weak aspect of the project that requires attention. A very significant risk that can compromise DRU's viability is its vulnerable financial revenue scheme.

9.1 Analysis

9.1.1 Historic use

The DRU²⁷ Industry Park is one of the few surviving remnants of the iron industrial landscape that blossomed from the 18th until the 20th century in the Achterhoek area on the east border of the Netherlands. The complex was developed in an organic way, starting in 1754 from a water powered blast furnace. The majority of the existing buildings dates to c. 1900, with the exception of the Portiersgebouw (Gatekeeper's building), built in phases from 1850 onwards and the SSP-hall, built during the last expansion of the complex from 1920 to 1962. An analytical description of each building's former and current use is available on the website of DRU Industry Park (DRU Industriepark, n.d.).

Most of the buildings were designed by the architects Gerrit and Arend Beltman who were renowned for their extensive industrial buildings' portfolio (Hummelen and Stenvert, 2011, 19-26). The organic development of the complex resulted in the lack of a unique architectural stylistic image of the factory. In other words, each building has its own architectural, spatial and structural language, incorporating the latest existing advances of material technology and being influenced by contemporary architectural concepts (Nationale Agenda Herbestemming, 2015a).

²⁷ DRU is named after Diepenbrock and Reigers who were the owners of the old foundry in Ulf.

LEGEND FIG. 9.1 DRU industriepark

- A DRU Industriepark site plan (BOEi/ Edited by the author).
- B.1 The Portiersgebouw after its reuse, 2016.
- B.2 The DRU iron industrial complex in operation, 1922 (BOEi).
- B.3 Aerial photograph of the DRU industriepark after its regeneration (BOEi).

The Portiersgebouw (FIG. 9.1: B1) and the Beltman complex (FIG. 9.3) are of particular interest as they combine architectural styles and make use of different material and structural technologies.

The production of the factory was also subject to change, in a quest to accommodate the shifting demand of the society during its 250 years of operation. Early products included cast iron fireplace firebacks, cannonballs, pots and basic heaters. The 19th and 20th century saw the enrichment of the production with new products such as bathtubs, enamel, sheet metal, machinery parts, car parts and gas heaters (DRU, 2016).

The decline of the DRU factory in Ulft started in the 1970s and was intensified in the 1980s, resulting in the abandonment of the complex in the turn of the 21st century. The DRU company was relocated in Duiven and is still operational, focusing on gas heating appliances (DRU, 2016, Bayer et al., 2015, 144).

9.1.2 Reuse Preparation

The decision for the factory's transformation did not happen within a vacuum. It can be seen as the result of a series of initiatives taken by members of the local community and the local authority. In specific, since 1989 the local historic association 'Oudheidkundige Vereniging Gemeente Gendringen' (Historical Association of the Municipality of Gendringen) campaigned to create awareness over the historic significance of DRU. By 1996, they were the first non-industrial party to move in one of the factory's disused spaces. Two years later, members of the aforementioned association established a new foundation named 'Het Nederlands IJzermuseum' (The Dutch Iron Museum), launching the idea for the creation of an iron museum on site and campaigning for its realisation (Het Nederlands IJzermuseum, 2008, P. van Toor, Resp. no 145, interview, 20/12/2016). J. Hofman, Director of DRU Cultuurfabriek, highlighting their impact, states:

"Due to the passion and effort of the members of the historic association, the complex eventually became a national monument." (Resp. no 144, interview, 30/6/2016).

The efforts of the posed group were joined by the decisive endeavours of J. Haverdil, a local politician with a strong interest in industrial heritage. Haverdil became the ambassador of DRU's potential transformation and lobbied on a local and provincial level for the reuse of the complex. Describing his action at the time he claims:

"During that period I also tried to disseminate my idea to the local community. So, every Saturday I was here (at DRU), inviting the locals, people from the region and the province for a coffee. We were walking around the dilapidated buildings, I was explaining my vision and I was asking them what they thought about it." (Resp. no 147, interview, 30/6/2016).

It is worth mentioning that the aforementioned efforts came at a time when industrial heritage was gaining momentum in the Netherlands. The Year of Industrial Heritage held in 1996, gave a big boost to such initiatives. The DRU became known, featuring in important publications (Nijhof, 1996, 25), and through a Teleac TV series episode (Het Nederlands IJzermuseum, 2008).

The strong social underpinning of the historic importance of DRU, expressed by the described ventures, prevented the initial plans for its demolition. The local City Council (C.C.) that was initially against DRU's preservation, was forced to recant their position and look for alternative future uses. These early discussions were joined by the divided local community as well as important future

players like Haverdil and the housing association Pares (now Wonion). After the relocation of the last industrial activity from DRU in 2003 the C.C. purchased the premises. Yet, being inexperienced with the redevelopment of such a large and complex terrain, they decided to pass it to BOEi (see Vol.1, § 6.2.6).

9.1.3 Reuse process

The period that followed the change of ownership was tough. DRU's redevelopment became subject of a heated controversy, with various stakeholders standing by conflicting ideas. The two main matters in dispute were the high budget required for the decontamination and transformation of the site and the selection of its future use. The change of the local authority in 2005 came to relieve this tension.

"The acceleration of the project came with the new City Council, with John Haverdil as an alderman." explains van Toor, chairman of ICER (Resp. no 145, interview, 30/6/2016).

Haverdil, having secured provincial and European funds, set the process in motion starting the same year with the decontamination of the site. The increased costs, required due to a national change of standards, were covered by an additional provincial grant. The choice of the complex's future programme was finally formed in deliberation with ex-employees, inhabitants and key stakeholders prioritising the safeguarding of the complex's fabric and its history. Haverdil highlights three main features that played a catalytic role for the programme selection:

"We wanted a programme that would keep the locals and the people from the region here. We looked for what is missing and what is there yet is not sufficient or does not work. For example, there was a small theatre but we wanted something bigger and also a music scene...We also wanted a mixed use scheme with complementary uses. So, if one building goes empty the others will compensate..." (Resp. no 147, interview, 30/6/2016).

According to R. Spaan project leader of BOEi (Resp. no 148, interview, 11/7/2016), and Haverdil (Resp. no 147, interview, 30/6/2016), communication, honesty, good collaboration and the determination to deliver a successful project bridged the stakeholders' differences, contributing to the formation of a common vision.

It is worth mentioning that during the decision-making process, key stakeholders travelled to Ironbridge, England and the Ruhr area, Germany to draw inspiration and gain experience from relevant successful projects.

The transformation of the complex started in 2007 and it was realised in steps, after the demolition of several additions to the listed buildings. The stylistic diversity of the complex and its organic development gave room for a certain freedom in its redesign approach. The architectural team Hurenkamp Architecten & Adviseurs, Velp & Clevis-Kleinjans Architecten, responsible for the conversion of the site in collaboration with the RCE and the owners, treated the listed buildings with respect while transforming them for their future uses. According to this research' respondents this part of the collaboration was not always smooth.



FIG. 9.2 The atrium of the Beltman complex. The roof of the industrial building has been removed for maximising the light in the residential and office units and allow for the creation of private and communal yards for the new users. The patina and structure of the historic building has been preserved, 2016.



FIG. 9.3 The Beltman complex transformed into social housing, office space for rent and the offices of the Housing Corporation Woning, 2016.

In respect to the redesign approach, the historic fabric was preserved with attention to the details. The historic finishes and patina were maintained to a large extent and were incorporated in the plans. There is a clear differentiation between the old buildings and the new additions in terms of materials, colour and composition. Moreover, the new features and technical installations match the industrial character of the site. In certain buildings such as the SSP-hall and the afbramerij (fettling building), there is practically no subdivision in smaller units, preserving the grandeur of the construction's original spatial dimensions (NRP Gulden Feniks, 2011). The plates of oxidised iron used for marking the entrances of several buildings and for forming outdoor fittings, provide a common expression to the intervention while serving as a reference to the historic raw material of DRU.

Besides the demolition of several unlisted buildings, prominent elements compromised for the needs of future uses were the shed roofs in the Beltman complex and the Badkuipenfabriek (Bathtub factory). Nevertheless, the retained parts of the roof structure and the patina in the side walls insinuate the buildings' former form (FIG. 9.2). Other compromises involve the loss of the machinery with a few exceptions and the subdivision of the buildings which were converted into residential units. An element that deviates from the described philosophy of the conversion is the 35 meter chimney moved in the terrain from the VIKa industrial complex in Ede, by a local association (Bayer et al., 2015, 147).

As regards the context of the complex, it is evident that it was carefully redesigned. Between the buildings there is a system of public spaces with different typologies accommodating alternative functions. Furthermore, the conversion of the complex was combined with extensive development of housing units for the compensation of the conservation deficit. The posed developments located in some distance on the northern and the southern side of the historic complex and having a relatively small scale, do not impede the vistas to the complex nor overshadow it. The report '*Gebiedsvisie Dru industriepark - deel 2*' (Gemeente Oude IJsselstreek, 2011) describes in detail how the DRU's redevelopment fits in the plans for the local regeneration of Ulft. It should be noted though that many of these plans have not been realised yet.

9.1.4 Occupation and management

Since its opening, DRU is featuring in a number of publications as a highly successful project and despite being in the province it is often compared to the Westergasfabriek (see Ch.8). The ownership of most of the buildings has been transferred from BOEi back to the local authority. The main exceptions are the Beltman complex that belongs to the housing corporation Wonion and the Badkuipenfabriek, most of the units of which, have been sold to its current residents by BOEi.

The first building to be delivered was the Portiersgebouw in 2009. According the respondents of this research, this delivery was rushed to precede the local elections. Two years later, the transformed Beltman complex and the Badkuipenfabriek were opened. The Loongebouw and the SSP-hall were delivered in 2012 and finally the Afbramerij opened its doors to the public in 2014 (Gemeente Oude IJsselstreek, 2011, Hurenkamp Architecten & Adviseurs, n.d.). The Ketelhuis is the only building which still remains empty, being used only for temporary events.

An important characteristic of the reused complex is its multifunctional character. As shown in Figure 9.1: A, DRU is combining a rich array of cultural activities with HORECA, housing, business space and an innovation centre (named ICER) that includes an industrial museum. Discussing the multifunctionality of DRU, J. Hofman notes:

“We are complementary to each other and have a lot to offer to inhabitants of the town and also to people outside the municipal boundaries. All together we attract about 500.000 visitors to our venue annually.” (Resp. no 144, interview, 30/6/2016).

A special challenge for DRU is its remote location. The complex is positioned far away from the urban area of Randstad and has poor public transport accessibility to the nearest cities. This proves to be particularly problematic for the functions that aspire to attract provincial or national visitors. J. Hofman explains:

“We are an event venue of 3000-4000 people. The problem is that events are reluctant to come here and when they cancel they tell us that we are too far away.” (Resp. no 144, interview, 30/6/2016).

9.1.5 Shifts

The complex's new life counts only a few years, thus the shifts that have taken place since its reuse are limited. The two most important ones are the following. Firstly, there is a notable change of perception over the project from the local community. As J. Haverdil explains:

“In the beginning the local community liked the project. However when they saw so much money invested in it [...] some people turned against it. Nowadays the community has realised what an asset this is for the town and they are proud of it. It is a hotspot of the region, but it took time to get to this point.” (Resp. no 147, interview, 30/6/2016).

Secondly, the uncertainty over the project's financial sustainability has created a tension between the current C.C. and some tenants. Against this backdrop, there is a discussion over a possible shift of ownership.

9.2 Evaluation

9.2.1 Process

The case of DRU reflects the predicaments of Industrial Heritage Reuse process as well as effective ways to overcome them. On the one hand, it shows the complications of the stakeholders decision-making while on the other, it suggests how good collaboration, communication and a common goal can solve the issue. Similarly the case demonstrates the role of the augmented financial requirements for brownfield reuse as well as the importance of strong political support required to secure them.

Moreover, the decisive role of certain stakeholders in different redevelopment stages is reflected through the case of DRU. It demonstrates for example the importance of the local community in flagging a complex in danger; the impact of governmental programmes such as the Year of Industrial Heritage; the significance of visionaries with political sway; the role of special developers like BOEi, but most importantly the merits and weaknesses of having the local authority as the driving force of the project.

In respect to the merits, the proactive approach of the C.C. that impeded the upcoming dereliction, their continuous support as well as the characteristics of the programme they delivered, which will be analysed below, should be highlighted. On the other hand, the main weakness of the C.C.'s posed role is the vulnerability of the project. This is reflected through three instances. Firstly, the frequent alterations of politicians with different and often contrasting agendas; secondly, the urge to rush the process at the expense of quality for coinciding with their political term and thirdly, their decreasing financial means for supporting such a big venue.

Lastly, the choice of delivering the project in stages is seen as an important lesson from this case's process. The delivery of the Cultuurfabriek as the first stage of DRU's redevelopment and its great appeal to the public catalysed the redevelopment of other buildings, generating interest and awareness among various stakeholders.

9.2.2 Programme

One of the biggest assets of DRU is its new mixed use programme. Its rich multifunctional character offers multiple positive effects. Firstly, it makes the project interesting and accessible to a vast audience, ranging from the local to the national scale while being relevant for all ages. Secondly, favourable conditions of financial viability are created through the combination of social and commercial uses. Thirdly, being inhabited and visited 24 hours per day, it becomes an alive and safe space that can be smoothly connected with the town. Fourthly, it serves as a new pole of economy offering employment opportunities. In addition to the aforementioned effects of DRU's new programme, by incorporating an industrial museum, pays particular attention to the preservation of the terrain's history. Lastly, maybe the most significant effect of the selected programme, is its contribution to the reestablishment of Ulf: from a no-man's land to an inviting destination with positive connotations.

On occasion, the coexistence of different functions appears to cause certain issues. Some residents for instance have reported discomfort by the implications of the events. Another example of the disadvantages of multifunctionality is explained by P. van Toor:

“Having three organisations that receive visits from the public is sometimes a problem. There is some competition between them. We are colleagues but also competitors.” (Resp. no 145, interview, 30/6/2016).

Overall however, the merits of multifunctionality greatly outweigh its disadvantages. Therefore DRU's programme is seen as one of its stronger Components.

9.2.3 Architecture

As analysed above, DRU was transformed in a sympathetic manner from the complex to the detail scale. The reused ensemble accommodates the needs of the new functions while preserving the character and the most important spatial features of the site. The compromises are minimal. An interesting feature, which provides a playful historic reference, is the use of iron -DRU's historic material- for the formation of new building parts. According to the vast majority of this research' respondents, the combination of old and new is one of the stronger points of the reuse and a subject of pride and admiration.



FIG. 9.4 Interpretation panels placed at the context of DRU. The panels explain in three languages the history of the site, its former function and its reuse process, 2016.

9.2.4 Cultural significance

DRU can be also seen as a successful case of cultural significance preservation. This is reflected, as analysed above, in the architectural approach of the conversion and in the new compatible programme, incorporating functions, such as the ICER. Aside from those, the intangible heritage values have been preserved and are disseminated through the exhibition of the industrial museum and in DRU's context, in the form of interpretation panels (FIGS. 9.4). Most buildings of the complex have retained their historic names, echoing their former function. Moreover, the intangible historic dimensions of DRU are disseminated by the former workers of the factory that now support DRU as volunteers.

The loss of machinery in most of the buildings is seen as the only significant compromise to the cultural significance of the complex.

9.2.5 Finance

The transformation of DRU was realised with the financial support of public and private parties (e.g. Gelderland Province, Municipality Oude IJsselstreek, BOEi, Wonion). The conservation deficit was covered by residential 'enabling development' around the historic complex. Even though the financing complications of the terrain's transformation were successfully resolved, the financial viability of the case at the time appears to be its most vulnerable aspect. As Haverdil explains:

"There are financial issues which place its continuity and further progress at stake. [...] I aimed for its financial sustainability but that proved to be challenging. Most of the buildings are still being subsidised by the City Council..." (Resp. no 147, interview, 30/6/2016).

DRU, along with many other cultural institutions subsidised by public bodies, has been subjected to financial pressures since the early 2010s. This stems from the fact that the finances of the Dutch central and local authorities were deeply affected by the impact of the recent financial crisis and certain changes in the Dutch legal system that lean towards minimal state support. The available solution of cultural entrepreneurship does not seem to be effective in this case. As J. Hofman supports:

"In my view cultural entrepreneurship is 'overrated'. In US it works. In an overregulated society like ours with a social government model it does not. We do not have a culture for giving money for arts; nor as an audience nor as a sponsor." (Resp. no 144, interview, 30/6/2016).

Thus, the most important liability of DRU's reuse is traced in its vulnerable scheme of revenue generation.

9.2.6 Social component

DRU has been described as the “*living room of the area*” (J. Haverdil, Resp. no 147, interview, 30/6/2016) and as the “*reflection of the society*” (J. Hofman, Resp. no 144, interview, 30/6/2016). It is a fact that the project has offered a great deal in this respect. It is certainly an amenity on a local and provincial scale, covering a rich array of needs. In its bigger part it is accessible, welcoming different types of visitors and an organic space of Ulft, housing various activities of the C.C. and local groups. As stated from a volunteer of the Cultuurfabriek:

“It has been a great addition to our community. DRU has something to offer for every age with the library, theatre, music venue and lovely terrace where the kids can play with water during summertime.” (Resp. no 158, interview, 5/7/2016).

In contrast with many cases of Industrial Heritage Reuse, DRU has not been turned into an elitist pole of attraction. This is evident for example from the selection of social housing as an integral part of the complex’s new life. The social appeal of the reborn DRU is also obvious from the vast voluntary support it receives on a daily basis (c. 250 volunteers). The project apart from employment opportunities has restored the pride of the local community and has contributed to the growth of a challenging and remote area of the Netherlands. It is important to stress the local authority’s pivotal input in the formation of this vast range of social benefits.

9.2.7 Functionality

In terms of functionality DRU is facing two main issues. On an operational level, the complex appears fragmented. Essentially, it lacks an umbrella organisation that can serve on the one hand, as an information and guidance party on a complex level for the visitors and on the other, as an administrative authority boosting the cooperation of the different partners and contributing to the resolution of internal problems. The second issue is related to the buildings’ performance level. The striking majority of this research’ respondents has pointed out that the inner climate of reused spaces is problematic (FIG. 9.5).

Aside from these two points, other problematic issues relate to the accessibility of the complex, the use of the public space for events, parking issues during those occasions and finally the maintenance of the buildings supported by the C.C. In short, functionality appears to be an aspect of the reused complex that requires further attention.

9.2.8 Stakeholders' evaluation

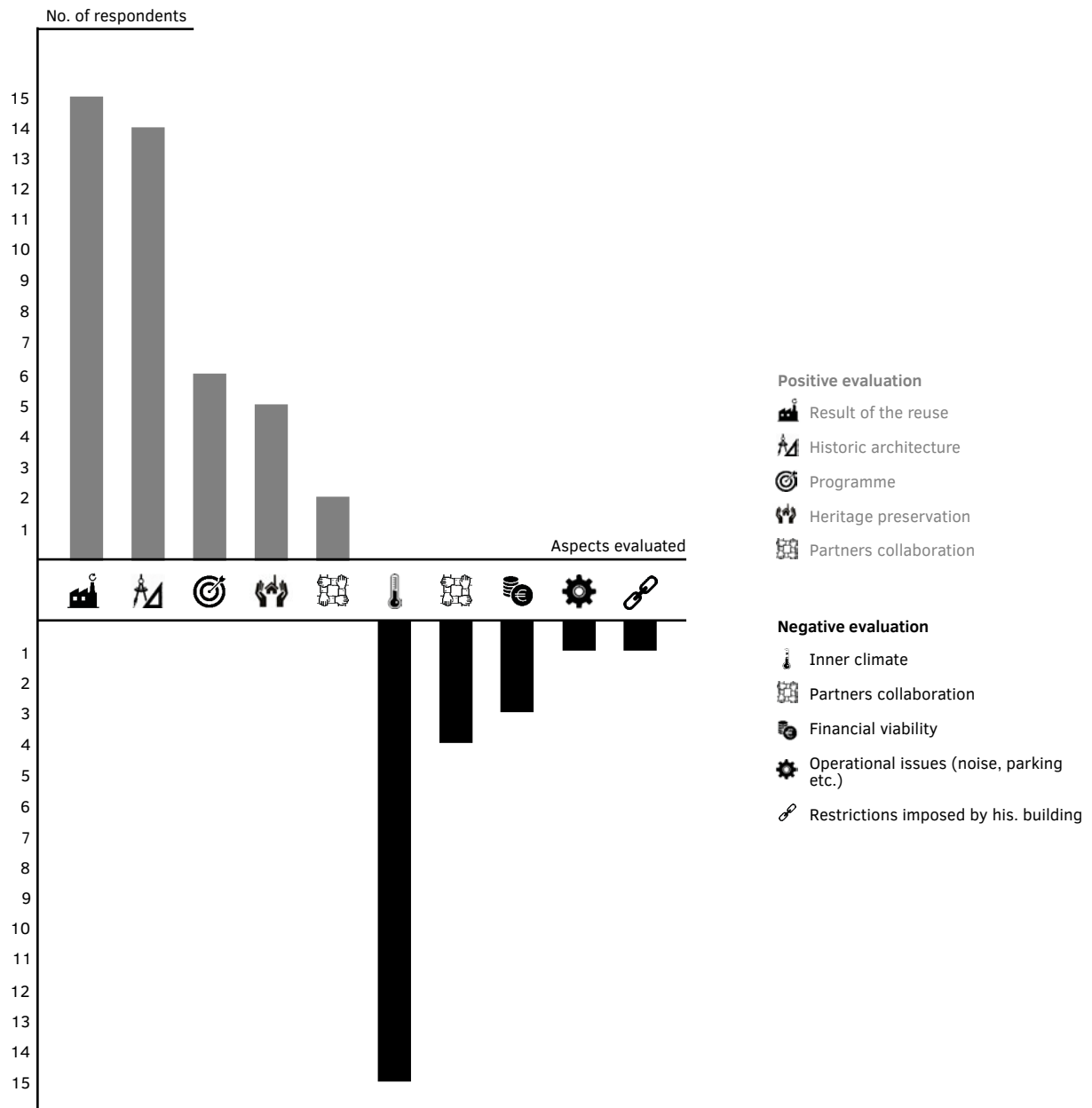


FIG. 9.5 Respondents' evaluation of the strong and weak Aspects of the case of DRU industriepark (Number of respondents: 31).

10. Energiehuis

Location: Dordrecht, the Netherlands

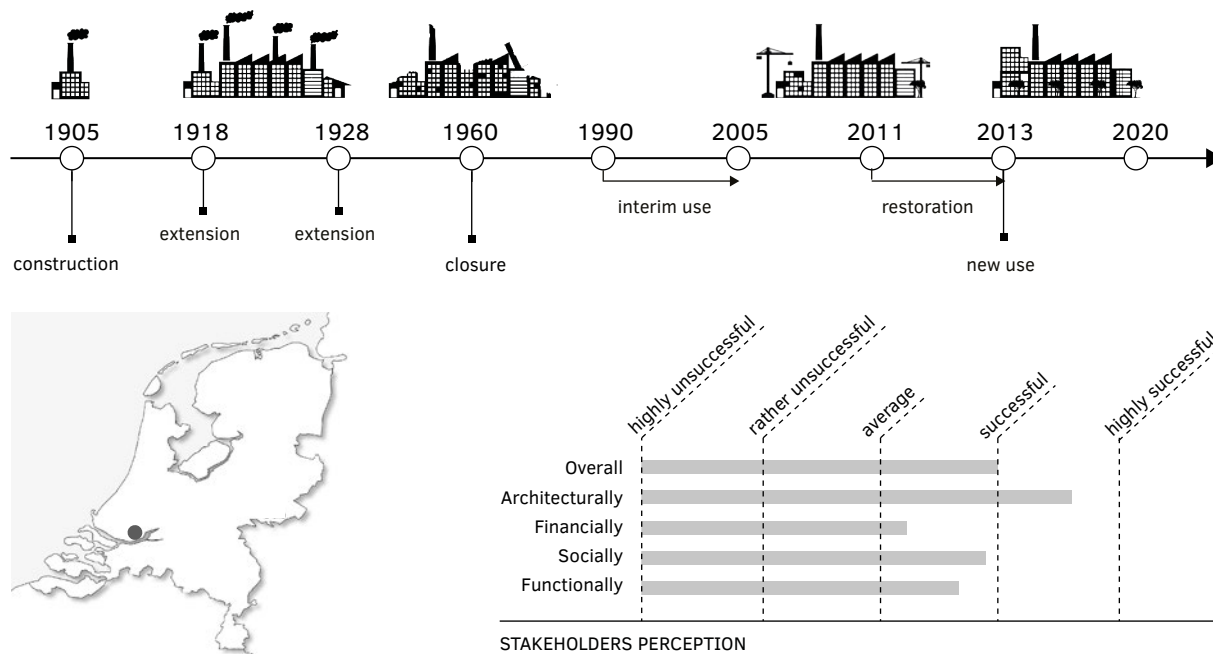
Historic use: Energy Plant

Architect: -

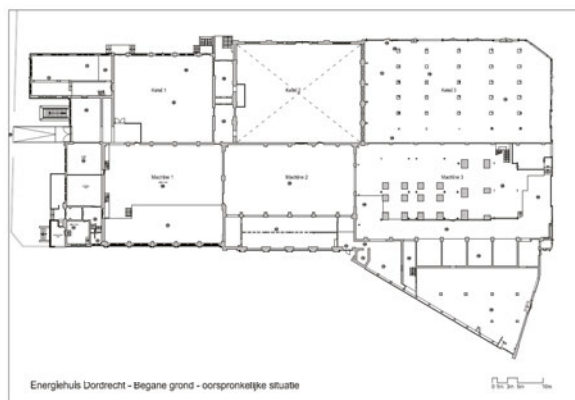
New Function: Cultural centre

Reuse architect: TenBras Westinga

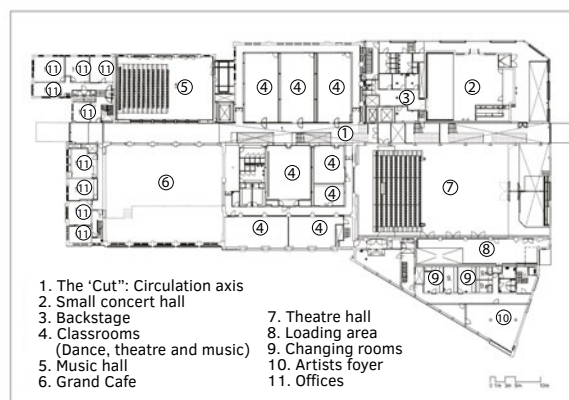
Status: Municipal monument



[A.1]



[A.2]



[B.1]



[B.2]



[B.3]



FIG. 10.1 Energiehuis Fact Sheet

10 Energiehuis

SUMMARY

The Energiehuis is a recent example of Industrial Heritage Reuse in the Netherlands. The case pinpoints the advantages and limitations of local authority initiatives, illustrating at the same time challenges and opportunities arising from a mono-functional cultural programme. The project is examined against the political and financial upheavals of the Dutch public sector during the recent economic crisis. The strengths of the case include its architectural outcome and social added value. In contrast, the financial viability and the functionality of the building have been identified as the weakest features of the project.

10.1 Analysis

10.1.1 Historic use

The Energiehuis (Energy house) is located in the southwest part of the district Stadswerven, a former industrial area, formulated in the beginning of the 20th century in the city of Dordrecht (Municipality of Dordrecht, 2009, 36). The municipal power plant was constructed in 1905 and it was extended two times during its operation (FIGS. 10.2, 10.3). The oldest establishment, occupying today the western wing of the building, was designed in the rationalistic style. It was formulated by two large halls: the boiler room housing the steam boilers and the machine hall, housing the electricity turbines. In 1918, due to the increasing power demands of the city, the power plant was extended for the first time with the construction of another pair of boiler and machine halls. Ten years later, a second and final extension took place in the new Objectivity style²⁸ (Nieuwe Zakelijkheid) (FIG. 10.1: B.1) (Ten Bras, 2014, 4-5). In 1960, the opening of another more modern energy plant led the Energiehuis to obsolescence.

²⁸ The literature review and the online research showed that there is a disagreement over the exact construction and first extension dates ranging from 1905-1910 and 1915 to 1918 respectively (Ten Bras, 2013, Ten Bras, 2014, Centrum Dordrecht, 2020).

LEGEND FIG. 10.1 Energiehuis

- A.1 Ground floor floorplan of the municipal power plant of Dordrecht before its reuse (TenBrasWestinga).
- A.2 First floor floorplan of the municipal power plant of Dordrecht after its reuse (TenBrasWestinga).
- B.1 The municipal power plant of Dordrecht before its reuse (<https://www.dearchitect.nl>).
- B.2 The north and east elevations of the Energiehuis, 2016.
- B.3 The west elevation of the Energiehuis, 2016.



FIG. 10.2 The Energiehuis in 1910 during the construction of machine hall 2 and boiler hall 2 (Jonkman Klinkhamer architecten, 2009, 5).

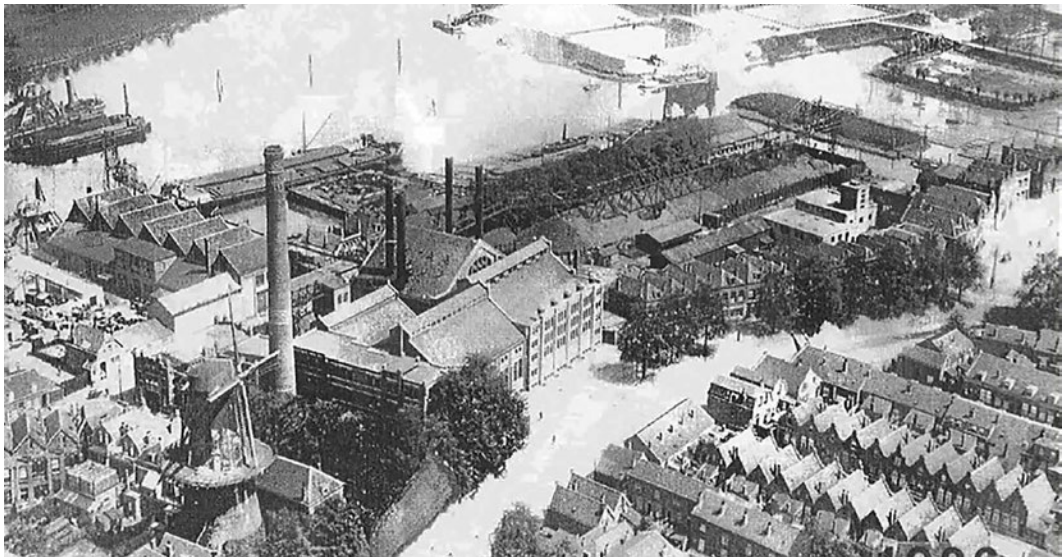


FIG. 10.3 The Energiehuis by 1920 (Jonkman Klinkhamer architecten, 2009, 6).

10.1.2 Interim Use

The closure of the Energiehuis coincided with an era when industrial buildings were treated as the outcast of cultural heritage in most European countries. C. van Nes, Senior Advisor on Cultural Heritage section of the Municipality of Dordrecht, elaborating on the subject argues:

“In the past we did not see the power of industrial heritage. Since the 1990s we have started to realise the value of the industrial stock and the younger monuments. For example, when the Energiehuis lost its original function there were politicians who wanted it demolished because they thought it was ugly. This has changed.” (Resp. no 184, interview, 21/9/2016).

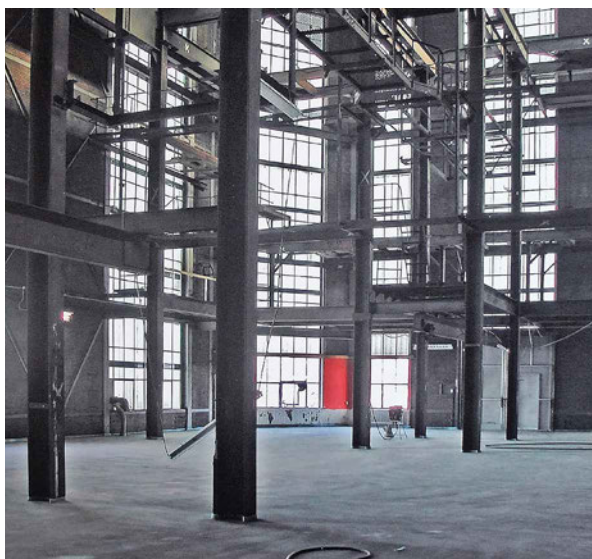


FIG. 10.4 The machine hall 3 during its interim use as a theatre venue (Music Theatre Hollands Diep).



FIG. 10.5 Later additions built after the closure of the energy plant (TenBrasWestinga).

Despite the unfavourable conditions, the plant finally escaped demolition. It was however gutted, losing all its machinery in the process. For a short period of time in the 1990s, the industrial carcass served a different purpose (FIGS. 10.4, 10.5). Performing art groups were housed in the rough space in return for a small rent. According to the director and production leader of the Music Theatre Hollands Diep -tenant at the time-, the building had the right architecture, atmosphere and dimensions for the needs of their productions (Resp. no 178-179, interviews, Summer 2016). This interim use stopped abruptly in 2005, when asbestos was found on site, forcing all the tenants to move out.

10.1.3 Reuse Preparation

In the early 2000s, the building attracted the attention of the local authority, which acquired it from Eneco -the previous owner- for covering two needs. Firstly, the uplift of a rundown area very close to the city centre²⁹ and secondly, the creation of a cultural space for housing various cultural parties that required a new home in Dordrecht.³⁰ The advantageous position of Energiehuis next to the river and the new circle of vacancy of the building, which opened after the discovery of asbestos, also influenced the decision of the Municipality to take action.

²⁹ The 2000s saw the acceleration of the Dordrecht C.C.'s initiatives to regenerate the area of Stadswerven, upgrading existing historic structures while encouraging the development of a large volume of new mixed use buildings with emphasis in the residential function. The reuse of the Energiehuis was one of the first flagship projects for the upcoming programmed regeneration. The full extent of the Municipality's plans for Stadswerven is analysed in the report "Masterplan Stadswerven: nieuwe stedelijkheid voor Dordrecht" (Municipality of Dordrecht, 2009).

³⁰ The cultural parties active in Dordrecht in the 2000s were pressing the Municipality for new spaces and extra room, as they were using outdated premises (R. ten Bras, Resp. no 177, interview 6/7/2016).

According to the results of this study's qualitative research (Resp. no 177-184, interviews, Summer & Autumn 2016) the period of the reuse preparation of the Energiehuis was eventful. After an unsuccessful proposal of the Director of city development, Henk Kranendonk, Director of Art, Culture & Inner city development of the Municipality of Dordrecht at the time, was placed in charge for developing a new plan. This involved the clustering of the cultural activities of the aforementioned parties under one roof for the formation of a "House of performing arts".

In 2006, an architectural competition was launched for the redesign of the building. The brief required the adaptation of the historic building to a programme of 14.400 m² of mainly soundproof spaces with a capacity of 2.000 people. The architectural office TenBrasWestinga offered the best solution, winning the competition. The strengths of the office's proposal included not only a clear initial design but also a plan based on a participatory process for the formation of the final design.

H. Kranendonk, discussing the developments taking place during the preparation of the reuse, states:

"I made a new concept but it started on the wrong foot. It took a year to reach an agreement with everyone and make things work. The new concept was developed with the consultation of stakeholders and the architect. One of the main problems was that we needed 34 million while there were only 17 million available. Finally, the Municipality was convinced to offer 30 million while the rest of the money came from financial engineering." (Resp. no 183, interview, 21/9/2016).

During the design phase, various changes occurred in terms of budget, political administration and programme. What kept the project afloat was the determination and good collaboration between the main stakeholders as well as a clever and flexible architectural approach. In the words of H. Kranendonk,

"A lot of money was saved by leaving things exposed. That way we showed the history of the building and saved money. Unfortunately some money was saved in expense of quality (climate, installations etc.)." (Resp. no 183, interview, 21/9/2016).

It is important to emphasise that an extensive archival research and a recording process of the construction preceded the conversion works. During that phase both detailing and structural issues were explored, such as the quality of the wooden pile foundations. The findings of this work formed the basis for the new drawings, guiding the reuse of the building (Ten Bras, 2014, 6).

10.1.4 Reuse process

Finally, the reuse of the building started in 2011 and it was carried out in phases. Firstly, the asbestos was removed while demolitions of intermediate floors, added between 1955 and 1980, were carried out. Then, the adaptation of the building begun, starting from the boiler room 3.

The architectural solution of the reuse was based on three main principles: respect of the historic structure, application of the box in a box principle and addition of distinctive new architectural elements (FIGS. 10.6). The projects that inspired the architects were Zeche Zollverein in Germany and Tate Modern in England.

R. ten Brass, reuse architect of the building, explains:

“For us the emphasis is on the old. All the exterior walls were retained. We preserved the original roof and its trusses, isolating it on the outside. Experiencing the old factory was very important for us. All the cuts that we made in the walls are apparent and have been left rough (they were not covered in plaster). The whole thing has marks. Whenever we had to repair a wall we were also consistent, trying to express in the materials that this is a newer layer and not part of the original fabric. [...]”

One of the most important design decisions was to use the box in a box principle. That allowed for corridors around the new classrooms or performance halls and maximised flexibility. It also worked very well for sound insulation. Furthermore, it was a good way to fulfil our wish to keep everything away from the old façade. [...]”

Our grand gesture was the “cut”. This has a triple function: it solves the circulation, facilitating the access to all the spaces; it brings light in the heart of the building and it serves as a meeting point. We also chose to place the two main entrances in the two edges of the cut. Finally, the cut gives you the opportunity to grasp the big empty spaces. You can read the big dimensions. We followed the original roof line and we replaced part of it with glass.” (Resp. no 177, interview, 6/7/2016).

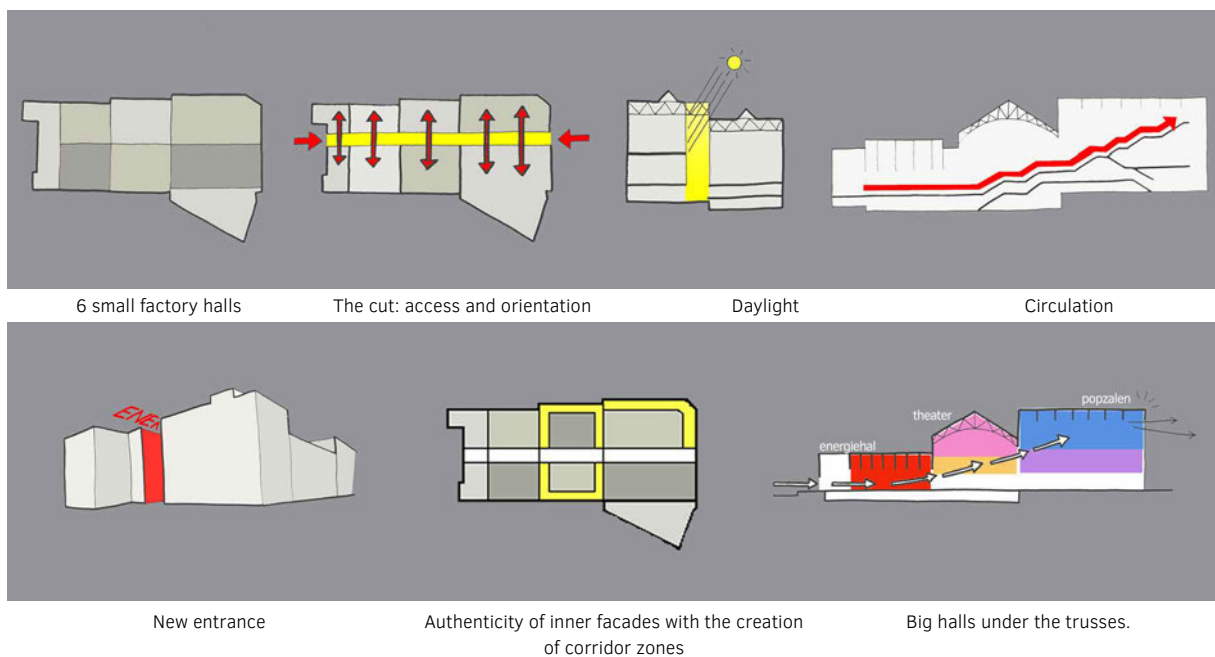


FIG. 10.6 Diagrams of the main principles of the reuse (Jonkman Klinkhamer architecten, 2009, 14-15).



FIG. 10.7 The main entrance as part of the 'cut', 2016.



FIG. 10.8 The rear entrance as part of the 'cut', 2016.

In the framework of this respectful architectural approach, the scarce elements of industrial machinery left in situ were also retained. In the machine hall 3 which was converted into a theatre hall the existing overhead crane was preserved and reused as a bridge for theatre lighting (FIGS. 10.12, 10.13).

During the construction phase there were contingencies, too. A flood in the basement resulted in a pause of the works for a semester, causing delays.



FIG. 10.9 In the interior of the buildings the 'cut' the main axis of horizontal and vertical movement, 2016.



FIG. 10.10 The cut allows light into the building, 2016.



FIG. 10.11 The steel trusses and the rough brick wall are preserved, maintaining the industrial character of the building (Tim Leguijt Fotografie).

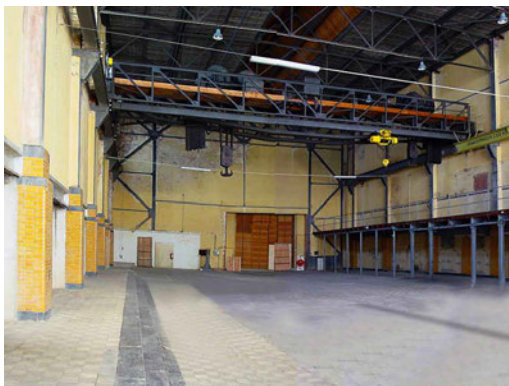


FIG. 10.12 The Machine hall 3 before its transformation (TenBrasWestinga).

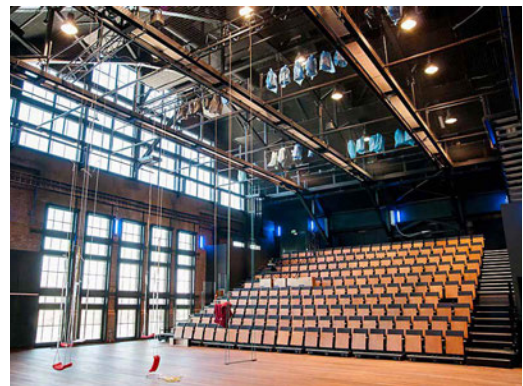


FIG. 10.13 The Machine hall 3 after its transformation (Tim Leguijt Fotografie).

10.1.5 Occupation and management

The converted Energiehuis opened its doors to the public in 2013 becoming quickly a hotspot for the cultural scene of Dordrecht. The building houses four cultural institutions, including the theatre company Schouwburg Kunstmin; the volunteer-run pop centre Bibelot; the cultural centre ToBe and

the Music Theatre Hollands Diep. In addition to those cultural functions, one of the halls houses a café-bistro which is open all day long.

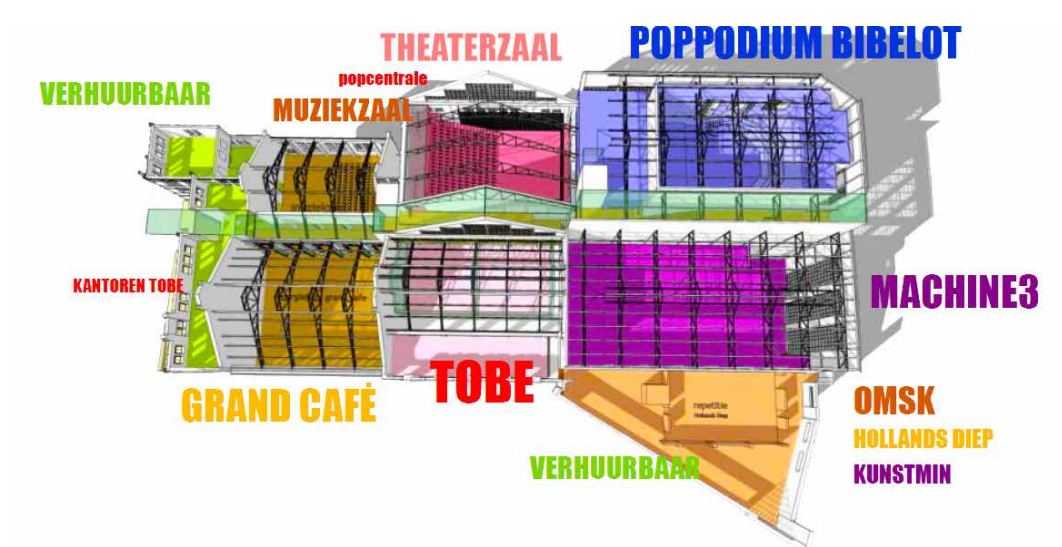


FIG. 10.14 The layout of the Energiehuis. In the boiler rooms 1, 2 and 3 the music hall, theater hall and the concert hall are housed respectively, while the machine halls 1, 2 and 3 house the Grand Café, the rooms of the cultural centre ToBe and the main theatre stage, respectively (Crone, 2013).

Featuring six theatre halls and concert rooms, eleven well-equipped practice rooms for bands, thirty dance studios, ateliers and classrooms (FIG. 10.14), the building attracts a wide range of audience. That includes people of all age groups who visit the Energiehuis not only for attending events but also for learning and practicing a performing art. Part of the space is hired for corporate and private events, offering additional revenue (Energiehuis, n.d.).

Since its opening, the operation of the project has been largely depended on the cooperation of the involved cultural parties. The five organisations have a distinctly different identity and attitude. According to E. de Bruin, first director of the Energiehuis, establishing synergy and maintaining a good relationship between them has been a big challenge (TenBrasWestinga, 2013). During the qualitative research the five individual idiosyncrasies were clearly exposed. An interesting comment made by the members of Music Theatre Hollands Diep, was the expression of disappointment over the new more institutionalised character of the building after its reuse.

In 2014 the project won an NRP Gulden Fenix award in the category transformation (NRP Gulden Feniks, 2014). The architectural design besides the multiple merits analysed above, also created the conditions for the connection of the site with its context. In detail, the use of the building by the passer's by was encouraged, allowing their circulation in a big public zone defined by the cut in the ground floor (FIG. 10.10). As R. ten Bras argues:

"It is a non-pretentious, very welcoming building. I am proud of the position of the information desk in the centre of the building, which allows people to wander in the space before somebody stops them." (Resp. no 177, interview, 6/7/2016).

Despite the architects' provisions, the relation of the building to its context at the time of the field research (2016) was not optimal. The developing regeneration of the Stadswerven area (Dordrecht, n.d.) led to the construction of two new voluminous buildings at the north side of the former plant, including a parking garage and a cinema complex (FIG. 10.15). Both of them block the view of the

Energiehuis to the river and vice versa while their architecture undermines the aesthetical result of the regenerated district. At the east of the building there was a square of poor design (FIG. 10.16). Its programmed regeneration is expected to enhance the operation of the Energiehuis' back entrance providing the Pop-centrale with a more suitable outdoors space.



FIG. 10.15 The newbuilt cinema complex located next to the Energiehuis, 2016.



FIG. 10.16 The square behind the building, 2016 (Own archive).

10.1.6 Shifts

In a very short period after its conversion, the Energiehuis went through important shifts. Firstly, the building was listed as a municipal cultural monument. In the words of C. van Nes:

“The Energiehuis was listed after its reuse. This was done on purpose because they did not want to burden themselves with any kind of restrictions. It was a political decision...” (Resp. no 184, interview 21/9/2016).

In the author's opinion the listing, even at that stage is an encouraging development, enhancing the promotion of the building while securing a certain protection in case its new function fails. In contrast with that, the other shifts are not that positive.

The budget cuts and financial reorganisation of the Dutch cultural sector that took place in the early 2010s resulted in a drastic reduction of the financial support of the project by public funds. R. ten Bras explains:

“They are struggling with that at the moment. Subsidies for a lot of involved parties were cut. The changes in legislation had a big impact on such organisations.[...]The cultural centres were turned from public bodies to individual entrepreneurs, which is a totally different approach. Firstly, they were getting a salary and now they are asked to pay rent. They struggle to make money. As a result, many of these organisations cannot afford the buildings, they leave and the buildings are left empty.” (Resp. no 177, interview, 6/7/2016).

The last shift involved a change in administration that altered a lot the dynamics between the users of the building. One of those, the theatre company Schouwburg Kunstmin became director of the Energiehuis. The results of the qualitative research showed that the desired synergy attempted from

the first director of the Energiehuis, had not been achieved under the new administration.³¹ Serious complaints were expressed over the cooperation between the users and the administrative issues.

10.2 Evaluation

10.2.1 Process

The process that led to the reuse of the Energiehuis is a nuanced Component of the case. The project highlights the strengths and limitations of the local authority as an initiator and powerhouse of Industrial Heritage Reuse. The Dordrecht C.C. employed a linear and top down approach for the conversion of the Energiehuis encouraging however the users' participation both in the design and the operation phase.

Without a doubt, the role of the local authority that initiated, coordinated and funded the reuse was crucial. Their decision to favour a close interaction between stakeholders is evaluated as a strength of the process. The stakeholders' involvement influenced the design, adjusting it better to the needs of the new function. At the same time, it also created the first bond of the past³² and future users with their 'new' home. At that stage, the attitude, receptivity and flexibility of the architect played a paramount role.

On the other hand, the direct dependence of the project from the local authority caused a lot of problems in various stages. The alteration of the C.C. during the design phase put the future of the project at risk. As H. Kranendonk claims:

"Before the construction there were elections. The selected party did not want the project. It was hard to convince them. We had to make a lot of improvements to stay on budget and keep their trust during the last design phase." (Resp. no 183, interview, 21/9/2016).

The steady involvement of H. Kranendonk through alterations and contingencies like the ones described above and the good cooperation between the stakeholders resulted in the delivery of the project on time and on budget. As opposed to that, in the management stage of the building the cooperation between users has become a thorny issue. This creates multiple problems weakening the project (Resp. no 177-184, interviews, Summer & Autumn 2016).

³¹ The director of Schouwburg Kunstmin refused to take any part or facilitate in any way this research. The views of the users are based on interviews with employees of the Music theatre Hollands Diep and the pop centre Bibelot (Resp. no 178-181, interviews, Summer & Autumn 2016).

³² Some of the users, such as the Music Theatre Hollands Diep, had already an insight of the building's possibilities, renting parts of it during its interim use in the 1990s. The establishment of a relevant new use, which allowed them to become part the reborn Energiehuis and their participation in the decision-making is seen as a positive development.

10.2.2 Programme

The new programme of the Energiehuis is another nuanced Component of the project. In contrast with the large majority of the cases studies presented, this project is practically mono-functional. The downside of this mono-functionality is its financial vulnerability. That issue will be further analysed in a following section.

On the other hand, the new programme presents several advantages. Firstly, the new use has gained a local and regional appeal. The Energiehuis appears to become progressively a dynamic cultural reference point (Ten Bras, 2014, 7).

Secondly, the programme albeit mono-functional presents a high inner diversity, combining various cultural forms and activities such as music, theatre, dance, art & design, festivals, concerts, debates, courses and activities for children. The parallel function of the four cultural organisations and the operation of the café-bistro strengthens one another and the role of the project as a hotspot of the area.

Apart from its popularity with Dordrecht's audience and its diverse cultural character, another strength of the new programme is its compatibility with the historic space of the former plant. The needs of the new functions did not require extreme interventions, damaging the character and architecture of the Energiehuis.

10.2.3 Architecture

The biggest asset of the project is the architectural outcome of the reuse. The literature review along with the field and qualitative research showed that the architectural approach covers satisfactorily the needs of the new programme while preserving the character and the authentic architecture of the former industrial plant.

The architects' design, informed by the historical research, the documentation of the building and the views of the future users, was highly respectful yet not introvert. In the author's opinion, TenBrasWestinga architects achieved the right balance between preservation and intervention. They retained the volumes, facades, materialisation and inner basic layout of the building (FIGS. 10.1: A1, A2) while introducing a new element which solved multiple issues of the programme. The posed element, described in the analysis as 'the cut', was a distinct architectural gesture expressing its own era, with a modern materialisation and architectural language (FIGS. 10.7, 10.8, 10.9, 10.10, 10.11).

As shown in the Figures 10.1 and 10.21, the architectural outcome of the reuse is also highly appreciated from the respondents of this study. Evaluating this aspect they stated:

"The architects kept the old atmosphere and they did it well. At the same time you recognise that the building is reused in a modern way. The combination of old and new is what makes it aesthetically successful." C. Hogerzeil, Director of Muziektheater Hollands Diep (Resp. no 178, interview 2/6/2016).

"The architect had a good insight on how the building was developed. We (the Cultural Heritage section of the Municipality of Dordrecht) had pinpointed different phases of construction. The architect's golden touch was 'the cut'. With a simple gesture he solved everything. You sense

the phases that the building has gone through. [...] The building is not too pretty or polished. People like the roughness and the fact that it is unfinished” C. van Nes (Resp. no 184, interview, 21/9/2016).

10.2.4 Cultural significance



FIG. 10.17 Historic sign of the Municipal Electricity Company of Dordrecht, that was retained during the restoration of the buildings' facades, 2016.



FIG. 10.18 Interpretation sign of the building's former and current function, 2016.

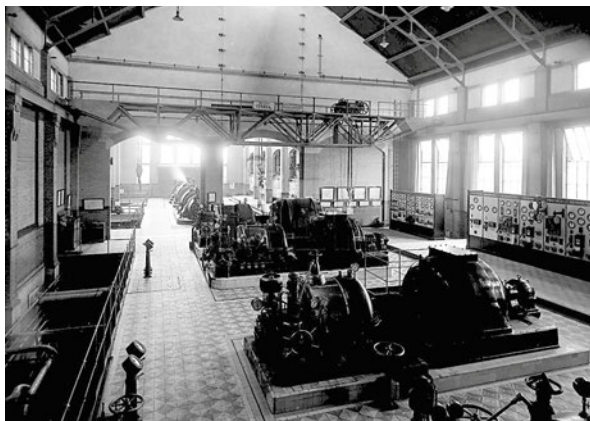


FIG. 10.19 The machine halls 1 (foreground) and 2 (background) in operation (Jonkman Klinkhamer architecten, 2009, 7).

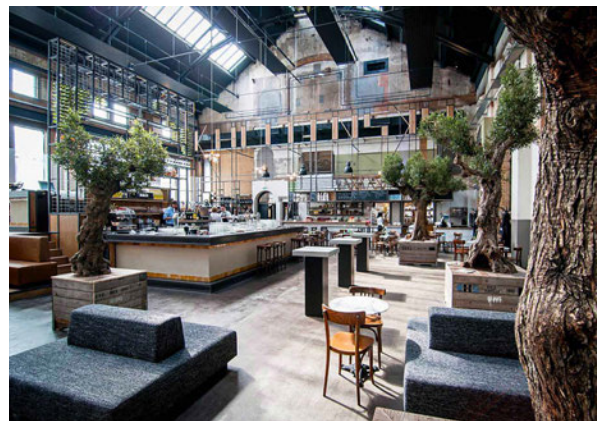


FIG. 10.20 The machine hall 1 after its conversion to the grand Cafe Khotinsky. The industrial character of the hall has been retained yet no trace of its former function nor its machinery has been preserved (R. TenBras).

