ΕΘΝΙΚΟ ΜΕΤΣΟΒΙΟ ΠΟΛΥΤΕΧΝΕΙΟ

ΣΧΟΛΗ ΗΛΕΚΤΡΟΛΟΓΩΝ ΜΗΧΑΝΙΚΩΝ
ΚΑΙ ΜΗΧΑΝΙΚΩΝ ΥΠΟΛΟΓΙΣΤΩΝ

ΤΟΜΕΑΣ ΕΠΙΚΟΙΝΩΝΙΩΝ, ΗΛΕΚΤΡΟΝΙΚΗΣ ΚΑΙ ΣΥΣΤΗΜΑΤΩΝ
ΠΛΗΡΟΦΟΡΙΚΗΣ

Δημιουργία κέντρου βοήθειας και υποστήριξης για τη διαχείριση ιστοσελίδων ESN Satellite

Building a Helpcenter for the webmasters of ESN Satellite

ΔΙΠΛΩΜΑΤΙΚΗ ΕΡΓΑΣΙΑ

Ουρανία Χ. Χαντζοπούλου

Επιβλέπων : Γεώργιος Στασινόπουλος
Καθηγητής

Αθήνα, Μάιος 2011

ΕΘΝΙΚΟ ΜΕΤΣΟΒΙΟ ΠΟΛΥΤΕΧΝΕΙΟ
ΣΧΟΛΗ ΗΛΕΚΤΡΟΛΟΓΩΝ ΜΗΧΑΝΙΚΩΝ
ΚΑΙ ΜΗΧΑΝΙΚΩΝ ΥΠΟΛΟΓΙΣΤΩΝ
ΤΟΜΕΑΣ ΕΠΙΚΟΙΝΩΝΙΩΝ, ΗΛΕΚΤΡΟΝΙΚΗΣ ΚΑΙ ΣΥΣΤΗΜΑΤΩΝ
ΠΛΗΡΟΦΟΡΙΚΗΣ

Δημιουργία κέντρου βοήθειας και υποστήριξης για τη διαχείριση ιστοσελίδων ESN Satellite

Building a Helpcenter for the webmasters of ESN Satellite

ΔΙΠΛΩΜΑΤΙΚΗ ΕΡΓΑΣΙΑ

Ουρανία Χ. Χαντζοπούλου

Επιβλέπων :   Γεώργιος Στασινόπουλος
Καθηγητής

Εγκρίθηκε από την τριμελή εξεταστική επιτροπή την 10η Μαΐου 2011

....
Γ. Στασινόπουλος   Ε. Δ. Συκάς   Μ. Ε. Θεολόγου
Καθηγητής   Καθηγητής   Καθηγητής

Αθήνα, Μάιος 2011

....

Ουρανία Χ. Χαντζοπούλου

Διπλωματούχος Ηλεκτρολόγος Μηχανικός και Μηχανικός Υπολογιστών Ε.Μ.Π.

Table of Contents

Figure list

Abstract

Erasmus Student Network (ESN) is one of the biggest interdisciplinary student associations in Europe, founded in 1989 for supporting and developing student exchange. ESN is working in the field of Higher Education with 12.000 volunteers offering services to 150.000 students in 370 Higher Education Institutions from 35 countries.

There are several IT systems in ESN, all created and maintained by volunteer members of the organization. For reasons of continuity, those IT systems are built using open source software and more specifically the Content Management System "Drupal". ESN is also using a database of users and local sections which is built on Lightweight Directory Access Protocol (LDAP). Among those there is ESN Galaxy, an intranet for ESN members and aggregator of local events, activities and news, ESN Satellite, a Drupal based website template for general use in the network and more specifically for the local section's websites, which are also interconnected to the ESN Galaxy; they are providing feeds of their news and activities and they are receiving settings and International feeds.

The scope of this work was to create a Help Center for providing technical support and guidance to the webmasters of ESN local sections who are using the Drupal based ESN Satellite template for their websites. The forms of the help are tutorials, video tutorials and one-on-one guidance via discussion forums. The local webmasters do not necessarily possess deep technical knowledge so we tried to cover a variation of topics, from beginner to the advanced ones.

The reception of the Helpcenter was considered satisfactory; however, as it is an IT project it needs continuous promotion, especially to non-technical users. The promotion has proven to be so far its weakest point.

In this document, we are presenting the Erasmus Student Network, we are studying its IT systems and infrastructure, we are designing the technical requirements needed and describing the process of its development, and in the end we are evaluating the final product.

Key words: Content Management System, Drupal, PHP, MySQL, LDAP, installation profiles, technical support, open source, non-profit, non-governmental, organizations, volunteering, youth, education

Περίληψη

Το Erasmus Student Network (ESN) αποτελεί έναν από τους μεγαλύτερους μη κερδοσκοπικούς οργανισμούς φοιτητών στην Ευρώπη και ιδρύθηκε το 1989 με σκοπό τη στήριξη και ανάπτυξη της ανταλλαγής φοιτητών. Το ESN εργάζεται στον τομέα της Τριτοβάθμιας Εκπαίδευσης με 12.000 εθελοντές που προσφέρουν υπηρεσίες σε 150.000 φοιτητές σε 370 ιδρύματα τριτοβάθμιας εκπαίδευσης από 35 χώρες της Ευρώπης.

Τα διάφορα συστήματα πληροφορικής που χρησιμοποιούνται σήμερα στο ESN και δημιουργήθηκαν και συντηρούνται από εθελοντές-μέλη της οργάνωσης. Για λόγους συνέχειας και εύκοης επεκασιμότητας, τα συστήματα αυτά έχουν κατασκευαστεί με χρήση λογισμικού ανοικτού κώδικα και ειδικότερα του Συστήματος Διαχείρισης Περιεχομένου "Drupal". Το ESN χρησιμοποιεί επίσης μια βάση δεδομένων των χρηστών και των τοπικών συλλόγων, η οποία είναι φτιαγμένη σε Lightweight Directory Access Protocol (LDAP). Το σημαντικότερο από όλα τα συστήματα είναι το ESN Galaxy, ένα intranet για τα μέλη του ESN που λειτουργεί και ως aggregator τοπικών νέων και δραστηριότητες από όλους τους τοπικούς συλλόγους. Επιπλέον, το ESN προσφέρει στους τοπικούς συλλόγους μια πρότυπη ιστοσελίδα πουλέγεται ESN Satellite καιείναι επίσης βασισμένη σε Drupal. Το ESN Satellite του κάθε συλλόγου είναι διασυνδεδεμένο με το ESN Galaxy και παρέχει feeds με τα τοπικά νέα και δραστηριότητες καθώς και λαμβάνει άλλες πληροφορίες, εξού και το όνομα «δορυφόρος» και «γαλαξίας»

Σκοπός αυτής της εργασίας ήταν να δημιουργηθεί ένα Κέντρο Βοήθειας για την παροχή τεχνικής υποστήριξης και καθοδήγησης των webmasters του ESN τον τοπικών συλλόγων χρησιμοποιούν το πρότυπο ESN Satellite για τις ιστοσελίδες τους. Η βοήθειας παρέχεται σε είναι tutorials, βίντεο καθώς και καθοδήγηση και επίλυση αποριών μέσω ενός φόρουμ συζητήσεων. Ακόμη, λαμβάνοντας υπόψη μας ότι οι τοπικοί webmasters δεν διαθέτουν κατ 'ανάγκη βαθιά τεχνική γνώση, προσπαθήσαμε να καλύψουμε όσο το δυνατόν ευρύτερο πεδίο θεμάτων, από αρχάρια μέχρι προχωρημένα.

Η επιτυχία του Helpcenter κρίθηκε ικανοποιητική. Ωστόσο, για να πετύχει ενα τέτοιο έργο χρειάζεται συνεχή προώθηση, ιδίως για τους μη τεχνικούς χρήστες. Η προώθηση και η αποτελεσματική επικοινωνία έχει αποδειχθεί μέχρι στιγμής το πιο αδύναμο σημείο.

Στην εργασία αυτή, παρουσιάζουμε το Erasmus Student Network, μελετούμε τα συστήματα πληροφορικής που έχουν αναπτυχθεί και χρησιμοποιούνται, σχεδιάζουμε τις τεχνικές προδιαγραφές που απαιτούνται, κατόπιν περιγράφουμε τη διαδικασία της ανάπτυξής του, και τέλος αξιολογούμε το τελικό προϊόν.

Λέξεις κλειδιά: Content Management System, Drupal, PHP, MySQL, LDAP, installation profile, τεχνική υποστήριξη, λογισμικό ανοικτού κώδικα, μη κερδοσκοπική, μη κυβερνητική οργάνωση, εθελοντισμός, εκπαίδευση

Preface

This document describes a small part of my voluntary work in Erasmus Student Network, first as a local webmaster in ESN Kapa Athens, the local section of the University of Athens, taking care of the Satellite 2 based website, afterwards as a founding member and president of ESN NTUA Athens, the local section of the National Technical University of Athens, afterwards from August 2009 on as member of the IT Committee of ESN International, designing the IT systems, providing help and technical support to dozens of local webmasters and afterwards creating the ESN Helpcenter and from July 2010 in ESN International, as the Web Project Administrator of ESN A.I.S.B.L. in the headquarters of the organization in Brussels, Belgium.

Acknowledgements

I would like to thank the IT Committee of ESN International for the cooperation during the last 2 years, the hard work, the long skype calls, the fun and all the nerd jokes we enjoyed together. Especially I would like to thank the IT Committee Chair Hendrik Schraa for the continuous support both on the technical and mental field as well as my predecessor in the position of Web Project Administrator, Marc Janson and all those who believed in me.

I would also like to thank the International Board of ESN 2010 – 2011, Eva, Joachim, Damien, Marco, Leo and Justyna, for the creative year we spent together in Brussels, working on a voluntary basis for the ESN network, for student mobility and internationalization of education.

I would like to thank my family for supporting me continuously in this effort, from my first steps into this field until now.

Last but not least, I would like to thank my professor Georgios Stassinopoulos for giving me the opportunity to present this topic and to add value to the work of international volunteer students.

1 Erasmus Student Network

1.1 About ESN

Erasmus Student Network (ESN) is one of the biggest interdisciplinary student associations in Europe, founded in 1989 for supporting and developing student exchange. ESN is working in the field of Higher Education with 12.000 volunteers offering services to 150.000 students in 370 Higher Education Institutions from 35 countries and the network is constantly developing and expanding with an average annual growth rate of 12,3% since 1990.

ESN works for the creation of a more mobile and flexible education environment by supporting and developing the student exchange from different levels, and providing an intercultural experience also to those students who cannot access a period abroad ("internationalization at home")

1.1.1 Vision, Mission, Values

As approved at the Annual General Meeting in Utrecht in March 2009.

Vision

Enrichment of society through international students

Mission

ESN is the key volunteer student organization in international higher education in Europe. We provide opportunities for cultural understanding and self-development under the principle of Students Helping Students.

Values

The values of Erasmus Student Network that all members stand and work for are:

unity in diversity, diversity in the unity
we all have different backgrounds, but share one common aim and goal

students helping students
we passionately commit ourselves to volunteering for the benefits of others

fun in friendship and respect
we enjoy relations based on respect

international dimension of the life
we are open-minded, mobile, like to discover and explore, to co-operate and to interact to break borders

love for Europe as an area of peace and cultural exchange
we live and benefit from the cultural richness of Europe to the utmost

openness with tolerance
we understand and accept others and learn from them

cooperation in the integration
we share an holistic view towards internationality

1.1.2   Principles
As approved at the Annual General Meeting in Utrecht in March 2009.

The nine principles of ESN:

ESN works in the interest of international students.
ESN works to improve the social and practical integration of international students.
ESN represents the needs and rights of international students on the local, national and international level.
ESN provides relevant information about mobility programs.
ESN motivates students to study abroad.
ESN works with the reintegration of homecoming students.
ESN contributes to the improvement and accessibility of student mobility.
ESN cares about its members.
ESN values volunteering and active citizenship.

1.2   Structure of the ESN network
ESN is a decentralized network with 3 main levels, local, national and international. The local level has always been the basis of the network and the main focus behind ESN International's actions however since 2005; ESN International has established its headquarters in Brussels, Belgium where the International Board, full time employees, volunteers and interns are working on international projects and events, policy making and of course providing support to the local sections.
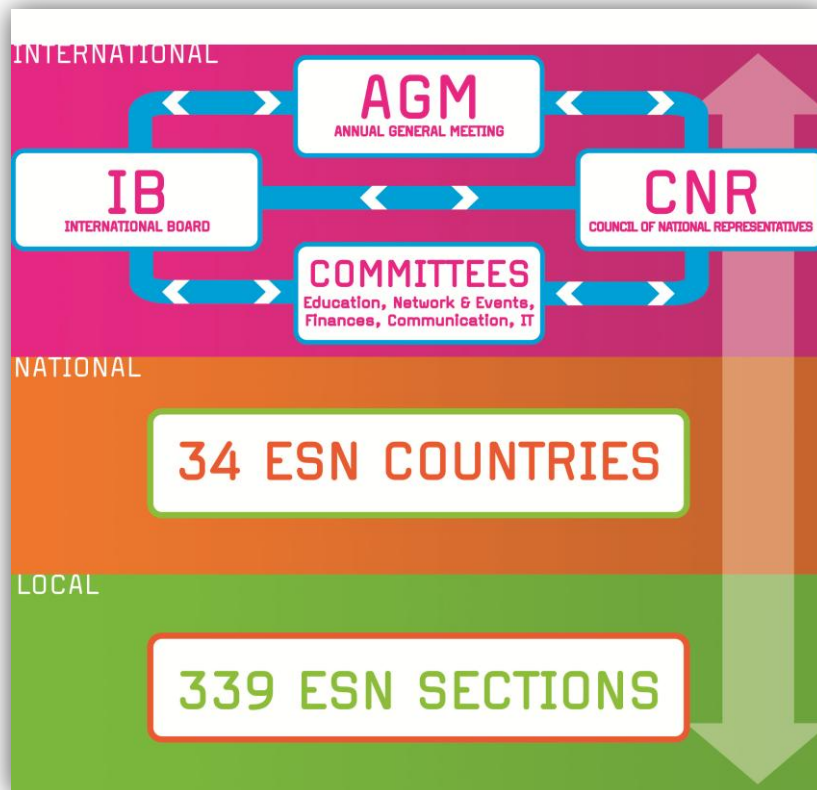
1.2.1 Local Level

The local level consists of the local sections, which are student associations based on a particular university working for the exchange students. They are providing assistance with academic issues, accommodation, information provision, but they are also organizing cultural events, trips, sports or other activities and in general they are facilitating the stay and the integration of the exchange students with the local community.

At the moment the ESN Network counts 370 local sections in 35 countries, however this number is changing often as the network keeps growing. Local sections in universities with many exchange students from all over the world tend to be more developed, counting hundreds or even thousands of members. Several local sections have also developed good relations with local authorities and partners as they perceive international students as a way of promoting the university, the city as well as the local economy.

Services for exchange students

The main focus of ESN is placed on current exchange students, who often face various problems in their new environments. Therefore ESN offers help in academic, social and practical integration process. This is mainly done through activities in the local sections, which include cultural and social events such as trips to various places within the country, film nights, buddy systems, language projects and international food fests and last, but not least, parties. In addition to that, many sections have introduced mentor systems, which help the international students mainly in academic and practical integration.

Services for local students

The students who are returning from exchange are being supported in reintegration process in their home countries by keeping contact with an international environment. Many local sections are set up by former exchange students, often because they have had good experiences from their exchange period or because they felt a lack of guidance and help during their own exchange.

ESN also provides relevant information and encourages the future exchange students to live the international experience and gain relevant insight to different cultures. For instance, many sections have buddy systems, where a local student is taking care of an international student. In this way, they are able to understand better the issues and challenges in a foreign environment and get better prepared for their future experience.

1.2.2   National Level

As in many countries there is a significant number of sections, a national board has been established, in order to facilitate the administration of the network, to enhance national cooperation for partnerships on a country level as well as the cooperation with the National Agency and other authorities. This has proven to be very successful, especially in countries with more than 25 local ESN sections, such as Spain, Poland and Italy.

The National level is not mandatory, but strongly recommended for countries with more than 3 sections. In every country though, there is a National Representative in charge of all the national issues and also for facilitating the communication between local level and international.

