Improving the Visibility and the Accessibility of Web Services

A User-Centric Approach

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Abstract

The World Wide Web provides a well standing environment in any kind of organizations for exposing online products and services. However, no one ensures that web products or services which provided by organizations or enterprises, would receive the proper visibility and accessibility by the internet users. The process of Search Engine Optimization examines usability in design, architecture and content that an internet-based system has, for improving its visibility and accessibility in the web. Successful SEO process in an internet-based system, which is set under the paternity of an organization, ensures higher recognition, visibility and accessibility for the web services that the system provides to internet users.

The aim of this study characterized with a trinity of axes. In the first axe, an internet-based system and the web services that provides is examined in order to understand its initial situation regarding its visibility and accessibility in the web. In the second axe, the study follows a user-centric approach on how and in what way the examined system could be improved based on its users’ needs and desires. After the encapsulation of needs and desires that the users expressed as regards the usability of the system in design, architecture and content, the third axe takes place. In the third axe, the extracted needs and desires of users are implemented in the under-examined system, in order to understand if its visibility and accessibility has improved in the World Wide Web.

For the completion of this trinity of axes, the Soft Systems Methodology approach is adopted. SSM is an action-oriented process of inquiry which deals with a problematic situation from the Finding Out about the situation through the Taking Action to improve it. Following an interpretative research approach, ten semi-structured interviews take place in order to capture all the participants’ perceptions and different worldviews regarding of what are the changes that they need and desire from the examined system. Moreover, in this study, the conduction of three Workshops, constitute a cornerstone for implementing systemically desirable and culturally feasible changes where all participants can live with, in order to improve system’s visibility and accessibility in the internet world.

The results indicate that the adoption of participants’ needs and desires, improved the levels of usability, visibility and accessibility of the under examined internet-based system. Overall, this study firstly contributes to expand the knowledge as regards the process of improving the visibility and accessibility of internet-based systems and their web services in the internet world, based on a user-centric approach. Secondly, this study works as a practical toolbox for any kind of organization which intends to improve the visibility and accessibility of its current or potential web services in the World Wide Web.

Keywords: Soft Systems Methodology, Search Engine Optimization, Search Engine Optimization for Organizations, Search Engines, Improvement of the Visibility on the WWW, Improvement of the Accessibility on the WWW, Web Services, Internet-based Systems, Usability, User-Centric Approach, Greece.
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Dedicated to my little niece, Maria
...a two years old lady.
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1. Introduction

The purpose of this chapter is to introduce to the readers the background of the meaning of the Search Engine Optimization and the improvement of visibility and accessibility of internet-based systems. Subsequently, the unfolding of the related studies leads to the problem statement, the purpose, plus also the research questions of this study. This chapter concludes with the topic justification and the disposition of the whole thesis.

1.1 Background

The number of organizations which improve their online existence and presence via the World Wide Web in order to demonstrate their services and their products has rapidly increased (McIntyre, 2015). At the same time, the online subsistence of internet-based services which are set under the supervision of an organizational paternity, do not ensure the visibility and the accessibility of their potential visitors. Internet-based or Web-based services provide access and administration to a software system using a computer and internet connection, as the operations of the system can be managed online. The hard reality through is that, even a well designed internet-based system and its services will not be successful if potential internet users cannot find it (Weideman and Chambers, 2005).

In order to improve the visibility of an organizational internet-based system in the World Wide Web (WWW), the process of Search Engine Optimization (SEO) is a fundamental factor (Al-Ananbeh et al. 2012; Patel, Patel, and Patel, 2012; Gandour and Regolini, 2011). SEO addresses and examines system’s usability in design, architecture and content, for improving better ranking, visibility and accessibility by online users (Visser and Weideman, 2014; Lievonen, 2013; Jones, 2010; Zhang and Dimitroff 2005). On the one hand, the meaning of visibility is defined as the ranking position that an internet-based system has in a search engine results, as the nearer to the top of the of the search engine results lists, the better is the visibility and vice-versa (Zhang and Dimitroff, 2005). On the other hand, the meaning of accessibility level related with the number of visitors that an internet-based system has, as they enter on the system in order to satisfy their informational needs (Zhang and Dimitroff, 2005). However, it needs to be mentioned that a well search engine results page positioning is hugely competitive, almost gladiatorial for improving the visibility and accessibility of organizations’ activities which expose their services in the web (Dye, 2008).

The SEO process related with the effort of optimizing an internet-based system, making it friendlier to users and search engines in order to acquire higher ranking in the search results, while internet users achieve to find the information they want on an optimized system based on their search needs. Efficient SEO allows users to find relevant information quickly and accurately (Rehman and Ahmed Khan 2013). Based on this assertion, it needs to be mentioned that the challenge, is not only taking part in the top of the list of a search engine (Google, Bing, Yahoo, etc) but to provide optimal results of information in an appropriate formation to the users while they type their queries in search engines. Indeed, if the web
services on an internet-based system are not presented in a flexible and easy to use way, then, online users will jump to another system which provides this kind of flexibility and usability (Egri and Bayrak 2014; Visser and Weideman, 2014; Al-Ananbeh et al. 2012; Gandour and Regolini 2011; Khanna and Vivekanand 2011; Malaga 2008; Zhang and Dimitroff 2005). The aforementioned statement could be strengthened if someone take into consideration that the basic scope of search engines is the confirmation and the safeness that the internet users via the keywords they type, can find the most useful information, with the appropriate structure, in the best possible time (Kisiel, 2010; Ren, Yang and Diao, 2010).

Considering the abovementioned statements of the academic community, I seize the opportunity to investigate on how an internet-based system could improve its visibility and accessibility in the WWW using the process of Search Engine Optimization, while taking into account its users needs and desires. Adopting a user-centric approach of what the online users of a specific system desire and need, a strategic methodology is followed in order to extract feasible and desirable changes. These feasible and desirable changes derived from their perspectives and beliefs regarding their experience of using an internet-based system and its functions.

1.2 Related Studies

From an organizational perspective, most of the enterprises consider the improvement of the visibility and the accessibility of the web services they provide as a valuable process. In the same line, for Olbrich and Schultz (2008), organizations quickly realizing that search engines are a prime source that lead internet users to the services they provide. Based on that statement, Chung, Chung and Hui (2012) pointed out that the SEO process can help organizations to improve their web services in order to increase their visibility in the current internet world competition, while at the same time, providing the most relevant information to internet users. More specifically the authors referred that “effectively using SEO techniques, organizations such as government agencies, schools, libraries, banks, post offices, restaurants, retailers, or even manufacturing companies could build their web services in higher quality and visibility for improving their businesses in surviving in today’s extreme competitive world”.

In parallel, Zhang and Dimitroff (2005) point out that the implementation of SEO techniques in the internet-based systems that institutions and organizations have, help them to better place their web services in the internet world, while users efficiently search for them on the web. Moreover, the study of Cui and Hu (2011), shed some light regarding the utility of SEO techniques and strategies to the e-commerce organizations for the occasion of an effective online promotion. Similar findings of Cui and Hu (2011) expressed previously by Constantinides (2002) as he referred that the SEO process optimizes web services in order to provide to online customers easily and relevant access to their informational needs. Subsequently, it needs to be mentioned that in the academic educational sector, Arlitsch and
O’Brien (2013) and (2012) respectively, proceeded into the improvement of visibility and usage of institutional repositories systems via the SEO process.

All these statements regarding SEO and their utility for organizations could be more valuable if we take into serious consideration that most of the internet traffic comes from the use of search engines (Egri and Bayrak 2014; Dou et al. 2010). At the same time, even from the beginning of the previous decade till now, the 90% of internet users do not exceed the first three pages of search engine results, or otherwise change search terms-keywords (Luh, Yang and Huang 2016; Visser & Weideman, 2014; Enge et al., 2012; Lorigo et al., 2006; Sullivan, 2002). However, while too much have been written for improving the visibility of general webpages, very little have been published regarding the improvement of the visibility of internet-based systems in the WWW.

An internet-based system approach for improving the visibility and the accessibility of academic institutional repositories has been given by Arlitsch and O’Brien (2013) and (2012) respectively. They addressed via the usage of SEO process that the low visibility of academic institutional repositories related with the complex metadata schemas that the repositories software describe their items. They stated that the adopted complex metadata schemas complicating the indexing process of the crawlers of the search engines. This assertion is also noted by Visser and Weideman (2014) as they refer that Arlitsch and O’Brien (2012) found that if managers of organizational institutional repositories change the metadata from Dublin Core to Google Scholar’s own prescriptions, the visibility of the repositories rose significantly.

Moreover, Nigam, Saxena and Gupta (2015) proceeded into an SEO analysis of how to improve the ranking in search engine results and therefore the visibility and accessibility of a Content Management System in a Joomla platform. A CMS is a platform which installed on a web server and allows managing a system online, without needed storing it on a desktop computer and uploading each time when the administrators need to make changes (Goroshko, 2014). However, Nigam, Saxena and Gupta (2015) analysed and depicted only the “best practices” of SEO processes without implementing them in a CMS in order to examine if the system augmented its visibility in world wide web. They highlighted that programming rectifications in the source code of the page such as meta-tags which describe the system to the search engines, plus also the insertion of the social media buttons interaction within the system. They also highlighted the provision of a flexible navigational system environment as an important factor for improving the ranking and therefore the visibility of a system in the web. The assertion of the flexible navigation and usability of a system is highlighted also by Jones (2010). The author referred that the high visibility and better ranking in search engines of a CMS related with the provision of a clear design which allows visitors to explore easily and flexibly its web services. He also mentioned that the presence of useful and interest content that attracts the attention of visitors is a crucial component as well.
Weideman and Chambers (2005) proceeded in SEO practice for improving the visibility of a webpage system in the tourist management sector. They highlighted that the meta-tags in the logo of the site, the title, the meta-description, plus the alt-tags on images and the existence of a Sitemap for providing several links to the rest of the system for better navigation, are important factors for improving the visibility of it in search engines. They finally resulted to improve the ranking and the visibility of their examined system in Google Search Engine.

Rehman and Ahmed Khan (2013) stated six SEO techniques for improving the visibility of a CMS, this time in a Wordpress CMS platform and not Joomla. They highlighted the size of the CMS (KB or MB), the loading time which it takes to be appeared on the screen, the listing and indexing in web directories, the customization and rectification of errors preventing internet users to land in broken pages, the search term-keyword density and related content, and the flexible navigation inside the system. Rehman and Ahmed Khan (2013) referred these SEO changes that an internet-based system administrator needs to take into serious consideration. However, the authors did not implement these suggestions in order to understand if the visibility of a Wordpress CMS has improved or not in the WWW.

For Zhang and Dimitroff (2005) there are three SEO important factors for improving the visibility of a webpage system. Namely, the search term or keyword position (position of a keyword within a site), keyword density (keyword frequency within a site) and the system’s design and layout such as uniformity in font color, font size, font case status, etc. In addition, Egri and Bayrak (2014) referred the insertion of a comprehensive content with images and pleasant text in an internet-based system, plus also the system load speed time to load up all its functionalities to internet users, are important factors for improving the visibility and the accessibility of it. They also stated that the mis-guiding keywords usage which means that internet users retrieve a result that is not relevant with the keyword they used, lead to low visibility and accessibility level of a web-based system. That kind of research result extracted also from Gandour and Regolini (2011) study, referring that the updated and relevant content inside the system constitutes decisive factor in order to give the impression to the users that the system keeps up with the current trends in its topic.

In the same line, Khanna and Vivekanand (2013) highlighted the importance of keywords in the SEO process on how to improve the visibility of a system in search engines. They reported that the time which the system needs to load all its functionalities in the user’s interface and the easy to use momentum of internet-based systems, are crucial factors for improving the visibility and the accessibility of their web services. However, they did not express the concern to examine an internet-based system for improving its visibility and accessibility as this was out of their research scope. Al-Ananbeh et al. (2012) proceeded into an analysis of visibility and accessibility of eight Arab university Institutions and their webpage systems. They highlighted that the internal links that the system has, the design and the layout of it, the possible programming errors in the source code of the system and the load
speed time, are important factors for improving the ranking of a webpage system in search engines and therefore its visibility and accessibility. However, they did not point out if they proceeded into the implementation of the aforementioned suggestions in their examined university websites for understanding if these systems have improved or not their visibility and accessibility on the internet world.

The aforementioned statements of the academic community expressed the meaning of the benefits that organizations will have, if they proceed into the improvement of their visibility and accessibility via the SEO process. In addition, most of the previous cited studies relied more on the technical dimensions for improving the visibility and accessibility, however they did not take into consideration that each kind of organizational system probably should be made for the people based on their desires and needs. This assertion leaves a research gap, and thus further studies are needed in order to understand if the adoption of a user-centric approach based on users desires and needs, will finally improve the visibility and the accessibility of an internet-based system and its web services in the WWW.

1.3 Problem Statement

The above mentioned literature review, problematized me in respect to the use of SEO process for improving the visibility and accessibility of internet-based systems in search engines and therefore in the whole internet world. In addition, the improvement of the visibility and accessibility should be put under the umbrella of an organizational process that involves opposing worldviews or even conflicts amongst the users of the system and their needs from that system. Thus, it needs to be mentioned that, little work has been written regarding the improvement of visibility on internet-based systems, and even less has been referred regarding the improvement of the usability and accessibility of a system based on users needs, preferences and different worldviews.

In addition, examining the previous unfolded literature review, most of the aforementioned researches proceeded into the adoption of minimum 3 to maximum 6 factors in order to highlight on how a system could improve its visibility in search engines, hence its web services. On the contrary, at the same time, Google is said to employ about 200 factors that affect the ranking of a webpage system and the visibility of it, however, most of them Google held as closely guarded secrets (Luh, Yang and Huang 2016; Cutts, 2011; Google Inc. 2010). Following this assertion, and as it was mentioned before, the ranking position of a webpage system in the first search engine results page could be characterized as a hugely beneficial privilege against other online competitors (Dye, 2008). This statement may leads to approaches that do not intent to notify and reveal all the factors -or more than 6 factors- that the search engines estimate, and hence, they contribute to the improvement of the visibility and accessibility of a webpage system in the internet world. Thus, this might leads to be a competitive advantage of knowledge that others may have not, as the higher a webpage system is ranked in the search engine results, the better visibility and accessibility it has.
However, it needs to be mentioned that even some studies refer about minimum 3 to maximum 6 factors or keep the others secretly for their competitive advantage, those studies do not reflect on the complexity of optimization in existing organizations with opposing social forces that manage day to day activities. Probably not all of the above mentioned factors are appropriate and common for all the kinds of organizations and their internet-based systems in order to improve the visibility and the accessibility of their web services. Based on that statement, it will be useful to deeply investigate from a social point of view, what probably the users of the internet-based systems need and desire, rather than to proceed into predetermined actions without being aware that if they will benefit the system or not.

In addition, even some of these papers shown similarities regarding the suggestions of changes that need to be done, such as proper keywords selection, meta-tags, programming rectifications, or page layout and so on, a few of them had touched and proceeded into the implementation of these suggestions in order to make more comprehensible if their examined webpage or internet-based system has improved as regards its visibility and accessibility. Controversially, most of these research approaches only depict and refer optimal practices and suggestions for improving the visibility of webpage systems without implementing them in a real organizational problematic context. This will give a good starting point in order to understand the efficacy in visibility and accessibility of these suggestions in an internet-based system and the web services that it provides to online users.

In continuation of these observations, it is useful to refer that most of the researches proceed into the implementation of predetermined actions for improving the visibility without hearing neither the voice of the managers of the examined systems nor the internet end-users that potentially will have access to the examined systems in order to satisfy their informational needs. The bad reality, through, is that for the sake of high visibility of a webpage system by search engines, systems’ administrators many times sacrifice the perceptions and the beliefs of the users of the system in order to achieve better ranking in search engine result pages (Weideman and Chambers, 2005).

Taking into consideration the aforementioned literature review its characteristics and limitations, I proceed into the investigation of a problematic situation regarding the low visibility of an internet-based system on WWW. Subsequently, I investigate how to proceed into a suggestion that could be adopted by potential researchers and practitioners interested in that topic that probably want to increase the visibility and the accessibility of their web services. In this study, the theme of the under examined system related with the academic community and more specifically with an open access for its visitors scientific e-Journal. This e-Journal constructed in Joomla Content Management System (CMS) platform. This e-Journal is unfolded systematically into several processes, entities and sub-entities in order to provide its web services to the interested parties of online users. Provision of information regarding the topic of the e-Journal, registration process, uploading and downloading
published articles, article submission process, automated dissemination of submitted article for reviewing process, are some of the operations that this specific internet-based system has.

However, the informal preliminary research that I conducted by asking the managers of the system regarding its functionality and visibility in search engines, was more discouraging rather than encouraging. Indeed, the statistical analytics runs that the managers gave to me regarding the number of visitors and its Google search engine ranking, were low, as the visitors’ average minutes of exploring the system was too little, giving the impression that the system was almost abandoned. Some of the internal links that the system had, were broken, and the managers expressed additionally several complaints about the usability of the whole system regarding its architecture, design and layout. The system also expressed slow loading time in order to display its full functionalities to users. The plurality of these empirical statements leads me as a researcher to proceed into the purpose of this study.

1.4 Purpose and Research Questions

The purpose of this study is to explore how and in what way an internet-based system which is under the paternity of an organization could be optimized based on its users’ desires and needs in order to improve its search engine ranking, visibility and accessibility in world wide web. As it was mentioned before, previous researches highlighted the utility of the SEO process in order to improve the visibility and the accessibility of internet-based systems via an experimental methodology which examines a system in specific aspects and then implementing changes. However, those studies neglected the organizational context and the involvement of the users to have the right to express their needs in order to improve the system for them and by them. Other researches illustrate predetermined changes that need to be done on an internet-based system in order to improve its visibility and accessibility, however, without finally implementing them on the system and also without taking into consideration users’ aspects and beliefs about the system.

Therefore it needs to be mentioned that, although these research approaches proceed into an analysis of the situation that the system depicts or what is needed for improving the visibility and accessibility, they do not proceed into a qualitative methodological approach that examines the social impact that the stakeholders have, regarding the situation of the examined system and how to improve it. These research approaches also leave a gap as regards their utility and how they can be implemented by several practitioners and managers who already intended to improve the visibility and the accessibility of their web services in the internet world, however, they lack of methodology and strategic implementation.

Take into serious consideration the aforementioned limitations and eavesdropping the call of implementing an optimization, there was a necessity to understand if the processes and the functions of this e-Journal operate in a proper manner. That fact, will give the opportunity to provide a system which can be characterized with a high level of quality in its structure and
content, while at the same time express high visibility in the web and high accessibility and traffic by internet users. In order to achieve this purpose, I will collaborate with the managers and the users-visitors of this system in order to make more comprehensible which might be the changes that need to be done, establishing in this way a CMS that meets the expectations of its users needs. The internet users-visitors of the system are some previous authors that already had published a study on this e-Journal or readers who download published articles in order to study them.

Via the collaboration with the managers, it is expected that the managers of the e-Journal will receive a trinity of benefits as: a) the system will be rectified based on their needs and desires b) the visibility and the accessibility of the system will be improved as it will express better usability in design, architecture and content c) more revenues to the managers of the system, as more and more visitors could potentially submit their scientific work for publishing on this scientific e-Journal system. On the other hand, analyzing and understanding the perceptions and the different worldviews of the internet users that the system has, gives the advantage to them to have an access on a system which meets their preferences and informational needs, while taking into consideration their suggestions and ideas for the system’s improvement.