The result of the Energiehuis' reuse presents both strengths and weaknesses in regard to the preservation of its cultural significance. As analysed above, the architectural and aesthetical values were carefully taken into consideration and protected by the architect. Apart from that however, the building retains very little evidence of its previous function. Among those are the retention of 'Energiehuis' as a brand name for the new cultural centre; the preservation of a mural in the facade of the building stating the former function of the historic plant (FIG. 10.17) and a small sign at the main entrance, providing a very brief review of the historic phases of the building and its current function (FIG. 10.18). Due to decisions preceding the transformation, there is hardly any machinery left in the building (FIGS. 10.19, 10.20), except for the overhead crane preserved in the main theatre hall.

10.2.5 Finance

The weakest Component of the case regards its finances. The problems in that respect started from the planning phase and were extended to the operation of the building. As reported during the qualitative research, the project suffered successive budget cuts before construction. Lengthy deliberations along with inventive architectural solutions and reductions in the quality of installations and inner comfort systems resulted in the delivery of the project on budget.

However, the largely mono-functional programme and its augmented needs, the dependence of the project on public sector funds as well as the financial reorganisation of the Dutch cultural sector, took a heavy toll on the project. The Energiehuis has been pumped with additional investments by the local authority's budget several times since 2015, when it flirted with bankruptcy (van Driel, 2018). Yet its financial viability is still at stake. H. Kranendonk explains:

"There are cuts in cultural subsidies. The calculations for financial sustainability of the Energiehuis were made based on the previous situation. Now the cultural parties involved in the project have suffered 20-25% budget cuts." (Resp. no 183, interview, 21/9/2016).

C. van Nes, adds:

"Recently there has been a political discussion because the current partners cannot pay for the building. I think that there was an overestimation of visitor numbers. It also has to do with the unforeseen economic crisis. It is good to cluster cultural functions together but it is not easy to generate money. It is not commercial enough. The project is vulnerable if the subsidy stops."

10.2.6 Social component

One of the assets of the case is the generation of social added value. The reused industrial building has been described as the new meeting point of Dordrecht (VVV Zuid Holland Zuid, n.d., Resp. no 183, interview 21/9/2018). It is an open and accessible venue of cultural production, education, experimentation and consumption that functions day and night. It has been embraced by the local community, winning a prize for the best building from the public in 2014. The owner of the Grand café Khofinsky, elaborates on the subject stating:

“All kinds of people come here, tourists, neighbours... there is also diversity in ages and style... rockers, skaters, intellectuals. [...] It is a melting pot.” (Resp. no 182, interview 2/6/2016).

The reused Energiehuis, attracting a large number of visitors on a daily basis, has become a nodal point in the developing area of Stadswerven. Along with the cinema and the expected square, it has the potential to fuel important dynamics, catalysing the transformation of the district.

10.2.7 Functionality

One of the weaknesses of the case is its functionality (FIGS. 10.1, 10.21). As mentioned above, during the design process certain installations and climate control systems were scaled down for reducing the budget of transformation. As a result, the inner climate of the building is problematic. Other issues related to the functionality of the former plant are the poor sound insulation of certain spaces, such as the practice rooms of Bibelot, and the outdated fire alarm system. In the Summer of 2018 an additional investment was approved by the Municipality of Dordrecht for solving those issues (van Driel, 2018).

10.2.8 Stakeholders' evaluation

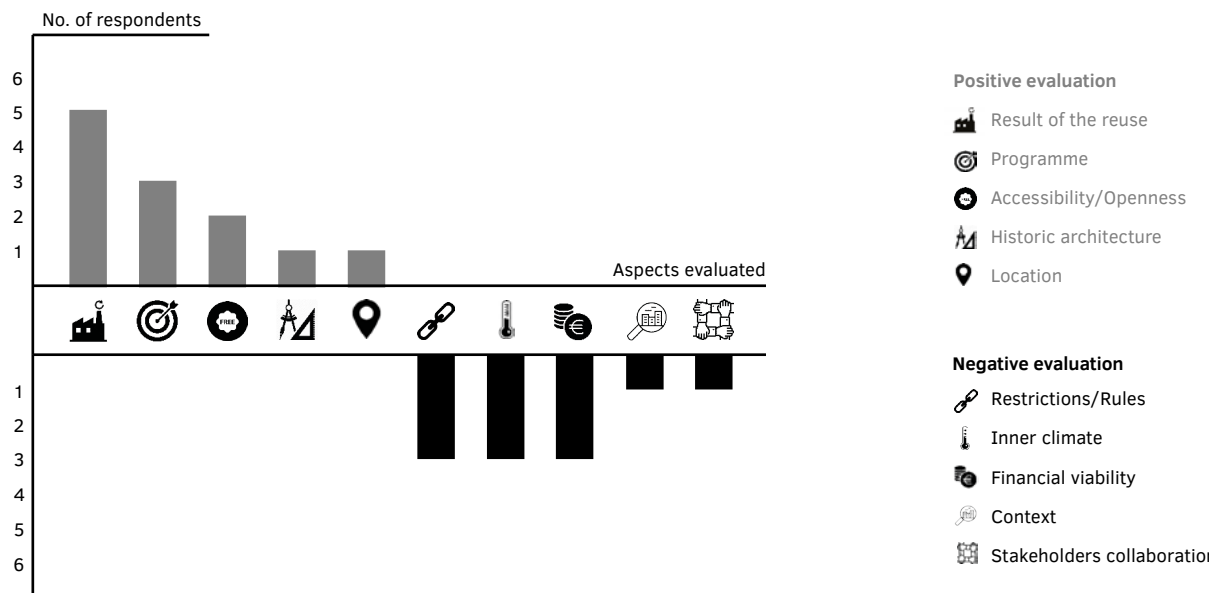


FIG. 10.21 Respondents' evaluation of the strong and weak Aspects of the case of Energiehuis (Number of respondents: 8).

11. National Museum of Science and Technology of Catalonia

Location: Terrassa, Spain

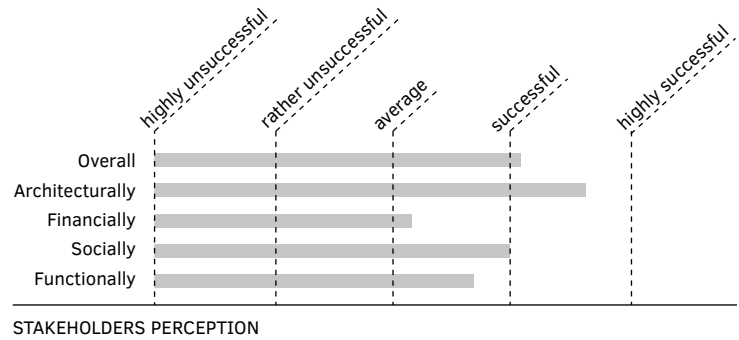
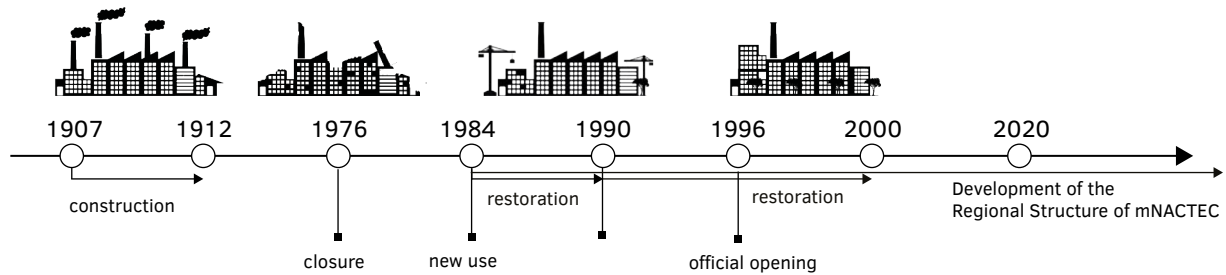
Historic use: Textile Mill

Architect: Lluís Muncunill

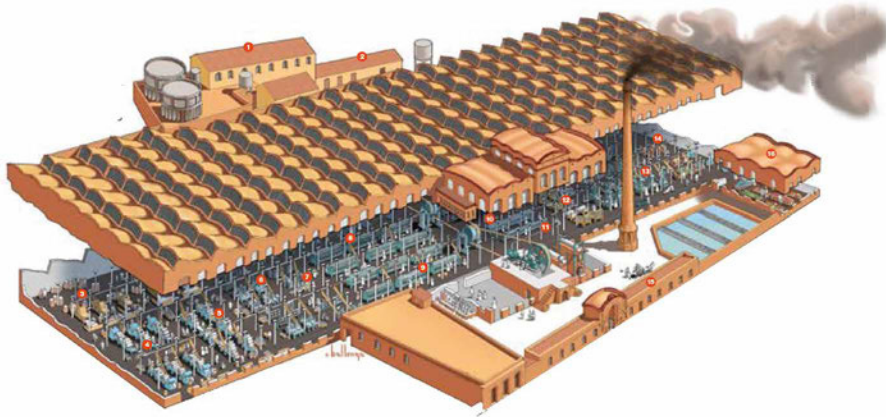
New Function: Museum of Science and Technology

Reuse architects: Joan Margarit and Carles Buixade, Quim Larrea and Francesc Patris

Status: National monument



[A]



[B.1]



[B.2]



[B.3]

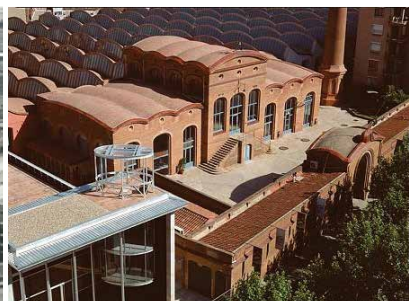


FIG. 11.1 National Museum of Science and Technology of Catalonia Fact Sheet

11 National Museum of Science and Technology of Catalonia

SUMMARY The National Museum of Science and Technology of Catalonia (mNACTEC) is a pioneering case in Europe. With its decentralised structure of 28 sites, it interprets the rich Industrial Heritage of the region while promoting technical and scientific culture. It plays an important scientific, cultural, educational and social role while being a source of inspiration for similar initiatives in other countries. The headquarters of mNACTEC in Terrassa, housed in an impressive Art Nouveau textile mill, offer multiple lessons in terms of architectural intervention, cultural significance preservation and reuse process. The negative aspects of the project are mainly its functionality and the vulnerability of its financial sustainability.

11.1 Analysis

11.1.1 Regional Structure of mNACTEC

One of the most notable achievements in the field of industrial heritage preservation and interpretation in Spain is the creation of the Regional Structure of the National Science and Technology Museum of Catalonia. Founded in 1984 with the establishment of mNACTEC in Terrassa as the main hub and three peripheral smaller museums, the network kept growing reaching today 28 industrial museums and heritage sites across Catalonia (FIG. 11.2).

LEGEND FIG. 11.1 National Museum of Science and Technology of Catalonia

- A Perspective section of the Vapor Aymerich, Amat i Jover (Jordi Ballonga).
- B.1 The main exhibition hall of the mNACTEC.
- B.2 Aerial photograph of the Vapor Aymerich, Amat i Jover in operation (mNACTEC documentation centre).
- B.3 Aerial photograph of the Vapor Aymerich, Amat i Jover after its conversion into the mNACTEC (mNACTEC documentation centre).

11.1.2 Historic use

The mNACTEC is housed in the former steamed powered textile mill 'Vapor Aymerich, Amat i Jover' (FIGS 11.1: A, B2). The building is located at the Rambla d' Egara, one of the most central streets of the city of Terrassa, within a dense urban fabric consisting of residential complexes, public and commercial buildings and many reused industrial sites as well. Terrassa, located 35km away from Barcelona, played an important role in the industrial revolution, specialising in woollen fabrics.

Vapor Aymerich, Amat i Jover was constructed between 1907 and 1912 by the renowned architect Lluís Muncunill and it is considered the most important Art Nouveau industrial building of Catalonia (Llordès and Pont, 2014, 256). The most characteristic part of the site is its massive production hall (11.000m²) covered by an emblematic saw-tooth roof. The roof is formed by 161 Catalan vaults made from flat bricks with a bell-shaped form and it is supported by 300 cast iron pillars (Museu de la Ciència i de la Tècnica de Catalunya, n.d.-c).

Initially, the mill was covering the entire industrial process of wool transformation but only a few years later the spinning was moved and its production concentrated on woollen textiles only. As a consequence, parts of the building were left empty and were later rented to other companies. In 1962 the floods of Terrassa deeply affected the building, causing various damages and the loss of the company's archives. This event marked the beginning of a declining course, which coupled with the crisis of the textile sector led to the closure of the mill in 1976.

11.1.3 Reuse Preparation

The idea for the creation of a national Museum of Science and Technique of Catalonia was conceived in 1937 but the civil war and the dictatorship that followed did not allow its implementation. After democracy was restored, the idea resurfaced and was dynamically launched by the Association of Engineers of Catalonia in 1977 (Borrás, 1996). During the quest for the selection of an appropriate space for the museum's establishment in the late 1970s two factors came together, dictating its development. The first was the political and practical difficulties of finding such a space in the Catalan capital while the second pertained to the need to respond to the campaign of the local community and experts of Terrassa, who were whistleblowing the imminent destruction of an exemplary piece of industrial heritage (ACTE, 2011, 88).

E. Casanelles, initiator and director of mNACTEC (1996-2013), elaborating on the selection of the Terrassan mill for housing the museum states:

"The reason why I insisted in creating the museum in the particular building was to protect it from demolition. I knew that if it were not for the museum this extraordinary piece of industrial architecture would have been demolished. Another reason for its selection was its size (11.000m²), which was suitable for the needs of the museum. We needed a space that would allow us to explain a lot of things and a site that could house big exhibits, too. Lastly, the location of the building in the centre of Terrassa, an important industrial centre with good transportation connections, also influenced the selection." (Resp. no 185, interview, 25/9/2017).

In 1983 the Department of Culture of the Catalan government took over the project and bought the building. In the meantime, the process of acquiring objects for the exhibition was launched.

The adaptation of the building was realised in phases. The first phase which was implemented immediately after the purchase of the site, involved the restoration of the facades, the steam engine and the boilers. As soon as these works were completed, the museum opened to the public for the first time.

The second phase, realised from 1987 to 1995 involved the restoration of the site and its extension, with funding from the European Union programme FEDER and the Catalan Government. Adding extra floor space to the existing structure was deemed necessary for the allocation of all the functions of a national-scale museum yet it proved to be a particularly challenging venture. On the one hand, the wish of the museum's director to respect the spatial characteristics of the former mill and predominantly the openness of its main hall and the expressive roof, did not allow its vertical subdivision or extension. On the other hand, the density of its urban context hindered a possible horizontal extension.

The solution was given by the architects Joan Margarit and Carles Buixade, who proposed an underground extension. A subterranean space of 3.300m² was constructed housing the museum's library, auditorium, workshop rooms and restrooms while offering extra space for permanent and temporary exhibitions (FIG. 11.3). The basement's design did not only provide the museum with necessary extra space but it also allowed its independent operation, enhancing the museum's functionality.

It should be noted that during the renovation phase, several technical, structural and financial challenges came up. The most complex ones according to members of the museum's personnel at the time (Resp. no 193-195, interviews, Autumn 2017), involved the construction of the underground level and the isolation of the roof. Furthermore, the restricted budget did not permit the installation of a system for controlling properly the internal climate of the building.

As regards the allocation of the museum administration, E. Casanelles explains:

"The architects originally proposed to create a bigger underground space for housing the offices of the museum too, but I disagreed as it was too expensive. We therefore decided to build a mezzanine for housing the administration. This solution was also offering a balcony which provided a nice overview to the main hall of the museum while serving as a nice finishing of the hall." (Resp. no 185, interview, 25/9/2017).

In the same period, three more important developments took place. Firstly, with the Museums Act of 2 November 1990, mNACTEC was declared a National Museum and it was established as an autonomous entity (Museu de la Ciència i de la Tècnica de Catalunya, n.d.-c). Secondly, ENDESA, the largest electric utility company in Spain, agreed to become the patron of the first part of its permanent exhibition "Energy", providing the museum with 300 million pesetas. In 1998 Caixa Terrassa bank following ENDESA's initiative, bankrolled the exhibition "the textile mill". Thirdly, the Regional structure of mNACTEC boomed (Borrás, 1996, 3). As the appeal of the museum was rising, more and more Catalan municipalities were expressing interest for joining the network. By 1996, it was numbering 20 museums.

The final phase of the building's adaptation took place between 1999-2000 with the transformation of a former warehouse into the new entrance of the museum (FIGS 11.4, 11.5). Even though initially the warehouse was scheduled for demolition the plans did not go through. According to E. Casanelles (Resp. no 185, interview, 25/9/2017), the demolition of the building would have resulted in the exposure of a neighbouring façade of small architectural value and the destruction of the mill's patio.

The architects Q. Larrea and F. Patris preserved the old building and added a new façade with modern material and intense colours, making it prominent while differentiating it from the historic complex. The transformed building housed the museum reception and additional education rooms in a new mezzanine. On its roof a restaurant was designed, providing spectacular vistas of the complex and its Art Nouveau roof.



FIG. 11.3 Section of the former production hall with the underground extension and the administration mezzanine (mNACTEC documentation centre).



FIG. 11.4 Former warehouse during its transformation. (mNACTEC documentation centre).



FIG. 11.5 Entrance building of mNACTEC, 2017.

11.1.5 Occupation and management

The museum was officially inaugurated in 1996 and since then, along with its regional network, it has been established as a beacon of industrial, technical and scientific knowledge. Apart from preserving and restoring a wealth of scientific and technical items from the past and present, mNACTEC also plays a significant, cultural and educational role. It disseminates knowledge on modern science and techniques, creates awareness about the industrial process in Catalonia and contributes substantially to the consolidation of specialised museology (ACTE, 2011, 88). mNACTEC is a nationally owned Museum dependent on the Directorate-General for Archives, Libraries, Museums and Heritage. It is funded by the Catalan government and generates a modest revenue from the admission fees, the fixed space rentals (roof restaurant, courtyard café at.al) and the hiring of some of its spaces for corporate or private events. According to mNACTEC' s Annual Report 2016 (mNACTEC, 2016), the museum welcomes c. 105.600 visitors per year divided almost equally into general public and school groups.

Over the last two decades of its operation, the museum has enriched its collections offering a wide variety of permanent and temporary exhibitions. The former ones cover the topics of energy, transport, textile production, technological evolution, industrial architecture, the human body and science with emphasis on computers, nuclear research and chemistry (Museu de la Ciència i de la Tècnica de Catalunya, n.d.-b).

The set-up of the exhibitions is carefully chosen so that the spatial values of the historic mill are kept intact while offering an experience to the visitors.

“The selection of partition panels in the main hall was for accommodating different exhibitions and for creating the feeling of a maze. I did not want to leave everything visible. When visiting the car museum of London I came to realise that it is interesting to offer surprises in a museum. So I decided to create a museum like a labyrinth and invite the visitors to discover it.” commends E. Casanelles (Resp. no 185, interview, 25/9/2017).

Currently, the museum sustains its regular activities including permanent and temporary exhibitions, conservation and restoration work, while placing more emphasis on maximising its visibility. This is tackled using multiple vectors, including social media campaigns, the organisation of educational programmes for students and teachers as well as the organization of various events to attract diverse target groups.

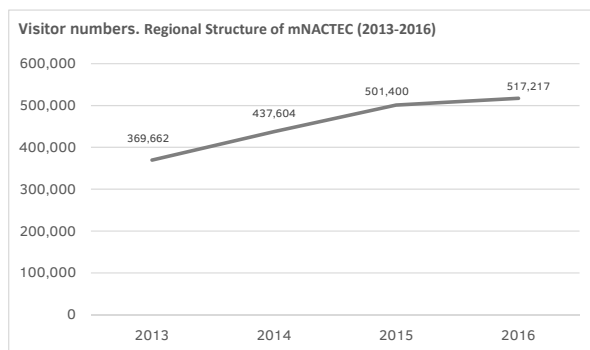


FIG. 11.6 Visitors' development of the regional structure of mNACTEC (mNACTEC, 2016).

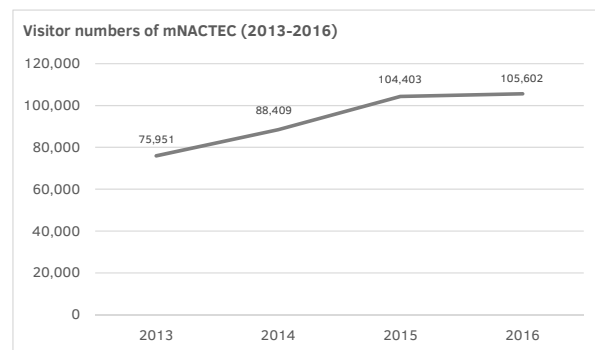


FIG. 11.7 Visitors' development of mNACTEC headquarters (mNACTEC, 2016).

11.1.6 Shifts

Since its official establishment mNACTEC has become more and more popular on a national and international level. This statement is supported on the three following facts. Firstly, mNACTEC is repeatedly cited as a model case in the international literature on industrial heritage museums (Biel Ibáñez and Cueto Alonso, 2011, Negri, 2012, Journal Archaeologia). Secondly, the regional structure mNACTEC not only has withstood the test of time, but it has grown from 20 museums in 1996 to 28 today. Lastly, the visitor numbers of the museum and its network, as shown in the FIG. 11.6 have risen substantially over the past couple of years (mNACTEC, 2016).

Despite these positive developments mNACTEC was not left untouched from the recent financial crisis. The restricted financial means of the public sector caused a noteworthy reduction of the museum's personnel, from 28 people in 2013 to 19 today (mNACTEC, 2016). Also, according to the respondents of this research (Resp. no 185, 193-197, interviews, Autumn 2017), the maintenance of the museum is becoming harder and harder given the available funds.

11.2 Evaluation

"The museum has a high level of content and continent and beautiful exhibitions, too." R. Bifet (Resp. no 194, interview, 9/10/2017).

11.2.1 Process

The process of the mill's reuse and the development of mNACTEC has been gradual and organic. This allowed the museum to expand fast in periods of prosperity while sustaining its status in times of economic stagnation, seizing presented opportunities and incorporating new ideas. Even though the first steps of the building's safeguarding and the establishment of the museum can be attributed to a favourable conjuncture of a motivated local community, a willing administration and an inspired group of experts, mNACTEC's development was largely determined by one person.

E. Casanelles, director of the museum for seventeen consecutive years and instigator of mNACTEC's network had a profound impact not only to the administration of the project but also to its structure, content and the building's transformation. This influential figure established strong ties with the national and international scientific community through TICCIH, yielding a double benefit. Being in touch with a vast theoretical and practical knowledge base he was able to gain insights for improving the museum. Additionally, TICCIH was an ideal vessel for the dissemination of the museum's progress on an international level.

11.2.2 Programme

The programme of mNACTEC is one of its strong Components. Albeit monofunctional, its innovative decentralised structure lends it a large diversity, allowing the preservation and promotion of a vast array of industrial processes. The headquarters in Terrassa share the same characteristic, housing a combination of technical, science and industrial exhibitions. It should be stressed that the selected programme is compatible with the historic building. In other words, the museum's specifications did not require the compromise of spatial or cultural values. On the contrary, the programme allowed a high degree of preservation while echoing the site's original function. The financial sustainability of mNACTEC is seen as the most vulnerable aspect of the project's programme.

11.2.3 Architecture

Both the original architecture of the mill and the approach of the site's transformation are among the stronger assets of the project. This evaluation is supported by the above analysis and it is also passionately shared by all the respondents of this research (Resp. no 185, 193-197, interviews, Autumn 2017) (FIG. 11.1).

As described in the section 'Reuse process' (§ 11.1.4), during the conversion, particular attention was paid to the conservation of the spatial integrity of the site. Specifically, the majority of the spatial characteristics were retained including volumes, structure, set-up, roof contour, interior and exterior configuration. The original materials were preserved and cleaned while the additions were made distinct from their colour, materiality and architectural language. The underground extension was an effective way to gain extra space without damaging the key architectural values of the space. Certain architectural details added, such as the location of the restaurant which enables a view of the Art Nouveau roof and the setup of exhibitions that encourages discovery while causing surprises, make the museum more interesting and playful. In the author's opinion, the transformation of the old warehouse is rather dated, yet it keeps serving its purpose, making the entrance prominent and facilitating the access to the museum from the street.

11.2.4 Cultural significance

The selected programme and the reuse approach did not only contribute to the conservation of the mill's architecture but also of the totality of its cultural significance. mNACTEC, as shown above, has preserved both the tangible and intangible cultural values of the former mill. Its exhibitions incorporate parts of the factory, such as its energy production to the museological route. This way the new use is linked with the original one. At the same time the project is not just a vessel for industrial archaeology but it echoes its era, showcasing and explaining the advances regarding technical and scientific matters of the current society. A deficiency of the project is the lack of a more in-depth description of the mill's function and history. According to E. Casanelles (Resp. no 185, interview, 25/9/2017), this was very difficult to achieve due to the destruction of the company's archives by the floods of 1962.

11.2.5 Finance

The transformation of Vapor Aymerich, Amat i Jover to the headquarters of mNACTEC required a large investment. However, the inventive way of financing different parts of the project through regional, municipal, European Union and corporate funds is considered a big achievement. The availability of these funds imposed the pace of the museum's development and its activities.

According to the testimonies of the former director and several employees of mNACTEC (Resp. no 185, 193-197, interviews, Autumn 2017), the financial sustainability of the museum is one of its weaker aspects. Even though the museum is not currently facing major financial issues, its revenue largely depends on the Catalan Government and as a result it has taken a blow by the impact of the recent financial crisis (mNACTEC, 2016). E. Casanelles explains: "*The benefit is more social than financial. The museum is gaining a low amount of money and it has big costs.*" (Resp. no 185, interview, 25/9/2017). The financial situation has caused a severe reduction of the museum's personnel and consecutively difficulties in its operation and maintenance.

11.2.6 Social component

Over the course of more than 30 years mNACTEC and its regional structure have offered major social returns. The network is based on the collaboration of various Actors all over Catalonia and it has contributed to the historic awareness and the restoration of the local communities' pride as well as the invigoration of a territorial identity. Furthermore, the museum plays a significant educational role, engaging and informing the public through its exhibitions, events, educational programmes and publications. According to R. Bifet (Resp. no 194, interview, 9/10/2017), it is well appreciated by the visitors.

"Its accessibility and openness to the people is one of its stronger merits", adds A. Dalmases Guillén, mNACTEC librarian (Resp. no 195, interview, 9/10/2017).

11.2.7 Functionality

The functionality of the museum is one of its weaker Components. The main issue, according to the testimonies of all respondents (Resp. no 185, 193-197, interviews, Autumn 2017) is the problematic internal climate (FIG.11.8). E. Casanelles notes:

"The access of light is a serious problem. It does not permit us to have intimate rooms and it restricts the objects we can exhibit. The same issue is causing problems in the inner climate of the building. There is a greenhouse effect and the building becomes very hot in the summer." (Resp. no 185, interview, 25/9/2017).

"The building is difficult. There are big changes in the temperature, we cannot control because we do not have an air conditioning system, apart from the depot." adds R. Bifet (Resp. no 194, interview, 9/10/2017).

A questionable attribute is the location of mNACTEC' s headquarters. On the one hand, situated outside the confines of a metropolitan area, the museum requires much more effort and publicity for attracting visitors. On the other hand though, it is an asset with a very positive impact for a smaller city with relevant history and it is housed in a grandiose building.

11.2.8 Stakeholders' evaluation

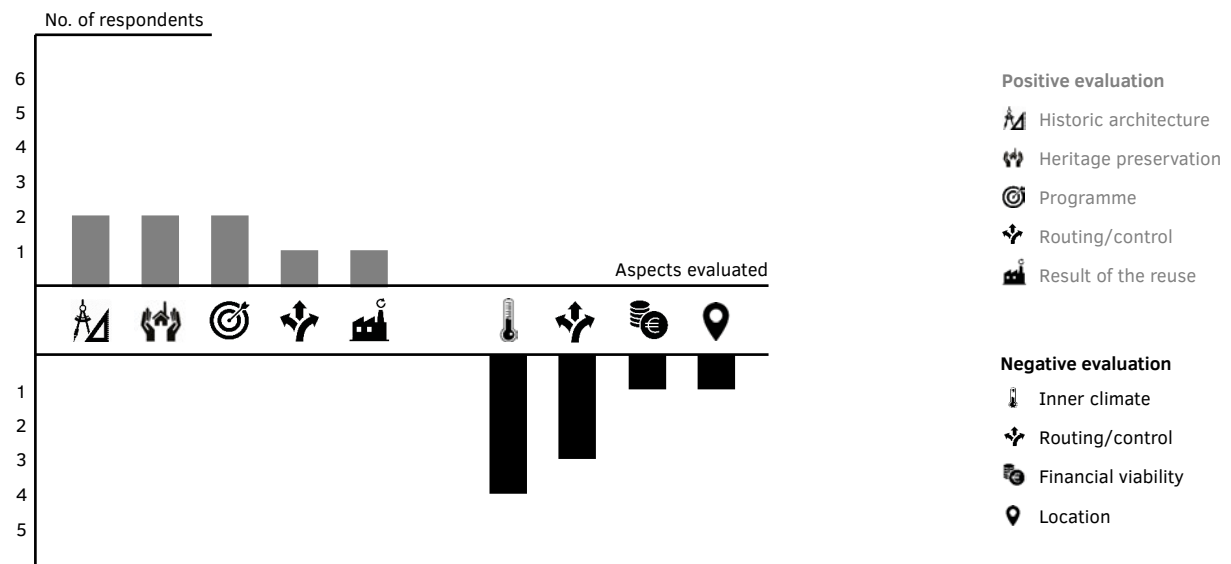


FIG. 11.8 Respondents' evaluation of the strong and weak Aspects of the case of mNACTEC (Number of respondents: 6).

12. Bodegas de Jerez de la Frontera

Location: Jerez de la Frontera, Spain

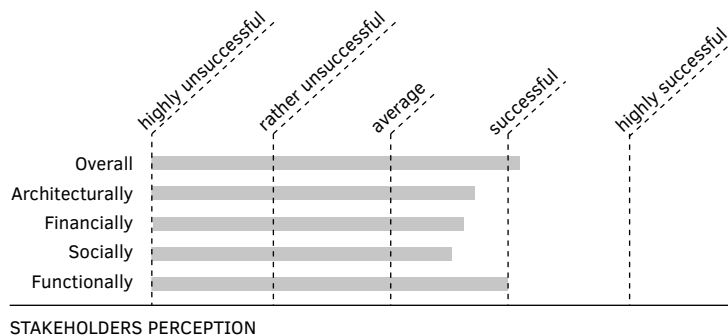
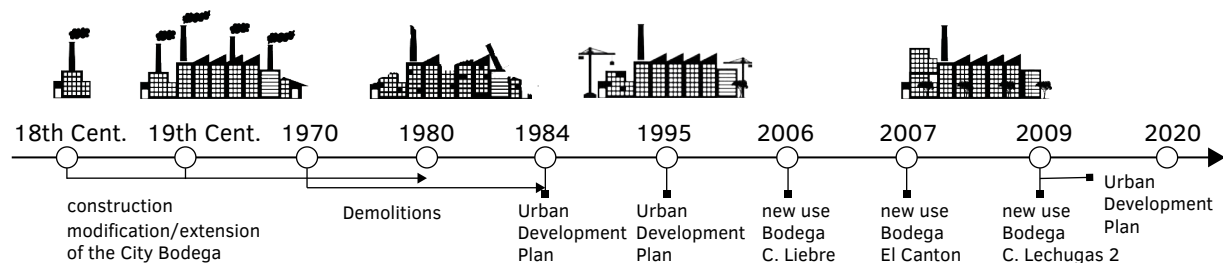
Historic use: Bodegas

Architect: Various

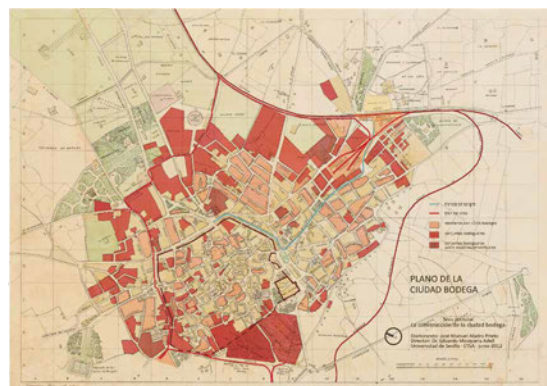
New Function: Residential

Reuse architect: Various

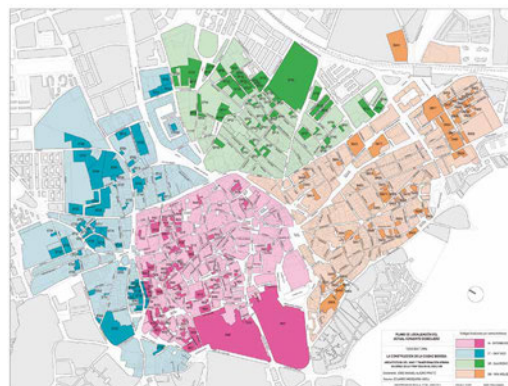
Status: Varies



[A.1]



[A.2]



[B.1]



[B.2]



[B.3]

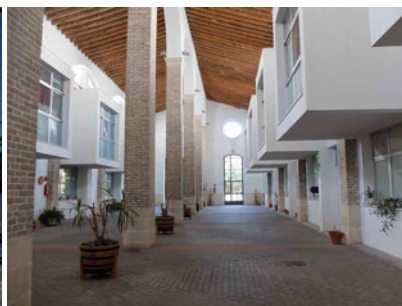


FIG. 12.1 Bodegas de Jerez de la Frontera (BJF) Fact Sheet

12 Bodegas of Jerez de la Frontera

SUMMARY Jerez de la Frontera is a city synonymous with wine production. The case presents particular interest as it highlights the role of the public initiative in the reuse process. This is attempted through an analysis of the Urban Development Plans of Jerez, developed in 1984, 1995 and 2009. Particular focus is placed on the action taken by the Municipality of Jerez to safeguard the city's identity by reusing its historic bodegas into residential complexes. The analysis of three case studies, namely the bodega on 11, Liebre st, the bodega El Cantón and the bodega on 2, Lechugas st, illustrates the merits and pitfalls of this decision. The merits include mainly the protection of the tangible heritage dimensions of the bodegas while the pitfalls include financial, socio-cultural and functional issues.

12.1 Analysis

12.1.1 Historic use

Jerez de la Frontera, also known as the “city-bodega”(Prieto, 2012), is located in the province of Cádiz in the autonomous region of Andalusia, between the Atlantic Ocean and the Cadiz mountains. The history and development of Jerez after medieval times have been defined by its principle industrial activity: the production of Jerez-Xérez-Sherry wine. The first wine cellars (bodegas) were established in the city in the 16th century. Until the 18th cent. however, Jerez remained a city with an agricultural economy. The production of wine was developed in the traditional way (Rosso, 2010).

The turning point for the city's development and the beginning of its industrialisation took place in the 18th century. Fusteguerras (2017, 4-10), describes an array of events that contributed to that change. The most important of those was the “Confiscation of Godoy” starting in 1798. With this process, much of the pre-existing religious-related structures disappeared giving way to new building typologies and new activities. The new owners made use of the available space, building much bigger bodegas that enabled a higher production, giving rise to a period of economic prosperity for the city (Sánchez, 2014, 5).

LEGEND FIG. 12.1 Bodegas of Jerez de la Frontera (BJF)

- A.1 Urban plan of Jerez de la Frontera, late 19th century (Prieto, 2012, 1007).
- A.2 Location of the preserved bodegas in Jerez de la Frontera, 2012 (Prieto, 2012, 65).
- B.1 Bodega El Fundador, still operational and open as a visitor attraction, 2017.
- B.2 Elevation of the bodega El Cantón after its reuse, 2017.
- B.3 Interior view of the bodega on 2, Lechugas st after its reuse, 2017.

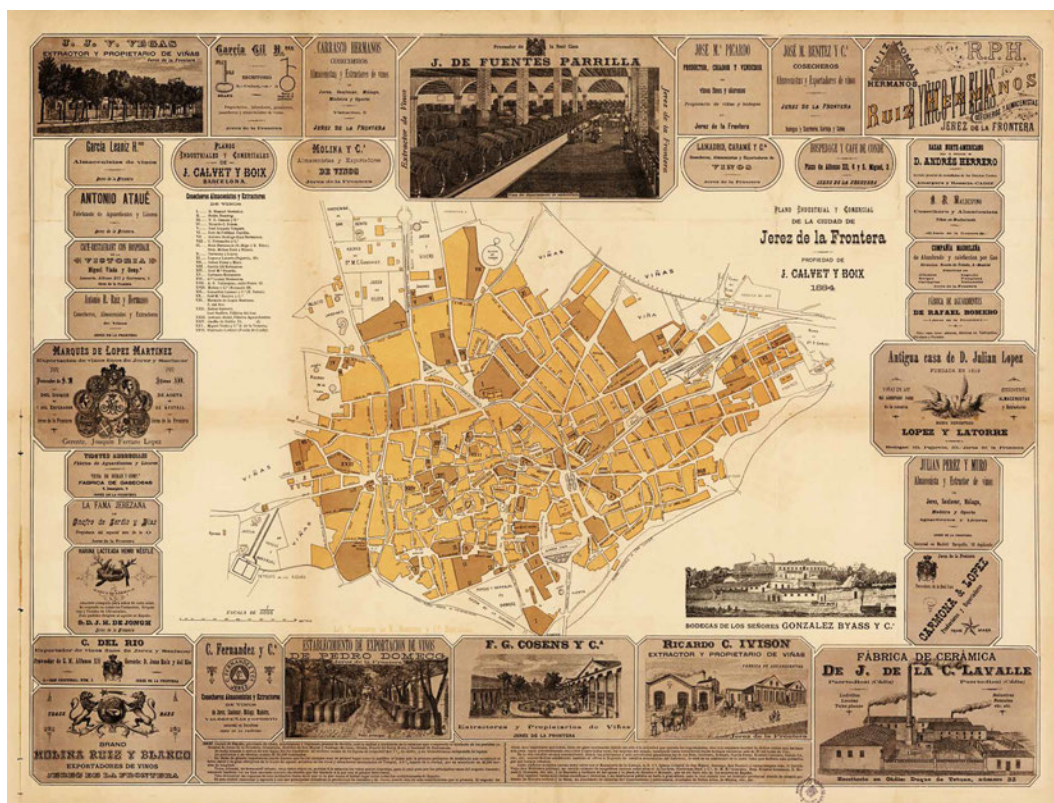


FIG. 12.2 Industrial and commercial map of Jerez 1884 by Calvet y Boix. (Source: Cartography institute of Catalonia RM 73679).

The 19th century saw the transformation of Jerez “from the city of Gods to the city of Baco” (God of wine) (Aroca, 2007) (FIGS. 12.1: A1, 12.2). An unprecedented number of large winemaking complexes were developed in the old city including cellars, warehouses, administration spaces, workshops for the fabrication of barrels and stables. Within 50 years the winemaking industry dominated Jerez. According to Fusteguerras (2017, 8), in 1818 there were 236 bodegas while in 1868 this number more than quadrupled, reaching 1,000 units. The flourishing of the winemaking sector not only had a profound impact on the existing urban fabric but also paved the way for further economic and industrial development. New important installations were built including a railway system (1854), a water supply network (1873) and an electric street lighting system (c.1890); new industries were developed such as the gasworks of Jerez (1847), bottle factories (1890s) and lithography workshops (1866) while in 1860 the Bank of Jerez de la Frontera was inaugurated (Fusteguerras, 2017, 10-14).

In the mid-20th century the wine industry of Jerez enjoyed its full splendour, reaching the highest export and distribution rates and becoming worldwide known. In this period of prosperity, a process of industrial growth and development similar to that of the 19th century took place, yet in the periphery of the historic city. The big companies left the historic complexes and their inherited limitations, moving to new modern facilities in the suburbs that allowed an efficient response to the exorbitant demand (Prieto, 2009, 104).

The rising course of Jerez wine and the city's prosperity however were not meant to last. The late 1980s saw the sudden drop of the sales figures, caused by the aggressive competition of other products. The wine industry, which had to bear the investment of the new installations, too, entered a big crisis. The consequences for the city were devastating not only for its economy but also for the urban fabric. The bodega-city was turning into a ghost-city as the vacancy rate at the historic centre was rising.

The expansionist, modernising and speculative policies of the late 20th century had a very negative impact on the legacy of the wine industry. With very limited knowledge and appreciation for this type of heritage, important historic bodegas started to get demolished in the 1970s. At that time, their particular morphology was not seen as a stimulus for their preservation and transformation (Sánchez, 2014, 6).

The destructive practice however caused reactions. One of the first initiatives was the safeguarding of a small bodega belonging to the larger winemaking complex of Agustín Blázquez, by a new group of architects in the Planning Development Department of the municipality of Jerez in the beginning of the 1980s (Prieto, 2009, 104). The same decade saw the local authority assuming for the first time a leading role in the management of the urban environment of Jerez.

A review of the analysis of the municipal planning acts from the late 19th century to the mid-20th century shows that the development of Jerez was guided by a developmentalist and expansionist activity (Sánchez, 2014, 10–13). The General Urban Development Plan of 1984 was the first conscious attempt of the municipality to reverse this situation and address the chronic deficit of public amenities, introducing a criterion of public interest. In contrast with past practices of extensive wasteful operations in the city centre, the focus of that Plan was the recovery, rehabilitation and improvement of the city's existing state, and the enhancement of the living conditions of its current residents (Sánchez, 2014, 13).

A key development for the city, that paved the way for the aforementioned shifts, was the listing of the old town of Jerez as Patrimony of Cultural Interest³³ (BIC) in 1982 (Ministerio de Educación Cultura y Deporte, n.d.). The Plan of 1984 that followed the listing, introduced measures for heritage preservation, something that was nowhere to be found in the previous acts. One of the greatest contributions of the plan was the creation of a broad inventory titled: 'Catalogue of Elements and Buildings'. That was followed by a listing of various assets, including a number of historic bodegas. Another noteworthy step in the same direction, was the identification and marking of the bodegas in the detailed studies of the ordinance zone "Historic Artistic settlement". In detail, in the aforementioned documents the bodegas were defined as sites whose function should be preserved (Sánchez, 2014, 14–15).

The latter provision had a nuanced effect in the historic settlement. On the one hand, it encouraged the continuation of the wine production in the historic bodegas of the city centre, preventing at the same time their demolition. On the other hand though, it was condemning those buildings in a slow decay and vacancy in case their industrial activity moved away. Ironically, as described above, that turned out to be the case.

³³ Patrimony of Cultural Interest (Bien de Interés Cultural) is the highest level of protection in Spain, assigned by the Spanish Ministry of Culture.

12.1.3 Reuse process, occupation and management

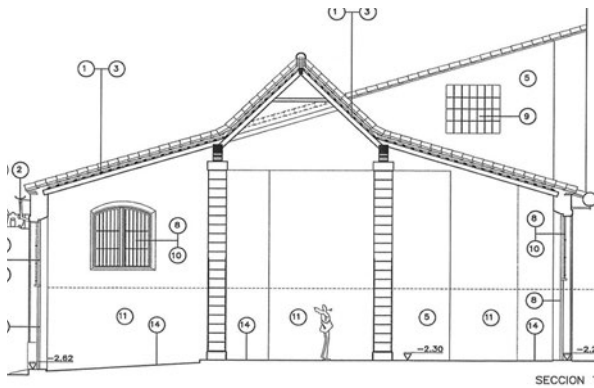


FIG. 12.3 Section of the bodega on 11, Liebre st before its transformation (Sánchez, 2014, 30).



FIG. 12.4 Section of the bodega on 11, Liebre st after its transformation (Sánchez, 2014, 30).

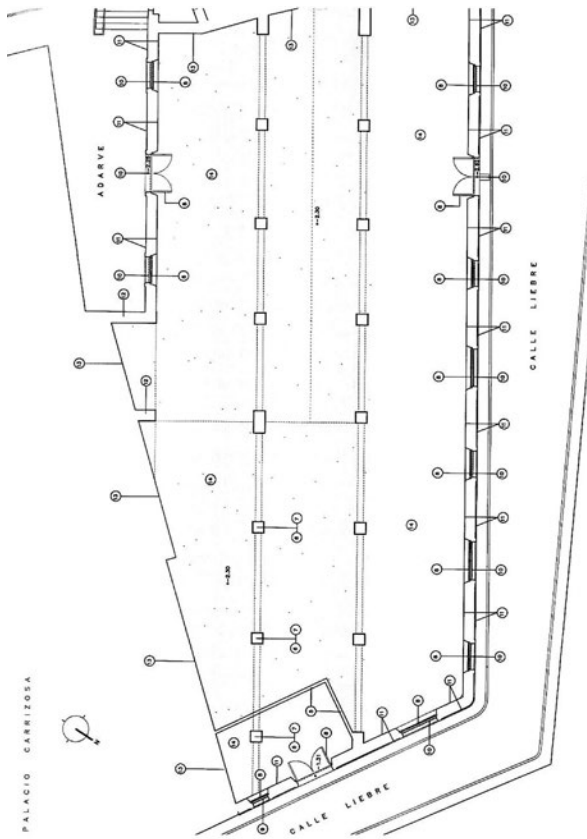


FIG. 12.5 Floor plan of the bodega on 11, Liebre st before its transformation (Sánchez, 2014, 29).

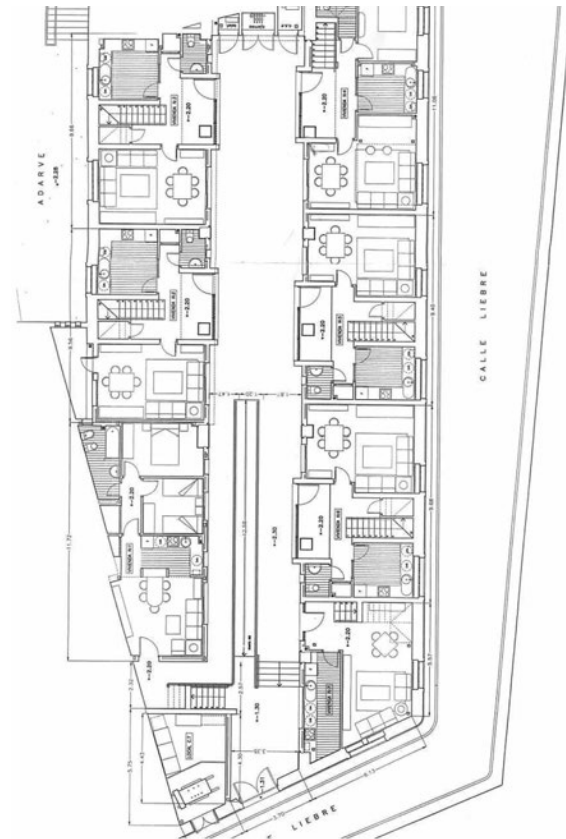


FIG. 12.6 Floor plan of the bodega on 11, Liebre st after its transformation (Sánchez, 2014, 29).

In a period of deep financial and socio-spatial crisis in Jerez, stemming from the unexpected blow to the main industrial activity of the city, a new Urban Development Plan was established. The Plan of 1995 employed a global approach for Jerez, incorporating elements overlooked by the previous plans developed in a thriving economy. Its fundamental goals were the functional and population revitalization, as well as the regeneration and rehabilitation of the urban setting.

The historic centre was given special attention. Realising the potential of its rich historic building stock, which was one of the most complete examples of the Andalusian urban culture, the municipality commissioned five detail sector studies for evaluating the city's heritage. One of those was devoted to the rigorous investigation of the bodegas that were recognised as "the most singular fabric of the historic District of Jerez". The architect Pablo Diáñez Rubio conducting the study, did not only analyse the industrial buildings, elaborating criteria for their listing but he also developed some proposals for their reuse.

At the same time, the city centre was at a state of abandonment, struggling with a vast number of substandard houses. The municipality, taking into account the conclusions of the detailed studies, decided to turn the abovementioned problems into an opportunity. The Plan of 1995³⁴ encouraged for the first time the conversion of bodegas into housing and other functions compatible with the residential one, cancelling the conservation of use, established by the previous plan of 1984. That was an important step to protect the historic buildings while repopulating the centre and responding to its critical issues (Sánchez, 2014, 16-19).

Furthermore, in a quest to alleviate the problem of social housing shortage, the municipality through its municipal housing company 'EMUVIJESA', purchased a number of bodegas to convert them into housing for the disadvantaged social strata. According to M. Collado Moreno, Architect in the department of the Urban Planning of the municipality of Jerez, the bodegas in that period of financial crisis were sold to the municipality at a reasonable price (Resp. no 208, interview, 2/11/2017). Despite the intentions, in reality only few such conversions were realised, due to the high number of restrictions for the creation of social housing and the high cost of the conversion works.

An implemented case that depicts the opportunities and limitations of the municipal initiative of that time, is the social housing in the bodega of 11, Liebre st. The original structure was an 18th century barn-bodega, annexed to the Palace of Carrizosa. A typical example of a small bodega, the building was composed by two arcades and three aisles; a double sloping roof with a peculiarity in the central part and thick walls made of masonry, solid brick and the typical sand stone of the Sierra de San Cristóbal, plastered and whitewashed (FIGS 12.3, 12.5). The detailing of the bodega and the use of materials that were of lesser quality in comparison to the adjoining Palace of Carrizosa, indicate that it used to be a secondary structure used by the staff of the house.

In the 1980s, the palace was transformed into a residential complex yet the bodega that had been listed as a Grade III protected structure and was bearing the mark of "conservation of existing use" within the framework of the Urban Development Plan of 1984, was left vacant. The Plan of 1995 as posed above, opened new possibilities for such historic buildings. In 1996, Pablo Diáñez Rubio winner of the relevant Public Works competition, made the designs for the conversion of the bodega into a social housing complex of 9 houses (Prieto, 2009, 106) (FIGS. 12.4, 12.6).

³⁴ Within the framework of the Plan a wider catalogue of protected buildings was established, while stricter regulations for granting licences for buildings included in the catalogue were imposed.



FIG. 12.7 Views of the central patio of the bodega on 11, Liebre st, during its conversion into social housing (Sánchez, 2014, 31-32).

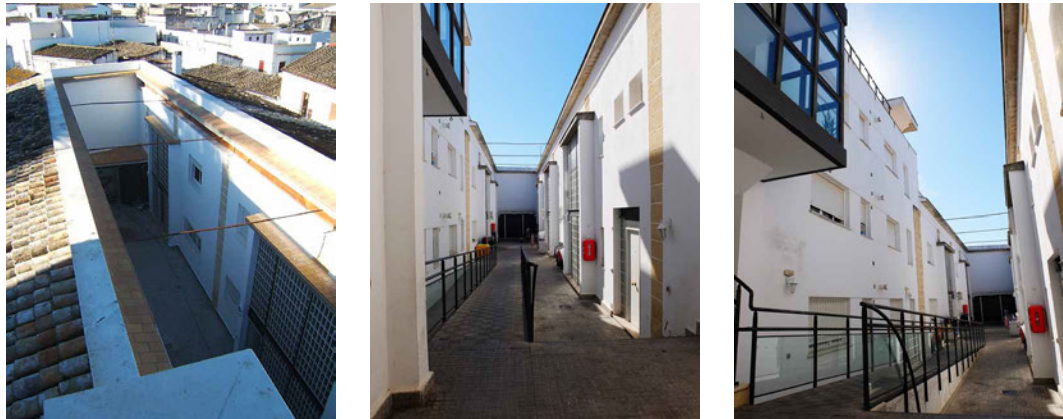


FIG. 12.8 Views of the central patio of the bodega on 11, Liebre st, after its conversion into social housing, 2017.

This design was finally executed between 2004 and 2006 by EMUVIJESA, that still manages the property. The transformation preserved the protected structure of the building including its arcades and facades. The side aisles were compartmentalised and used for housing the residential units. The central one was left free, serving as a movement axis and a point of access to the six doublex-houses and the staircase leading to the rest of the residential units. A big intervention was the removal of the central part of the roof that deprived the bodega of its most singular feature. The contour of the building was distorted by that intervention and the addition of two extra floors in the north-eastern part of the building. Moreover, the architectural language and the materiality used for the interior facades and the roof structure took away part of the character of the original structure (Sánchez, 2014, 25) (FIGS.12.7, 12.8).

In 2005, EMUVIJESA, in a quest to boost the reuse of large bodegas to the commercial developers' circles and promote their potential, launched a set of three pilot projects. Those involved the conversion of big historical bodegas in loft-housing for sale. Finally, only two out the three projects were realised, namely the conversion of the bodega 'El Canton' and the conversion of the Bodega of the Lechugas st.

The bodega El Cantón, constructed in the early 19th century, was one of the largest in the city. Its most unique characteristics were its facades and its spacious monumental setup, distributed in eight aisles. In the same complex there was also a patio used for the construction of barrels. The bodega after losing its original function in the late 1980s, was purchased by EMUVIJESA that entrusted its transformation into a loft complex to the municipal architect Juan Ramón Díaz Pinto.

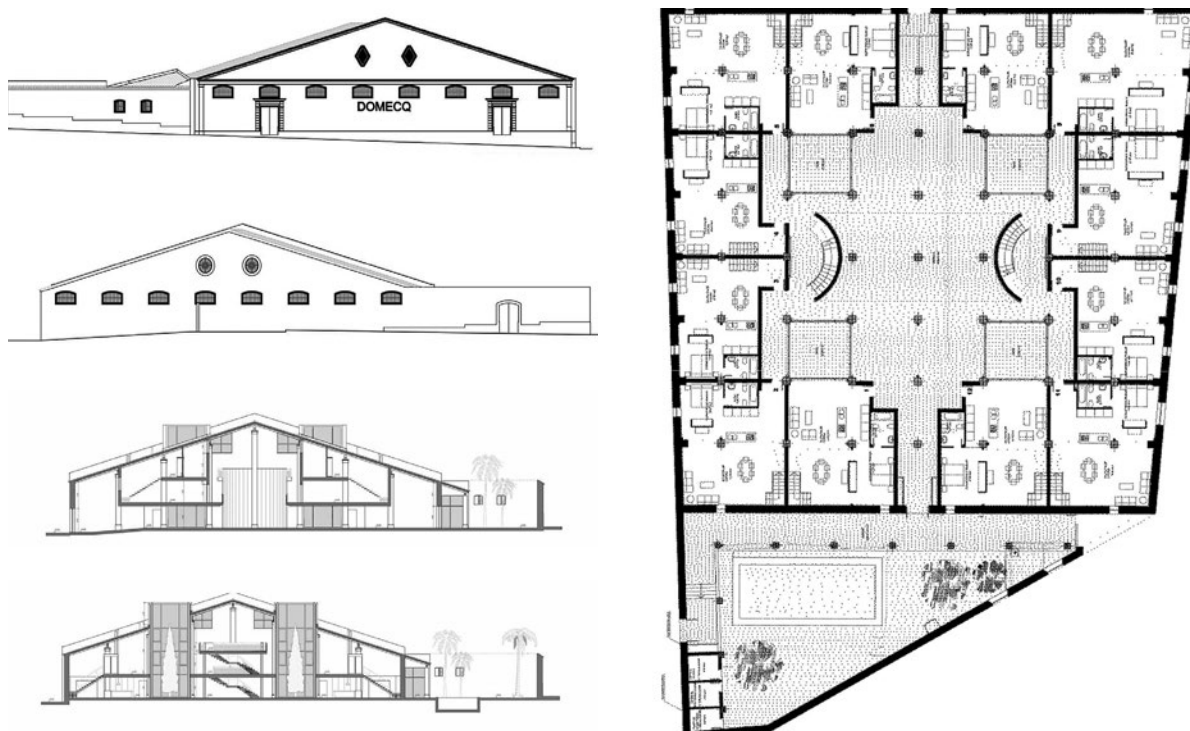


FIG. 12.9 Floor plan, facades and sections of the converted bodega El Cantón (Sánchez, 2014, 41).