1.2.3   International level

Finally, ESN International has its Headquarters in Brussels, where the International Board is based. They are elected during the Annual General Meeting and they are they have the main responsibility for the administration of the network. The members of the International Board are: President, Vice President, Treasurer, Communication manager and Web Project Administrator. To assist the International Board, 5 Committees have been founded; Education, Network and Events, Finance, Communication and IT.

ESN International is conducting ambitious projects mostly on the field of education such as:

- ESNSurvey (http://esn.org/content/esnsurvey) is a European-wide research on different topics concerning academic and non-academic mobility. It is annually conducted among international students and non-mobile students, with average response rate of 8.000 participants. Starting in 2005, the ESNSurvey is the biggest regular research prepared and run entirely by students for other students.

- PRIME, Problems of Recognition in Making Erasmus (http://www.prime.esn.org) is a research project conducted at about 100 European universities concerning the procedures applied to outgoing Erasmus/Exchange students and especially the recognition of courses studied abroad as it still represents a barrier for the mobility of students.

- SocialErasmus (http://socialerasmus.esn.org) through the interaction between students and local communities, SocialErasmus gives exchange students the opportunity to help local communities in several ways while at the same time gaining on experience, knowledge and tolerance.

- ExchangeAbility (http://exchangeability.eu) the goal of this project is to allow students with disabilities to be fully involved in the activities of the local sections of ESN. Pilot sections are encouraged to engage disabled students at their universities in working for the exchange students. The long term goal of the project is to encourage an increasing number of disabled students to go on exchange.

- ESN Card (http://esn.org/esncard) is the membership and discount card of ESN and ESN sections distribute it to their volunteers and exchange students. The card offers a number of discounts at the local, national and international level. Annually, ESN issues about 80.000 cards.

- ESN Newsletter (http://esn.org/newsletter) is an ESN online communication tool, sent twice per month to over 7.000 subscribers informing them about the news of the ESN network, events and about other interesting initiatives happening in Europe and beyond.

- eXpress, the ESN Magazine (http://esn.org/magazine) is published three times a year. It is an informative, high-quality magazine about issues concerning ESN, Europe and the EU in particular, exchange and mobility.

Erasmus Student Network is a full member of the European Youth Forum since April 2010 and was awarded participatory status with the Council of Europe at the end of December 2008. ESN is a courtesy member of the European Association for International Education.

2   Non Profit Organizations and Open source software

Free and Open Source Software (FOSS) provides an outstanding example of how individuals can collaborate to contribute to the greater good, and it provides a solid basis for integrating service learning into the computing curriculum.

Open source and nonprofit communities share many basic principles, most notably volunteering, advocacy, accessibility, and freedom. Thus, nonprofits and FOSS go well together in computer science service learning. Community service agencies are becoming increasingly dependent upon technology for the delivery of services to their constituents. They often possess neither the expertise nor the budget to implement the applications required to carry out their mission and therefore they are often a step behind commercial organizations in capitalizing on new technology. NOSI (Nonprofit Open Source Initiative) provides a primer that examines how free and open source software can provide nonprofits with secure, stable and cost effective ways to solve their technology problems [7].

Nonprofits are increasingly turning to FOSS, as it provides secure, stable and cost-effective solutions for organizations with limited or non-existent funding for technical personnel. A 2008 Nonprofit Open Source Initiative (NOSI) survey of nonprofit use of FOSS found that 52% of the nonprofits surveyed used FOSS applications regularly, 19% contributed to FOSS projects, and 65% were planning on implementing new FOSS tools in the coming year [6]. Among the organizations surveyed, 40% were educational organizations, 35% were advocacy organizations and 34% "other" organizations.

According to the same survey, in general respondents agree that one primary reason their organizations use FOSS is because it has no cost to acquire (58%) and at the same time it is not considered to be too hard to use (56%,) but if needed there is adequate support and resources to find and implement it. Most respondents find FOSS to be more flexible that proprietary software (62%). Surprisingly, 67% agreed, that the use of FOSS was philosophically or politically in line with their organization's mission.

On the other hand, "Closed source" software - proprietary software for which source code is not publicly available and therefore cannot be customized - also presents hidden dangers for nonprofit organizations. Some proprietary products make it difficult or impossible to migrate to another product. Open source Content Management Systems (CMS) are well suited for their needs as numerous alternatives are available to match different project requirements, platforms, and strategies. Data is stored in open formats. Source code is available and the software can be customized and redistributed. Open source CMSs are free and most do not have any licensing costs.

Other than that, in several universities students are encouraged to utilize open source CMS tools to build powerful web sites for organizations that provide community and humanitarian services. Such projects allow students to become involved with civic service and to fulfill their desire to contribute to their community.

3   Drupal as a Content Management System

A CMS is an application used to create, edit, manage, and publish content in a consistently organized fashion. It usually includes tools for managing users and workflow. Content is generally stored in a database. The separation of content and the visual display makes it easier to maintain a consistent look-and-feel across the entire website. Many CMSes also include collaboration tools such as discussion forums and document management, blogs, forums, and podcasting.

Many leading open source CMS are built using the popular LAMP platform which is a combination of an operating system, web server, database, and programming language.
"L" stands for the GNU/Linux operating system.
"A" stands for Apache, the leading web server.
"M" represents MySQL, a fast open source database.
"P" stands for three open source programming languages: PHP, Perl, and Python.
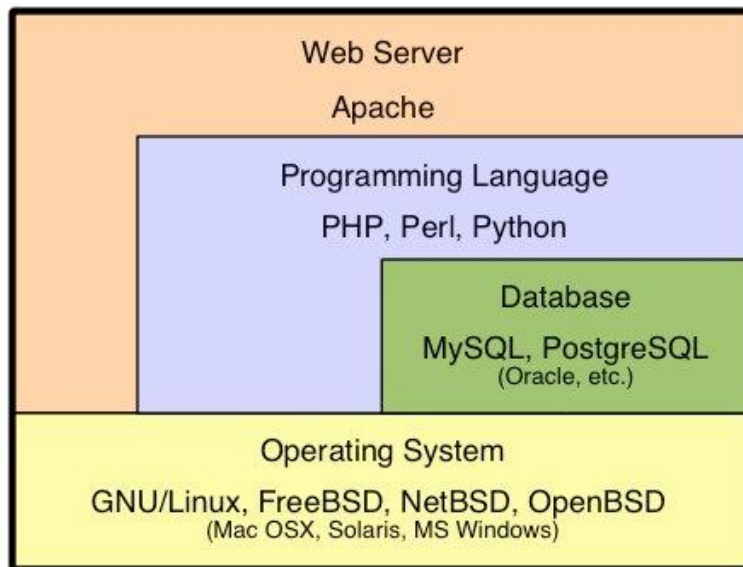
Figure 2; LAMP stack

3.1   Introduction to Drupal

Started as a programming experiment by University of Antwerp student Dries Buytaert in designing an easy to manage web site to facilitate communication between friends sharing a single DSL network connection, Drupal has evolved into one of the most popular Open Source Content Management Systems available.

Drupal is a free and open source Content Management System written in PHP and

Figure 3; Druplicon, the Drupal logo

distributed under the GNU General Public License, used by hundreds of thousands of organizations and individuals to build engaging, content-rich websites. Building a website in Drupal is a matter of combining together various building blocks, in order to customize the website's functionality accordingly.

The software's balance of advanced programming hooks and feature modularity verses simple site administration, organization, and customization through web interfaces makes it an attractive choice in information rich environments for both experienced web developers and users more accustomed to word processing. Both corporate and educational institutions, such as Warner Brothers Records and Harvard Science as well as governmental institutions such as the White House of the United States have used Drupal as the basis of their web presence.

Drupal as a CMS provides a set of very useful features. These include:

Flexible module system
Modules are plug-ins that can modify and add features to a Drupal site. For almost any functional need, chances are good that either an existing module fits the need exactly or can be combined with other modules to fit the need, or that there is some existing code for a relevant purpose.

Customizable theming system
All output in Drupal is fully customizable, so that we can bend the look and feel of our site to our will.

Extensible content creation
We can define new types of content (blog, event, word of the day) on the fly. Contributed modules can take this one step further and allow administrators to create custom fields within our newly created content types.

Innate search engine optimization
Drupal offers out-of-the-box support for human-readable system URLs, and all of Drupal's output is standards-compliant; both of these features make for search engine friendly websites.

Role-based access permissions
Custom roles and a plethora of permissions allow for fine-grained control over who can access what within the system. And existing modules can take this level of access control even further—down to the individual user level.

Social publishing and collaboration tools
Drupal has built-in support for tools such as group blogging, comments, forums, and customized user profiles. The addition of almost any other feature —for instance, ratings, user groups, or moderation tools—is also a matter of finding the appropriate module.

3.2   The layers of Drupal
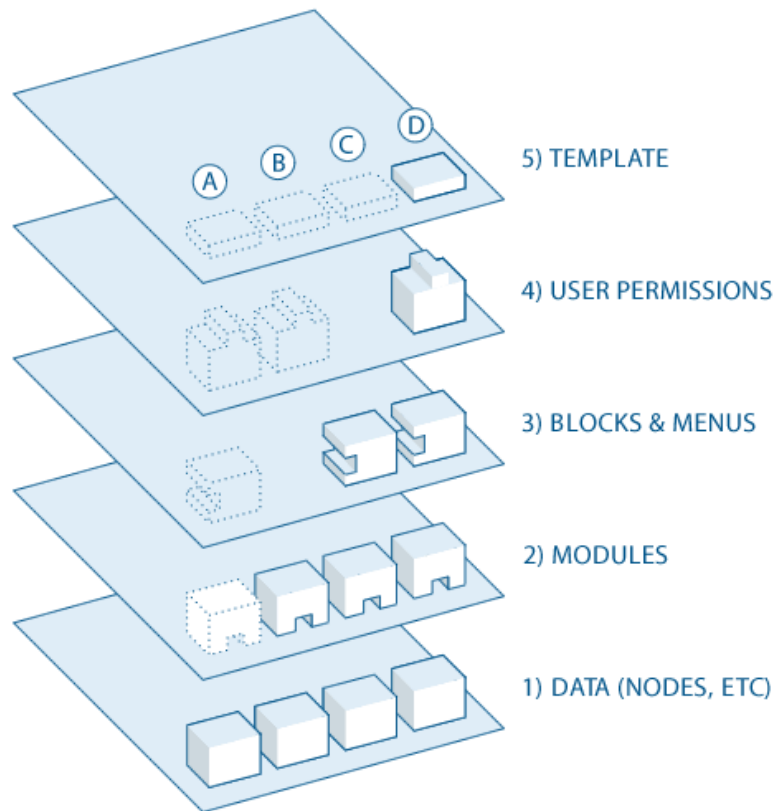
LAYER 1: NODES

A node in Drupal is the generic term for a piece of content on our web site. Some examples of nodes: Pages in books, Discussion topics in forums, Entries in blogs, News article stories

Each node has a Content Type. It also has a Node ID, a Title, a creation date, an author (a user on the site), a Body (which may be ignored/omitted for some content types), and some other properties. By using modules such as the contributed Content Construction Kit (CCK) module, the core Taxonomy module, and the contributed Location module, we can add fields and other properties to our nodes.

LAYER 2: MODULES

A module is software (code) that extends Drupal features and/or functionality. Core modules are those included with the main download of Drupal, and can be enabled without installing additional software. Contributed modules are downloaded from the Modules download section of drupal.org, and installed within the Drupal installation. New modules can also be created and it is generally suggested, in order to keep the website's code clean.

19

LAYER 3: BLOCKS & MENUS

Pages on a Drupal site are laid out in regions, which can include the header, footer, sidebars, and main content section; a custom theme may define additional regions. Blocks are discrete chunks of information that are displayed in the regions of the site's pages. Blocks can take the form of menus (which are concerned with site navigation), the output from modules (e.g., popular forum topics), or dynamic and static chunks of information that we have created manually (e.g., a list of upcoming events).

LAYER 4: USER PERMISSIONS

Every visitor to a Drupal based website, whether they have an account and log in or visit the site anonymously, is considered a user to Drupal. Each user has a numeric user ID, and non-anonymous users also have a user name and an email address.

Anonymous users have a user ID of zero (0). The user with user ID one (1), which is the user account created during the installation, is special: that user has permission to do absolutely everything on the site.

Other users on the site can be assigned permissions via roles. To do this, a role needs to be created, such as "Content editor" or "Member". Next, we can assign permissions to that role, to tell Drupal what that role can and cannot do on the site. Finally, some certain users of our website need to be granted the particular role, which will mean that when those users are logged in, Drupal will let them do the actions that correspond to the permissions of their role.

Permissions can be also assigned for the special built-in roles of "anonymous user" (a user who is not logged in) and "authenticated user" (a user who is logged in, with no special role assignments). Drupal permissions are quite flexible; permissions can be assigned for any task to any role, depending on the particular needs.

The hierarchy of the roles and thus the permissions applied are however following strictly the following schema:

Anonymous user < Authenticated user < All the other roles < Admin

This means that all the custom roles are considered to be equal to each other, and they all inherit the permissions of the authenticated user and the anonymous user.

On the other hand, this granularity of user permissions can be tricky for a website with a complicated structure and content accessible to many different roles of users due to the big amount of roles and permissions that are accumulated. There are special modules to deal with this problem (better permissions, filter permissions) that can display the permissions for specific modules or specific users only.

Another limitation of this system is also the fact that the user roles cannot be structured hierarchically. This means that we cannot group them into categories and state that Group B will have as many

permissions as Group A plus some additional ones, neither can we say that all the members of Group A will have the same permissions concerning the module C.

LAYER 5: THEME

On the top layer is the site theme (the "skin"). This is made up predominantly of XHTML and CSS, with some PHP variables intermixed, so Drupal-generated content can go in the appropriate spots. Also included with each theme is a set of functions that can be used to override standard functions in the modules in order to provide complete control over how the modules generate their markup at output time. Templates can also be assigned on-the-fly based on user permissions.

For the creation of a new theme, sub-theming is often used as a technique. A starter or "base" theme is one that typically has very little style and is designed to help with the process of creating a unique theme. Base themes are often contributed to the Drupal Society. Subthemes inherit all style sheets, javascript and templates (.tpl.plp files) from the theme they declare as their base. That makes using them nice and quick – and all this without hacking into existing theme code, which means that the base themes can be updated as soon as a newer version is available and the improvements will be inherited without destroying functionality of the subtheme.

One of the advantages of sub-theming is that we can create several different websites with a cohesive look and feel, using the same base.

3.3   Content Construction Kit and Views

CCK

A single web site could contain many types of content, such as informational pages, news items, polls, blog posts, local events listings, etc. In Drupal, each item of content is called a node, and each node belongs to a single content type, which defines various default settings for nodes of that type, such as whether the node is published automatically and whether comments are permitted.

After an installation of Drupal with the default installation profile, there will be two content types defined: "Story" and "Page". These are the default content types in Drupal 5 and 6. On Drupal 7 the default content types cover a wider variety of utilities. Apart from that, field management is included in Drupal 7's core content types. However, for adding custom fields to content types in Drupal 5 or 6, the Content Construction Kit (CCK) contributed module is required. Custom fields are used to store additional information beyond the Drupal defaults (title, body, authoring information, time created/updated, and publishing status); for instance, on an ESN section's site, an event content type would have fields for the start and end time, geo location, contact person, price etc.

Views

Views is a powerful query builder for Drupal that allows us to fetch and present lists and tables of content (posts/nodes) to the user in ways that are tailored to our site and content. Whereas many of the existing tools to do this are more straightforward and easy to use, they also dictate the terms.

For example, taxonomy lists will only display content for the given taxonomy terms, and it will only display them in reverse chronological order. If we want to display them alphabetically, taxonomy.module provides no tool to do this by itself. The tracker module will display all of our sites content, also sorted in reverse chronological order. But if we want it to display only forum posts, tracker.module provides no tool to do this by itself. These are just two of the most obvious tasks for Views, but there are many, many more including report generation and the creation of custom galleries of content.

Creating a basic view entails selecting the fields we would like displayed (node title, author name, and images, etc.), how we would like that list to be filtered (only display "story" node types that are published), how we would like the listing to be sorted (newest stories on top), and what we would like the list to look like when it's displayed (a block showing a bulleted list of headlines).