For the fulfillment of the aim of the study, Soft Systems Methodology -which is analyzed in the next chapters- will be adopted in order to identify not only the changes that need to be done, but also to formulate suggestions that will be implemented for understanding if the visibility and the accessibility of the under-examined system has been improved. In order to accomplish the aim of this study, a framework of questions is setting up, which they will lead in a strategically empirical setting that will answer them. The research questions that tend to be answered are the following:

-How the changes that the internet-based system needs could be identified, based on its users’ needs and desires, in order to improve its visibility and accessibility in the World Wide Web?

-What are the changes that need to be done on the internet-based system, based on the users’ needs and desires?

-After completing all the changes based on user’s needs and desires, will the internet-based system have an improvement on visibility, accessibility and search results ranking, or the system will be fluctuated at the same level of ranking and visibility?

1.5 Topic Justification

This study is worth pursuing since it can be characterized with a duality of contribution provided into two different sides. The first one side contribution related with the utility of search engines as the core value of them, is the confirmation and the safeness that the internet users via the search terms they type can find the most useful information, in a proper
structure, in the best possible time (Kisiel, 2010; Ren, Yang and Diao 2010). In this case, collaboratively rectifying an internet-based system with the participants, which follows an appropriate structure and includes useful content for internet users, works positively and supportively for search engines scope, which is the provision of useful information to users while they type specific search terms on search engine boxes.

The second one contribution related with the effort of presenting a new way of research methodological approach for improving the visibility and accessibility of internet-based systems. For West (1997) most of the IS development and improvement methods tend to be normative. In this topic, many research contributions follow the statement of West, while proceeding or highlighting the improvement of visibility and accessibility of a system, based on normative and predetermined changes on the source code of the under examined webpage systems (Nigam, Saxena and Gupta 2015; Egri and Bayrak 2014; Khanna and Vivekanand 2013; Rehman and Ahmed Khan, 2013; Al-Ananbeh et al. 2012; Zhu and Wu, 2011; Weideman and Chambers, 2005; Zhang and Dimitroff, 2005). All these predetermined changes in the source code for improving the structure and the content of the system, may lead to better results. However, they do not relied on the collaboration among researcher and stakeholders (managers and visitors of the system), in order to decide jointly the total sum of changes that need to be done for improving the visibility and the accessibility on search engine results.

These occasions of predetermined actions may lead to weakness or avoidance for hearing the voice of the stakeholders, their needs and their preferences, and therefore a misunderstanding on how the improvement was implemented. Instead of this approach, people have the right to influence the systems that they will use and in order to achieve this, they should have effect and a voice throughout the process (Bergvall-Kåreborn et al. 2010). Under this prism, and while trying to contribute even with a small stone of knowledge in the academic community, I relied heavily into the collaboration with the relevant stakeholders (managers and visitors) of the system in order to build a methodological user-centric framework for improving the visibility and accessibility of the system and its web services in the internet world.


1.6 Disposition of the Study

The structure of the study is organized as follows:

**Chapter 2 - Theoretical Framework:** This chapter related with the theoretical framework that the principle concepts of the thesis is based on. More specifically, theoretical lens are unfolded on the concepts of the Search Engines and their functionalities, the meaning of Search Engine Optimization as a process for improving the visibility and accessibility of an internet-based system, and the meaning of system’s Usability under the prism of Human-Computer Interaction.

**Chapter 3 – Methodology:** In this chapter the adopted methodology is described extensively and in explicitly. The chapter includes the philosophical tradition that this research is based on and the description of the methodological adopted approach, namely the Soft Systems Methodology and its stages. Moreover this chapter provides the reason why to choose the SSM approach and the description about the data collection and the data analysis processes. Finally, the trustworthiness of the study is included and the ethical considerations of this study are presented.

**Chapter 4 - Soft Systems Methodology Implementation and Empirical Findings:** In this chapter the SSM processes are implemented and the empirical findings of the methods that were applied are presented and analyzed extensively.

**Chapter 5 – Discussion:** In this chapter the empirical findings of the applied methods, and the implemented SSM processes are discussed in detail.

**Chapter 6 - Conclusions, Reflections, and Open Problems:** In this chapter the answers to the research questions are presented along with the emerged results of this study. Subsequently, the contribution of the study is specified and some reflections of the researcher are exposed. Lastly, the suggestions for future research approaches conclude the whole study.
2. Theoretical Framework

The purpose of this chapter is to introduce to the readers the theoretical concepts of the Search Engines and their functionalities, and the Search Engine Optimization and its branches as a process for improving the visibility and the accessibility of web services. In addition, the theoretical framework of the usability under the umbrella of the human-computer interaction is unfolded. Lastly, an outline of the whole literature is presented.

2.1 Search Engines

Search engines such as Google, Yahoo, Bing, Ask and so on, are recognized as primary tools used to locate information and extract informational needs that users seek out on the whole WWW. For any kind of organizations, -profitable or not- search engines offer a unique opportunity to get their services and products in front of online prospects and at the exact moment that internet users looking for them (Ryan and Jones, 2009; Olbrich and Schultz, 2008). Indeed, the direct promotion of a service is the search engine result page list is the reason why search engines are considered (among other online technologies, i.e. RSS, email campaigns or social media advertising) to be the most dynamic promotional newest online communication channels (Olbrich and Schultz, 2008; Barnes, 2007). In today’s online world, three major search engines dominate users’ choices, Google, Bing and Yahoo (Luh, Yang and Huang 2016). However it needs to be mentioned on how search engines work in order to satisfy internet users’ informational needs.

In order to export the best possible information to internet users accordingly with their search terms and needs, search engines must present the indexed information that the WWW has, which is most relevant to the queries they submitted on them. However, this process could be characterized as a complicated one because of the vast amount of information available on the internet world. Search engines index this vast amount of information using search engine crawler programs, and thereafter, ranking each kind of internet-based system or website appropriately (Croft, Metzler, and Strohman 2009).

Explaining the ranking process, the more relevant and appropriate in structure is the provided information to the users’ submitted search terms, the higher is the ranking and thus the visibility that an internet-based system or a website receives in the search engines results pages (Luh, Yang and Huang 2016; Visser and Weideman 2014; Carpineto et al. 2009). As the process of Search Engine Optimization related with the improvement of the ranking, visibility and accessibility of an internet-based system, it needs to be further examined in its core values. This will make the readers of this study to understand in its full concept the process of improving the visibility and the accessibility levels and rankings of the under examined system and its web services in the internet world.
2.2 The Search Engine Optimization

Search Engine Optimization addresses and examines design and system’s usability in architecture and content, for improving better ranking, visibility and accessibility by online users (Visser and Weideman, 2014; Lievonen, 2013; Jones, 2010; Zhang and Dimitroff 2005). In the same line, Al-Ananbeh et al. (2012) define the SEO as the process which sets principles related to system’s structure, language and content and user-system interaction strategies to improve system’s search performance in different Web Search Engines. Based on that statement, Google advocates administrators of online systems to pay higher attention to internet users, their needs, their concerns and how they probably desire an internet-based system or a website (Heng, 2014). More specifically, for Lievonen (2013) the successfulness of a good internet-based system for being visible by a good amount of internet users, related with the uniqueness in its content and information that it has and provides. It is also related with an easy navigational experience for the internet users and with the simplicity in its architecture without multiple choices or windows to be explored and confused the user (Lievonen, 2013).

Before introducing the core dimensions of the SEO process, it is really useful to understand the difference between Search Engine Optimization and Search Engine Marketing or Advertising. The Search Engine Marketing process related with any kind of action in order to achieve the highest possible ranking in search engine results pages (Ledford, 2009). This could include pay per click advertising or other for a fee processes in order to directly attract visitors. However, this kind of process presupposes that when the user visits an internet-based system or a simple website, this domain should be in a proper form and usability, otherwise the user will exit from it (Malaga, 2008) and that kind of perception is not guaranteed by pay per click strategy. On the other side, the SEO process directly aims to address problems in design and layout usability, in the architecture and content of a system in order to make it friendlier to potential users.

Controversially, with the pay per click advertising, the SEO process is free of costs, and aims directly to the improvement of organic search and results (Evans, 2007). Organic search and results, can be defined as the listing of results on a search engine that appear only because of their relevancy to the search terms that users used on a search engine, and thus they are completely opposed to the paid advertising results. In any case, the process of the Search Engine Advertising is out of the scope of this study and it is narrowed on the SEO strategy for improving internet users’ navigational experience and usability on an under examined e-Journal system.

The main core divisions of SEO process is the Off-Site and On-Site optimization. The Off-site optimization is correlated with processes though building back links on other well-ranking websites or internet-based systems, hence, improving domain-level and page-level authority (Luh, Yang and Huang 2016). Indexing and listing the system into directories and databases
and back-linking constructions on social media networks are some of the main Off-Site optimization techniques which increase its traffic, hence ranking in search results. However the Off-Site process could be characterized as endless as we can build unlimited number of followers or back links to other web domains that finally lead to our web-based system.

The On-Site SEO related with programming based processes that took place during the development of the system in order to make a friendly indexed webpage system for the upcoming crawlers of search engines. Descriptive texts for the content, flexible design and layout, effective operation of the processes running in the background, appropriate architecture of information on the system in order to better get indexed on search engines, proper meta-tags, and appropriate keywords that related with system’s topic, are some of the main On-Site processes (Gennaro, 2015; Rehman and Ahmed Khan 2013; Gandour and Regolini 2011). Regarding the aforementioned concept, it needs to be mentioned that information architecture on a system can be defined as the arrangement or structure of the information contained on it. For Visser and Weideman, (2014), the way information is presented and arranged in a system can have a big impact on a usability and its perceived relevancy and authority both for internet users and for search engines as well.

In addition, the process of SEO can be divided into the White Hat and the Black Hat tactics. The crucial difference is that White Hat improves the structure and the content, hence, augmenting visitors satisfaction and making the whole system more relevant to users’ needs, while Black Hat only improves the ranking of a system among search results without affecting its quality (Berman and Katona, 2011). However, contradictory with Berman and Katona aspect, with Black Hat tactics the system is affected drastically on the quality of information that provides to internet users. For example, using a specific keyword multiple times with white letters in a white background of a webpage in order to be indexed by crawlers, creating back links or including content that is not relevant with the topic for attracting visitors, are some of the major Black Hat tactics. These tactics try to mock and cheat a search engine rather to provide useful information to internet users.

Believing in the doctrine of search engines and their utility, which is the provision of most relevant results of information according to users’ search terms and needs, this research is relied only on the White Hat tactics. In other words, the existence of each Search Engine should drastically related with the provision of appropriate information to internet users in order to satisfying in a full length their informational needs and not to cheat or confuse them.

2.3 Usability of the Internet-Based System

As it was previously mentioned by several studies, the process of SEO examines design and system’s usability in architecture and content, for improving better ranking, visibility and accessibility for internet users (Visser and Weideman, 2014; Lievonen, 2013; Jones, 2010; Zhang and Dimitroff 2005). According to Murugesan et al. (2001) each kind of internet-
based system should follow a user-centric design and all the systems’ administrators should pay higher attention to the factor of usability. Similar aspects referred that internet-based systems need to be designed for easy navigation, and also they need to be attractive and useful to their users (Prevelakis 1999; Scharl, 1999). For Al-Ananbeh et al. (2012) in order to characterize a system with a high level of usability, the system itself should be such as easy and flexible without requiring additional amount of training or learning for its users. The authors also examined the meaning of level of usability that the web-based systems should have on ten Arab Universities, and they found that loading times, the HTML errors or the broken links inside the system and the browsers compatibility problems are crucial components that affect the level of usability.

The theory behind the meaning of usability that a system should has is straightforward enough, namely, simple, stylish and functional design that helps internet users to achieve what they want to achieve inside a system. Even the aforementioned assertion seems to be quite simple for the readers, however it is not. For Ryan and Jones (2009), the meaning of usability is a challengeable task as it requires firstly the frustration out of the user experience, thereafter making sure things work intuitively for the user, and eliminating all the barriers, so users would be able to accomplish their scope almost effortlessly. Hence, the goal for an internet-based system administrator is to help internet users to do what they want to, in the most effective, speedy and efficient possible way. In other words, if online users have specific questions about a particular need and that is the main reason of why they visit the system, then the goal is to remove any obstacle that could prevent visitors’ well experiences when interacting with the internet-based system (Eisenberg et al. 2008). However, as the meaning of usability related with the SEO process such other studies point out (Visser and Weideman, 2014; Al-anahben et al. 2012), it is also extends its theoretical branches with the user-system or human-computer interaction. Indeed for Kim (2015), the meaning of high usability level that a system should has, constitutes the core value in the human-computer interaction framework.

2.4 Human-Computer Interaction and Usability Factors

In the previous theoretical subsection the process on how Search Engines rank websites and internet-based systems was unfolded, as the more relevant and appropriate in usability is the provided information to the users’ search terms, the better and higher is the ranking and thus the visibility. While the high usability of a web system related with a better visibility and accessibility of it in search engines, and hence, in the internet world (Luh, Yang and Huang 2016; Visser and Weideman 2014; Carpineto et al. 2009), it needs to be mentioned extensively of which might be the issues that addressed as regards the meaning of usability under the prism of the human-computer interaction.

Human–computer interaction (HCI) deals with the theory, design, implementation, and evaluation of the ways that people use and interact with computing devices and interfaces
Kim also states that the high usability level in the human-computer interaction concept means that the resulting interfaces are easy to use, flexible for the task that are used for, plus also easy to be used for the completion of that task accordingly. More specifically, even from the seventies Hansen (1971) pointed out the concept of the “know thy user” which indicates that each system should has a user-centric approach as this principle simply states that the interface and interaction among users and system should be based to the needs and capabilities of them. However, even that kind of implementations sounds easy, most of the systems administrators-implementers proceed without being aware of their representative users preferences and needs (Ryan and Jones, 2009). Thus, the principle of “know thy user” (know our user) for achieving a high level of usability should be based on the initial examination of users needs and desires from the system before proceeding into any kind of rectification or implementation in order to improve it.

Moreover, another fundamental principle which is set under the umbrella of the human-computer interaction and system’s usability, is the comprehension of the task that the system is used by the user. For Kim (2015) the meaning of comprehension of task related to the job that must be accomplished by the user who will entered the system, or in other words which is the reason that the user should enter on the system. For example, in this case, the comprehension of task related with the safety that the users of our e-Journal system are able to submit articles on it as authors, or download articles from it as readers, in a flexible and easy to use way without problematic issues.

Another one fundamental factor of the human-computer interaction is the effort to have a consistency in the interface of the system and its capabilities and choices without changing the position of them, causing confusion and disarray to the users. For Shneiderman and Plaisant (2004) the consistency on the system’s choices and buttons gives the benefit to user to remember and click instinctively what she/he wants to be informed from the system. It also gives the feeling of familiarity which finally leads to the acceptability and preference of the system by the user. In addition of human-computer interaction and system’s usability related with the provision of an interface environment which ensures that users’ choices and clicks do not lead to system error messages which prevent them from satisfying the reason why they entered on the system. As the interaction should be designed for avoiding any kind of confusion to users, the prevention of system error messages is equally important with the consistency that the system should has, for expressing a sufficient level of usability (Shoemake, 1992).

These aforementioned aspects of the human-computer interaction framework work as a cornerstone for improving the usability of any kind of examined systems while at the same time the administrators of them follow a user-centric approach based on user needs and desires. In this study, the high level of usability means that the under-examined system would receive a better visibility and accessibility on search engines, as they rank higher the systems
with better usability, and thus, it is useful to follow these statements for improving the system based on what users need and desire from the e-Journal system. In the next section an outline of the literature review is presented regarding its kind of element that was presented and how it contributes to the final goal which is the improvement of the usability and accessibility of an internet-based system in search engines and thus in the internet world.

2.5 Outline of the Literature Review

In an overall point of view, the meaning of human-computer interaction addresses the framework of system’s usability level, and subsequently, the process of Search Engine Optimization examines the meaning of usability in the design, architecture and content that each internet-based system has for improving its visibility and accessibility in the web. In addition, as Search Engines rank higher systems with greater usability, it needs to be mentioned that the usability as a meaning should follow a user-centric approach. In this study an effort is given in order to understand what the users need and desire from the e-Journal system for improving its usability level, and that fact, probably has as a result the improvement of the visibility and accessibility of it in the World Wide Web.

Figure 1. Theoretical Concepts adopted in the study
3. Methodology

This chapter firstly describes the philosophical tradition which this study is relied on, along with the methodological approach which is adopted in order to answer to the research questions. The Soft Systems Methodology is presented extensively plus also the reason for adopting it. Subsequently, data collection and analysis processes are exposed and discussed explicitly. Lastly, the trustworthiness of the study and the ethical considerations are unfolded and presented in detail.

3.1 Philosophical Approach and Paradigms

In Information Systems research, there are three philosophical approaches, the interpretivism, positivism and the critical one. These approaches determine how to study and understand the under examined phenomenon, what quizzes to set, how to seek answers for them and how to analyse and interpret the results, as they have different ontological and epistemological background (Myers and Avison, 2002; Myers, 1997; Orlikowski and Baroudi, 1991). According to Orlikowski and Baroudi, (1991) in a broader framework, the meaning of ontology tries to give an explanation of what constitutes reality, as this reality is composed by objectivism or subjectivism and probably depends on individuals and their personal beliefs regarding an issue. Subsequently, epistemology refers to the meaning of knowledge and how this knowledge should be acquired. These three paradigms (interpretivism, positivism and critical) follow a different kind of perspective regarding their ontological and epistemological background.

According to Orlikowski and Baroudi, (1991), the interpretivism related with the effort to understand phenomena through the meaning that people assign to them as the reality is socially constructed. The interpretative approach attempts to understand the intersubjective meaning embedded in social life and to make more comprehensible why the under examined people act the way the do (Gibbons 1987).

In the positivism perspective, reality is objectively given, independent of the observer and his instrument while relied on quantitative data. Additionally, for Lincoln and Guba (1985) the positivism assumes that the phenomenon of interest is single, and there is a unique best description of any chosen aspect of the whole phenomenon. The Critical perspective assumes that reality is produced and reproduced by people as it focuses on oppositions and contradictions due to the fact that people have the ability to change social and economic circumstances. Moreover, according to Orlikowski and Baroudi, (1991) the critical paradigm related with the creation of awareness in order to make more comprehensible the multiple forms of the social domination, thus, people can take action and eliminate them.

The philosophical perspective and position that this research adopts is not the positivistic paradigm since the study relies more on qualitative rather than quantitative data. Subsequently, this study does not adopt the critical paradigm since the main goal is not to
arise the inequalities amongst the under examined phenomenon in order to act as an emancipator, but rather to explore the different worldviews that the participants assume and explain and thereafter to establish suggestions for improving a problematic situation. Under this prism, the interpretivist paradigm is adopted in order to get a deeper understanding of the under examined phenomenon which is the low visibility of an internet-based system in WWW and how this system could be improved via the suggestions and beliefs that the its users (participants) assign to it.

For the completion of that goal, I focused on the subjective experiences, beliefs and interpretations that stakeholders assign to the system. Their experiences, beliefs and interpretations will achieve to build a better knowledge on how to improve the visibility of a system in the internet world, while at the same time the researcher as a facilitator both with the stakeholders, establish feasible and culturally desirable changes for the system itself. Indeed, for Orlikowski and Baroudi, (1991) the interpretivist paradigm motivates examinations into the enactment of a shared social reality through understanding human behaviors as regards a complex phenomenon.

In the same line, Myers (1997) and Klein and Myers (1999) stated that interpretive researchers give an effort to understand phenomena through the meanings that people assign to them, as they focus on the complexity of human sensemaking as regards the emergent situation. This assertion is also strengthened by Orlikowski and Baroudi, (1991) and Walsham (2006) referred that interpretative researchers relied on the subjective experiences of the social actors (stakeholders) which make sense of the world. In addition, for Klein and Myers (1999) the interpretative paradigm in information systems research help researchers to deeply understand the subjective human actions under an organizational context while achieving to get an insight for the potential information system development.