The conversion was realised in 2007 and it was met with enthusiasm both from the public and the academic circles (González and Ruiz, 2012, 249-251, Nieto, 2010). The bodega was adapted to house 20 loft units. The architect preserved the building envelope, retaining the facades, volume and contour of the building intact (FIG. 12.12). In the interior, the design provided the new residential units with the required features while highlighting at the same time the spatial values of the historic structure. This was achieved by the setup of the residential units and the minimal yet distinct additions for light, ventilation and circulation (FIGS. 12.9).

In detail, the setup of the units in the perimeter of the structure left a generous central patio for common use (FIGS. 12.10, 12.11). This space serves a double purpose. Firstly, it channels the movement of the residents to the ground and upper floors. Secondly, maintaining the original height and the structure intact, it enables an understanding of the spatial qualities of the bodega. The lighting and ventilation of the units and the common space are achieved through the original openings in the facades of the bodega in combination with four new parallelepiped glass shafts, placed symmetrically in the patio corners, following the grid of the historic structure. The only elements that deviate from the posed grid, are the two semi-circular steel coated walls that hide the main staircases leading to the upper floors (González and Ruiz, 2012, 249-251).

It is noteworthy that the new additions are not supported by the old structure. A new foundation and structure has been introduced for the residential units. Furthermore, as noted above, all the additions are clearly distinguished from the original structure both in terms of material and form. The architect also took advantage of the triangular patio, converting it into a small communal outdoor space with a swimming pool.

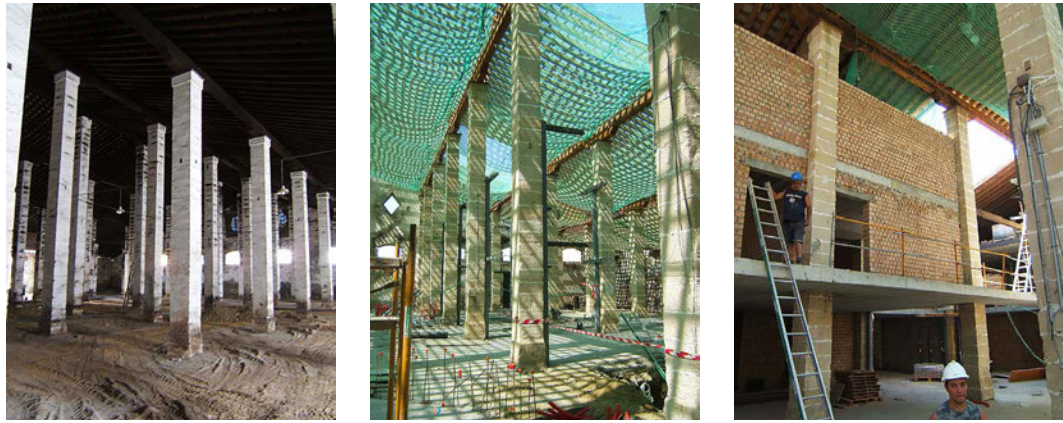


FIG. 12.10 Views of the central patio of the bodega El Cantón during its conversion into loft housing (Sánchez, 2014, 42-43).



FIG. 12.11 Interior view of bodega El Cantón after its reuse, 2017.



FIG. 12.12 Façade of bodega El Cantón after its reuse, 2017.

According to Sánchez (2014, 34) the cost of the construction was excessive which resulted in high sale prices. In regard to the operation of the reused complex, users of the building (Resp. no 204-210, interviews, Autumn 2017) report operational issues related to the detailing construction, the sound insulation, the use of the communal spaces and the parking.

The second development in the framework of the municipality's pilot project, was realised two years later by the architect B. García Moran. It involved the conversion of a large bodega, built in 1873 by the architect E. Gallegos. The historic building had a longitudinal floor plan divided in six aisles by five rows of arches, supporting the high double sloping roof. Apart from its grandiose dimensions the most imposing feature of the historic building was its main façade on Lechugas st due to its unique composition, detailing, materiality and decoration (Sánchez, 2014, 46).

Moran, describing the main decisions guiding the conversion states:

“Respecting the image and the character of the bodega was a key decision. The main idea for the placement of the houses was inspired by the placement of the wine barrels. Making functional homes and offering them plenty of natural light and ventilation was also desirable” (Resp. no 209, interview, 27/20/2017),

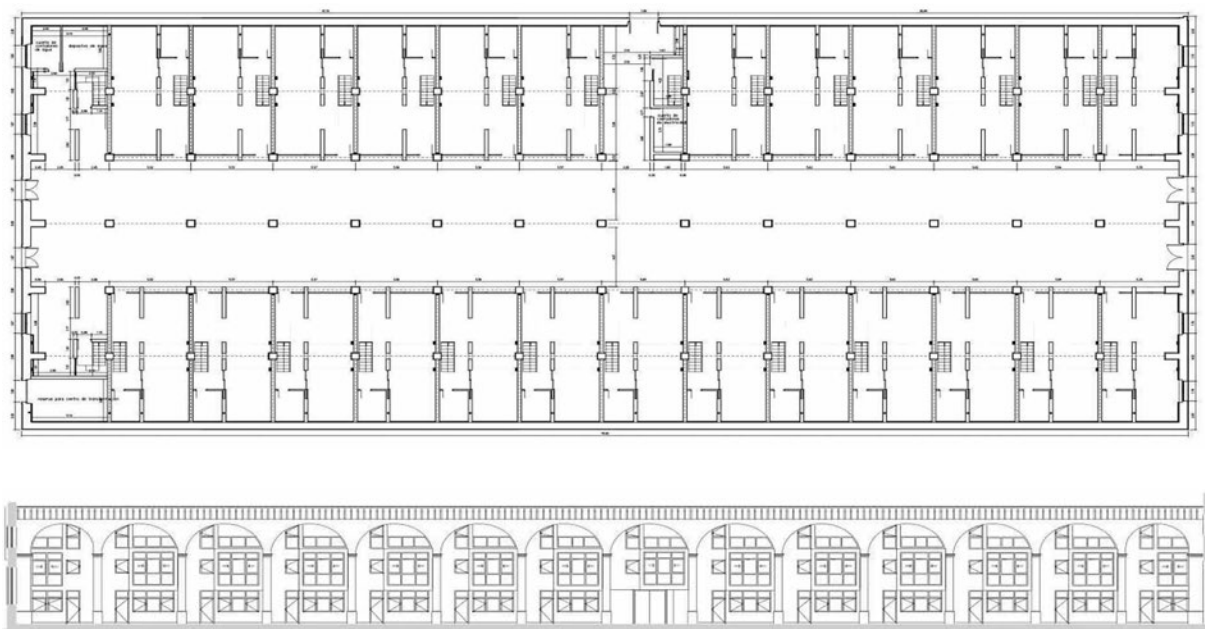


FIG. 12.13 Floor plan and longitudinal section of the converted bodega on 2, Lechugas st (Sánchez, 2014, 52)



FIG. 12.14 Cross Section of the bodega on 2, Lechugas st before its conversion (Sánchez, 2014, 52).

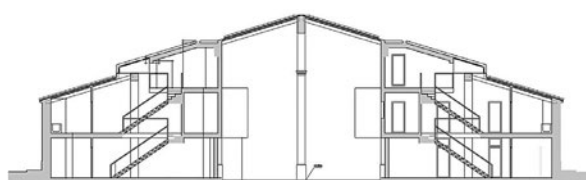


FIG. 12.15 Cross Section of the bodega on 2, Lechugas st after its conversion (Sánchez, 2014, 52).

The conversion of the bodega presents certain similarities to the projects analysed above. Analytically, just like the case of Liebre st, the side aisles of the bodega in question are used for the placement of the loft units while the two central aisles are left free as a common space and an access point to the 28 triplex residential units (FIGS.12.13, 12.16, 12.17, 12.18). This space serves the same double role with that of the Bodega El Cantón. Another similarity between the two later projects is that they both preserve the roof, facades and the contour of the historic building avoiding the compromises made in the earlier conversion described (FIGS. 12.14, 12.15).

The residential units placed in the bodega of Lechugas st follow the grid of the original structure. Their lighting and ventilation is achieved from the original openings of the bodega, the new facades overlooking the central communal space as well as the new skylights added for each unit (FIG. 12.19). The materiality and architectural language of the additions is clearly distinct from the historic architecture (González and Ruiz, 2012, 253-256). The project's weaknesses are similar to those of the Cantón conversion including high construction costs, difficulties in the detailing construction and lack of a parking area (B. García Moran, Resp. no 209, interview 27/10/2017).



FIG. 12.16 Interior view of the bodega on 2, Lechugas st before its reuse (Sánchez, 2014, 51).



FIG. 12.17 Interior view of the bodega on 2, Lechugas st during its reuse (Sánchez, 2014, 53).



FIG. 12.18 Interior view of the bodega on 2, Lechugas st after its reuse, 2017.

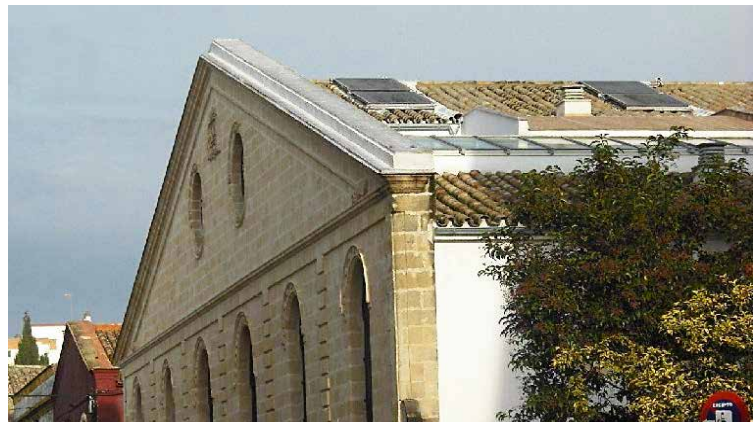


FIG. 12.19 Detail of new skylights installed during the reuse of the bodega on 2, Lechugas st, 2017 (Sánchez, 2014, 54).

The analysed pilot project illustrated that there are various ways of reusing large bodegas into high-end residential complexes without destroying their character. Yet, the elevated costs of the project discouraged the private sector to invest in relevant ventures, especially in a climate of financial crisis. In that sense the project failed to reach its goal.

The measures taken by the Plan of 1995 managed to alleviate the problem of depopulation and vacancy of the wineries, creating however new challenges that were made evident in the following decade. In order to respond to those and other issues arising from the new socioeconomic situation, a new Urban Development Plan was drafted in 2009. That Plan is still in force today.

The new Plan concept is an adaptation of the previous one. It seeks to bring the Urban Development Planning in line with the new Law of Urban Planning of the autonomous region of Andalusia, refreshing and strengthening the urban model with complementary ideas. In terms of heritage protection, there are substantial changes, stricter regulations and a very detailed categorisation of the historic bodegas.



FIG. 12.20 Bodega in Jerez converted into a conservatorium, 2017.



FIG. 12.21 Bodega in Jerez converted into an architectural office, 2017.



FIG. 12.22 Bodega in Jerez converted into public parking (Sánchez, 2014, 55).



FIG. 12.23 Bodega El Fundador, still operational and open as a visitor attraction, 2017.



FIG. 12.24 Vacant bodega in the centre of Jerez, 2017.



FIG. 12.25 Wine tasting in the bodega Díez Mérito (<https://devoursevillefoodtours.com>).

The 2009 Plan and its detailed Catalogue classify the bodegas into 4 levels according to their historic-artistic character, allowing or restricting new functions accordingly. In addition, the new catalogue is much stricter regarding interventions in the bodegas. A distinction is made between restoration and rehabilitation while a special section specifies in detail the levels of rehabilitation for the bodegas (Sánchez, 2014, 19-24). The most significant difference however between the Plan of 1995 and the standing one in regard to the management of the bodegas, relates to the restriction of housing as an alternative use for them.

M. Collado Moreno, explains:

“When preparing the new plan in 2008, we realised that we had offered a very dangerous opportunity for the city. The conversion of the bodegas into houses was an aggressive use as it needed many auxiliary services such as parking, public space, etc. That is why we decided to restrict the conversion into housing. Alternative uses were allowed that are very compatible with the winemaking space, such as parking and other economic activities.” (Resp. no 208, interview, 2/11/2017).

The new catalogue therefore, takes into consideration the context of the bodegas and its needs before imposing a possible new function.

Nowadays, the wine industry is no longer the economic motor of the city. The bodegas had to readjust to the new developments moving from big sales to smaller numbers of higher quality (Sánchez, 2014, 6). Nevertheless, the spatial imprint of the industry still dominates the city (FIG. 12.1: A.2). According to Prieto (2012, 19), 30% of the urban fabric of Jerez is still occupied by bodega buildings. Only a few of them have retained their original function, combining it with touristic activities (FIG. 12.23).

In other words, as the economy of the city has been turning from the secondary to the tertiary sector, the operational bodegas have acclimatised, opening their doors to the touristic influx, offering services including tours and wine tasting experiences (FIG. 12.25). A big number of the obsolete bodegas, following the described urban development regulations, have been converted overtime into housing and other functions, ranging from cultural and educational to commercial and business uses, too (FIG. 12.20, 12.21, 12.22). Lastly there is a number of bodegas that still remains vacant (FIG. 12.24).

12.2 Evaluation

The evaluation that follows focuses on the practice of the reuse of the Jerez bodegas into housing, drawing mainly from the three examples analysed above.

12.2.1 Process

The case in question illustrates the pivotal role of the local authority in the regulation of the city's functions and the elevated impact of its initiatives. From the early directives of the 1980s that failed to foresee the upcoming crisis, leading to extended vacancy in the winemaking historic complexes, the municipality appears much more mature and thorough in relation to industrial heritage in the following decades. Acting not only as a permission granting authority but also as an instigator and developer in the mid-1990s, following a top down approach, it carried out several projects of reuse. Even though it did not manage to propagate to the private developers the reuse of the bodegas into housing, it achieved important cultural and social results.

As M. Fustegueras puts it:

“The greatest success is having brought to the consciousness of the people that many of these buildings have an important heritage value, and that their conservation is necessary. Furthermore, we managed to preserve and reuse buildings destined to obsolescence or demolition.” (Resp. no 206, interview, 30/10/2017).

Judging from the outcome, the reluctance of the developers to adopt the example of the municipality is seen as a positive development. The latest Urban Development Plan, informed by the success and failures of the previous one, redirects the transformation of industrial heritage to other functions while protecting the tangible elements of the heritage in much greater degree. In that sense, the case also illustrates the necessity of adapting the regulations dictating the reuse of the historic industrial environment on a city level, according to the standing socio-financial conditions and the shifting needs of the city and its citizens.

12.2.2 Programme

Drawing from the analysed projects, it is supported that the residential use presents both important advantages and disadvantages for the historic winemaking complexes. The advantages relate to the revitalization of the old structures but most importantly to the durable character of the programme. It is important to stress that all three reuse projects as well as other similar ones are still fully operational in contrast with certain bodegas that had been converted to other functions. The disadvantages on the other hand, relate to the excessive intervention level in the interior of the historic structures and the operational and comfort problems for the new users, which will be analysed in the section Functionality (§ 12.2.7).

12.2.3 Architecture

A review of the three Urban Development Plans analysed, illustrates that there has been a conscious effort by the local authority to protect the architectural qualities of the historic bodegas. Over time the regulations concerning their transformation have become stricter and more detailed while extensive documentation is required for the license granting process. In general, field research shows that the architectural qualities of the bodegas ensemble at a city level have been preserved. Jerez' urban fabric retains to a great extent its character, which is largely defined by the architecture of its historic bodegas.

Zooming into the individual projects, the architectural result of their transformation varies from case to case. While the bodega of Liebre st presents a poor aesthetical result due to the compromises analysed above, the architectural outcome of the two bodegas converted into lofts, is appreciated from the respondents of this research as it presents a lot of merits. They both manage to preserve the building envelope and the structure without compromising the character of the bodega. The box in a box principle is used in both cases, differentiating the old from the new layer, overcoming structural limitations too. Nevertheless, the compartmentalization, which is an intrinsic feature of the residential use, has not been avoided being the major weakness of all projects.³⁵

According to various respondents (Moran, resident of bodega el Canton et. al, Resp. no 207 & 209, interviews, Autumn 2017), the conversions of the bodegas were challenging. Important difficulties that were highlighted include the detailing between the old and the new structure and the preservation of the original materials.

12.2.4 Cultural significance

The coexistence of operational bodegas with converted ones plays an important role in the preservation of the cultural significance of the city's winemaking heritage. The contribution of the former ones is large as they conserve and evolve the production knowhow, as well as disseminating the history of the core industry of Jerez through guided tours. In contrast, the preservation of cultural significance in the bodegas converted into housing is rather weak. Apart from the tangible dimensions of the industrial heritage, the analysed projects have not retained any other value.

³⁵ Comparing the analysed projects it is supported that the conversion in lofts that entails minimal interior partitions is more appropriate than the conversion to conventional dwellings.

In all three cases presented, there is no interpretation of the former function of the buildings nor any type of machinery or equipment preserved. The indifference about the intangible features of heritage in the converted bodegas is an alarming feature for a city whose cultural identity used to be synonymous with the winemaking industry.

12.2.5 Finance

The analysed examples illustrate that the conversion of bodega buildings into a residential use is a complex and expensive process. Apart from the high construction costs, the buildings in question require high maintenance costs too. This stems from the characteristics and the materiality of the original structure, built to favour suitable conditions for the ageing of wine that are not compatible with the accepted levels of interior climate for a house. As a result, financing is seen as a weakness of the case.

12.2.6 Social component

In order to evaluate the social added value of the case, it is important to place it in the historic context. It is thus supported that the conversion of bodegas into housing, in a time when there was a need for that use, solved a critical social problem of the city. The encouragement of the local authority to reuse the old industrial relics in the city centre for residential purposes contributed to its repopulation. Despite the positive social impact in the 1990s, it is worth stressing out the limitations of the converted bodegas. A key issue deduced from the analysis of the presented examples is that the reused buildings in question are only accessible by their residents. As a result, the diffusion of the social merits emerging from those reuse projects is limited.

12.2.7 Functionality

The functionality and the operation of the converted bodegas according to the respondents of this research, present certain issues. A user of the bodega El Cantón summarising the problems, states:

“We have issues with the noise.[...] The construction company realised the project very quickly and with little attention to the details. As a result, the connections between the old and new parts are problematic. There is water penetration from the junctions. Furthermore, the communal spaces are empty. Lastly, there is no parking.” (Resp. no 207, interview, 27/10/2017).

Pertaining to the maintenance level of the projects, field research shows that there is a difference between the cases. The bodega on 11, Liebre st is in an average condition in contrast with the other two projects that are at a very good state. It is not certain if this difference relates to the ownership status or the period of their conversion.

12.2.8 Stakeholders' evaluation

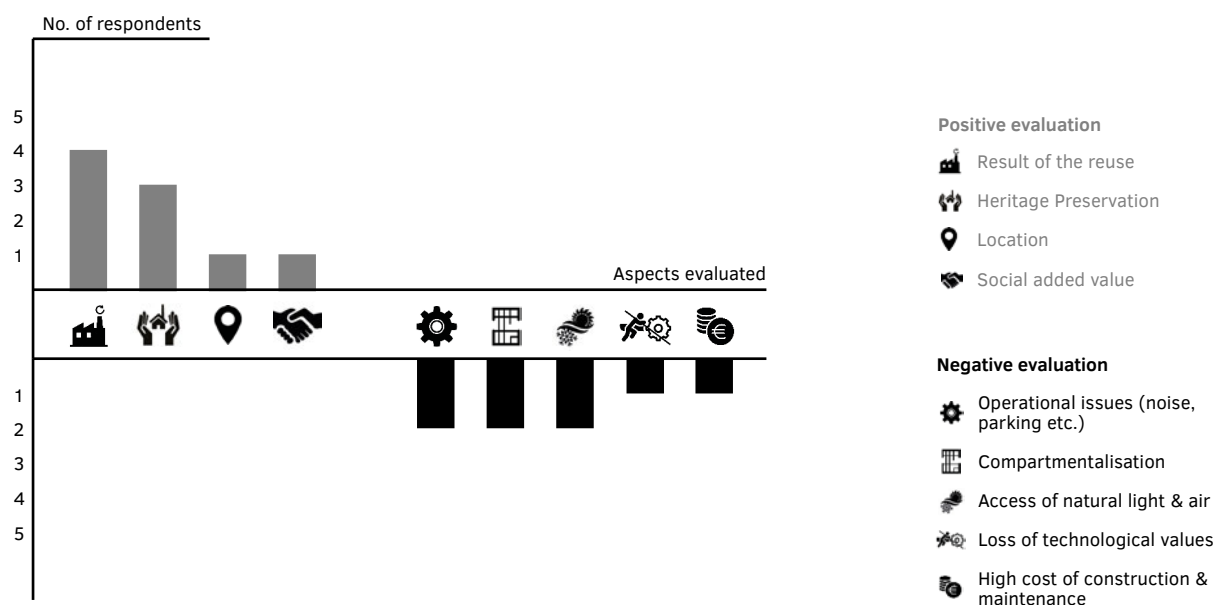


FIG. 12.26 Respondents' evaluation of the strong and weak Aspects of the case of BJF (Number of respondents: 7).

13. 22@_Ca L' Aranyó

Location: Barcelona, Spain

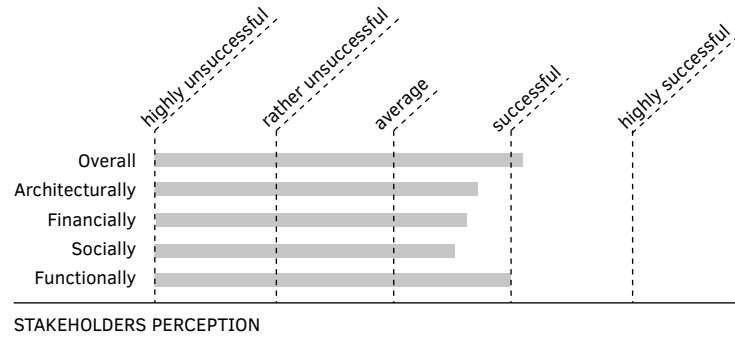
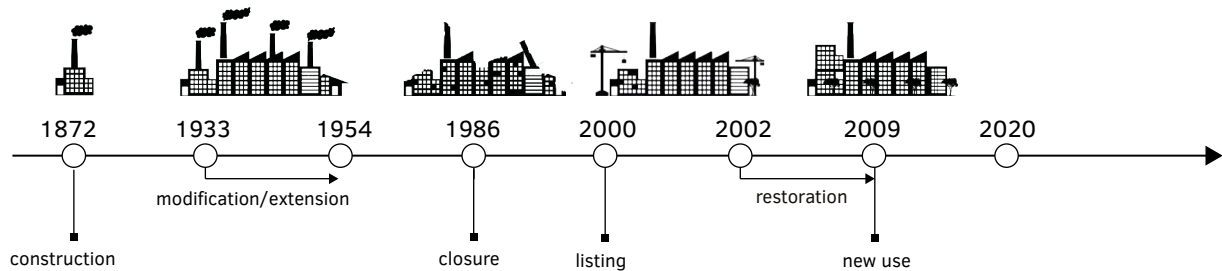
Historic use: Textile Mill

Architect: Josep Marimón i Cot (Master builder), Joaquim Vilaseca

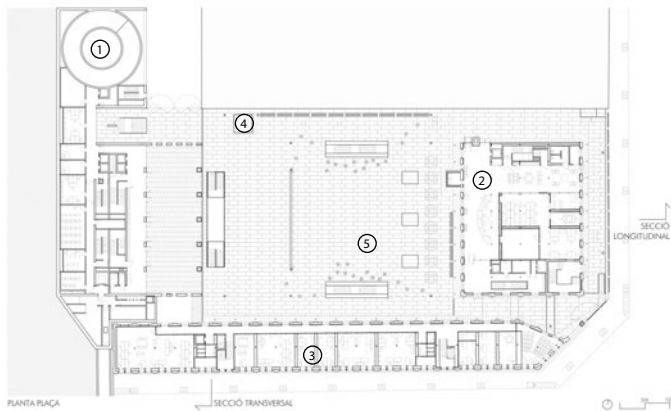
New Function: Media and communication campus of Univerity Pompeu Fabra

Reuse architects: Antoni Vilanova and Eduard Simó (restauration) Josep Benedito and Ramon Valls

Status: Monument of Local Interest



[A]



KEY

1. New UPF building
2. Converted mill: Library
3. Converted mill: UPF facilities
4. Chimney
5. Central square

[B.1]



[B.2]



[B.3]



FIG. 13.1 22@_Ca L' Aranyó Fact Sheet

13 22@_ Ca L' Aranyó

SUMMARY

Poblenou (New Village in Catalan), is a neighbourhood of the Sant Martí district of Barcelona, located on its eastern side, by the sea. Once the epicentre of the Catalan and Iberian industry, Poblenou, known also as the “Catalan Manchester” (Ajuntament de Barcelona, 2011, 20), has been subjected to two major regeneration projects (1986-1992, 2000-ongoing), presenting a great interest regarding the transformation of its industrial character. In what follows the historic development and the first regeneration will be briefly discussed while focus will be placed on the 21st century project, named 22@. Apart from the presentation of its overview, the latter project will be closely examined through the detailed analysis and evaluation of Ca L' Aranyó, a case study of Industrial Heritage Reuse, realised within its framework.

13.1 Analysis

A. Poblenou and the 22@Plan

Historic development

The industrialisation of Poblenou begun in the mid-18th century. Starting as a venue for the bleaching of manufactured cloth of the Barcelona textile mills, the area attracted more and more industrial activities, reaching its heyday in the turn of the 20th century. The set of factors that favoured this development included the good transport connection, the proximity to the port as well as the abundance of ground water. Along with the textile industry, Poblenou accommodated factories of the chemical sector and later food processing and metal working facilities as well as working class residential complexes. The Cerdà Plan of 1859 included the territory of the area in question. However, it proved difficult to implement as it had not considered the pre-existing developments.

The decline of the industrial activity of Poblenou started in the mid-20th century when various industries moved out of the area. The economic crisis of the 1970s aggravated the situation while the textile crisis of the 1980s gave the final blow to the industrial character of the district. The only production activities that remained at that time in the area included graphic and plastic arts, fashion and jewellery workshops (Ajuntament de Barcelona, 2011, 20-23).

LEGEND FIG. 13.1 22@_ Ca L' Aranyó

- A Ground floor floorplan of the reused Ca L' Aranyó (<https://www.plataformaarquitectura.cl/>).
- B.1 Engraving of the Claudio Arañó textile mill, El Martinense Magazine, 1878 (Arxiu Municipal Districte de Sant Martí).
- B.2 The multi-storey textile mill of Ca L' Aranyó complex in dereliction, 1996 (Antoni Vilanova).
- B.3 The multi-storey textile mill of Ca L' Aranyó complex converted into the UPF's library, 2017.

The regeneration in the framework of the Olympic Games of 1992



FIG. 13.2 Poblenu orthophoto 1986 (Ajuntament de Barcelona, 2011, 25).



FIG. 13.3 Poblenu orthophoto 2018 (Bing maps).

The first phase of Poblenou's metamorphosis took place in the early 1990s, as part of the large scale urban transformations carried out during Barcelona's preparation period for the Olympic Games of 1992. Based on a pre-existing controversial plan, known as the 'Plan de Ribera' which was dating back to the 1960s, the costal part of Poblenou changed radically (Caballé, 2010). In detail, the main works implemented involved: the construction of costal ring road and the removal of railway trucks, the stabilisation of the coast and the creation of new beaches, the construction of the Olympic village, the dismantling of large industries and the extension of Rambla de Poblenou to the Gran Via (FIGS. 13.2, 13.3) (Ajuntament de Barcelona, 2011, 11,24).

The transformation of the degraded semi-abandoned industrial area into the Olympic Village and the connection of the city with the sea constitute two key elements of the renowned case of Barcelona's Olympic urban renewal. The latter has been widely celebrated in the international literature as a unique and successful project, known as 'The Barcelona Model', that has served as a reference for other cities. However, the same model has also been heavily criticised over the years for its neo-liberal orientation (Illas, 2012). One of the major points of criticism, which closely relates to this study, has been the mistreatment of the city's heritage (Montaner, 2012).

The developments taking place in Poblenou in the early 1990s reveal eloquently the complete indifference of the City Council about industrial heritage.³⁶ In the words of F. Caballé (2010, 2):

"The first thing of the new project that draws the most attention is that there are no pre-existences in it. It acts as if the ground was virgin. [...] Everything absolutely disappears and is replaced by an entirely new fabric. As planned, the construction of the Olympic Village meant the absolute disappearance of the old district of Icaria, erasing any vestige of what had been one of the areas with the highest industrial concentration in the city of Barcelona."

³⁶ The only action organised for the preservation of the memory of the area's industrial heritage before its destruction was a documentation process (Caballé, 2010, 6-10).

The 22@ Plan

The years that followed the Olympic Games saw another significant change in the fabric of Poblenou. From 1993 to 1999 the Diagonal Avenue was extended to the seafront, connecting the city with the formerly secluded neighbourhood (Ajuntament de Barcelona, 2011, 24). This development along with the pending issues of the progressive industrial decadence and the degrading urban fabric of the neighbourhood triggered a public debate on the future of the area. This debate resulted in the approval of the Amended Metropolitan Master Plan for the refurbishment of the industrial area of Poblenou, also known as 22@ Plan (22@ Barcelona BCN, 2006a).

The implementation of the 22@ Plan began in the turn of the 21st century, epitomising the second phase of Poblenou's metamorphosis. It involved the urban refurbishment as well as the economic and social revitalisation of an area of 200 hectares (FIG. 13.4) through a progressive transformation, taking place over approximately 20 years. The aim of the Plan was to turn the stagnated industrial neighbourhood into an innovative, productive and mixed use district with emphasis in knowledge-intensive tertiary activity.

The Plan was launched by the Barcelona's City Council, that also directed, promoted and managed the whole process through the newly established municipal company 22@ Barcelona SAU (22@ Barcelona BCN, 2006b). Its implementation was based on the collaboration between public authorities and private entities. Analytically, the City Council undertook the redevelopment of 6 selected strategic areas, representing 48% of the brownfield land to be transformed, in order to boost and set an example for the planned metamorphosis. The rest of the territory became available for private development.

The new city model proposed by 22@ was based on four main axes of urban renewal including density, diversity, complexity and flexibility. In detail, the plan aiming for a more compact city, allowed the increase of the area's net building index from 2 to 2.7. Furthermore, it encouraged the coexistence of different uses, prioritising technology and knowledge activities. Finally, it was characterised by flexibility in terms of time, morphological conditions, regeneration agents and transformation mechanisms (Ajuntament de Barcelona, 2012, 8-13).



FIG. 13.4 The 22@Area highlighted in blue colour (Ajuntament de Barcelona, 2011, 39).



FIG. 13.5 New developments across av. Diagonal (Ajuntament de Barcelona, 2011, 73).



FIG. 13.6 Demolished industry in Poblenou, awaiting for development, 2017.

The six structural elements of the new city model as presented in the 22@Barcelona Plan included: the preservation and reuse of the area's industrial heritage, the promotion of innovative sectors which received the designation @ activities, the development of @public amenities, the development of new housing and public space and the creation of a state-of-the-art infrastructure network (Ajuntament de Barcelona, 2012, 15-28).

A closer analysis of the Plan's approach on Poblenou's industrial heritage reveals a systematic action for the safeguarding of the district's tangible legacy of industrialisation. Since the beginning of the Plan a vast number of interesting industrial ensembles and elements were identified and, albeit not listed at that time, were preserved and incorporated into the future projects. These sites were included in the 'Study for the reutilisation of industrial buildings of interest in the industrial area of Poblenou'. In the years that followed, 46 of them were listed by the City of Barcelona. In 2006 the 'Poblenou industrial heritage protection plan' was drafted preserving a total of 114 industrial sites, including the 46 listed ones. In the same year, an extensive research of the territory allowed the enrichment of the legally protected elements with the listing of Can Ricard as a national monument and the addition of 67 more industrial sites to the catalogue of monuments of local interest (Ajuntament de Barcelona, 2011, 97).

Reuse was the main practice adopted for the safeguarding of the aforementioned elements. According to the directives of the Poblenou Industrial Heritage Commission, various lines of intervention were proposed and implemented. The retained former industrial sites were to be transformed for meeting the needs of a wide spectrum of functions.

During the first decade of the 21st century the Plan was met with great enthusiasm and commitment both from the public administration and the private sector. As a result many projects were completed involving pre-existing sites' regeneration and new development, too. The dependence by the real estate sector however deeply affected the pace and the essence of the plan, in the financial crisis period. According to Charnock et.al. (2014, 210) in 2009 most developments in 22@ halted while the demand for office space fell dramatically, resulting in great vacancy rates.

Today, almost two decades after the launch of 22@Plan, Poblenou presents a very distinct image from the one of the 2000s. A field research in Poblenou conducted by the author in Autumn 2017, reveals an image of an area with great contradictions and discontinuities. On the one hand, parts of the district, such as the stretch of blocks along the Diagonal avenue, developed with new-built high-rise complexes which house economic activities, reflect the branded dynamism of the 22@ Plan (FIG.13.5).

On the other hand though, a few blocks away from the main axes there is still an awkward coexistence of abandoned industries, empty plots full of debris, new small and medium scale developments and preserved structures. Those parts narrate a different reality, the future of which is still vague (FIG. 13.6).

In respect to Poblenou's industrial heritage, the field research shows that the intent to safeguard and reuse has only come partly into fruition. It is a fact that a great number of former industries has been converted into every possible function including: culture (e.g. Can Ricard, Tallers Oliva Artes, Can Framis), education (e.g. Ca L' Aranyó, Antic Can Tiana), administration (e.g. Hispano Olivetti, filature de jute), offices (e.g. Nau de la família Ametller), sports (e.g. Can Felipe) and housing (e.g. Can Gili Vell, Compañia de Industrial Agrícola S.A.). Nevertheless, in many cases the historic fabric is overshadowed by the scale and expressiveness of the new developments. Furthermore, there is still a considerable amount of former industries that are either under redevelopment, underused or remain in obsolescence waiting for the recovery of the market. An important observation, which comes in direct contradiction with the rhetoric of the Plan's sensitivity for the historic character of Poblenou, is that the intangible values of industrial heritage and the spirit of place have been sacrificed in favour of the development of the new 'knowledge district'.

According to 22@ Barcelona SAU (2012, 49), the implementation of the plan resulted in many impressive achievements in terms of physical urban transformation, economic activity and social innovation. These achievements have turned 22@ into a reference project of urban regeneration on a national and international level (Ajuntament de Barcelona, 2011, 213, Medcities, n.d.).

The impact of the Plan however, has been strongly contested too. A growing number of critics within the academic circles argue that the Plan involves social and productive gentrification (Dot et al., 2010), displacement and speculative forms of rentier profit-seeking (Charnock et al., 2014, Charnock et al., 2018). Furthermore, a review of the press releases between 2000 and 2018, illustrates the discontent of the local community in relation to the socioeconomic implications of the Plan (Utrera, 2002, Casas, 2008), which is also apparent in the views of the respondents of the present study (Poblenou's residents and users, Resp. 212, 223-224, interviews, Autumn 2017).

Closing this introduction of the regeneration of Poblenou, it is important to stress the difference of action towards the vestiges of industry between the two plans. Almost two decades after the complete destruction of the costal part of the industrial district, Barcelona appears to have shifted its approach in relation to its historic urban fabric. Without a doubt, industrial heritage is no longer seen as a past stain to the sparkling future of the city. 22@plan puts it into the spotlight and claims to foster an harmonious coexistence between the new and historic buildings. As posed above though, in practice the wish to attract investments and maximise competitiveness, that are also organic elements of the Plan, is prioritised over the projection of the district's industrial identity. 22@ plan is a 21st century case that demonstrates a reasonable shift of appreciation and an enormous shift of branding in respect to the value of industrial heritage as well as the intrinsic issues of heritage-led regeneration in a neoliberal system.



FIG. 13.9 Ca L' Aranyó from Torre Agbar, 2003 (Vilanova, 2006).

The turn of the 21st century saw the interception of the mill's decline. Within the framework of the 22@ Plan, the first generation of Ca L' Aranyó's buildings were among the first industrial elements of Poblenou to be listed in 2000 (Ajuntament de Barcelona, n.d). Apart from assigning a legal protection to the complex, the City Council also appointed the architects A. Vilanova and E. Simó for the preparation of an initial study for the protected buildings. According to A. Vilanova (Resp. no 211, interview, 29/9/2017), the initial project involved the cleaning up, consolidation and restoration of the two buildings and the chimney, without assigning them a specific use.

The acceleration of the mill's transformation and the decision for its new use derived from the integration of the historic ensemble into the 'Media and Communication Campus'; one of the six publicly supported predetermined redevelopment areas of the 22@ Plan. Under a 50 year pact, the structures were assigned an educational use and they were granted from the City Council to the University Pompeu Fabra (UPF) with the obligation of the latter to bear the costs of their conversion and management.



FIG. 13.10 View of the corner formation in the intersection of Tanger and Roc Boronat st., 2017.



FIG. 13.11 View of the new campus buildings and the central square, 2017.

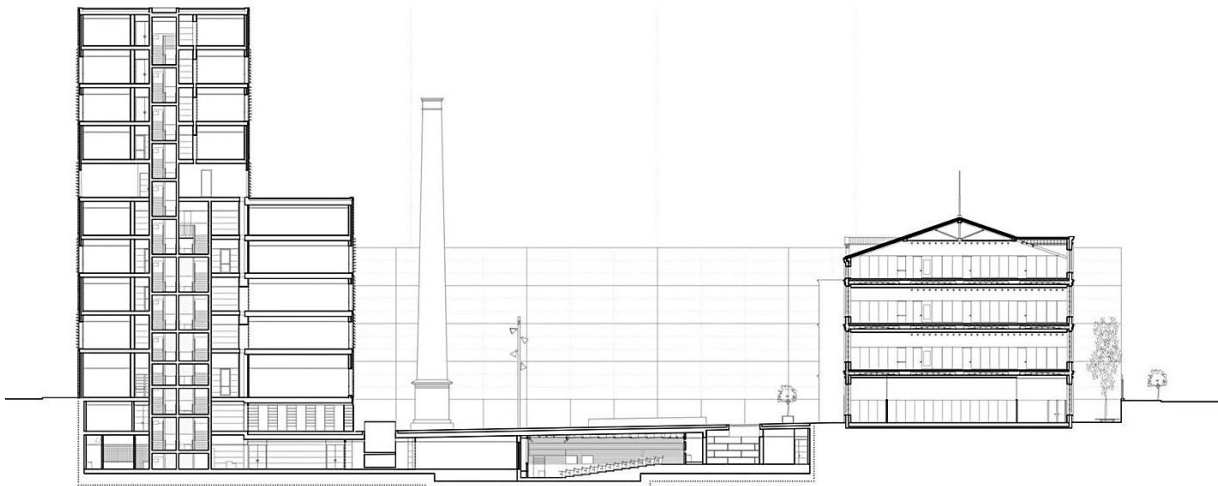


FIG. 13.12 Longitudinal Section of the new UPF Campus. The scale difference between the historic and new buildings is evident in the drawing (<http://rqparquitectura.com/proyecto/ca-laranyo/>).

The conversion process started in 2002 and was divided into three phases. The first one involved the demolition of the non-protected parts of the complex (Cardo and Majó, 2002). The second one, realised between 2003 and 2006, involved the structural consolidation and restoration of the chimney and the historic buildings as well as the integration of the appropriate fittings for the buildings' new function. The third phase, realised between 2005-2008 involved the construction of the new edifices, based on the design of the architects Josep Benedito and Ramon Valls. The project was bankrolled by the Municipality and the UPF. In detail, the Municipality of Barcelona funded the works of the first and part of the second phase, while the UPF³⁷ covered the rest of the costs (Cardo and Majó, 2002). An additional source of funding came from the European Union.

³⁷ The UPF is a public university, founded in 1990 by the Catalan government.

The architectural design of the second and third phase treated the historic fabric in a dissimilar way. While the restoration architects employed a meticulous approach, respecting the form, volume and structure and avoided making expressive additions, Josep Benedito and Ramon Valls selected a different approach. In what follows an analysis of both lines of action is presented.

According to A. Vilanova (Resp. no 211, interview, 29/9/2017), restoration architect of the project, the most important consideration, guiding the reuse of the historic structures was to *“preserve the heritage values of the industrial complex, analyse its defining features and adapt both buildings to the new uses while keeping their original architecture and construction visible and recognisable.”*

Particular attention was paid to the preservation and highlighting of the typological structure and the original construction characteristics (combination of cast iron metallic structure and Catalan vault). The unity of space was preserved in the multi storey building. Yet, in the single storey one, the same value was sacrificed for the needs of the new programme. Diaphanous spaces were used in conjunction with the implementation of the box-in-a box idea in order to facilitate the understanding of the distinction between original and new and to serve as a pedagogical reference³⁸ (Vilanova, Resp. no 211, interview, 29/9/2017).

The architectural language and morphology of the new buildings bear a close resemblance to the complexes built along the Diagonal avenue. As such, they contrast sharply with the preserved edifices in terms of scale, morphology and materiality (FIG. 13.10). The only historic feature echoed in the new design is the presence of inner streets. The connecting feature of the different pieces that compose the complex is a central square located at the original level (- 1.80 m) (FIG. 13.11).

13.1.4 Occupation and management

The new media and communication campus of UPF in Ca L' Aranyó was inaugurated in 2009. The multi-storey building of the historic ensemble houses the UPF's library while the single storey one has been converted into office space of certain research, and education departments of the university. The new buildings house other university facilities including administration, research and education. An auditorium has been constructed underground, below the central square (FIG. 13.1: A, 13.12).

The new campus is strategically positioned in Poblenou in order to facilitate the interaction of the students and the academic staff with the neighbouring companies. A. Belchi, Director of the Campus of Poblenou explains:

“Our students can intern in the surrounding enterprises. Also, the companies request the cooperation of our professors and students and our expertise for enhancing their activity. Being here is a good way of getting an idea of what companies do and thus becoming more productive. It is not accidental that this campus is focusing on media and publicity. We have a very close relationship with the surrounding enterprises that include TV studios etc.” (Resp. no 212, interview, 11/10/2017).

³⁸ The use of glass in the north façade and in part of the floor of the historic multi-storey building allows the display of the structural system, which is considered to embody one of the most important heritage values of the complex.

13.1.5 Shifts

The UPF Campus of Poblenou counts less than a decade of life and yet it has been subjected to a number of shifts. These include mainly operational and policy issues. Analytically, in a quest to increase the inner comfort and respond to the changing needs of the staff and students, the UPF has enhanced the internal climate, the sound insulation and the accessibility of the Campus (Resp. no 213-221, interviews, Autumn 2017).

In respect to the policy changes, the University aims to improve its connection with the local community. A. Belchi states: *"The Campus is a bit introvert now mainly due to security reasons. We are working towards showing the neighbours and the city what we do here."* (Resp. no 212, interview, 11/10/2017). Furthermore, the UPF along with the partners involved in the 22@ Plan have been contemplating on ways to strengthen their collaboration in order to overcome the stagnation of the financial crisis.

An important development that took place three years after the inauguration of the campus, was the functional restoration of the historic chimney of the complex in light of its upcoming new use. In detail, the chimney was extended by 8m in order to serve as a smoke outlet of the future climate control sub-centre (Ajuntament de Barcelona, 2011, 228).

13.2 Evaluation

13.2.1 Process

The process of Ca L' Aranyó's transformation showcases the role and influence of different Actors in the course of Industrial Heritage Reuse. Namely, it illustrates the critical impact of the local community for the safeguarding of the historic complex, the subsequent direct positive and negative implications of the City Council's action and the power of the private investor. Ca L' Aranyó's transformation started with a bottom-up initiative but was sealed by the top-down strategic planning decisions of 22@. Once the complex was assigned to the UPF, the process followed was efficient, linear and top-down.

13.2.2 Programme

The programme selected for the old mill is a rather strong feature of the project, presenting a double positive effect. Firstly, it attracts a large number of users, keeping the complex alive during the day. Secondly, it contributes to the financial sustainability of the project which in turn favours the possibility of keeping the complex at a good state of maintenance. As posed above, transforming vacant industries into knowledge-related centres is one of the main goals of the 22@ Plan. In that sense, Ca L' Aranyó's programme fits perfectly the Plan's objectives.



FIG. 13.13 The UPF Campus of Poblenou (Ajuntament de Barcelona, 2012, 32).



FIG. 13.14 View of the main entrance of the campus, 2017.

The evaluation of the compatibility of the programme for the historic buildings is a complex matter. On the one hand, the educational functions allocated in the heritage sites did not require the compromise of important aesthetical and spatial values and therefore are seen as a good fit for them. On the other hand though, the requirements of the programme in terms of space were quite extensive, resulting in the construction of disproportionately big new edifices that end up dominating the historic ones (FIGS. 13.13, 13.14).

13.2.3 Architecture

The architectural result of the transformation is a controversial aspect of the project. The new campus has won several awards in local architectural competitions (Estudio Ramon Valls, n.d.). Furthermore, the restoration and conversion of the former mill is appreciated by its users (FIGS. 13.1, 13.15). Nevertheless, despite the exemplary restoration, in the author's opinion the architecture of the complex presents several weaknesses, stemming from the inconsistency of approaches of the involved architects.

It is evident that the restoration architects have employed a careful approach, following the international doctrines of conservation. Their point of departure has been the value assessment of the historic fabric. All the interventions in the interior are distinct and have been realised with modern materials while most of them are completely reversible. The interventions on the exterior are limited to the openings, the north elevation of the multi-storey building and the roofs. Elements such as the patina have also been preserved.

In contrast with this approach, the architectural design of the newly erected buildings has hardly drawn any inspiration from the historic fabric. Even though the branding of the reuse result is based on the heritage assets, in practice they are overshadowed by the new development. This is mainly due to the disproportionately bigger scale of the new buildings in comparison to the historic ones. Furthermore, there are issues in the synthesis of the ensemble as well. The UPF Poblenou Campus is not experienced as one single complex but as a sum of radically different components. The old and the new structures stand next to each other totally disconnected, in terms of scale, materiality and architectural language (FIG. 13.13). The design of the central square is also devoid of any historic references.

13.2.4 Cultural significance

As described above, Ca L' Aranyó's conversion involved the preservation of a great deal of the historic industry's tangible heritage. Nevertheless, neither the technology vestiges nor the intangible heritage aspects were incorporated in the project. The machinery of the former mill is not preserved and there is no interpretation of the former function of the site. Furthermore, the architectural language of the additions and the central square, in the authors opinion, compromise the industrial atmosphere and the sense of place.

13.2.5 Finance

The financing of Ca L' Aranyó's transformation is among the strong features of the project. The good collaboration of the architects with the City Council and the UPF that bankrolled the conversion, resulted in a satisfying balance of quality and budget (A. Vilanova, Resp. no 211, interview, 2017). The selected programme covers the operational costs of the complex, making the project financially sustainable.

13.2.6 Social component

The social added value of the project is mediocre (FIG. 13.1). The new programme, involving the use of the historic buildings from a large number of young people, is a positive aspect. Moreover, it facilitates the interaction of the users with the neighbouring companies and enterprise incubators, contributing to the social revitalisation framework of 22@ Plan.

Nonetheless, it appears that the new campus still struggles to connect with the local community. Apart from the reported introversion (A. Belchi, Resp. no 212, interview, 11/10/2017) the respondents of this research add:

"I have the feeling that the neighbours use few to none of our facilities" (Librarian UPF, Resp. no 215, interview, 11/10/2017).

"There is no integration of the building and the University with the neighbourhood" (Librarian UPF, Resp. no 218, interview, 13/10/2017).

These statements highlight once again the limitations of the 22@ Plan.

13.2.7 Functionality

According to the qualitative research of this study, the functionality of the complex is one the weaker aspects of the project (FIG.13.15). Discontent over functionality-related matters has been reported for both the new and the historic buildings.

A. Belchi, summarising the new buildings' issues, states:

“The new buildings are problematic. People feel isolated due to the setup of the space. We do not have a good meeting place and it is hard to meet each other. We are housed in a very tall building and the circulation is not optimum. We have a lot of problems with the lifts...” (Resp. no 212, interview, 11/10/2017).

The issues reported for the historic buildings include the problematic internal climate, the lack of sound insulation and the difficulty resulting from the vertical organisation of the library (Resp. no 213-221, interviews, October 2017).

13.2.8 Stakeholders' evaluation

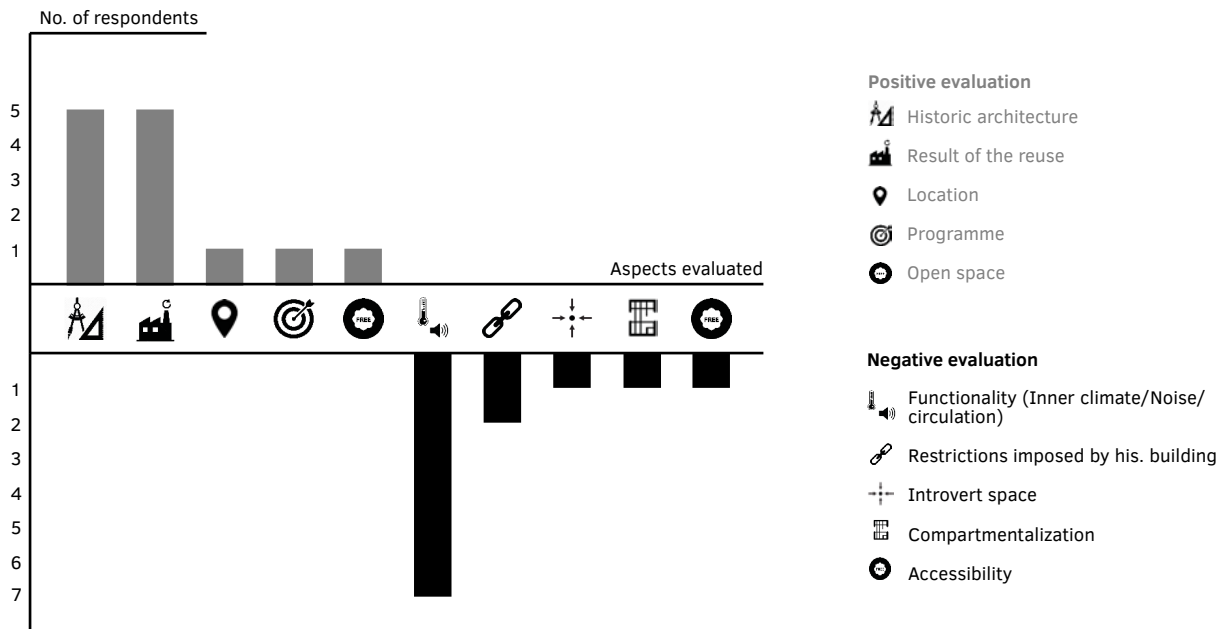


FIG. 13.15 Respondents' evaluation of the strong and weak Aspects of the case of 22@_ Ca L' Aranyó (Number of respondents: 11).

14. The Tobacco factory of Madrid

Location: Madrid, Spain

Historic use: Tobacco factory

Architect: Manuel de la Ballina

New Function: Mixed use (Art gallery & Social Centre)

Reuse architect: -

Status: Monument of Local Interest

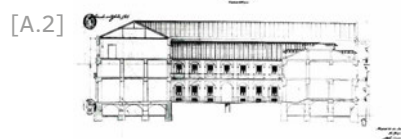
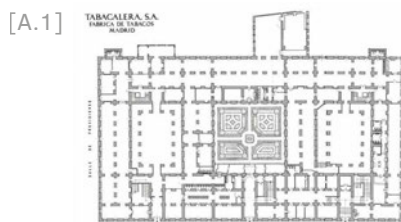
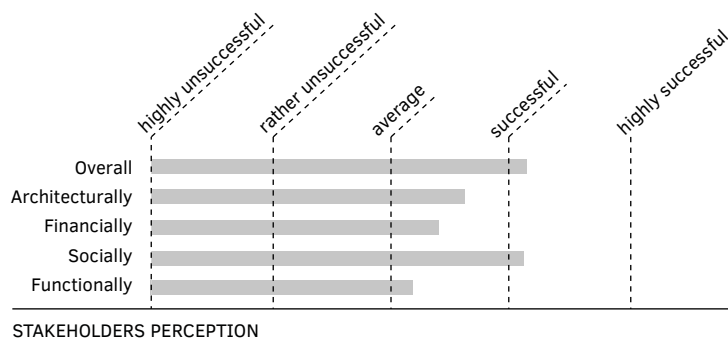
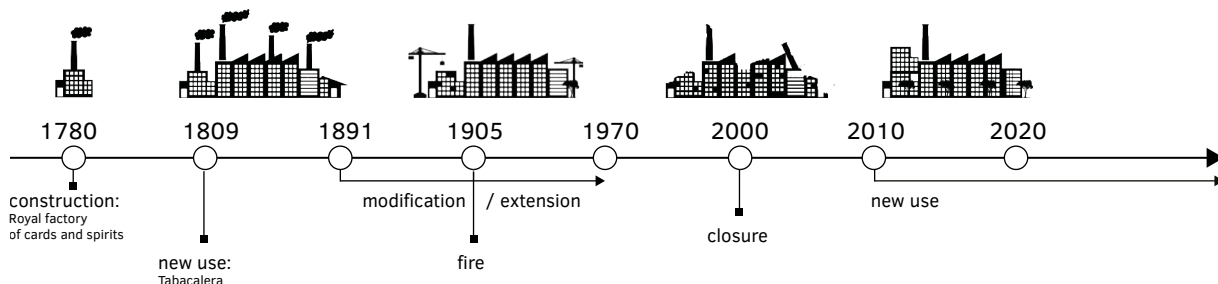


FIG. 14.1 The Tobacco factory of Madrid Fact Sheet

14 The Tobacco factory of Madrid

This text has been largely based on the article: Chatzi Rodopoulou, T. The opportunities of Crisis: Bottom-up initiatives for the reuse of industrial heritage: The example of the Tabacalera in Madrid. In: GOSPODINI, A., ed. Changing Cities IV: Spatial, Design, Landscape & Socio-economic Dimensions, 2019 Chania, Crete Island, Greece. 484-497.