In more technical terms, Views is a visual SQL query builder. When we build a view, we are essentially constructing a query that Views will pull from our site database. Because of that, many of the concepts in Views map directly to SQL. Consider the basic parts of a query: the select statement, where clause, and order by clause. These map directly to fields, filters, sort criteria, and other views components covered later in this chapter.

```
SELECT [fields]
FROM [view type and any relationships]
WHERE [filters or arguments]
ORDER BY [sort criteria]
```

The Views module has significant advantages over a handcoded query. Some examples:

- No code is required for simple cases such as the listing of some content.
- Modules will tell Views about their fields; we don't need to know anything about the underlying database structure, and we are insulated in case this structure should change behind the scenes between module updates.
- The same view can be used in several places on the site, for example as both blocks and pages.
- Results can be split into multiple-page listings, use sortable table columns, AJAX pagers, or filtering drop-downs to allow visitors to "drill down" to the content they want.
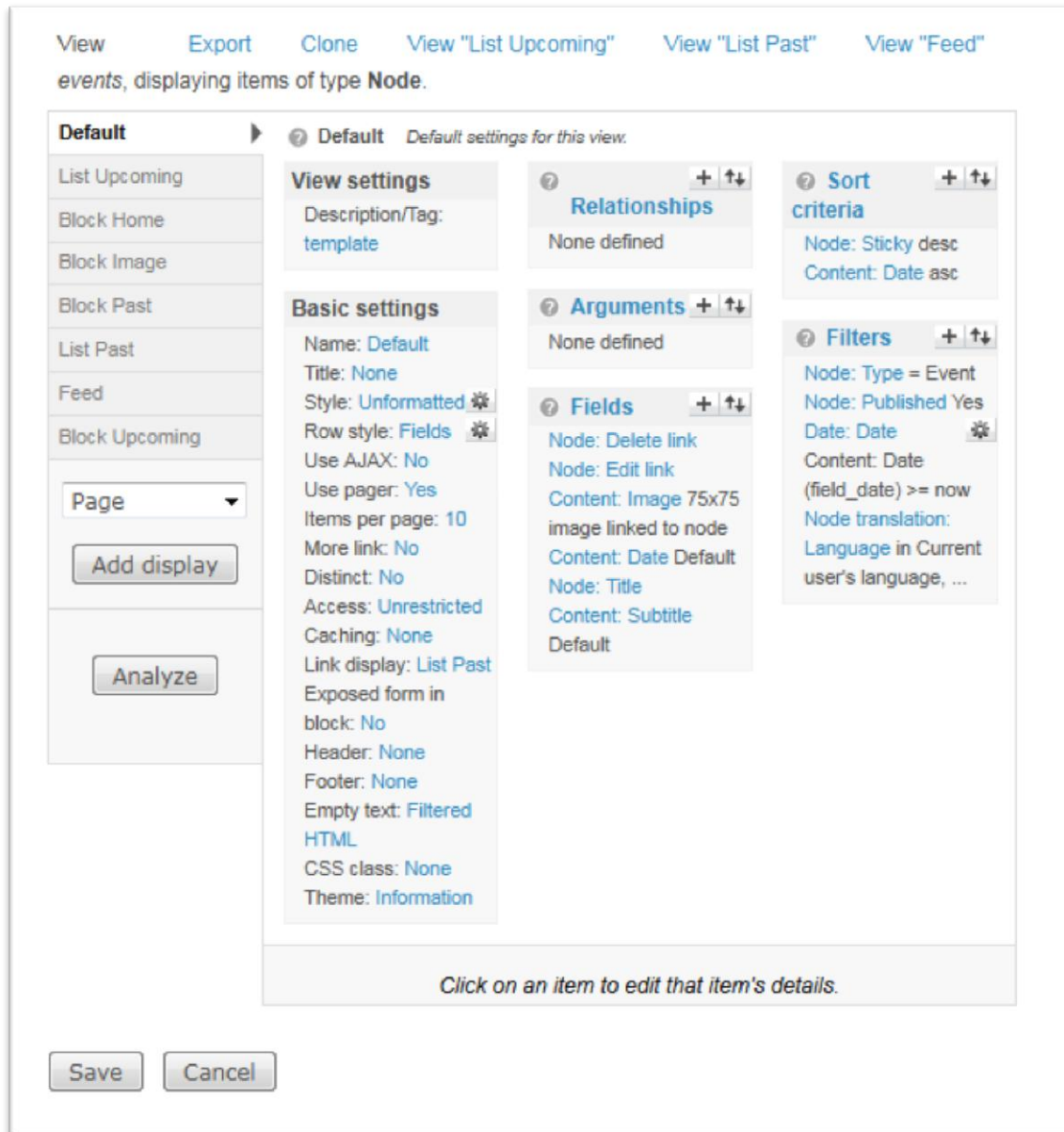
Figure 4: Views User Interface

3.4 Taxonomy

Drupal has a system for classifying content, which is known as taxonomy and implemented in the core Taxonomy module. We can define our own vocabularies (groups of taxonomy terms), and add terms to each vocabulary. Vocabularies can be flat or hierarchical, can allow single or multiple selection, and can also be "free tagging" (meaning that when creating or editing content, we can add new terms on the fly). Each vocabulary can then be attached to one or more content types, and in this way, nodes on our site can be grouped into categories, tagged, or classified in a very flexible way.

3.5 User Interface

Unlike other CMS or common editors there is by default no admin area or "back end" by default on Drupal, but only one unified interface. This means that for instance the edit page of an article looks similar to the view page. The differentiation for anonymous and authenticated users, users with specific roles and the role of the administrator is a result of various permissions that are set on per role and per module basis. However, there are modules providing a different look for the administration pages, mostly for additional usability, such as the "Admin" module.

3.6 Security

Drupal has a very good track record in terms of security, and has an organized process for investigating, verifying, and publishing possible security problems.

Drupal's API and default configuration are designed to be secure when used in their default modes. Issues like Injection, Cross Site Scripting, Session Management, Cross Site Request Forgeries, and others all have standard solutions in the Drupal API.

Regarding Drupal's over 7000 contributed projects, they are scrutinized by their users for any potential problem, and a security advisory may be issued for a relatively minor. It's extremely rare that such holes are exploited in the wild prior to the security fix being announced in the security advisory. Thus, the most important protection is keeping Drupal up to date whenever a security advisory is issued for Drupal core or contributed code.

Professional security audits of Drupal sites have generally found that the vast majority of security holes (90% or more) are present in the custom theme or modules written by that site's developers. That code did not get the same public scrutiny that all code on drupal.org receives.

In addition, problems at the server level (such as using insecure protocols like FTP) are more likely to be the means of a successful attack than a vulnerability in Drupal - especially Drupal core.

3.7 Files, directories and database

The files on Drupal follow the structure below:

Core files

They come together with a Drupal installation and they are the ones to be updated as soon as a new core is available.
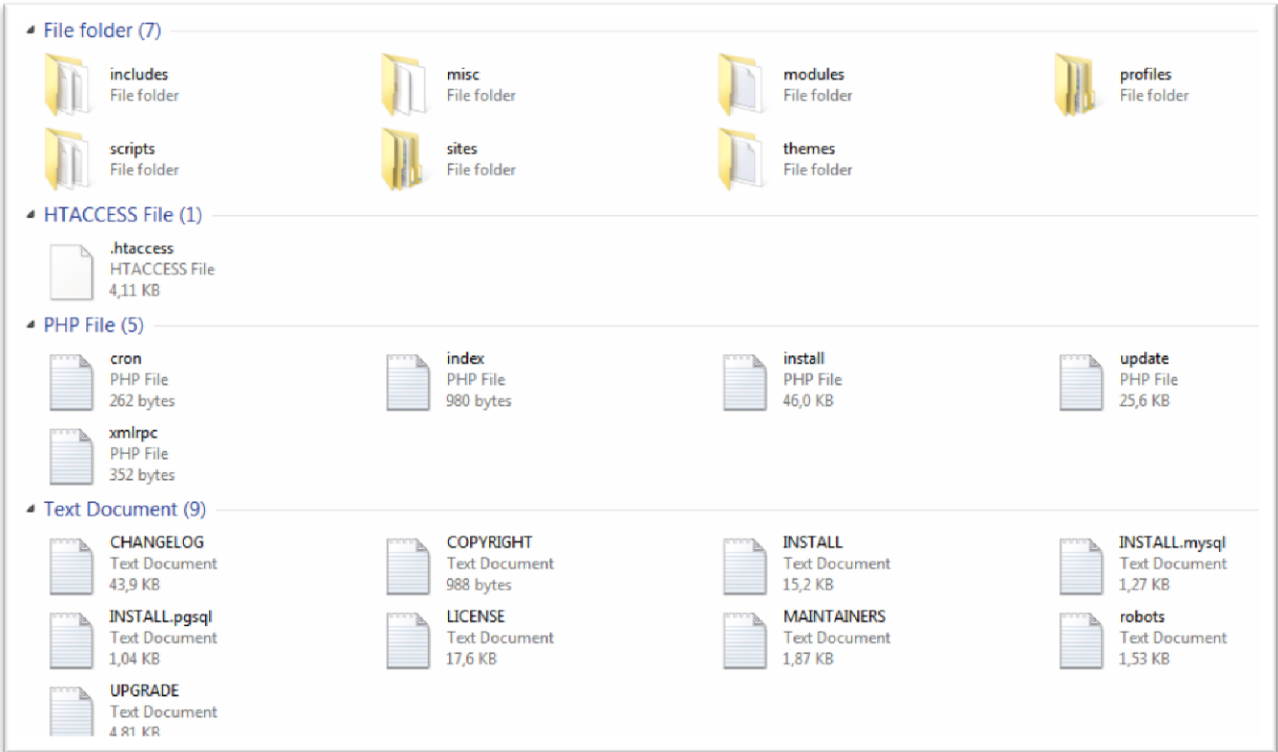
The *includes* folder contains libraries of common functions that Drupal uses.

The *misc* folder stores JavaScript and miscellaneous icons and images available to a stock Drupal installation.

The *modules* folder contains the core modules, with each module in its own folder. It is best not to touch anything in this folder (or any other folder except profiles and sites). The extra modules should be added in the sites directory.

The *scripts* folder contains scripts for checking syntax, cleaning up code, running Drupal from the command line, and handling special cases with cron. This folder is not used within the Drupal request life cycle; these are shell and Perl utility scripts.

The *themes* folder contains the template engines and default themes for Drupal. The additional themes that we download or create should not go here; they go into sites/ all/themes.

cron.php is used for executing periodic tasks, such as pruning database tables and calculating statistics.

25

index.php is the main entry point for serving requests.

install.php is the main entry point for the Drupal installer.

update.php updates the database schema after a Drupal version upgrade.

xmlrpc.php receives XML-RPC requests and may be safely deleted from deployments that do not intend to receive XML-RPC requests.

robots.txt is a default implementation of the robot exclusion standard.

Other files not listed here are documentation files.

The sites folder

The *sites* directory contains our modifications to Drupal in the form of settings, modules, and themes. The additional modules from the contributed modules repository or our custom ones will go into sites/all/modules. This keeps all the Drupal modifications within a single folder. Inside the sites directory there is a subdirectory named default that holds the default configuration file for our Drupal site— default.settings.php. The Drupal installer will modify these original settings based on the information we provide and write a settings.php file for our site. Especially in the case of a multisite installation (see 3.9) the default directory is typically copied and renamed to the URL of each site, so our final settings file would be at sites/www.example.com/settings.php.

The sites/default/files folder doesn't ship with Drupal by default, but it is needed to store any files that are uploaded to our site and subsequently served out. Some examples are the use of a custom logo, enabling user avatars, or uploading other media associated with our site. This subdirectory requires read and write permissions by the web server that Drupal is running behind. Drupal's installer will create this subdirectory if it can and will check that the correct permissions have been set.

The profiles folder

The *profiles* folder contains different installation profiles for a site. If there are other profiles besides the default profile in this subdirectory, Drupal notice it and mention ask for a selection during the installation. The main purpose of an installation profile is to enable certain core and contributed modules automatically. The contents of this folder are executed during the installation only and they might include settings, modules or themes as well as a database dump. More information about installation profiles will follow on 3.8

Drupal stores not only content to its database, but big amounts of configuration settings too. This makes it more challenging for developers to work remotely using the well-known collaboration tools such as SVN.

3.8 Installation profiles

Installation profiles combine core Drupal, contributed modules, themes, and pre-defined configuration into one download. Installation profiles provide specific site features and functions for a specific purpose or type of site. They make it possible to quickly set up a complex, use-specific site in fewer steps than if installing and configuring elements individually.

For example, an installation profile for conferences might automatically install and configure modules for advanced user registration, attendee profiles, ticketing, and a list of speakers and sessions. Once installed, installation profiles can be configured and customized the same as traditionally-built Drupal sites.

3.9 Multisite installation

We can simplify the management and upgrading of our sites by using the multi-site feature. Multi-site allows us to share a single Drupal installation (including core code, contributed modules, and themes) among several sites.

This is particularly useful for managing the code since each upgrade only needs to be done once. Each site will have its own database and its own configuration settings, so each site will have its own content, settings, enabled modules, and enabled theme. However, the sites are sharing a code base and web document root, so there may be security concerns.

The only differentiation in the installation of such a system is that we need to have in the sites folder several subfolders with the domains of the different websites. There we will place their settings.php file and the folder with all their uploaded files.

3.10 Drush

Drush (Drupal Shell Utility) is a command line shell and scripting interface for Drupal, designed to make the administrator's life easier. Drush is not a Drupal module and as such it is independent of the current drupal version. Drush is a collection of scripts that allow the developer to perform standard drupal tasks from the command line of his web server.

```
$ drush [options] <command>
```

The typical way to download Drupal requires several steps:

1. Go to drupal.org, find and download the Drupal compressed file
2. Un-compress the file within the Document Root of your web server.
3. Run the install script

Similar procedure takes place when downloading modules or themes, enabling/disabling modules or upgrading to the newest versions of all the contributed modules. Drush deals with these with a simple command through the terminal and improves significantly the effectiveness and productivity of an administrator of several Drupal based websites. Other than that Drush deals with several core commands, SQL commands, fields or user management.

The Drush Project Manager allows users to download, enable, disable, uninstall, update modules/themes/profiles/translations from the command line in a very simple way (apt-get style). For example `drush dl views` and `drush pm-enable views` in a Drupal directory will download and install the Views project. Additionally, the Drush Package Manager also allows us to update all our modules and even Drupal core with just one command: `drush pm-update.`

Drush Core contains several useful utilities for site administrators and developers (e.g. drush cron or drush cache-clear). It also includes a customized bash shell for drush, with the `drush cli` command.

Drupal SQL Commands helps us issue queries to any of our databases (i.e. is multi-site aware) and even migrate databases between our environments.

Drush make is a command-line packaging tool specifically designed for Drupal. It natively supports downloading, unpacking, and installing Drupal modules and themes via a simple configuration file (the 'make' file), and a single command. Drush make is the tool used by the drupal.org packaging system to create packaged install profiles, and is a very useful tool to have in our local development environment for generating, formatting, and verifying .make files

The possibility of using Drush depends on the permissions set by the hosting company. Obviously it requires shell access and its installation process on the server. Moreover, many hosting companies offer optimized hosting plans for Drupal with pre-configured servers with drush.

3.11 Limitations and Critics

No settings – data separation
There is not a very well separation between settings and data in the database. This means that the configuration done through the admin interface on the website is stored in the database, mixed with the content. The issue this is causing is for pushing data from a development environment to a production site, especially when there are more than one developers. This prevents us from using efficient techniques for distributed development. The solution to that is Code driven Development and that would require all the configuration to be stored in the code with the help of "Features".

Usability

Some aspects of Drupal's administration interface, especially in Drupal 6 can be confusing, particularly for inexperienced administrators. These issues have been taken into consideration and there have been improvements from Drupal 7.

Steep learning curve

Along with the previous point, Drupal has received critics of being a rather complicated system to understand and master.

Performance

Often Drupal is considered to be slow. In comparison to other CMSs such as Joomla, it is not found to be slower [22] but still, its performance is not the greatest possible. This is the necessary tradeoff for its flexibility and extensibility, as it is name of the clear architecture the efficient way is not always the one followed.

Backward compatibility

The new major versions of Drupal are not compatible with the previous ones, which might mean that modules or whole projects might need to be rebuilt or adapted to the latest version.

4   ICT Systems in ESN

4.1   Information provision

Students interested in going on exchange are searching for information about the different programs and also about the opportunities offered before choosing the destination of their semester abroad, in order to figure out which location and university fits more to their preferences and needs.