3.2 Methodological Approach

According to Myers (1997) the research methods are separated into qualitative and quantitative while the researcher choose one of these two distinctions based on the philosophical assumptions that she/he relies on. Namely, these philosophical assumptions are the paradigms in IS research field is the positivism, the critical and the interpretivism. For Myers and Avison (2002), each adoption of these research paradigms will determine how the research will be conducted and therefore evaluated as regards the response of the submitted research questions.

In the quantitative studies, the researchers are dealing with large amount of data that need to be analysed via the usage of statistical tools in order to extract a general point of view for the examined phenomenon. This kind of approach is more suitable in the positivistic mindset while trying to seek out an objectivistic knowledge that can be analysed with statistical analyses. It is worth noting that Blaxter et al. (1996) pointed out that quantitative researchers
are independent from the research process and the participants as well, while trying to shed a light on a phenomenon.

On the other side, in the qualitative approach, the researcher collects participants’ meanings and brings personal values into the study, while controversially, in a quantitative research approach is more about testing theories, measuring and observing information in a numerically way (Creswell, 2009). A researcher should follow the path of the qualitative study, while trying to study social and cultural phenomena that are complex and non-measurable (Myers and Avison, 2002, p.4). The strength of the qualitative research methods, relied in the utility for understanding the meaning and the context of the under examined phenomenon, and the particular events and processes that make up this phenomenon in real-life settings (Maxwell, 1996).

According to Kaplan and Maxwell (1994), qualitative methods are used to understand the perception of an information system by its users, the context within which the system is implemented, and the processes by which changes occur or results are generated. It is also noted that Kaplan and Maxwell (1994) referred that qualitative ways of data gathering from interviews, observations or open-ended questions are used to define what changes are attributed to the systems. The purpose of this study is to get a better understanding and interpret users’ subjective beliefs and perceptions regarding the under-examined internet-based system and how to improve its visibility and accessibility in the World Wide Web. Based on this purpose, the qualitative approach is more suited, as I made an attempt to collaboratively understand with the participants which might be the changes that the system needs in order to augment its visibility in the search engines and improve its accessibility by internet users. More specifically, while trying to improve a messy problematic situation, which is the low visibility of an internet-based system on the web and how to optimize it, the Soft Systems Methodology (SSM) took place.

According to Checkland (1981), Mirijamdotter, (1998), Jackson, (2000) and Yearworth and Edwards, (2014) Soft Systems Methodology follows the interpretative paradigm and its philosophical background relies on the phenomenology. According to Willcocks and Mingers (2004) and Gill (2014) phenomenology tries to understand participant’s perspective and beliefs and therefore it can be used in order to investigate individuals’ experiences and views. This assertion sets the phenomenology under the umbrella of the interpretative paradigm, an aspect that is also cited by Myers (1997). Lastly, for Mirijamdotter (1998), SSM depicts each social reality as a base of individuals’ preferences, beliefs, knowledge and experiences. This statement relies on the interpretative paradigm but also on the philosophical principle of the phenomenology as well. In the next section, SSM is presented while an argumentation takes place for the reasons why this methodology was adopted in this study.
3.2.1 Soft Systems Methodology

Soft Systems Methodology is an approach for tackling a problematic situation. It can be characterized as an action-oriented process of inquiry into messy situations in which stakeholders learn their way from finding out as regards the situation, to finally taking action in order to improve it (Checkland and Poulter, 2010). Subsequently, Checkland and Poulter (2010) stated that SSM methodology can be used for developing a process for learning your way through a problematic situation to an action to improve. Indeed as they remarked, this statement is very general, however it depicts the whole Soft Systems Thinking principle which is the holistic rather than a reductionist approach when there is a necessity to deal with a problematic (Jackson, 2000).

In Soft Systems Thinking, the reductionist approach referred to the fragmentation of a problem in parts, working on them individually and then giving a solution. On the other side, the holistic approach, relies heavily on the mindset to making more comprehensible what and which relationships exist between the parts of a system, while at the same time seeking solutions that arrived from the different perspectives and mindsets of all the relevant stakeholders that involved in the messy situation. In continuation of different perspectives of relevant stakeholders, for Mirijamdotter, (1998) the Soft Systems Thinking, presumes the existence of a fuzzy and complex reality which is accommodated by a plurality of approaches.

Under the prism of the involvement of relevant stakeholders into a problematic situation in order to be solved, Haftor (2012) refers that the Soft Systems Thinking assumes that all the relevant stakeholders should participate while trying to acquire knowledge that is needed to understand what-is the system to potentially suggest what-is-aim-at. For the completion of this kind of assumption as regards what-is and what-is-aim-at, a researcher who adopts a Soft System Thinking approach must focus on the understanding of the interrelationships that the parts of the system have. At the same time, the researcher must take into serious consideration the environment in which the examined system operates. This understanding will potentially reveal the suggestions in order to be adopted and implementing them, for finally improving the system. For the completion of this goal, the Soft Systems Methodology (SSM) will be adopted as it can be set under the umbrella of the Soft Systems Thinking approach.

As it was mentioned before, the SSM approach can be set under the umbrella of the action research process and tradition (Rose, 1997). As Checkland and Poulter (2010) stated, the action research holds its background and tradition in Kurt Lewin who argued that complex real world phenomena cannot be studied in laboratories, but to be examined as the researcher takes an active involvement in them. In another argumentation of Checkland and Holwell, (1998), they stated that action researchers aim to involve stakeholders in order to collaboratively change the process with them. In addition they referred that action research is
a method that researcher enters a real-world situation while aiming both to improve it and acquire knowledge.

Unlike other researchers that seek to study organizational phenomena but not to change them, the action research is concerned to create change and at the same time to study the process (Baskerville and Myers, 2004). For Argyris, Putnam and MacLain-Smith (1982), crucial elements in action research are the collaboration between researcher and people in the situation (participants), the focus on the social practice, plus also the deliberate process of reflective learning. As a clinical method, AR puts the IS researcher in a helping role with the practitioner as theorizing is shared among researchers and participants while each one brings their specific set of knowledge.

In any case, the framework of method that the action research offers is based on the goal to create an environment where participants freely exchange information and make informed choices (Mirijamdotter and Somerville, 2009). That is, setting the strategic Soft Systems Methodology for dealing with a problematic situation while taking action and sharing information regarding the situation of the system, arises the requirements for the potential changes that need to be done. At the same time, both the researcher and the participants proceed into informed choices and hence making this problematic less problematical than before.

As cited by Bergvall-Kåreborn (2002), Peter Checkland developed Soft Systems Methodology during 1970s as a way to tackle problematic managerial situations that cannot be solved via the adoption of Hard Systems thinking. In the study entitled “Systems Thinking Systems Practice” Checkland (1981) pointed out the mindset of better understanding a system through the meaning that the human activity assign to it. Each system has a purpose depending on the human activity which takes place on the system and incarnated into it. Therefore the system’s purpose depends on the meaning that humans assign to it and that meaning is influenced by their previous knowledge, background, and experience of each individual. Back to the helpful statement of Bergvall-Kåreborn (2002) study, a messy problematic situation can be described by the subjective view that each individual assign to it and probably could be different from other individuals’ perceptions. In other words, the main purpose is to highlight a clear and deep understanding of the messy and problematic situation that the examined system expresses. Thereafter, to find possible changes that are systemically desirable and culturally feasible amongst relevant stakeholders for improving this situation based on their perceptions and different worldviews.

Soft Systems Methodology is an organized way of tackling perceived problematical situations (Checkland and Poulter, 2010). For Checkland and Poulter (2010) the backbone of SSM is based on some key elements:
Firstly, according to the authors the real life is too complex and rapidly changeable which does not allow a permanent solution, but the improvement of a problematic situation, making it less problematical, and hence, not solving a problem once and for all.

- The SSM is an action-oriented process. This means that it needs an action or a set of multiple actions in order to bring an improvement as a result to the messy situation.
- The approach of SSM, highlights that people must be involved into the problematic situation making an effort to improve that situation while acting purposefully and not inadvertently.
- The SSM approach relies on the uniqueness of stakeholders, as each individual is unique and therefore brings together a different perception and understanding about a problematic situation. This different worldview of each one individual needs to be examined as it possibly arises a suggestion for improving the problematic situation.
- While take into consideration the amalgamation of purposeful actions and the different worldviews of stakeholders regarding the problematic situation, the SSM leads to a social learning approach among individuals that potentially leads in a way of improvement.
- While trying to establish culturally feasible and desirable changes on the problematic situation, the process of the social learning could be characterized as cyclical till the synthesis of the culturally feasible and desirable changes by all. The process is better to carried out by people that involved in the problematic situation itself (Checkland and Poulter, 2010).

Lastly, the final key element of SSM, is the meaning of actions. The final actions that will be decided in order to be applied will bring changes, setting in this way the kick-off for an new learning cycle.

In the effort to organize the whole process from determine which is the problematic situation to select the actions in order to be improved, several SSM researches pointed out sequential stages and guidelines (Checkland, 1981; Checkland 1989; Checkland, 2000; Jackson, 2000).

**Stages 1 and 2. Finding Out**
The main purpose at these stages is to determine which is the problematic situation, while at the same time including as many beliefs and perceptions as possible in order to conclude individuals who are a part of this problematic. In order to achieve this goal of representing the problematic situation, the Rich Picture method is adopted. The rich pictures depict extensively and in detail the problematic situation, the structure of this problematic, and all the relevant stakeholders that involved in that situation.

**Stage 3. Formulating Root Definitions**
While the aim is to construct a model of purposeful ‘activity system’, through an approach of pure and declared worldview (Checkland and Poulter, 2010), the Root Definitions are
adopted. The Root Definitions can be characterized as the statement for describing the activity system to be modelled in order to improve the messy problematic situation. For creation of the Root Definitions, the PQR formula which defines the “what” “how” and “why” of the purposeful activity is adopted. In addition, the Root Definitions are constructed based on the CATWOE, which is related with the Customers (they who will benefit from the system), Actors (they who will perform the activities), Transformation (specifically the purposeful activity which describes the input and the output), Weltanschauung (the different worldview that each stakeholder has and gives meaning to the creation of the Root Definition), Owner (the individual who can stop the activity) and lastly the Environmental constraints (the constraints that derived from the environment in which the systems operates).

Stage 4. Building Conceptual Models
The Conceptual Models are created in order to illustrate what their corresponding purposeful activity systems do according to the Root Definitions that had been assigned to them. With the conceptual models, the process of transformation for improving the problematic messy situation is described extensively and hierarchically. Subsequently, the conceptual models should also include the monitoring of other subsystems that act accordingly in several functionalities that improve the system itself in order to survive after the improvements.

Stage 5. Comparison of Conceptual Models with Reality
While establishing Conceptual Models that try to transform and improve the problematic situation, they need to be compared with the reality in order to understand their feasibility into the real world. At this stage the conceptual models and the rich picture are examined carefully by the stakeholders while debating through argumentation of which are the possible changes that will improve the problematic situation. This process of comparison with the reality could be carried out by four approaches (Checkland, 1989).

1. Understanding the difference among the technical features that the conceptual model describes with the aspect of stakeholders who present the reality, if the involved people are willing to bring the improvement.
2. Building a model of what truly exists in reality and compare it with the conceptual one. After the comparison of those two, differences are derived which clearly state the feasibility of the potential changes for improving the problematic situation.
3. Creating a scenario as regards of what is described in the root definitions. This practice opens a new dialogue of what would have happened if the purposeful activities were completed.
4. Create a debate of argumentation regarding the usage of the conceptual model in order to determine questions that can answer to the current existing problematic situation. This process gives the opportunity to understand what it really happens and what is not.
6. Determine Feasible and Desirable Changes
After proceeding into the comparison between the conceptual models and the reality existing, the definition of which of the conceptual models could be characterized as feasible and desirable changes, takes place. The main aim at this stage of SSM approach is to compare through an argumentation which of the purposeful suggested activities are systemically feasible and culturally desirable by all stakeholders in order to be implemented for improving a messy problematic situation.

7. Implementation of the Feasible and Desirable Changes
After the determination and the selection of the feasible and desirable changes, the implementation of them takes place. This implementation brings together the conclusion of the SSM cycle as this methodology highlights suggestions for improving the initial problematic situation. However, as the SSM works such an approach to improve a problematic situation rather than to solve a problem once and for all, it might arises new inadequacies and limitations that the problematic situation has. According to Checkland and Poulter (2010) it becomes a new “less problematical” situation, however, the learning process never ends.

In order to make more comprehensible into readers the whole SSM process, figure 2 illustrates all the stages of the methodology.

![Figure 2. The Fundamental SSM steps](image-url)
In a new perspective of SSM in order to establish a more flexible approach on how to use this kind of methodology, Checkland (2000) pointed out a reformulation that contains a duality of operations.

- The two streams analyses. The first one analysis emphasizes in the conceptual models that derived from the various stakeholders in order to extract ideas that could be implemented in a problematic situation for improving it. The second one analysis examines cultural and political streams of the stakeholders, in order to make more comprehensible the different worldview that each individual has, achieving in this way an agreement for finally taking action.

- The second axe related with the duality of reformulation that Checkland suggested, as the four main activities in the SSM approach is:
  1. The Finding Out as regards the problematic situation
  2. Formulation of relevant purposeful activity models
  3. Structuration of a debate in order to define feasible and culturally desirable changes that all can live with them
  4. Taking Action in order to improve the problematic situation

It needs to be mentioned that a fifth activity included into another study of Checkland and Poulter (2010) called as critical reflection in order to establish an iterative approach for the SSM cycle. According to Checkland and Poulter (2010) the fifth activity related with the importance to ensure that “the lessons have learned”. The new perspective of Checkland and Poulter is illustrated in the figure 3.

![Figure 3. SSM five steps from the Finding Out to the Critical Reflection](image-url)
3.2.2 Why Soft Systems Methodology

In the previous section, the Soft Systems Methodology was presented in order to understand its nature as a method and the stages of it. In this section, an argumentation takes place, in order to make more comprehensible to readers why choosing SSM to strategically improve a messy problematic situation. In this research the latest version of the SSM composed of the four activities is adopted, as it encapsulates all the seven key elements of the first version that Checkland presented (1980).

Although the SSM is a well-structured methodology which strategically proceeds into the improvement of a problematic situation, it receives a plurality of debates and criticism. More specifically, for Mingers and Taylor, (1992) the SSM approach practically proceeds into the adoption of conservative, legitimating or regulative ways in which each kind of improvement should be completed and these ways shall suspend or eliminate the momentum of the radical changes. In addition, Haftor (2012) points out that if stakeholders could not understand and therefore express the problematic situation, then, they could not define what is desirable as a solution in order to improve the problematic. For Jackson (2000), the SSM approach does not take into serious consideration the asymmetry of power that rules the real world. Sometimes, this asymmetry of power among individuals decides the kind of the final decision that will be taken, and it might prevents and eliminates the equal participation of the stakeholders in order to collaboratively decide the action to improve the problematic. However, Jackson (2000) pointed out that it is not the Soft Systems Methodology that prevents the radical changes in order to improve a problematic but rather the way it is applied by people.

On the other side, the etiology to adopt SSM in this study related to the basic principle of this methodology that I as a researcher, deal with a fuzzy problematic situation that needs to be tackled, specifically, the poor visibility of an internet-based system in search engines and therefore in the world wide web, namely an academic e-Journal. Via the strategic framework for improvement that SSM provides, it is possible to encapsulate the different worldviews of the involved stakeholders in order to:

- Deeply understand the problematic situation which is the low visibility and accessibility of the system in search engines and hence in world wide web,
- To create conceptual models based on the worldviews of the stakeholders in order to improve the problematic situation, which means to improve the visibility and accessibility of the system in search engines and hence in world wide web,
- To compare the different conceptual models in order to understand which of the suggested changes are feasible and culturally desirable by stakeholders,
- To take action, in other words, to implement the changes and to make more comprehensible if these changes improved the visibility of the system in search engines and the level of accessibility that the system has by the internet users.
This sequential process achieves to involve stakeholders in order to drastically hear their voices for optimizing their system under the umbrella of a learning cycle, while in parallel, they form suggested improvements and learning in their own way. Thus, as individuals have the right to influence the systems (Bergvall-Kåreborn, 2002) based on the mindset of “for the people, by the people”, the SSM approach seems to be very relevant to the purpose of this study.

Additionally, the SSM approach gives a better flexibility as it does not require strict predetermined deliverables and outputs that are defined from the beginning of the process in order to tackle the problematic. As the SSM is a methodology which not intends to solve a problem once and for all, but to make a problematic situation less problematic that initially was, the process gives the flexibility to me (as facilitator) and to the stakeholders of the e-Journal (managers, authors and readers) to collaboratively define in a most clearly way the problematic, the suggestions, and the actions to be improved.

Lastly, as it was mentioned before, the encapsulation of the different worldviews of stakeholders regarding the problematic situation itself, contains a portion of subjectivism, and therefore the SSM adoption agglutinates to the interpretivist paradigm that the study relies on. Therefore, the SSM illustrates the social reality as meaningful, while take into account individual preferences, experiences, knowledge and background (Mirijamdotter, 1998).

### 3.3 Data Collection

After the first impression that the preliminary research left behind, as regards the initial situation of the system and its visibility, there was a necessity to establish a roadmap for collecting data from the involved participants, namely the managers of the e-Journal and its previous authors and readers. The extracted data regarding their beliefs worldviews, background and experience led to the effective implementation of the SSM process. The participants were selected based on their previous experience as regards the usage of the under examined e-Journal system.

The selection of participants included the managers of the e-Journal system, the previous authors that had already published a research on that e-Journal, and the readers that have already download a research from that e-journal in order to study it. The selection of three different perspectives related with the effort to collect multiple different experiences and worldviews regarding the utility of that e-Journal platform. Therefore, I decided to include four participants as the managers of the system, three participants as the previous authors of the e-Journal, and three participants as previous readers of that e-Journal platform. They were totally ten participants. However, I took into serious consideration the possibility to increase the number of participants if no new useful data came up.
The selection of the participants was purposive in order to seek out specific rich information, rather than holistic perspectives that do not extract useful data (Patton, 2002). I personally contacted all the ten participants in order to conduct with each one an interview. After the final selection of the participants and before starting the interview method, the interview guide and the consent form was distributed to them in order to make more comprehensible the details of the research and prepare their thoughts for the interview process.

In addition, although the under examined e-Journal depicts an international profile based its publications on the English language, it was decided to distribute the interview guide and the native language of all the participants, the Greek one. That happened due to the fact that all participants were from Greece as they also stated that they could express their beliefs in a better way, in the Greek language. For the purpose of the study the interview guide and the consent form in the English and Greek language are attached on the Appendix B.

After the completion of the interview process, all the participants were contacted again in order to form workshops. Three workshops were conducted, the first workshop conducted with the managers of the e-Journal, the second one with the authors and readers of the e-journal and the third one with all of them, both managers, authors and readers. The accomplishment of the workshops established a clear view as regards the creation of the Conceptual Models and the comparison of them with the reality in order to be implemented into the Taking Action phase of the SSM.

As the scope was to understand in the most appropriate manner the functionalities of that internet-based system and the services that it provides, the study of the documentation of the e-Journal, plus several navigational tests on the system took place. It is useful to refer that the preliminary research that was conducted (which depicted the low visibility level of the system in internet world) plus the study of documentation and navigational tests for understanding all the functions of the e-Journal system, gave the opportunity to familiarize myself with the system itself. However, the most important benefit from that knowledge acquisition was the encapsulation of the knowledge on how to interpret the forthcoming worldviews that each participant expressed in order to improve the problematic situation.