SUMMARY The Tobacco factory of Madrid (Tabacalera of Madrid) is a community-driven case of Industrial Heritage Reuse realised in the recent financial crisis. As such, it illustrates the challenges and opportunities stemming from the economic austerity of the early 21st century. The strong Components of the project include its process, programme and predominately its social output. In contrast, the architectural outcome, the cultural significance preservation, the financing and functionality of the reuse have room for improvement. The challenge of the former tobacco factory in the coming years, is maintaining its social impact while upgrading the fabric of the building and ensuring the financial viability of the project.

14.1 Analysis

14.1.1 Historic use

Starting from the 17th century, the Spanish Crown established a number of tobacco factories across the peninsula, monopolising a very profitable industry. The tobacco factory of Madrid or 'La Tabacalera' as it is colloquially referred to, was founded in 1809. Chronologically this falls in the first expansion of the first generation of the Royal tobacco factories.

La Tabacalera of Madrid, like other Spanish factories, was not housed in a purpose built complex. On the contrary, it used the premises of an existing industry: the former Royal factory of cards and spirits (Real Fábrica de Naipes y Aguardientes) built in 1780 and designed by the architect Manuel de la Ballina. The building's composition had a firm monumental neoclassical character with two axes of symmetry and was organised around three patios. This configuration provided light and ventilation to the workshops while facilitating surveillance of the workers (Área de Gobierno de Las Artes, n.d.).

LEGEND FIG. 14.1 The Tobacco factory of Madrid

- A.1 Ground floor of the Tabacalera of Madrid designed by Dionisio Sainz in 1908, for the renovation the building (<http://blogs.latabacalera.net/>).
- A.2 Cross section of the Tabacalera of Madrid. Part of the renovation proposal by Amós Salvador Carreras, 1903 (Archivo de la Villa de Madrid).
- A.3 Diagram of new functions distribution in the Tabacalera of Madrid.
- B.1 Elevation of the Tabacalera of Madrid, 2017.
- B.2 The Tabacalera of Madrid. Drawing from the late 19th century (D. S. de la Maza).
- B.3 Aerial photograph of the Tabacalera of Madrid (Google maps).

Along the course of its function La Tabacalera became the subject of consecutive renovations (1891,1899,1901) in order to respond to the demands of the evolving production process and the current standards for manufacturing (Plan General de Fabricación, 1887 et al.). After a fire that destroyed the southern part of the building in 1905, the architect Dionisio Sainz executed the most prominent renovation of the building, making use of older design proposals that had not been realised. That renovation involved the restoration of the parts affected by the fire and the addition of an extra U-shaped floor at the top of the building.

The modifications realised from the mid-1950s were comparatively modest and they were promoted by plans for the modernisation and sophistication of the production and the machinery upgrade of all royal tobacco factories. However, the second half of the 20th century saw the production of Madrid's Tabacalera diminishing and its workforce falling into a minimum number. The privatisation of the sector at the end of the 20th century and the launch of the Industrial Plan in 2000 resulted in the closure of many tobacco factories including the one of Madrid (López, 2017).

14.1.2 Reuse Preparation

A large set of Attributes influenced the future of the site after its closure. Among those the social identity of its context played a catalytic role for the future developments. The building is located in the district Lavapiés, in the heart of Madrid, forming part of a dense mixed use urban fabric inhabited by a community with a long tradition in social struggles.³⁹ Besides that, the characteristics of the building such as its monumental status (tentative list of State monuments since 1977 and municipality monument), its central location, the size and flexibility of its space as well as its public ownership favoured its reuse, attracting the attention of various stakeholders. Since 2003 however, when the Ministry of Culture and Sports assumed its management, La Tabacalera became a bone of contention between stakeholders, giving rise to a turbulent period of uncertainty for the site's future.

The two principal ideas for the building's reuse were launched by the local community and institutional parties. The first one involved the transformation of the former industry into an integrated social centre of diverse initiatives and projects. The center would have a self-managed character, serving the needs of the local community. This proposal was first presented to the Municipality of Madrid by the Lavapiés Collective Network (Red de Colectivos de Lavapiés) in 1999. In the course of the first decade of the 2000s, this initiative was followed by a continuous pressure to the authorities for the launch of a participatory process for the determination of the building's new use (Red de Lavapiés, 2004).

The second idea for the reuse of the building was its transformation into the National Centre of Visual Arts. In 2008, the Ministry of Culture conducted a closed architectural competition for this project. The winning proposal, designed by Nieto Sobejano arquitectos (Nieto Sobejano Arquitectos S.L.P., 2010) became also the subject of controversy (De Tuesta, 2009).

³⁹ Historically a working class area, Lavapiés started facing deficiencies in housing, education and sanitary facilities since the 1980s (Hernandez, 2015). The big vacancy rates and the low rents, attracted students, squatters, artists and a big influx of immigrant communities that reach today almost 50% of its population (Steiger, 2011). Despite its problems and its shady reputation, the neighborhood holds the title of one of the most socially dynamic areas of Madrid and has been described as "one of the epicentres for grass-roots activist politics of the Spanish Capital." (Feinberg, 2013). From the Franco dictatorship until today, Lavapiés has been at the forefront of significant social movements, such as the Spanish squatter movement (okupa) and the urban stage of participative processes and bottom-up initiatives.

The ambitious project of 30 million euro was finally suspended by the financial crisis. Despite the prolongation of uncertainty for the monument, the new situation allowed the reappraisal of the proposed scenarios and the consideration of the neighborhood's dynamic initiatives, giving birth to a new programme.

14.1.3 Occupation and management

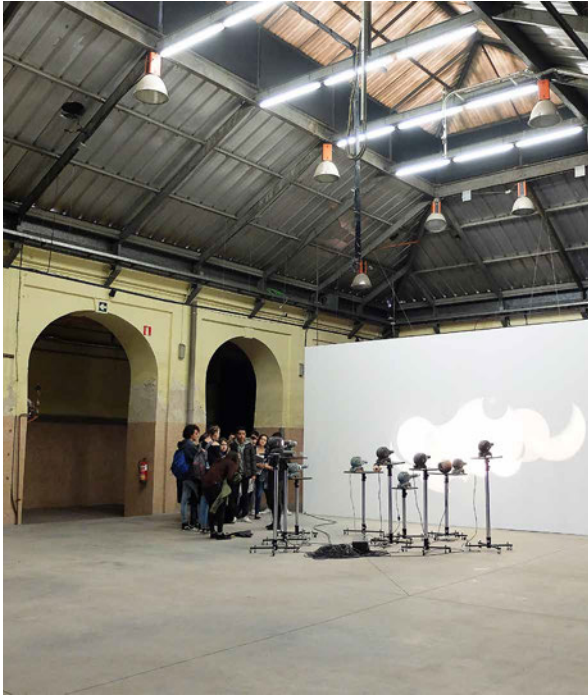


FIG. 14.2 The north atrium, now converted into an exhibition space of the Tabacalera. Promoción del Arte, 2017 (Own archive).



FIG. 14.3 The old warehouse of the Tabacalera, now housing the activities of the collectives of CSA, 2017.

Since 2012, the former tobacco factory houses two distinct functions: an art gallery named 'Tabacalera. Promoción del Arte' (Tabacalera. Promotion of Art), which is managed by the Department of Fine Arts, Ministry of Culture and Sports and a self-managed part of social and creative character named "Centro Social Autogestionado a Tabacalera de Lavapiés - CSA La Tabacalera" (Social Self-managed Centre in the Tobacco factory of Lavapiés) run by several collectives.

'Tabacalera. Promoción del Arte' opened to the public in 2010, offering a programme of permanent and temporary exhibitions of photography, contemporary art and visual arts (FIG. 14.2). The gallery occupies the northern part of the building's ground floor and the northern patio (FIG. 14.1: A3). It is worth mentioning that all exhibitions have extended opening hours and a free access, facilitating visits by locals and tourists (Ministerio de Educación, n.d.).

The southern part of the building's ground floor and basement houses the activities of CSA La Tabacalera (FIG. 14.1: A3). In February 2010, an agreement was signed between the Department of Fine Arts and local collectives represented by the association SCCPP, for the concession of a space of 9.200 m² in the historic tobacco factory to the collectives. Since then the CSA La Tabacalera has been established as a dynamic nucleus of social and artistic action. Its

impact and social responsiveness as well as the persistence of the parties running it, has resulted in the prolongation of the original annual contract to a more stable assignment of the space to social centre for eight more years. The Social Centre has been given the right to use the described space for free. Its activities are supported with a small amount of money provided by the Spanish State and a massive amount of voluntary action.

Based on an independent horizontal democratic organisation, the CSA La Tabacalera promotes the direct participation of citizens in the management of the public domain. With the involvement of more than 20 collectives, it offers a wide array of activities to the public free of charge. These activities include theatre, music, dance, painting, workshops, IT support, foreign language courses, psychological and legal support (FIG. 14.3). Furthermore, the Centre organises events, meetings, conferences and interventions in the neighbourhood, disseminating the ideas, works and procedures that seek to expand and democratise the public sphere (CSA La Tabacalera, n.d.).

What is particular about the analysed case study is that due to the limited financial resources, the functional renaissance of the historic tobacco factory was not combined with an architectural metamorphosis. Both in the case of the institutional exhibition space and the social centre, apart from the north entrance (FIG. 14.8), all other architectural interventions are restricted to material consolidation and a limited preservation of the structural elements. The setup, volume configuration, structure and materiality of the original building are still intact, yet the state of maintenance is poor (FIG. 14.7). In certain spaces run by the social centre, such as the southern patio and the basement, the walls of the Tabacalera have been turned into canvases for the artistic expression of its current users (FIGS. 14.4).

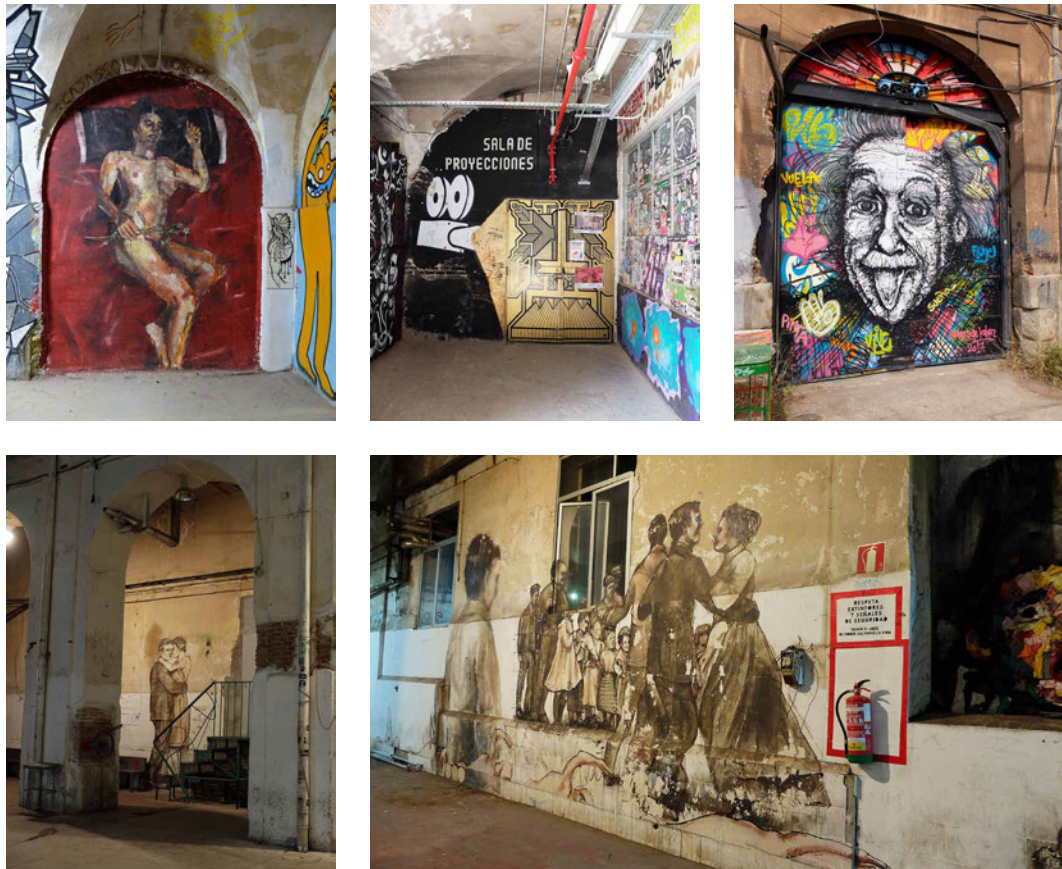


FIG. 14.4 Murals on the basement and south patio of the building, created by members of the CSA-La Tabacalera collectives, 2017.

In the last eight years of its new function, la Tabacalera has undergone certain changes, mainly in its self-managed part. According to the testimonies of several collectives' members (Resp. no 225-232, interviews, Autumn 2017) despite the Centre's massive social output, it has turned a bit more introvert, in comparison with the first years of its operation. Due to legislative provisions, the café-bar of the CSA closed, while the wish to protect the building and the action of the Centre, led to the establishment of limited opening hours for the public. Furthermore, the collaboration between the collectives, appears to be challenging in some cases, rendering the decision-making a lengthy and thorny process.

Despite these changes however, la Tabacalera remains a kernel of culture, expression and social activism of an international appeal, welcoming a wide range of people. The two parties housed in the building are currently looking for ways to cooperate. Commenting on future plans of the Social Centre L. Calderon, member of the communication committee and institutional relations of the CSA states:

"We want to consolidate the Project (Social Centre) and establish links with other projects on a national and international level." (Resp. no 225, interview 18/10/2017).

In the meantime, while the Spanish economy is showing some signs of recovery, new scenarios of reuse are examined for the building. One of those is the establishment of an annex of the Reina Sofia museum to the upper floors of the building. What remains to be seen is if such a possibility, combined with an influx of money for the building's restoration, will influence the viability of the Social Centre and the essence of the building's new identity.

14.2 Evaluation

The case of the reuse of Madrid's Tabacalera presents a key difference with the other case studies investigated in this dissertation. The transformation of the building even though it already counts nearly a decade of life, is partial. There has been a functional regeneration, yet hardly any action has been taken for the restoration of the site and the utilisation of its upper floors. Therefore, it is likely that the analysed situation is a temporary phase which will eventually give way to a more comprehensive solution. Nevertheless, as shown in the following evaluation, important lessons can be drawn from the case in terms of process, programme and social output.

14.2.1 Process

The Tabacalera is one of cases born and shaped in the early 21st century financial crisis. The case provides evidence supporting that the turbulent period of crisis, despite its significant far-reaching negative consequences, served also as an opportunity for a paradigm shift on Industrial Heritage Reuse (Chatzi Rodopoulou, 2019).

The transformation process of the Tabacalera showcases the impact of the crisis on institutional large-scale projects and at the same time the opportunities arising from this seemingly deadlock situation. As analysed above, the outcome of the crisis cancelled the linear top-down plan that had

been set in motion for the conversion of the site into a National Centre of Visual Arts. Nevertheless, due to the vigorous action of the local community and the receptiveness of the State and local authorities, the building was not denied a second life. On the contrary, despite its financial limitations, the project developed the desired cultural identity, embracing the ideas of a larger social base while responding better to the needs of the local community. The vigorous proactive action of the local collectives, the flexibility of the owners to incorporate the ideas stemming from a bottom-up process and the collaboration of different parties in the creation and operation of Madrid's Tabacalera are considered very strong features of the project.

The succession of politicians in the national and local authority though along with the recovery of the economy, are very likely to create new conditions that may alter the future steps of the project's process.

14.2.2 Programme

The new programme of the Tabacalera is one of its strongest Components. Firstly, it offers a high cultural and social added value, with a recognised output (Jiménez, 2016). Secondly, it is compatible with the building, respecting its original spatial values. Thirdly, it has a vibrant public character. In other words, La Tabacalera is a venue of expression which offers multiple opportunities for social interaction, critical thinking and participation, being a melting pot of ideas. As L. Calderon puts it:

"We have managed to collaborate with the Ministry, creating a progressive and ambitious project. La Tabacalera is known today not only in Spain but abroad as well." (Resp. no 225, interview 18/10/2017).

It is worth underlining that the described scheme of new functions is fragile as it is based on temporary agreements between the institutional and self-managed parties. Any future interventions, should they aim to capitalise on this precedent, need to pay special attention to the established balance.

14.2.3 Architecture

As presented in the analysis, the reuse of the Tabacalera followed the logic of minimum intervention. In contrast with the majority of the case studies under investigation though, this approach was not dictated by an architectural decision but it stemmed from the bleak economic conditions of the era during the building's conversion.

The current situation has contrasting effects on the fabric of the former factory. On the one hand, the original architecture of the building is not obscured nor obstructed by new interventions. As a result, its setup, volumes, details and materiality in their largest extent are preserved and they are also legible by the new users. The output of the qualitative research suggests that the building's users appreciate the architecture of the former tobacco factory (FIGS. 14.1, 14.9). *"The building itself is an exhibition"* argues a respondent (Resp. no 228, interview 17/10/2017) commenting on the subject.



FIG. 14.5 Moisture damage in the central staircase of the Tabacalera, 2017.

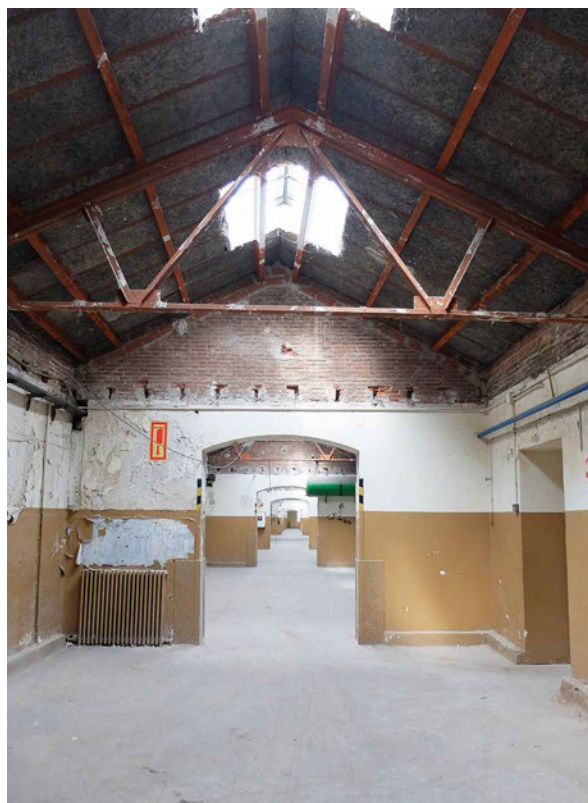


FIG. 14.6 View of the Tabacalera's vacant top Floor, 2017.

On the other hand, the adopted approach did not allow for a restoration of the site. Consequently, the building is experiencing serious problems due to the lack of conservation (FIG. 14.5). This matter was highlighted by all interviewees (Resp. no 225-234, interviews, Autumn 2017) as one of the most negative issues of the Tabacalera. Summarising their views, one of them stated:

"More conservation with a universal vision is needed. The building lacks homogeneity (Resp. no 229, interview 17/10/2017).

Similar contradictions can be found in the interplay between the use of the building and its original architecture. Even though the manner of use in both parts of the historic building is not destructive, and respects its architectural values there are two issues which affect it negatively. Firstly, there is a big part of the building underused, including its upper floors and some zones of the ground floor such as the main patio (FIG. 14.6). The vacancy of these spaces causes various issues, the most important of which is the acceleration of the building's degradation. Secondly, the rigid separation between the institutional and self-managed part, expressed also in the published material disseminated to the public gives a distorted impression of the building's configuration.

Maintaining and using the totality of the building without undermining its architectural value is seen as a challenge for the case study in question.



FIG. 14.7 The Tabacalera's main entrance, 2017.



FIG. 14.8 The north entrance leading to the exhibition space Tabacalera. Promoción del Arte, 2017.

The preservation of Tabacalera's cultural significance has only been achieved partially. The retained tangible immovable elements of the site serve as testimonials of its historic use. Furthermore, initiatives taken by collectives of the CSA such as the organisation of events that echo the building's past (e.g. *Cigarreras: Métodos y Tiempos*) as well as the efforts to collect the oral testimonies of the *cigarreras* (female cigar roller workers) can be seen as the first steps to preserve the intangible historic features of the former factory (Feinberg, 2013). Moreover, the current use appears to follow the philosophy of the building's evolution. In other words, the discussed reuse is a continuation of past approaches that according to C. Lopez (2017) *"were characterised by a dialectical tension between the representative character of the façade and the mutability of the interior."*

Despite that, the historic use of the building is not physically interpreted on a permanent basis. Also, with very limited exceptions, all the machinery and installations of the factory have not been preserved in situ. As a result, visitors have very few means of understanding the history of the building.

14.2.5 Finance

The financial situation of the Tabacalera is one of its most controversial characteristics. On the one hand, the model of social economy employed by the CSA shows some encouraging results. In specific, even after the closure of the café, the events organised generate enough money to cover some basic operational costs. Moreover, with voluntary work, the Centre continues offering a wide range of activities to the community free of charge. On the other hand though, as reported above, the restricted amount of money generated by the collectives and the limited financial support by the Ministry have resulted in a poor state of conservation and maintenance of the building, causing difficulties on its day to day use, too.

14.2.6 Social component

In contrast with the financial aspect, the social dimension is a very strong feature of the project.

The building is open to a very rich and widely socially diversified multicultural group. CSA Tabacalera serves as a collective provider of welfare and neighbourhood facilities, offering services that the local community had been denied in the climate of austerity. The positive social outcome of the project is echoed in all interviewees' responses (Resp. no 225-235, interviews, Autumn 2017). In detail, members of the CSA collectives stated:

"People here need such spaces and they use this building a lot. It is not institutionalised. It is not a waste of money. It is a social space grown organically. We try to put life into it." (Resp. no 230, interview 17/10/2017).

"The building answers to the needs of the local community. Its philosophy is linked with the philosophy of the neighbourhood." (Resp. no 231, interview 17/10/2017).

"It has a strong cultural and social role. The building enables the process of cultural creation and it displays this cultural product to the public. Through the action of some collectives such as the free psychological counselling, the legal advice and the language courses, it offers important social service." (L. Calderón, Resp. no 225, interview 18/10/2017).

The same views are shared by the employees of the Tabacalera. Promoción del Arte. According to an information assistant:

"The exhibitions attract many visitors. I like that they are free and open. The building (institutional part) is open all day and you can see the exhibitions without haste. In my opinion the propagation of culture should not be based on financial means." (Resp. no 233, interview 17/10/2017).

What is truly challenging in the case of Madrid's Tabacalera is managing to maintain the described social output in the future while upgrading the building's fabric.

14.2.7 Functionality

The functionality of the Tabacalera, which is closely related to the financial Component, is the most problematic feature of the project. Apart from the lack of conservation and maintenance analysed above, there is no heating/cooling system, making the use of the building challenging mainly in wintertime. Some small steps, such as the installation of a fire-extinguishing system and new lights, have been taken recently for the alleviation of the situation. Nevertheless, the majority of the respondents of the Social Centre expressed their dissatisfaction in relation to the state of maintenance, conservation and cleanliness of the building (FIG. 14.9).

14.2.8 Stakeholders' evaluation

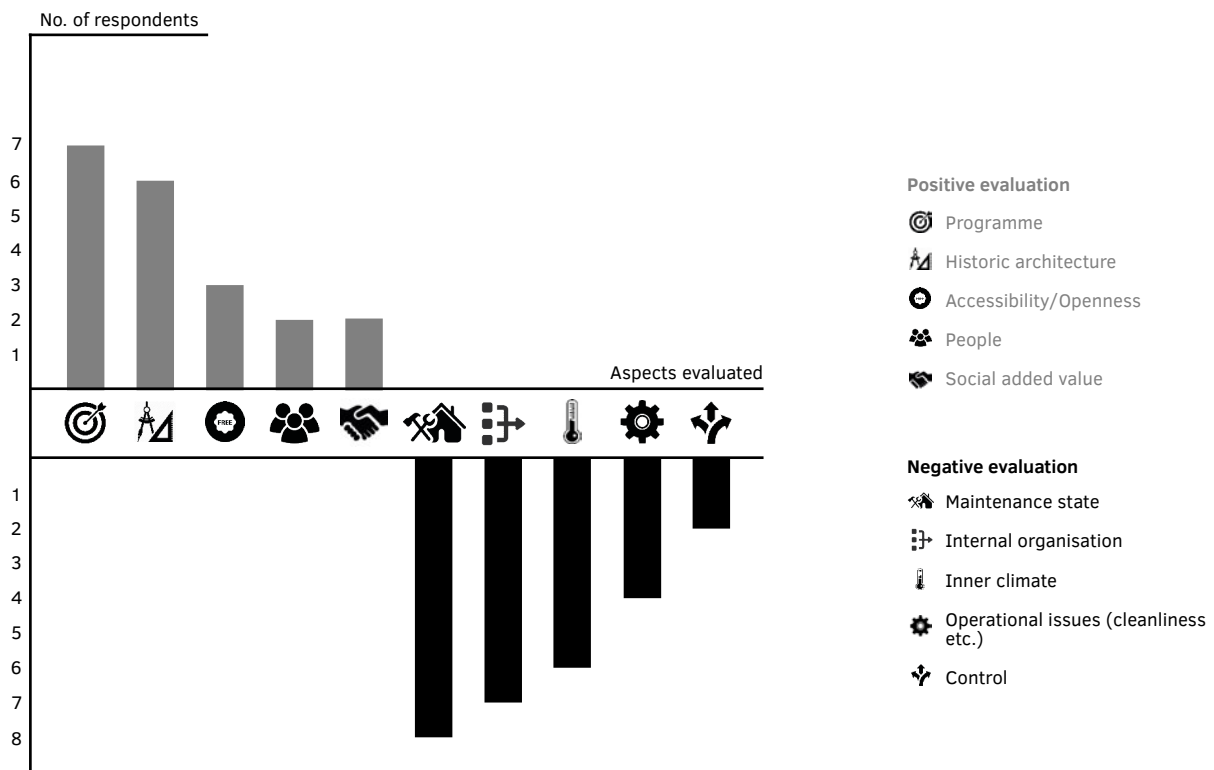


FIG. 14.9 Respondents' evaluation of the strong and weak Aspects of the case of La Tabacalera (Number of respondents: 10).

15. Bombas Gens

Location: Valencia, Spain

Historic use: Factory manufacturing small agricultural machinery

Architect: Cayetano Borso di Carminati

New Function: Headquarters of the Fundació Per Amor a l'Art

Reuse architects: Ramon Esteve, Eduardo de Miguel

Status: Monument of Local Interest

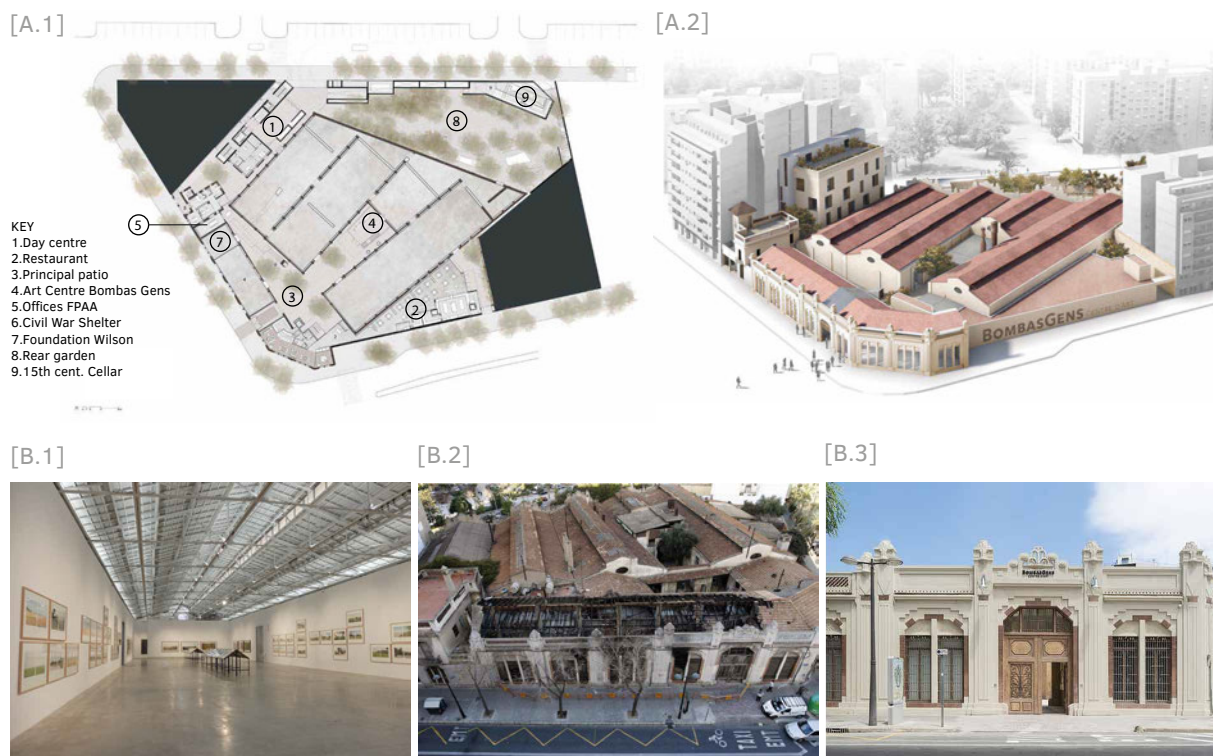
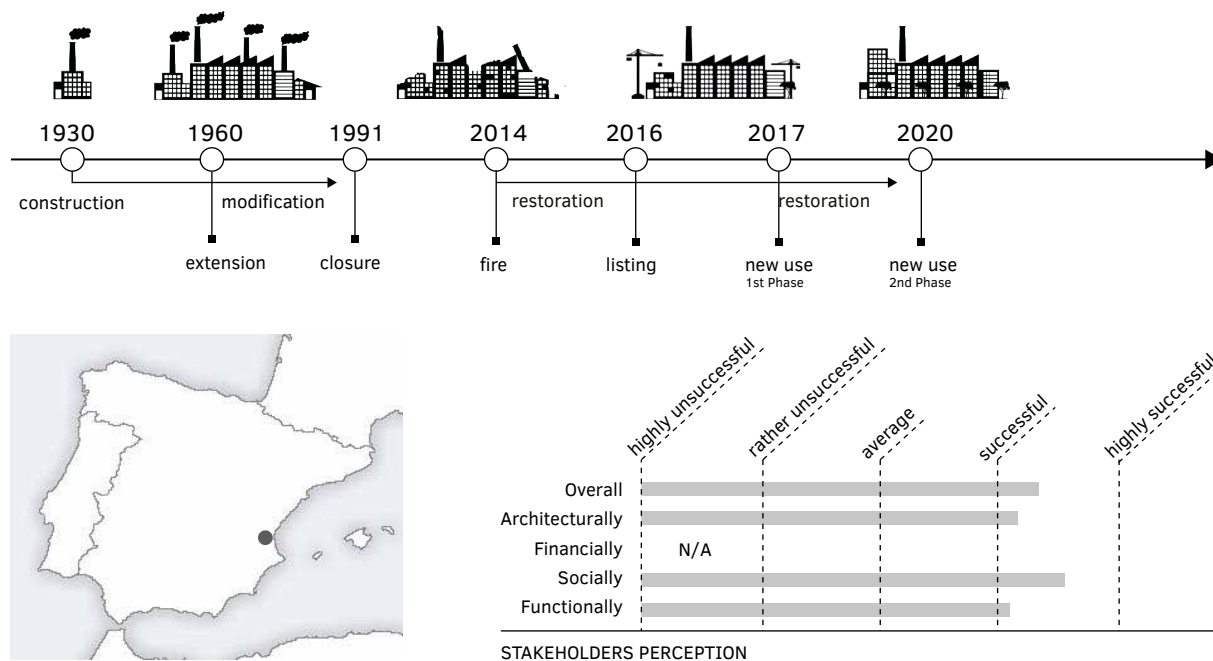


FIG. 15.1 Bombas Gens Fact Sheet

15 Bombas Gens

SUMMARY

Bombas Gens, developed in the second decade of the 21st century, is a showcase of reuse which incarnates many of the global doctrines for the protection of industrial heritage. Albeit privately owned, developed and operated, the project has a powerful social character. Apart from its social added value, the strengths of the case also include its multifunctional programme, its conversion approach and architectural result, the preservation of its cultural significance, its financing model and its functionality, while its weakness are limited to minor issues.

15.1 Analysis

15.1.1 Historic use

Bombas Gens was built in 1930 as a factory for the manufacturing of small agricultural machinery, industrial valves and hydraulic pumps. It is located in the northern part of the centre of Valencia, at the district Marxalenes; a developing rural area which was at the outskirts of the city at the time of the factory's construction. Aiming for a prominent and innovative industrial unit, the founders of the factory, Carlos Gens Minguet and Rafael Dalli, commissioned the design to the renowned Valencian architect Cayetano Borso di Carminati. The complex is nowadays regarded as one of the most important examples of Art Deco architecture in Valencia. Besides its high aesthetical value, the former factory is also distinguished for its advanced provisions for the workers facilities.

Bombas Gens comprised four production halls (FIG. 15.2), an administration and showroom building and the manager's residence, the facades of which were richly decorated. The interior setup of the factory was influenced by the evolution of the machinery, resulting in multiple expansions and renovations. Apart from the shifts in mechanisation, historic developments also influenced the industrial unit. During the Spanish Civil War the factory was requisitioned by the Republicans. In that period the production shifted from hydraulic pumps to ammunition while an air raid shelter was built (c. 1938) for the protection of the workforce. Around 1960, a fifth production hall was added to the complex that stayed in use only for three decades (FIG. 15.6). In 1991 Bombas Gens ceased operations (Bombas Gens Centre d'Art, n.d.).

LEGEND FIG. 15.1 **Bombas Gens**

- A.1 Bombas Gens new programme diagram (Ramon Esteve Architecture Design).
- A.2 Bombas Gens 3D visualization of the reused complex (Ramon Esteve Architecture Design).
- B.1 Interior view of the Art Centre Bombas Gens, 2017.
- B.2 Bombas Gens after the fire of 2014 (<https://www.abc.es/local-comunidad-valenciana/>).
- B.3 The main entrance of Bombas Gens after its restoration, 2017.

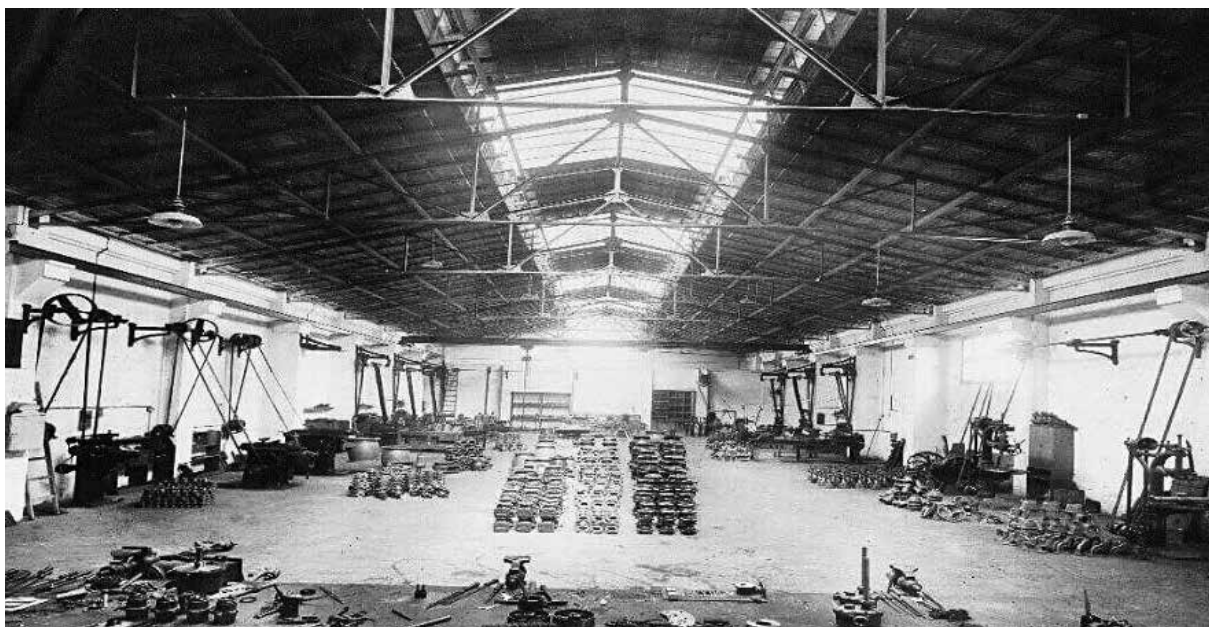


FIG. 15.2 Bombas Gens in operation (Fundació Per Amor a l'Art, n.d.).=

15.1.2 Reuse Preparation

For more than two decades, despite the protests of the local community, the complex remained abandoned and was left to deteriorate (FIGS. 15.3, 15.4). The indifference of the owners as well as the absence of a legal protection status left it exposed to repeated actions of vandalism. The 2000s saw Bombas Gens flirting with destruction when a plan for the demolition of the historic structure and its replacement with a hotel, parking and commercial complex was submitted to the City Council. The financial crisis had a nuanced impact on the complex, stalling the destructive plan yet prolonging its evolving decay. The downward spiral of the former industry culminated in 2014 when a fire destroyed the roof of the administration building (Vásquez, 2014) (FIG. 15.1: B.2).

A change in ownership put an end to the deterioration of the complex, marking the beginning of its revitalisation. On September 19, 2014 the site was acquired by Sancana Gestión de Inversiones S.L., which also took over its transformation. The new proposed plan for the obsolete factory involved its conversion into a venue for the cultural, social and research activities of the newly established Fundació Per Amor a l'Art (FPAA), created by the family of the new owners. The cost of the project, estimated between 9 to 10 million euro, was fully covered by the owners' private funds (Bono, 2017). According to Suzana Lloret, General Director FPAA, the Foundation showed interest in the complex for the singularity of its architecture and the urgency for its safeguarding (Fundació Per Amor a l'Art, n.d.). Moreover, the size, spatial characteristics, setup and the legal status of Bombas Gens as well as its location in an area with very limited artistic facilities were additional reasons for converting it into the headquarters of the Foundation (Resp. no 235-240, interviews, Autumn 2017).

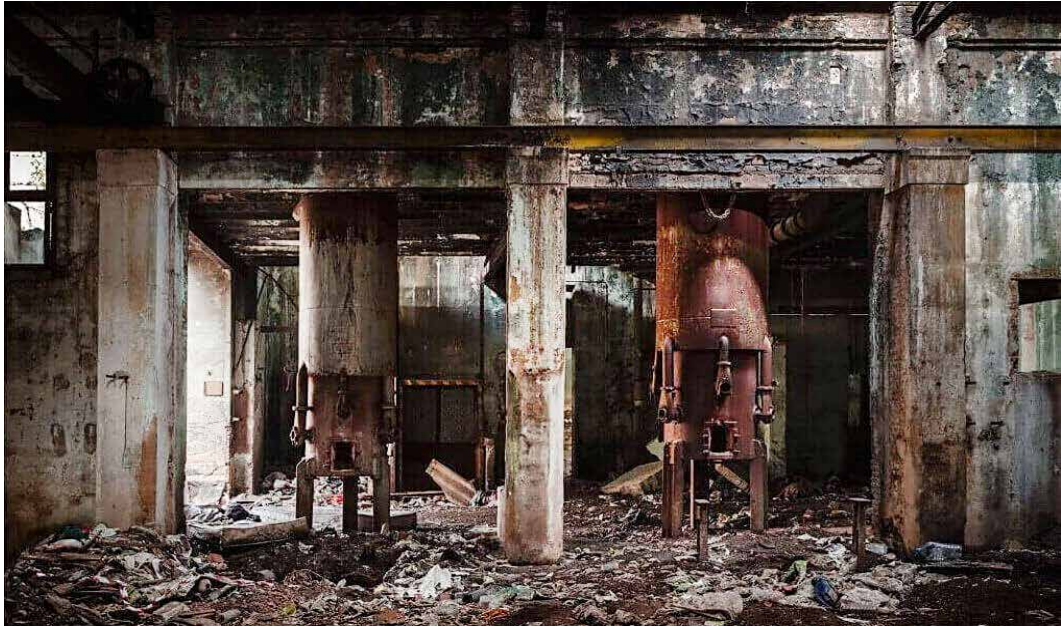


FIG. 15.3 Interior view of the former factory, before its reuse (Frank Gómez).

15.1.3 Reuse process

The rehabilitation of the complex which started in 2015 prioritised the preservation of both the tangible and the intangible values of the industrial site. The interdisciplinary group of specialists⁴⁰ involved in that phase, including architects, civil engineers, archaeologists and conservationists realised a meticulous transformation, taking into account the standing international industrial heritage conservation principles.

The process started with the structural consolidation of the complex and the rehabilitation of its roofs. Special attention was paid into the conservation of the main façade which was the only element protected at the time. The typology, form and materials of the historic industrial architecture were respected while the industrial character of the complex was largely preserved. R. Esteve, the architect responsible for the redesign of the site explains:

“Ceramic brick and galvanised steel are the most used materials because they evoke the original industrial atmosphere of the complex.” (Ramon Esteve Architecture Design, n.d.).

According to the testimonies of the specialists involved in the transformation process (Resp. no 235-240, interviews, Autumn 2017), all pieces of machinery that had escaped the liquidation of 1991 and the thefts of the 1990s and 2000s, were maintained and reintegrated in the new setup. However, this assertion appears to be only partially consistent with the analysis’ results of the documentation of the complex before its transformation. As shown in the figures 15.4 and 15.5 certain parts of the factory’s machinery were sacrificed during the reuse of Bombas Gens.

⁴⁰ The group consisted of the following experts: Reuse architect: Ramon Esteve, Restoration architect: Eduardo de Miguel, Museological transformation: Annabelle Selldorf, Technical advisor: Rafael Ferriols, Historic advisor: Paloma Berrocal.



FIG. 15.4 Interior view of the former factory before its reuse, depicting machinery parts that were not preserved (Frank Gómez).

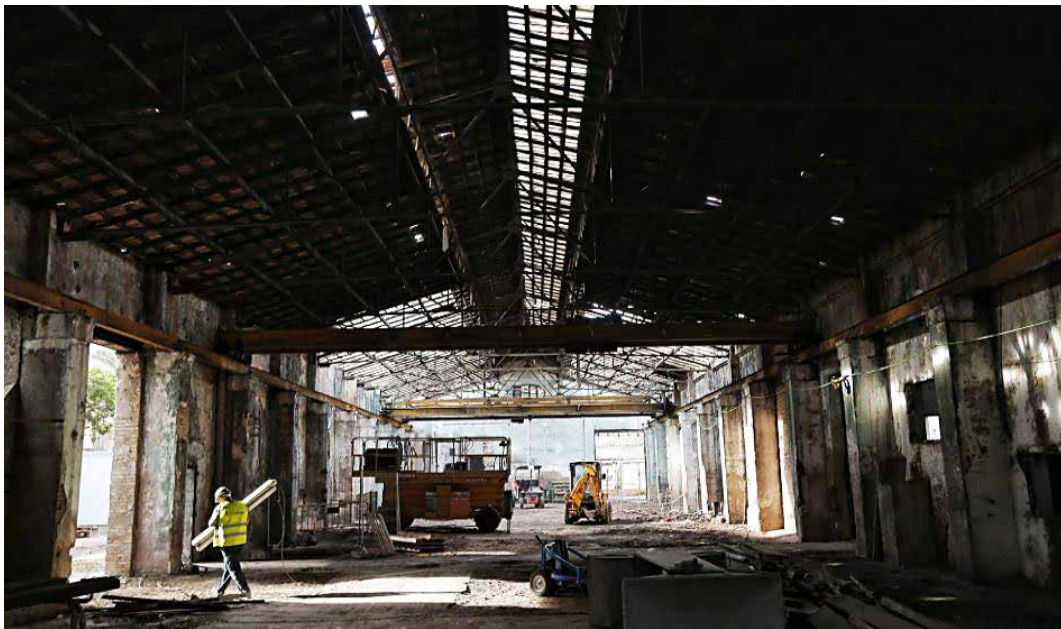


FIG. 15.5 Interior view of the former factory during its reuse, depicting the overhead cranes that were sacrificed for the needs of the new programme (Europa Press).

The interventions that followed the consolidation phase, in their largest extend did not jeopardise the integrity of the former factory. The demolitions were restricted to later additions, such as the production hall of the 1960s and some sheds, leaving the original core of the factory intact (FIG. 15.6). The new additions included a new building in the northwest part of the complex's plot and a glass cubicle housing the reception of the Art gallery (FIG. 15.8). Other interventions involved the interior remodelling of the administration and dwelling unit as well as minor modifications in the internal facades of the complex.

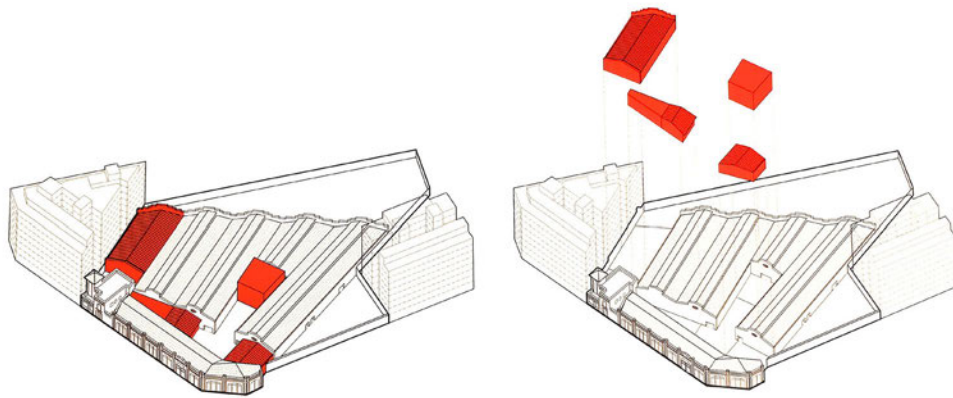


FIG. 15.6 Drawing depicting the interventions on Bombas Gens factory. The parts of the complex demolished during its transformation into the headquarters of the Fundació Per Amor a l'Art are marked with red colour. The image forms part of the permanent exhibition housed on site, on the historic development of the complex and its conversion. (Ramon Esteve Architecture Design).

A challenging aspect of the new programme was its requirements for large parking and storage spaces. The construction of these facilities underground, albeit more expensive met the posed challenge without compromising the structure and morphology of the historic complex. During the excavations for the creation of the abovementioned spaces, the Civil War shelter as well as a 15th century cellar were discovered. In that phase, according to the testimonies of the experts and staff members of the Foundation (Resp. no 235-240, interviews, Autumn 2017), the attitude of the owners played a decisive role. P. Berrocal, director of archaeological and historic intervention of the Art Centre Bombas Gens, states:

"Sometimes the owners were more sensitive and conservative than us about the handling of the original elements. For example, when we discovered the civil war shelter and the cellar, we informed them and they showed great interest in preserving and integrating them in the project, despite coming as a surprise." (Resp. no 235, interview, 6/11/2017).

Simultaneously with the regeneration of the complex, Bombas Gens' administration set in motion a process of connection with the local community. According to S. Martinez, coordinator of educational and cultural activities of Bombas Gens Art Centre (Resp. no 238, interview, 7/11/2017), various lines of action were organised for turning the locals into partakers in the transformation project. Such activities involved guided tours in the construction site, informational meetings, brainstorming sessions for ideas of potential collaborative action and organisation of cultural events inviting the public to visit Bombas Gens before its official inauguration. Moreover, in that period a documentation process of oral testimonies of former workers and neighbours took place, serving both as a participation action and as a method of safeguarding the intangible heritage aspects of the factory.



FIG. 15.7 The entrance gallery of the former factory before and after its reuse. The industrial scale, part of the factory's machinery was restored and preserved in situ.

The attention drawn to the project in that early phase along with the meticulous transformation strategy acted as a means of pressure on the Local authority. As a result, in 2016 the protection status of the historic industry was upgraded. Since then, the whole complex has been listed as a monument of Local Interest, whereas in the past the protection inscription covered only the façade on Burjassot avenue (Zafra, 2016).

15.1.4 Occupation and management

The revived Bombas Gens complex opened its doors again in the summer of 2017 and it quickly became a point of reference. From the outset, its vibrant and diverse activity offered to the public free of charge, attracted a big audience of different ages and social status. The new programme of that first delivery phase was composed of three distinct functions: an art centre which houses the collection of visual arts of the Foundation, stretching in the four former production halls, the administration facilities of the FPAA housed in the former residential unit and a high-end restaurant occupying the former administration building of the factory (FIG. 15.1: A1).

An additional asset of the programme was the establishment of the exhibition “Historias of Bombas Gens” in the former showroom of the factory (FIG. 15.10). This impressive piece of work, serves as an interpretation centre for the history of the site, projecting its original architectural, technical and social values. Furthermore, it provides a concise and comprehensive view of the complex's transformation process. Enriched with the result of the documentation of oral testimonies realised during the transformation of the complex, it also provides a kaleidoscopic vision of the various facets of the factory over time. Combining different sources of information, including drawings, text, photographs, objects and audio-visual material, the exhibition captures and disseminates the role, essence and past activity of Bombas Gens while safeguarding its intangible inherited values.



FIG. 15.8 Bombas Gens after its transformation (Ramon Esteve Architecture Design, n.d.).

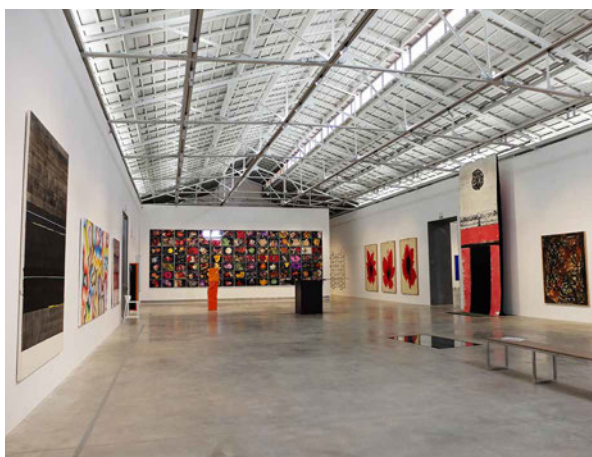


FIG. 15.9 Interior view of the Art Centre Bombas Gens, 2017.



FIG. 15.10 Interior view of the interpretation centre of Bombas Gens, 2017.

In the operation phase, the FPAA continued collaborating with experts of different fields, a decision which had been proven particularly beneficial in the preliminary stage of the project. Moreover, highly skilled professionals with extended relevant experience in prestigious art institutions, were incorporated to the staff.⁴¹ The sound collaboration of the stakeholders and the good use of the expertise of the involved parties by the owners strengthened the project.

⁴¹ The ex-director of the Tate Modern in London Vicent Todolí acted as a consultant for the artistic part of the project. Nuria Enguita, director of the Tàpies Foundation for a decade, was selected for the position of the director of the the Bombas Gens Center d'Art.



FIG. 15.11 The restored 15th century Cellar (Ramon Esteve Architecture Design, n.d.).



FIG. 15.12 The restored 20th Cent. Civil War shelter (Bombas Gens Centre d'Art. n.d.).



FIG. 15.13 The rear garden designed by Ramon Esteve and Gustavo Marina with the site-specific sculpture of Cristina Iglesias (Ramon Esteve Architecture Design, n.d.).



FIG. 15.14 The Day Centre for children and teenagers at risk of social exclusion (Ramon Esteve Architecture Design, n.d.).

Furthermore, the social outreach and inclusion activities which started during the restoration and reuse phase have been enriched after the official inauguration of the complex. Links with various local educational institutions have been established, providing opportunities for joined action while a rich array of social activities offered to the public for free are organised on a weekly basis. According to S. Martinez (Resp. no 238, interview, 7/11/2017), upon the delivery of the second phase, new links will also be formed between the various lines of action of the Foundation.

The second phase of Bombas Gens transformation project is planned to be delivered in stages within 2018. The artistic, administration and recreation core of the first phase will be complemented with the opening of the restored cellar and Civil War shelter and the addition of a garden at the north-eastern part of the plot and a new building (FIGS. 15.11, 15.12, 15.13, 15.14). The latter will house the social and research activities of the Foundation, including a Community support day centre for children and teenagers at risk of social exclusion and also the Wilson team Coordination centre, dedicated to research and awareness over Wilson's disease and other rare illnesses.

15.2 Evaluation

Bombas Gens is a reuse project which was partially delivered only a few months before the conduct of this research. As a result, evaluating its impact is complicated as it has not been subjected to the test of time. The following evaluation attempts to assess certain aspects of the project at a very early phase of its new life and therefore it is advised to be approached with caution.

15.2.1 Process

The Bombas Gens case reflects the merits and predicaments of private sector initiative in an unprotected piece of industrial heritage. It also illustrates the impact of the public sector action on the development of historic industries after losing their original use. As described above, the lack of protection provisions from the local authority and the total freedom of the private sector to intervene on the existing structures, led Bombas Gens very close to demolition. Its safeguarding can be ascribed to a 'happy coincidence' which relates to the economic situation imposed by the financial crisis of the 2000s and the conscious action of a private investor.

The purchase of the complex from Sancana Gestión de Inversiones S.L. was followed by a top down process. It is noteworthy that the local community was included in that process from its early stages. As a result, the locals appear to have had a level of influence on some activities of the Art Centre but a rather insubstantial role in the decision-making process. On the contrary, the influence of the group of experts throughout the project's duration was massive. The confidence in those experts along with a sensitive and open-minded approach towards the industry's cultural significance from the new owners, affected in a very positive way the redevelopment of the site.

An important characteristic of the process was its flexibility, which allowed the possibility to readjust the timeline, budget and planning for solving unexpected problems to the advantage of the project. The delivery in phases, imposed by the archaeological findings had also multiple direct and indirect merits. The direct ones include among others the familiarisation of the public with the site while the indirect ones refer to the upgrade of the legal protection status of the complex.

15.2.2 Programme

The new mixed use programme of Bombas Gens is one of its stronger assets for multiple reasons. Firstly, the new uses apart from housing the offices of the FPAA, make a generous contribution to the context of the former industry in spatial, financial and social terms. In the words of the respondents of this research:

"Contemporary museology has been taken into account. Bombas Gens is not only an exhibition space but a living space that articulates different ways of getting involved with the environment." T. Colomina, art conservationist (Resp. no 236, interview, 8/11/2017).

"We managed to pull off a difficult project in a building that was meant to be demolished. We gave it to the society. It is not just a space that contains art. The society responds to it." P. Berrocal (Resp. no 235, interview, 6/11/2017).

Secondly, albeit run by a private Foundation, Bombas Gens has an extrovert character, offering the full spectrum of its activities free of charge.⁴² That feature along with the diversity and the sociocultural direction of its programme encourage the accessibility and implication of a wide range of audiences of different age and social status. Thirdly, the selected set of functions and their distribution is compatible with the characteristics of the old factory. Lastly, the incorporation of the Civil War shelter, the 15th Cent. Cellar and the exhibition on the history of the industry offer significant added value to the project, providing historic continuity and a robust link with the past.