According to the ESN Survey of 2009, the most important source of information is the internet (used by more than 2/3 of exchange students), followed by peer students (word of mouth information) as well as information taken from the reports of previous exchange students (44.6 %) and flyers, brochures, posters (36.4 %). Quite a lot of students seize the opportunity to listen to presentations on the topic – 18.3 %. Traditional media such as newspapers, TV are not particularly popular (2.6 %).
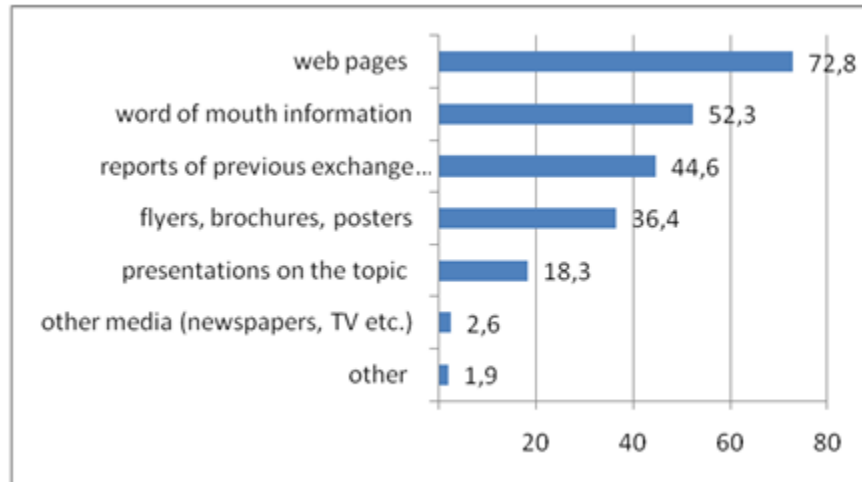
Other than that, the overall satisfaction of the students with the information provision they get from ESN is reasonably high, with results from 3,9 to 4,1 in a scale of 1 to 5 (from very dissatisfied to very satisfied) in a range of 3 years, from 2005 to 2008, according to the respective editions of ESN Survey.

According to the PRIME research of ESN, which focuses more specifically on the recognition issues of the ERASMUS students, ESN seems to be an information provider for 21% of the students:
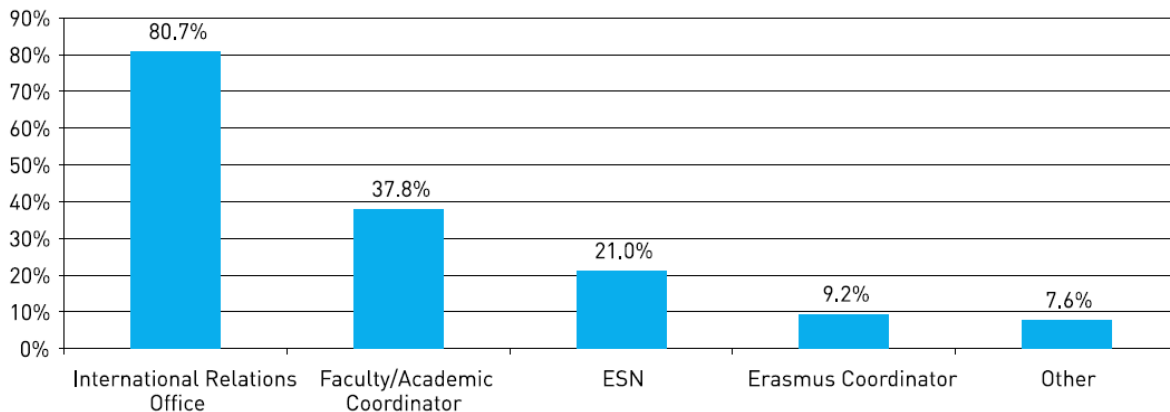

Figure 6; Information providers for the Erasmus Program

As for the effectiveness of the information provided to Erasmus students, ESN is considered to be the most effective source:
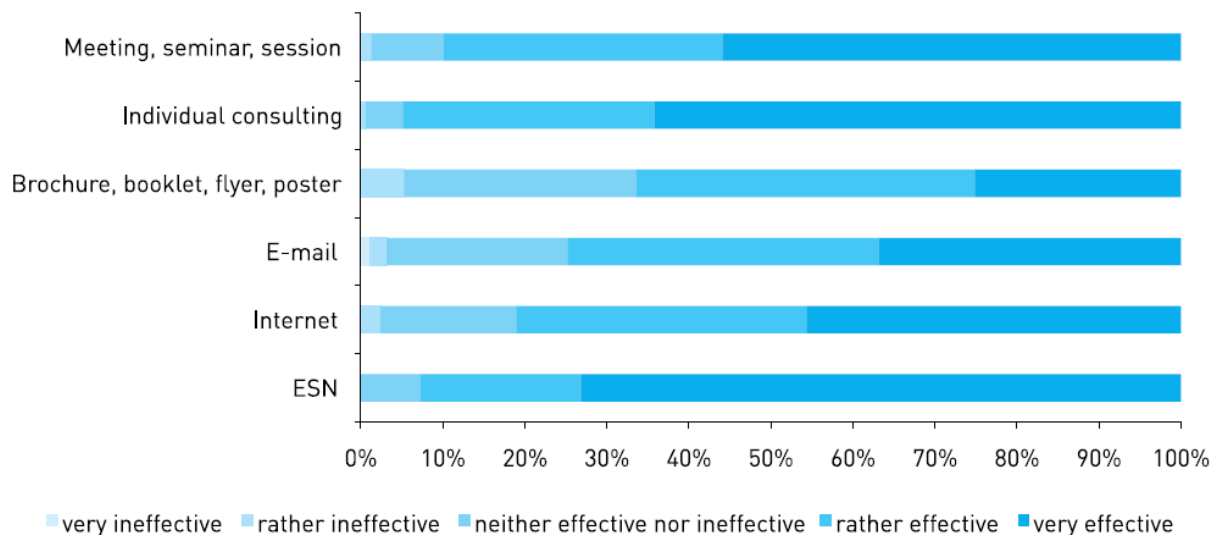
Figure 7; Information effectiveness

For all these reasons, the ICT systems are considered very important in the ESN network, not only on the local level, but also on the national and international. The means, infrastructure and human resources for all the 3 levels are explained below in detail.

4.2 For local use

The ESN section's websites are an important source of information, about daily life and cultural aspects. Consequently the importance the sections give to their website is significant. An attractive website with a lot of content will possibly answer many of the potential exchange students' questions and will motivate them to participate in the oncoming ESN events.

ESN International is providing a ready-to-use template website called ESN Satellite as a free service to the local ESN sections in order to facilitate them in this particular field. More information about the ESN Satellite package can be found in 4.4.1.1

Apart from the website, the local sections are using social networks such as Facebook, often integrated with their websites, in order to promote their events to as bigger audience as possible. Sometimes they are also adding their exchange students on mailing lists where they send frequent updates or they create weekly newsletter editions with all the events and activities for the oncoming week.

Next to the external communication tools, the ESN sections are using internal communication tools, such as Google apps, forums or mailing lists.

Two successful examples of a section's communication tools are presented below; the external and internal communication of AEP – ESN Padova and ESN Kapa Athens.

31

AEP – ESN Padova the local section of "Università degli studi di Padova" in Italy. It is a very active section with long history as it exists since 1992 and even many International Board members started as members of Padova. Moreover, AEP – ESN Padova has organized numerous international events and activities, not only for exchange students, but also events for ESN members.

External Communication

AEP – ESN Padova is using a website, built on ESN Satellite(Figure 8) Regarding the communication with their exchange students, they use newsletters a function though the simplenews module of the Satellite website (Figure 9) As for the social networks and more specifically Facebook, they have a Facebook user profile; which is however not the most effective communication channel, according to Facebook's policy. The Facebook user profile is the one creating the events on Facebook and inviting all the exchange students and it is also the one who has all the albums with the pictures from past events.

Figure 8; The website of AEP - ESN Padova
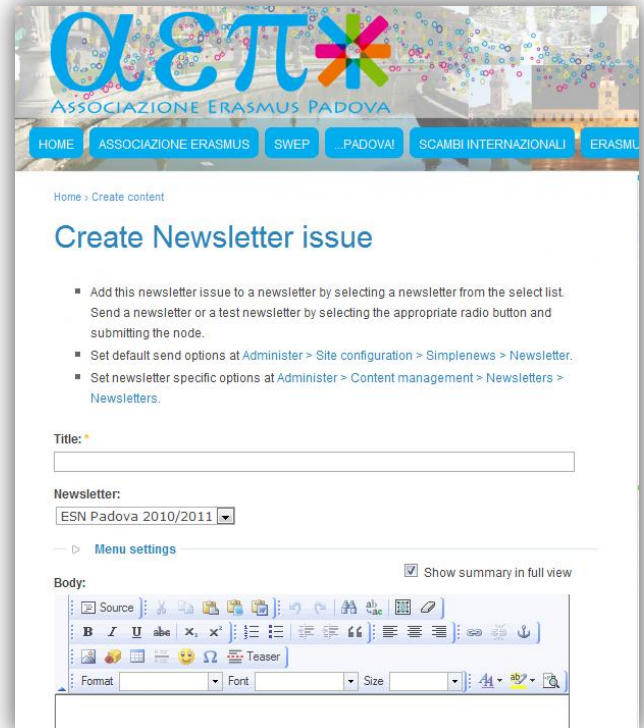
Figure 9; Newsletter for the exchange students

Figure 10; The Facebook user profile

Internal communication

AEP – ESN Padova is using Google Apps for internal communication, with personal emails for all their members, mailing lists, calendar, docs and contact list
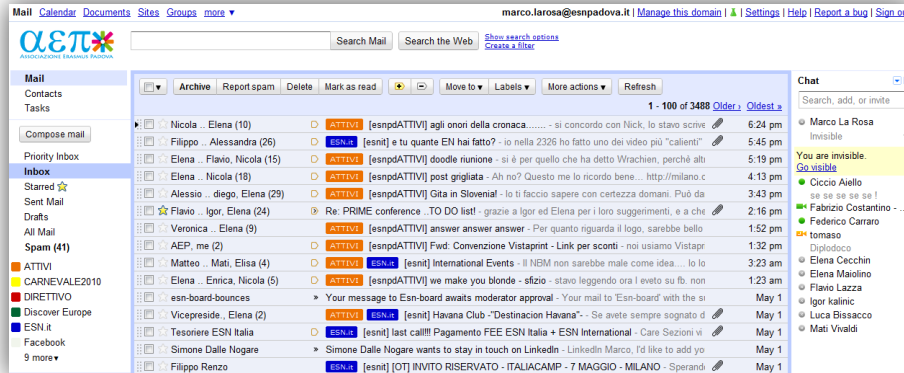
Figure 11; Google apps, personal email accounts for AEP - ESN Padova
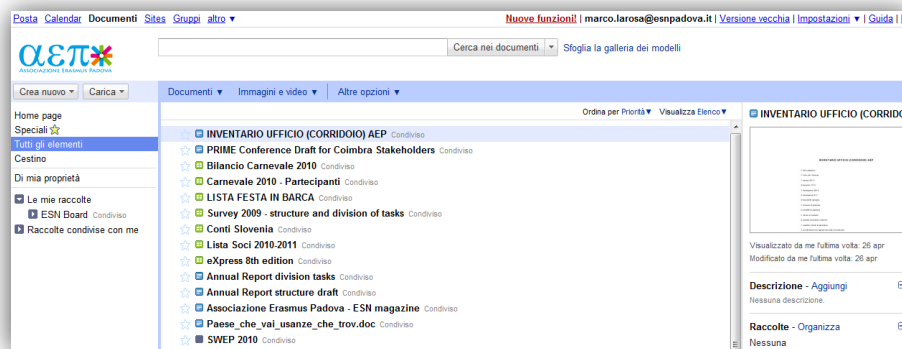
Figure 12; Google docs for AEP - ESN Padova
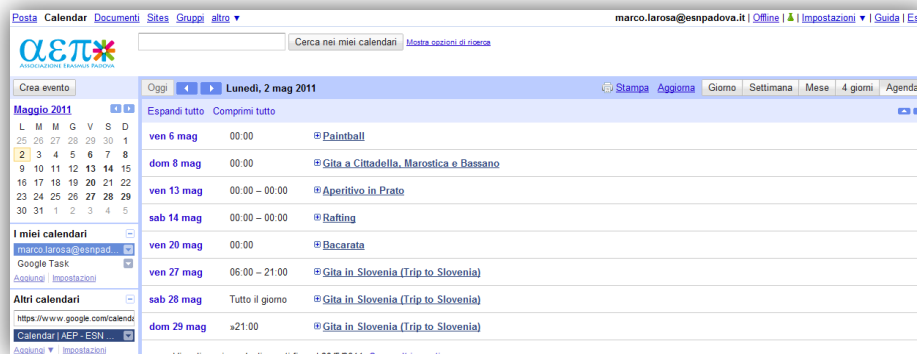
Figure 13; Google Calendar for AEP - ESN Padova

Case study ESN Kapa Athens

ESN Kapa Athens is the ESN section of the University of Athens, in Greece. It a relatively new section, as it was founded in 2008. However since the very beginning it has been fast growing and nowadays it can be considered among the very active ESN sections.

Their website was built based on ESN Satellite, but they also use Facebook for promotion. A Facebook page and a Facebook group for the exchange students of each semester. For the promotion of events they also use Facebook events, which are very successful in promoting the activities to a wider range of audience, not only exchange students but all the "social circle" of the exchange students as well .

Regarding the internal communication, they are using a phpBB forum for all their members.

Figure 14; Members forum

Figure 15; Facebook fan page

Human Resources

According to the Section Questionnaire 2010, 42% of the local sections have a separate technical position (webmaster or IT manager) elected in their Boards, usually a student of informatics or computer engineering who is taking care of the website and all the above mentioned tools their section is using. Sometimes this position is combined with the Communication manager or PR relations, as it depends on the human resources of each section. Few sections claim also to have a dedicated position of graphic designer too, who takes care of the communication and also social media.

A known difficulty for the sections based on universities offering very specific study options, is that it might be impossible to find technical people i.e. in a medical school, or in a law school.

4.3   For national use

Similar to the local level is also the national level. Many countries have a national ESN website, with information about the ESN network in the country as well as about National education opportunities, national ESN events and partnerships.

Many countries in ESN (Poland, Greece, Netherlands, Norway, Turkey, Sweden, Germany, Slovakia, Finland, Italy, France, Hungary, Switzerland, Spain) use a centralized hosting for their IT systems i.e. a Virtual Private Server (VPS) because of the low price and relative flexibility for the administrator.

 Especially for the sections websites based on ESN Satellite, a multisite installation is possible too. A multisite installation is using only one drupal installation and separate folders for the local sections files as well as separate databases. Its main benefit is its efficiency for the management of a large number of Drupal websites.

Apart from the websites, on the national level there is also extensive use of Google Apps, other mailing lists and often newsletters too.

Human Resources

Several National Boards include a technical position (webmaster) in their structure, or there is an external IT team taking care of the national IT systems.

The national webmaster or IT team is also providing help and technical support to the sections when they have technical problems or difficulties.

4.4   For ESN International

Since 2005, ESN is one of the leading student organizations in IT systems and knowledge management.

The main objective for the strategy of the IT Systems for ESN International is to have centralized and integrated systems based on open source software.

ESN is an organization with very high turnover; the members are working on a voluntary basis together with their studies and are active in average for the time frame of a year. So the question arises: What happens when the IT Committee members will be potentially unavailable to continue working on the project web sites? This was one of the primary concerns of all the IT systems in ESN and it is a very common concern for several nonprofit organizations. The very same concern applies to IT projects as well since continuity and sustainability are very important aspects, because there is no plethora of human resources in the field who have on the one hand the experience on the other hand the motivation to work as volunteers. Therefore the existing human resources must be used efficiently, for the creation of solutions that will be maintained by a different team of people in the future.
These constitutes the main reason for deciding to use CMS tools to develop the web sites. Drupal was a choice made in the easy beginning (around 2005) by the first webteam and since then ESN sticks to that

for reasons of continuity for the majority of our systems. So far it has proven to be a great platform, really suitable for the needs of such a network.

Regarding the design, ESN has its own the Corporate Identity, which is copyrighted and has created a very recognizable brand about student mobility. So the Corporate Identity is an element that needs to be strictly followed. More on the Corporate Identity will be mentioned in 4.4.