3.3.1 Interview Process

For the interview process, all the selected participants were conducted in person and all the interviews were performed from 27 of March to 5th of April 2017. The managers of the system were interviewed at their offices in Athens, the place they held all the operations and tasks regarding their scientific publishing corporation. As regards the authors and the readers of the e-Journal, they were personally interviewed at the library of the Technological Educational Institute of Athens, while all of them had already published on that journal or had already downloaded and read published studies on it. More specifically, all the readers and the authors possessed educational and academic position in the TEI of Athens, while
trying at the same time to improve and expand their scientific knowledge using the under examined scientific e-Journal as a vehicle of scientific knowledge.

The duration of each interview on managers, authors and readers was about minimum forty five minutes to maximum one hour for each one of the participants. However, it needs to be mentioned that in many cases the interviewees expressed unintentionally the interesting and the appetite to continue the interview process for more than the predefined time (45min to 1 hour). Table 1. depicts the characteristics of the interviewees, the duration of each interview and the interview date.

Codifying the interviewees:
M: Managers of the e-Journal
A: Authors of the e-Journal
R: Readers of the e-Journal

<table>
<thead>
<tr>
<th>Participant</th>
<th>Interview Date</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>M1</td>
<td>March 27 2017</td>
<td>50 min</td>
</tr>
<tr>
<td>M2</td>
<td>March 27 2017</td>
<td>45 min</td>
</tr>
<tr>
<td>M3</td>
<td>March 27 2017</td>
<td>1 hour</td>
</tr>
<tr>
<td>M4</td>
<td>March 27 2017</td>
<td>50 min</td>
</tr>
<tr>
<td>A1</td>
<td>March 29 2017</td>
<td>50 min</td>
</tr>
<tr>
<td>A2</td>
<td>March 31 2017</td>
<td>50 min</td>
</tr>
<tr>
<td>A3</td>
<td>March 31 2017</td>
<td>1 hour</td>
</tr>
<tr>
<td>R1</td>
<td>April 4 2017</td>
<td>50 min</td>
</tr>
<tr>
<td>R2</td>
<td>April 4 2017</td>
<td>45 min</td>
</tr>
<tr>
<td>R3</td>
<td>April 5 2017</td>
<td>45 min</td>
</tr>
</tbody>
</table>

Each interview session started with a small informal conversation with each participant of the three groups about their current status, their job demands, their educational background and so on, in order to feel more comfortable, while at the same time, breaking the ice among us for the forthcoming interview process. After that, the interview process started with a presentation of the aim of the study and the methodology that was used in order to acquire knowledge. Each participant had also already read the interview guide and the terms of the consent form before the process started. Moreover, I reminded to them that they could withdraw any time they want from the interview process or to refuse to answer in questions that probably made them to feel uncomfortable, a statement that is also included into the consent form. Under participants’ permission, each interview recorded in order to encapsulate as much information is needed for ensuring a deep analysis of the outcomes. While trying to ensure the confidentiality of their beliefs and worldviews, the consent form was signed both
by me as facilitator and from the participants as well. Each participant kept one copy of the signed consent form.

### 3.3.2 Semi-Structured Interviews

The main contribution of the interviews is not only to gather individual’s statements but to create a meaningful discussion through debates (Crang and Cook, 2007). This assertion will lead to even better understanding regarding the under examined internet-based system and how several changes will take place in order to improve its web services visibility and accessibility. As more interviews are conducted and more information is gathered, the researcher’s understanding of the organization as a whole and its constituent parts is improved (Willcocks and Mingers 2004). According to Crang and Cook, (2007) the interview process is very useful when a researcher wants to understand and interpret participants’ socio-economical everyday lives and the context around of it. In that case, I try to understand via the use of interviews the set of the changes that need to be done on the system, while at the same time creating a more analytical perspective regarding participants aspects and vision about the system.

The selection of the semi-structured interviews related with the mindset that they are more flexible than the structured interviews while at the same time achieve to encapsulate the unique aspects of the participants (Qu and Dumay, 2011). Subsequently, semi-structured interviews are sufficiently structured not only to highlight specific dimensions of the research questions but also to leave space for each participant bringing new meanings to the topic of the study (Galletta, 2013). Back to the case of this study, the problematic situation is depicted in an internet-based system which shows low visibility and accessibility levels in the internet world. However, it is expected that the multi-diversional worldviews, knowledge and experiences of the managers, the authors and the readers of the e-Journal will bring the expected potential improvement to the visibility of the under-examined system.

### 3.3.3 Workshops

After finishing all the interviews with the participants in order to extract data that encapsulated their different worldviews, the workshops were conducted. I contacted again with the participants to organize the workshops arranging possible days and time for them. The Workshops were conducted between 10 and 13 of April 2017. While trying fulfilling the aim of the study, which was the improvement of the visibility of a internet-based system in search engines via the suggestions that its stakeholders give, three workshops were conducted.

The first workshop arranged and conducted with the managers of the e-Journal in order to express their expectations, their desires and their reflections as regards the system itself. The workshop was conducted on their offices in their scientific publishing corporation headquarters and the main goal was to arise essential and desirable suggestions for the
improvement of their system. The second workshop arranged and conducted at a small open lab at the TEI of Athens encapsulating the expectations, the desires, the reflections and the suggestions of authors and readers that the e-Journal already had. The final third workshop was conducted with all the stakeholders, managers, authors and readers. An invitation was sent to all the interviewees in order to accompany the meeting process. Unfortunately, not all ten participants were available that specific day that the workshop scheduled. Thus, one reader and one manager were not available that day. The third workshop was conducted in the same small open lab at the TEI of Athens.

Based on the strategic inquiry that the SSM depicts, the third workshop with all the participants was conducted to form the models to be reviewed by all participants in order to select changes that all can live with them. A debate as regards the suggested models and their applicability plus the comparison to reality followed up, in order to select the most appropriate and feasible and desirable conceptual models. In other words, all the workshops were conducted in order to discuss the models that I as facilitator had already formulated based on the interviews that the participants gave to me. Thereafter it was a necessity to compare and debate-argue with the participants those models with the real world situation and implementation. This was a solid stepping stone to propose desirable and culturally feasible changes based on their needs, experiences and suggestions. Table 2 depicts the workshops and some information on how they conducted.

<table>
<thead>
<tr>
<th>Workshops</th>
<th>Participants</th>
<th>Number of Participants</th>
<th>Date of Workshops</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Workshop 1</td>
<td>Managers</td>
<td>4</td>
<td>10 April 2017</td>
<td>1 hour</td>
</tr>
<tr>
<td>Workshop 2</td>
<td>Authors and Readers</td>
<td>6</td>
<td>12 April 2017</td>
<td>1 hour</td>
</tr>
<tr>
<td>Workshop 3</td>
<td>Managers, Authors and Readers</td>
<td>8 (3 Managers, 3 Authors, 2 Readers)</td>
<td>13 April 2017</td>
<td>1 hour and 30 minutes</td>
</tr>
</tbody>
</table>

In any case, working collaboratively and alongside with all the participants either with interviews or workshops, was a decisive step for encapsulating all their aspects while at the same time organizing these aspects under the umbrella of the strategic Soft System Methodology approach. After a process of debate and argumentation all the participants agreed among themselves as regards the suggested changes in the system. In the Empirical Findings chapter of this study the outcomes of the SSM phases, plus the Interviews and Workshops debate results are presented extensively.
It is also very crucial to refer, that the progress of the interviews and the workshops as well, raised issues and information that I was not having awareness and familiarity with them as regards the functionalities of the examined e-Journal system. That new knowledge was added to my strategic process of answering constructively my research questions. On the other side, I informed the participants about some functionalities that the system has as some of them were not aware, while they also informed by me about the process of Search Engine Optimization as a strategic framework for improving the visibility and the accessibility of their web services in the internet world.

3.4 Data Analysis Process

In an overall strategic framework for handling the data analysis process, the statement of Cresswel (2009) is adopted. According to Creswell (2009), there are basic suggested steps that a researcher could follow in order to analyse the gathered data after implementing several methods. These steps were adopted in this study. Firstly, all data gathered will be organized and prepared. In this step, the researcher gathers strategically all the produced data which derived from the implemented research methods. Secondly, the researcher reads through everything to detect the main points acquiring in this way an overall view. The case of the encapsulation of the overall view, is related with the current situation of the system and its functionality, the limitations of it, and also stakeholders perspective regarding their aspect for improving its visibility and accessibility in search engine results and thus in WWW.

Subsequently, the coding process will take place in order to categorize the raw data into groups based on the content and type. After the coding process, the researcher seeks out information from the combination of data, in order to reveal patterns, headings and sub-headings of the study. After that step, these patterns are analysed and presented in a narrative way. In any case, it is very useful to refer that the transformation of gathered data into convincing final analysis of the findings is the cornerstone for any dissertation (Crang and Cook, 2007). The last step of Creswell (2009) but mostly important, related with the statement that the researcher tries to interpret the findings of the research, come up to conclusions, while raising implications for future research.

As regards the nature of this study, having as a compass the Soft System Methodology for improving a messy problematic situation, the analysis of the extracted data took place in order to encapsulate all the different worldviews, hence, implementing changes that are desirable and culturally feasible for all the stakeholders. While trying to improve the situation of the internet-based system, the examination of the preliminary data (analytics of the system) took place, and therefore knowledge was gained. Thereafter, Rich Picture process depicted the different worldview of each participant. The formulation of the root definitions and the conceptual models that need to be compared with the reality derived from the empirical interview findings. Lastly, The comparison with the reality which brought up the desirable
and feasible suggestions in order to improve the visibility of the under examined system in the internet world, derived through the conduction of the Workshops.

3.4.1 Interview Method Analysis

As it was mentioned before, the thematic analysis was adopted in order to analyse the extracted data from the interview. According to Braun and Clarke, (2006) the thematic analysis is suitable for novice researchers, as it gives the chance to organize the data detailed and richly, and hence to answer the research questions. The authors also define a specific roadmap on how a thematic analysis could be applied based on six stages (Braun and Clarke, 2006, pp. 87-93). This roadmap on how to apply a thematic analysis is adopted in this study.

1) The first phase includes the familiarization with the data. This phase is essential as the researcher gives careful attention to the data in order to highlight initial ideas. The first phase demands an iterative process by the researchers as she/he examines the data multiple times.
2) The second phase related with the generation and identification of an initial codification amongst the extracted raw data from the interview process. The segments as they called by the authors, are crucial and meaningful for making more comprehensible the under examined phenomenon.
3) The third phase related with the evolvemement of themes. The pre-determined initial codes of the second phase are important now in order to start building the themes.
4) The fourth phase demands the revision of the themes that had been derived in the previous phase. For the authors, the themes must have a consistent and logical pattern as they also need to be clear differentiated amongst them. In other words, each theme must have a unique purpose that does not complicated with the other themes in the whole interview process.
5) In the fifth step, it is possible to analyse the data, as the review process of each theme and concept has been performed as regards the aspects which each one contains.
6) Lastly, in the sixth step of the thematic analysis the authors stated that the researcher must produce an interesting, consistent and non-repetitive report that answers to the research questions and not only describes the data.

3.4.2 Workshop Analysis

The analysis of the workshops were conducted for the fulfillment and supplementation of the SSM stages, namely the initial finding out about the situation and the comparison with the reality in order to find feasible and desirable changes. The first workshop among the managers and the second workshop among the authors and the readers, were conducted for the fulfillment of the finding out process. The last one third workshop analysis was conducted amongst all the participants in order to fulfilling the third stage of the SSM approach, namely, the comparison amongst the different conceptual models in order to understand which of the suggested changes are feasible and culturally desirable by all stakeholders.
3.5 Trustworthiness of the Research

In order to ensure the trustworthiness of this study, the strategic framework of Lincoln and Guba (1985) was adopted. Lincoln and Guba, suggested several criteria in order to ensure the trustworthiness of the study, namely the credibility, transferability, dependability and confirmability of it.

Regarding the credibility, for the authors, this term related with the accuracy of recording the phenomenon that is under investigation. For Shenton (2004, pp. 64-70) who is based on Lincoln and Guba (1985) study ensuring the credibility of a study contains several axes. Firstly for Shenton, is very important to create familiarity with the participants or in other words a friendly environment before start collecting the first data. In this study, we both established with the participants a friendly environment with a small introductory discussion. That discussion related with their daily tasks and responsibilities, their job demands, their educational background and so on, in order to establish a level of familiarity amongst us.

For Shanton (2005) the fortification of the trustworthiness of the study related with the analogous triangulation of the selected methods that were adopted. Indeed, this research included the studying of the documentation and the reports that the managers of the e-Journal gave to me, plus the multiple experiences that took place in the under examined system, the semi-structured interviews and the extracted different worldviews and the workshops with the participation of the stakeholders. Subsequently, Shanton (2004) stated tactics to ensure honesty among informants when contributing to the research process. These tactics were adopted in this study, while informing the participants that their presence is voluntary and the could exit any time without reason, ensuring the confidentiality and the anonymity of them, plus also the free will for not answering in any kind of question if they feel uncomfortable. Lastly, regarding the credibility of this study, each member had the opportunity to check the initial interview process and then the workshop process in order to ensure her/himself that the extracted data organized and presented subsequently and in the same line with each participant own words and ideas.

In the meaning of transferability and dependability that Lincoln and Guba (1985) stated, each separated part of this research was described extensively, such as the problematic situation, the methodology that was followed, namely the SSM and its stages, the information about the participants, information on how the interviews and the workshops were conducted or information on how the data were analysed. All this amount of information would be a good milestone for each potential researcher in order to apply these methods and information in another topic of study setting. In conclusion of the trustworthiness of this study, a process of confirmability as regards the analysis of the data took place. A continuous study and re-examination of the data ensured that all the findings are absolutely in the same line with participants’ experiences and ideas and not with researcher preferences and beliefs.
3.6 Ethical Considerations

Performing each part of the methodological approach that was described above, entails researcher’s purpose in order to contribute maximally in a strategically organized way on how to improve the visibility and the accessibility of the e-Journal in search engines and thus in the world wide web. Each part of the methods that were chosen, arises several sets of data that need to deeply analysed, ensuring in this way the quality and the integrity of the findings. Therefore, all the extracted results evaluated for their accuracy, validity and reliability during the whole research process. In the same line, Hart’s work (2005 pp. 297-299) referred to the crucial importance of ensuring data accuracy, while avoiding researcher’s personal beliefs and assumptions regarding the collected data and how they will be used. However, it is noteworthy to refer that in this study the main ethical mindset derives from another statement of Hart (2005) who advices to taking measures in order to ensure data accuracy, avoiding “myopia” during the implementation of the selected methodology and clearly reflecting which is the role of the researcher and what is required.

Moreover, an informed consent shared to all the participants of this study. The informed consent needs to be based on the understanding that each participation is voluntary and also that participants have the possibility to cancel their participation whenever they want to (Ritchie and Lewis 2003). In addition, for Ritchie and Lewis (2003) the given information to participants, namely the informed consent, should include the purpose of the study, what kind of participation will be required from the participants, or how the data will be used and analyzed. In the same study, Ritchie and Lewis (2003) mentioned the meaning of the anonymity and the confidentiality. As they refer, anonymity means that the identification of each participant will not be disclosed to third parties outside of this research team, while confidentiality means that each researcher must avoid any comments in presentations or reports that probably could identify the participants. The meaning of anonymity and confidentiality should also be related with the process of collecting and storing data.

In addition, all the related findings and outcomes of this study will be available for everyone in order to proceed into possible future research processes. It is also noted that all the ten participants participated voluntarily, while the researcher ensured the anonymity and the confidentiality of their personal information, eliminating in this way the possibility causing harm to them. Following once more Hart’s (2005, pp. 299-300) recommendations, it is very crucial to ensure the integrity of the collected data, the safeguarding of confidential information and maintaining standards of authorship. Regarding this assertion, for Ritchie and Lewis (2003) the researchers should be very cautious about the way of presenting and transcribing participants’ perceptions and any kind of arized beliefs or different point of views.

In this study, the process of transcribing participants’ words and ideas was not an easy one task. As it was mentioned before the interview process and the workshops as well, were
conducted on the Greek language and therefore a very special attention was given to translate and transcribe their perceptions from the Greek language to the English one. After the careful attention, the transcription took place to the English language. I also referred to the participants that they have the full right to check the transcription of the interviews in order to ensure by their own that their words transferred without omissions or undesirable discrepancies for them. Lastly, the Rich Picture and its presentation in the English language, it was another one task, with the reconstruction of it in an identical depiction, from the Greek language to the English one.
4. Soft Systems Methodology Implementation and Empirical Findings

This chapter firstly describes the first stage of implementation as regards the Finding Out phase of the Soft Systems Methodology and the conduction of the analysis one, two and three. Thereafter, the empirical findings of the interviews take place which are analyzed under the prism of the thematic analysis. Subsequently, the second stage of the SSM process, namely the construction of the conceptual models and the Root Definitions takes place, based on participants’ extracted different worldviews and aspects. In the third stage of the SSM, the results of the debate process for highlighting feasible and desirable changes where all could live with, is unfolded. Finally in this chapter, the process of the taking action phase of the SSM is presented.

In order to establish a clear and rich picture as regards the problematic situation, the preliminary research and the document analysis that was conducted for the e-Journal system was a good starting point. Via the analysis of the current situation based on the initial preliminary statements of the stakeholders and more specifically the managers of the e-Journal, a clear view was extracted. This clear view worked as a solid stepping stone for conducting the first phase of the SSM, the Finding Out phase. It contains four stages, namely the Analysis one, two, three and the Rich Pictures as well. These analyses focus on the intervention itself, on the social analysis of the problem (What kind of ‘culture’ is this?) and to the political analysis (What is the disposition of power here?) (Checkland and Poulter, 2010). In the finding out phase, the actual problematic situation and a plurality of possible and feasible choices is revealed while entering the problematic and expressing its nature (Checkland, 1999; Checkland, 1981).

In this problematic case, the main goal of this study was to investigate participants’ perceptions (managers, authors and readers) on how to improve the visibility and accessibility of the e-Journal into the WWW. The preliminary research, the document analysis plus the multiple usability tests that I performed on the system gave to me a good understanding about the current situation and therefore creating a rich picture of the problematic. Gathering information via those processes combined with the personal knowledge as regards the adopted methodology that I as facilitator bring together, while also working together with the participants, lead to conduct the analysis one (the intervention itself) the analysis two (social) and lastly the analysis three (political).

4.1 Finding Out Process

Analysis One (The Intervention Itself)
According to the SSM approach, it is very crucial to depict the different worldviews that each stakeholder has, as they highlight the complexity of the situation plus the potential creation of the purposeful activity models in order to finally taking action. For this reason was important to define the clients, the practitioners and the owners of the issue addressed. It needs to be
addressed that in some cases, a person might be in more than one roles (Checkland and Poulter, 2010).

- The client is the person or the entity who causes the intervention to happen. In this case, I as researcher, was aware of the problematic situation of the low visibility of the e-journal, and thereafter, I took the initiative to examine the problematic in order to help the stakeholders.
- The practitioner is the person or the entity who conducts the examination to happen. In this study I, as a facilitator was in the role of the practitioner which for the purpose of this research “coexists” with the role of the client.
- The owners are the people who potentially be the beneficiaries after completion of this research. The owners of the issue addressed, are the people who are concerned as regards the problematic and in parallel, they affected by this. In this case, the owners of the issue addressed are the Managers, Authors and the Readers and of the e-Journal. The Managers as owners are beneficiaries because they will receive a system with higher properties better usability, and hence greater visibility in search engines and accessibility by online interest parties. The Authors are beneficiaries as the e-Journal will achieve higher visibility and hence their scientific work might get more citations. They will also have an easier process of accessing and submitting their work in the e-Journal without technical problems. The Readers are beneficiaries as they will receive greater and more qualitative information in its visibility and usability rather than before.