15.2.3 Architecture

As posed above, Bombas Gens was transformed in its larger extent following the standing international industrial heritage conservation principles. Its architectural approach is thus placed among the stronger Components of the project. From a complex to a detail level the involved architects respected the existing values of the former industry, preserving both the built envelope and its contents. The required modifications, limited mainly to the interior of the buildings, were minimal. The interventions and additions prioritised the historic architecture, forming a discrete symbiosis with the existing structures through the volumes and the materials' selection.

"For the day-care centre, we have chosen similar materials to those of the warehouse, hand-made brick walls. Thus, the building becomes the background of the general view supporting the industrial buildings.", notes Ramon Esteve (Ramon Esteve Architecture Design, n.d.).

At the same time, the interventions reflecting the current aesthetical principles and structural possibilities, added a new architectural layer, contributing to the formation of an elegant and imposing result. According to the qualitative research conducted within the framework of this study, the architectural outcome of Bombas Gens transformation is highly appreciated (FIGS 15.1, 15.15). Nevertheless, the described approach was not flawless. The conversion, albeit respectful compromised a few important spatial elements of the existing industrial structure. According to one of the Art Centre's employees:

"The aesthetics prevailed and some elements, such as the patina, the boldness and the smoke were lost" (Resp. no 239, interview, 8/11/2017).

15.2.4 Cultural significance

Bombas Gens is a showcase of cultural significance preservation. Despite not being an industrial museum, the level and quality of the historic documentation, dissemination and interpretation of the project is noteworthy. With very limited compromises pertaining to a part of the factory's built fabric and a few machinery elements, the project manages to promote in a vivid way the cultural values of the site. This is succeeded, through the preservation and integration of archaeological findings in its programme, in combination with the comprehensive presentation of the factory's industrial past.

⁴² The only profit-making activity housed in the complex to this day is the Ricard Camarena restaurant.

In addition to that, the exhibition of the factory's transformation to its current state, provides a sound scientific record of its development advancing at the same time the understanding of the visitors on the complex's past. In that sense it is argued that Bombas Gens has an important cultural and educational impact. The comprehensive scientific approach followed and its impressive outcome can serve as a point of reference for future Industrial Heritage Reuse projects.

15.2.5 Finance

In contrast with the majority of the investigated case-studies, the financing of Bombas Gens is not seen as a weak point of the project. This relates to three factors. Firstly, to the single source of financing; secondly, to the sum of the available funds for the purchasing and the reuse of the complex and thirdly, to the character and orientation of the investment. Regarding the first factor, the possibility of the owners to cover the full investment with their own funds accelerated the pace of the process and minimised bureaucratic complications. In the words of N. Enguita:

"Since the project was private, we did not waste time in decision-making and did not depend much on institutional support." (Resp. no 237, interview, 7/11/2017).

In respect to the second factor, the high investment capital, as shown from the analysis had multiple merits. It allowed the participation and consultation of numerous experts, which led in turn into a meticulous documentation process and an exemplary reuse project. Furthermore, quality and authenticity preservation were prioritised over budget minimisation. In respect to the third factor, based on a business model which is not profit oriented, Bombas Gens' operation exhibits a generous social footprint. The downside of the described model which may evolve into a future challenge is the tie of the financial viability of the project to a sole source of revenue.

15.2.6 Social component

The social added value of the case in question is undoubtedly its strongest feature. All three sets of activity housed in the former factory, offer significant social returns. As T. Colomina notes:

"The programme of activities is very important. It combines the container (factory) with the content (art) and the communication. The site has an identity connotation. The factory used to be a dynamic element in the past and the same thing happens now. [...] They have tried to recover what it was: the motor of the neighbourhood. The cellar and the shelter make it powerful. From a pump factory it has become a factory of emotions and meanings." (Resp. no. 236, interview, 8/11/2017).

Since the opening of the first phase, the reused industry has been turned into an inviting pole of social involvement, artistic sensibility growth and cultural education. According to the testimonies of the people interviewed in the framework of this research (Resp. no 235-240, interviews, Autumn 2017), the project highly resonates with the local community. As N. Enguita puts it:

"It is an open project to the local community. It is not elitist and at the same time it attracts the art professionals." (Resp. no. 237, interview, 7/11/2017).

E. Bravo, archaeologist and heritage mediator in the Art Centre Bombas Gens adds :

“The influx of the public is good. People come and bring other people too. They feel it as something of theirs. The project offers social empowerment.” (Resp. no. 239, interview, 8/11/2017).

Upon the completion of Bombas Gens' reuse, its social impact is expected to grow significantly. The opening of the Day Centre will play an active role in the prevention and reduction of the social exclusion of minors, strengthening further the role and the ties of the local community to the project. Furthermore, the facilitation of research on rare diseases will offer advantages to other vulnerable social groups.

15.2.7 **Functionality**

In terms of functionality the case is positively evaluated, facing only some minor issues. The control of the internal climate that constitutes the most common challenge among the studied cases, is effective in the project in question. As T. Colomina reports,

“The internal climate control is effective, necessary and powerful. The temperature and relative humidity are monitored with sensors.” (Resp. no. 236, interview 8/11/2017)

The reused buildings are powered with renewable energy. P. Berrocal argues:

“It is an honour to be part of a project that works with renewable energy (geothermal energy). It does not contaminate while working very well.” (Resp. no. 235, interview, 6/11/2017).

The only problematic feature according the research's respondents is the itinerary in the interior of the complex. As E. Bravo explains:

“The visitors do not understand that the reception is located in the new cubicle and end up to the hall next to the main entrance.” (Resp. no. 239, interview, 8/11/2017).

15.2.8 Stakeholders' evaluation

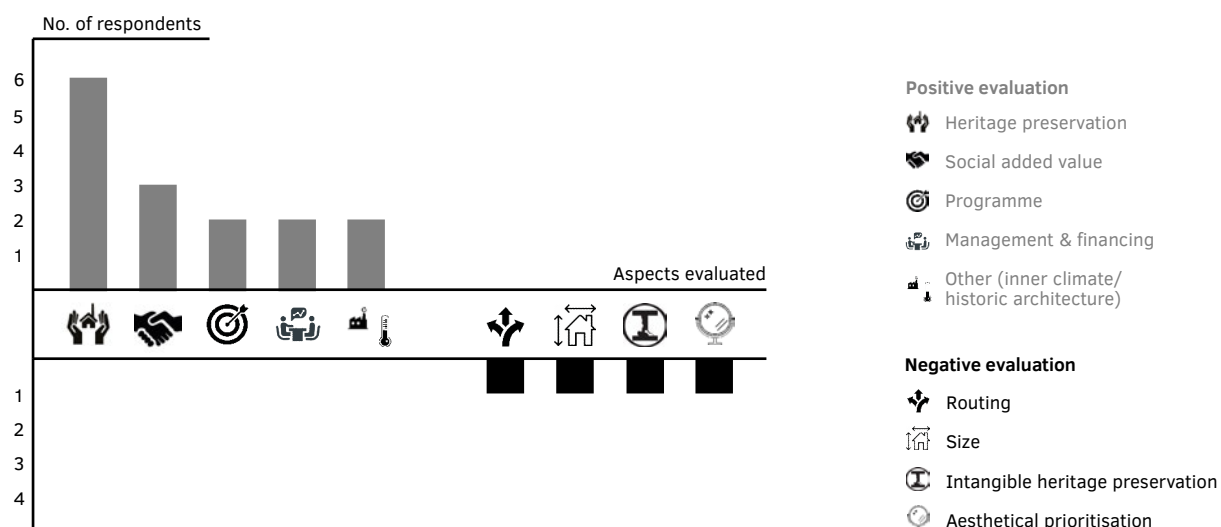


FIG. 15.15 Respondents' evaluation of the strong and weak Aspects of the case of Bombas Gens (Number of respondents: 6).

16. Centre of Technical Culture

Location: Hermoupolis, Syros, Greece
Historic use: Various
Architect: Various
New Function: Industrial museum, educational & research centre
Reuse architect: Various
Status: National monuments

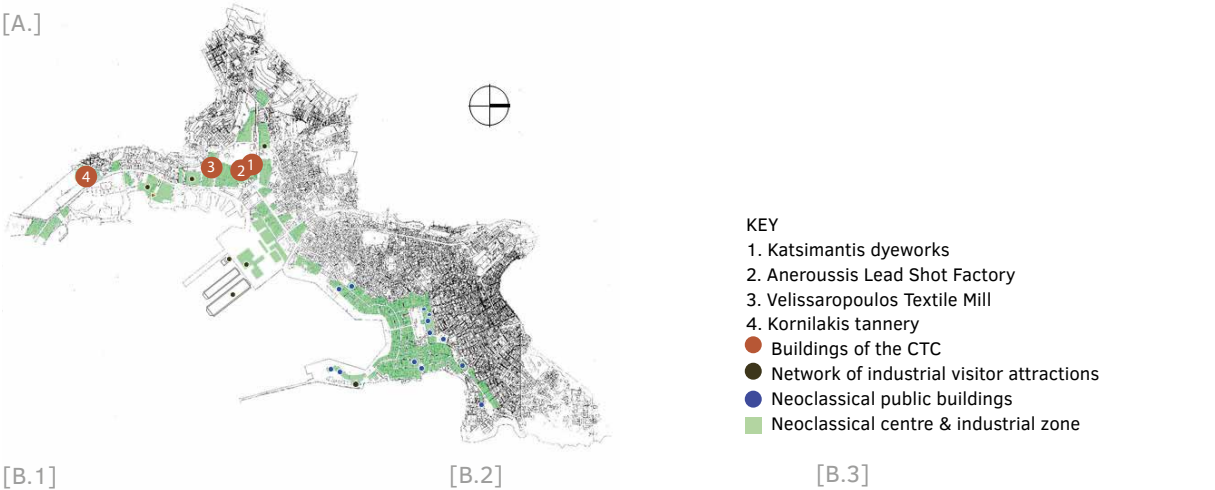
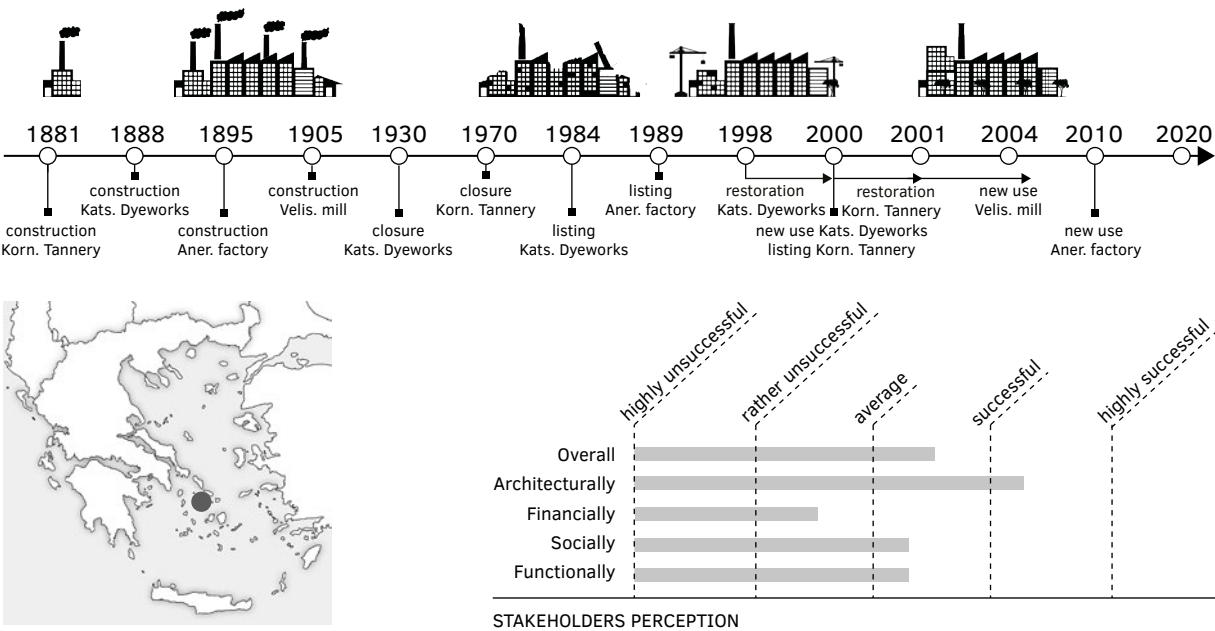


FIG. 16.1 Centre of Technical Culture of Hermoupolis Fact Sheet

16 Centre of Technical Culture of Hermoupolis

SUMMARY

The Centre of Technical Culture (CTC) of Hermoupolis is a pioneer case of Industrial Heritage Reuse in Greece. Envisioned in the 1980s, the project adopted a comprehensive approach for industrial heritage safeguarding and projection, including historic buildings, machinery, archives and intangible heritage dimensions. Within the CTC framework a multifunctional programme was planned combining an industrial museum and a laboratory of machinery conservation with educational and research activities. Those functions were housed in a network of converted industrial buildings located across the Hermoupolis industrial zone. The strengths of the case include its innovative and dynamic planning, which serves as a reference for other cases, the conservation of cultural and architectural values and its significant social added value. Despite its multiple merits, the CTC has been facing serious operational problems from its outset, with the most important being its management and financing. Due to those, the project has shrunk and it is today in a precarious position.

16.1 Analysis

16.1.1 Historic use

Hermoupolis is the biggest town of Syros island and the capital of the South-Aegean region. It is considered a place of high importance for the study of the Greek setting, as it was the first industrial town of the country. Its industrialisation started in the early 19th century and can be attributed to a successful combination of financial activity, the physiognomy of the island and social behaviour. The catalyst for this development was the dynamics of the immigration wave moving into Syros in the 1820s, introducing special know-how and experience. This valuable knowledge influx and its direct exploitation turned Hermoupolis into the main commercial and shipping centre of the Aegean in the first half of the 19th century and a few decades later into the first industrial core of Greece.

LEGEND FIG. 16.1 Centre of Technical Culture of Hermoupolis

- A Masterplan of the visitor attractions' network of the Centre of Technical Culture of Hermoupolis (Urban Environment Laboratory Archive, NTUA).
- B.1 The former Katsimantis dyeworks after its reuse, 2017.
- B.2 The former Aneroussis Lead Shot factory after its reuse, 2017.
- B.3 The former Kornilakis tannery after its reuse, 2017.

The main industrial sectors blooming in the 19th century were the flour production (1860), the glassworks (1870), the steamship building and later the fabrication of textiles (late 19th Cent.). After WWII, Hermoupolis lost its former power, entering a phase of developing deindustrialisation. The only sector that withstood this sweeping tendency was the ship building sector. The shipyard of Hermoupolis (Neorion) and some of the related industrial activities survived up to the 21st century. As a result, the town, despite the shifts of the last couple of decades, has preserved to a large extent its industrial and technical culture and its footprint in the built environment (Agriantoni, 1993, 5-6).

16.1.2 Reuse Preparation

The idea for the preservation of Hermoupolis' unique character and the investigation of its industrial heritage was conceived in the 1980s by a group of historians led by V. Panayiotopoulos, Head of the Institute of Neohellenic Research (INR) of the National Hellenic Research Foundation. This was an era when industrial archaeology was an unknown field in Greece while the relics of industrialisation were being held in contempt. Hence, the aforementioned idea should be seen as a pioneer initiative; one that due to the standing conditions took considerable time to be implemented while going through a series of setbacks and anomalies.

The initial concept involved the creation of an industrial Museum in Hermoupolis, the first museum of its kind in Greece. A set of interventions for the enhancement and promotion of the town's cultural heritage had already paved the way for such a development. Those included the classification and promotion of the town's historic archive and the establishment of the Scientific and Educational Foundation of Cyclades (1986), an umbrella organisation that would function as a coordinator of all cultural interventions. The latter established the 'Hermoupolis Seminars', a prestigious annual scientific meeting that is being held up to this day (ΚεΤεΠο-BME, 2010a).

The first step for the preparation of the industrial museum was the drafting of the initial studies and the business plan by the INR and the University of the Aegean. At the same time, a scientific group of volunteers started compiling a collection of industrial machinery from the abandoned factories that would later serve as the core of the museum's exhibition (Agriantoni and Belavilas, 1999, 67).

In the following decade the undertaking gained momentum when a set of four factors converged. The first one was the embrace of the idea by the local authority of Syros. The second, was the closure of the Neorion in 1992. This incident on the one hand left a vast brownfield land at a central position available for purchase and on the other, accelerated the need for action for a historic industrial landscape at risk. The third and most important factor was the availability of European Union Funds for the purchase and conversion of buildings that would house the museum. The last factor was the maturation of the initial concept of the industrial museum into a vision much more elaborate and advanced.

In detail, the plan as it had been shaped in the early 1990s, envisioned the creation of a multidimensional institution named: "Centre for the Technical Culture" of Hermoupolis (CTC). This would include:

- The industrial Museum with emphasis in the history of the Industry, the Shipyard and the Town
- The section of documentation
- The section of workshops
- The section of the research and educational activities of secondary and higher education
- A network of visitor attractions in the industrial zone of Hermoupolis

From 1994, the municipality in close collaboration with the scientific team,⁴³ set in motion the implementation of the CTC, buying abandoned industrial buildings, owned by the Neorion at the time, for housing the new functions of the Centre. The first building purchased was Katsimantis dyeworks (FIG. 16.1: B.1). That was a two-floor construction, built in 1888. The morphology of the building with the characteristic cooling tower had been shaped from its very first industrial function that was the production of Lead Shots. The building housed several industrial functions before its closure in 1930 when it passed into the ownership of Neorion.

A year later, another smaller lead shot factory was bought, located in close proximity to the Katsimantis dyeworks. The Aneroussis lead shot factory had been built in the late 19th century (FIG. 16.1: B.2). According to M. Stratton and B. Trinter, experts from the Ironbridge Museum, who visited Hermoupolis in 1990 invited by the INR, this small unit was one of the most complete lead shot factories of its kind remaining in Europe, given that the full set of its machinery and tools were preserved in situ.

Finally, in 1998 a third larger complex of four buildings was bought. The site, located in the south edge of Hermoupolis' industrial zone, had been constructed in 1881 to house the activities of Kornilakis tannery. After WWI, the building changed hands repeatedly and it finally closed its doors in 1970. From that point its progressive degradation started leading to its partial collapse in the following decades. Despite its semi-ruinous condition, part of its machinery was preserved in situ when purchased by the local authority of Syros (FIGS. 16.4) (Agriantoni and Belavilas, 1999).

16.1.3 Reuse process

The period between 1998–2001 can be characterised as the most dynamic stage of the CTC, as the vision surpassed the planning phase and progressed successively to the execution, operation and extension phases. Specifically, in 1998, the scientific team was enriched with three more experts.⁴⁴ What followed, was the systematic documentation and cataloguing of the machinery that was still being collected, as well as intensive historical research. Additionally, in 1999, a rich audio-visual material of oral testimonies from the local workers was compiled. Apart from the interviews, workers were filmed performing tasks that would soon be obsolete, contributing to the preservation of memory and know-how (Belavilas, 2001, 14–15).

At the same time the construction works for the reuse of the buildings started. According to N. Belavilas, Project manager (1998–2001):

“It was then when the pre-existing idea of Panayiotopoulos regarding the big network of buildings was reshaped and the idea of placing different functions to each building was introduced.” (Resp. no 244, interview, 12/7/2017) (FIG. 16.1: A).

“The initial plan of the INR for the establishment of the CTC was developed taking into account the size of the historic collection amassed, the prospects for development and the financial possibilities. Based on those, the masterplan was updated and revised by a multidisciplinary team and we proceeded in acquiring the buildings and designing the projects.”, adds G. Adamopoulos, Head of the Municipal Company of Development of Hermoupolis (Resp. no 250, interview, 13/7/2017).

⁴³ V. Panayiotopoulos, Ch. Agriantoni, A. Plitas, G. Tomais, A. Fenerli.

⁴⁴ N. Belavilas, M. Mavroidi, L. Papastefanaki.



FIG. 16.2 Katsimantis dyeworks after its conversion, 2017.

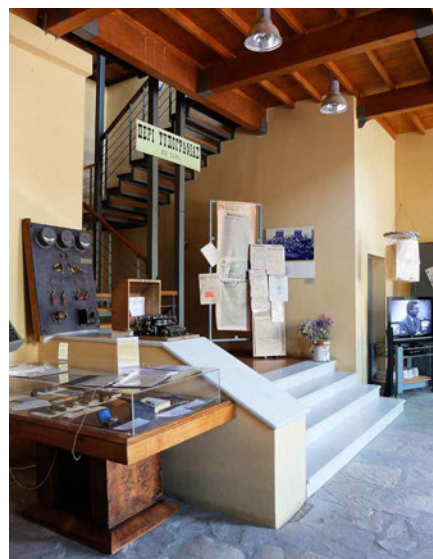


FIG. 16.3 Katsimantis dyeworks after its conversion. Interior view of the entrance hall, 2017.

According to the final masterplan, Katsimantis dyeworks would house the temporary exhibition of the industrial museum as well as administration, documentation and workshop activities. Aneroussis lead shot factory would serve as a museum of itself while Kornilakis tannery complex would host multiple functions. Those would include an exhibition space of the machinery preserved in situ and machinery items collected in the previous decades, research and educational activities a small hostel, a museum shop and a café. Those three spaces were planned to be able to work both as individual units and as a network.

Katsimantis dyeworks was the first building to be converted, based on the preliminary design of the Municipal Company of Development of Hermoupolis with a funding by the European Union programme 'Urban' (Agriantoni and Belavilas, 1999, 68). The building envelope was repaired while the cooling tower that had collapsed, was meticulously reconstructed, based on a pre-existing survey of the Ministry of Culture (FIG. 16.2). In contrast, the absence of machinery, the lack of an integral detailed architectural and museological design before the initiation of the transformation along with the commission of the works to an inexperienced local architect and constructor led to a radical rehabilitation approach in the interior of the building (FIG. 16.3) (N. Belavilas, Resp. no 244, interview, 12/7/2017).

The approach towards the Aneroussis lead shot factory was different. The humble structure was only cleaned and repaired to become wind and waterproof. Special emphasis was placed on the preserved of its machinery in situ. All pieces were documented, cleaned and placed back in their original position while intensive historical research was conducted to support the interpretation of the production process.

The last building converted was the Kornilakis tannery. The works, funded by the European Union programme 'Urban' and the Regional Programme of South Aegean, started in 2000 and involved the reconstruction of the northern part of the complex that was in ruins and the stabilisation of the rest three buildings that were in a better condition (Dekavallas, 2016, 225-226). The project was designed by the architects Ch. Panousakis, P. Grammatopoulos, I. Kizis, K. Milonas based on the documentation of the 1970s by I. Travlos (FIG.16.5). However, the design was altered due to bureaucratic reasons during construction (Belavilas, 2002, 93).



FIG. 16.4 Kornilakis Tannery before its conversion (Urban Environment Laboratory archive, NTUA).

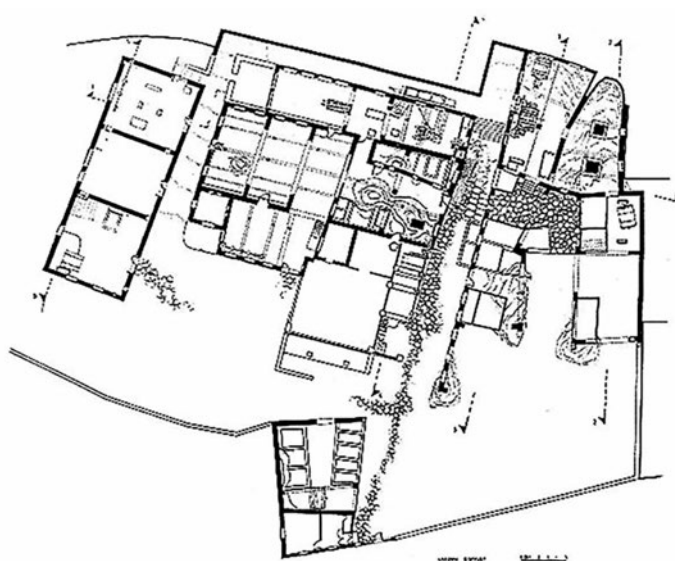


FIG. 16.5 Kornilakis Tannery before its conversion. Documentation: I. Travlos (Urban Environment Laboratory archive, NTUA).

It is noteworthy that all the aforementioned buildings were treated with a different approach ranging from minimal intervention to facadism and documented reconstruction. M. Mavroidi industrial archaeologist and member of the CTC scientific team, explains the reasons for this decision: “*The location, morphology and state of the premises drove the reuse decisions.*” (Resp. no. 243, interview, 12/6/2017).

N. Belavilas adding another dimension to the decision making driving factors, states: “*The availability and state of the historic machinery found in situ and the need to house the bulk of the collected machinery found in abandoned factories defined the architectural and museological design and the idea of the machinery conservation.*” (Resp. no 244, interview, 12/7/2017).

16.1.4 Occupation and management ⁴⁵

The restored Katsimantis dyeworks was the first part of the CTC that opened its doors to the public in 2000, to be met with great enthusiasm (Belavilas, 2001, 11, Dekavallas, 2016, 219-223). The first exhibition organised in the ground floor of the converted building was well structured and comprehensive (FIG. 16.6). It narrated the history of Hermoupolis and its industrial activity from the early 19th century to the 1990s, presenting an impressive collection of restored pieces of machinery, archival material, oral testimonies and items borrowed from other museums. That collection was enriched after the opening of the museum with donations of local workers and artists. According to Ch. Agriantoni, Historian and founding member of the CTC, (Resp. no 241, interview, 3/7/2017), at that time, the participation of the public was also included in the priorities of the museum.

⁴⁵ All the contributors of the project can be found in the article “A museum is born in Hermoupolis” (Belavilas, 2001, 15).

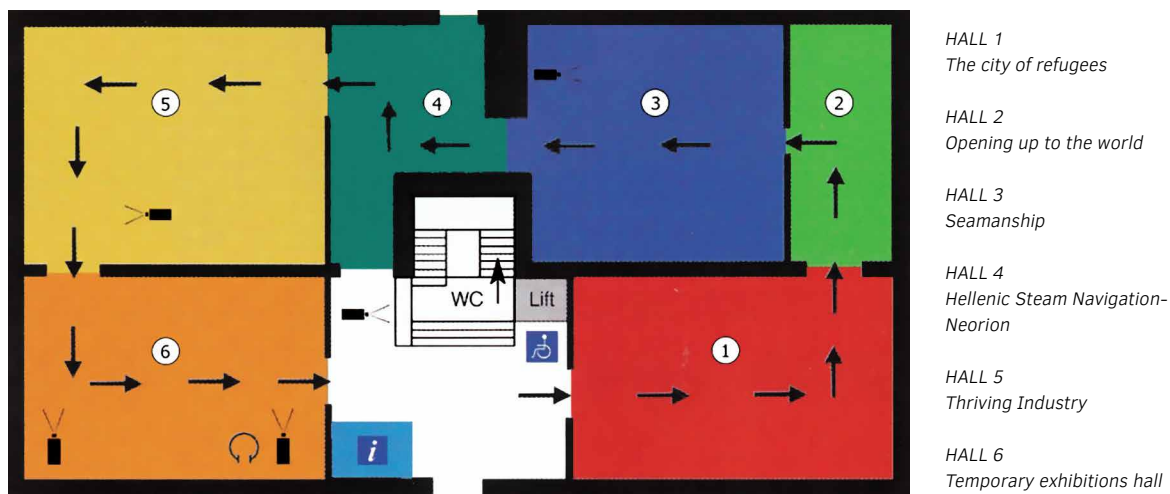


FIG. 16.6 Exhibition organisation in the ground floor of the converted Katsimantis Dyeworks building (CTC).

In the same year, the idea of the CTC network was extended with a dynamic addition. From 2000 to 2004 a laboratory of historic machinery conservation was established in part of the Velissaropoulos former textile mill.⁴⁶ With practically no interventions to the building and a small personnel of two people, trained and coordinated by A. Plitas, electrical engineer and member of the CTC scientific team, the laboratory served a double function. It preserved the memory of the historic machinery and the technical knowhow while restoring machinery parts making them operational once again. A. Plitas, discussing the impact of the laboratory, states:

"Its function contributed to the explosion of the creation of industrial and technological museums at that time. The workshop undertook the conservation of the machinery of other industrial museums under development. The Municipal Company of Development of Hermoupolis had agreements with the company Archipelagos (Vranas Museum, 2015), the CTF- NBID and the PBGCF." (Resp. no 252, interview, 7/6/2017) (see Vol.1, § 6.2.6).

In that sense, the laboratory also had an important financial contribution to the CTC project.

16.1.5 Shifts

From 2001 and while the CTC was still in its early operation phase, a declining course began. The underlying and intertwining factors causing this development were mainly administrative and financial. Various conflicts and a lack of available budget for the continuation of the work of the scientific team that had envisioned and materialised the project, led to the gradual disengagement of its members. Ch. Agriantoni reflecting the views of the vast majority of the respondents of this research, states:

"Perhaps the biggest issue the museum has been facing since its opening is that after us there was no successive situation..." (Resp. no 241, interview, 3/7/2017).

⁴⁶ The building was constructed in 1905 to house the activities of Velissaropoulos textile mill and later the assembly of the electric car Endfield. Nowadays a large part of it belongs to the cooperation of the workers of Neorion and has been reused as a super market. The rest of it, was used as a parking garage until purchased by the municipality of Hermoupolis to house the laboratory of historic machinery conservation.



FIG. 16.7 The reconstructed part of Kornilakis tannery, reused into the library of the University of the Aegean, 2017.

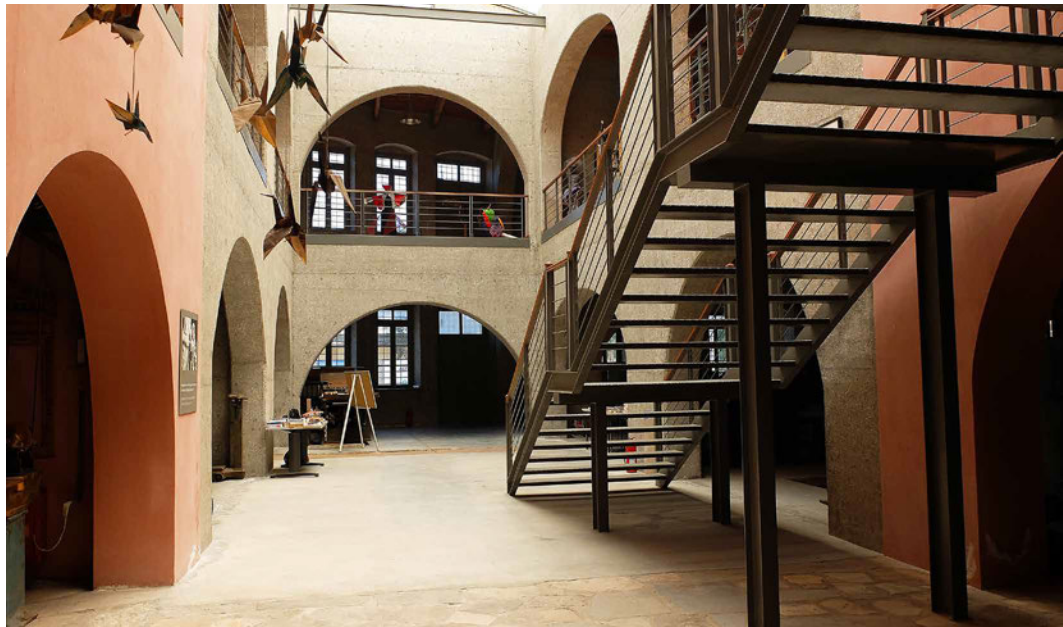


FIG. 16.8 The reconstructed part of Kornilakis tannery. The alteration in colour and material highlights the difference between original fabric and reconstructed one, 2017.

The CTC never became an independent legal body. Its administration changed several times before becoming part of the duties of the Hermoupolis C.C. With the scientific team withdrawn, the dearth of more European or regional funding and the lack of support from the Greek State (Dekavallas, 2017, 194), the project fell into stagnation. As a result, the ambitious vision started shifting and shrinking.

The first phase of the transformation of the Kornilakis tannery was completed in 2001. Nevertheless, the complex never worked as the multifunctional core of the CTC. According to Dekavallas (2016, 226), Mayor of Syros - Hermoupolis 1990-2014, there was no funding available for the conversion of the rest of the buildings. In 2006, the C.C. pressed by the local community, deviated from the CTC's plan and decided to grant the restored part of the complex to the University of the Aegean for housing its library (FIGS. 16.7, 16.8). In the meantime, the laboratory of historic machinery conservation had closed and the industrial building housing it had fallen once again into disuse (FIG.15.14).



FIG. 16.9 Aneroussis lead shot factory after its conversion to a museum of itself in 2010 (Koutsoudaki, n.d.).



FIG. 16.10 Projection depicting the production of lead shot as part of the Aneroussis lead shot factory exhibition (Koutsoudaki, n.d.).

From 2008 to 2010, a sponsorship by the National Bank of Greece, allowed the recruitment of a Director for the CTC.⁴⁷ During that period the project gained again some momentum as it attracted attention through various events and temporary exhibitions. The most important development of the period however was the application of a new museological design for the Aneroussis lead shot factory and its opening to the public in 2010. The new design was based on the original plan preserving the historic structure as a museum of itself while offering an extra dimension to the visitor. That involved an interactive experience and the combination of the historic structure, machinery and tools with digital applications for the interpretation of the production process (Koutsoudaki, n.d.) (FIGS. 16.9, 16.10). The resurgence of the CTC was unfortunately only temporary, as the key problems mentioned above were not resolved.

Since 2010 the CTC 's problems started multiplying again as its administration became once more part of the duties of the Hermoupolis C.C. in a period of deep financial crisis. Ever since, the body which has been playing a vital role for the continuation of the project's activity is the Association of Friends of the Technical Culture of Hermoupolis.

"The Association was established in 1996 but it was actually activated in 2010. It helps in the organisation of events, in the creation and enrichment of the collections, but more so in the management of financial donations; something that is hard to be done by the Municipality. [...] The Association awakened the museum. We found resources, we organized temporary exhibitions ...we brought together machinery that was scattered in various places and we managed to find funds for their conservation..." argues M. Kalouta, Chairwoman of the Association of Friends of the Technical Culture of Hermoupolis (Resp. no 255, interview, 20/6/2017).

The endeavours of this group of volunteers cannot be underestimated. Among their multiple achievements they have managed to increase the number of visitors and strengthen the relationship of the locals with the institution. Nevertheless, as Ch. Agriantoni puts it *"Despite its important contribution, the Association cannot substitute a permanent director."* (Resp. no 241, interview, 3/7/2017).

⁴⁷ The position was held by M. Zorba (2008-9) and K. Bitzanis (2009-2010).



FIG. 16.11 The lift of the industrial museum is out of order while there is no central heating and cooling system, 2017.

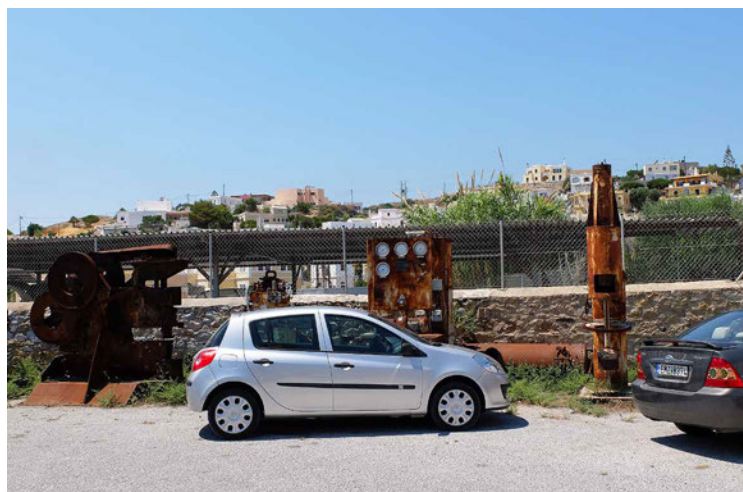


FIG. 16.12 The backyard of Katsimantis dyeworks envisioned as an outdoors exhibition space of industrial machinery functions today as a parking lot, 2017.



FIG. 16.13 The converted Aneroussis Lead Shot factory in the Summer 2017. The building remains closed to the public due to a partial collapse of a structure attached to it.

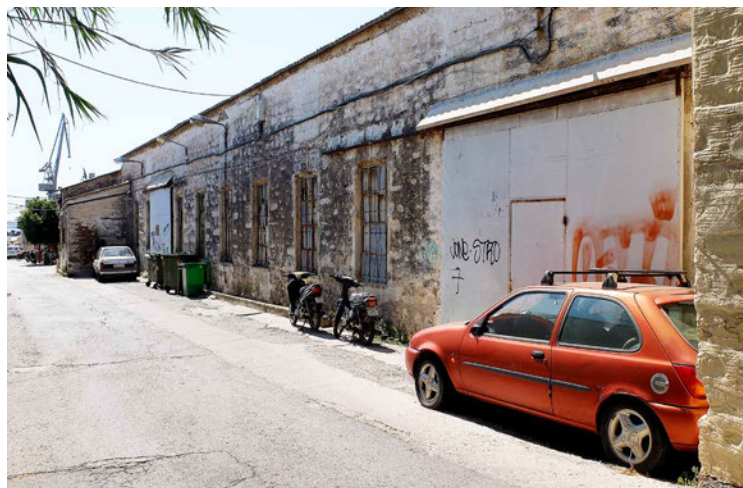


FIG. 16.14 Velissaropoulos textile mill remains underused, serving as a municipal warehouse after the closure of the laboratory in 2004. 2017.

The field research conducted by the author in the summer of 2017, showed the extent of the problems that the CTC is currently facing. At the time of the research, the only building still functioning as part of the CTC was the Katsimantis dyeworks. The converted building has been established as the main seat of the industrial museum of Hermoupolis, presenting in its ground floor the exhibition that had been organised for its opening, with small alterations. Part of it also houses the temporary exhibitions organised by the Association of Friends and small seminars. The administration and documentation section remains inactive, while there are no auxiliary functions like a museum shop or a café. Furthermore, the building faces various maintenance issues (FIG. 16.11). Its backyard that was designed as an outdoors exhibition space and still retains several machinery pieces, among which the monumental sized Patris steamship wheel, functions today as a parking space for the neighbouring hospital (FIG. 16.12).

The Aneroussis factory at the time of the research was closed to the public for an indefinite period of time for security reasons, due to the partial collapse of a wall of an attached building (FIG. 16.13). Velissaropoulos mill was closed too. M. Kalouta, providing more information about the current state of CTC, notes:

“The machines collected by the scientific team have been dispersed in 2-3 warehouses. [...] Machinery of the Neorion, textile machines etc. are kept in the the Velissaropoulos mill. The state of the building however is tragic. There are broken windows, droppings... A general decline and silence.” (resp. no 255, interview, 20/6/2017).

Lastly, the Kornilakis tannery functions principally as the University library. Part of the tannery machinery is preserved in the ground floor (FIG.16.19), which also accomodates a small exhibition of the last industrial activity functioning in the building (FIG. 16.18) (ΚεΤεΠο-BME, 2010b). However, given that the museological design of the building was never executed, the space is experienced more like a warehouse of scattered historic machinery and irrelevant objects than a museum hall (FIG. 16.16). According to its users, the reconstructed building is facing big maintenance issues while the rest of the complex still remains in a semi-ruinous condition (FIGS. 16.15, 16.17).



FIG. 16.15 A large part of Kornilakis tannery remains in a semi-ruinous condition as its reuse was never implemented, 2017.



FIG. 16.16 Ground floor of reconstructed part of Kornilakis tannery. The space serves as warehouse of scattered historic machinery and irrelevant objects, 2017.



FIG. 16.17 Machinery preserved in situ in the Kornilakis tannery, 2017.



FIG. 16.18 Small exhibition of the Pelekanos woodworks workshop. The workshop was the last industrial activity housed in the Kornilakis tannery, 2017.



FIG. 16.19 Restored machinery preserved in situ in the Kornilakis tannery, 2017.

16.2 Evaluation

The CTC was one of the first attempts in Greece to safeguard and reuse industrial heritage, following the practice and the standing principles of heritage preservation in Europe.

“The aim of INR was to highlight the procedures for the establishment of Hermoupolis as the first urban and industrial centre of Greece. That was an issue of national importance... It was a complex project which aimed at highlighting the social, historical, political and technical dimension of the industrial heritage from the 19th century onwards.” argues G. Adamopoulos (Resp. no 250, interview, 13/7/2017).

Indeed, as described in the analysis, the project had a holistic approach presenting a great deal of innovation and dynamism in its early stages. Despite the lack of experience, most of the common omissions of the contemporary cases of Industrial Heritage Reuse were avoided. In short, both tangible and intangible heritage elements were safeguarded with special emphasis on the machinery. Furthermore, the CTC was envisioned as a multifunctional project, connecting numerous points of interest extended at a town level.

In contrast to the conception of the project and its early stages, the operation of the CTC presented problems from its outset. As L. Papastefanaki, historian and member of the CTC scientific team puts it:

“It was a genius idea that was very partially implemented” (Resp. no 253, interview, 5/7/2017).

16.2.1 Process

The process of the project was top down and largely defined up to 2001, by the described scientific team. This had a nuanced effect on the reuse result. The expertise of the team and its interdisciplinary character on the one hand, played a positive role, shaping and executing an unprecedented concept of reuse on a national level. Also, the concept was strengthened by the team's ties to the international community of industrial heritage conservation experts,⁴⁸ whose consultation was invaluable in avoiding mistakes.

On the other hand though, in the transition period of 2001 the centralization of the scientific team as well as the clashes between its members and other Actors proved to be devastating for the development of the CTC. The next steps of the process could not be taken without their support. The local authority that inherited the project after the team left Hermoupolis had neither the know-how nor the resources to maintain and lead the ambitious project to the envisioned next stage. As for the local community, I. Drakou, member of the Association of Friends of the Technical Culture of Hermoupolis comments:

“The CTC took an elitist scent and the locals saw it more as a museum for educated people. There are still Syrians who have not visited the museum. In recent years the museum has been more open to the local community.” (Resp. no 257, interview, 22/6/2017).

⁴⁸ Barry Trinter and Stuart Smith, experts from the Ironbridge Museum Gorge (see Ch.1), were consulted in the early 1990s in the phase of the development of the concept for the CTC. The latter one, also acted as a consultant in the transformation of Katsimantis dyeworks and the formulation of its first exhibition. According to A. Plitas and Ch Agriantoni (Resp. no 241, 252, interviews, Summer 2017), multiple projects in Europe served as reference for the CTC.

Despite being top down, the process of the preparation of the CTC and the transformation of the industrial buildings was flexible. The concept was adapted various times, to respond to financial and time restrictions. This characteristic however, also led in certain cases to important compromises. The transformation of the Kornilakis tannery was one of them. According to D. Sikoutri, member of the Association of Friends of the Technical Culture of Hermoupolis, in the present situation flexibility is missing (Resp. no 256, interview, 22/6/2017).

The delivery of the project in phases is evaluated as one of its strengths. The completion of the first phase and the attention it attracted, proved to have a very positive effect, setting a precedent to be followed and familiarising the audience with a new heritage group. Albeit not completed to its full extent, the parts of the project that were opened to the public created multiple positive chain reactions that will be analysed below.

16.2.2 Programme

The multifunctional envisioned programme of the CTC had the potential to be one of its strongest Components. In the short period between 2000-2004, the combination of the industrial museum with some educational and research activities as well as with the dynamic action of the conservation laboratory had a strong cultural, social, technical and financial added value. The closure of the laboratory on the one hand and the inability to complete the last phase of project on the other, have weakened the impact of the CTC's programme. Commenting on those developments the following respondents state:

"The laboratory (of machinery conservation) had the potential to become the strongest part of the project. We restored non-recoverable mechanical equipment. It had a consistency and historical continuity but also a connection with the scope of the museum. If it were still in operation, it could have rescued and transmitted know-how. It could have been a temple of knowledge and art." (A. Plitas, Resp. no 252, interview, 07/06/2017).

"We were not able to complete the transformation of all the industrial buildings we had in mind. The broader aim of the industrial museum was not achieved. Now it is just a museum space. We wanted more. We wanted a laboratory producing ideas and highlighting the industry of the place: a driving force. It would be hard for the municipality alone to achieve that. [...] Finally, today there is only one and a half buildings in operation." (G. Dekavallas, Resp. no 251, interview, 22/06/2017).

Despite its downsizing, the CTC still plays a significant role, interpreting and preserving the history of Syros and its industry, educating and familiarising its visitors with industrial heritage and contributing to the formation of civic pride for the residents of the island.

16.2.3 Architecture

One of the biggest assets of the case is its approach towards historic architecture. As analysed above, the CTC presents an anthology of intervention levels ranging from minimum intervention to facadism and reconstruction. The vast majority of the interventions, was based on existing documentation of the historic structures and a careful approach prioritising heritage values over aesthetical decisions. The interior setup of the Katsimantis dyeworks is the only exception to that

rule. While the building envelope has been meticulously repaired, the inner structure and materiality of the site make no reference to its original function and do not preserve its atmosphere.

In contrast, in the cases of Kornilakis tannery and Aneroussis lead shot factory, both the building envelope and the interior setup have been preserved. The atmosphere of the two industrial buildings and their key spatial characteristics have been largely retained. According to the qualitative research conducted within the framework of this study, the architectural outcome of the CTC transformation is highly appreciated (FIG. 16.1).

G. Adamopoulos, discussing the direct and indirect impact of the architectural transformation, states:

“The project aimed at giving an architectural example for a proper rehabilitation of historic industrial buildings. Up to that point, all the previous interventions in historic buildings in Syros were rather inappropriate (building mutilations, addition of irrelevant elements, unsuitable materials etc.). The CTC established the idea of industrial archaeology and placed the exploitation and promotion of industrial heritage on the right scientific basis.[...] The project was implemented with the proper technical and architectural approach, and has contributed to the consciousness of the local community. It set the right standards and delivered the right result. Furthermore, it upgraded the neighbourhoods where it intervened.” (Resp. no 250, interview, 13/07/2017).

The importance of the project in regard to its effect on its context is also highlighted by N. Belavilas.

“The idea of an industrial heritage network that spreads over a particularly degraded industrial area without any prospect of enhancement was implemented and served as a catalyst. It caused a momentum that took a while to become evident but it finally emerged. Safeguarding the remaining factories is now taken for granted. Therefore, a positive precedent was created.” (Resp. no 244, interview, 12/07/2017).

16.2.4 Cultural significance

CTC is one of the few cases examined with such high standards of cultural significance preservation. Apart from the conservation of tangible heritage, evaluated in the previous paragraphs, the initiatives taken for preserving Syros' intangible heritage in the framework of the CTC were exemplary and highly innovative for the time of their development. Discussing this important contribution, M. Mavroidi states:

“One of the strongest assets of the project was its multidimensional base of understanding of what industrial heritage means (archives, tangible evidence, machines, production tools and oral testimonies). In short, it adopted a holistic approach towards the preservation of the history of Hermoupolis.” (Resp. no 243, interview, 12/06/2017).

A highly important contribution of the case, that should be also stressed, was the safeguarding and restoration of machinery from the abandoned factories of Hermoupolis. The machinery collection amassed is still the largest one in the country (M. Mavroidi, Resp. no 243, interview, 12/06/2017). A. Plitas adds:

“We rescued mechanical equipment, objects and particles. That was the beginning of systematic documentation in Greece. A very good report was set up. The restoration methodology was correct.

It took place before the compilation of the Nizhny Tagil Charter and contributed to it.” (Resp. no 252, interview, 07/06/2017).

Lastly, the CTC through its principal function interpreted with various means the wealth of heritage material it safeguarded. The case of the Aneroussis lead shot factory particularly, which combines equipment preserved in situ, background information as well as audio-visual material in a carefully restored historic space, showcases the high standards of the case in regard to cultural significance preservation. One of the few omissions on the subject in question, is the lack of interpretation of the Katsimantis dyeworks’ original function.

16.2.5 Finance

As reported in the analysis, the four buildings that functioned as parts of the CTC were provided by the Municipality of Syros-Hermoupolis. Their transformation was funded predominately by the European programme ‘Urban’ and secondly by regional funds. These resources however did not suffice for the completion of the vision, leaving the conversion of Kornilasis Tannery unfinished.

Financing the operation of the CTC, particularly after the closure of the conservation laboratory is one of the biggest downsides of the case. According to the members of the Association of Friends of the Technical Culture of Hermoupolis, the revenue of the museum does not cover its operational costs and the funding provided by the Municipality is very limited. M. Kalouta, explains:

“The financial and administrative issue is probably the most important problem of the museum. It is difficult to find sponsors. The museum receives a funding of 1000 euros / year from the municipality... Also, the typical part that is essential is missing. There is no business plan. The museum is functioning with one employee only and his wife who works as a volunteer. The Municipality asks for our help.” (Resp. no 255, interview, 20/6/2017).

16.2.6 Social component

A significant contribution of the CTC is its social added value. The project paid particular attention to the safeguarding of the social dimensions of heritage. Promoting the history and achievements of Syros’ residents it contributes a great deal to the formation of civic pride. Furthermore, the buildings transformed in the framework of the CTC were opened to the public serving as fountains of knowledge, education and culture.

A recurrent issue echoed by the majority of the interviewees was the delay of incorporation and embracement of the project by the local community. This had its roots in the top down process followed during the 1980s and 1990s. It is worth highlighting however, the efforts of the scientific team since the late 1990s to make the project participatory. Important attempts include the educational workshops conducted in 1999-2000 for the documentation of oral testimonies (Dekavallas, 2016, 223) and the training of locals in the conservation of industrial machinery within the framework of the conservation laboratory (A. Plitas, Resp. no 252, interview, 07/06/2017).

Since 2010, the action of the Association of Friends of the Technical Culture of Hermoupolis that is formed by locals, has increased involvement of Syros’ residents with the CTC. I. Drakou argues:

“In recent years the museum has been more open to the local community. With the exhibitions we organize, we have involved machinists, printers and other local craftsmen. Visits from school groups are increasing...” (Resp. no 257, interview, 22/06/2017).

16.2.7 **Functionality**

The operational problems and the functionality of the transformed buildings are identified as the weakest Components of the case. The lack of a solid independent administration and scientific support was highlighted by the respondents as the most significant issue of the CTC (FIG. 16.20). The course of the project during the last fifteen years has shown that such a complex venture is not sustainable without the involvement of the aforementioned parties.

The field research cross examined with the qualitative research conducted in the summer of 2017 showed that the transformed buildings of the CTC face significant functional issues. The most important of those is the lack of maintenance resulting in aesthetical and operational problems. Besides that, the following respondents add:

“The internal climate in the industrial museum is highly problematic and the lift is out of order.” (I. Drakou, Resp. no 257, interview, 22/06/2017).

“The museum is understaffed... The yard behind it that should function as an outdoors exhibition space, serves as a parking lot of the neighbouring hospital. A number of machinery has been abandoned there, exposed to the elements.” (M. Kalouta, Resp. no 255, interview, 20/6/2017).

In regard to the Kornilakis tannery, one of its users notes:

“The building was not designed to host a library. There is no access for disabled people. The building is energy consuming and its heating and cooling is inefficient due to its size, openings and the atrium.” (A. Tsoukala, Resp. no 258, interview, 22/06/2017).

Lastly, since 2017 the project is devoid of an instrumental part of its operation. The converted Aneroussis lead shot factory remains closed to the public due to bureaucratic complications.

16.2.8 Stakeholders' evaluation

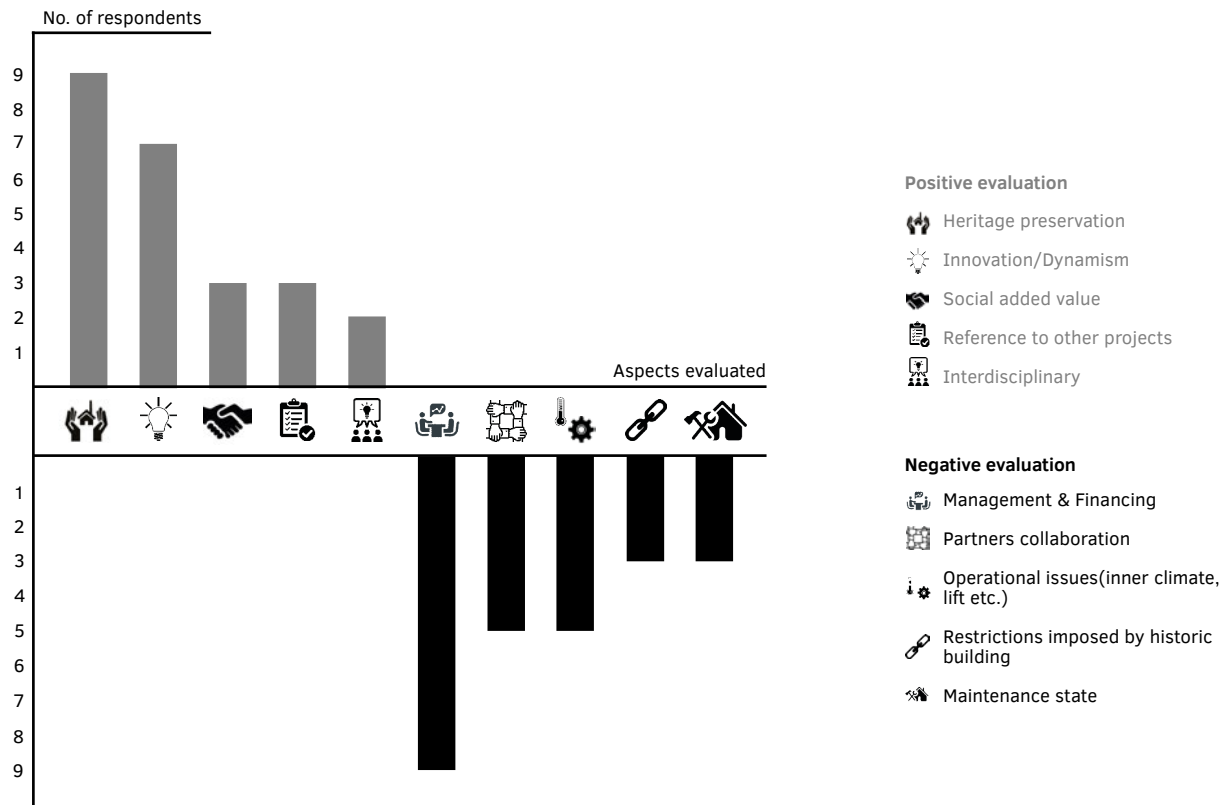


FIG. 16.20 Respondents' evaluation of the strong and weak Aspects of the case of CTC (Number of respondents: 13).