Infrastructure

ESN uses a dedicated server from Hetzner Online, a hosting company located in Germany. The technical specifications of our server are:

Intel® Core™ i7-920 Quadcore incl. Hyper-Threading Technology
RAM 12 GB DDR3 RAM
Hard discs 2 x 1500 GB SATA-II HDD (Software-RAID 1)
NIC1 GBit OnBoard connected at 100 Mbit

Apache 2.2.9 (Debian)

PHP/5.2.6-1+lenny9 with Suhosin-Patch

MySQL 5.0.51a-24+lenny5-log

OpenLDAP 2.4.11

mod_ssl/2.2.9

OpenSSL/0.9.8g

4.4.1   IT Projects

Figure 16; The ESN Satellite logo

4.4.1.1   Satellite

4.4.1.1.1   General Description

ESN Satellite is a website template based on Drupal, created by ESN International and provided as a free service to local sections, National Boards and ESN event organizers. The basic aim is to provide a ready-to-use template for general purpose within the network. Nevertheless, its use is not mandatory but optional.

The project exists since 2006, the first versions were based on Drupal 4 and later Drupal 5 and they were gradually implemented to more and more ESN sections. The current version is Satellite 3.1, based on

37

Drupal 6.14 and the version 3.2 is already in progress, planned for release in early summer 2011, so that the local sections have sufficient time to implement it until the next academic year 2011-2012.

The objectives of this project are:

- Professional and high quality solution based on the widely adopted and solid Drupal platform
- Easy-to-implement and ready-to-use
- Tailored to the needs of ESN sections
- Unified look and promotion of the ESN Corporate Identity
- Reduced costs for the local sections
- Provision of assistance and technical support

The ESN Satellite can be downloaded from the Download Area of ESN Galaxy for ESN members of local or national boards.

4.4.1.1.2   Technical Requirements

- Apache 1.3 or Apache 2.x hosted on UNIX/Linux.
- MySQL 4.1 or higher
- Required rights for database accounts: SELECT, INSERT, UPDATE, DELETE, CREATE, DROP, INDEX, ALTER, CREATE TEMPORARY TABLES, LOCK TABLES.
- Database prefixes are not supported.
- PHP 5.2.x ; PHP 5.3 is not currently supported by Satellite 3.x
- register_globals: off
- safe_mode: off

4.4.1.1.3   Installation process

The installation process is very similar to the one of Drupal as it provides an installation script that automatically populates database tables and configures the correct settings in the settings.php file.

In fact the Satellite package is an installation profile, so as soon as it is installed, preconfigured settings are taking effect, such as the creation of content types and views, user roles, rules and actions etc. All this configuration is invisible to the most of the users with little technical knowledge, but it adds the tailor-made configuration suitable for ESN sections, rather than building it from scratch on Drupal.

Right after the installation, by default the user is redirected to a single settings page with centralized all the basic configuration needed such as the selection of the ESN section and ESN Country, the upload of a new header image and the Facebook and Twitter accounts of the local section. This is a very easy way to guide the users through the very basic steps, especially those without technical knowledge.

A typical fresh installation of satellite 3.1 can be seen below:

Figure 17: Default Satellite 3.1 installation

4.4.1.1.4 Theme

In the Satellite template there is a Base theme and Satellite subtheme available, both created by Youth Agora, a youth organization founded by some former ESN webteam members, with the mission to support non-profit organizations in strengthening their network and in improving their communication towards their members and third parties.

The Satellite theme is flexible and modern, with fully customizable colors and elements whereas at the same time promoting intensively the Corporate Identity of ESN, which will be further analyzed in 4.5.

4.4.1.1.5 Main Features

ESN Satellite 3.x comes with several features out of the box. We will describe the most important of them below, together with some preinstalled but not enabled ones:

4.4.1.1.5.1 Content types

ESN Satellite is making great use of the CCK and Views. On a default satellite installation the following content types with the appropriate fields are already preconfigured:

Article

An article is suitable for news items and press releases. By default, an article entry is automatically featured on the site front page, and provides the ability to post comments.

Binary poll

Vote for or against a number of choices.

Book page

A book page is a page of content, organized into a collection of related entries collectively known as a book. A book page automatically displays links to adjacent pages, providing a simple navigation system for organizing and reviewing structured content.

Event

An event is suitable for any content that is strongly associated with a date, such as a meeting or a conference. Events are displayed in a calendar accessible from the main menu.

Give20 report

Give20 was a charity project of ESN, to celebrate the 20th birthday of ESN.A special website was created for that reason too and a content type activity report was created, to present the final report of the Give20 fundraising activity containing pictures, total amount fundraised and other information.

Image

An image (with thumbnail), ideal for publishing photographs or screenshots.

Page

A page is suitable for information that rarely changes, such as an "About us" section of a website or institutional information. By default, a page entry does not allow visitor comments.

Partner

A partner content type is suitable for creating and displaying partners of our project. Partners will be featured with their logo on the homepage, and we can give some more information and a link to their website.

Ranking poll

Rank a number of choices.

Setting

Local settings of the website template

Consequently straight after the installation, the webmasters can start creating their content.

4.4.1.1.5.2   Views

Numerous views can be found on the ESN Satellite, we will examine the most important of them:

Events view

All the pages that belong to the events content type are collected in several views: Upcoming events page and block, past events block, calendar with the various events integrated into its dates etc.

News view

The news items are also collected in the news page and also in a block, sorted in reverse chronological order.

Partners view

The partner content types are also displayed in a block and on a page, their order is not chronological but there is a field determining their weight, so that the most important partners can go on the top.

Spotlight view

On the front page, there is a featured article on the block called "spotlight". This is another view, where only one article or event is promoted to, by the use of a flag embedded in the content type. The webmaster can set this flag to have the content item promoted on the front page.

4.4.1.1.5.3   Remarkable other features

Feeds

Each ESN Satellite is configured to submit Really Simple Syndication (RSS) feeds of its news, events and partners to ESN Galaxy. Also visitors of the local section's website can subscribe to the RSS feeds for news, events and partners and be up to date with all the latest news.

Feeds from the articles published on the website of ESN International are also displayed by default on the front page of a freshly installed satellite. This is another way to promote ESN International News to local sections and it is also a significant contribution to a better page ranking of esn.org from the most common search engines.

Editor and image uploader
ESN Satellite is equipped with a built in, word processor-like editor for all types of content so that section members can easily submit their content on the website. The module used for the editor is FceEditor (and CKeditor in the latest versions) together with a module for image uploads inside the editor, called Image browser.

Users
The Satellite local users are not submitted to any centralized ESN system such as the LDAP, as the purpose of the LDAP users is concerning the ESN members and not the international students.

Apart from that, the user roles are not very much developed in the Satellite versions until 3.1, there are the default users anonymous, authenticated and admin and an additional editor, with access to edit content mostly, but no access to critical settings.

An idea for the future is to create roles international student, local section members, local board, which will have access to specific data. Also such user roles will allow easier configuration of the user permissions for the oncoming event management.

Webforms
The webform is a module that provides the sections the possibility to create custom forms for registering participants, conducting surveys etc. The webform module is disabled by default, but once enabled it provides a lot of great features and full control over the forms, with a very easy to use user interface.

Facebook Connect
It is possible to enable Facebook Connect, which allows users to login to the website using their facebook account instead of creating a new one.

GMap location
By enabling this feature and by registering it to the Google maps API it allows to add locations on content types. The most useful occasion of this feature is for events, where it is useful to mark on the map where the event is taking place, or where the meeting point for some local activity is.

Imagecache
The image cache is used in order to generate pictures of preconfigured dimensions for each case, so that the design of the website is not ruined by careless users. In each content type, view and every time a picture is specified, there is a selection of all the possible imagecache presets to choose from.

Taxonomy
There are several vocabularies available, mostly for categorizing the content, as there is a free vocabulary available for user defined tags added to the articles and events, but there is a standard list to choose from in the case of the partners content type.

Search Engine Optimization

Regarding the results on search engines, the Satellite package is performing great, as it comes out of the box with features such as clean URLs, alternative titles etc. There is also another reason for the good results: The Satellite packages on the one hand are providing their feeds to the Galaxy, on the other hand they are often having incoming links by university websites or National Agencies. Last but not least, the sections of each country often provide links or even feeds to other websites of ESN sections in the same city or country. To sum up, this interconnected system of websites is performing exceptionally well when it comes to SEO.

Multilingual content

Internationalization is supported, there are several modules added for translation of all possible features on a Drupal based website (blocks, menu items, content, content fields, views, taxonomy etc) enabled and preconfigured, although the acceptance of this feature has remained low. On the one hand the nature of the netowork has a lot to do with foreign languages and especially English, so only in the south western countries the existence of additional languages is considered an advantage (Italian, Spanish, French) and on the other hand it is rather complicated to use.

To finish with, there are some minor features in ESN Satellite as well, such as inline help to ease editing activities and guide editors with support videos as well as dozens of preinstalled modules for easier expansion towards the direction of the section's webmater.

4.4.1.1.6   Future development

The next version of ESN Satellite is planned to be released early summer of 2011. The features that are already planned for this version are:

- ✓ Event management system for the events the local sections are organizing
- ✓ Different user roles and permissions, so that the section's active members have more privileges on the website
- ✓ Enhanced performance and user friendliness with easy-to-use admin menu
- ✓ Brand new optional theme, to be used as an alternative choice by the sections, always following ESN's Corporate Identity (Figure 18)
- ✓ Integration with the tutorials provided by the ESN Helpcenter (see chapter 5) so that the webmasters know immediately where to address their questions and calls for help
- ✓ Bug fixes and minor improvements

On the longer term there are several features the IT Committee would like to introduce, like Tandem or Buddy system, a Barcode system in order to take advantage of the barcodes on ESN Cards, a standardized photo gallery and a better design of partners" pages.

Special „lite packages" for statutory meetings and Regional Platforms with only the basic features are also planned.

One of the future projects of ESN international is the creation of a central website providing the benefits and offers by the ESN Card all around Europe. So one of the mid term considerations will be how to integrate the local partner content types into a centralized system in a nice, controlled and efficient way.

Figure 18: New theme for Satellite 3.2

4.4.1.1.7   Evaluation

According to the Section Questionnaire 2010, a questionnaire mandatory for all the ESN sections where ESN International is collecting statistical information about their activities the following statistical data is extracted:

76,8% of the local sections use a website

From all the local sections using a website 55,4% is using ESN Satellite (although the total amount is estimated higher, especially for those with no webmaster and national hosting as many responders having no technical knowledge claimed that they don't know which website template they are using)

Out of the sections using the ESN Satellite, 83% believes that it is rather or very useful

All in all, after those years of continuous work on the improvement of ESN Satellite, we can say that the acceptance within the network and the amount of satisfaction is considered to be high.

4.4.1.1.8   Common issues

In order to design correctly the ESN Helpcenter and plan the usage as accurately as possible, it is considered useful to mention the most common issues of the Satellite.

Resources

ESN sections often use their university's hosting in order to host their websites and other tools. However university servers are known to be usually very restrictive concerning their security policies or even in some cases misconfigured. Another case is that for financial reasons or because of the lack of technical advice, the selection of hosting company is not very wise. This can cause Drupal and especially Satellite to malfunction and usually the webmasters do not have the required technical knowledge to cope with this kind of issues. A few examples are mentioned below:

Memory
The minimum memory limit required is 64MB although considerably mores usually advisable. Otherwise a website might experience often memory exhaustion.

Clean URLs support
During the installation, in order to have the image presets generated properly and consequently all the pictures, clean UPRs must be enabled. If the Clean URLs are not supported for any reason related to the hosting plan, the Satellite website will suffer without pictures.

Filesystem permissions
In order to have the file uploads work properly we must have the possibility to grant read/write/execute permissions to a folder or a file.

Learning curve for non-technical users

A very serious disadvantage of ESN Satellite is its complexity and therefore the difficulties it poses to non-technical users, on how to use it for their section's website.

One package doesn't suit all
ESN Satellite is often accused to be more than enough a too complicated solution for small sections that do not receive many exchange students and are usually lacking on human and financial resource and at

the same time it is accused to be insufficient for bigger ones, as it does not include any sophisticated registration system for exchange students, online payments, integration with barcode reader for the ESN cards the students possess etc. Additionally, most of ESN national and International events also use the same website template, although their needs are definitely less detailed.

Security updates

Both the drupal core as well as the contributed modules have often security updates which can be a tedious repetitive work for administrators of many satellite websites (such as national webmasters) and it can also work as a psychological factor of insecurity towards non-technical users which see the warning in their website about the security updates. As mentioned in 3.10 all the security updates can be managed in an effective way with drush and in the case of multisite installations of more than one websites, using the same drupal foler, the updates need to be done only once.

Expansion of social networks such as Facebook

Several sections are considering at the moment promotion through social networks such as Facebook much more important than the actual website of the section, which needs attention and maintenance, whereas does not receive the same exposure to the target audience; the local international students.

Other reasons

In the Section Questionnaire 2010, there was an open question to the sections that don't use the ESN Satellite about the reasons.

14% in progress of installing the ESN Satellite, but not finished yet
14% prefer using their own IT tools
13% obliged/prefer to use the website offered by the university or the student union
13% a proper IT person is needed as the non-technical members are lacking the knowledge to use it
9% technical problems in Satellite
7% not enough informed
6% don't need a website
3% exclusive use of Facebook
3% the Satellite package doesn't meet their needs yet
3% the section didn't reach a decision to change it
1% not possible to integrate existing functionality
1% don't know

4.4.1.2 Galaxy (http://galaxy.esn.org)

4.4.1.2.1 General Description

Galaxy is an online tool for ESN members. The initial idea behind ESN Galaxy was to create an aggregator of ESN sections' local events and news around Europe, from the feeds the ESN Satellites were creating. Along with that came the idea to have a database of ESN members and sections. It was built in cakephp but the efforts of maintaining the project were not successful, when the old webteam's active period finished. Afterwards, a period of redesigning the project followed and today we are on Galaxy 3.0.

Nowadays, ESN Galaxy is designed to be the internal network for information towards ESNers around Europe. Galaxy has a high potential for future development and we are planning to create several aspiring tools, such as intranet, infocenter, section management and event management tailored to the needs of the network. Currently, the version 3.0 is built on Drupal and integrated with the LDAP database. Since the launch in 2007 the network has grown to over 6500 members.

On the basis of Galaxy, there is a set of user roles and permissions based on those roles, which applies to all of the users and allows for different behavior and functionality.

Figure 19; Galaxy front page

47

4.4.1.2.2   Current functionality

Feeds

The initial concept of the Galaxy was to gather all feeds from the local section's websites and put them all together on a map, showing the size of the network and giving the users the feeling that ESN is a big community.

On that basis, the Satellite packages have preconfigured the content types, views and feeds of local news, events and partners which then need to be imported into galaxy. On the Galaxy version of 3.0, except from the partners' feeds that have not been developed sufficiently, the news and the events are displayed on one general page, on each country page and on each section's page. There is also provision for non-satellite feeds that meet specific requirements of the feed parser.

The feeds from Galaxy are also exported and used in European Campus, a European project funded by the European Commission under Erasmus Mundus Action 3.

Figure 20; Galaxy feeds

Information about the network

Galaxy is also the main interface of the database used for storing all the information about the sections and the users, which is an LDAP. The LDAP database will be explained in detail on 4.4.1.2.3

A big effort has been done in order to keep all the up to date information on the current sections that belong to the ESN network on Galaxy. The users can visit the ESN Countries and ESN Sections, see the members" profiles and contact them. There is also couch surfing profile integration, in order to enhance the exchange of ESNers from different cities.

On Galaxy there is also available information about ESN international; IB, CNR and committees as well as a unified contact page, so that it is easy for the sections to find who they need to contact for the different projects.

Downloads

Download area with the latest packages - welcome package and satellite installation/upgrade packages as well as statistics for the total number of downloads and the sections.

Section Questionnaire

The section questionnaire is a mandatory questionnaire about each ESN section's data and activities throughout the year. From 2010 the Section Questionnaire is on Galaxy, based on the module"webform" and with some additional modifications, using hooks. All the modifications done through the Section Questionnaire to the sections and members data are stored on the fly to the LDAP (see LDAP Connection4.4.1.2.3)

Mailing lists

There is mailman integration on Galaxy, which enables us to have several mailing lists managed via Galaxy and thus reducing repetitive tasks. For instance, every new section created is subscribed to the sections mailing list and the same happens with the new users: Every new user is subscribed to the ESN newsletter.