Encapsulating the overall intervention analysis, I acted as facilitator in order to extract the different worldviews of the owners in order to extract ideas and suggestions that after their implementation, the current problematic situation will be improved or will be less problematical as the SSM theoretical framework refers.

**Analysis Two (Social)**
For Checkland and Poulter (2010), any kind of change in order to be successful, needs not only to be desirable, but also culturally feasible by the stakeholders. Making this assertion a successful process, it is very useful to understand the social reality which surrounds the whole problematic. The authors suggest the determination of the current social reality by analysing three elements, the roles, the norms and the values that each participant has about the problematic situation itself. In any case, the analysis of these three elements -roles, norms, values- has a dynamic character and momentum, while it changes over time as each element might affects the others. The following paragraphs analyses each element as regards our problematic situation which is the low visibility of an internet-based system in the internet world, and how its stakeholders can contribute to improve it.

More specifically, in our case the role of managers of the e-Journal system contains a multidimensionality of responsibilities. For example some of the managers of the system
have the leading role about the programming rectifications in the source code of the system. In addition, some of them are responsible for the creation of the appropriate text and content in the e-Journal in order to provide a good amount of information to the forthcoming online visitors. Another one role that all the four managers have, related with the creation of the appropriate design and layout that the e-Journal has, making it more attractive and friendlier for online visitors improving in this way the level of usability that the system has. Each one of the aforementioned roles, contains several complex technical sub-processes in order to be implemented, a fact that illustrates the feeling of overloaded job demands for each manager. For example, during the preliminary research, some of the managers of the e-Journal referred that they do not have the right guidance from the upper management levels of the whole publishing organization. Hence, they need to read a lot for conducting some changes in the e-Journal system, a fact that costs time and improves working pressure for each one of them.

One the other side, the role of the authors and the readers of the e-Journal is completely different under the prism of the social reality. Following preliminary findings about managers’ perceptions for authors and readers, it is clearer of what they desire from the e-Journal. They need to have an e-journal that contains the appropriate information as regards on how to submit or download and read an article. They also need to have a user-friendly graphical environment that improves the usability level of the system and the navigational experience as well. In other words, the role of the authors and the readers of the e-journal is to submit or download for reading an article, and this process needs to be done with the easiest and less complicated technical way.

Regarding the norm of the managers, it is very crucial to refer that they did not have to follow a strict path based on the upper management level preferences on how to increase the visibility and the accessibility of the e-Journal and more specifically, the submissions and the downloads for it. Each manager was by his/her own way on how to increase those factors, however, no common strategy identified to achieve this. Thus, the main norm of the publishing organization was not so restrictive on how to increase these factors, but rather to achieve these results with any kind of action or perspective.

As regards the norms that depict the social reality of the authors and the readers of the e-Journal, is to successfully submit or download scientific works into/from the journal without having technical problems that make their efforts difficult and frustrating. Under the umbrella of the social reality, it is very useful to refer that they might have several other academic activities which probably do not allow them to extensively concern their self with the problems that the e-Journal has, while at the same time losing their valuable time. So, they might decide not to download or to submit an article on that e-Journal but in another one which has not such problems.
According to Checkland and Poulter (2010), the values are the criteria by which behaviors-in-roles get judged, while in all groups composed by people there is always a plenty of gossip related to this as regards the praise or disparage about the behavior in a specific role. In the under examined problematic situation, one of the four managers possibly believes that another manager who is responsible for the design and layout of the e-Journal makes her/his job and tasks well. However another one manager probably believes something else. In addition some authors or readers, probably submit or download articles or find information they want from the e-Journal, however, some others may find it harder to do that or even they never found it. In other words, it might be difficult to define extensively the values of each one participant as most of the times they relied heavily in the personal experiences of each one.

**Analysis Three (Political)**

The scope of the third analysis the political one, is to find out the disposition of power in the current situation and the process for containing it, while at the same time a determination takes place in order to understand what is culturally feasible for the improvement of the problematic situation (Checkland and Poulter, 2010). More specifically in this case, the scientific Publishing Organization which holds the rights of the examined specific scientific e-Journal system, runs in Athens, independently and autonomously as a private law company in order to get profit.

This academic publishing organization manages and publishes periodically four academic journals in several sectors. All of them were both publishing in hardcopy and electronically, as each one has a specific international standard serial number (ISSN). For each journal a group of people (managers of the journal) are responsible for several processes such as the technical updating or the refreshment of information that is included in the internet-based system, the continuous communication with the clients in order to keep publishing their scientific work in the same journal, and the process of searching and finding new customers. However the reduced financial flexibility in Greece, forced the Organization to stop the hardcopy publishing process of all journals transforming their process only electronically.

Moreover, by the end of the 2014, the organization decided to employed its staff in more than one e-journals responsibilities, giving multiple responsibilities to them, a fact that produced additional workload for each manager, hence difficulties in time for prioritizing tasks and processes. That happened due to upper management decision not to dismiss employees but to launch new services in the Greek market and thus more background operations for the cost and profit balance sheet. Although there was a steady and strict recommendation from the upper management levels as regards the functionalities that the under examined e-Journal should has, there was no suggestion on how these functionalities will be implemented. In other words, the upper management levels of the Organization highlighted that there are
specific functionalities that the e-Journal must have, however no rules and suggestions were set regarding on how to implement these functionalities. This fact, namely, the of lack of strategy on how to implement the functionalities that the e-Journal should has, and also the working overload that managers of the journal had, was another one issue that probably affected the e-Journal improvement. It was also led to the results that the preliminary research showed, in specific, the low number of visitors in the e-Journal, low time staying on it, feeling that the e-journal is abandoned, broken links, complains about the functionality, the architecture, the design, the layout and so on.

The political stance that the publishing organization followed in the under examined e-Journal highlighted the inability to provide qualitative services to its potential customers. This led the under examined e-Journal into low visibility and accessibility levels from the internet users as they probably would like to publish in that, or download papers and studying them for their personal purposes.

**Rich Pictures**

For Checkland and Poulter (2010) the basic goal of the Rich Pictures is to informally capture the main entities, the recognized issues, the process going on and any other potential ones. In simplicity, the Rich Picture process is a modelling technique that depicts a problematic situation including all the relevant stakeholders, the structure, the processes and the underlying climate in which the problematic is displayed (Checkland, 1981). In a more recent study Checkland (2010) states that “Its rationale lies in the fact that the complexity of human affairs is always a complexity of multiple interacting relationships; and pictures are a better medium than linear prose for expressing relationships.

After depicting the problematic situation via the construction of the Rich Picture, the results and the empirical findings of the research process takes place. The different worldviews that extracted via participants’ perceptions constituted a steady stepping stone for constructing the Root Definitions in order to be implemented in the taking action phase of the SSM process. It needs to be mentioned that the presence of the specific current Rich Picture, encapsulates an initial impression of the situation based on the preliminary finding plus the conduction of the previous three stage analysis in the Finding Out phase. Although it depicts a rich situation, it could be richer, while it does not remain static in the future (Checkland and Poulter, 2010). In the next figure the description of the problematic situation via the Rich Picture takes place.
4.1.1 Initially introducing the Problematic Situation via the Rich Picture

The Rich Picture was constructed based on the information that was gathered during the preliminary research and the three stage of analysis that took place during the Finding Out phase of the SSM. In addition, it is really useful to mention that the Rich Picture illustrates the expectations and the desires of the authors and readers as they were preliminary described by the managers of the e-Journal and in contrast of what the preliminary research showed to the facilitator.

The problematic situation involves multiple entities and sub-entities. More specifically, the e-Journal system is on the center of attention and it is surrounded and interacts with the Managers as they are the administrators the system, the Authors and the Readers as well. In
addition, the role of the Facilitator related with the communication and collaboration with the participants in order to conduct all the methods that will extract useful suggestions about the systems improvement. e-Journal’s architecture contains choices of the tabs: Log In/Register, the Welcome Page, the Aims and Scope, the Topics, the Editorial Board which conducts the Review of the submitted articles, the Author Guidelines and the Review Process, the Journal’s News, the Important Downloads for the visitors and the Abstract and Indexing tab. The e-Journal also contains the database where all the articles in Volumes and Issues are organized and stored there. That specific e-Journal belongs to the Publishing Organization which manages and publishes three other different journals as it can be seen in the aforementioned figure 4, however the analysis of them is out of the scope of that research.

The Managers of the e-Journal have already expressed their problematic situation in a duality of issues. The problematic related with the low visibility of the e-Journal in search engines and in the WWW, and the low accessibility levels by internet visitors, or in other words the low numbers of visitors in the e-Journal. The Managers also communicate with the Authors and the Readers of the e-Journal in order to solve possible emerging problems that might have as clients.

The Authors use the e-Journal and they expect and desire to submit their articles with no technical problems, plus also their articles to have a good number of downloads and thus to have a better visibility on the WWW. They also desire and expect that their articles will not have restricted access with broken links or payments that the readers must proceed to in order to open the articles. They also expect and desire a system which has a quick load time to show all the functionalities that it has. However, contradictory with the preliminary research and the reports that the managers gave to me, the authors receive a system that, shows low number of downloads by others, and thus low visibility in the articles that had already submitted on the e-Journal system. Moreover for the authors, the system loads up slowly, some of the articles have broken links that lead to system error messages and the whole system seems to be abandoned for them. Lastly, although the system probably seems to have difficulties and issues, they are able to submit their articles on the system.

The Readers of the e-Journal expect and desire to download articles for studying, easily and flexibly find articles inside the e-Journal system database and to successfully download articles without restrictions such as paid downloading or broken links. They also expect to navigate easily on the system without losing what they intend to find through a proper design and layout, and lastly to have a quick system’s load time. The Readers are able to download papers as the system provides open access journals. However it is possible for them to navigate with difficulties inside the system or to download articles that seem to have broken links and hence restricted access. In addition the e-Journal probably would seem to them as abandoned as some information has to be renewed for a long time.
In order to improve that kind of problematic situation and its elements as they were described on the Reach Picture, the Search Engine Optimization process takes place. As it was mentioned in the previous chapters, SEO examines and addresses design system’s usability, architecture and content, for improving better ranking in search engines, visibility and accessibility by online users (Visser and Weideman, 2014; Lievonen, 2013; Jones, 2010; Zhang and Dimitroff, 2005). Following a user-centric approach of what the users need from the system while implementing their needs based on the techniques that SEO provides, several possibilities raised for improving system’s visibility and usability.

However, it needs to be determined clearly and explicitly what are the issues that the system has in order to be recorded and then to be rectified. The interview process based on the different worldviews of the stakeholders that involved on the e-Journal, holds the reins in order extract the issues that the system has. In the next section, the empirical findings of the interviews take place.

4.2 Empirical Findings of the Interviews

As a researcher of this study, I followed the strategic steps of Braun and Clarke (2006) as regards the analysis of the qualitative interview data that were previously unfolded. The collected data were extensively analysed and examined multiple times in order to identify themes and concepts. The extracted identified themes-concepts were three as regards the problematic situation:

1. The e-Journal and its current situation regarding its visibility and accessibility
2. The e-Journal and its design and layout as a means that affects its friendliness to visitors
3. The e-Journal and its content as a means for included texts that covers visitors’ informational needs

In this section each theme-concept is presented extensively, a process that is fully extracted by all the participants’ worldviews, perceptions and beliefs, namely the managers of the e-Journal, the authors and the readers of it as well.

1. The e-Journal and its current situation as regards its visibility and accessibility

One of the basic principles for conducting a set of implementations for improving a system in its visibility on the World Wide Web and its accessibility by internet users, is the sufficient amount of knowledge as regards its current situation. Bothly all the participants stated several perceptions and beliefs regarding the current situation of the system in these two topics, namely, the level of visibility and the level of accessibility accordingly.

For the first manager M1, the level of visibility and accessibility that the e-journal has, definitely was not the sufficient one. Transmitted manager’s own words “The big problem is not Journal’s current visibility on the world wide web or the accessibility of it by the internet
users. It is the lack of strategy.....we do not have a clear plan in order to improve the visibility or the accessibility levels. I’m not following a pessimistic approach but as coordinator of this journal I have difficulties to identify a clear plan on how to improve its visibility and accessibility”

The M2 referred that: “The bad thing is that the journal contains an old programming approach in its backend environment which most of the times ties my hands. I cannot apply too many changes on the system as sometimes requires some plugins that I’m not aware of them. I had already referred to the management that I need a good amount of time for implement all these things that will improve the online visibility of the journal. The M2 also added that: “Doing that task requires the calculation of the daily visits that we have on the system but also to have knowledge about what devices our visitors are working with in order to visit our platform. We mean that different kind of devices such as phones or tablets, illustrate the system with different layouts, and hence if we are not compatible with them, the visitors will left the e-journal”

The M3 stated that: “I’m quite sure that the low visibility that the reports show, related with the dull environment that we provide. I understand that some of our clients are interesting only for the quality of the published papers that we have as more qualitative published articles included on the journal the more quality it has on its own. However, it needs to be more attractive to our internet users, with more pleasant content such as images, plenty of texts, or even a better process of navigating inside of it.” He also argued that: “I don’t know if all these adds will finally bring changes in our visibility, but our competitors adopt such techniques and they have a reason for doing this”

The M4 stated that: “We informed the management that the journal needs a holistic analysis of what is working well and what not. There was a time about seven to eight months earlier that we were receiving multiple emails per week from our customers complaining because some of our functionalities were out of use. After that period the journal almost stopped to receive emails and that related with our clients current low motility. He also mentioned “All the users like new and fresh content and not outdated things. I know why this happened. I tried to put myself in client’s position and I visited the journal. We have a journal that seems to be abandoned, such as old information from previous activities, expired dates, or even clicks that lead to fail pop-ups. Some of the functionalities have problems, however, at least the process of submission works well until now”

The first author (A1) stated that: “I have published on that journal 2 studies and I received low numbers of downloads for these two papers. That means that my work will not get a good amount of references which also means that my contribution to the community of my university will not be recognized as much as I want”
In the same line the A2 referred that: “Although I have published on that journal one study, since the spring semester of 2014, and since I have found too many papers on it after that time, the journal seems not to have the right recognition on the virtual world. She also stated a same confession with the previous one author, that: “Even my paper is an open access paper in its full content, it calculates small number of downloads.”

The A3 stated that: “The journal in its current situation gives me the right to submit my papers in a proper way. However, it does not emit a momentum or a personage that depicts Publishers characteristics, authentication and identity. I suggested the journal to one of my colleagues but she refused to submit a paper on it, as it is not included in any kind of repositories or internet database directories”.

The first Reader (R1) mentioned: “I’m aware of the knowledge that this journal has full open access to all its studies for downloading them. The weird thing is that, although it is an open access journal, I need to type all the words of its title in the search box for appearing in the search results of my Google results.”

The R2 referred: “I’m writing articles for my doctoral thesis and I’m searching for information and papers almost every day. This journal related with my research topic, however, my supervisor informed me about the existence of the journal as he also published the previous years on it.” The R2 also referred that: “The internet is endless with tons of info, but I oftenly visit databases with indexed journals on them from all over the world, however, that journal never caught to my eyes even I was applying filters to my search queries minimizing results that came only from greek region”.

The R3 mentioned: “I’m seeking information and qualitative papers for conducting my studies from this specific journal and to be honest, I found the journal in a completely random way, while I was searching for studies on google scholar. I did not found the journal itself in that database, but an article of my interest, and that paper led me to that journal”

2. The e-Journal and its design and layout as a means that affects its friendliness to visitors
In this concept the readers unfolded multiple opinions and perspectives about the friendliness of the whole system to its visitors. They expressed several ideas as regards their experience of navigating inside the e-Journal, how flexible it is, and how easily they can find the information they want.

The M1 referred that: “The journal seems to be quite flexible in its design and layout with clear menu bar log in or register buttons. Of course it needs some changes such as links that lead from one information to another inside the system, however the whole navigations seems to be quite easy for any of our visitors.” The manager became more explicit and stated that
“for example, it is quite useful for each visitor to navigate from the end of the system page back to the top again with single buttons without scrolling up again and again.”

The M2 mentioned that: “Even we have published more than ten issues since 2014 the journal does not seems to have a pleasant design and layout for our visitors. We need to be more resident on our choices inside the system while at the same time expressing a kind of uniformity in all the layouts, such as common fonts and the size of them in all the tabs that the system has”.

The M3 stated: “The journal in its design and layout has a stable construction and it contains all the functions that our visitors want to. However we also need to add some images, icons and logos that give to our content a better identification in all the kinds of the related online communities and therefore the visitors”.

The M4 referred that: “From a programming perspective the backend environment of the system contains some images and some javascripts files that both of them are not activated, however, they burden and charge the system with slow loading times that brings discomfort to our users rather than quick and flexible navigation on the website. In simplicity, nobody likes a slow internet-based system, so I ask myself why and how the visitors will like us if we provide to them a slow online service.”

The A1 pointed out that: “For my personal experience of online submitting my articles on the journal I do not have any kind of big technical difficulties that tired me off. However, the journal never had easy navigation that leads you flexibly from one window to another one. I need to press the browser buttons for navigating inside the site and this means that it takes time for reloading again and again the system”.

The A2 referred that: “Sometimes I click some functionalities that the system has, however they lead to system error messages. In addition I found that some of the links on the menu bar, lead to the wrong content inside of it, or some terms do not have a backlink that probably will give to me more information”.

The A3 mentioned some things in parallel with the A1: “Since the last time that I visited the system for submitting my paper, the functions related with the submission process was in the right order. However, I would like to recommend to the administrators of the journal that it more suitable for most of the visitors to have an easier navigation process that makes the whole riffling on the system much better, for example buttons that lead from the footer of each tab to the top.”

The R1 mentioned: “The organization of the papers into volumes and issues of each year seems to be quite useful and at the same time flexible for me in order to download everything
that I want to. It will also be very helpful for me if in the future the journal insert a small navigation bar which says where am I in that time inside the system without losing my scope or get confused”.

The R2 stated that: “I cannot find any kind of news or updates on the journal as most of the times its content seems to be the same for a long time. I have also found that sometimes the journal takes more time that the usual one in order to load its full functionalities and this led me to close it from my browser without finding the paper I wanted”.

The R3 pointed out that: “I’m satisfied about the way I’m finding the papers that I want and embedded on the journal as the navigation menu on the Papers Tab includes the volumes and the issues of each year. In addition it will be more pleasant if the management of the journal put social media buttons and choices in order to make their presence on the journal more accessible by others or more interactive by other researchers”.

3. The e-Journal and its content as a means for included texts that covers visitors’ information needs.
In this concept the participants expressed their perceptions and beliefs as regards the system’s content, the texts and the information that is included on it, and how much they are satisfied about the contained information on the under examined journal.

The M1 pointed out that: “The information the texts and the content inside our journal is very crucial for attracting new visitors on our journal, and hence we need to include several useful notes for the forthcoming researchers and practitioners that visit us.” He also added that: There are some minor points on the system that need to be updated in order to include more useful content of information for our users.” However, he did not expressed some kind of more specific perception about the content and its quantity or quality inside the journal but that: “Soon or later we know that the visitors will exit from the system, but we need to keep them on the system as much as we can”.

The M2 stated that: “The texts and the content that we include on the journal is poor rather than rich and plenty with information that meets visitors informational needs. We need to add more texts and content that inform in a better way the visitors about the aims and the objectives of the journal, the affiliations that each editorial board member has, or even to update the guidelines or give some helpful instructions that the authors should follow”. She also referred that “The truth is that the one who will be responsible for the creation of the new content will dealt with a challengeable task.”