17. Technopolis Athens

Location: Athens, Greece

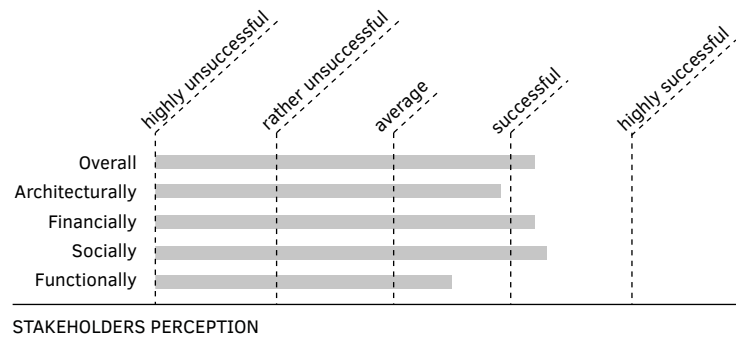
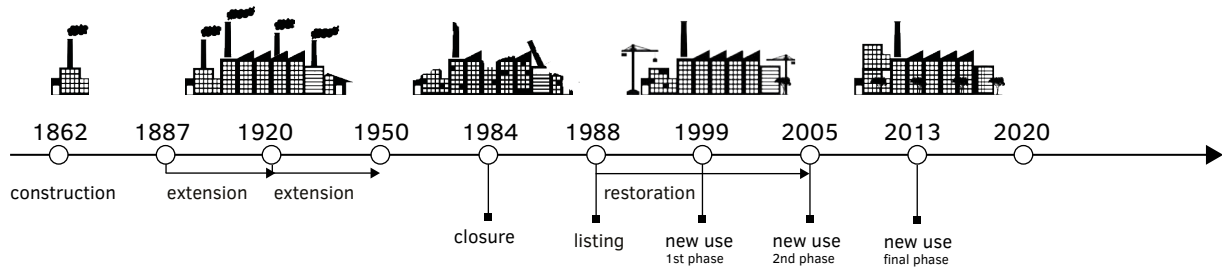
Historic use: Gasworks

Architect: -

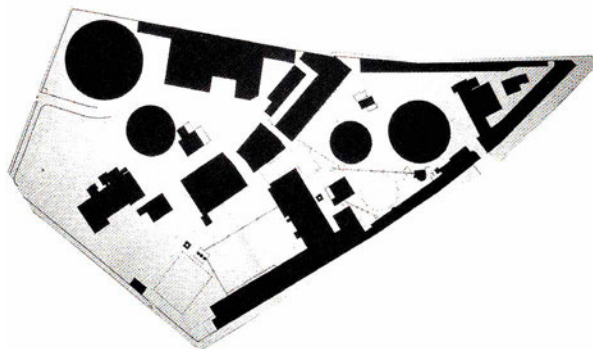
New Function: Mixed use (industrial museum, cultural, leisure & innovation)

Reuse architect: Various

Status: National monument



[A.1]



[A.2]



[B.1]



[B.2]



[B.3]



FIG. 17.1 Technopolis Athens Fact Sheet

17 Technopolis Athens

This text has been largely based on the article: Chatzi Rodopoulou, T. Reloading 21st century cities with cultural energy: The transformation of gas factories into cultural hotspots in Amsterdam and Athens. Proceedings of the International Conference on Changing Cities III: Spatial, Design, Landscape & Socio-economic Dimensions, June 26-30 2017 Syros, Delos, Mykonos Islands, Greece. pp. 1786-1796.

SUMMARY

The case of Technopolis Athens presents special significance due to its location in the centre of the capital of Greece. Furthermore, being in transformation for twenty-five years, the case highlights the key shifts occurring from early reuse practices to the new approach. Nowadays, the strong features of the project include the preservation of its cultural significance and its financial viability. In contrast, its functionality is problematic. There is also a set of controversial dimensions including the transformation process of the complex, its new programme, the architectural approach and the social outcome of the reuse, presenting both strengths and weaknesses.

17.1 Analysis

17.1.1 Historic use

The Athens Gasworks or as it is commonly known 'Gazi', is located in the centre of Athens by Pireos street, the industrial axis connecting Athens with Piraeus port. Its establishment, in an area that was then in the outskirts of the city, dates back to 1857 when the Greek Crown and the Municipality of Athens consented to outsource the city's gas lighting. After an eventful period of five years, the coal-powered factory finally opened its doors in 1862, paving the way for the future metamorphosis of the area. The first 50 years of the plant's operation were marked by the presence of foreign entrepreneurs in the head of the company, consecutive extensions,⁴⁹ import of foreign technology and equipment and frequent alterations in ownership and management.

⁴⁹ An analytical description of the architectural and technological developments of the factory from its establishment to its first stage of reuse is given by Prepis (2008).

LEGEND FIG. 17.1 Technopolis Athens

- A.1 Site plan of the Gasworks after their last extension, 1940-1960 (Prepis, 2008).
- A.2 Site plan of the Technopolis Athens, 2014 (Technopolis City of Athens).
- B.1 Aerial photograph of the Athens gasworks before their transformation (Prepis, 2008).
- B.2 Aerial photograph of the Technopolis Athens, 2017 (Google maps).
- B.3 The gasholder no 3 of Technopolis preserved in situ, 2017.

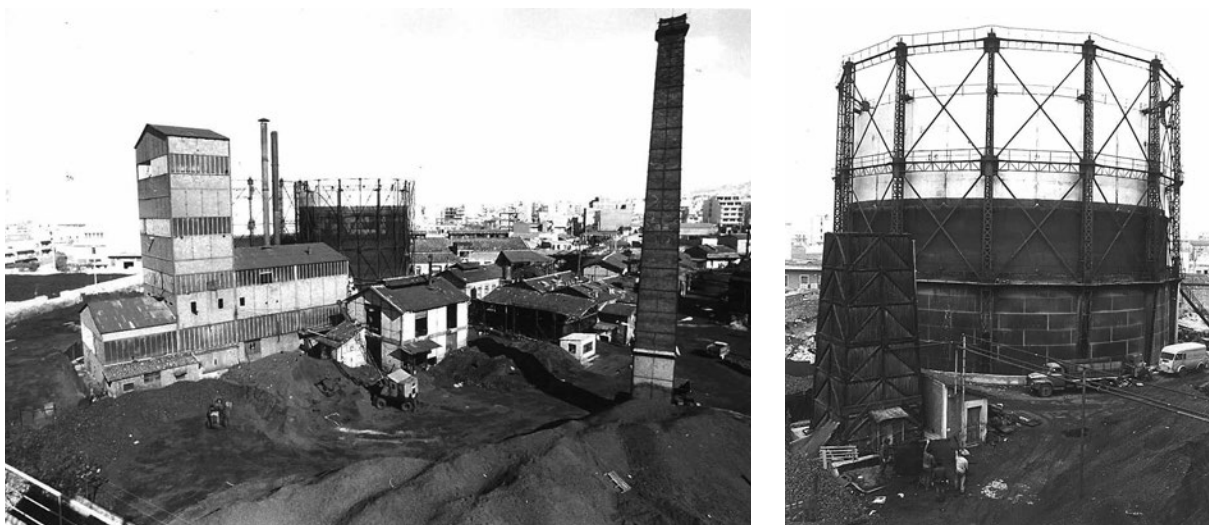


FIG. 17.2 Athens gasworks in operation (Archive of preindustrial and industrial monuments, Directorate of Protection and Restoration of Modern and Contemporary Monuments).

In 1938, the Athens Gasworks became a municipal enterprise and functioned as such until its closure in 1984 (FIGS. 17.2). The transfer of its heavily polluting industrial activity left a vacant space of c. 25 acres the heart of the capital; only two kilometres away from Omonia square and in direct vicinity with the archaeological sites of Keramikos and Iera Odos (Stoyannidis and Chatzigogas, 2013, 50–65) (FIG. 17.1: B.1).

17.1.2 Reuse Preparation

The importance of the location and the high cultural significance of the complex, coupled with the persistent pressures from local groups, triggered in the early 1980s the City of Athens that owned the premises, to take action. A national architectural competition was held in 1983 for the transformation of the gasworks. Two years later, the first prize of this competition was disregarded and the task was handed over to a team working in Department of Traditional Buildings of the Municipal Technical Services (Prepis, 2008, 121).

The conversion of such a complex and demanding venue was not an easy nor a familiar topic for the decision-makers and the designers at that time. As a result, the period from the closure of the factory until the early 1990s was troublesome, characterised by critical developments being overshadowed by quarrels between the stakeholders and inconsistency in key decisions. Within this period however the complex was listed and characterised by the Ministry of Culture as an Industrial archaeology park with a triple new function: Centre of technological and scientific information, Cultural centre and Gas factory museum. Another key development of the same period was the analytical survey and documentation of the buildings and their machinery by the team within the Municipal Department of Traditional Buildings as well as the start of the works for the restoration of the complex.

Despite the positive developments, the conversion of the site was marked by several issues, as mentioned above. Firstly, the consequences of the lack of a single independent party for the project's coordination and process management, aggravated by frequent alternations of local authorities with different agendas for the site. Those consequences included serious delays and an inflated budget for the project as well as an arbitrary handling of the restoration and conversion strategy. Secondly, the absence of a long-term consistent strategy, leaving vital issues unsolved, such as the decontamination of the site. Thirdly, the discrepancy between the stakeholders' views and the restricted experience with industrial heritage sites of the individuals in charge, which took a toll on the integrity of the complex.

The conversion of the site started in 1988, based on a patchwork of designs. G. Macheras, architect and civil servant in the Heritage Service of the Ministry of Culture,⁵⁰ elaborating on the situation claims:

“We were striving to list the machinery before it was lost. The Mayor, on the other hand, wanted to demonstrate results without having an understanding of the site nor a strategy for its future use. He simply wanted to distribute commissions to various architectural offices for redesigning the complex. With this approach every building was treated differently. For example, the water gas building was properly restored retaining its equipment. The old retort building on the other hand, was destroyed. Its doors were coated with limestone and the patina of time was lost. They did not respect the building and its history. [...]

The Technical Service of the Municipality was finally excluded from the project. They split the buildings into side-construction projects without any uniform plan for the future use nor any control. That was the consequence of the political game between the minister of Culture and the Mayor of Athens at that time.” (Resp. no 262, interview, 21/3/2017).

During the conversion, after a series of listings and decommissions, part of the complex and its mechanical equipment was finally mishandled or totally destroyed. In detail, characteristic examples of the first case include the mutation of the newer retort building, the shell of which was brutally renovated with inappropriate material while losing most of its mechanical equipment for freeing space for events (FIGS. 17.3, 17.4); the gutting of the oldest gasholder built in 1862 and the addition of a concrete structure in its interior for housing a radio station; the total makeover of the changing rooms and baths building and the transformation of the Machine works into a white box with a marble floor for the organisation of exhibitions. The most important buildings demolished included one of the gasholders and the chemistry lab (FIGS. 17.1: A.1, A.2).

⁵⁰ From 1986–1989 G. Macheras worked firstly in the Section of Modern Monuments in the Directorate of Folk Culture of the Ministry of Culture and later in the group of Industrial Archaeology (see Vol.1, § 4.4.4.2). He was one of the first advocates of industrial heritage in Greece with special insight into the Athenian Gasworks.



FIG. 17.3 The central courtyard of the gasworks before their conversion (Archive of preindustrial and industrial monuments, Directorate of Protection and Restoration of Modern and Contemporary Monuments).



FIG. 17.4 The central courtyard of the gasworks after their conversion (anakti.gr).

17.1.4 Occupation and management

Technopolis became accessible to the public in three phases. Half of the premises opened for the first time in 1999. Six years later the second phase of the project was delivered, upon the completion of the restoration of the remaining historic buildings. It is worth stressing out that the site functioned for almost a decade solely as a cultural and events venue (Stoyannidis and Chatzigogas, 2013, 112,117).

The discourse around the results of the venture was at the time contradictory. On the one hand, the Greek architectural and historic community was raising the issue of an invasive reuse, mourning the loss of the demolished structures, the change of character of important buildings due to irreversible interventions and the looting of valuable archival material (Macheras, 2001, Gazepis et al., 2013, N. Belavilas, E. Koutsoudaki, Y. Stoyannidis, Resp. no 144, 161, 263, interviews, 2017). On the other hand, the City of Athens was celebrating the opening of a cultural multifunctional venue in the heart of the capital; a venue that was warmly welcomed and quickly embraced by the Athenian public (Rigopoulos, 2008a).

17.1.5 Shifts

In 2010 an important change in administration shifted the form, strategic plan and essence of the reborn site. Technopolis became a limited Company with the municipality of Athens as a main shareholder (Bitzanis and Florou, 2018). A year later the last stage of Gazi's redevelopment started led by the new managing director of Technopolis, K. Bitzanis. According to several members of the museum's design team (M. Florou, E. Koutsoudaki, Y. Stoyannidis, Resp. no 260, 261, 263, interviews, 2017), the first priority of the new managing director who had realised the potential of the site, was to shift as quickly as possible its character: from an entertainment venue to a true cultural hotspot of Athens.

In order to achieve this goal, the creation of the Athens Gas factory museum was prioritised. A multidisciplinary team of historians, curators, museologists, architects and graphic designers was formed for carrying out this task. In contrast to the former phase of redevelopment, this time the project was delivered on time and on budget while the approach towards the tangible and intangible values of the historic industrial complex was distinctly different.

“The goal of our intervention was to form a dialog with the previous phases of development adding a discrete and recognisable new layer, which will be completely reversible.” explains E. Koutsoudaki, architect and museologist of the museum (Resp. no 261, interview, 6/3/2017).

According to M. Florou (Resp. no 260, interview, 6/3/2017), the goal of the museum was the interpretation of the site and the dissemination and projection of the city's industrial heritage. The museum was extended in several production buildings that were selected based on their important mechanical equipment preserved in situ. The intention was to interpret those pieces of mechanical equipment and the production line but also analyse the technical innovations, the social ramifications of the factory and its impact in the history of the city.

Y. Stoyannidis, historian and member of the team for the museum's creation, stressing the challenges of the task, states:

“When I first visited the site in 2002, it was impossible to understand what it was. Even the names of the buildings had been changed, borrowing names of known poets. During the creation of the museum, our priority for each building was to regain their historic identity as part of the factory.” (Resp. no 263, interview, 22/3/2017).

The museum opened its doors on January 2013, presenting the gas production line through the display and interpretation of the machinery preserved in situ. Thematic displays of the museum cover the topics of industrial heritage, the first applications of coal gas, the life of workers, the entrepreneurship in the 19th century, the architecture of the industrial complex, the public lighting system, the living conditions in the adjacent gas village and the contemporary forms of energy (Stoyannidis and Chatzigogas, 2013, 116-117).

Since May 2014, Technopolis also houses INNOVATHENS, a hub of Innovation & Entrepreneurship. In its short life INNOVATHENS has organised more than 500 events regarding education and training, networking and exchange of good practices and ideas and on-site development of new, innovative solutions. The organisation is mainly addressed to young people with innovative ideas, starting entrepreneurs and start-up companies as well as innovative enterprises wanting to develop their business model and enter the global market (INNOVATHENS, n.d.).

Today Gazi has established its role in the Athenian collective memory as one of the most vibrant cultural hubs of the city. It is an open, accessible space for a variety of social groups of different ages. Since 2014, it welcomes more than 900.000 visitors per year, in a multitude of events of cultural and social character. According to a research of Public Issue in May 2015 (Technopolis City of Athens S.A., 2016), Technopolis is by far the most popular venue of the city among the ages of 18-35.

17.2 Evaluation

17.2.1 Process

The process of the first two phases of the Athenian gasworks reuse is one of the weakest Components of the case. The top down procedure followed lacked coordination while suffering the consequences of a tense relationship and poor cooperation between stakeholders. The catalyst creating this arbitrary handling of the emblematic complex, besides the lack of experience with relevant projects, was political (Prepis, 2008, 129, G. Macheras, Resp. no 262, interview, 21/3/2017). As analysed above, this resulted in delays, an inflated budget and an inappropriate approach of the complex with multiple buildings mishandled or even destroyed.

In contrast to the past practice, the process of the third phase of conversion while being once more top-down, was distinctly different. A skilled team of Actors under the directions of an experienced managing director generated an impressive conversion. Despite the limited resources and the tight deadlines for delivery, the new team worked efficiently together treating the complex and its content with respect. As indicated by the team's members the key for this positive development was the combination of expertise and good collaboration and coordination (Resp. no 241, 260, 261, 263, 264, interviews, 2017).

17.2.2 Programme

The set of new functions housed in Gazi is among the positive Aspects of the case. This is reflected in the qualitative research of this dissertation (FIG. 17.13). According to A. Ikonou, Director of INNOVATHENS,

“The complex has the ability for a polymorphic operation in a central part of the city. It enables young people to interact with their cultural heritage through the museum offering at the same time modern events and a cluster of entrepreneurship.” (Resp. no 265, interview, 21/3/2017).

Indeed, the mixed use programme presents multiple merits. Gazi is an accessible venue for locals and tourists that functions night and day. It combines cultural, historical, innovation, business, commercial and leisure activities which reinforce its appeal and growing significance as a dynamic node in the city centre. The commercial part of the programme, that involves the hiring of various indoor and outdoor parts of the complex for events and cultural activities on a temporary basis, generates revenue that strengthens the viability of the case while refreshing the image of the site, keeping it always topical, too.

Despite all the aforementioned positive characteristics, Gazi's programme is not free of problems. The most important issue, revealed in the qualitative research, is the coexistence of the temporary events (e.g. concerts, fairs, temporary exhibitions etc.) with the operation of the museum. E. Koutsoudaki explains:



FIG. 17.5 The skylights of the new retort house serve as advertisement surfaces, 2017.



FIG. 17.6 The interior of the new retort house was deprived by the largest part of its machinery and character for leaving space for events (Technopolis. City of Athens).

“I believe that the museum is being violated by other uses. Even when a temporary exhibition is organised, which is in theory the most compatible event with the museum, the way of setting it up overshadows the permanent exhibition, in my opinion. We have created a high-quality museum environment and I feel that during its operation we just compromise with lower standards (e.g. the museum may be closed due to a festival, the rooms are dirty, some lights and video projections are not working etc.). Of course, I understand the argument of Mr. Bitsanis (the need for securing the viability of the site) that is very logical. [...] There are advertisement banners in many places that alter the image of the complex (FIG. 17.5). As I have emphasized, there is an imbalance between events and the museum use.” (Resp. no 261, interview, 6/3/2017).

This point of view was shared by other interviewees (FIG. 17.13) and it was also verified during the field research of this dissertation (March 2017 & March 2018). An additional angle of the same problem is that Gazi remains predominantly known as a concert and leisure venue. To this day, the rest of its functions and the museum in particular, which reflects its historical value, have not managed to redefine its formerly established character (Resp. no 263, 264, 269-271, interviews, 2017).

17.2.3 Architecture

The architectural outcome of the case albeit currently appreciated, has been irrevocably tarnished by the interventions of the 1980s and 1990s. A common view among the interviewees of this research was that the first and second phase of the reuse were deeply problematic. The key issues characterising those phases included the lack of a unified line of intervention action for the totality of the complex, an unsuitable methodology of intervention and the use of inappropriate materials. Along with the mishandling of certain buildings and the demolition of others analysed above, there were more interventions, compromising the character of the complex (FIG. 17.6). Y. Stoyannidis, elaborating on the issue, states:

“Mechanical equipment was destroyed and historical machinery was lost without documentation. For example, from the 3 steam boilers the oldest one (1890) was removed to leave space for a corridor.” (Resp. no 263, interview, 22/3/2017).



FIG. 17.7 The Gasholder of Technopolis before and after its latest renovation for housing INNOVATHENS (left photo: Ktizon blogspot, 2017).



FIG. 17.8 View of Technopolis from Piraeus street after the launch of the architectural lighting project (<http://ecopress.gr>).

The shift of approach in the third phase of renovation along with other small-scale interventions improved a great deal the architectural outcome of Gazi's reuse. The analysis reveals that the new team designing the Industrial Gas museum worked based on the international conservation principles of the 21st century. Respect of the authenticity of buildings and machinery, discrete and distinct interventions based on a careful documentation were the most important characteristics of the new phase.

In respect to the rest of the interventions, the 2010s saw a modification of one of the Gasholders for housing INNOVATHENS. The result was a building that is far more compatible with the industrial character of the complex while covering to an extent the needs of the new users. The improvement is evident in the comparison of the Figures 17. 7. In the same period a new architectural lighting was introduced, creating an impressive image of the complex at night-time while stressing its most characteristic industrial features (chimneys, gasholders etc) (FIG. 17.8).

17.2.4 Cultural significance

The preservation of the historic complex's cultural significance is one of the strengths of the case. The creation of the museum almost fifteen years after its opening to the public offered for the first time a critical dimension that was missing. Relating the preserved site to its history and interpreting its function, the museum contributed to the dissemination of the historical, technological and cultural values of the Athenian Gasworks (FIG. 17.10).

Furthermore, despite the losses of the first two periods of intervention, the complex has preserved in situ its machinery to a large extent, which serves as a witness of its glorious past (FIG. 17.9). According to the museum design team (Resp. no 260, 261, 263, 264, interviews, 2017), the permanent exhibition was formulated around those elements and the production line. Despite the operational problems, Gazi is an important source of knowledge, retaining the memory of gas production of the 19th and 20th centuries. Furthermore, albeit mistreated for years, the complex retains its emblematic character echoed in its distinctive architectural forms and its labyrinthine system of machinery.



FIG. 17.9 Machinery preserved in situ in the old retort house, which is currently part of the Industrial Gas Museum, 2017.



FIG. 17.10 Interpretation of the gasworks former function (<https://e-lignos.com>).

17.2.5 Finance

As posed in the analysis the financing of the conversion of Gazi was problematic. According to A. Prepis (2008, 134):

“There was no continuous and (semi) independent money flow. The project was dependent on the budget of the Ministry of the Interior of each government. The financial recession lead to the need for requesting a loan from the Deposits and Loans Fund. The inflexible and stiff finance management caused twice the withdrawal of tenders resulting in serious construction and financial issues.”

In regard to the financing of its operation until 2010, the case also presented serious issues. Technopolis was financially inefficient, being greatly dependent on Municipal grants (Bitzanis and Florou, 2018). As a result, the local authority decided to house in the oldest gasholder the municipal radio station Athens 9.84 for gaining some reciprocity from the project. A limited revenue was generated from letting some buildings for events (Prepis, 2008, 134).

The administration change of 2010 improved drastically the situation. The annual budget of the case is currently c.3 million euros. Technopolis' main source of income includes the revenue from rental spaces, concert tickets, earnings from its coffee and gift shop, museum ticket sales and participation in educational programmes as well as sponsorship and funding from European programmes (Bitzanis and Florou, 2018).

According to M. Florou, Head of the Industrial Gas Museum:

“Technopolis is financially sustainable without being profitable. When there is a surplus it is being reinvested to the project” (Resp. no 260, interview, 6/3/2017).

17.2.6 Social component

The social outcome of the reuse is nuanced. On the one hand, Technopolis serves as a dynamic nucleus of education and culture in the heart of the city. The analysis illustrated that over the years the site has been warmly embraced by the Athenians attracting also tourism on a national and international scale. The range of activities (concerts, exhibitions, festivals, fairs etc.) makes it appealing for different social and age groups. The low fares of the events and the museum admission fee make the site accessible to everyone.

On the other hand though, the redevelopment of the former gasworks has influenced dramatically the social geography of its context. In order to understand the shift, it is important to return to the era of the opening of the second phase of the complex. The full operation of the transformed gasworks in the turn of the 21st century was coupled with two other seminal projects: the creation of the adjacent new park along Ermou street in 2006 and the opening of the metro station Keramikos covered by the new Persefoni square in 2007. The combination of these developments generated a massive chain reaction with nuanced effects in the socio-spatial context of Gazi.

The combined regeneration catalysed a cultural boom in the area. Several theatres, galleries and multifunctional cultural and educational spaces were created within the decade that followed Gazi's transformation, such as Kakogiannis Foundation, Chitirion theatre and the Fine Arts School. This cultural wave was combined with the flourishing of smaller music halls and bars, hosting mainly the alternative and LGBT community of Athens that had been attracted to the area since the mid-1990s. Moreover, the area established a strong connection with the historic centre and its touristic movement, through the link to the network of the Unified Archaeological Sites of Athens.

On the other side of the coin, the upgrade of the urban environment and infrastructure led to a massive rise of land values, followed by an intense construction activity of luxurious apartments and 'soft lofts' (FIG. 17.11). The late 2000s saw the radical physical transformation of Gazi's context and its simultaneous violent social metamorphosis. The area was turned into a mainstream mass-entertainment district crammed with clubs, taverns and cafes (FIG. 17.12). The problem of the area's gentrification, which has metastasized in the present day in the adjacent district of Metaxourgio, is discussed in various papers at the Athens Social atlas (<https://www.athenssocialatlas.gr/>), in academic theses (Prepi, 2009, Veneti and Zournatzidou, 2009) and the national press (Rigopoulos, 2008b).

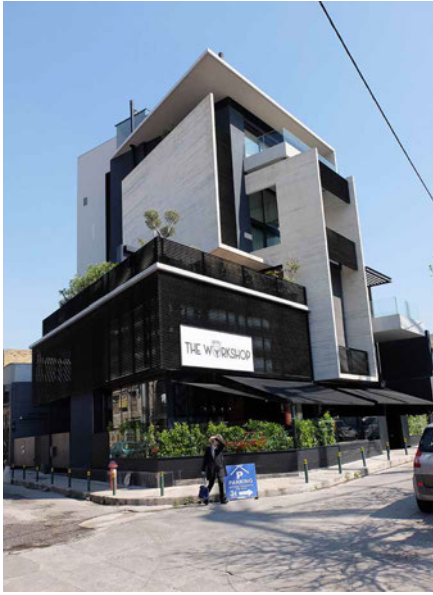


FIG. 17.11 Soft loft built next the Technopolis, 2017.



FIG. 17.12 One of the café-bars that have overtaken the Gazochori since 2007. 2017.

17.2.7 Functionality

The functionality of the complex, according to the results of the qualitative research of this study is among the weaknesses of the project (FIG. 17.1). The inner comfort and the offered amenities vary greatly from building to building. In some buildings there is no heating or air-conditioning while the accessibility for the disabled people is problematic (e.g. old retort house). A serious problem reported was the flooding of parts of the complex due to the elevated groundwater table (Y. Stoyannidis, Resp. no 263, interview, 22/3/2017). Furthermore, issues related with elevated energy consumption and sound insulation problems were reported for the INNOVATHENS building that had been recently renovated (INNOVATHENS employees, Resp. no 265-267, interviews, 21/3/2017). Lastly, a common issue regarding the whole of the complex, highlighted from the large majority of the respondents was the lack of maintenance which generates multiple problems.

Despite the complains, the in-house users of Technopolis expressed tolerance to the limited levels of comfort prioritising the preservation of the historic complex's character. S. Manika, programme manager INNOVATHENS, argues:

“On a complex level there are problematic parts which would be however greatly altered in case of renovation. Every time you need to balance the preservation of the character of the building with the energy interventions. I believe that our building (gasholder housing INNOVATHENS) is satisfactory given the restrictions. Respect is crucial.” (Resp. no 266, interview, 21/3/2017).

17.2.8 Stakeholders' evaluation

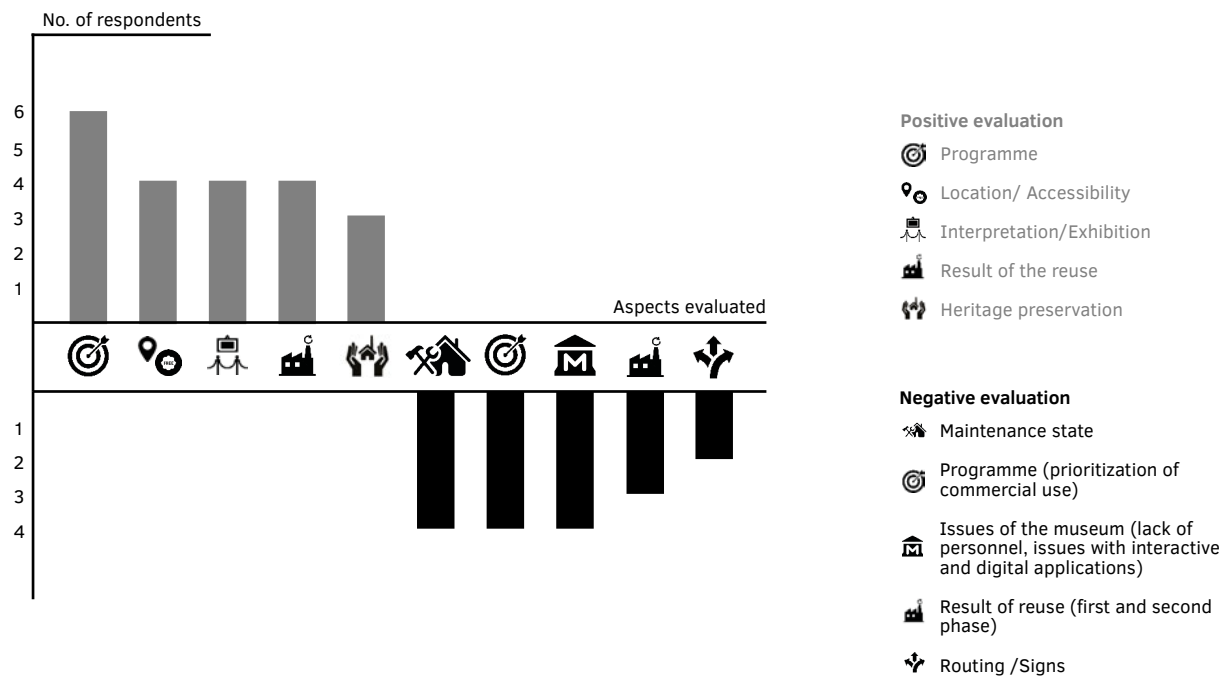


FIG. 17.13 Respondents' evaluation of the strong and weak Aspects of the case of Technopolis Athens (Number of respondents: 13).

18. Lavrion Technological & Cultural Park

Location: Lavrion, Greece

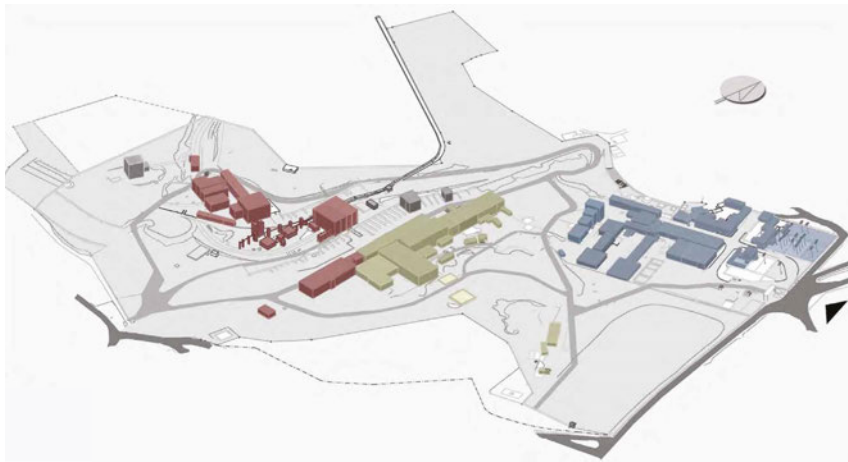
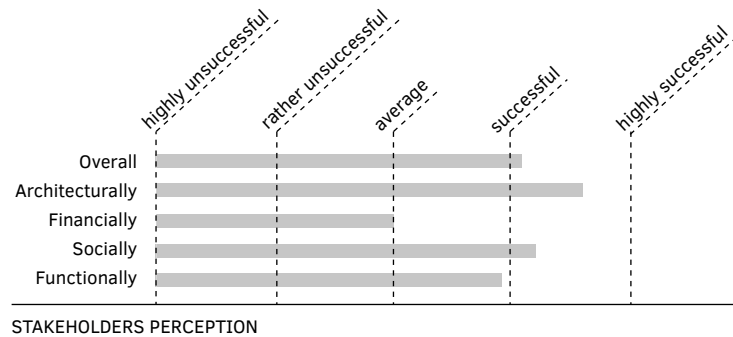
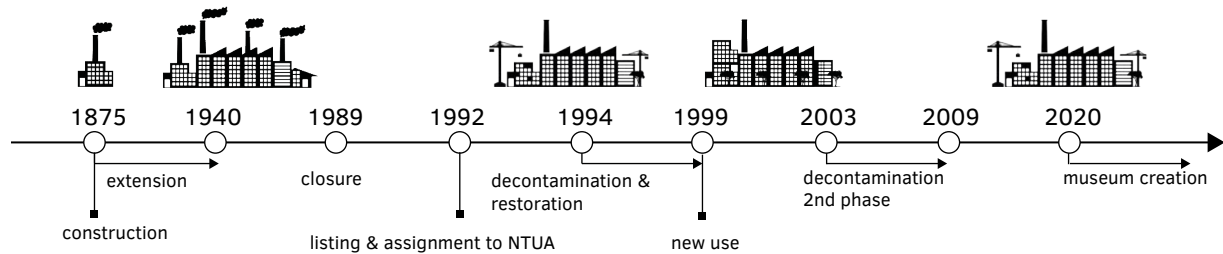
Historic use: Mining and metallurgy industry

Architect: -

New Function: Technological & Cultural Park

Reuse architect: Academic personnel, School of Architecture, NTUA

Status: National monument



KEY

- Zone A
- Zone B
- Zone C

[B.1]

[B.2]

[B.3]



FIG. 18.1 Lavrion Technological and Cultural Park Fact Sheet

18 Lavrion

Technological and Cultural Park

This text has been largely based on the article: Chatzi Rodopoulou T. 2018. Parque tecnológico y cultural de Lavrion. La transformación de un gigante. Los ojos de la memoria, No 20, 69-76.

SUMMARY

The French Mining Company of Lavrion after more than one hundred years of mining and metallurgy activity, ceased operations in the late 1980s, leaving 41 buildings and an area of 25ha abandoned as well as hundreds of workers unemployed. In 1992, the National Technical University of Athens undertook the challenging task of converting the vast complex into a Technological & Cultural Park. Today, Lavrion Technological & Cultural Park (LTCP) is a vibrant pole of high technological, cultural, educational and social significance. The case presents great interest as it is one of the earliest and certainly the most extensive and complex examples of Industrial Heritage Reuse in Greece. Its strengths include its programme, the architectural outcome of the reuse, the high extent of cultural values preservation and its social added value. Its financial viability and functionality are the weak features of the project.

18.1 Analysis

18.1.1 Historic use

The beginning of the mining activity in Lavrion, a town located c. 50 km southeast of Athens, can be traced back to 3.000 BC with the opening of the first mining tunnels. After its heyday in the classical times, the metallurgy activity of the area gradually went into decline and finally stopped in the 3rd century AC. The rediscovery and exploitation of the ancient silver and lead ores in the 1860s led to a new glorious era. The following century saw Lavrion's transformation into the largest metallurgical centre of Greece and one of the biggest in the Balkans.

LEGEND FIG. 18.1 Lavrion Technological and Cultural Park

- A Planned zones of reuse of the French Mining Company of Lavrion (NTUA).
- B.1 The French Mining Company of Lavrion in operation, 1895. (Konofagos, 1980).
- B.2 The French Mining Company of Lavrion after its transformation into the Lavrion Technological and Cultural Park (Lavrion Technological and Cultural Park).
- B.3 Interior view of a restored hall of the Lavrion Technological and Cultural Park during a scientific conference (Lavrion Technological and Cultural Park).

The posed parties in order to safeguard the complex from the bulldozers and offer it a new life had to take three important steps: Firstly, put pressure on the Greek Government to purchase the site and assign it to the Ministry of Culture and the NTUA; secondly, devise a suitable new programme for the complex; lastly, secure funding for the required studies and works of its transformation. Albeit a challenging venture, the decisive efforts of the collaboration came into fruition.

In July 1992 the complex was bought by the Greek State and was assigned to the NTUA to transform it into a Technological and Cultural Park, while the buildings and the complex's machinery were listed as national monuments by the Ministry of Culture. According to K. Panagopoulos, initiator of the project, *"The new use was imposed by the site itself."* (Resp. no 274, interview, 08/05/2017). N. Belavilas, coordinator of the transformation works and Board Member of the Lavrion Technological and Cultural Park (LTCP), adds:

"The new programme was inspired by the wish for a continuation of technology, production and the sense of innovation that pre-existed on site. The cultural part emerged from the consideration that the identity of space cannot be separated from the notion of monuments and culture." (Resp. no 244, interview, 10/07/2015).

The funding for the initial studies, the first stage of the complex's transformation and the decontamination process came from a mixed scheme. In detail, 25% of the investment (€ 5.7 million) was covered by the Greek State while 75% (€ 17.1 million) came from European Union's Funds. The NTUA, invested 60.000€ in 1996 for the establishment of the Company for the Utilization and Management of the Property of the NTUA (CUMP-NTUA) providing administrative and technical staff as well (Damigos and Kaliampakos, 2012, 175-176).

According to the testimonies of involved Actors (Resp. no 244, 273-275, 278-281, interviews, 2015 & 2017), an important problem during the preparation and reuse of the complex was the frictions within the team of stakeholders. N. Belavilas explains:

"There were very strong fluctuations in the political balance (within the team of stakeholders). I am not referring to changes in the central political scene but to those of the local authority and the NTUA. The changes in the Rectorate of the NTUA were causing very strong upheavals that were sometimes turning into conflicts. Accordingly, depending on these conflicts, from times to times the city of Lavrion was embracing the venture or it was withdrawing from it." (Resp. no 244, interview, 10/07/2015).

18.1.3 Reuse process

The outcome of the transformation was shaped by the following array of decisions. First, it was decided to preserve the whole site, documenting, evaluating and safeguarding the complete entity of the production line along with the historic objects, engines, installations and the historic archive which was found on-site. I. Polyzos, Vice Rector NTUA 1994-97, elaborating on another decision, states:

"The second dilemma we had to face was the selection among the spaces which would work as a museum of themselves and those that would be used for hire." (Resp. no 278, interview, 18/07/2017).



FIG. 18.3 Soil decontamination in the LCTP (Urban Environment Laboratory, NTUA).



FIG. 18.4 The buildings of zone A after their restoration (Lavrion Technological and Cultural Park.).

The third decision regarded the precise mix and allocation of the new uses that involved research and technology, production, education and culture and a small part of recreation and accommodation. The delivery of an economically autonomous project that would need no external funding for its operation was among the basic project's decisions, as well. In order to ensure that, a business plan was devised by the NTUA project team and external consultants.

During the preparation of the works the project's stakeholders faced another dimension which was originally underestimated. The issue of the buildings' and soil's decontamination (FIG. 18.3), which was an unknown field at the time in Greece, was addressed with scientific rigor in two phases (1995-1997 and 2003-2009) upon the European Commission's request that provided part of the redevelopment funding (NTUA, 1997, 9, Kaliambakos, 2015, 125).

The in-depth study of the complex's evolution along with the wish to produce a result of high architectural quality and social relevance within the available budget, dictated the concept of the transformation and its delivery strategy. The massive area was divided in three zones (FIG. 18.1: A), corresponding roughly to the three 'generations' of the industrial facilities. It was decided to start the project with zone A (FIG. 18.4), due to its historic characteristics (1876-1895) and its central location. The works for the transformation of this zone of 12.000m², which included 14 buildings, started in 1995 and were completed in 1999 (Touliatos and Efesiou, 2010, 14). The transformation was realised with the direct involvement and oversight of an interdisciplinary team staffed mainly by NTUA professors, researchers and students from the School of Architecture and the School of Mining and Metallurgical Engineering.

18.1.4 Occupation and management

LTCP opened its doors officially to the public in 1999 and was welcomed as a stepping stone towards the upgrade of the town. Since then, over 40 companies and educational foundations have been housed in the converted premises (FIGS. 18.5) and more than 170 cultural events have been organised, including theatre, concerts and art events. Furthermore, over 20 conferences and 80 scientific meetings have taken place there while c. 2.000 students per year visit the complex. These activities are organised with a budget of c. 300.000 €/ year, without external funding, by a personnel of only 10 people (Kaliambakos, 2015, 123-124). The LTCP operates as an individual legal entity of private right by the CUMP-NTUA. The sole share of the Company, is owned by the NTUA (Lavrion Technological and Cultural Park, n.d.).



FIG. 18.5 The converted buildings of the CFML house a variety of business, technological and cultural activities, 2017.

The project, which had a very innovative character for Greek standards, quickly attracted the private sectors' attention. By 2008, more than 70% of the available space was rented mainly to high-tech companies. LTCP, along with significant infrastructure improvements in the wider area of Mesogia, put the former industrial town back into the map, offering it new opportunities for a socio-financial recovery (Kaliambakos, 2015, 87).

18.1.5 Shifts

The financial crisis that hit Greece in 2008 influenced profoundly this progressive development, having a threefold negative effect in the Park's operation. Firstly, no additional funds became available for the completion of the transformation of the rest of the complex. Secondly, the Park lost more than half of its tenants, with the hired space dropping to c. 30% and the working places cut to half, in comparison with 2007. Given that the rent was the main source of the Park's revenue, this development resulted in serious problems in its operation and maintenance. Lastly, the continuation of the strategic development projects of the area, that were expected to multiply positive effects for the Park and the town (i.e. prolongation of the suburban railway to Lavrion and extension of the port), was halted.

Nevertheless, in this hectic climate of crisis, the determined efforts of the local community, the management of the Park and the NTUA involved staff, have once again resulted in an important achievement. Within the following months, a project of enormous importance, which has been delayed almost two decades, will begin. It will include the transformation of the machinery building of the complex (FIGS. 18.6, 18.7) into the Lavrion Mining and Metallurgy Museum (LMMM). The works, with a budget of € 2,7 million, will be funded by the Region of Attika.

The LMMM is a project of historical, technological, cultural, research, educational and developmental interest which provides a rare chance for the refreshment of the Park and the attraction of a wider audience (Dermatis et al., 2010, 90, NTUA School of Architecture Urban Environment Laboratory, 2009). Along with it, there are previsions for the move, conservation and opening to the public of the Historic Archive of Lavrion. This rare material, which is currently stored in the halls of the machinery building, has a heightened significance as it is the biggest industrial archive in the country.



FIG. 18.6 The machinery building that will house the LMMM is one of the oldest and most renowned ones in Greece (Urban environment Laboratory, NTUA).



FIG. 18.7 One of the main exhibits of the new museum will be the mechanical equipment of machinery building of the LCTP. All the preserved machines will be conserved in order to be functional (Urban environment Laboratory, NTUA).

Along with the completion of the aforementioned projects, the strategic plan of the LTCP (2010–2015) sets as priorities: the decontamination of the building of Konofagos, a key project that has been delayed due to financial and bureaucratic reasons; the attraction of EU funding programmes; the strengthening of its collaboration with NTUA laboratories, professional organisations and local bodies such as the Port Authority of Lavrion and the continuation of parallel actions compatible with the character of the Park that have been proven profitable (Chadoumelis, 2015, 19).

18.2 Evaluation

18.2.1 Process

The process of the reuse of the French Mining Company into the LTCP is one of the strong features of the case. It is noteworthy that the safeguarding of the complex was the result of simultaneous coordinated top down and bottom up initiatives. The involvement of the NTUA and the action of its personnel during the preparation, conversion and operation of the Park demonstrates the heightened potential of the Higher Education Institutions to drive such a project, sharing and acquiring knowledge and knowhow.

Furthermore, the case demonstrates the importance of the continuous engagement of the local community. Represented, besides the CC, from the Research Company of Lavrion, the local community has been supporting the project from the outset, with an unremitting presence in the deliberations in the past three decades and valuable input in the proposals for past, present and future action.

Another strength of the project's process, was the division of the transformation in phases. This allowed the timely completion of one third of the masterplan and the operation of the LTCP before the shift of the favourable economic situation of the turn of the 21st cent. in Greece. Despite the temporary stagnation, the completed part shows the prospects of the project and enhances the chances of its extension.

In regard to the weaknesses of the process, the project suffered from the frictions in the stakeholders' team which suppressed in certain circumstances its dynamism. Lastly, the bureaucracy of the public sector that overshadowed all stages of the project, has been causing important delays, including the completion of vital projects such as the transformation of the machine building and the decontamination of the Konofagos building.

18.2.2 Programme

The programme of the project is also an asset of the case. Housing multiple functions, the complex welcomes a wide audience, ranging from specialised scientific groups and individuals to businessmen, students and school groups. The programme has an innovative character that is fully compatible both with the cultural and historic role of the industrial legacy of the CFML and with the technical background of Lavrion. Besides that, the new functions, generating revenue that is essential for the operation and maintenance of the Park, play a pivotal economic role.

The current shifts in the programme appear to be promising. In detail, an important gap in the cultural activity of the Park is expected to be filled with the creation of the LMMM, opening the LTCP to a wider national and international audience.

18.2.3 Architecture & Cultural significance

The architectural approach towards the monumental complex is the case's stronger asset. This fact is supported by multiple bibliographical sources and the evaluation of the respondents (FIGS. 18.1, 18.10). N. Belavilas, addressing the selected architectural approach, states:

"We followed all the international guidelines of conservation, as they had been established up to that date." (Resp. no 244, interview, 10/07/2015).

The literature review and the field research of this study demonstrated the following: The project started with a careful interdisciplinary documentation of buildings, machinery, archival material and intangible elements. At the same time, renowned experts from abroad (L.Bergeron, E. Casanelles, S. Smith et.al.) were consulted in order to facilitate the understanding of the industrial site's significance and learn from similar realised examples. Moreover, appropriate policies, legal and administrative measures were adopted for ensuring the safeguarding of the complex and its context.

As posed above, an integrated approach was followed that allowed the safeguarding of all the buildings, the machinery, historic objects and the archive found in situ, combined with an extensive decontamination process.

Furthermore, the new use respected significant material, components and patterns of circulation and activity. The realised interventions were distinctive and discrete, respecting the age value and the patina of the structures while the full course of the transformation process was documented (NTUA, 1997). Finally, the delivered project works as a source of awareness for the general public and the professional communities.

A serious omission in the present situation is the lack of any type of interpretation. This is expected to be balanced soon however with the creation of the LMMM. The museum will inform the visitors about the ancient and recent mining activity in the area, the production process and the machinery, the history of the complex, the town and the people as well as about a range of related topics strengthening further the educational role of the LTCP.

The aforementioned evaluation clearly shows that the LTCP conforms not only to the International Charters of Conservation prior to the 1990s, but also to the recent guidelines of the Dublin Principles. Therefore, the case is an exemplary project of Industrial Heritage Reuse for Greek and European standards.

18.2.4 **Finance**

In contrast to the previous features, the financial impact of the project appears to be one of its weaker characteristics. In order to be precise however, there is a need to examine the issue in relation to the general state of the Greek economy.

The results of the economic evaluation study of D. Damigos (2012), that examined roughly the first decade of the LTCP's operation (1996-2008), are very positive. In detail, it is stated that the investment brought considerable returns to all investors involved and the project appeared to be financially sustainable.

For the later period, coinciding with the current financial crisis, no similar analytical report has been produced. However, the data collected from this research show that the financial situation of the Park has lost its momentum, in comparison to the previous decade. It is worth mentioning, however, that according to testimonies from the CUMP-NTUA's management (N. Belavilas, D. Kaliambakos, M. Chadoumelis, Resp. no 244, 273, 275, interviews 2015, 2017), the Park keeps being self-funded albeit the recession. It is believed that the establishment of the new museum, will reinforce the attractiveness of the site, engaging not only cultural visitors, but also enterprises.

18.2.5 **Social component**

The reuse of the Lavrion FMC has offered significant social added value primarily on a local level and to a lesser extent on a national level. As presented in the analysis, the involvement of the local community during the project was decisive. This participatory decision-making process and the continuous engagement of the locals for the safeguarding and transformation of the complex is seen as a social achievement.

Other highly important features that verify the positive social impact of the venture relate to the preservation of the town's industrial identity, the decontamination of the area and the direct and indirect employment opportunities offered by the project.

Discussing the social impact of LTCP, Prof. K. Kaliampakos, Vice President of CUMP-NTUA, supports: *“The LTCP is one of the most powerful allies of the local community and its point of reference for tackling the major problems it faces.”* His view appears to be shared by the local community. One of its most distinguished members, G. Dermatis, historian, states: *“The LTCP is socially acceptable and has been incorporated into Lavrion. It is a part of the history of the NTUA and a natural evolution of Lavrion ‘s industrial history.”* (Resp. no 281, interview, 28/3/2017).

Lastly, the LTCP has played a substantial educational role, which is also perceived as an important social contribution.

Even though the case is seen as socially successful, there is still room for improvement. The project can be marketed much more to the public and the scientific community while the number of visitors and locals visiting the facilities can be multiplied. The LMMM is seen as a good opportunity to attract the required attention and visitors.

18.2.6 Functionality

The operational characteristics and the functionality of the project have also room for improvement. The qualitative and field research of this dissertation identified three key issues. M. Chadoumelis, Site Manager LTCP, presenting the first one states:

“The restoration of the premises has not been completed. This is an open wound that harms the operation of the park on various levels. The business plan of the Park was designed for all buildings. Today we maintain the whole complex only with the resources we receive from the restored part.” (Resp. no 275, interview, 29/03/2017).



FIG. 18.8 Water damage and signs of corrosion to the windows of a restored building in the LTCP, 2017.



FIG. 18.9 Rising damp and temporary measures for avoiding leakages in the administration building of the LTCP, 2017.

The second issue is directly linked to the first one. The restricted revenue of the project appears to hinder its required maintenance. According to the employees and the users of the LTCP interviewed (Resp. no 282-291, Spring 2017), the maintenance of the buildings is one of its most serious weaknesses (FIG. 18.10). This results in aesthetic and structural failures (water damage to wooden windows and doors, chipping of wall painting, marks of rising damp) (FIGS. 18.8, 18.9) causing also user discomfort (leaking roofs, failing of heating/air-conditioning systems etc.).

Lastly, the third issue in regard to the operation of the complex, is the number of the LTCP employees. Despite the provisions of its first business plan (1996) that designated a number of 26 employees for the smooth operation of the project, the Park is only supported by a staff of 10 people, including some contractors (Chadoumelis, 2015, 11). This devoted group has managed to keep the project afloat since its establishment and through the difficult last decade. Yet, the opening of new facilities such as the LMMM makes the increase of the staff imperative.

18.2.7 Stakeholders' evaluation

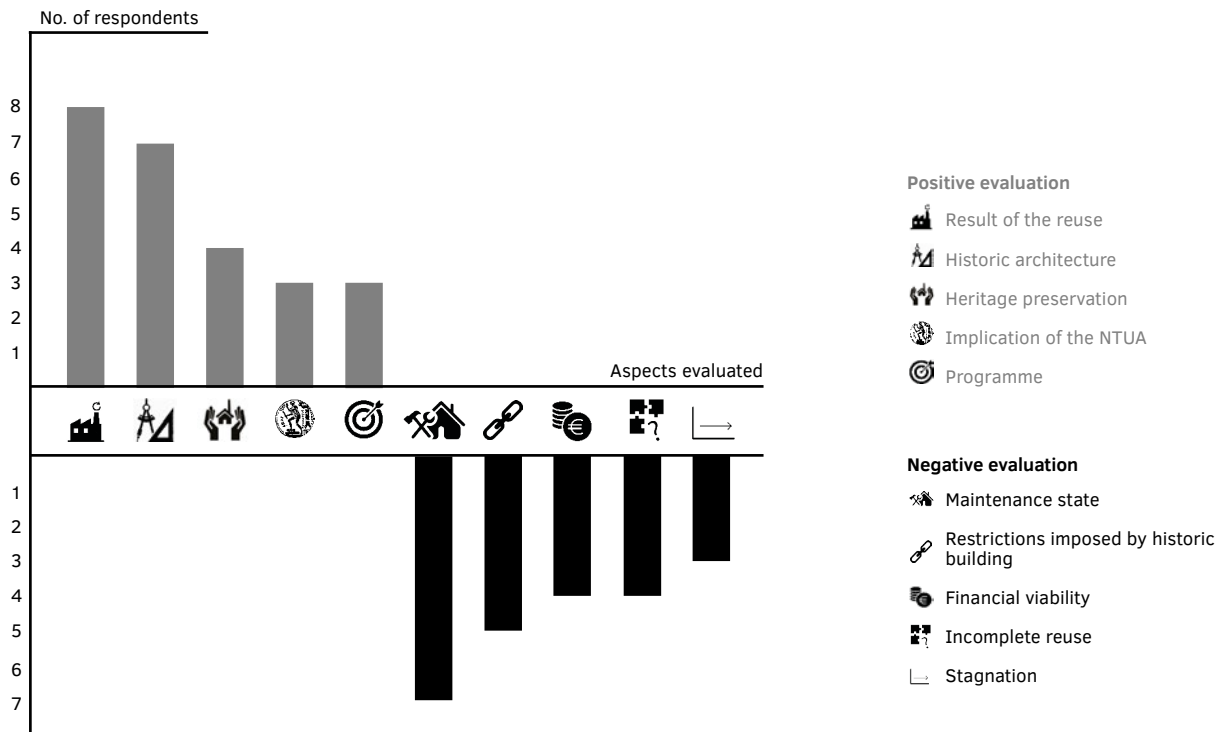


FIG. 18.10 Respondents' evaluation of the strong and weak Aspects of the case of LTCP (Number of respondents: 20).