Apart from that basic function, there is also roles synchronization. This means that users who possess specific roles are automatically subscribed to a particular mailing list. For example, users who become members of the Education Committee, get subscribed to the mailing list of that particular committee ice@esn.org This reduces the trivial administrative tasks by the committee chairs.

4.4.1.2.3   LDAP Connection

LDAP is Lightweight Directory Access Protocol and is an application protocol for accessing directory services. The data in LDAP is stored in a flat file and organized like a tree. Each branch of the tree has a unique Distinguished Name (DN).

In ESN LDAP, the main branch (or root) has DN, which looks like this: dc=esn,dc=org. Each branch of this tree has a DN, which incorporates the previous branch's DN.

49

There is integration possibility between the LDAP and Drupal websites, as well as other systems such as phpBB forums, which gives us a really good basis to build on our IT infrastructure.

Galaxy is designed to be the interface of the LDAP and it is the only platform that has write access to it, so that all the operations (insert/edit/delete) from the users are taking place there. The operation usually concern ESN countries or sections, members and roles in ESN.

Several ESN websites have read-only connection to the LDAP, so that they can fetch information from there, to be displayed and also to determine locally the user access and permissions.

The following Drupal modules are used for the LDAP integration into Drupal: helper, ldap_integration, ldap_provisioning, ldapgroups_reverse, ldap_query We need to define the server, port, name and other settings to set up the connection as well as the configuration we want to use; whether we will use exclusively LDAP user accounts or mixed Drupal and LDAP ones, the LDAP attributes that are matched to the Drupal fields etc.

We will examine the most important branches and we will also explain particular cases of integration between the data from the LDAP and the ESN International websites.

dc=national,dc=esn,dc=org   for the ESN Countries

An example of a country entry is shown below:

```
dn: c=GR,dc=national,dc=esn,dc=org
objectClass: esnCountry
objectClass: top
structuralObjectClass: esnCountry
entryUUID: 6d1d0c98-8769-102b-805d-7957d29043b7
creatorsName: cn=admin,dc=esn,dc=org
createTimestamp: 20070425111114Z
latitude: 39.074208
longitude: 21.824312
c: GR
cn: ESN Greece
website: www.esngreece.gr
mail: greece@esn.org
entryCSN: 20100820212426.634953Z#000000#000#000000
modifiersName: cn=admin,dc=esn,dc=org
modifyTimestamp: 20100820212426Z
entryDN: c=GR,dc=national,dc=esn,dc=org
subschemaSubentry: cn=Subschema
hasSubordinates: FALSE
```

dc=local,dc=esn,dc=org　　　*for the ESN sections*

An example of a local section entry is shown below:

```
dn: sc=GR-NTUA-ESN,dc=local,dc=esn,dc=org
intOfficeEmail: ateti@central.ntua.gr
intOfficePhone: 0030 210 7721017
intOfficeWebsite: http://www.ntua.gr/eep/
objectClass: esnLocalSection
structuralObjectClass: esnLocalSection
entryUUID: 644d259c-0fa4-102e-9a47-11414fd9f858
creatorsName: cn=admin,dc=esn,dc=org
createTimestamp: 20090728092553Z
administrativeAreaName: Attica
latitude: 37.97975837747124
longitude: 23.782310485839844
zoomLevel: 15
id: 364
sc: GR-NTUA-ESN
sectionPIN: 5674
sectionName: ESN NTUA Athens
c: GR
universityName: National Technical University of Athens
universityWebSite: http://www.ntua.gr
telephoneNumber: 0030 6979831690
facebook: http://www.facebook.com/?ref=logo#!/pages/ESN-NTUA-Athens/128719623830211
l: Athens
mail: info@ntua.esngreece.gr
website: http://ntua.esngreece.gr
postalAddress: ESN NTUA Athens, c/o Charalambous Alexios-Tryfonas, Zalogou 6, N. Psychiko
15451, Attica, Greece.
entryCSN: 20101228185121.688158Z#000000#000#000000
modifiersName: cn=admin,dc=esn,dc=org
modifyTimestamp: 20101228185121Z
entryDN: sc=GR-NTUA-ESN,dc=local,dc=esn,dc=org
subschemaSubentry: cn=Subschema
hasSubordinates: FALSE
```

It is possible to execute queries to the LDAP from esn.org in order to get the actual number and data of the ESN sections and countries, as a manual change to the facts and numbers every time a new section is added is a tedious task, which tends to be neglected and leads to inconsistency to all the pages of esn.org. Within our plans is also to create a custom drupal module on esn.org which takes care of the queries to the LDAP instead of inserting it manually to each content page in the form of php code.

dc=people,dc=esn,dc=org for the ESN members

There are also entries with accounts for all ESN members. These accounts can be merged with the user accounts on Drupal, so that the users login with their LDAP account instead of the Drupal account.

An example of a user account can be seen below:

```
dn: uid=rania,dc=people,dc=esn,dc=org
id: 4012
uid: rania
yearOfBirth: 1985
newsletter: 0
objectClass: esnUser
objectClass: top
structuralObjectClass: esnUser
entryUUID: 93572f78-9af0-102d-80a9-2ffca6db76a6
creatorsName: cn=admin,dc=esn,dc=org
createTimestamp: 20090301210628Z
video: celestine85
administrativeAreaName: Attica
latitude: 37.98200784413766
longitude: 23.72671365737915
zoomLevel: 16
avatar: avatars/rania.jpg
sc: GR-NTUA-ESN
superadmin: 1
memberOf: cn=International.webProjectAdministrator,dc=groups,dc=esn,dc=org
memberOf: cn=Local.activeMember,dc=groups,dc=esn,dc=org
cn: Rania
sn: Chantzopoulou
nationality: GR
telephoneNumber: +30 6945181166
dateOfBirth: 19850607
homeCity: Kalamata, Greece
universityName: National Technical University of Athens
gender: F
universityCountry: GR
userPassword: {md5}DD9j3KfI6ab0Qykoqw9T2A==
mail: kopelitsa@gmail.com
modifiersName: cn=admin,dc=esn,dc=org
entryCSN: 20110505205659.889967Z#000000#000#000000
modifyTimestamp: 20110505205659Z
entryDN: uid=rania,dc=people,dc=esn,dc=org
subschemaSubentry: cn=Subschema
hasSubordinates: FALSE
```

dc=groups,dc=esn,dc=orgfor the roles of the ESN members

There are also LDAP groups which define the role of a particular person in the structure of ESN and they are also matched to the user roles of Drupal, so that the local users can have one or more of those roles. Based on these roles, the Drupal permissions are also configured. The existent roles are:

International level

```
International.president, International.vicePresident, International.treasurer,
International.externalRelations, International.webProjectAdministrator,
International.secretary, International.evs

International.CoELiaison, International.EYFLiaison

International.IEChair, International.IEVChair, International.IEMember
International.CCChair, International.CCVChair, International.CCMember
International.FIChair, International.FIVChair, International.FIMember
International.ITChair, International.ITVChair, International.ITMember
International.NEChair, International.NEVChair, International.NEMember

International.ALCoordinator, International.ALMember, International.alumnus,
International.ALWebmaster
```

National level

```
National.nationalRepresentative, National.nationalViceRepresentative,
National.president, National.vicePresident, National.secretary, National.treasurer,
National.webmaster, National.pr, National.regularBoardMember

National.alumnus
```

Local level

```
Local.president, Local.vicePresident, Local.secretary, Local.treasurer,
Local.webmaster, Local.regularBoardMember, Local.pr, Local.localRepresentative,
Local.activeMember

Local.activity, Local.alumnus, Local.internationalStudent
```

The structured roles and permissions, reflecting the structure of ESN give us a great tool as each role has different views and permissions on the various elements and features of Galaxy and other services.

To make it more clear, we will refer to some examples:

- Only the users with the role International Board vice president, web project administrator or secretary can add a new section or a new country.
- Only the National Board roles () can edit the contact information of their own country.
- Accordingly, only the Local board roles () can edit the contact information of their own section.
- Only the users with a role of a local board () can fill in the online form of the Section Questionnaire. The National Representatives have also been given this role, in order to assist their sections in filling it in, as it is an obligatory task for the sections.
- The members of a particular committee are automatically subscribed to the general mailing list of the committee as soon as they are assigned to that particular role.

Permission	International.secretary	Local.alumnus	Local.president	National.nationalRepresentative
				Collapse All
esn_galaxy_core module				
add esn country	✓	☐	☐	☐
add esn section	✓	☐	☐	☐
delete esn section or country	✓	☐	☐	☐
delete pending users	✓	☐	☐	✓
edit any country	✓	☐	☐	☐
edit any section	✓	☐	☐	☐
edit own country and sections information	☐	☐	☐	✓
edit own country information	☐	☐	☐	✓
edit own section information	☐	☐	✓	☐

Figure 21; Permissions table for selected roles

The role delegation is also done in a similar way. The International Board can assign NRs (and optionally National Boards too). The NR can assign the National Board members of his country as well as the Sections Presidents (and optionally Section's boards) The Section president can assign section members for his own section afterwards.
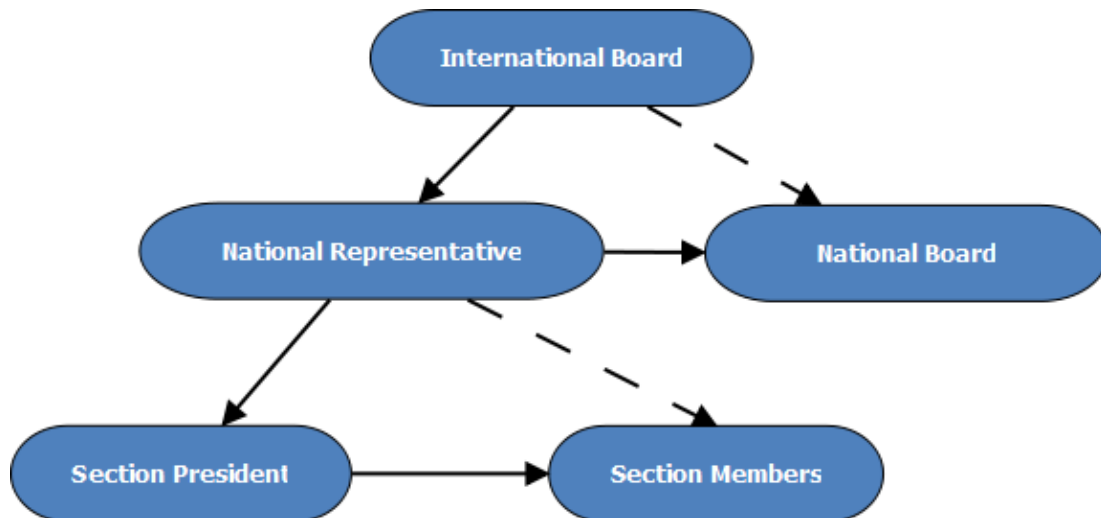
Figure 22; Roles assignment schema

4.4.1.2.4 Future Development

In the future the IT Committee hopes to create the ultimate internal information system in which to include ideas like

- Internships/Jobs/Open calls for ESNers
- Dashboard, where you can find all the information you want
- Improved section management
- Registration system for statutory meetings, regional platforms and cultural medley
- Infocenter for all ESN levels
- ESN Certificate
- M user-friendly interface

4.4.1.2.5 Feedback

Most of the sections had a hard time in the beginning understanding the use of the Galaxy, especially for the version 3, as the old version was not properly working and there was already a negative atmosphere against Galaxy as a project.

According to the Section Questionnaire 2010, most sections claim to be insufficiently informed about the Galaxy and the possibilities it gives to them.

Since August 2010 we worked hard on the level of communication, in order to improve the reputation of Galaxy and in order to prove why Galaxy is a very promising tool for the future of ESN.

4.4.1.3   Other IT Projects

Among the other IT projects of ESN, the most important are mentioned below:

Infocenter (http://infocenter.esn.org)

ESN Infocentre is an online file and information sharing system only for authorized International Board members, National Representatives and National Board Members. The current version of it is built on the agora project, a French open source framework. However it has many limitations as its developers community is not very big and all the documentation is exclusively in French. On top of that, it does not allow integration with the LDAP database ESN is using for all its members, so all in all its use is being limited to the strict infocenter functionality.

Among our future plans is to recreate the infocenter in a way that will allow LDAP authentication and a system of roles and permissions, similar to the one of the current Galaxy.

Committee page (http://committee.esn.org)

The committee page was initially created in order to promote the work of the 5 Committees of ESN. However it has not been used sufficiently and there were several discussions of deleting this website and including all this information into Galaxy.

4.4.2   Human Resources

Already in 2006 a webteam of volunteer ESN members with IT knowledge was created, who was working in collaboration with the International Board on the ESN website and on designing the future projects of ESN.

Already on the AGM Documents of 2006-2007 we can find the report of the first Webteam. What is quite impressive, is the fact that already in 2006 the ideas of Satellite and Galaxy were developed and as the history has already proved, they became 2 of the most successful and famous ESN projects.

In 2008 during the Annual General Meeting of ESN in Besancon, the creation of a new position in the International Board was decided, the Web Project Administrator. The current job description for the position of Web Project Administrator as approved during CNR Novi Sad is:

The Web Project Administrator is an IT specialist inside the Board. His/her knowledge and advice will be used inside the network and also while having contacts with IT partners from outside world. He/she in charge of all IT web based tools ESN, ensuring that they are working and are kept up-to-date. Also he/she is managing all the ESN Corporate Identity graphical designs. In all IT based matters, he/she is a contact person to both ESN Network (sections, NBs, NRs, webteam) and partners (like Youth Agora).

Tasks

- *Web project development / management / coordination;*
- *Realization of ideas;*
- *Investigation and application of new technologies;*

- *Graphics;*
- *External relation support (especially concerning the Corporate Identity).*

Position Specific Skills

- *IT: good knowledge of HTML, CSS, JavaScript; programming experience with web applications in PHP, MySQL, LDAP; web mastering skills including ERASMUS STUDENT NETWORK practical experience; practical problem solving capabilities (like website customization, managing large databases).*
- *Design: basic graphic design skills and experience with raster and vector designs.*
- *Communication: ability to discuss technical problems with non-technical people.*
- *Personal: flexibility / adaptability, creativity.*

The webteam continued their work until June 2009, when they presented the 3rd version of the ESN Satellite and then the elected WPA for 2009-2010 took the responsibility of created the IT Committee, as one of the 5 Committees in ESN.

Committees are advisory and implementing, but not decision-making bodies of ESN. Committees contribute to the creation, coordination and implementation of long term strategies in a common approach with the Board and the CNR. ESN has five committees, each advised by one Board member. The committee responsible for the IT systems in ESN is the IT Committee.

The first meeting of the IT Committee was in August 2009 in Athens and it set the basis for a very successful team of IT skilled people, which gave the IT systems they inherited from the previous webteam a new perspective. The IT Committee nowadays has 15 members, a chair and a vice chair, with tasks the external representation and the internal management respectively.

4.5   ESN Corporate Identity

The logo of ESN is composed of the characters: I*ESN and is accompanied by the text explaining these characters: International Exchange Erasmus Student Network. ESN has the logo registered at the EU Copyright Office, so that no unauthorized third parties can use it, or interfere with the owner's use of it.

ESN Pink
PANTONE PROCESS MAGENTA U
CMYK: 0, 100, 0, 0
RGB: 236, 0, 140
Web: # EC008C

ESN Cyan
PANTONE PROCESS CYAN U
CMYK: 100, 0, 0, 0
RGB: 0, 174, 239
Web: # 00AEEF

ESN Green
PANTONE 368 U
CMYK: 57, 0, 100, 0
RGB: 122, 193, 67
Web: # 7AC143

ESN Orange
PANTONE 166 U
CMYK: 0, 64, 100, 0
RGB: 244, 123, 32
Web: # F47B20

ESN Dark Blue
PANTONE VIOLET U
CMYK: 100, 100, 0, 0
RGB: 46, 49, 146
Web: # 2E3192

The ESN Star is part of the ESN Logo and it's the only element that can be used separately. General rules like maintaining the proportions are still applied, but some flexibility is introduced in its use.

Designs of the current Web Projects such as Satellite, Galaxy, ESN.org are responsibility of the Board and must follow the rules of the ESN Corporate Identity.