The M3 pointed out a similar perspective with the second one manager: “We need to include useful information for internet users, as it is one of the main reasons that our visitors will stay and browsing on our journal or they will left entirely from it and move to another one with more pleasant information and content”. He also added that, “We need to develop a
pleasant and rich in content welcome system’s page that helps each kind of visitor to find the information she/he wants inside our journal.”

Although he admitted that the e-Journal needs a new pleasant and rich content, he also highlighted the following “I know that improving our reputation into the internet world is the goal and that is the reason why you are here. Subsequently: “I also believe that is not only the content that we need to change but also to change the stance that we have as corporation, and honestly what we write inside the system should also be provided to our customers, nothing more and nothing less.”

The M4 mentioned a more challenging perspective: “The process of creating text and content that will be included on the journal is not an easy task. It needs a good keywords research process based on what keywords the users probably will click for finding scientific journals and then to create texts and content based on that keywords”. He also pointed out that “It is also a difficult task as we need to create a content that will meet users needs, however we need to change it again and again until it will be functional by all”

The A1 referred that: “The included information about the review process that is followed is well organized and clear. However as an author that had already submit on that journal, I need to get more information of what other benefits the journal offers to me and why should I publish my paper on it once more.

The A2 mentioned that: “It is good that the journal contains useful information to the upcoming authors but it needs also some references as regards the academic and research methodological principles that the others must follow when they submit a paper on the journal. The author also stated that: “The journal should also include information about suggested practices and techniques for the authors in order to improve by their own the accessibility of their papers by others researchers as well”.

The A3 stated that: without doubt the journal says that the process is blind-peer review, however, the whole journal does not include any kind of information related with the role that the reviewers have as I need to have a clear view about the way the articles are reviewed”. Actually, I think that the publishers should include that kind of information as this will provide more coherent and qualitative information to the online interest parties”.

The R1 referred that: “I think that the current situation of the e-journal has a good quality in text and content that informs me well about its objectives and scope, and also a good structure for downloading papers from it.” The reader also expressed the mindset to including social media icons in all the included articles of the journal. He also stated that “The social media buttons under the general information of each article should also be good practice for understanding what the readers of the e-journal want more and what not in
order to proceed into a future dissemination of information of articles and other study material”.

The R2 stated that: “The process of finding information about the articles that the e-journal has, gives a good structure. I can flexible navigate on the volume and issues tabs without problems. After finding the article of my interest, I click on it and then the information that I want is appeared such as the abstract of the article, its authors or the year of publication.”

The R3 referred that: “The journal has a good content that helps me finding information that is very useful about the articles that it has as I have a good amount of information about each one article. It will also be very useful for me as an academician to have more information about the authors such as other related works of them or the list of references and other articles that were used on each paper before proceeding and download it”.

4.3 Summary of the Empirical Findings of the Interviews

As it was mentioned before, the thematic analysis of the empirical findings of the interviews indicated three concepts. Namely, the e-Journal and its current situation regarding its visibility and accessibility, the e-Journal and its design and layout as a means that affects its friendliness to visitors, and lastly, the e-Journal and its content as a means for included texts that covers visitors’ information needs. In all the concepts, participants expressed both different and common in some cases worldviews and perspectives.

Extracting a holistic aspect about the problematic situation and how it was presented via the participants’ perceptions and beliefs, gave a versatile understanding about the functionalities of the e-Journal. Even if I proceeded into several navigation tests for understanding all the functionalities of the e-Journal system, most of the participants expressed issues that I was not aware of them or not even thinking that they might be a problem for some of the participants. All these issues were added to my knowledge about the system functionalities as well. The summary and the findings of the whole interview process are illustrated in the table 3. The table shows the thematic concepts and the findings that were extracted based on the different worldviews of the interviewees, the managers, the authors and the readers as well.

**Table 3. Summary of Interview Findings**

| I. The e-Journal and its current situation regarding its visibility and accessibility | ● Lack of strategy-plan for improving the visibility and accessibility levels  
| | ● Old backend programming approach  
| | ● Needs calculation about the current situation of visibility and accessibility  
| | ● Dull e-journal environment  
| | ● Need to add more pleasant content  
| | ● Seems as an Abandoned system with no updated content  
| | ● Low numbers of articles downloads |
4.4 Formulating Relevant Purposeful Activity Models (SSM 2nd Step)

Till now the methodological process for improving the problematic situation has already completed the analysis of the situation of the e-Journal via the Finding Out phase and the Rich Picture. In addition, participants different worldviews had already being expressed via the interview process, giving a tremendous feedback for the potential suggestions of models that would be implemented in order to achieve the improvement of the problematic. For Checkland and Poulter (2010), the second step of the SSM related with the effort of making purposeful activity models that are judged to be relevant to the problematic situation. In addition they referred that each model comes up as an intellectual device, that is being built on the basis of a particular pure worldview. This kind of pure worldview derives from the perceptions of each participant. Under the prism of constructing a purposeful activity model
that derives from participants different worldviews, the meaning of Root Definitions take place as a statement of describing this activity model in a clearly defined way.

The Root Definitions are created based on the purposeful activity while at the same time a transformational process takes place. According to Checkland (1989), the Root Definitions are the notional statements that describe relevant human activity systems that reflect and describe a particular worldview which leads to systematic feasible and desirable changes by all stakeholders in a real world situation. In a more recent work Checkland and Poulter (2010) pointed out that the PQR formula constructs the Root Definition while at the same time the CATWOE mnemonic enriches that definition. Making this assertion clear to readers, the PQR formula is expressed by a «do “P” by “Q” to achieve “R” » while achieves to answering in questions “what does the system do” “why” and “how” (Checkland and Poulter, 2010, p.39).

Regarding the CATWOE, the acronym related with Customers, Actors, Transformation, Weltanschauung (which means worldview) Owner and Environment constraints. (Checkland and Poulter, 2010; Checkland 1999; Checkland, 1989). Subsequently the acronyms explanation:

- Customers: the beneficiaries of the purposeful activity model
- Actors: The people who intend to do the activities in order to improve the problematic
- Transformation: the process that describes the transformation from an input into an output.
- Weltanschauung: the worldview which is particular and derives from the stakeholders and make the transformational process a meaningful one.
- Owner: The person who is able and could stop the activity of the system
- Environment: Issues and elements that surrounds the environment and constrain the system itself.

Back to the description of the conceptual models, in simplicity, it can be said that the sequential steps that each transformational process encapsulates of determined inputs to determined outputs, construct the conceptual models. Each conceptual model describes what activities and processes a system must do. However each conceptual model does not only describes the activities and processes that must be done by the system but also monitoring and the control of activities (Checkland and Poulter, 2010). More specifically, these are the monitoring of the activities of the system, the determination of measuring the performance of the system and the controlling of the taking action process. The monitoring and the controlling activities investigate the operations and prevent any kind of failure of the system and its processes. As regards the performance of the system, it is estimated via the three Es which are the efficacy, efficiency and effectiveness (Checkland 1989). In Checkland and Poulter (2010) the three Es related with:

**Efficacy:** the criteria which tell where the transformation is working in sense of producing its intended outcome
Efficiency: the criteria which tell whether the transformation is being achieved with a minimum use of resources

Effectiveness: the criteria which tell whether the transformation helped to finally achieve some higher-level or longer-term goal and in what extent.

In this study each conceptual model and its elements is constructed based on the perceptions and desires of the participants that were derived through the interviews that were conducted. In any case, the goal of each conceptual model is to improve the problematic situation, namely the visibility of the e-Journal into the World Wide Web and also e-Journal’s level of accessibility by internet users.

4.4.1 First Root Definition and Conceptual Model

Root Definition: Creating a Plan for completing basic first steps in order to improve the Visibility and the Accessibility of the e-Journal.

After estimating the current visibility of the e-Journal in the WWW via the perceptions that the participants expressed, what has been understood was the lack of a plan for completing the first steps. This first steps would able to make a new one environment that potentially will improve the visibility and the accessibility levels. According to participants, and more specifically the managers, the system seems to have an old programming approach which does not allow further updates. Moreover, the managers of the e-Journal were not aware of the current number of visitors that the e-Journal had, and that was a challenge, as if they cannot measure the current situation, they will not be able to finally evaluate it if they succeeded to improve the visibility and accessibility or not. Lastly the whole e-Journal seemed to be abandoned to its visitors and therefore a plan was needed in order to update the content of it, while at the same time an effort was needed for highlighting publishers’ characteristics and changing the dull environment of the e-journal.

PQR

P: A plan for completing a new one environment for the e-Journal in order to improve the visibility levels...

Q: ...by updating the current version of the Content Management System that the e-Journal is based on, calculating the current number of visitors that the e-Journal has, and highlighting publishers characteristics authentication and identity via a new content more pleasant rather than dull....

R: ...that will achieve to set the base for leaving a better impression to online users when they visiting the e-Journal.

CATWOE:

Customers: Managers, Authors, Readers

Actors: Managers of the e-Journal and I as the Facilitator

Transformation: to improve the visibility and accessibility of the e-Journal

    Input: a plan for improving and updates basic functions and issues
Output: a new one environment that will leave a better impression to online users.

Weltanschauung: to assist and adopt participants suggestions and ideas on how to implement all the changes that they will improve the visibility and accessibility of the e-Journal.

Owner: The Publisher Organization, Managers of the e-Journal.

Environment: Beyond the current visitors of the e-Journal, any kind of other online interest parties that will probably searching for reading or publishing studies, and what barriers they have.

Conceptual Model: Creating a Plan for completing basic first steps in order to improve the Visibility and the Accessibility of the e-Journal.

Efficacy: The management and the facilitator define a plan for updating the content that the e-journal shows to its visitors while at the same time the current Content Management System will be updated.

Efficiency: A calculation about the current number of visitors takes place in order to measure the visibility and accessibility and evaluating plan’s successfulness.

Effectiveness: The e-Journal sets the basic environment which is pleasant for its potential visitors in order to improve the levels of visibility and accessibility.
4.4.2 Second Root Definition and Conceptual Model

*Root Definition: Improve the design and the layout of the e-Journal for a better navigation experience by the visitors.*

During the interview process one manager pointed out that sooner or later the visitors will exit from the e-Journal, however, it is a need to keep them on the system as much as possible. In order to achieve this statement that the manager expressed, it is crucial to improve the navigation of the e-Journal in order for someone to flexibly finding the information she/he wants. The whole process of improving the navigation inside the journal contains the establishment of an uniformity in the layout of all the tabs, checking all the links that lead to the right direction, improving the time that the system needs to load up, or even inserting the right logos, icons and images in the right position inside the e-Journal system. All these will not only improve the navigation experience but also the interaction with the visitors.

**PQR**

**P:** A set of actions for improving the design and the layout of the e-journal for a better navigation experience for the visitors of the it...

**Q:** ...by setting a uniformity in all the tabs, checking all the links that lead to the right direction, inserting logos, icons and images and reducing the loading speed time of the system...

**R:** ...that will finally achieve to improve the interaction of the e-Journal with the visitors while the will have a better navigation experience after using it.

**CATWOE:**

*Customers:* Managers, Authors, Readers  
*Actors:* Managers of the e-Journal and I as the Facilitator  
*Transformation:* to improve the design and the layout of the e-journal via a better navigation experience for visitors.

*Input:* a plan of tasks and activities for improving the design and the layout via a better navigation experience for visitors

*Output:* a new one environment that will leave a better impression to online users thus they will probably revisit the e-Journal once more.

*Weltanschauung:* to assist and adopt participants suggestions and ideas on how to implement all the changes that they will holistically improve the visibility of the e-Journal, improve the design and the layout of the system for a better navigation experience by visitors.

*Owner:* The Publisher Organization, Managers of the e-Journal.

*Environment:* The Publisher Organization as a barrier which for any kind of reason might not want to change the design and the layout of the e-Journal.
**Conceptual Model: Improving the design and the layout of the e-journal for a better navigation experience by the visitors.**

Efficacy: The system offers a better and more pleasant design and layout rather than the previous one.

Efficiency: A better navigation experience is established which has its roots in participants’ perceptions and opinions in order for the potential visitors to find flexibly and easily the information they want inside the e-Journal. In addition a measurement takes place in order to estimate and evaluate the experience of the online users while they navigate inside the e-Journal and its functionalities.

Effectiveness: The e-Journal contains a proper design and layout which helps its visitors to find the information they want in an easier and more flexible way than the previous one. That proper design and layout is based on different worldviews that the participants expressed in order to improve the navigation experience inside the system.

4.4.3 Third Root Definition and Conceptual Model

**Root Definition: Improve the text and the content of the e-journal for satisfying the information needs both of the current and the potential visitors.**

According to Gandour and Regolini (2011) in any kind of internet-based system, the text and the content on it should be characterized as the “King” for continuously attracting the current or the potential visitors. In this study most of the participants expressed several ideas as regards what other information in texts and content the e-Journal should include in order to satisfy their informational needs. In simplicity, the participants expressed that: “I want to see that kind of information when I visit the e-journal”, and thus, the next conceptual model aims to contribute maximally in order to include all the desired information that the participants want to see when they visit the e-Journal system.
**PQR:**

**P:** A set of actions for creating a new text and content for improving the current information that the e-Journal contains in order to satisfying current and potential visitors informational needs,...

**Q:** ...by conducting a keyword research for finding the appropriate content attractive by all visitors, strengthening the welcome page of the e-Journal for directly attracting visitors, reinforcing information about the editorial board, the authors and reviewers guidelines, involving social media buttons for understanding what authors and readers prefer for a potential dissemination of information, and included related other works and information of the authors…

**R:** ...for finally achieving to satisfy the current informational needs of the authors and readers that visit that e-Journal for publishing or reading articles.

**CATWOE:**

**Customers:** Managers, Authors, Readers

**Actors:** Managers of the e-Journal and I as the Facilitator

**Transformation:** to improve the current texts and the content of the e-Journal in order to satisfy the informational needs of the visitors.

**Input:** a plan of tasks and activities for improving the texts and the content of the e-Journal

**Output:** a new one environment that will leave a better impression to online users thus they will probably revisit the e-Journal due to the fact that they found the information they searching for.

**Weltanschauung:** to assist and adopt participants suggestions and ideas on how to implement all the changes that they will holistically improve the visibility and the accessibility of the e-Journal, improving in this way text and the content included in the system for satisfying their informational needs.

**Owner:** The Publisher Organization, Managers of the e-Journal.

**Environment:** The Publisher Organization as a barrier which for any kind of reason might not want to change the current text and the content that the e-Journal has. In addition the possibility to have any kind of unwillingness or disinclination to visit that specific e-Journal in order to read or submit articles.
Efficacy: The system offers a better and more pleasant text and content rather than the previous one while aiming to satisfy the informational needs of its visitors.

Efficiency: A better text and content is created which has its full roots in participants’ perceptions and beliefs about what information they desire to be added inside the e-Journal and if this kind of information satisfying their informational needs. In addition a measurement takes place in order to estimate and evaluate the experience of the visitors as regards their satisfaction level about the new one integrated information inside the e-Journal system.

Effectiveness: The e-Journal contains a proper text and content which satisfying visitors’ current informational needs. The new one content derives directly from participants’ perceptions and beliefs after analyzing their different worldviews that expressed. This kind of effort increases the possibilities to holistically improve the overall visibility of the system in the WWW and the level of accessibility by online visitors.
4.5 Structure a Debate about the Situation and its Improvement (SSM 3rd Step)

After the completion of the purposeful activity models, the comparison amongst them with the reality takes place under the umbrella of a structured discussion about the problematic situation and how to improve it. This kind of structured discussion arise possible changes that are able to improve the problematic situation, while at the same time forged to encapsulate all participants’ different perceptions and worldviews. According to Checkland and Poulter (2010) the structure to the discussion process, is provided by using the models as a source of questions to ask about the problematic situation. In addition, the purposeful activity models, simple create an organized discussion while from the model derived questions such as “here is an activity in this model,” “does it exists in the real world?” “Who does it?” “How?” “When?” etc. (Checkland and Poulter 2010).

Based on Checkland and Poulter (2010) methodology, the structure discussion and the comparison amongst the models could be accomplished by three ways:

- Describing a purposeful action that could be implemented while adopting a scenario or a story in order to compare the model with what really happens into the real world.
- The Formal: Creating a matrix-table with each model and multiple sequential questions which analyse the activities of each model and its dependency to the real world
- The Informal: Determine stakeholders’ differences in order to conduct a debate related with which models it is possible to have changes

The formal process is selected in this study since it seems to be the appropriate one for all the participants as they are not fully aware of the whole Soft System Methodology process and its sub-functionalities. In addition, the formal process contributed to explain in a simple way the differences about the models what they proposed that will do and how the real problematic situation is. All the structured formulated argumentation about the purposeful activity models will become the cornerstone for unfolding a debate during the workshops processes in order to highlight models that are systemically desirable and culturally feasible by all participants in order to improve the problematic situation.

4.5.1 Comparison of the Conceptual Models with the Reality

First Conceptual Model: Creating a Plan for completing basic first steps in order to improve the Visibility and the Accessibility of the e-Journal.

Based on participants’ worldviews, the level of visibility that the e-Journal expressed in the internet world is more discouraging rather than encouraging. Basic functionalities were missing, or the Managers were lack of information such as the current number of visitors that the journal has, or the old programming version that the Content Management System has, hence the e-Journal is based on that. In reality the presence of this kind of model does not exists for the e-Journal. More specifically during the interview process one of the managers of the e-Journal, stated that there is no plan or strategy to improve the visibility of it in the internet world. In addition, other participants expressed the opinion that the e-Journal seems
to be abandoned with no updated content, a fact that probably discourage online users neither to visit the e-Journal nor to navigate on it and explore its functionalities.

The conceptual model is arranged to complete basic functionalities of the system in order to improve its friendliness to potential online visitors. That conceptual model contains, the updating of the Content Management System in order to give to its administrators more flexibility and options, the calculation of the situation about the number of visitors that the e-Journal has, the promotion of Publishing Organization characteristics identity and authentication, and lastly the creation of a content more pleasant rather than dull. This conceptual model can be characterized as the basis of a pyramid not because it promises a neuralgic improvement into the visibility and accessibility levels of the e-Journal, but due to the fact, that it contains the first basic steps and actions for organizing a plan in order to improve the momentum of it in the internet world.

Second Conceptual Model: Improving the design and the layout of the e-journal for a better navigation experience by the visitors.

The second conceptual model related with the improvement of the design and the layout of the e-Journal, giving in this way a better navigation experience to the visitors. Holistically, some of the participants mentioned that they found the whole navigation process quite flexible and easy, while some others not. Subsequently some of the participants expressed that the e-Journal needs an uniformity in the layout of all the tabs as also a checking process for eliminating all the links that lead to system error messages or into wrong directions. In addition, some of the stakeholders referred that it would be useful to add logos, icons, buttons and images that help to the navigation process, while at the same time the system will not take so much time to load on their screen devices. Lastly, some others referred that it would be very pleasant to add social media buttons for each article in order to improve the interaction amongst the e-Journal and its visitors.

Comparing that conceptual model with the reality, some of the functionalities that were described by the participants already exist in the current real situation of the e-Journal while some others not. For example, the presence of links that lead from one place to another already exists, however, it needs an additional improvement in order to finally lead to the right directions and not to the wrong one. Other operations need to be included in the functionalities of the e-Journal in order to improve the whole design and layout of it and thus its navigation process such as the involvement of the social media buttons, the uniformity in the layout of all the tabs, the easy scrolling process and the minimization of loading time that the system needs.