19. Tsalapatas Complex

Location: Volos, Greece

Historic use: Rooftile and Brickworks factory

Architect: -

New Function: Mixed use (industrial museum, commercial, cultural and leisure centre)

Reuse architect: Yannis Kizis

Status: National monument

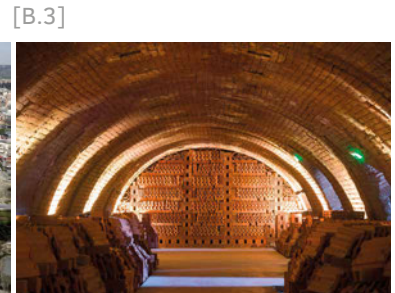
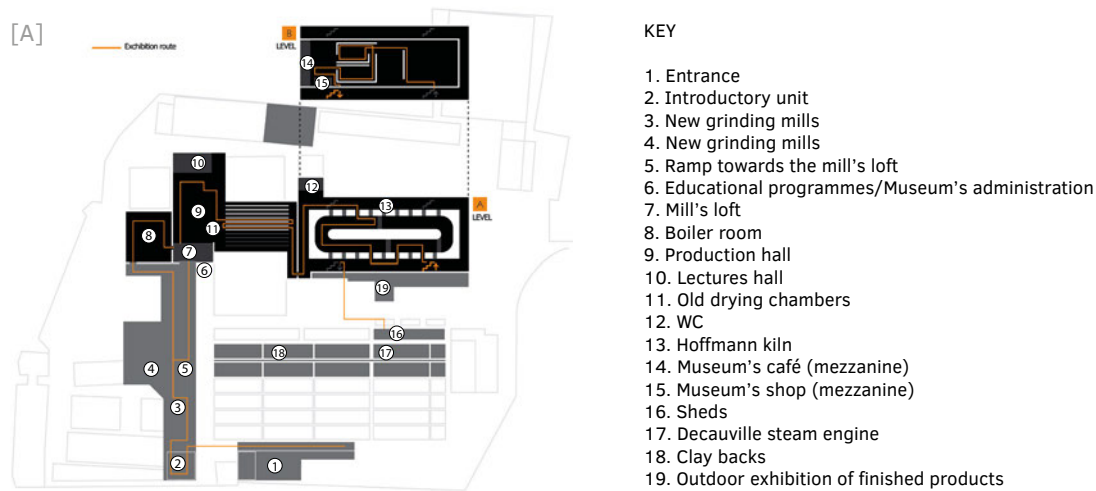
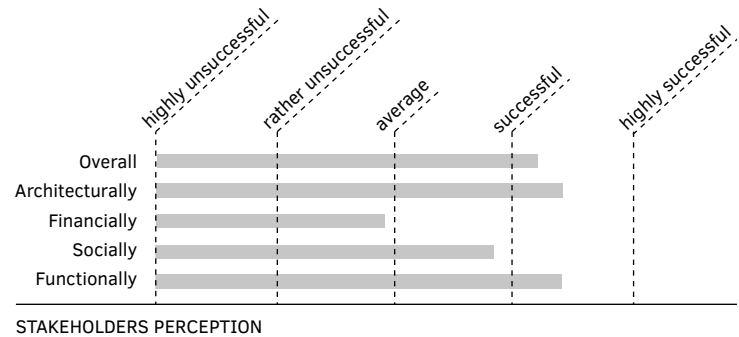
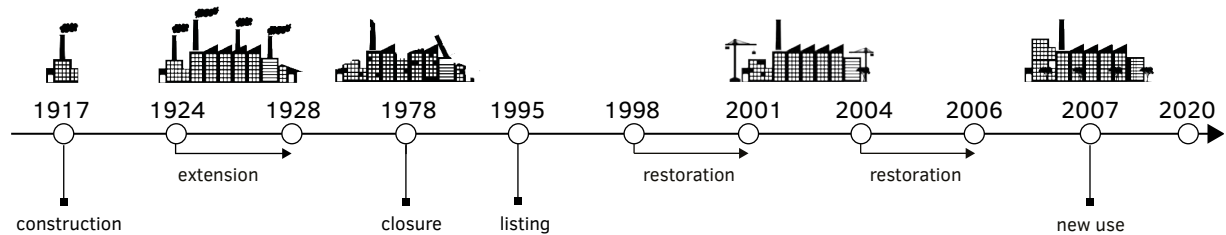


FIG. 19.1 The Tsalapatas complex Fact Sheet

19 The Tsalapatas complex

SUMMARY

The case of the Tsalapatas factory transformation presents a triple interest. Firstly, it provides evidence over the development of Reuse practice of Industrial Heritage in Greece in the turn of the 21st century. Secondly, it offers an insight into the pioneering action of the Municipality of Volos for the regeneration of the city in the 1990s and thirdly, it is an example of the pivotal initiative of the Piraeus Bank Group Cultural Foundation for the creation of an industrial museums network in Greece. The strengths of the case include its architectural outcome and the preservation of its cultural values. The decision-making process and the social engagement on the other hand, are among the weaknesses of the project.

19.1 Analysis

19.1.1 Historic use

The Rooftile and Brickworks factory of N. & S. Tsalapatas is located in Volos, one of the most important industrial centres of the Greek periphery in the late 19th and early 20th century. The first installations of the factory were built in 1917, next to the stream Kravsidonas, at the location 'Palia', where other similar industrial activities were set, too. With the development of the city along the course of time, the context of the factory changed. Today, the historic factory is positioned at the northwest entrance of the city of Volos, in a loosely developed area neighbouring with housing, sports facilities and empty plots.

In 1924, the factory was extended with the construction of a new, bigger and more modern facility in a neighbouring plot (FIG. 19.2). The works took place in two phases (1924-1926 and 1928) and were overseen by two Belgian engineers of the company Sabbe et Steenbrugge. The same company supplied and installed the largest part of the factory's machinery. The old factory remained operational up to 1956, functioning complementary in the busy periods while serving as a storage unit and a stable for the rest of the time.

LEGEND FIG. 19.1 The Tsalapatas complex

- A Site plan of the Rooftile and Brickworks museum of the N. & S. Tsalapatas.
- B.1 Aerial photograph of the Tsalapatas complex before its reuse, 1990 (PBGCF).
- B.2 Aerial photograph of the Tsalapatas complex after its reuse (<https://museumfinder.gr>).
- B.3 The restored Hoffmann kiln in the Rooftile and Brickworks museum of the N. & S. Tsalapatas (PBGCF).

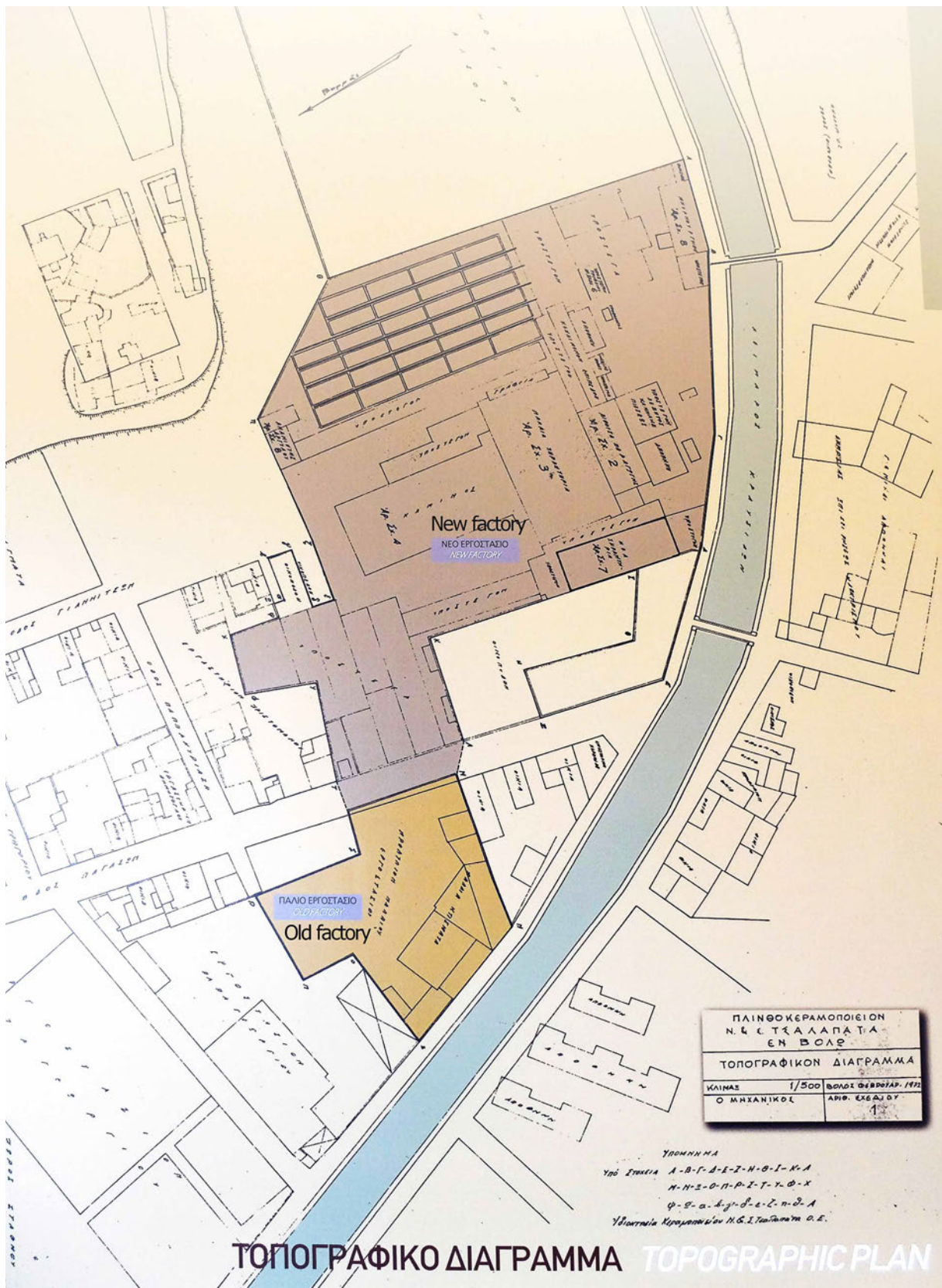


FIG. 19.2 Topographical plan of the old and new premises of Tsalapatas factory (PBGCF).

A connection between the old and the new installations was established with a railway line. The main products of the plant included bricks of several typologies, French and Greek type rooftiles, gutters and clay pipes.

The factory stopped temporarily its operation during the German occupation and reopened after the liberation. From 1954-1956, it sustained severe damages caused by earthquakes and a flood. The extent of the damages required a new four-month pause of operations for repairing the premises. Since 1960, upon the electrification of the company, the owners modernised the mechanical equipment of the factory, building in parallel new facilities housing the dryers. Despite these changes, the company was not able to cope with the wide changes in the demand of building materials and the rising competition and as a result the factory ceased operations in 1978 (Piraeus Bank Group Cultural Foundation, 2009, 29-42).

19.1.2 Reuse Preparation

The closure of Tsalapatas factory cannot be seen just as an isolated incident but it should be placed against the general industrial decline in Volos between WWII and the 1980s. According to K. Adamakis (2007, 182), 54 big industrial complexes lost their function in that period, leaving a series of black holes across the city's urban tissue.

In contrast with the standing practice of that time in Greece, the large majority of the obsolete factories did not fall prey to an ill-conceived modernisation. Under the initiative of the local administration and the newly established University of Thessaly, a plan for their preservation and reuse was developed and executed with funds from the EU programme URBAN and national resources (see Vol.1, § 4.4.4.2) (Adamakis, 2007, 179-199).

Within the framework of this plan, the municipality of Volos purchased a number of historic industries, including the complex of N. & S. Tsalapatas. The complex attracted the C.C.'s attention due to its historic role, its key location in the city and its state of maintenance (K. Adamakis, Resp. no 246, interview, 1/6/2017). In detail, despite its long period of vacancy, the complex was in a very good condition when passed into the hands of the local authority in 1994-95.

This was confirmed by M. Stratton, Director of the Ironbridge Gorge Museum, who evaluated it, upon the request of the Municipality in 1994. The expert documented the complex and its technical content. In his report *"Tsalapatas Tile Works and the potential for heritage tourism, Volos, Greece,"* (November 1994) he concluded that the factory was preserved very well retaining all its installations, including the Hoffmann Kiln and the full extent of its machinery, from its establishment to its electrification. He also proposed the listing of the complex and formed an initial scenario for its conversion into a museum (TICCIH Greece, 1995, 16-17).

In 1995 the building premises of the complex were listed as a national monument by the Ministry of Culture (Panagiotakopoulos et al., 2003, 88). According to E. Dimoglou, (1998, 40-41), the initial idea for the new use of the former industry was the creation of an industrial museum interpreting the former function of the factory in combination with a museum of the industry of Volos, a documentation centre of the local industry, exhibition and event halls, workshops for applied arts and a vocational training centre for the preservation of industrial heritage. For the realisation of that vision a multidisciplinary team was formed.

As I. Kizis explains (1999, 27), the years that followed saw the fate of the former factory flirting multiple times both with well thought and with destructive prospects. A key issue that caused these fluctuations was the indecisiveness of the local authority during the process of decision-making, which left the historic industry exposed to compromising ideas and practices.

Between 1995 and 1998 a series of opposing decisions shaped the future of Tsalapatas factory. Firstly, the initial programme scenario was modified, incorporating apart from the functions of the museum and the workshops, cultural, commercial and recreational dimensions, too. Secondly, the preliminary study for the conversion of the site was assigned to the team of engineers of the Municipal Research Company (ΔΕΜΕΚΑΒ).⁵¹ The team, overseen by three experts in the field of conservation, prepared a respectful proposal that met the requirements of the EU programme URBAN which would finance the project.

Nevertheless, before the beginning of the works, a new idea, based on the principles of energy efficient design, was introduced. According to Kizis (1999, 28), the new interventions proposed were totally incompatible, compromising the cultural significance of the industrial venue. This last development became an apple of discord between the stakeholders and resulted in the withdrawal of a big part of them. Finally, amidst a setting of political conflict, the C.C. approved a patchwork study which “*strived to connect erratic and unrelated ideas.*” (Kizis, 1999,28).

19.1.3 Reuse process

The reuse of the Tsalapatas factory was realised in two phases taking place from 1998 to 2001 and from 2004 to 2006. The conversion approach between these two phases presents a lot of differences, providing insights into the development of intervention practice on Industrial Heritage in Greece in the turn of the 21st century.

According to various testimonies (Resp. no. 242, 245, 292, interviews, 2017) and articles (Kizis, 1999, Louvi, 2006), the first phase of the reuse, realised by inexperienced constructors and overseen by the services of the Municipality of Volos, had a destructive impact on the integrity of the complex. E. Dimoglou, historian states:

“The study of the Municipality included the construction of new buildings. As a result, various parts of the complex and its mechanical equipment (grinding mills, furnaces) were sacrificed to leave space for those, while the machine shop was gutted. The Service of Modern Monuments tried to protect the complex, but finally the works proceeded after the intervention of the Central Council of Modern Monuments (ΚΣΝΜ).” (Resp. no 292, interview, 1/6/2017).

Apart from the aforementioned actions, several wooden sheds were also demolished during that phase, while an important part of tools, mechanical equipment, products’ packaging and transportation components was lost. The interventions in the preserved buildings were invasive and irreversible including in several parts demolitions of wooden elements and substitution of stone and brick walls with concrete ones (Kizis, 1999,28-29) (FIGS. 19.3, 19.4).

⁵¹ The team of engineers of the Municipal Research Company was established in 1993 by the Municipality of Volos. Staffed with 20 young local engineers of different specialisations (civil engineers, architects, etc.), and overseen by the experts Y. Kizis, A. Tripodakis, and V. Adamogiannis under the coordination of K. Adamakis (Vice Mayor), the team prepared multiple studies for the reuse of the industrial buildings purchased by the Municipality of Volos.

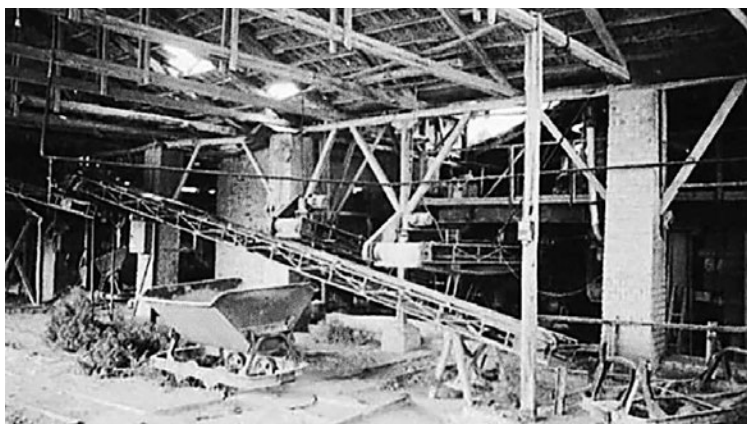


FIG. 19.3 The shed in 1995 before the interventions, supported by wooden and brick pillars (Kizis, 1999, 28).



FIG. 19.4 The shed in 1998 after the addition of concrete columns (Kizis, 1999, 28).

The conversion finished in 2001 but it was not opened to the public. A few years later the Municipality organised a bidding tender to find an investor who would complete the construction of the core and the context of the complex as well as a cultural organization that would take on the museological and museographic integration of the brickworks museum in the core of the factory. The company ΓΕΚ was chosen for the first task, while the Piraeus Bank Group Cultural Foundation (PBGCF) undertook the second task.

The second phase of the complex's conversion started in 2004 and employed a contrasting approach from the first phase. The conversion of the main core of the factory into a museum of itself was implemented with respect to its historical, technical and cultural values. No further demolitions nor key alterations took place. In contrast, a conscious effort was made to safeguard all the existing elements and interpret them to the public. Y. Kizis, the architect who undertook the design of the complex notes:

"I tried to restore where possible what I had seen in the early 1990s. I tried to give the old character to the building based on photographs I had taken and material from the contractor. I chose to introduce a slightly different architectural language to differentiate the additions from the original fabric." (Resp. no 245, interview, 16/6/2017).

The sub-project of the commercial, cultural and recreational part was funded by ΓΕΚ while Piraeus Bank funded the creation of the museum. According to A. Louvi, Director of the PBGCF (Resp. no 242, interview, 7/6/2017), this was not a standard practice followed for the projects of the PBGCF.

"It is the only museum of the PBGCF network financed by the Bank. It was an exception to the rule because the Municipality had already received an EU funding and it had destroyed the complex."

Apart from the technical difficulties in reversing the damages of the previous phase and the challenges of securing enough funds for the implementation of the museum, there were also complications in the collaboration between ΓΕΚ and PBGCF (Louvi, 2006, 54-55). All these issues, along with a flood of the complex in November 2006, delayed its opening nine months and multiplied the conversion costs.



FIG. 19.5 Tsalapatas factory after its conversion (PBGCF).



FIG. 19.6 The original machinery of the factory forms part of the museum's exhibition, 2017.

Tsalapatas complex opened in 2007, offering a diverse mixed use programme to the public. 6.000m² of mainly new-built constructions housed commercial, cultural and leisure facilities while the main core of the historic complex (5.000 m²) housed the Rooftile and Brickworks Museum of N. & S. Tsalapatas. The management and exploitation of the complex was granted by the Municipality of Volos to the two organisations implicated in the second phase of the complex's reuse, for a period of 50 years.

The museum, prepared by the experienced team of the PBGCF in collaboration with Y. Kizis, (architectural design), V. Kolonas (museological and museographic study) and the mechanical engineer S. Chatzigogas (machinery conservation and scale models creation) is an impressive space of high aesthetical, historic, educational and technical significance (FIGS. 19.5, 19.6). Based on comprehensive research and careful conservation work, it narrates both the history of the factory and the production process. The exhibition route follows the production line, casting special attention to the preserved mechanical equipment of the factory (FIG. 19.1: A). The museum also offers information about the factory's personnel, its products and the rooftile and brickworks production sector in Greece.

The part run by IOLKOS (the managing company established by ΓΕΚ) in the first years of operation focused on leisure and HORECA activities including, restaurants, cafes, bars and night clubs, organising also music and theatre events. From the outset, that commercial part and the audience it attracted clashed with the cultural vision of the museum, aggravating the tension between IOLKOS and PBGCF. This development played a very negative role in the operation of the complex. As E. Dimoglou, puts it:

"The problem is that the new managers did not get along in order to create a common framework. They did not organise common actions, at least in the first years." (Resp. no 292, interview, 1/6/2017).

As a result, the project did not have the expected resonance from the public. A. Louvi, commenting on the potential of the case, states:

"It was the biggest industrial museum in the network of PBGCF. In the beginning we were envisioning it as the diamond of the chain. Unfortunately, this aspiration was not met because of the co-existence with the investor, which had a detrimental effect on the attraction of visitors for the museum." (Resp. no 242, interview, 7/6/2017).



FIG. 19.7 Distribution of function in the Tsalapatas complex, June 2017. Orientation plan for the visitors of the complex.

Very shortly after the opening of Tsalapatas complex, Greece fell into financial crisis, a development that influenced deeply the operation of the commercial part of the project. A big percentage of the spaces for hire was left vacant forcing IOLKOS to adjust both the rent and its activities (Chanou, 2015). Since 2009, the University of Thessaly became a tenant of the complex while gradually the focus of IOLKOS shifted from the night leisure activities to family friendly functions. A plan with the functions housed in the complex in the summer of 2017 is presented in FIG. 19.7.

E. Manioti, manager of Tsalapatas commercial section, elaborating on the shifts taking place, notes:

“The past couple of years we have all our spaces hired, apart from one. Because of the differentiation of the functions, some spaces are operational at night and others during the day. Now we have the same percentage of day and night activities.[...] We host events from 5 to 5000 people. In recent years we have been organising a lot of events for families and children. In the early years of our operation we were focusing more on the adults, organising music and theatre happenings. We adjust to the changing situation. Our choices are influenced by the trends of each period...” (Resp. no 296, interview, 1/6/2017).

According to the statements of the museum's personnel and E. Manioti during the qualitative research of this dissertation (Resp. no 296, interviews, June 2017), the rising tension between the two involved organisations has been reduced and there are also plans for some common actions.

19.2 Evaluation

19.2.1 Process

The process of Tsalapatas factory reuse was linear and top down. The case offers insights in the role and impact of three important stakeholders, as well as on the significance of their interaction. In detail, the project proves that a motivated local authority has the potential to safeguard its historic industrial stock and reintegrate it into the urban tissue with new useful functions. The action of the Municipality of Volos for the Reuse of an Industrial Heritage network is without a doubt a pioneering reference initiative in Greece. At the same time, the case shows the limitations of the same Actor and the susceptibility of its action to political and bureaucratic complications.

Furthermore, it provides evidence on the action of the PBGCF. The organisation, the means, the support and the knowhow of the Foundation were decisive in the formation of an industrial museum of such a high quality. In regard to the impact of the developer –a stakeholder that is not common in the Greek practice- the case manifests his direct reliance on the economy and the market trends, establishing priorities which are not always in line with the best care of cultural heritage.

Finally, the project reveals the impact of a thorny collaboration between key stakeholders. The different agendas of IOLKOS and the PBGCF and the inability of the Municipality to motivate them for creating a common vision took a toll on the project's resonance and it is therefore valued as one the weakest points of the case.

19.2.2 Programme

The new programme housed in Tsalapatas complex is controversial. Its mixture of functions, that is usually evaluated as a plus, in this case presents certain issues. Among the positive features of the programme is the creation of the industrial museum. This function maximised the potential to safeguard all the remaining buildings and machinery, make them accessible to the public and disseminate their value.

As a principle, the mixture of the aforementioned function with other cultural and recreation activities that would raise some revenue appears to be a sound plan. However, the application of that plan in the case under investigation was problematic. As illustrated in the analysis, the requirements of the commercial functions were higher than the capacity of the complex, which resulted in the destruction of valuable historic structures and mechanical equipment. Furthermore, in the first period of the occupation and management phase, the museum and the commercial part functioned antagonistically detracting from one another.

The views of the stakeholders interviewed over the new programme of Tsalapatas are divergent (FIG. 19.12). Key figures such as A. Louvi, Y. Kizis, E. Dimoglou (Resp. no 242, 245, 292, interviews, Summer 2017), suggest that the commercial part took a big toll on the quality of the project. On the other hand, there is a number of users (museum personnel and tenants, Resp. no 293-295, 297 interviews, Summer 2017), who support that the new functions strengthen one another and work in harmony.

The shifts in the activities hosted by IOLKOS and the presence of some stable, esteemed tenants, such as the University of Thessaly, appear to act positively, creating a stronger more congruent programme with heightened potential. The challenge for the involved stakeholders is to find a common line of action, elevating the visitor numbers while promoting the historic significance of the site.

19.2.3 Architecture

The evaluation of the architectural outcome of the reuse should take into account both phases of intervention. As analysed above, the approach adopted in the first phase was destructive. It altered the complex with invasive practices while depriving it of valuable structural and mechanical elements as well as part of its atmosphere and its context.

The intervention of the second phase, tried to reverse to a certain extent the aforementioned damages, prioritising the preservation of the site's historic and technical characteristics. The additions realised were limited and they were materialised in a distinct architectural language that does not overshadow the historic practice (FIG. 19.8).

Even though the integrity of the historic complex has been partly compromised, the respondents of this research appear to hold in high regard the architectural result of the reuse. K. Adamakis, architect and Vice Mayor of Volos 1992-1997, expressing their views states:

"I believe that the atmosphere of the period was preserved and was not damaged with the additions... A correct restoration and a proper management of the intervention in the existing condition has been carried out. The required functional additions (entrance, shop, loft, outdoor sheds) are highly successful, distinct and do not compromise the historic complex." (Resp. no 246, interview, 1/6/2017).

In the author's opinion, the intervention of the second phase has significant added value enriching the complex with a new meticulously designed architectural layer. However, despite the effort and like many cases of reuse, the outcome is too neat, deprived of the inherent messiness of the historic industry. That said, it should be stressed that this small detail, that plays a massive role in the perception of the site, is a very difficult issue to tackle.

19.2.4 Cultural significance



FIG. 19.8 The entrance pavilion of the Tsalapatas museum (PBGCF).



FIG. 19.9 The Decauville steam engine, preserved in the yard of Tsalapatas complex, 2017.

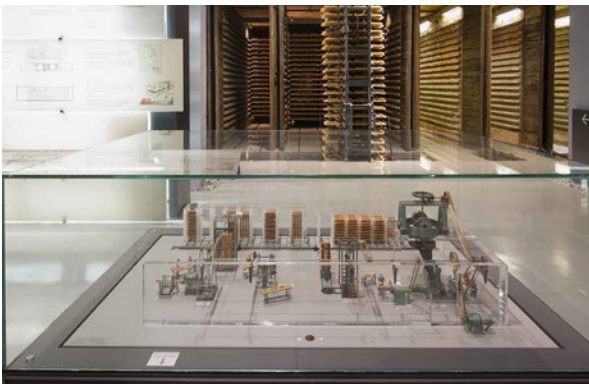


FIG. 19.10 Scale model of the production hall's machinery, 2017(PBGCF).



FIG. 19.11 The introductory unit of the exhibition providing background information on the history of the factory, 2017.

The preservation of the factory's cultural significance is one of the project's strongest features. Despite, the damages and the arbitrariness of the first phase of intervention, a critical mass of historic tangible and intangible evidence has been retained including built structures, machinery of different periods, tools, archival material and intangible elements. Y. Kizis, discussing the subject, notes:

"I treated the values of all periods in the same way and I was informed of all the phases of factory's operation. I avoided the picturesqueness, but I had to accept the existing constructions... Elements like the train line and the bridge had been lost. They were shown as a scenography but the result is not the same." (Resp. no 245, interview, 16/6/2017) (FIG. 19.9).

The museological and museographic design, using the buildings and machinery as exhibits, texts, audio-visual and archival material as well as scale models, interprets in a modern, vivid way the history and former function of the factory (FIGS. 19.10, 19.11).

19.2.5 Finance

The financing of Tsalapatas factory is among the weaknesses of the project. In regard to the transformation, a large amount of money from the EU programme URBAN was spent for conducting works, that turned out to harm rather than favour the regeneration of the complex. Subsequently, the process, the characteristics of the selected programme as well as the need to reverse the damages done in the first phase of restoration, increased a great deal the costs of reuse. Those were covered, as stated in the analysis, by the PBGCF and ΓΕΚ.

The operation and maintenance costs of the complex are borne by the same two organisations. Yet, according to the results of the qualitative research (Resp. no 242, 292, 296-298, interviews, Summer 2017), the low visitor numbers and the implications of the financial crisis make the raising of revenue hard while the high maintenance costs of the complex aggravate the situation.

To this day, the two organisations run the complex, bound by their contract with the Municipality of Volos, and despite the problems, maintain it well. Nevertheless, concerns have been expressed for the future of the project. As E. Dimoglou puts it:

“Its viability is not certain. The museum does not have the visitors it could. It deals mainly with schools. In the section managed by IOLKOS there are empty buildings and frequent changes of tenants.” (Resp. no 292, interview, 1/6/2017).

19.2.6 Social component

The social output of the case is nuanced. On the one hand, the new programme and particularly the museum offers a high social added value. The reborn Tsalapatas factory is an accessible site of elevated educational and cultural significance with activities addressed to a diverse audience. Furthermore, it is one of the few sites that narrates in such a modern and elaborate manner part of the rich industrial legacy of Volos. It is noteworthy that the museum exhibition includes testimonies and material that shed light on the social dimensions of the industry in the 19th and 20th century.

On the other hand though, due to the top down process, the internal issues of the decision-makers' team, the location of the complex and the programme inconsistencies, the case appears to have failed to be embraced from the public. The following three respondents elaborate on that issue, stating:

“It does not have the acceptance it had before the reuse. In the beginning of the process there was resonance and anticipation from the public. Unfortunately, it failed to become a reference point.” E. Dimoglou (Resp. no 292, interview, 1/6/2017).

“People do not know it. They do not see it as a whole. They only come for the bars or the music events.” Tenant (Resp. no 298, interview, 2/6/2017).

“The city and the institutions have not paid the due attention. They could do more. The city should embrace it more.... Now it is not embraced by the city or the public.” K. Adamakis (Resp. no 246, interview, 1/6/2017).

The re-establishment of site’s character, value and potential to the consciousness of the local community is one of the biggest challenges of the Tsalapatas complex.

19.2.7 Functionality

In contrast with most of the cases analysed in this dissertation, the functionality of the reused complex is among the strengths of this project. The careful architectural interventions of the second phase have turned the complex into a comfortable and accessible space for its new users. According to E. Manioti,

“The complex offers sizable spaces, satisfying the needs of various businesses. It also offers a comfortable, beautiful outdoor area with trees, which is an asset to the use. A proper study was conducted. The spaces available are flexible. You can easily change the interior configuration according to the desired function of the space.” (Resp. no 296, interview, 1/6/2017).

The only issues reported during the qualitative research in regard to the functionality of Tsalapatas former factory were the difficulty in the orientation of the visitors and the seasonal challenges in the internal climate of certain exhibition spaces.

19.2.8 Stakeholders’ evaluation

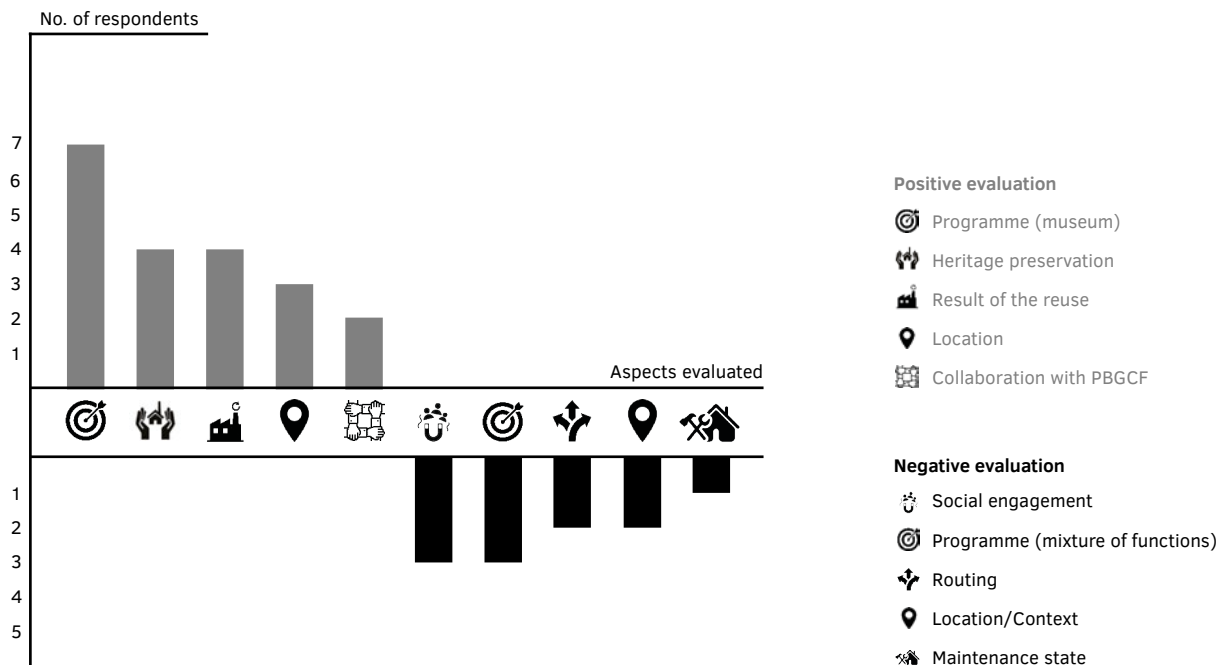


FIG. 19.12 Respondents’ evaluation of the strong and weak Aspects of the case of Tsalapatas complex (Number of respondents: 13).

20. Mill of Pappas

Location: Larissa, Greece

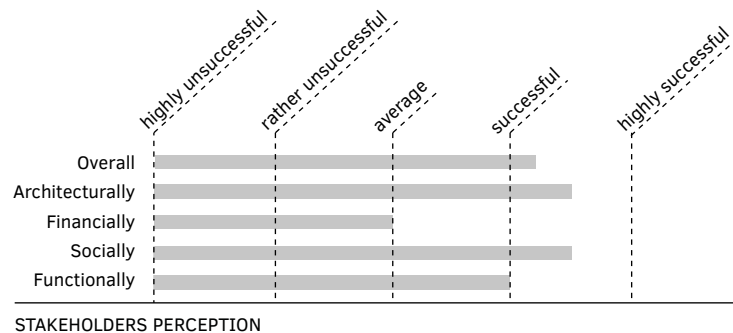
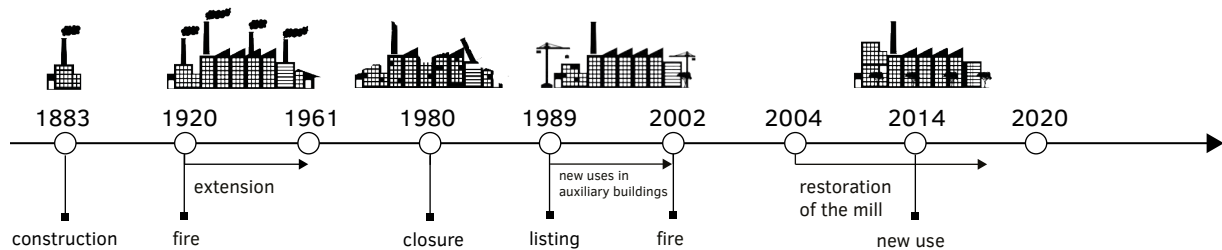
Historic use: Flour Mill

Architect: -

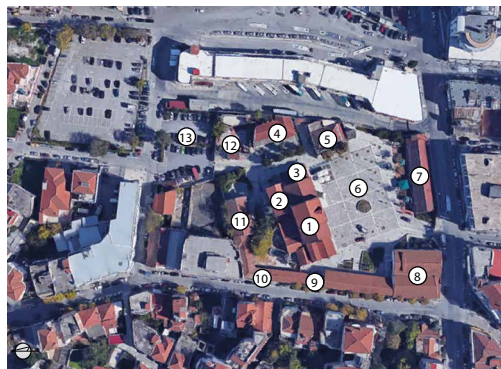
New Function: Mixed use (cultural centre, administration, recreation, HoReCa, industrial museum)

Reuse architect: Technical Department of the Municipality of Larissa, D. Lagos, c + ph architects & associates

Status: National monument



[A]



KEY

1. Mixed use: Section of Culture and Science of the Municipality of Larissa, offices of the Theatre of Thessaly and various cultural activities
2. Industrial museum
3. Cafe-bar
4. Puppet and costumes exhibition space
5. Puppet theatre
6. Central yard
7. Restaurant, club, concert hall
8. School of ballet and ballet theatre
9. Municipal philharmonic band practising hall
10. Warehouse
11. Thessaly theatre
12. Outdoors cinema
13. Parking lot

[B.1]



[B.2]



[B.3]



FIG. 20.1 Mill of Pappas Fact Sheet

20 Mill of Pappas

SUMMARY The mill of Pappas was one of the most renowned flour mills in Thessaly in the 19th and 20th century (Paliouras, 2001). Owned, transformed and funded by the Municipality of Larissa, today it functions as a dynamic cultural and recreation hub. Its programme is expected to be enriched soon with an industrial museum, interpreting the history and the former function of the industry. The case's strong features include its programme, architectural approach, cultural significance preservation and social impact while its main disadvantages include its financing and certain features of its process and functionality.

20.1 Analysis

20.1.1 Historic use

The Mill of Pappas is located in the northern part of the centre of Larissa, surrounded today by a mixed use urban tissue, characterised by commercial functions, houses, offices and transport facilities.⁵² The mill was established in 1883 in the district Tabakika in close proximity to Pinios river, for the production of flour and pasta. In the turn of 20th century the production rose and a bakery was added to the activities of the company. In 1920 the complex was hit by a fire. A year later the mill was reassembled and put back in operation.

The late 1920s saw the extension and modernisation of the mill's equipment by the German companies AMME-LUTHER and Fried Krupp A.G. Essen (Oikonomou, 2010, 43). The new machinery required more space, a need that was met by adding two extra floors to the existing mill, shaping the five-storey building that forms today the centrepiece of the reused complex (FIG. 20.1, B1, B2). During WWII and the occupation, the mill was requisitioned⁵³ by the Greek Army, later by the Italian occupants and finally by the Greek People's Liberation Army, during which time several of its parts were destroyed by bombings.

⁵² The central coach station of Larissa is located in the neighbouring plot of the mill.

⁵³ This was not the first requisition of the complex. The mill had also been requisitioned during the Balkan War of 1912 and its products had been commandeered during the Greek-Turkish War of 1897-8. These developments forced the owners of the mill to ask and receive multiple times loans from the National Bank of Greece (Oikonomou, 2010, 32-52).

LEGEND FIG. 20.1 Mill of Pappas

- A Site plan of the mill of Pappas (Google earth/Edited by the author).
- B.1 The Flour Mill of Pappas in operation in the 1970s (F. Pappas Archive).
- B.2 The centrepiece of the Mill of Pappas after its reuse, 2017.
- B.3 Interior view of the Mill after its reuse, 2017.

From 1947, the mill's reconstitution starts once again. From 1947 until 1983 the company followed a rising course. In order to boost its activity, the director F. Pappas invited German experts to train the personnel, something that had taken place also during the extension of the 1920s. By 1967 a new modernization of the facilities and machinery took place with the daily flour production climbing to 90 tons.

The decline of the company started in the mid-1970s. The adverse legal framework of the Junta, the rising competition from companies with more advanced machinery as well as accumulated debts and management errors led the company to its closure in 1983 (Municipality of Larissa, 2015).

20.1.2 Reuse Preparation

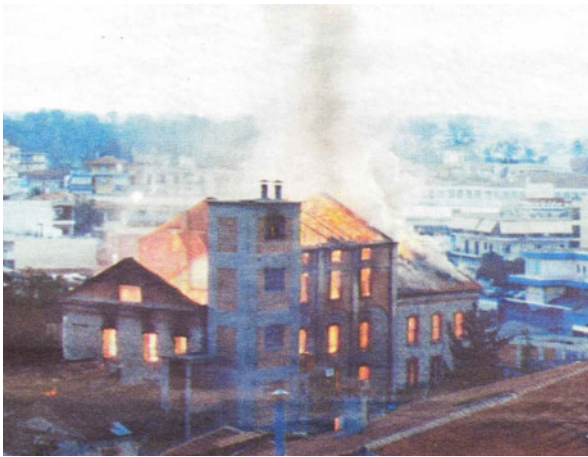


FIG. 20.2 The mill in flames (Municipality of Larissa archive).



FIG. 20.3 The mill after the fire (Municipality of Larissa - Directorate of Technical Services - Section of New Projects, 2011, 10).

Five years after its closure, the complex as well as the two surrounding plots were bought by the Municipality of Larissa. According to L. Giovri, Technical Director of the Municipality of Larissa, the C.C. decided to safeguard the mill as *“it was the largest and most complete industrial complex of Larissa, located in the centre of the city. It was an important industrial architectural monument and there was nothing similar to it in the city.”* (Resp. no 303, interview, 30/5/2017).

In 1989, the mill along with its mechanical equipment was listed as a national monument by the Ministry of Culture. Since then, the C.C. after repairing the mill's auxiliary buildings, started reusing them gradually, turning the abandoned site into a home for cultural activities.⁵⁴ The early 1990s saw this initiative gaining momentum. In 1992, the warehouse behind the main building was transformed into the stage of the Theatre of Thessaly while the eastern and southern buildings were turned into a puppet theatre, a bar-restaurant and a concert hall. A decade later an outdoors cinema was built in the northwest part of the mill's plot.

⁵⁴ The first activity housed in the premises was Larissa's municipal ballet school, in 1989.

Despite these developments, the main five storey building was remaining underused. In the mid-1990s, the C.C. assigned the project of its reuse to the team of D. Lagos, Ch. Grousopoulos, G. Papantoniou (architects), A. Mantelou (Civil engineer) G. Stefanakis (electrical engineer). At the same time special studies for the structural capacity of the building and the documentation of its machinery were conducted (Chatzigogas, 2001, 69).

The proposed programme was mixed use including a museum for the mill and the city, a youth centre, library, a conference and cultural activities hall and retail activities related to traditional workshops. The new museum would present the impressive stock of the mill's machinery safeguarded in its interior. In 2001, discussing the mechanical equipment of the complex A. Chatzigogas (2001, 69) reports:

“...After more than a century since its establishment, the mill presents a unique completeness of the technological evolution that took place in the sector of the flour industry. It started as a steam powered mill with mill stones, it turned into roller mill, it was then equipped with a diesel engine and it later became electric powered... The full production line and a big number of machines of the first extension period (1926-28) are preserved in the building. A lot of mechanical equipment of the newer phase (after 1950) has been sold to other mills of the area. The remaining machinery is older and it thus has a higher historical value.”

The exhibition of this impressive material however, along with the proposed reuse plan were never realised. In 2002, while the studies and the necessary approvals had been prepared for the beginning of the works, a fire destroyed the roof and the interior of the listed building, engulfing the large majority of its preserved machinery (FIGS. 20.2, 20.3).

The disaster however, albeit depriving the complex of one of its most valuable features did not cause the abandonment of the project. The reaction of the local authority was immediate and their coordinated endeavours resulted in securing multiple sources of funding for the repair, restoration and reuse of the historic complex.

20.1.3 Reuse process

The transformation process of the Mill of Pappas was organised in three phases. The first one included the restoration of the burned building and it took place in the period 2004-2006 with an EU funding of c.2.215.000€. In the following years additional works for the operation of the building were conducted with a funding of c.1.951.000€ from the programme “Thisseas” and national funds (ΣΑΤΑ). From 2012 to 2016, the third phase of the project took place, funded by the European Programme of Regional Development with a budget of 3.800.000€. That included the redesign of the central yard of the mill and the parking space on the north of the complex (FIGS. 20.4, 20.5) as well as the transformation of part of the mill into an industrial museum (Metron O. E. and K. Skroubelos Ph. Skroubelos and Associates, 2013, 5, n.a., 2012, Municipality of Larissa-Directorate of Technical Services-Section of New Projects, 2011, 13).

L. Giovri, discussing the key decisions of the reuse process states:

“What drove the reuse was our wish to create an industrial museum and reintegrate the complex into the city's life. We also wanted to create an interactive space following the current trends” (Resp. no 303, interview, 30/5/2017).



FIG. 20.4 The Mill of Pappas in 2001 (Municipality of Larissa - Directorate of Technical Services - Section of New Projects, 2011, 15).



FIG. 20.5 The central yard of the Mill after its redesign. (Toufexi, 2015).

Elaborating on the same topic M. Kotoula, civil engineer in the technical department of the Municipality of Larissa and supervisor of the mill's transformation, notes:

“The original plan was to turn the entire central building into a museum of itself. [...] After the fire that burned the wooden machines, the concept and the studies changed. The restoration of the building's shell was based on the design of Lagos' team. The machinery that survived the fire was preserved and kept in situ. More machines which had been purchased from other mills were also added... An important problem however was the lack of funding. Due to that we had to conduct the project in stages and implement various individual studies. As a result, there was no uniform approach to the construction of the individual projects.” (Resp. no 304, interview, 31/05/2017).

Comparing the floor plans of 1930 (FIG. 20.6) with the concept floorplan of 1997 (FIG. 20.7) and the realised one of 2013 (FIG. 20.8), it is evident that the latter ones have respected to a large extent the original distribution of spaces. On the contrary, the pattern of horizontal circulation differs.

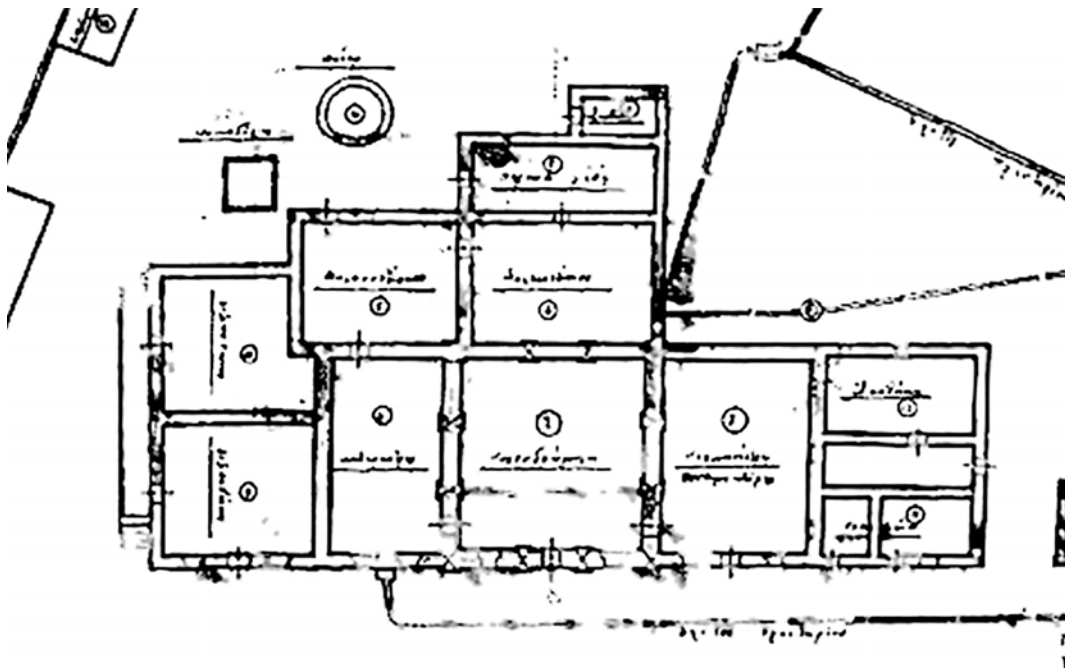


FIG. 20.6 The Mill of Pappas.1930 (Oikonomou, 2010, 114).

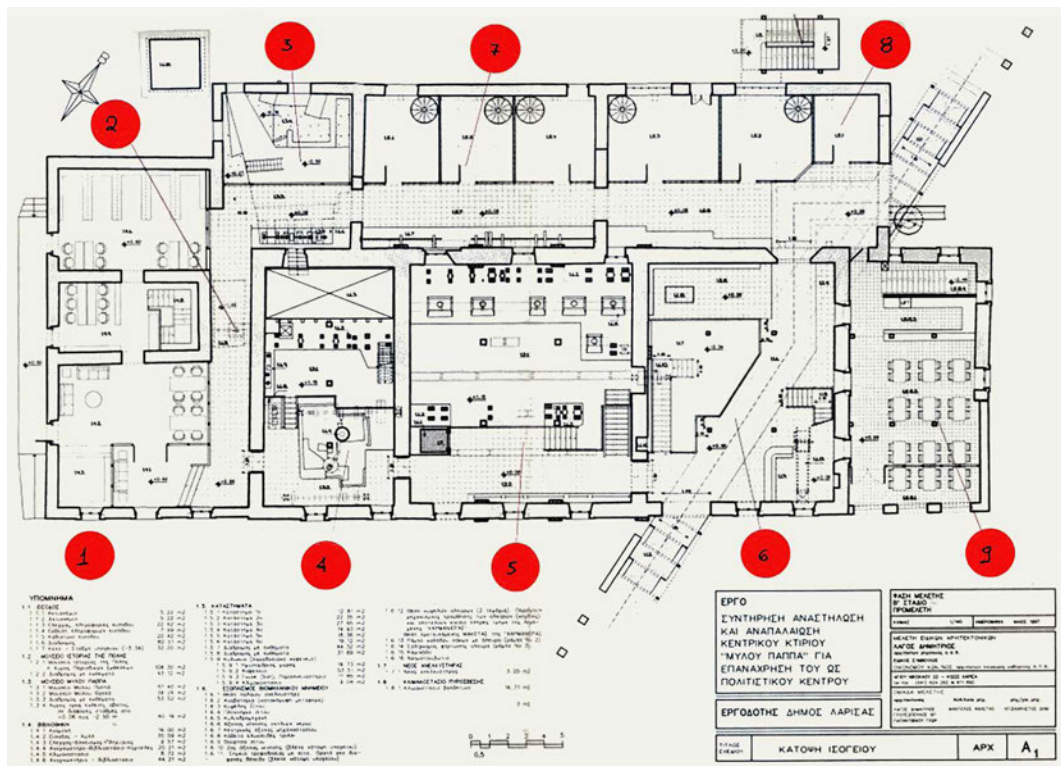


FIG. 20.7 Floorplan of the reused Mill of Pappas. 1997. The design was not implemented due to the fire that destroyed the interior of the mill (Municipality of Larissa archive).

According to M. Kotoula (Resp. no 304, interview, 31/05/2017), the vertical circulation is based on the original design of the mill. What is also interesting in the architectural drawings' comparison is the similarity of the concept floorplan of 1997 and the realised one.

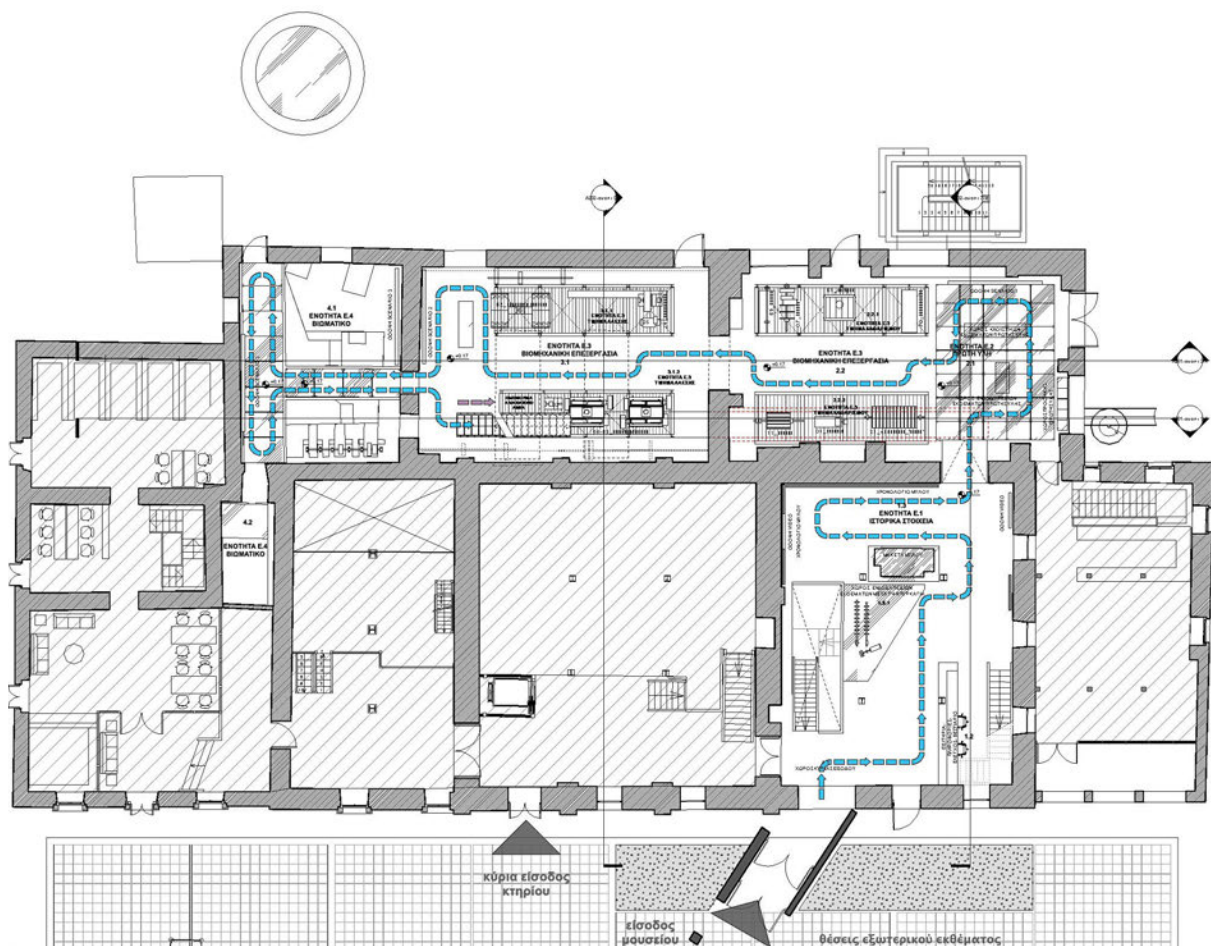


FIG. 20.8 Implemented floorplan of the reused Mill of Pappas. 2013 (Metron O. E. and K. Skroubelos Ph. Skroubelos and Associates, 2013).



FIG. 20.9 Interior view of the mill before its reuse (Municipality of Larissa archive).

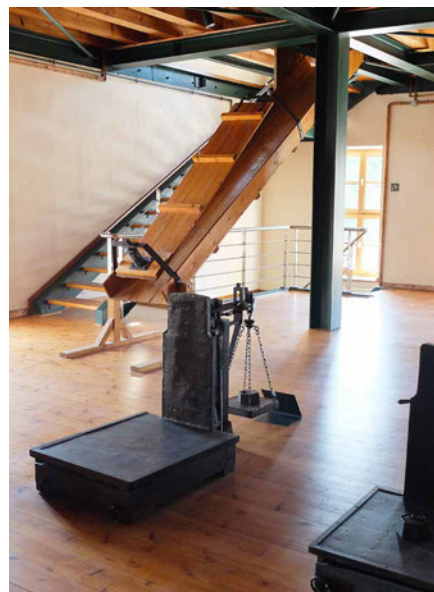


FIG. 20.10 Interior view of the mill after its reuse, 2017.

The archival and field research showed that the interior of the reused building, while it was built from scratch due to the extended damages of the fire, it borrows some of the principles of the industrial architecture while employing a modern architectural language and materialisation. The slim concrete and wooden beams were replaced by a steel framework while the wooden floors are supported by wooden beams (FIG. 20.9) as was the case before the fire (FIG. 20.10).

A big difference between the plans of the 1990s and the 2010s is the size of the industrial museum. As M. Kotoula insinuated above, the industrial museum was finally restricted to a small part of the building. Its museological and museographical design were conducted by c + ph architects & associates in collaboration with A. Chatzigogas and G. Stephanakis. In regard to its design principles K. Skroubelos, head of c + ph architects & associates states:

“Our concept was to create a route. We’ve added a new mezzanine and we placed the entrance on the first floor. From there the visitor follows a functional path. Through it, the building and its old use are being explored. In the old pump house, the only truly authentic space preserved in the mill, we did not add things. In contrast we created an experiential space which will give the possibility to understand the operation of the mill through audio-visual means.” (Resp. no 306, interview, 7/6/2017).

The design of the museum combines the preservation of authentic spaces (pump house) and equipment (industrial machinery of the mill of Pappas and other flour mills) with the addition of new elements (mezzanine, first floor corridor, floor showcases). Those additions, formulated with modern materials (steel and glass) or coated with distinct colours (FIG. 20.12) are clearly distinguishable from the original shell. The machinery in display along with the scale models (FIG. 20.10) and the interpretation texts provide the visitor with a good insight of the mill’s function and the complex’s history.

20.1.4 Occupation and management



FIG. 20.11 The centrepiece of the Mill after its reuse, 2017.