5   Helpcenter

5.1   Background Information

The network is expanding, more and more sections adopt the corporate identity of ESN and want to use the same website template; all in all the Satellite template has become a symbol of the ESN spirit. But even though the IT Projects of ESN and especially the Satellite proved to be successful, there is always need for technical support.

In the past, several attempts have been made, but information was not properly collected and stayed mired in the experiences and individual knowledge of specific people instead of being distributed to the whole network. The former webteam had created inline help in the Satellite, a wiki for documentation and combined that with a mailing list of all the webmasters, or other people interested in the Satellite project. Although the mailing list generated from time to time some vivid discussions, all the information was trapped there, so after a while the same questions were coming up again. A mailing list is in general not considered to be a structured way of storing information. On the other hand, the wiki did not receive a very good acceptance. Apart from the lack of contributors, the structure of the wiki was also not explicit enough: There was a separation in the topics, depending on the knowledge of the user; editor, webmaster, administrator. Therefore the search was not very easy for the users, as it is sometime hard to classify themselves based only on those definitions. As for the inline help, it was a great idea but the tutorials were very limited, and the location of the inline help on Satellite was not prominent enough.

To attempt to combat this, we began to pursue strategies to further enhance group communication and develop more dynamic information collection for the group's online documentation and procedures. During the first IT Committee in Athens, in August 2009, the need for better documentation was evident, as it is a very common reason why the acceptance of successful IT projects remains low. Additionally the new version of Satellite 3.0, based on Drupal 6 was launched 2 months before, only few sections had managed to implement it on their websites and the lack of a migration script from Satellite 2.x to Satellite 3 was an additional issue, threatening the success of the new version. So the decision made was that a documentation team would be created and that would take care of the creation of a Helpcenter initially for Satellite and later on for other IT projects too and that they would also create several text and video tutorials to make the Helpcenter as rich as possible.

5.2 Human Resources

The initial project team was Rania Chantzopoulou (GR) and Alexander Mitter (AT). However Alexander Mitter dropped out of the team a few months after the beginning of the project due to a semester of academic exchange in China. Rania Chantzopoulou continued under the supervision of Marc Janson (NL), Web Project Administrator 2009-2010. The advisory team, ready to provide help and advice whenever needed was Erik Roijen (NL), Hendrik Schraa (NL) and Adam Wlodarkiewicz (PL). In May 2011, Thalia Voukena (GR) became the editor-in-chef, responsible for finding new content to be submitted on a regular basis.

5.3 Tagret audience

We explained already the human resources for the IT systems in all the levels of ESN in chapter4, and we have pointed out the diversity in the technical level of the target audience for the Helpcenter. There might be from very experienced webmasters to those who have no technical experience, so they are only responsible for updating the content of the website. So it our implementation we tried to include content for all levels. However, we tried as well to avoid the separation of the topics dependent on the knowledge level of the user, so there are no tags anywhere on the website such as beginner, intermediate or advanced.

5.4 Choices: Why Drupal

Flexibility
To start with, we were seeking for a CMS with powerful information categorization and retrieval features. Drupal is good example of an open source CMS that fits this description. It is built using MySQL and PHP and features publishing workflow, discussion capabilities, news aggregation, metadata functionalities, and even XML publishing for content sharing.

Uniformity

Another reason is that we have already several projects built on Drupal and it would require the minimum learning effort, so the uniformity with other existing platforms was not to be neglected.

Features

Usually systems with really unique features would require a custom CMS rather than an existing one. The features required for a Helpcenter were easy to find by reusing existing modules and pieces of code, rather than reinventing the wheel. And as mentioned above, continuity is also an issue; we opt for easy to maintain solutions.

Drupal vs. Wiki

A wiki is a website that allows collaborative writing. Wiki software enables users to quickly and easily add or edit material on a wiki-based website. Users do not need to know HTML. The data is usually stored in the database and the wiki software handles formatting and navigation linking. Wikis are flexible in the way information is organized and are meant to evolve over time. Wikis are better suited for the written word than for images or multimedia content. However, Wikis are a good choice for maintaining knowledge bases. In e-government, a wiki can serve as an effective internal documentation system allowing staff to maintain an easily-updated knowledge base or intranet. It can also serve as a platform for intra-agency collaborative writing.

We preferred to use Drupal instead of a wiki, because of the following reasons:

- Existent experience on Drupal projects and Satellite package as start
- Taxonomy for Drupal and classification of content
- Flexibility, possibilities of extension and whenever needed additional custom functionality
- Better control over the users and the permissions
- Forum and tutorials in one system, rather than 2 separate systems
- With the book content type of drupal, we could have better structure possibilities of our content.

5.5 Project Development & Management

The software development model used was the incremental, as the members of the IT Committee change as often as the volunteers of our network and we wanted to build this project in stages, so that different people can continue the work of others and enrich it with new ideas to be implemented, as also the nature of our network might be stable but several other needs are evolving.

Prodecure

For the development of the project we used a playground, a satellite installation in another location than the production website and as soon as the infocenter was ready for release we moved it to the final location and adjusted the DNS accordingly to point to http://helpcenter.esn.org
At that time we did not use SVN for our projects yet, so its code was not included there.

After setting up the working space, we defined the required features to be implemented. These were:

- ✓ an authentication scheme tied to the LDAP
- ✓ clear structure of the tutorials
- ✓ Discussion forums, which would allow webmasters to pose questions for issues that were not covered in the tutorials. Some of the forum topics would eventually become proper tutorials later on.
- ✓ video integration for video tutorials
- ✓ restricted area for more advanced tutorials only for the IT Committee members
- ✓ site-wide search
- ✓ rating for the most successful tutorials
- ✓ easy navigation and menu
- ✓ Downloadable tutorials, printer friendly version and send to a friend option

In the beginning we started with a clean Drupal installation and apart from the features, we were also trying to create a new theme. Later we realized that using the Satellite package and making our adjustments on it would be a much faster and more efficient method.

The first features were considerably easy to implement, the trickiest part was the selection of the proper forum modules, as the Drupal remains a general purpose CMS and even if it supports Forums, its implementation is far from ideal. We wanted to achieve a proper forum look and feel but later we realized that Drupal would handle the first post as the node and then all the other posts as comments, which already adds a lot of unwanted complexity. After trying several modules, we ended up preferring the forum module from the drupal core together with some additional ones for advanced features.

As soon as all the features were set up, we started preparing some content and trying to find webmasters with average knowledge of Satellite which would want to contribute to the tutorial creation. For that reason we also added a recruiting webform on the Helpcenter.

5.6 Design

Regarding the design, the decision was to use the standard Satellite design, for uniformity compared to the other ESN International websites. Additionally, a similar header to the ones on esn.org was used.

5.7 Features

The ESN Helpcenter was based on a Satellite template, so it bears all the features of Satellite mentioned before, such as FckEditor with Image upload, Pathauto, Rules and Actions together with some custom ones which will be explained below:

5.7.1 Content

Tutorials

For the tutorials we created a custom content type, similar to the "book page" structure. A book page is a page of content, organized into a collection of related entries collectively known as a book. A book page automatically displays links to adjacent pages, providing a simple navigation system for organizing and reviewing structured content in a hierarchical sequence. Books are ideal for manuals, site resource guides, Frequently Asked Questions etc.

The fields we used for the Tutorial content type were: Title, Body, Input format, Video, Vocabularies, Menu settings, Book outline (for selecting the location each time), Authoring information, revision information, Publishing options, Printer, PDF and email versions, URL path settings (wutomatic by default from Pathauto), File attachments (enabled by default), Comment settings (disabled by default)

The inherited "book structure" also provides the hierarchy we want for the tutorials, so they are displayed automatically in the same way

We used the Views User Interface to create a feed of the tutorials content type, to be displayed in various locations, such as in a block of the future Satellite installations or to be combined with the a different software and to be sent via email digests to the members of a mailing list.

ESN IT projects

We also thought of creating a way to promote the other IT projects of ESN, bring awareness and of course improve their performance on Search engines.

We created a simple content type called "ESN IT project". An ESN IT project content type is suitable for showing all the different ESN IT websites. The fields used for that are: Name, Subtitle, Image, Link, Weight, Description and some other default fields defining the other options.

Afterwards we created a simple view showing all the published ESN It projects, in order dependent on their weight.

Committee feeds as articles

In the beginning we thought of having the default "news" items, in order to inform the audience about new features or in general news of the IT Committee. Later the Committee page was created (http://committee.esn.org) where the committees had the space to express themselves, so we decided ot import the news feeds of the IT Committee page and display them on the Helpcenter.

5.7.2 Forum

As mentioned above, we had a hard time finding the appropriate set of modules for a proper forum, however we concluded to use the drupal core module of foum together with the contributed ones of

advanced forum, author pane for the proper display. Afterwards, we wanted to control the access of each forum category. That was also not very easy to do in Drupal, we used the forum access module and the taxonomy access control.

5.7.3 Translation
After long discussions, we decided to keep the helpcenter only in one language, as we don't have the human resources to translate tutorials in different languages and therefore lose content and human resources in that way.

5.7.4 Printer friendly, email and PDF versions
We decided to add the possibility to download a printer friendly and a PDF version, as this allow offline use of the tutorials and thus better dissemination. Also the "email to a friend" option was enabled.

The tutorials are free to use for non-commercial use, no attribution to the author is required.

5.7.5 Videos
The videos can be integrated in every tutorial, simply by copying the URL of the video in the embedded media field, which is already associated with youtube. This creates a nice embedded youtube video, in the preferable dimensions and other preferences.

Embedded video field added, as we are planning to shoot some video tutorials in the future.

5.7.6 Fivestar
One of the requirements when designing the helpcenter was to find a way to evaluate the usefulness of the tutorials created. Therefore we found the fivestar module being suitable for this reason. We had to do some minor tweaks and adjustments though in order to make it work properly.

5.7.7 Taxonomy
The taxonomy proved to be very useful for the Helpcenter, as we created several vocabularies to classify the tutorials in categories and then depending on that we could create other customizations (i.e. in the visibility and access of those nodes). The existing vocabularies are:

Satellite version: All version, Satellite 2.x, Satellite 3.0, Satellite 3.1
It defines the satellite version the tutorial is applicable to.

Tutorial content: General IT tutorial, Blocks, Content, Design, Drupal, Event management, Graphics, Installation, Menus, Modules, User management, Views
It describes the content of the tutorial, in order to provide search based on tags and easier access.

Visibility: public, webteam_only
We were planning to put the internal documentation of the IT Committee in the Helpcenter, in a location that would be visible only for users with the role of the IT Committee. However this idea was abandoned later, as we installed and used the TRAC system for the internal management of the IT Committee and all the documentation went in the wiki of TRAC.

Forum vocabulary, that was used for the taxonomy access control.

5.7.8 Related content

In order to display related tutorials next to a tutorial page, we used the module "similar by content" which generates the titles of similar content as the one viewed based in the taxonomy vocabulary used.

5.7.9 LDAP Authentication, Roles and permissions

There is LDAP authentication on the Helpcenter, together with local drupal roles. The local Drupal roles are: anonymous, authenticated, content creator, webteam

The Helpcenter was initially launched without the LDAP authentication, so there were local accounts for all the members of the IT Committee. Later we introduced the LDAP accounts and we decided to keep the local ones too. But then the permissions connected to the local role "webteam" were copied to the LDAP roles for IT Committee chairs and members.

	Tutorials	Vote with Fivestar	Forum	ESN IT projects	Webteam internal	General purpose Editor
Anonymous user	View	Vote	View	View	No access	No access
Authenticated user	View	Vote	Post	View	No access	No access
Content Creator	Post	Vote	Post	View	View	FCKeditor + upload files
Webteam (later IT Committee member)	Post	Vote	Post	Post	Post	FCKeditor + upload files

Figure 23; Roles and permissions schema, for the basic features

5.8 Testing

For the testing especially of the roles and permissions, we created different test accounts and we were examining each particular feature with each of them:

Anonymous, auth_testuser, cc_tester, webteam_tester

Apart from that, all the members of the IT Committee and the International Board were invited to test and give their feedback. The end result is shown on the Figure 24

Figure 24; The ESN Helpcenter front page

5.9   Challenges

A few months after the website was released, we tried to create a multisite installation with all secondary drupal based IT projects, in order to reduce the amount of maintenance needed for each one separately. However we discovered that it was difficult to merge all the existing ones, even with the clear structure they usually have as there were already many different modules and versions

Another challenge we faced was the promotion of at IT project. The Helpcenter was a useful project but it did not receive yet enough visibility because of the lack of promotion. Also after the first 6 months of the project, we could not find the human resources for a new coordinator who will take care of all the project and will continue working on it. Around April 2011 we found a new editor in chief, who is now responsible for finding new content and shooting some video tutorials.

5.10 Dissemination

For the dissemination of the project we used all the communication tools of ESN: posts on esn.org, promotion via Facebook, newsletter articles and last but not least direct promotion through emails and contact with local webmasters.

Extensive promotion of the Helpcenter has also been done during the ESN Events from December 2009 until today.

As the latest version of Satellite was created before the finalization of the Helpcenter, the Satellite package does not contain any promotional information about the Helpcenter, to the administrators and editors of freshly installed Satellites. On the contrary it contains information about the old webmasters mailing list, which is already obsolete since the end of 2009. Of course in the new version of Satellite that is about to be released in early summer 2011, there will be information about the Helpcenter as well as the latest tutorials published, in the form of an RSS feed.

In April 2011 a new idea popped up; the connection of the feeds to a mailing list where all the webmasters of Poland are subscribed. The software used for that reason is RSS2email (http://www.allthingsrss.com/rss2email/) Depending on the success of this, we will consider implementing it on other mailing lists as well.

Towards the same direction, we added the RSS feeds on the Facebook page of the IT Committee, so that once a new tutorial is added, it will be posted on Facebook and it will increase its visibility.

5.11 Evaluation

Although the project is considered useful by most of the users, the promotion and dissemination of the project were not that successful.

Below we can see the statistics from Google Analytics from the beginning of the project until now.

helpcenter.esn.org
Dashboard

Apr 7, 2010 - May 7, 2011
Comparing to: Site
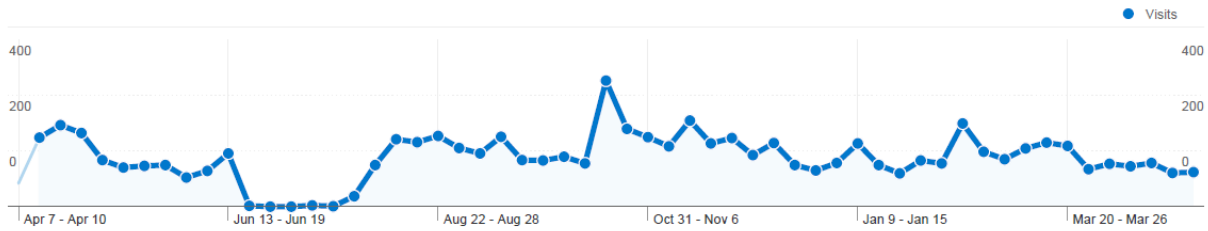
● Visits

Site Usage

6,672 Visits   55.89% Bounce Rate

19,519 Pageviews   00:02:22 Avg. Time on Site

2.93 Pages/Visit   67.70% % New Visits

Considering the choice of the platform, the low maintenance cost because of its similarities to the other systems used make it a very successful one.

5.12 Comparison to similar projects

In order to evaluate better the helpcenter, a comparison to the helpcenter of European Campus could be drawn. European Campus (http://europeancampus.eu) is a project funded by the European Commission whose main goal of this project is to develop a Mobility Information Platform that provides students from all over the world the necessary information to access all opportunities of personal growth offered by a study experience in the European Higher Education Area. The consortium behind the project is ESN, UNICA and Youth Agora and its concept is based on the interaction between the ESN Satellite and ESN Galaxy. There are master programs websites (which are the "satellites") and an aggregator of all the master programs, European Campus (which is the "galaxy"). As the master programs are filled in by the university personel, a help center is necessary in order to guide them through. For the creation of the helpcenter of European Campus the Drupal based installation package of Open Atrium was used. Atrium is designed to be a team collaboration tool rather than a technical support center with several features such as groups, dashboard, task tracking, blog or documents coming out of the box. The European Campus helpcenter (http://help.europeancampus.eu) is making use of only few of these features and its structure is not considered to be very clear, at least for anonymous users. The user can read existing documentation or request support.