In any case this kind of conceptual model arises the necessity of improving some already existing functionalities and including some new one suggestions, for holistically improving the design and the layout of the e-Journal which gives a better navigation experience to the visitors. All the changes derive from the participants’ worldviews and work as a solid
stepping stone for improving the level of visibility and accessibility of the e-Journal. That happens because, as the better design and layout the journal has, the better and more flexible is the navigation experience that the visitor has and therefore higher possibilities to share the content of the e-journal with others in the framework of the internet world.

Third Conceptual Model: Improve the text and the content of the e-Journal for satisfying the informational needs both of the current and the potential visitors.
That conceptual model aims to improve the current text and content that the e-Journal has in order to satisfy the informational needs of the visitors. During the interview process the participants expressed their worldviews about what is missing as information from the journal and what kind of information will be useful for their needs. Just like the previous one model, some of the functionalities that this conceptual model has, already exist in the e-Journal system while some others not. For example, the journal contains information about the authors guidelines or about its aims and scope, however most of the participants (managers, authors, readers) expressed that it would be useful to add more information. For some other participants the whole process of creating new text and content that will satisfying the informational needs of the visitors, is a difficult one task that needs a proper keyword research for finding the appropriate content useful by all the visitors. That kind of process does not exist in the organizational and managerial reality of the publishing corporation.

In addition, some other suggestions of the participants related with the addition of information in the welcome page of the e-Journal, with the improvement of information of the editorial board, adding information about the reviewers tasks and responsibilities, or included related other works of the authors that have already published on that journal. Some other participants also referred to include social media buttons under each submitted article which will help the administration of the e-Journal to understand what the authors and the readers of the e-Journal prefer in order to potentially disseminate to them information which is based on their needs.

Even there are some already existing functionalities that need to be improved or there are some others that need to be included, the whole conceptual model aims to improve the existing reality of the e-Journal while achieving to provide related information to authors and readers completely based on their needs. In other words, all the changes related with the improvement of text and content that the e-Journal has for satisfying informational needs of the current authors and readers plus also the potential ones, while all these changes derived from their different worldviews that were expressed via the conduction of the interviews.

4.5.2 Feasible and Desirable Changes

One of the main aims of the SSM process and how this methodology was constructed over the years, is the extraction of systemically feasible and desirable changes by all the stakeholders. Making this assertion clear, for Checkland (1981) all the changes must be
systemically desirable and culturally feasible by all. That means that the creation of the Root Definitions and the Conceptual Models related with the creation of the *systemically desirable changes*. At the same time, the *culturally feasible changes* by all people, related with the awareness of the nature of the situation, the experiences, the knowledge or even the prejudices of each stakeholder involved in the problematic for improving it.

This kind of feasible and desirable result by all, came up after the structuration of the debate which aimed to discuss all the emerge changes, while on the one hand improves the problematic situation for the stakeholders’ and on the other hand embodies all the different worldviews of them (Checkland 1989). Indeed, according to the author, the basic principle in the estimation of the feasible and desirable changes, is the transformation of the current situation in a way that all can live with.

In this study the process of defining which would be the systemically feasible and desirable changes, completed via the conduction of the three workshops. In the first Workshop the four managers of the e-Journal were completely informed and discussed about the intended changes derived from their worldviews plus also the worldviews of authors and readers. In the second Workshop, the authors and the readers, completely informed and discussed about the intended changes while including managers’ worldviews for improving the visibility and the accessibility of the e-Journal. They discussed all the suggestions of all the sides in order to come up with a set of changes that are systemically feasible and culturally desirable by all the people involved, namely the managers, the authors and the readers of the e-Journal. The last one third Workshop, intended to involve all the participants in order to encapsulate their beliefs and their perspectives and if all they are completely agreed to implement changes with feasible and culturally desirable characteristics by all the stakeholders. In the next paragraphs the discussion of the conceptual models takes place.

*First possible set of changes: Create a plan for completing basic first steps in order to improve the Visibility of the e-Journal.*

As regards the first possible solution all the participants commonly agreed to proceed into that kind of implementation. For the managers, that kind of change characterized as the basic first step before proceeding into the other two changes. For some technical issues the authors and the readers were not aware such as the necessity of updating the current content management system or the lack of knowledge about the current numerical situation of visibility and accessibility, or in other words, how many visitors click and enter into the e-Journal.

Therefore, the initial plan for setting the basics for improving the visibility and the accessibility levels of the e-Journal, included actions such as the renewal of the content management system and the calculation of the current visitors in order to evaluate the current performance and comparing it after the implementation of changes. Additionally, the first Conceptual Model included, the renewal of a dull environment with the addition of a more
pleasant content of texts and images in order to leave the impression that the system seems to be updated with fresh content rather than abandoned, plus also the insertion of publishers’ characteristics in order to promote their authentication and identity via the e-Journal.

Second possible set of changes: Improve the design and the layout of the e-Journal for a better navigation experience by the visitors.

In this conceptual model a set of actions included in order to improve the whole design and layout of the e-Journal making it friendlier and more attractive to visitors. After the implementation of those actions, the navigation experience of the visitors will be improved. The conceptual model and its steps was recognized by all the participants during the third workshop as a fundamental process for providing a system to any kind of visitors which is flexible in its navigation while at the same time the visitor is able to find the information she/he wants easily and flexibly inside the system.

The steps and the tasks that the second conceptual model contains, related with the presence of an uniformity in the layout of all the tabs, with the inhibition of the wrong links that lead to system error messages or to wrong content, or the integration of a navigation bar which informs the visitors where they are inside the system. In addition, basic steps including the easy scrolling process from the button of the system graphical user interface back to the top again, and also the integration of the social media buttons for more interaction between the system and visitors. Lastly, this specific conceptual model includes the integration of logos, images and icons inside the e-Journal system, plus also the minimization of system’s loading time in order to be appeared to the visitors faster that the current one time. Just like the other conceptual models, this model, contains a result, which is the examined different worldviews of all the participants and their specific steps and actions in order to holistically augment the visibility and the accessibility levels of the e-Journal in the web.

Third possible set of changes: Improve the text and the content of the e-journal for satisfying the informational needs both of the current and the potential visitors.

The third possible set of changes that could be implemented in order to improve the visibility and the accessibility of the e-Journal related with steps and actions of creating additional texts and content inside the e-Journal system in order to satisfy the informational needs of the visitors. The general rationale that the e-Journal left to the participants was, that although it contains sufficient information about processes and functionalities, it needs more information is some crucial points. All that points were examined based on their different worldviews that were expressed during the interview process. Regarding the third Workshop process, managers, authors and readers stated that each kind of addition in the content of the e-Journal increases its utility in the WWW as someone tries to find specific information.

Noteworthy is the fact that some of the readers expressed the belief that, although we try to add as much information as we can on the e-Journal, there will always be a small window to add information that satisfy informational needs and in the current time is missing from the
content. In the reader’s belief, the second manager argued that it will be a good starting point to add as much as it is possible of those things that were identified on the model, and therefore to apply a second future analysis of what additional information is missing. The steps and the actions that this conceptual model contains related with a basic keyword research for finding and writing appropriate content functional by all, the creation of a pleasant and rich content in welcome system’s page, the enrichment of the Aims and Scope tab and the insertion of affiliations of the editorial board. In addition the conceptual model contains the enrichment of the benefits that the journal offers to the authors, the creation of text that contains information about authors and reviewers guidelines and responsibilities, and also the insertion of other related works that the authors had. Lastly, the conceptual model, contains the involvement of the social media buttons under each submitted article in order for the administration of the e-Journal to get feedback of what its visitors prefer for a potential selective dissemination of information to them.

4.5.3 Some Rejected Suggestions

During the interview process, some of the participants mentioned that the e-Journal seems to have low number of external back links or in other words, links on other places such as other internet-based systems or websites of the internet world which have a link that leads to our specific e-Journal system. However, this kind of change by building back links to other online places that lead to the e-Journal was refused by the managers of the system. They referred that they do not have the knowledge to implement that change and if they want to achieve that, they need to hire an outsourcer with the additional financial burden, while in the same time, the whole organization seems not to be economically flexible. On the other side, during the third workshop none of the authors or the readers expressed a different approach and the necessity to augment the external back links that the e-Journal has. One of the authors referred that “the whole framework of implementing changes is an approach of inbounding and attracting visitors and not pursuit or push them to visit the journal”. Thus, it was declared by them, that building external back links is more out bounding and audacious approach for visitors rather than providing them an online platform that if it is satisfying their needs, they could visit it. Based on that statement which was expressed by participants during the third workshop process, that kind of change was rejected.

Another one change that problematized the participants in order to be implemented, more specifically the managers of the e-Journals, was the recognition by the authors that some of their articles show low number of downloads. The managers referred and admitted that the low numbers of downloads are related with the low visibility of the e-Journal, however they refused to proceed into an organized promotion of authors’ already submitted articles in order to improve the number of the downloads. The managers stated that the whole process is conducted in order to improve the visibility of the e-Journal and not to improve partially the downloads of authors papers. Controversially they mentioned that the proper improvement of visibility of the e-Journal is a decisive step that will lead in the future to better numbers of
downloads. From authors’ perspective, a mood of dissatisfaction appeared to their faces, however the managers immediately referred to them another one suggestion. They suggested to authors that they can improve the recognition of their articles by other mechanisms such as social media that are created for this reason for example the ResearchGate or the Academia social media platforms. The authors expressed that these media will be a better choice for them as they could handle by their own the self-promotion of their research works, however they kindly persevered that this could be a future service that the e-Journal should adopt. That suggestion for changing was finally rejected during the third workshop when all the participants had the chance to discuss throughout the debate process.

Based on the aforementioned rejected change, another one suggestion based on the statement of one author was problematized once more the managers of the e-Journal. This was about the lack of information in text and content inside the e-Journal as regards the practices that authors should follow in order to improve the accessibility of their papers. More specifically, the problem was that the e-Journal did not include text that suggests practices to authors on how to promote their articles recognition. With a common voice the four managers referred that their basic scope is to ensure that all the authors’ articles will be submitted in the right order inside the e-Journal system and not to organize the subsequent promotion or the suggestions of proper promotion of authors’ submitted articles. One other author said that she was in favor of managers aspect, as the e-Journal is an academic vehicle where authors safely publish articles and the promotion of each article separately, is an issue which is based on authors’ personal methods and actions outside of the journal’s scope. Thus, that specific suggested change based on the conceptual model of improving the text and the content of the e-journal was rejected as well.

4.5.4 Summarizing the Systemically Feasible and Desirable Changes

In the next table the outcomes of the Workshops method are presented. The first column depicts the name of each change and the second column the description of each change and what it contains in order to be implemented.

<table>
<thead>
<tr>
<th>Table 4. Overview of the systemically desirable and culturally feasible changes</th>
</tr>
</thead>
</table>
| **Create a plan for completing basic first steps in order to improve the Visibility and the Accessibility of the e-Journal.** | • Renewal of the content management system  
• Calculation of the current visitors in order to evaluate the current performance and comparing it after the implementation of changes  
• Renewal of the dull environment with the addition of a more pleasant content of texts and images in order to leave the impression that the system seems to be updated with fresh content and not abandoned  
• Insertion of publishers characteristics in order to promote their authentication and identity of the e-Journal |
### Improving the design and the layout of the e-journal for a better navigation experience by the visitors.

- Uniformity in the layout of all the tabs
- Inhibition of the wrong links that lead to system error messages or to wrong content
- Integration of a navigation bar which informs the visitors where they are inside the system
- Easy scrolling process from the button of the system’s graphical user interface back to the top again
- Integration of the social media buttons for more interaction between the system and visitors
- Integration of logos, images and icons inside the system
- Minimization of system’s loading time

### Improve the text and the content of the e-journal for satisfying the information needs both of the current and the potential visitors.

- Basic keyword research for finding and writing appropriate text and content functional by all
- Creating pleasant and rich content in the welcome page of the system
- Enrichment of the aims and scope tab and the insertion of affiliations of the editorial board
- Enrichment of the benefits that the journal offers to the authors,
- Creation of text that contains information about authors and reviewers guidelines and responsibilities
- Inserting other related studies that the authors had and information about them
- Involving social media buttons under each submitted article in order for the administration of the e-Journal to get feedback of what its visitors prefer

### 4.6 Taking Action and Implement the Changes (SSM 4th Step)

Till now a collaborative process between me as facilitator and managers, authors and readers as participants, has been conducted in order to highlight different participants’ worldviews for improving the problematic situation, making it less problematical. By being inclusive with SSM, the taking action stage is the result that all the participants were previously assisted in the process of sharing of ideas and exploration of issues (Sommerville et al. 2014). A set of ideas for improving the visibility and the accessibility of an e-Journal has been derived in an organized way based on the Soft Systems Methodology, ensuring that each kind of improvement has been recorded successfully. Several purposeful conceptual models have been constructed and subsequently, a debate process through argumentation took place in order to finally select the improvements which are systemically desirable and culturally feasible by all the stakeholders.

In this section and after cooperatively defining with the participants the feasible and desirable changes, the Taking Action process takes place. Taking action to improve a real-world situation entails to find in the process of discussion and debating (SSM 3rd phase), accommodations among different worldviews, while “accommodations” means finding a version of the addressed situation which different people with different worldviews notwithstanding could live with (Checkland and Poulter, 2010). The authors also referred that the taking action process contains an arbitrary distinction as to whether the end of a research
is taken to be defining the action to improve the situation or carrying it out. Indeed, as we have a problematic situation that is going to be less problematical and not to be solved once and for all, then an action takes place in order to improve it.

We proceeded to the implementation of all the selected feasible and desirable changes in a collaborative working experience with the managers of the e-Journal system. I collaborated with the managers of the system as they already have the pro-existing technical knowledge to implement the changes. The combination of our knowledge resulted the outcome to implement the changes in an effort to improve the visibility and the accessibility levels of the system. Controversially, the study did not add into the collaborative implementation the authors and the readers, as the problematic situation is not involved in their professional priorities and responsibilities. They are the beneficiaries and the receivers of the outcome of the implementations, they suggested well standing changes, however, involving the authors and the readers as clients-visitors of the e-Journal to implement the changes was out of the scope of that research.

We started the whole process via the updating process of the Joomla Content Management System and more specifically from the 3.5 version to 3.6.4 release. That kind of implementation gave the benefit to have in our hands modules and multiple configurations that could be proved useful for the improvement of the design and the layout of the e-Journal plus also the renewal of the text and the content that it has. After that step, we began to calculating the visitors that the journal has via the Google Analytics tool. Those helped us to measure and evaluate the improvement as regards the previous situation before the changes and potentially the situation after the changes as regards the visibility and the accessibility levels. Subsequently, we were searching inside the system about the modules and the content that had a long time to be updated. We found many sections on the system that need renewal, and hence we recorded them in order to implement the aforementioned feasible and desirable changes that participants expressed. Thereafter, we included several publishers characteristics such as e-mail contact information, logos of the publishing organization, or the unique ISSN of the e-Journal in order to highlight the authentication and the singularity of it.

In order to improve the design and the layout we proceeded into several rectifications. An uniformity in the layout of all the tabs in the fonts and the size of them has been followed providing clearly each kind of information to visitors. That kind of rectification also highlighted by Zhang and Dimitroff (2005) in order to improve the visibility and the accessibility of internet-based system and their web services via the SEO process. In addition, we checked all the links in order to ensure that they lead to the right content inside the e-Journal and also if there are links that lead outside of the e-journal that are broken and not working. We rectified each one of them ensuring that the potential visitors will lead to the right content of information. A navigation bar was integrated on the top of each tap based on the elements of Breadcrumbs. Breadcrumbs are graphical controlling elements which are
used as navigational aids in online users interfaces and also allowing them to know simply their location inside an internet-based system (Google Inc. 2010; Visser and Weideman, 2014). We also added the Sitemap at the bottom-footer of the e-journal which also as an element provides better navigation experience inside the system as visitors can find easily the information they want. Sitemaps are useful tools that assist in increasing the usability of the web-based system (Weideman and Chambers, 2005).

Moreover, we inserted a button at the end of each tab that the system has in order to lead the visitors back to the top again without forcing them to continuously scrolling up till the beginning of the e-Journal’s interface. Continuing the layout improvement, the social media buttons of Facebook, Twitter, LinkedIn and Google+ were integrated for more interactions with the visitors, a kind of insertion that was also noted by Nigam, Saxena and Gupta (2015) for improving the visibility and the accessibility of internet-based systems and the web services that they provide. We also integrated some logos, icons and images on the e-Journal in a proper analysis with an attention not to burdening the system loading speed time, a practice that is also highlighted by Weideman and Chambers (2005) research approach. We also erased several old system’s files that were not useful anymore due to the last renewal that we made on the Joomla Content Management System. These two last actions contributed to minimize system’s loading speed time. According to several studies, the size of the images plus the unused files inside a system are important factors for the overall system’s loading speed time (Nigam, Saxena and Gupta 2015; Al-Ananbeh et al. 2012; Google Inc. 2010; Jones, 2010).

Regarding the improvement of the text and the content that the e-Journal has, we proceeded into a Keyword Research Analysis of what terms-keywords probably the visitors type in search engines when they want to find a scientific journal or to download papers from it. We used online recognized tools such as the Keyword Planner of Google or the Wordtracker. The managers selected terms-keywords that according to their perception they would be able to create text and content based on that keywords in order for the e-Journal to be found easier from the potential visitors. We also created pleasant and rich content in the welcome page of the system in order to give a better impression to online users than the previous one. The tab of Aims and Scope that the e-Journal had, updated with additional text and content as it was desired by the participants.

We also proceeded into the integration of information regarding of what the e-Journal offers to the readers and additional information about the authors and the reviewers guidelines and responsibilities. This kind of information related with the review process, or the principles that each article should follow in its content in order to be published on the e-Journal. Moreover, regarding the insertion of other related studies that the authors already had, as it was previously said during the debate process, the managers decided not to include all the articles that each author has. That kind of integration probably would bring a large amount of
text that must be integrated and that might fret the visitors. Controversially, we thought that it will be a good idea to insert a link in the name of each author that leads to Google Scholar or ResearchGate, or in other words, recognized academic online domains that enlist extensively all the other related studies of the authors. Lastly, the integration of social media buttons under each published article, characterized as a good feedback for the managers in order to understand better, what the visitors prefer mostly as regards the scientific topics that the e-journal has. The insertion of the social media buttons in each published article, allowed visitors to like, or to share the articles with their online communities or their colleagues who might have common interests.
5. Discussion

The structure of this chapter is unfolded in four parts. In the first part, the discussion of the empirical findings in relation with the literature review findings takes place. This helps to answer in the second research question of this study. Subsequently, a discussion takes places, as regards the implementation of the Soft Systems Methodology and the phases of it. This leads to answer in the first research question of this study. Thereafter, the results of improvement take place in order to compare the visibility and accessibility of the system before and after the implemented changes. Finally, this chapter concludes with the significance of this research and the practical implications of it.

5.1 Discussion of the Empirical Findings

This research intended to contribute to the extended literature to the process of improving the visibility and accessibility levels of an internet-based system in search engines and therefore in the World Wide Web. The whole process of extracting ideas and suggestions followed a user-centric perspective. Aiming to understand what users of the examined system desire and need and then implementing these needs and desires on the system itself was the core value of the study. In contrast of the extended literature review that was provided during the study, it became evident, that a system is constructed or rectified by the people, for the people, and not only to mechanically improve its visibility and accessibility in search engines.