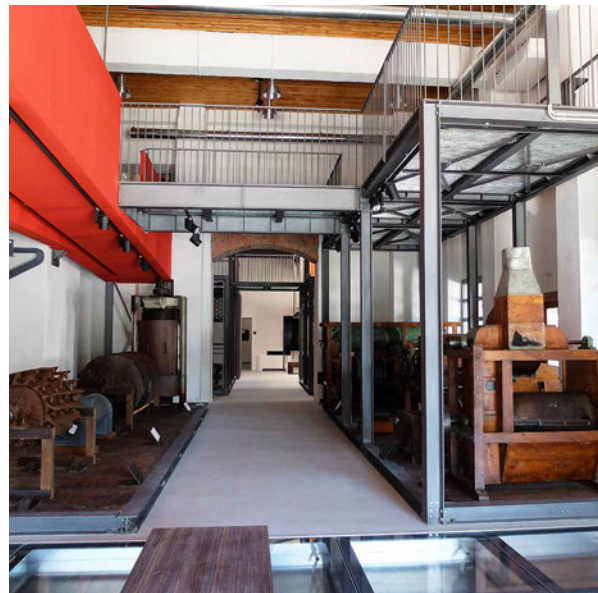


FIG. 20.12 The new cereals and flour museum of the Mill of Pappas, 2017.

The mill officially opened to the public in 2014, yet a large part of it remained underused during the first couple of years. The first functions it hosted were the Section of Culture and Science of the Municipality of Larissa, the offices of the Theatre of Thessaly and the bar of the Mill. Gradually, more cultural and social activities started using the premises encouraged by the Municipality.⁵⁵ P. Sapkas, Vice Mayor, discussing the vision for the mill's new programme states:

"The Mill is available to everyone. The Vice-mayor's Office has extended an invitation to the local groups. We wish to create a cultural incubator here. The building currently hosts dance lessons, photography workshops, yoga classes, a cinema club, theatre for adults and children and we have also redeveloped the warehouse for creating a pre-schoolers' centre. The building also hosts without a charge University seminars and book presentations. The comics' team works like a start-up creative company. Only the bar and the club are for hire. [...]"

The available spaces are allocated to cultural groups. Those do not occupy a space permanently but they can use the facilities on a regular basis for lessons, seminars, meetings etc. We do not ask rent from the groups but we request their contribution to the cultural events we organise. The agreement also includes, a very low price of tuition fees, in case they charge the citizens for their service. [...] We encourage cooperation. The teams hosted in the building communicate with each other." (Resp. no 302, interview, 31/5/2017).

Along with the opening of the mill, another important project was completed in 2014. The redesign of the central yard from a concrete arena to a stone paved-square, played a significant role in the reestablishment of the complex's character and the attraction of the public. Furthermore, the new parking lot in the north-west part of the plot, facilitated a great deal the accessibility of the mill by car.

The mix of the aforementioned uses that operate in the evening with the cultural ones that take place in the morning and the afternoon, turned the complex into a lively place around the clock.

20.1.5 Shifts

At the time of the field research (29/5-1/6/2017), an important piece of the new programme was still missing. Even though the final design, the construction and the fittings of the museum had been completed, it remained closed to the public. According to an article of the newspaper Eleftheria (Poligeni, 2018) its operation stumbles on bureaucracy issues related with the employment of the required staff.

The museum is expected to have a very positive impact on the complex's operation, giving it a new dynamic. Its operation will attract various target groups including families, school groups and specialists, who will be familiarised with the history and the former function of the mill as well as with its current programme. In that sense, the museum will play a key cultural role while boosting the new programme housed in the complex.

⁵⁵ The diagram of the distribution of the complex's new functions as they had been shaped in June 2017 is depicted in Figure 20.1: A.

20.2 Evaluation

20.2.1 Process

The process of the transformation of the mill of Pappas was top-down, showcasing the merits and limitations of the local authority's initiative. It is worth highlighting that the case refutes the common perception of short-sighted local authorities which only realise small projects completed in their tenure. All the elected parties that served in the C.C. of the Municipality of Larissa were firmly committed to the mill's reuse, as shown in the analysis and confirmed by the qualitative research (L. Giovri, M. Tsiaris, K. Skroubelos, Resp. no 303, 305, 306, interviews, May-June 2017).

The most important merits of the local authority's action were the prioritisation of the safeguarding of the historic, architectural and technical values of the mill as well as the selected direction of its new programme, that will be analysed below. In regard to the shortcomings, the project encountered financial issues, bureaucracy and delays, which are all common problems of the Greek public works.

The division of the transformation process in steps also presents advantages and disadvantages. Among the first ones are the familiarisation of the public with the historic complex and the halt of its dereliction. The disadvantages on the other hand, include the lack of a common architectural language in the implementation of the complex's sub-projects realised in different phases as well as the delay in the delivery of the project.

Finally, the case also illustrates the danger of prolonged dereliction. Alike many other cases, the delays of the reuse process of the complex's centrepiece along with the lack of security measures, costed the loss of its mechanical equipment and interior structure by a fire.

20.2.2 Programme

The new programme of the Mill of Pappas is one of its strongest assets. This is also confirmed by the qualitative research of this study (FIG. 20.13). The positive evaluation is based on five key features of the new programme. Firstly, As K. Skroubelos puts it: *"Its strength is its multi-functionality and the various uses that complement one another"*. Elaborating on the second feature he also argues:

"It has been achieved to keep the complex operational all day and night. It works on a 24-hour basis, which is very positive. If it had been converted only into a museum, it would have been a wrong solution." (Resp. no 306, interview, 7/6/2017).

The third feature of the programme is its public character. The complex welcomes a diverse audience of various ages. Supported by the municipality of Larissa, it offers a multitude of cultural, social and educational functions at a minimum price or even for free. The accessibility of the public and the encouragement of their direct involvement with activities taking place in a cultural monument, in the author's opinion, has a heightened socio-cultural added value and should be promoted. From this perspective, the action of the local authority is highly commendable.

Fourthly, the compatibility of the programme both with the needs of the city and with the available spaces of the historic industrial site should be stressed. On the one hand, the new programme filled a functional gap in the city. On the other hand, it did not compromise the historic fabric nor the remaining mechanical equipment. The last positive feature of the programme that is directly linked to the previous one, is the addition of the museum use. Its significance will be analysed in the evaluation section: Cultural significance (§ 20.2.4).

20.2.3 Architecture

The architectural approach of the reuse is also among the strengths of the case. As discussed in the Analysis, the transformation of the mill's centrepiece respected the existing fabric while the reconstruction of its interior was based on the principles of the original industrial building. The machinery elements which escaped the fire were conserved and are preserved in situ. Elaborating on the architectural approach, M. Tsiaris, civil engineer and Head of Technical Support Services of the Municipality of Larissa, states:

“The interventions were few and substantial. The shell was preserved while the interventions were discrete as they ought to be.” (Resp. no 305, interview 30/05/2017).

In regard to the museum part, the architectural result of the transformation demonstrates a sensitivity to the authentic movable and immovable heritage pieces and high skills for creating a new space with modern materials which gives off nevertheless an industrial vibe.

It should be noted that, despite the sensible architectural approaches, the sense of place has been extinguished along with the flames that devoured the building. The fire took a heavy toll on the integrity and the atmosphere of the mill as it vanished once and for all the traces of its lived interior and the largest part of its historic machinery.

As mentioned above, the architectural approach of the transformation of the central and the auxiliary buildings differs. Some of the auxiliary buildings present several issues. An employee of the puppet theatre explains:

“Only the central building and the yard are beautiful. The rest look miserable. They have to be unified aesthetically with the mill.” (Resp. no 312, interview, 30/05/2017).

Indeed, some of the auxiliary buildings (puppet theatre, ballet school) present a notable difference of architectural quality in contrast with the mill.

20.2.4 Cultural significance

As discussed in the previous paragraphs, the reuse of the Mill of Pappas respected the site's cultural significance. Both movable and immovable heritage elements were preserved. The incorporation of the industrial museum function plays a pivotal role in the preservation and dissemination of the mill's cultural values. The museum is expected to serve as a connecting link between the past and the present of the complex. Combining original machinery preserved in situ in a historic production shell, using texts, workers' oral testimonies, audio-visual and archival material as well as scale models, the new museum will unfold the history of the building and interpret its former function and its production line to the visitors.

20.2.5 Finance

The financing of the project is one of the weaker components of the case. In the reuse phase, the lack of resources and the lengthy process of applying for EU and national funding, caused significant delays. That had a twofold negative impact. Firstly, the mill was left exposed to catastrophic incidents, losing a big part of its historic fabric and mechanical equipment. Secondly, as noted above, there was a fragmentation in the architectural approach at a complex level.

The operation and maintenance of the historic site is funded by the Municipality of Larissa. As M. Tsiaris puts it:

“The mill does not generate profit, yet it provides a great benefit for the local community.” (Resp. no 305, interview, 30/05/2017).

Despite the undeniable positive social impact, the dependence of the project on the local authority's budget presents the disadvantages mentioned in the Analysis (limited resources, delays, bureaucracy). At present, those disadvantages hinder the opening of the museum.

20.2.6 Social component

The transformation of the Mill of Pappas into a cultural hub offers significant social added value. The new programme and its openness to the local community engages various groups to the project while offering multiple opportunities for participation and interaction.

The qualitative and field research of this study showed that the mill, thirty-five years after its closure, has started to regain a significant role in the collective consciousness as an indispensable part of Larissa's history.

Elaborating of the social implications of the project the following respondents stated:

“I'm glad it was reused. It offers services which are open to everyone. It is a pillar of actions in the city centre. It hosts many activities. It honours the history of my city and my neighbourhood.” Cleaning lady in the Mill of Pappas (Resp. no 309, interview, 29/5/2017).

“It has a great resonance in the people of Larissa. Many events are organised in the buildings and the courtyard. The exhibition of Tloupas (famous Greek Photographer) brought the Larissians close to their history.” municipality clerk (Resp. no 310, interview, 29/5/2017).

According to the Vice-Mayor P. Sapkas,

“The challenge is to attract more visitors and users, organising more events while promoting collaboration further.” (Resp. no 302, interview, 31/5/2017).

The new museum is expected to play a catalytic role for meeting the aforementioned challenges and boosting the current functions of the complex. Its historic and technical significance and its educational role have the potential to turn the Mill of Pappas into a point of reference at a local and regional level.

20.2.7 Functionality

The functionality of the complex differs between buildings. According to the field and qualitative research of this study, the functionality of the mill's centrepiece is satisfactory in respect to its accessibility, internal climate and maintenance level (FIG. 20.1). The only issue reported was the problematic form of the staircases, which inspired by the original ones, have narrow treads.

In contrast to the main building, some of the peripheral ones (puppet theatre and school of ballet) face significant functional problems. In that respect a member of the puppet theatre staff explains:

“The roof of our building needs to be repaired. We have serious maintenance issues. There is water penetration and the windows need maintenance. The building that houses the museum of puppets is inappropriate for that use. Its façade is made of glass, causing the exhibits to wear out due to the sun exposure.” (Resp. no 312, interview, 30/5/2017).

20.2.8 Stakeholders' evaluation

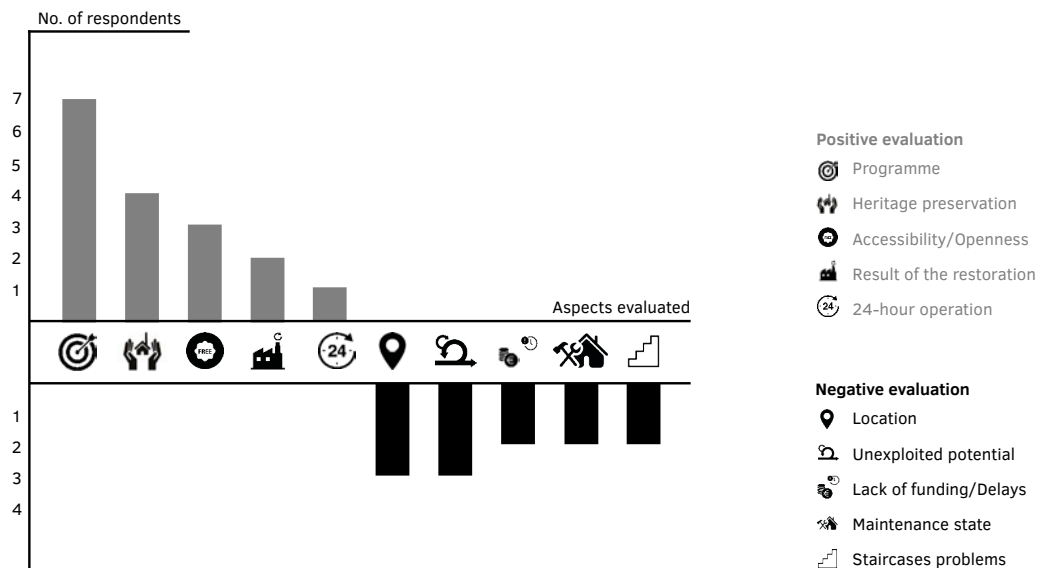


FIG. 20.13 Respondents' evaluation of the strong and weak Aspects of the case of the Mill of Pappas (Number of respondents: 11).

References

- 22@ Barcelona BCN. 2006a. *Background* [Online]. Available: <http://www.22barcelona.com/content/view/60/407/lang,en/> [Accessed 23/4/2018].
- 22@ Barcelona BCN. 2006b. *Who we are* [Online]. Available: <http://www.22barcelona.com/content/blogcategory/33/403/lang,en/> [Accessed].
- ACTE 2011. *ACTE European Textile Collectivities Association: 20 years of innovation* Spain.
- Adamakis, K. Critical evaluation of the reuse of industrial buildings in Volos. Proposals for the following day. In: MUNICIPAL CENTER FOR HISTORICAL RESEARCH AND DOCUMENTATION OF VOLOS, ed. The end of giants: Industrial heritage and urban transformations, 22-25 November 2007 Volos. 179-199.
- Addis, B. & Vilanova, A. El conjunto fabril de Ca l'Aranyó en Barcelona y sus orígenes ingleses. IXI Congreso Internacional Hispanoamericano de Historia de la Construcción, 2015 Segovia. 63-74.
- Agriantoni, C. 1993. The first industrial town. *Kathimerini*. *Epta imeres*, 20 June.
- Agriantoni, C. & Belavilas, N. 1999. Centre for the Technical Culture. *Technologia: Bulletin of the Cultural Technological Foundation of the Hellenic Industrial Development Bank* 9, 67-68.
- Ajuntament de Barcelona 2011. *22@Barcelona: 10 years of urban renewal*, Ajuntament de Barcelona.
- Ajuntament de Barcelona 2012. *22@ Barcelona Plan: A programme of urban, economic and social transformation*.
- Ajuntament de Barcelona. n.d. *Ca L' Aranyó* [Online]. Available: http://w123.bcn.cat/APPS/cat_patri/editElement.do?reqCode=inspect&id.identificador=2977&id.districte=10# [Accessed 23/4/2018].
- Ancoats Buildings Preservation Trust. 2004a. *About Ancoats* [Online]. Available: http://www.heritageworks.co.uk/abpt-final/about_ancoats.htm [Accessed 18 January 2016].
- Ancoats Buildings Preservation Trust. 2004b. *The Murrays' Mills, Ancoats - permanent repair project*. [Online]. Available: http://www.ancoatsbpt.co.uk/projects_mills.htm [Accessed 18 January 2016].
- Área de Gobierno de Las Artes. n.d. *Fábrica de Tabacos (Ref.: 05525)* [Online]. Available: http://www.monumentamadrid.es/AM_Edificios4/AM_Edificios4_WEB/index.htm#ingra:inmana.05525 [Accessed 13/2/2018].
- Aroca, F. V. 2007. *De la ciudad de Dios a la ciudad de Baco*, Jerez, Remedios 9 Ediciones.
- BAAMcArthurGlen 1998. Great Western Designer Outlet Overview.
- Bayer, M., Bovens, M. & Husslage, B. 2015. *Terug naar de fabriek: 25 industriële iconen met nieuwe energie*, Amsterdam, Oostenwind
- Beale, C. 2014. *The Ironbridge Spirit: a History of the Ironbridge Gorge Museum Trust*, Wales, Ironbridge Gorge Museum Trust.
- Belavilas, N. 2001. A Museum is born in Hermoupolis. *Technologia: Bulletin of the Cultural Technological Foundation of the Hellenic Industrial Development Bank* 10-11, 10-15.
- Belavilas, N. Centre for the Technical Culture- Industrial Museum of Hermoupolis: A network of historic sites in an island city. In: GOTSIS, S., ed. *Museums in Monuments: A Challenge*, 25 April 2002 Byzantine and Christian Museum. 91-104.
- Bewoners van het Jannink complex 2016. *Resultaten enquête bewoners van het Jannink complex*, Enschede.
- Biel Ibáñez, P. & Cueto Alonso, G. 2011. *100 elementos del Patrimonio Industrial en España*.
- Bitzanis, K. & Florou, M. Industrial Gas Museum in pursuit of tourism: Chimera or opportunity? In: CILAC, ed. XVIth TICCIH congress: Industrial heritage in the 21st century, new challenges, 2018 Lille.
- Blakeley, G. & Brendan, E. 2013. *The regeneration of east Manchester. A political analysis.*, Manchester, Manchester University Press.
- Blockley, M. 1999. Preservation, Restoration and Presentation of the Industrial Heritage: A Case Study of the Ironbridge Gorge In: CHITTY, G. & BAKER., D. (eds.) *Managing historic sites and buildings : reconciling presentation and preservation* New York: Routledge.
- Bombas Gens Centre d'Art. n.d. *History* [Online]. Available: <http://www.bombasgens.com/en/building/history/> [Accessed 22/3/2018].
- Bono, F. 2017. Una Antigua fábrica de bombas producirá arte y solidaridad *El país* 16/4.
- Borrás, X. 1996. El paso decisivo del Museu. *Magazine fin de semana*, 3/2/1996, p.2.
- BRICK Work. n.d. *East Range, Stanley Mills* [Online]. Available: <https://brick-work.org/projects/east-range-stanley-mills-1635865251/> [Accessed 3 March 2019].
- Caballé, F. 2010. Desaparece el barrio de Icaria, Nace la Vila Olímpica. *Biblio 3W, Revista bibliografica de geografia y ciencias sociales*, Vol. XV, nº 895 (9).
- Camden 2004. Conservation area Statement 22. London: Camden.
- Cardo, Y. & Majó, J. 2002. Comienzan los trabajos para convertir Ca L' Aranyó en el Campus Audiovisual. *ABC.es*, 21/11.
- Carr, R. n.d. *King's Cross gazetteer* [Online]. Greater London Industrial Archaeology Society. Available: <http://www.glias.org.uk/walks/kgx.html> [Accessed 3 December 2018].
- Casas, F. 2008. Poblenu, memoria y rascacielos. *Publico* 27/02.
- Cattell, J. & Falconer, K. 1995. *Swindon: The legacy of a Railway Town*, Swindon, RCHME.
- Centrum Dordrecht. 2020. *Energiehuis* [Online]. Available: <https://centrumdordrecht.nl/locatie/energiehuis/?parent=82> [Accessed 20 February 2020].

- cepezed. n.d. *textile museum textiellab* [Online]. Available: https://www.cepezed.com/projects/35-textielmuseum-textiellab?_ga=2.27825396.933086935.1545147876-2045848344.1527239138 [Accessed 18 December 2018].
- Cerutti, V. 2011. *Creatieve fabrieken: waardecreatie met herbestemming van industrieel erfgoed*, C2Publishing.
- Chadoumelis, A. 2015. Strategic analysis and planning (2015-2020): Updated version February 2016. Lavrion: NTUA, Lavrion Technological and Cultural Park
- Chanou, E. 2015. The neighborhood of Tsalapatas gets desolated. *Tachidromos*, 26 December.
- Charnock, G., March, H., Purcell, T. & Ribera-Fumaz, R. 2018. Urban Regeneration, Rent and Labour: Insights from Barcelona's 'Knowledge District'. In: ALBET, A. & BENACH, N. (eds.) *Gentrification as a Global Strategy: Neil Smith and Beyond* Routledge.
- Charnock, G., Purcell, T. F. & Ribera-Fumaz, R. 2014. City of Rents: The limits to the Barcelona model of urban competitiveness. *International Journal of urban and regional research*, 38.1, 198-217.
- Chatzi Rodopoulou, T. Heritage-led regeneration in the UK: Preserving Historic values or Masking commodification? A reflection on the case of King's Cross, London In: HEIN, C., ed. International Planning History Society Proceedings, 17th IPHS Conference, History-Urbanism-Resilience, 2016 Delft. TU Delft Open, 75-88.
- Chatzi Rodopoulou, T. Reloading 21st century cities with cultural energy: The transformation of gas factories into cultural hotspots in Amsterdam and Athens. Proceedings of the International Conference on Changing Cities III: Spatial, Design, Landscape & Socio-economic Dimensions, June 26-30 2017 Syros, Delos, Mykonos Islands, Greece. pp. 1786-1796.
- Chatzi Rodopoulou, T. The opportunities of Crisis: Bottom-up initiatives for the reuse of industrial heritage: The example of the Tabacalera in Madrid. In: GOSPODINI, A., ed. Changing Cities IV: Spatial, Design, Landscape & Socio-economic Dimensions, 2019 Chania, Crete Island, Greece. 484-497.
- Chatzi Rodopoulou, T. & Floros, X. ReIH: An online knowledge platform for Industrial Heritage Reuse. In: RETTIG, J. M., ed. XVII TICCIIH International Congress: Industrial Heritage: Understanding the Past, Making the Future Sustainable., 2018 Santiago, Chile. TICCIIH, 363-366.
- Chatzi Rodopoulou T. 2018. Parque tecnológico y cultural de Lavrion. La transformación de un gigante. *Los ojos de la memoria*, No 20, 69-76.
- Chatzi Rodopoulou T. & Hunt J. 2017. Urban regeneration of former industrial cities. A cure or a curse? The case of Ancoats Conservation Area in Manchester, England. In: COUCEIRO DA COSTA ET AL. (ed.) *Architectural research addressing societal challenges*. Taylor & Francis Group.
- Chatzigogias, A. 2001. The mill of Pappas in Larissa - Technological evolution. *Technologia: Bulletin of the Cultural Technological Foundation of the Hellenic Industrial Development Bank*, 10-11, 68-69.
- Cossons, N. 2009. Foreword In: BELFORD, P., PALMER, M. & WHITE, R. (eds.) *Footprints of Industry*. BAR British Series.
- Cressey, M. & Fitzgerald, R. 2011. *Force and Fabric: Archaeological Investigations at Stanley Mills*, Historic Scotland.
- Crone, J. 2013. *Schoonheid van historische ingenieurskunst* [Online]. BouwWereld. Available: https://www.nrpguldenfeniks.nl/upload/gulden-feniks/1/354/extra_af55c4658b7fd4f607beb33cca822abf.pdf [Accessed 27 November 2018].
- CSA La Tabacalera. n.d. *CSA La Tabacalera* [Online]. Available: <http://latabacalera.net/c-s-a-la-tabacalera-de-lavapies/> [Accessed 21/2/2018].
- Cushman & Wakefield and Nash Bond. 2017. *Retail Facts & Figures: King's Cross* [Online]. Available: <https://www.kingscross.co.uk/media/KXfacts-digital.pdf> [Accessed 11 December 2018].
- Damigos, D. & Kaliampakos, D. 2012. Emerging Value of Brownfields Regeneration. *International Journal of Sustainable Development and Planning*, 7(2), 173 – 185.
- Darby, M. 2009. Ironworks to museum: Coalbrookdale 1709-2009. In: P. BELFORD, PALMER, M. & WHITE, R. (eds.) *Footprints of Industry*.
- de Boer, H., Bruinsel, R., Hoogendoorn, R., Kloosterman, H., te Selle, H. & Wassenaar, B. 1995. *Oude fabrieken nieuwe functies: Herbestemming industrieel erfgoed*, Zeist, PIE.
- de Boer, S. B. & Heerkens, S. F. L. M. 1975. Behoud Jannink-Komplex. Enschede.
- de Jonge, W. 2013. *TextielMuseum Bidbook 2014-2018: Cultural Hotspot*, Amsterdam, Pictoright.
- De Tuesta, M. J. D. 2009. El proyecto maldito de Cultura. *El País* 26/2.
- Dekavallas, G. 2016. *Memories of a Mayor*, Hermoupolis, O logos ton Kikladon.
- Dekavallas, G. 2017. *Memories of a Mayor*, Hermoupolis, O logos ton Kykladon.
- Dermatis, G., Marmani, M., Belavilas, N. & Chatzi-Rodopoulou, T. 2010. A twenty Year Debt in history: Mining and metallurgy Museum of Lavrion. *TICCIIH GR Journal*, C.1, 88-91.
- Dimoglou, E. 1998. Proposal for the creation of an industrial museum in the Rooftile and Brickworks factory Tsalapatas *Technologia: Bulletin of the Cultural Technological Foundation of the Hellenic Industrial Development Bank*, 40-41.
- Dordrecht. n.d. *Stadswerven* [Online]. Available: https://cms.dordrecht.nl/Inwoners/Overzicht_Inwoners/Projecten/Nieuwbouw/Stadswerven [Accessed 20 February 2020].
- Dot, J. E., Casellas, A. & Pallarès-Barberà, M. Gentrificación productiva en Barcelona: efectos del nuevo espacio económico. IV Jornadas de geografía económica, 2010 León.
- Douet, J. 2012. *Industrial Heritage Re-tooled: The TICCIIH guide to industrial heritage conservation*, Lancaster, TICCIIH.
- DRU. 2016. *Our history* [Online]. Available: <https://www.drufire.com/en-gb/about-dru/our-story> [Accessed 21 November 2016].
- DRU Industriepark. n.d. *DRU History* [Online]. Available: <http://www.dru-industriepark.nl/en/dru-industry-park/history/> [Accessed 21 November 2016].
- Duke, S. 2015. 2,000 staff, £650m buildings . . . but not here for tax purposes. *The Sunday Times*, 22 March.
- Edwards, M. 2009. King's Cross: renaissance for whom? In: PUNTER, J. (ed.) *Urban Design, Urban Renaissance and British Cities*. London: Routledge.
- Energiehuis. n.d. *Over Ons* [Online]. Available: <https://www.energiehuis.nl/informatie/over-ons/> [Accessed 28 November 2018].
- English Heritage 2013a. Constructive Conservation: Sustainable growth for historic places. English Heritage.

- English Heritage 2013b. Heritage Works: The use of historic buildings in regeneration. A toolkit of good practice. English Heritage.
- Estudio Ramon Valls. n.d. *Campus de la comunicació upf 22@ de barcelona* [Online]. Available: UPF Campus of Poblenou [Accessed 25/4/2018].
- European Route of Industrial Heritage. n.d. *Stanley Mills* [Online]. Available: <https://www.erih.net/i-want-to-go-there/site/show/Sites/stanley-mills/> [Accessed 3 March 2019].
- Falconer, K. 2000. Swindon's head of steam: The regeneration of the GWR's works. *Patrimoine de l'industrie*, 3, 21–28.
- Falconer, K. 2007. Sustainable reuse of historic industrial sites. In: FORSYTH, M. (ed.) *Understanding historic building conservation*. Blackwell publishing.
- Feilden Clegg Bradley Studios. n.d. *National Trust Headquarters* [Online]. Available: <https://fcbstudios.com/work/view/National-Trust-Headquarters> [Accessed 8 November 2018].
- Feinberg, M. 2013. From cigarreras to indignados: Spectacles of scale in the CSA La Tabacalera of Lavapiés, Madrid. *International Journal of Iberian Studies*, V. 26, No 1–2, 21.
- Franklin, B. 2015. Amazing Photographs of London Squatters in the 70s and 80s. *Vice.uk*, 21 October.
- Fundació Per Amor a l'Art. n.d. *Edificio* [Online]. Available: <http://fpaa.es/edificio/> [Accessed 23/3/2018].
- Fustegueras, M. Á. G. 2017. Las fábricas del vino y la construcción de la ciudad capitalista. *Williams & Humbert conference*
- Gazepis, N., Ikonomidou, O. & Sachana, C. 2013. Learning from mistakes. A critical approach to the course that followed the Gazi of Athens to reach its present form. *Industrial heritage: Regeneration and viability*. Athens, Benaki Museum.
- Geerts, J. 2009. *Architectuur: Textielmuseum Tilburg* [Online]. Available: <https://www.tilburgers.nl/architectuur-textielmuseum-tilburg/> [Accessed 15 January 2019].
- Gemeente Oude IJsselstreek 2011. *DRU Industriepark. Gebiedsvisie Dru industriepark – deel 2. Van Paasberg tot Engbergen*, Gendringen, Gemeente Oude IJsselstreek.
- González, R. L. & Ruiz, R. M. T. 2012. *La arquitectura del siglo XX en Jerez. 85 obras singulares*.
- Goodchild, S. 1999. King's Cross vice defies the cameras. *Independent*, 22 August.
- Griffith, G. 2011. From red light to spotlight: the rebirth of King's Cross. *London loves Business* [Online]. Available: <http://www.londonlovesbusiness.com/property/where-to-buy-property-in-london/from-red-light-to-spotlight-the-rebirth-of-kingscross/1011.article> [Accessed 21 November].
- Hartwell et al. 2005. *Manchester: the World's First industrial City for inclusion on the World heritage List.*, Manchester, The Greater Manchester Archaeological Unit.
- Hatherley, O. 2010. *A Guide to the New Ruins of Great Britain*, London, Verso.
- Hernandez, P. 2015. *Non-Gentrified Neighbourhoods?* [Online]. Available: <http://theprotocity.com/non-gentrified-neighbourhoods/> [Accessed 30/3/2019].
- Hesseling, B. 1983. *Gerhad Jannink & Zonen te Enschede: 1853-1938. Jaren van rationalisatie en verzet.*, Hengelo, Witkam.
- Het Nederlands IJzermuseum. 2008. *De geschiedenis van het initiatief* [Online]. Available: <http://www.nederlandsijzermuseum.nl/main/ijzermuseum-in-wording/items/1-de-geschiedenis-van-het-initiatief.html> [Accessed 8/12 2016].
- Historic England. n.d. *Search the list* [Online]. Available: <https://historicengland.org.uk/listing/the-list/> [Accessed 16 May 2018].
- Historic Environment Scotland. 2017. *Statement of significance: Stanley mills* [Online]. Available: <https://www.historicenvironment.scot/archives-and-research/publications/publication/?publicationId=4c28ae95-f593-41fe-9b3a-a57000db4011> [Accessed 15 February 2019].
- Historic Environment Scotland. n.d. *Bell Mill, or West Mill, Stanley Mills including iron gangway, belt proofing machine and west sluice chamber LB4486* [Online]. Available: <http://portal.historicenvironment.scot/designation/LB4486> [Accessed 15 February 2019].
- Historic Scotland 2008. *Stanley Mills: official souvenir guide.*, Edinburgh, RCAHMS
- Holgersen, S. & Haarstad, H. 2009. Class, Community and Communicative Planning: Urban Redevelopment at King's Cross. *Antipode*, 41, 348–370.
- Home.co.uk. 2016. *Manchester Local Property Information* [Online]. Available: http://www.home.co.uk/for_rent/manchester/current_rents?location=manchester [Accessed 2 February 2016].
- Hummelen, M. & Stenvert, R. 2011. *Het Beltmancomplex: Een tweede jeugd*, Velp, Drukkerij De Rijn BV.
- Hurenkamp Architecten & Adviseurs. n.d. *Badkuipenfabriek DRU* [Online]. Available: <http://www.hurenkamp.nl/19346/Catalogus/Product/1161/BADKUIPENFABRIEK-DRU> [Accessed 27/5/2019].
- Illas, E. 2012. *Thinking Barcelona: Ideologies of a Global City*, Liverpool University Press.
- INNOVATHENS. n.d. *INNOVATHENS* [Online]. Available: <https://www.innovathens.gr/innovathens-en-2/> [Accessed 11 October 2018].
- Ironbridge Gorge Museum Trust 1978. *Blists Hill Open Air Museum: A guide to the museum and exhibits*. Telford: Printex Press Limited.
- Jonkman Klinkhamer architecten 2009. *Voorlopig Ontwerp Energiehuis Dordrecht*. Amersfoort.
- Kaempfer, J. W. 1999. Making heritage industrial buildings work, Great Western Railway Works, Swindon. *Business in the community. Regeneration through Heritage*, 15–18.
- Kaliambakos, D. 2015. *The Contribution of the National Technical university of Athens in Lavrion of the 21st century*, Athens University publications NTUA.
- Kelleher, S. 2013. Industrial Archaeology at the Ironbridge Gorge Museum Trust: Past, Present and Future. *Journal of the Broseley Local History Society*, Winter 2013/14, 1–8.
- King's Cross Central Limited Partnership 2011. *Stories*, London, King's Cross Central Limited Partnership.
- King's Cross Central Limited Partnership 2014. *4 Pancras Square*, London, King's Cross Central Limited Partnership.
- King's Cross Central Limited Partnership 2015. *Overview*, London, King's Cross Central Limited Partnership.
- King's Cross Central Limited Partnership 2016. *Past times. King's Cross Visitor Centre*.

- King's Cross Central Limited Partnership. n.d.-a. *The History of King's Cross* [Online]. Available: <https://www.kingscross.co.uk/history-kings-cross-area> [Accessed 4 December 2018].
- King's Cross Central Limited Partnership. n.d.-b. *The story so far* [Online]. Available: <https://www.kingscross.co.uk/the-story-so-far> [Accessed 3 December 2018].
- King's Cross Railway Lands Group. 2004. *History* [Online]. Available: <http://www.kxrlg.org.uk/history/index.htm> [Accessed 22 March 2016].
- King's Cross Central Limited Partnership. n.d.-a. *Gasholders London* [Online]. Available: <https://gasholderslondon.co.uk/> [Accessed 10 December 2018].
- King's Cross Central Limited Partnership. n.d.-b. *Historic buildings* [Online]. Available: <https://www.kingscross.co.uk/historic-buildings> [Accessed 11 December 2018].
- King's Cross Central Limited Partnership. n.d.-c. *N1C. Coal Drops yard: About* [Online]. Available: <https://www.coaldropsyard.com/about/> [Accessed 10 December 2018].
- Kizis, Y. 1999. The Rooftile and Brickworks factory Tsalapatas. The industrial heritage of Volos and its recent destiny. *Technologia: Bulletin of the Cultural Technological Foundation of the Hellenic Industrial Development Bank*, 26-29.
- Koekebakker, O. 2003. *Cultuurpark Westergasfabriek: transformatie van een industrieterrein*, NAI Uitgevers.
- Koutsoudaki, E. n.d. *Lead Shot Factory Museum* [Online]. Available: <http://www.eratokoutsoudaki.com/en/projects/> [Accessed 11 June 2018].
- Landscape Institute. 2016. *Ancoats public realm* [Online]. Available: https://www.landscapeinstitute.org/case-studies/ancoats_public_realm/ [Accessed 9 February 2019].
- Lavriou Technological and Cultural Park. n.d. *Administration* [Online]. Available: http://www.ltp.ntua.gr/lavriou_park/administration_en [Accessed 6 September 2017].
- LDN Architects. n.d. *Stanley Mills* [Online]. Available: <https://www.ldn.co.uk/architecture-projects/stanley-mills-restoration/> [Accessed 15 February 2019].
- Llordès, T. & Pont, F. 2014. *Espais recobrats. Els nous usos del patrimoni industrial català*, Terrassa, mNACTEC.
- López, C. C. 2017. *Las fábricas de tabacos en España (1731-1945)*. UPM.
- Louvi, A. 2006. The Rooftile and Brickworks museum of N. & S. Tsalapatas *En Volo*, 52-57.
- Macheras, G. 2001. Industrial Athens. Industrial Archaeology. *Kathimerini 7 imeres*, 7 January.
- Mackay, E. 2008. Investigating Stanley Mills: Information for teachers. Edinburgh: Historic Environment Scotland.
- Manchester City Council. 2016. *Ancoats Conservation area*. [Online]. Available: http://www.manchester.gov.uk/info/511/conservation_areas/1216/ancoats_conservation_area [Accessed 27 January 2016].
- Manchester Life. 2015. *Manchester connection* [Online]. Available: <http://www.mcrlife.co.uk/manchester-connection> [Accessed 2 February 2016].
- McLennan, W. 2015. Axed: King's Cross social homes as developer bids to build more luxury flats. *Camden New Journal*, 9 April.
- Medcities. n.d. *Disrito 22@* [Online]. Available: <http://www.medcities.org/web/ktc-malaga/-/best-practices-distrito-22-mig04> [Accessed 25/4/2018].
- Metron O. E. & K. Skroubelos Ph. Skroubelos and Associates 2013. Museological and museographical study for the Museum of Pappas (preliminary study):. Athens: Municipality of Larissa.
- Michelin. n.d. *Museum Jannink: De Groene Gids*. [Online]. Available: https://www.viamichelin.nl/web/Toeristische-Attractie/Enschede-7511-Museum_Jannink-a5obxhp0 [Accessed 2/2/2017].
- Ministerio de Educación Cultura y Deporte. n.d. *Patrimonio Cultural* [Online]. Available: http://www.mecd.gob.es/bienes/buscarDetalleBienesInmuebles.do?brscgi_DOCN=000006071&brscgi_BCSID=ea0cedfb&language=es&prev_layout=bienesInmueblesResultado&layout=bienesInmueblesResultado [Accessed 9/5/2018].
- Ministerio de Educación, C. y. D. n.d. *Tabacalera Promoción del Arte* [Online]. Available: <https://www.mecd.gob.es/cultura-mecd/areas-cultura/promociondelarte/tabacalera/tabacalera-pres.html> [Accessed 21/2/2018].
- mNACTEC. 2016. *Memoria 2016: Museu Nacional de la Ciència i de la Tècnica de Catalunya* [Online]. Available: <http://mnactec.cat/documents-mnactec/Memoria-mNACTEC-2016.pdf> [Accessed 7/2/2018].
- Montaner, J. M. 2012. The Barcelona Model reviewed: From the beginning of democracy to now. *Transfer*, 07, 48-53.
- Morley, P. 2009. Chapter One. In: CUMMINS, K. (ed.) *Manchester: Looking For The Light Through The Pouring Rain*. London: Faber & Faber.
- Mugridge, A. J. 1997. *Maw and Company. 1850-1969*, Jackfield, Smith York Fine Art Publishing.
- Municipality of Dordrecht 2009. Masterplan Stadswerven: Nieuwe stedelijkheid voor Dordrecht.
- Municipality of Larissa-Directorate of Technical Services-Section of New Projects 2011. Proposal of the Municipality of Larissa for the funding of the project : Cultural centre-Museum of Pappas Mill. Larissa.
- Municipality of Larissa. 2015. *Mill of Pappas 1893 - 1983* [Online]. Available: <http://www.larissa-culturestories.gr/el/mnimeia/mylos-tou-pappa> [Accessed 2 August 2018].
- Museu de la Ciència i de la Tècnica de Catalunya. n.d.-a. *437.000 visitas a los museos del Sistema Territorial del mNACTEC el año 2014* [Online]. Available: <https://www.mnactec.cat/es/el-museo/prensa-detalle/437000-visitas-a-los-museos-del-sistema-territorial-del-mnactec-el-ano-2014> [Accessed 20 February 2020].
- Museu de la Ciència i de la Tècnica de Catalunya. n.d.-b. *Exhibitions* [Online]. Available: <https://mnactec.cat/en/exhibitions/permanent> [Accessed 28/6/2019].
- Museu de la Ciència i de la Tècnica de Catalunya. n.d.-c. *History* [Online]. Available: <http://mnactec.cat/en/> [Accessed 7/2/2018].
- n.a. 2012. The museum of Pappas Mill in Larissa. *tvxs*, 15 April.
- Nationale Agenda Herbestemming. 2015a. *DRU-cultuurfabriek te Ulft* [Online]. Available: <http://www.kennisbankherbestemming.nu/projecten/dru-cultuurfabriek-te-ulft> [Accessed 21 November 2016].
- Nationale Agenda Herbestemming. 2015b. *Westergasfabriek, Amsterdam* [Online]. Available: <http://www.kennisbankherbestemming.nu/projecten/westergasfabriek-amsterdam> [Accessed 15 November 2016].

- Negri, M. 2012. Industrial museums. In: DOUET, J. (ed.) *Industrial Heritage Re-tooled: The TICCIIH guide to industrial heritage conservation*. Lancaster: TICCIIH.
- Nevell, M. 2014. Legislation and reality: the archaeological evidence for sanitation and housing quality in urban worker's housing in the Ancoats Area of Manchester between 1800 and 1950. *Industrial Archaeology review*, 36.1, 48-74.
- Nieto, P. 2010. Un vestido moderno para las viejas piedras. *Diario de Jerez*, 11/1.
- Nieto Sobejano Arquitectos S.L.P. 2010. *Museum of Visual Arts* [Online]. Available: http://www.nietosobejano.com/project.aspx?i=32&t=MUSEUM_OF_VISUAL_ARTS [Accessed 13/2/2018].
- Nieuwmeijer, G. G. & Kuipers, M. 1983. De westergasfabriek te Amsterdam. *Industriele archeologie*, 155-168.
- Nijhof, P. 1996. *101 industriële monumenten*, Zwolle, Waanders.
- NRP Gulden Feniks. 2011. *Voormalig Dru Terrein* [Online]. Available: <http://www.nrpguldenfeniks.nl/hall-of-fame/jaargangen/2011/gebiedstransformatie/voormalig-dru-terrein-1/> [Accessed 8/12 2016].
- NRP Gulden Feniks. 2014. *Cultuurcentrum Energiehuis Dordrecht: Transformatie* [Online]. Available: <https://www.nrpguldenfeniks.nl/archief/jaargangen/2014/transformatie/cultuurcentrum-energiehuis-dordrecht-1/> [Accessed 27 November 2018].
- NTUA. 1997. *Technological and Cultural Park of Lavrion: Studies and works 1994-97*, Athens, University publications NTUA.
- NTUA School of Architecture Urban Environment Laboratory. 2009. *Architectural and museological design of Lavrion Metallurgy and Metallurgy Museum* [Online]. Available: <http://www.arch.ntua.gr/envlab/resources#resource-5310> [Accessed 5 September 2017].
- Oikonomou, P. 2010. *The evolution of the flour industry in Thessaly: The Mill Of Pappas in Larissa*. Master's thesis, University of Thessaly.
- Paliouras, D. 2001. Industrial development in Thessaly. *Kathimerini*. *Epta imeres*, 7 January.
- Panagiotakopoulos, N., Sgouris, V. & Sismanis, G. 2003. The Rooftile and Brickworks factory Tsalapatas *En Volo*, 88-93.
- Piraeus Bank Group Cultural Foundation 2009. *The Rooftile and Brickworks factory of N. & S. Tsalapatas (1917-1978)*, Athens, Piraeus Bank Group Cultural Foundation.
- Pogkas, K. 1996. How did we get to the Lavrion Technological and Cultural Park *Sigchrona Themata*, 58-59, 33-35.
- Poligeni, N. 2018. The museum of cereal and flour in Larissa is ready. *Eleftheria*, 18 March.
- Prats, C. J. 2010. El Sistema territorial del mNACTEC: patrimonio, identidad y públicos.
- Prepi, A. 2009. *Gazi-Metaxourgio region in Athens: urban and social mutations*. Master's thesis, Architecture School Paris-La-Villette.
- Prepis, A. 2008. The Athens Gasworks; Reintegration in the modern city life. In: MOISIDOU, G. (ed.) *Museums in monuments: A Challenge*. Athens: Ministry of Culture-Bysantine and Christian Museum.
- Price, J. 2006. Interpreting Industrial Heritage. In: HEMS, A. & BLOCKLEY, M. (eds.) *Heritage Interpretation*. Taylor & Francis.
- Prieto, J. M. A. 2009. Jerez: Rehabitar las bodegas, habitar la memoria. *eDap02*, 101-109.
- Prieto, J. M. A. 2012. *La Construcción de la Ciudad Bodega. Arquitectura del vino y transformación Urbana en Jerez de la Frontera en el Siglo XIX*. Tesis doctoral, Universidad de Sevilla.
- Ramon Esteve Architecture Design. n.d. *Bombas Gens: Art, Scientific Research and Social Project* [Online]. Available: <http://www.ramonesteve.com/en/pro/architecture-en/culture-and-education/bombas-gens/> [Accessed 26/03/2018].
- Red de Lavapiés. 2004. *La Tabacalera a debate* [Online]. Available: <http://latabacalera.net/web2004/info/index.html> [Accessed 21/2/2018].
- Regeneris Consulting 2017. *The Economic and Social: Story of King's Cross*. London.
- Reijseger, B. 2008. *Audax Textielmuseum Tilburg* Cast.
- Rigopoulos, D. 2008a. The outlook and the athenean aspiration. *Kathimerini*, 31 August.
- Rigopoulos, D. 2008b. Technopolis defined a whole generation. *Kathimerini*, 24 July.
- Rijksdienst voor het Cultureel Erfgoed. 2017. *Rijksmonumentenregister. Monumentnummer: 15299* [Online]. Available: <https://monumentenregister.cultureelerfgoed.nl/monuments/15299?City=Enschede&Street=Haaksbergerstraat> [Accessed 18-01-2017].
- Rijksdienst voor het Cultureel Erfgoed. n.d. *Monumentnummer: 46925, Goirkestraat 88 5046 GN te Tilburg* [Online]. Available: <https://cultureelerfgoed.nl/monumenten/46925> [Accessed 8 January 2019].
- Robben, P. 2013. *Herbestemming Mommerscomplex / TextielMuseum* [Online]. Available: <https://prezi.com/tgqirjvdyab/herbestemming-mommerscomplex-textielmuseum/> [Accessed].
- Rose, M., Falconer, K. & Holder, J. 2011. *Ancoats. Cradle of industrialisation*, Swindon, English Heritage.
- Rosso, J. M. 2010. Bodegueros de Jerez. Un importante ramo empresarial en la España contemporánea (siglos XVIII-XX). In: SANTANA, A. R. & ROSSO, J. M. (eds.) *Nueve bodegueros del Marco del Jerez. (Siglos XVIII-XX)*. Cádiz: Quorum Editores.
- Sánchez, L. P. 2014. *La conservación arquitectónica de las bodegas de Jerez. La viabilidad del cambio de uso como alternativa a la destrucción*, Escuela Técnica Superior de Ingeniería de Edificación, Universidad de Sevilla
- Schuling, D. 1986. Il riuso della fabbrica tessile "Jannink" ad Enschede. *Recuperare. Edilizia design impianti*, 25, 444-447.
- Scott, L. A. 2014. *King's Cross* [Online]. Available: <http://casestudies.uli.org/kings-cross> [Accessed 22 March 2016].
- Sistema Territorial del Museu Nacional de la Ciència i de la Tècnica de Catalunya. n.d. *About us* [Online]. Available: <http://sistema.mnactec.cat/en/about-us/> [Accessed 7/2/2018].
- Smith, S. 1989. The Ironbridge Gorge museum Trust-brief history. In: RAISTRICK, A. (ed.) *Dynasty of Iron Founders*. York: Book trust in association with Ironbridge Gorge Museum.
- Somer, K. & Lankamp, P. 1998. *Westergasfabriek: het terrein en de gebouwen: een cultuurhistorische verkenning*, Bureau Monumentenzorg.
- Stadsdeel Westerpark *Project Westergasfabriek* [Online]. Available: <http://www.project-westergasfabriek.nl/english> [Accessed 15 November 2016].
- Stanton Williams Architects. 2011. *UAL Campus for Central Saint Martins* [Online]. Available: <http://www.stantonwilliams.com/projects/ual-campus-for-central-saint-martins-at-kings-cross/#description>. [Accessed 2 April 2016].

- STEAM Museum of the Great Western Railway. n.d. *History of STEAM* [Online]. Available: <https://www.steam-museum.org.uk/aboutus/Pages/HistoryofSTEAM.aspx> [Accessed 7 November 2018].
- Stenvert, R. 2011. Bouwhistorisch onderzoek met waardstelling. Janninkcomplex, Haaksbergenstraat 147, Enschede. Utrecht.
- Stoyannidis, Y. & Chatzigogas, S. 2013. *Industrial Gas Museum: The Athens Gasworks, Technopolis City of Athens S.A*, Athens.
- Stratton, M. 2000. *Industrial Buildings: Conservation and Regeneration*, London, Taylor & Francis
- Technopolis City of Athens S.A. 2016. *Technopolis in Numbers*, Athens.
- Ten Bras, R. 2014. Energy House Dordrecht: European Union Prize for Cultural Heritage/ Europa Nostra Awards 2015. Amersfoort.
- TenBrasWestinga 2013. Het Energiehuis, Dordrecht, 2013.
- TextielMuseum TextielLab. n.d. *Sponsors & partners* [Online]. Available: <https://www.textielmuseum.nl/en/page/sponsors-and-partners> [Accessed 22 January 2018].
- The Ironbridge Gorge Museum Trust. n.d.-a. *History of the Museums* [Online]. Available: <https://www.ironbridge.org.uk/our-story/history-of-the-ironbridge-gorge-museum-sites/> [Accessed 13 March 2019].
- The Ironbridge Gorge Museum Trust. n.d.-b. *The Ironbridge Gorge Museums Timeline* [Online]. Available: <https://www.ironbridge.org.uk/our-story/timeline/> [Accessed 13 March 2019].
- TICCIH Greece 1995. The Rooftile factory Tsalapatas in Volos. *TICCIH Greece Bulletin*, 16-17.
- Tomlinson, L. 2015. New development raises concerns with residents. *Manchester Confidential*, 8 July.
- Toufexi, E. 2015. Let's go to the yard of the Mill of Pappas. *Iarissanet.gr*, 2 June.
- Touliatos, P. & Efesiou, I. 2010. 1992-2010- From the initial design to the restoration and reuse of the historic buildings in the Lavrion Technological and Cultural Park. In: TSILIS, Y. (ed.) *Architectural Footprints of industrial archaeology in Lavrion from documentation to reuse* Athens: University publications NTUA.
- Trinder, B. 1993. Ironbridge. In: TRINDER, B. (ed.) *Blackwell Encyclopedia of Industrial Archaeology*. Wiley-Blackwell.
- Undiscovered Scotland. n.d. *Stanley Mills* [Online]. Available: <https://www.undiscoveredscotland.co.uk/stanley/stanleymills/index.html> [Accessed 27 February 2019].
- UNESCO. n.d. *Ironbridge Gorge* [Online]. Available: <http://whc.unesco.org/en/list/371> [Accessed 19 March 2019].
- Utrera, J. 2002. Crece el descontento en el Poblenou por la forma en que se implanta el 22@. *El país* 16/10.
- van Boom, N. & Mommaas, H. 2009. *Vernieuwingsstrategieën voor de industriestad*, Rotterdam, NAI Uitgevers.
- van der Veen, A., Staal, G., Oosterhof, H. & Vogels, J. 2008. *Fifty Years of the Textile museum: 1958-2008* Audax Textielmuseum Tilburg.
- van Dijk, H. 1996. *Bouwplaat Nederlands Textielmuseum: Mommers & Co., van fabrieksgebouw tot museumgebouw*, Brabantse Museumstichting.
- van Doremalen, H. 1991. *Nederlands textielmuseum: Fabriek in bedrijf*, Den Haag, SDU.
- van Driel, I. 2018. Raad vreest hoge kosten Energiehuis. *AD*, 21 June 2018.
- Vásquez, C. 2014. Un incendio destroza la cubierta del edificio modernista Bombas Gens. *El país* 5-2.
- Veneti, E. & Zournatzidou, A. 2009. *Urban renaissance in Gazochori*. Thesis, Department of Civil Engineering, National Technical University of Athens.
- Vilanova, A. Poblenou urban development and heritage valuation. International conference about the intervention of Architectonic Heritage "PATRIMONI PARTIT, PATRIMONI COMPARTIT" Architectural intervention during 19th and 20th century in the Mediterranean, 14-17/12 2006 Barcelona.
- Vilanova, A., Simó, E., Benedito, J. & Valls, R. 2009. La rehabilitació del conjunt industrial de Ca l'Aranyó Nou Campus de la Comunicació de la Universitat Pompeu Fabra (UPF)
- Vranas Museum. 2015. *Archipelagos Company* [Online]. Available: <http://vranasmuseum.gr/eteria-archipelagos/> [Accessed 8/6/2018].
- VVV Zuid Holland Zuid. n.d. *Energiehuis Dordrecht* [Online]. Available: https://www.vvvdordrecht.nl/content/print.asp?menu=1006_000000_000000_035944 [Accessed 28 November 2018].
- Wainwright, O. 2014. 50 years of gentrification: will all our cities turn into 'deathly' Canberra? *The Guardian*, 12 December.
- Westergasfabriek BV. 2015. *Permanent tenants* [Online]. Available: <http://www.westergasfabriek.nl/en/permanent-tenants> [Accessed 17 November 2016].
- Wiki Midden-Brabant. n.d. *TextielMuseum* [Online]. Available: <https://wikimiddenbrabant.nl/TextielMuseum> [Accessed 24 December 2018].
- Woonplaats, D. n.d. *Het Jannink* [Online]. Available: <https://www.de-woonplaats.nl/onze-projecten/het-jannink/> [Accessed 2/2/2017 2017].
- Young, T., Hallsworth, S., Jackson, E. & Lindsey, J. 2006. *Crime displacement in King's Cross*. London Metropolitan University.
- Zafra, I. 2016. Valencia protege Bombas Gens, sede de un nuevo centro de arte. *El país* 29-1.
- Zoopla. 2016. *Flats to rent in Ancoats* [Online]. Available: <http://www.zoopla.co.uk/to-rent/flats/ancoats> [Accessed].
- ΚεΤεΠο-BME. 2010a. *History* [Online]. Available: <http://www.ketepo.gr/en/history/> [Accessed 15/06/2018].
- ΚεΤεΠο-BME. 2010b. *Oral history Archive* [Online]. Available: <http://www.ketepo.gr/en/oral-history-archive/> [Accessed 15/06/2018].

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Control Shift

European Industrial Heritage Reuse in review

VOLUME 2

Theodora Chatzi Rodopoulou

This dissertation focuses on Industrial Heritage Reuse practice in Europe, with special emphasis on the United Kingdom, the Netherlands, Spain and Greece. This vastly complex yet fascinating topic has not been studied holistically under the circumstances of the contemporary era. In the 21st century, Industrial Heritage Reuse is required to be more responsive, more sustainable, more inclusive and more value-driven than before. An enhanced approach for the transformation of industrial relics is therefore urgently needed.

The aim of this dissertation is to explore the potential of enhancement of the Industrial Heritage Reuse by identifying and analysing its influencing Aspects under the light of the contemporary theoretical conservation concepts, the current demands of the field of practice and the rising challenges of the 21st century context.

Drawing upon both theory and practice on an international level, this research gives a holistic and multileveled view on the subject under investigation. Industrial Heritage Reuse and its stakeholders are investigated in the setting of the four selected countries through the detailed analysis of 20 case studies of best practice.

Volume 1 introduces the research problem and explains the thesis' rationale; it presents the research methodology, the academic analysis and it finally offers the research products. Volume 2 presents the analysis and evaluation of the 20 selected case studies, varying from Ironbridge in Shropshire, to the Technological and Cultural Park of Lavrion and from Westergasfabriek in Amsterdam to the 22@ district of Barcelona.

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