Another helpcenter to compare is the one of Open Atrium itself (https://community.openatrium.com) It is a documentation and support center for users with a technical background, as it is also meant to be a

place for suggestions of features, bug reports or even marketplace. It is also built in Open Atrium but in a more complete way than the helpcenter of European Campus.

All in all, a customized Drupal installation is very suitable for the creation of a technical support website, be it Open Atrium, or Satellite based.

5.13 Future Plans

The first and most important plan for the future is to extent its articles on the first stage to other documentation i.e. about Galaxy and to less hardcore technical topics, such as social networking.

On a second stage there is the expansion to general topics concerning the ESN sections and members. One of the current ESN projects is the creation of a Section Guide, a complete manual for all ESN sections, with information on how to work within an ESN section and how to manage all its different activities. The Section Guide could be easily integrated into the Helpcenter, in a different category than the technical documentation.

In order to prepare the Helpcenter for new content, not necessarily about Satellite, or even more, non IT content, we need to readjust the menus, the taxonomy and the structure of the Helpcenter.

Another addition that should be done in the near future is the provision of a copyright notice for the tutorials, for non commercial use without attribution to the author. However we need to get the advice of a lawer for that.

6   References

[1]Linda M. Seiter, "Computer Science and service learning: Empowering nonprofit organizations through open source content management systems", John Carroll University, OH

[2] Abhijeet Chavan, "Developing an open source content management strategy for e-government", 42nd annual conference of the urban and regional information systems association, 2004

[3] Fu Jinwei, Sun Jianhong, Xu Haicheng, "A Multi-sites Scheme Based on Open Source CMS, Drupal", 2010 Second International Conference on Multimedia and Information Technology, Honghe University, China, 2010

[4]Jim Myers, Larry French, "Voice for All: Adopting Content Management in Frontline Technical Support", Purdue University

[5]Matthew R. Hanlon, Stephen Mock, Praveen Nuthulapati, Michael B. Gonzales, Pamela Soltis, Douglas Soltis, Lucas C. Majure, Adam Payton, Brent Mishler, Susan Tremblay, Thomas Madsen, Richard Olmstead, Richard McCourt, Martin Wojciechowski, Nirav Merchant, "My-Plant.org: A Phylogenetically Structured Social Network"

[6]"Survey of FOSS use in Nonprofit organizations", NOSI (Nonprofit Open Source Initiative), 2008
http://www.nosi.net/system/files/NOSISurveyReport08.pdf

[7]"Choosing and Using Free and Open Source Software: A primer for nonprofits" NOSI (Nonprofit Open Source Initiative), 9 October 2007 http://www.nosi.net/projects/primer

[8]"Towards an 'open' future, European Commission policy", ICT for Government and Public Services

[9]Angela Byron, Addison Berry, Nathan Haug, Jeff Eaton, James Walker, Jeff Robbins "Using Drupal", O'Reilly Media, 16 December 2008 ISBN-13: 978-0596515805

[10]Tracy Smith "Drupal Intranets with Open Atrium", Packt Publishing, 6 January 2011 ISBN-13: 978-1849511124

[11]Trevor James "Drupal Web Services" Packt Publishing,24 December 2010 ISBN-13: 978-1849510981

[12]Beighley, Lynn "Drupal for Dummies" New York: For Dummies, 2009 ISBN 978-0-470-55611-5

[13]Trevor James, TJ Holowaychuk "Drupal 6 Performance Tips" Packt Publishing, 12 February 2010 ISBN-13: 978-1847195845

[14]Ben Finklea "Drupal 6 Search Engine Optimization", Packt Publishing, 28 September 2009 ISBN-13: 978-1847198228

[15]Mercer, David "Drupal: Creating Blogs, Forums, Portals, and Community Websites" Birmingham, England: Packt Publishing, 2006 ISBN 1-904-81180-9

[16]VanDyk, John K. "Pro Drupal Development", Second Edition. New York: Springer Verlag/Apress, 2008 ISBN 1-430-20989-5

[17]Herremans, D. "Drupal 6: Ultimate Community Site Guide" Switzerland, 2009 ISBN 978-2-839-90490-2

[18]Bhavin, Patel "Drupal 6 Panels Cookbook" Canada: Packt Publishing, August 2010
ISBN 1849511187.

[19]Kafer, Konstantin "Front End Drupal: Designing, Theming, Scripting" Jersey, USA: Prentice Hall, April 2009 ISBN 0137136692

[20]Drupal.org http://drupal.org

[21]"Joomla 1.5 & Drupal 6.1 Performance Comparison"
http://www.alldrupalthemes.com/blog/joomla-15-drupal-61-performance-comparison.html

[22]"Is Drupal Slow & Bloated?" http://www.nixer.org/is-drupal-slow-bloated

[23]Drupal Content Management System 6.x series Review http://www.cmscritic.com/drupal-content-management-system-6-x-series-review/ (24 January 2009)

[24]"Choosing a Web Content Management System: 8 Pitfalls to Avoid" http://www.cmscritic.com/choosing-a-web-content-management-system-8-pitfalls-to-avoid/

[25]"The 10 Commandments for Selecting Your Web CMS" http://www.cmscritic.com/the-10-commandments-for-selecting-your-web-cms/

[26]"Creating structured documents with books" http://drupal.org/documentation/modules/book

[27]"Maintaining a FAQ using a collaborative book" http://drupal.org/node/23701

[28]"WhiteHouse.gov Goes Drupal" http://techpresident.com/blog-entry/whitehousegov-goes-drupal

[29]"List of Nonprofit, NPO, NGO Websites Using Drupal" http://engineindustries.com/blog/jason/list-nonprofit-npo-ngo-websites-using-drupal

[30]"Case Study: United Nations World Food Programme (WFP.org)", Phase2 Technology http://www.phase2technology.com/project/world-food-programme-wfporg-cms

[31]"Thoughts on the Whitehouse.gov switch to Drupal", Oreilly

[32]Open Atrium Documentation https://community.openatrium.com

[33]European Campus Helpcenter http://help.europeancampus.eu

[34]European Campus Project http://project.europeancampus.eu

[35]Section Questionnaire 2010, Erasmus Student Network AISBL, May 2011

[36]Communication Strategy 2010-2011, Erasmus Student Network AISBL, October 2011

[37]ESN Survey 2005, Experience of studying abroad for exchange students in Europe, Erasmus Student Network AISBL

[38]ESN Survey 2006, Exchange students rights, Erasmus Student Network AISBL

[39]ESN Survey 2007, Generation mobility, Erasmus Student Network AISBL

[40]ESN Survey 2008, Exchanging cultures, Erasmus Student Network AISBL

[41]ESN Survey 2009, Information for Exchange – Provision and Quality, Erasmus Student Network AISBL

[42]Prime about information provision, Erasmus Student Network AISBL, 2009

7   Appendix

7.1   List of Drupal projects and modules used

Drush

http://drush.ws

Access control

ACL	6.x.1.3	Access control list API
Content Access	6.x.1.2.	Provides flexible content access control
Forum Access	6.x-1.5	Allows forums to be set private and allows forums to be given moderators.
Taxonomy Access Control	6.x-1.3	Access control for user roles based on taxonomy categories.

CCK

Content	6.x-2.9	Allows administrators to define new content types.
Fieldgroup	6.x-2.9	Create display groups for CCK fields.
FileField	6.x-3.10	Defines a file field type.
Image crop	6.x-1.0-rc2	Add cropping ability to images using javascript
ImageField	6.x-3.10	Defines an image field type.
Link	6.x-2.9	Defines simple link field types.
Node Reference	6.x-2.9	Defines a field type for referencing one node from another
Number	6.x-2.9	Defines numeric field types.
Option Widgets	6.x-2.9	Defines selection, check box and radio button widgets
Text	6.x-2.9	Defines simple text field types.
User Reference	6.x-2.9	Defines a field type for referencing a user from a node.

Core - required

Block	6.20	Controls the boxes that are displayed around the main content.
Filter	6.20	Handles the filtering of content in preparation for display.
Node	6.20	Allows content to be submitted to the site and displayed on pages.
System	6.20	Handles general site configuration for administrators.
User	6.20	Manages the user registration and login system.

Core - optional

Aggregator	6.20	Aggregates syndicated content (RSS, RDF, and Atom feeds).
Book	6.20	Allows users to structure site pages in a hierarchy or outline.
Color	6.20	Allows the user to change the color scheme of certain themes.
Comment	6.20	Allows users to comment on and discuss published content.

71

Contact	6.20	Enables the use of both personal and site-wide contact forms.
Content translation	6.20	Allows content to be translated into different languages.
Database logging	6.20	Logs and records system events to the database.
Forum	6.20	Enables threaded discussions about general topics.
Help	6.20	Manages the display of online help.
Locale	6.20	Adds language handling functionality
Menu	6.20	Allows administrators to customize the site navigation menu.
OpenID	6.20	Allows users to log into your site using OpenID.
Path	6.20	Allows users to rename URLs.
PHP filter	6.20	Allows embedded PHP code/snippets to be evaluated.
Profile	6.20	Supports configurable user profiles.
Search	6.20	Enables site-wide keyword searching.
Statistics	6.20	Logs access statistics for your site.
Taxonomy	6.20	Enables the categorization of content.
Trigger	6.20	Enables actions to be fired on certain system events
Update status	6.20	Checks the status of available updates
Upload	6.20	Allows users to upload and attach files to content.

Administration & Development

Administration menu	6.x.1.6	Provides a dropdown menu to most administrative tasks
Devel	6.x-1.23	Various blocks, pages, and functions for developers.
Devel generate	6.x-1.23	Generate dummy users, nodes, and taxonomy terms.
Devel node access	6.x-1.23	Developer block and page illustrating relevant node_access records.
Feedback	6.x-2.1	Allows site visitors and users to report issues about this site.
Google Analytics	6.x-3.3	Adds Google Analytics javascript tracking code to all your site's pages.

Forum

Advanced Forum	6.x-1.2	Enables the look and feel of other popular forum software.
phpBBforum	6.x-2.0-beta9	Integrates Drupal with phpBB3 Forum. (module tested but not used)
Flat comments	6.x-2.0	Make all comments replies to the main post, regardless of the reply link used.

Image handling

Image	6.x-1.1	Allows uploading, resizing and viewing of images.
ImageAPI	6.x-1.9	ImageAPI supporting multiple toolkits.
ImageAPI GD2	6.x-1.9	Uses PHP's built-in GD2 image processing support.
ImageAPI ImageMagick	6.x-1.9	Command Line ImageMagick support.
ImageCache	6.x-2.0-beta10	Dynamic image manipulator and cache.
Imagecache Canvas Actions	6.x-2.0	Actions for manipulating image canvases
Imagecache Profile Pictures	6.x-1.3	Utilizes imagecache presets for user profile pictures.
ImageCache UI	6.x-2.0-beta10	ImageCache User Interface.

LDAP integration

Authentication	6.x-1.0-beta2	Implements LDAP authentication.
Data	6.x-1.0-beta2	Implements LDAP data to Drupal profiles synchronization.
Groups	6.x-1.0-beta2	Implements LDAP groups to Drupal roles mapping.
Provisioning	6.x-1.0-beta1	Implements LDAP users provisioning.

Location

GMap	6.x-1.1	Filter to allow insertion of a google map into a node
Location	6.x-3.1	Associate a geographic location with content and users.

Mail

Mime Mail	6.x-1.0-alpha1	E-mail with HTML and attachments
Notify	6.x-1.2	Enables notifications of new content and comments by e-mail.
Simplenews	6.x-1.0-rc6	Send newsletters to subscribed email addresses.
Simplenews action	6.x-1.0-rc6	Provide actions for Simplenews.

Media

Embedded Media Field	6.x-2.4	Engine for integration of various 3rd party media content providers.
Embedded Video Field	6.x-2.4	Field type for displaying third party videos, such as YouTube and Google Video.
Media: YouTube	6.x-1.3	YouTube support to the Embedded Media Field module

Printer, e-mail and PDF versions

PDF version	6.x-1.12	Adds the capability to export pages as PDF.
Printer-friendly pages	6.x-1.12	Adds a printer-friendly version link to content and administrative pages.
Send by e-mail	6.x-1.12	Provides the capability to send the web page by e-mail

Spam control

CAPTCHA	6.x-2.4	Base CAPTCHA module for adding challenges to arbitrary forms.
Image CAPTCHA	6.x-2.4	Provides an image based CAPTCHA.
reCAPTCHA	6.x-1.7	Uses the reCAPTCHA web service to improve the CAPTCHA system.
invisimail	6.x-1.3	Attempts to thwart spam-bots by encoding email addresses.

Views

Views	6.x-2.12	Create customized lists and queries from your database.
Views UI	6.x-2.12	Administrative interface to views.

Voting

Fivestar	6.x-1.19	A simple five-star voting widget for nodes.
Fivestar Comments	6.x-1.19	Rate nodes by leaving comments.
Voting API	6.x-2.3	Provides a shared voting API for other modules.

Other

Account menu	6.x-1.7	Provides dynamic Log in/My account/Log out account menu
Advanced help	6.x-1.2	Allow advanced help and documentation.
Author Pane	6.x-2.1	Gathers information from user related modules and displays it in a template.
Block Theme	6.x-1.2	Provides a configuration option to select custom themes for blocks
Fbconnect	6.x-1.0-beta7	Allows users to connect with Facebook account

FCKeditor	6.x-2.1	Enables the usage of FCKeditor (WYSIWYG) instead of plain text fields.
Flag	6.x-1.3	Create customized flags that users can set on content
IE Unlimited CSS Loader	6.x-1.2	Solves the Internet Explorer limitation of loading up to 30 CSS files per page.
Konami Code	6.x-1.5	Performs special actions when the user enters the Konami Code.
Lightbox2	6.x-1.11	Enables Lightbox2 for Drupal
LoginToboggan	6.x-1.9	Improves Drupal's login system.
LoginToboggan Rules Integration	6.x-1.9	Integrates LoginToboggan with Rules module
Maxlength	6.x-2.0-beta2	Set a maximum length for body fields.
Menu Block	6.x-2.4	Provides configurable blocks of menu items.
Menu Per Role	6.x-1.9	Allows restricting access to menu items per role.
MultiBlock	6.x-1.3	Allows the creation of multiple instances of blocks
Nice Menus	6.x-2.1	CSS/jQuery drop-down, drop-right and drop-left menus to be placed in blocks
Path Filter	6.x-1.0	Input filter to convert internal paths to their corresponding absolute URL
Pathauto	6.x-1.5	Automatically generate aliases for the content they manage.
Poormanscron	6.x-2.2	Internal scheduler for users without a cron application.
profile_access	6.x-1.0	Helps to provide heirarcial control of profile.
Rules	6.x-1.4	Lets you define conditionally executed actions based on occurring events.
Similar By Terms	6.x-1.18	Display a block of other content that is similar by keywords (taxonomy terms).
Table of Contents	6.x-3.6	Adds a filter that generates Tables of contents for pages
Tagadelic	6.x-1.3	Tagadelic makes weighted tag clouds from your taxonomy terms.
Token	6.x-1.15	Provides a shared API for replacement of textual placeholders with actual data.
Token Filter	6.x-1.0	Allows token values to be used as filters
Vertical Tabs	6.x-1.0-rc1	Provides vertical tabs for supported forms like the node edit page.
Filter Permissions	6.x-1.1	Provides role and module filters for the user permissions page.
Webform	6.x-3.9	Enables the creation of forms and questionnaires.

Multilanguage

Block translation, CCK translation, Content type translation, Internationalization, Language icons, Menu translation, Poll aggregate, Profile translation, String translation, Taxonomy translation

Custom modules of ESN Satellite

ESN Content types		Content types of the ESN Satellite
ESN Views		Views used by the ESN Satellite
Features	6.x-1.0	Provides feature management for Drupal.
Password Check		Provides a non-configurable action to check for default password combinations
Satellite Blocks		Provides custom blocks for ESN Satellite
Satellite Help		Ties in the advanced help icons for the generated help documents.
Satellite Remote XML		Imports ESN Section and ESN Country XML files from the ESN Galaxy at cron
Satellite Token		Provides tokens like from the ESN Galaxy for the Satellite
Youth Agora Call Home Client		Retrieves information from the Youth Agora server via XML/RPC
Youth Agora Clean Settings		Clean all the unnecessary form elements from the CCK settings page