Based on the collaboration amongst me as facilitator and participants, we collaboratively built up an updated environment, in order to humbly characterize that specific system at least sufficient for the potential users, if they click and enter on it in the future. This new one environment contains better architecture and design, more text and content that is able to satisfy users’ informational needs and therefore better level of usability and friendliness. Thus, if Search Engine Optimization addresses design and system’s usability, architecture and content, for improving better ranking, visibility and accessibility by online users, as other studies refer, (Visser and Weideman, 2014; Lievonen, 2013; Jones, 2010; Zhang and Dimitroff 2005) then we strategically highlighted, recorded and implemented a plurality of ideas to achieve this purpose based on participants needs and desires.

Controversially with other studies which do not follow a user-centric approach but predetermined technical actions for improving the reputation of an internet-based system (Nigam, Saxena and Gupta, 2015; Egri and Bayrak 2014; Khanna and Vivekanand 2013; Rehman and Ahmed Khan, 2013; Al-Ananbeh et al. 2012; Zhu and Wu, 2011; Weideman and Chambers, 2005; Zhang and Dimitroff, 2005), this study extracted what exactly the users want from an internet-based system in order to visit it. In simplicity, the whole work and the empirical findings relied heavily on what the users desire from a system and not what a search engine desire from it, in order to bring higher visibility and higher ranking and in search engine result pages. The aforementioned assertion is strengthened by this statement referring that even an internet-based system is listed in the first page of results of a search
engine, this is not enough if the system does not contain what a user expect and needs from it (Visser and Weideman, 2014; Berman and Katona, 2011).

In reference to the existing literature review, the findings of the study, related with the highlighted limitations that the system has, in order to improve its situation. More specifically the participants expressed several issues and limitations in the content of the system which for some of them characterized as dull and abandoned in some occasions. This issue is also highlighted with other related studies mentioned on their findings that a pleasant and updated content plays an important role for attracting visitors on a internet-based system and therefore to improve its visibility and accessibility levels (Egri and Bayrak 2014; Visser and Weideman, 2014; Al-Ananbeh et al. 2012; Gandour and Regolini 2011, Zhang and Dimitroff 2005). Additionally, some of the participants expressed the slow load time that the system has, a factor that probably brought discomfort and dissatisfaction to them. This issue has also been highlighted by other researchers and their findings as a neuralgic factor which predisposes an online user to explore the services and the capabilities of an internet-based system or leave from it and jump to another (Al-Ananbeh et al. 2012; Khanna and Vivekanand 2011; Malaga 2008).

Subsequently, several interviewees expressed issues and remarks as regards the design and the layout of the system which entails difficulties in the process of navigation inside the e-Journal. In reference to the literature review, several researches support the findings of this study and highlight the importance of an attractive and flexible design and layout that a system should has (Al-Ananbeh et al 2012; Jones, 2010; Zhang and Dimitroff, 2005). This could be a milestone for finally improving the visibility and the accessibility of a system and its web services in the web. Additionally, the process of extracting useful information from the interviews and the workshops as well, contributed in order to answer in the second research question of this study, namely: “What are the changes that need to be done on the internet-based system, based on the users’ needs and desires?” The application of the interview process and the workshops in combination with the strategic problematic situation tackling approach that the SSM process offered, resulted not only to answer on which are the changes that need to be done. It also offered the environment to adopt ideas for changes that are culturally feasible and desirable by all stakeholders.

In any case, one can view that, the flexible navigation in the e-Journal system in which the potential visitor is able to find the information in an easy way, is likened as the card in a game of handicraft. On the other side, the updated text and content that satisfies visitors informational needs inside the e-Journal is likened as the glue in that handicraft game. When they combined together successfully, they resulted higher number of visitors in the system and hence, better levels of visibility and accessibility. This assertion highlighted during the empirical findings and the analysis of them, as each different worldview that the participants expressed contributed maximally to understand that each part of improvement should be
related with another one and in a specified way. This assertion encapsulates the whole systems’ ideas concerned the interaction between parts, which in conclusion, make up a whole (Checkland and Poulter, 2010).

Moreover, following a holistic aspect about the usability of the rectified e-Journal system, it needs to be mentioned that all the rectifications followed the principles that were unfolded at the literature review. More specifically, the implemented changes achieved to rectified and prevent system error messages that the e-Journal displays due to broken links, a factor which is related with the principles human-computer interaction and system’s usability framework (Shoemake, 1992). As regards the meaning of consistency that the system expressed before and after the changes, all the rectifications achieve not to transform or neglect users’ previous experience on how to use the e-Journal or about its functionalities and their positions inside the system. Indeed, the consistency on the system’s choices and buttons allows users to remember and click instinctively what they want from it (Shneiderman and Plaisant, 2004). Based on human computer interaction and usability framework, this study also achieved to proceed into the adoption of a qualitative research approach based on the Soft Systems Methodology, that finally resulted a clear view as regards the reason of why the e-Journal system is used (comprehension of the task) and what its users desire and need from it (know thy user).

5.2 Discussion about the Applied Methodology

The extraction of the different worldviews and beliefs that expressed by the participants, as regards their interaction and involvement with the e-Journal system, was not unexpected, or an issue that has emerged without a cause. It is noteworthy to refer that the empirical findings not only correlated with the literature review, but also with the preliminary research and findings that emerged during the initial approach with the problematic situation. However, the aim was not to find a correlation amongst preliminary research, literature and empirical findings, but to make more comprehensible to the readers of this study, the organizational complexity of the problematic situation while at the same time constructing and implementing ideas for improving it. These ideas derived directly from participants needs.

The SSM approach adopted in order to improve a problematic situation, namely the low visibility and accessibility of an e-Journal in the WWW. This kind of methodology for tackling a problematical and messy of all kinds situation (Checkland and Poulter, 2010), was followed since it covers the whole complexity of the problematic, from the explicit description of the current situation, through the taking action phase in order to improve it.

In addition, regarding the first research question “How the changes that the internet-based system needs could be identified, based on its users’ needs and desires, in order to improve its visibility and accessibility in the world wide web?”, the SSM adoption contributed in order to set in an organized way the interview process plus the workshops for understanding and
describing extensively the problematic situation and a set of ideas for improving it. The establishment of the conceptual models and thereafter the comparison of them with the social reality in order to characterize them feasible and desirable by all the stakeholders, was a milestone for improving the problematic. Thus, the SSM approach contributed to answer the first question while at the same time ensuring that all the different worldviews were equally heard and captured.

Based on the previous statement, it needs to be mentioned that the SSM approach directly correlated with the user-centric approach that this research aimed to highlight. The whole process of improvement derived by the participants, for the participants. In this specific situation, that kind of improvement, changed the impression of West (1997) that most of the Information Systems developments and improvements tend to be normative. Controversially with West (1997) statement, the whole study based on the mindset that the people who will use the system, should have effect, a voice and an influence throughout the process of improvement (Bergvall-Kåreborn et al. 2010), which presupposes the participation of the intended users (Kensing and Blomberg 1998) and therefore the reflection of their the values (van der Velden and Mörtberg, 2014).

Subsequently, it needs to be mentioned that, in this research, the fifth step of the SSM, more specifically, the Critical Reflection in order to establish an iterative approach, was not implemented as it was out of the scope of this study. For Checkland and Poulter (2010), the reason for establishing the fifth stage related with the acknowledgement that the lessons have learned, giving in this way the additional feedback in order to further improve the problematic situation. However, as the doctrine of the SSM approach advocates that a problematic situation can not be entirely solved but to be improved -making it less problematical than before-, this study aimed to firstly highlight the feasible and desirable changes for improvement, and then to implement them. Moreover, the Critical Reflection stage of the whole implemented SSM requires the establishment of a new developed research cycle which contains all the stages of the SSM in order to highlight a new one less problematic situation, and thus, the critical reflection was not implemented as it probably opens a new one research dialogue with the stakeholders.

In any case, Checkland and Poulter (2010) referred that each kind of problematic situation does not remain static, but it is evolved as the worldviews of the stakeholders tend to change. Therefore, it needs to be taken into serious consideration that the evaluation of the implemented changes should be the kick-off point for other research attempts in the future, for understanding if the under examined system is more suitable for the users that previously was.
5.3 Results of Improvement.

In this chapter the results of the improvement of the visibility and the accessibility that the e-Journal depicted before and after the implementations took place. The comparison amongst them includes the previous and the current calculations in the number of visitors and Pageviews, and in the ranking position (before-after) in the Google Search Engine results lists. In addition, a comparison takes place in the difference between the previous load speed time and the current one.

The whole comparison of the e-journal’s previous and current time, answers extensively on the third research question, namely: “After completing all the changes based on user’s needs and desires, will the internet-based system have an improvement on visibility, accessibility and search results ranking, or the system will be fluctuated at the same level of ranking and visibility?”

The next figures present the comparison and the improvement as well. The next figures present the comparison as regards the number of visitors and the pageviews that the e-Journal has in totally 32 days before the rectifications towards 18 of March 2017 to 17 of April 2017. Thereafter, the results towards 18 of April 2017 to 9 of May 2017 indicate the meaning of improvement and optimization after the implementation of the changes. The results of the visibility and the accessibility levels are conducted based on the Google Analytics tool, a free well-know Google tool for calculating the traffic and the number of visitors.

Based on the figure 5, the e-Journal resulted 350 Pageviews that had been viewed by 58 internet users in totally 32 days between 18 March to 17 April 2017.

The next one figure presents the number of visitors and the Pageviews after the implementation of the changes in order to improve the visibility and the accessibility levels.
Based on the figure 6, the e-Journal resulted 1.137 Pageviews that had been viewed by 390 internet users in totally 22 days between 18 April to 9 May 2017.

Thus, the implemented changes achieved to increase the number of users almost 7 times more for 22 days and not for 32 days as the initial situation before the changes estimates. The implementation of changes also increased and optimized the Pageviews almost 4 times more, for 22 days and not for 32 days as the initial situation before the changes estimates. In other words, we calculated the e-Journal for its performance in visibility and accessibility numbers for 32 days before the implementation of changes and resulted 58 users and 350 Pageviews. Subsequently, we calculated the e-Journal for its performance in visibility and accessibility numbers for 22 days after the implementation of changes and resulted 390 users and 1.137 Pageviews.

As regards the measurement of the load speed time before and after the implementation of changes, in cooperation with the managers of the e-Journal we used the same analytical tool that in the preliminary research was used. The next figure shows the overall load speed time that the system needs to fully upload it functionalities to users’ interface before implementing the changes.
Figure 7. The e-Journal and its loading time to fully load its functionalities to visitors before the implementation of changes. The system needs around 6,865 seconds to load up.

Figure 8. The e-Journal and its loading time to fully load its functionalities to visitors after the implementation of changes. The system in its updated form needs around 4,692 seconds to load up.

The optimization estimated about 2.173 seconds less time in order for the system to load up all its functionalities to internet users (6,865-4,692=2,173). This optimization could be characterized as a neuralgic one, as the more the load time is, the less is the friendliness and the usability levels of the system to it users. Indeed, that statement also provided and suggested to be rectified in the findings by of Egri and Bayrak (2014), Al-Anabeh et al. (2012) and Khanna and Vivekanand (2011) regarding the improvement of the visibility and accessibility of internet-based systems based on SEO.

After presenting the results of the optimization as regards the number of Pageviews and the users, plus also the minimization of the load speed time of the system (2.173 sec less), the exposition of the ranking in the Google search engine results pages takes place. The next figures represent the comparison among the initial ranking situation of the e-Journal and the
current one, based on some most common search terms that internet users use in order to find information about scientific and academic journals in the marketing topic. The topic of marketing is selected because the whole under examined e-Journal related with that theme.

Figure 9. Initial ranking situation of the e-Journal in the search term “innovative marketing” before the implementation of the changes. The e-Journal was placed in the 3rd page as the 3rd result of the total Google search engine results pages.

This figure illustrates the initial situation of the e-Journal before the changes in order to improve its visibility and accessibility levels. Thus, if a user, for example, a practitioner, was typing the search term “innovative marketing” in the Google Search Engine, the e-Journal would be presented in the 3rd page as the 3rd result of the total search engine results pages.

The implementation of the changes resulted a better ranking position of the e-Journal. In the next figure the ranking position is presented based on the search term: “innovative marketing”

Figure 10. Current ranking situation of the e-Journal in the search term “innovative marketing” after implementing the changes.
The e-Journal now is the 4th result of the 1st results page of Google Search Engine, while the first result belongs to the paid results advertizing.

Another paradigm resulted the augmentation of the ranking position that the e-Journal currently has based on the search term “strategic marketing journal”. In the next figure the previous ranking of the system based on the search term “strategic marketing journal” before the implementation of the changes is presented. The e-Journal ranked in the 9th result of the 1st result page of the Google Search Engine.

Continuously, the implementation of the changes resulted a better ranking position of the e-Journal for the search term “strategic marketing journal”. In other words, if an internet user would typed the search term “strategic marketing journal” in the Google Search Engine, then the e-Journal would be placed on the 4th position of the 1st results page of Google Search Engine. In the next figure the ranking position is presented based on the search term: “strategic marketing journal”.

Figure 11. Ranking position of the e-Journal in the search term “strategic marketing journal” before implementing the changes. The e-Journal seemed to be in the 9th ranking position of the 1st results page of Google Search Engine.
The improvement in the ranking position of the e-Journal optimized, bringing it at the first page of the Google search results. That current ranking position probably will increase the possibilities to potentially improve the visitors and the clicks for the e-Journal. As it was mentioned on the beginning of this study, a well search engine results page ranking is hugely competitive advantage for improving the visibility of organizations’ activities which expose their services in the web (Dye, 2008). This assertion could be strengthened if someone take into serious consideration that the 90% of internet users do not exceed the first three pages of search engine results, or otherwise change search terms (Luh, Yang and Huang 2016; Visser and Weideman, 2014; Enge et al., 2012; Lorigo et al., 2006; Sullivan, 2002). Indeed, these research findings seem to have the same sequel results over the years, from the beginning of the previous decade till this one (common findings on 2016, 2014, 2012, 2006 and 2002).

In conclusion to the results of improvement and the comparison of the previous situation with the current one, it is very useful to remind to the readers of this study that all the above mentioned optimizations is the result of the suggested ideas that the participants expressed. Achieved to heard all the different worldviews, a user-centric improvement of visibility and accessibility has been completed, by the participants, for the participants as well.

5.4 Practical Implications and Significance of the Study

In this research process, the improvement of a system in its visibility and accessibility in the World Wide Web took place. The significance of the improvement related with the formulation of the conceptual models and the comparison of them with the real life implementation based on the improvement of the design and layout that the system demands, plus also on the addition of information that the system requires for satisfying visitors...
informational needs. Based on the results that the previous chapter indicated, this research works as an introductory milestone for other organizations which deal with common problematic situations and more specifically with the low visibility and accessibility that their internet-based systems might have. It needs to be mentioned that this research process provides user-centric rectifications that other Content Management Systems should follow in order to improve their visibility and accessibility in the internet world. Subsequently, the research also provides the strategic framework of SSM that ensures that all the ideas for improvement were equally heard and were selected systemically as culturally feasible and desirable by all stakeholders.

Highlighting the academic contribution of this study, it needs to be mentioned that the under examined related studies relied more on predetermined technical dimensions for improving the visibility and the accessibility of web services based on the SEO framework (Nigam, Saxena and Gupta 2015; Egri and Bayrak 2014; Khanna and Vivekanand 2013; Rehman and Ahmed Khan, 2013; Al-Ananbeh et al. 2012; Zhu and Wu, 2011; Weideman and Chambers, 2005; Zhang and Dimitroff, 2005). However, those studies did not take into consideration the user-centric dimension of improving the visibility and the accessibility of a system based on its users perceptions. In this study, stakeholders’ perceptions and worldviews were adopted and finally improved the visibility and the accessibility of that specific system in the internet world. Therefore, in this research, it can be said that the process of Search Engine Optimization which improves the visibility and the accessibility of a system and its services on the web, relied more on the system’s users desires and needs, rather on the technical dimensions that the process refers. Indeed, in this study, the SEO process is set under a social prism of the examined organization and understanding what the users want from the system and finally improving its visibility and accessibility. That constituted a result which indicates to follow what users need from a system rather than on what search engines technically want from the system itself. The result of this study, is in parallel with Google’s advocation which points out that administrators of online systems should pay higher attention to internet users, their needs, their concerns and how they probably desire a internet-based system or a website (Heng, 2014). However it needs to be mentioned that, further studies are needed in order to ensure and understand clearly if other SEO implementations on different internet-based systems which follow a user-centric approach, will finally conclude the same results with this study.

In addition, another one contribution of this study to the academia related with the implementation of the extracted suggestions that the participants of this study expressed. Controversially with other related studies which intend to illustrate and not to complete processes for improving the visibility and the accessibility of web services (Nigam, Saxena and Gupta 2015; Rehman and Ahmed Khan 2013; Al-Ananbeh et al. 2012; Khanna and Vivekanand, 2012), this study not only extracted processes for improvement based on users’ suggestions, but also implemented these suggestion that finally improved the visibility and the accessibility levels for the system. It is also noted that this research took into
consideration the plurality of three different kinds of participants who are users of the e-Journal system, namely the managers of it, its authors and its readers as well. In other words, the dimensionality of this study took into consideration not only one aspect or piece of stakeholders, but an integrated set of suggested user-centric ideas that came up from all the involved participants. That means that the e-Journal system in its current version is possible to satisfy not only the managers of it, but also its authors and its readers as well.

From a practical point of view, it is also noteworthy to refer, that generally this study does not completely ensures a “how to approach” for improving the ranking levels in the world wide web, as each internet-based system and the content of it, in most of the times is different from another one, even if the topic-theme seems to be the same. In other words, each system and its functionalities is unique and does not ensures that the comparisons with others and the adoption of their practices will result the same positive conclusions (Arlitsch and O’Brien 2013). However, this study is able to safely state to other researchers and practitioners that the interviews and the workshops processes including different stakeholders’ views, (managers, authors and readers) is a methodological approach that extracted a positive outcome for the examined system. Thus, in this study, the adoption of stakeholders’ needs and different worldviews emerged the outcome to finally improve the visibility and the accessibility levels of the e-Journal system in the internet world.

In continuation of the practical implications of this study, the whole adoption of the implementations based on participants’ desires and needs which related with the Search Engine Optimization processes derived through a free cost process as Evans (2007) characterizes the SEO implementation. More specifically, we achieved to improve the visibility and the accessibility of the e-Journal in the WWW, we increased the ranking of the e-Journal in the Google Search Engine and we also achieved to minimize the time that the system needs to load its full functionalities to its users. Indeed, all the changes were implemented on the e-Journal with absolutely no cost in all the sets of practical changes. This could work as a solid stepping stone for other practitioners and organizations to improve their recognition in the internet world, while at the same time, they do not spend budget, however, they achieve to attract visitors to their systems. In the case of the Greek region, the economic depression and the presence of the reduced financial flexibility, restricts and chained many companies and organizations to promote their services in the web with the existence of an appropriate budget. Thus, this study could be a very useful practical toolbox in order to be adopted and finally increase the recognition of other companies and organizations with no cost.

Lastly, the adoption of the SSM process, could also be proved very practical and useful to other individuals or organizations not only to describe systemically any kind of IS/IT problematic situation, but also to set strategically the roadmap on how to improve each problematic situation, making it less problematical.
6. Conclusions, Reflections, Open Problems

This chapter encapsulates concisely the conclusions of this study, arising in this way the main points of interests and contributions. The first part intends to answer the research questions while at the same time the contribution of the study is unfolded. Thereafter, some researcher’s reflections are highlighted and lastly the study is concluded with suggestions for future research approaches.

6.1 Conclusions and Contribution

This study and the scope of it, could be characterized with a trinity of benefits. It was firstly based to gain a deeper understanding as regards the current situation and its problematic which was the low visibility and accessibility of an internet-based system in search engines, and hence in the World Wide Web. That deeper understanding derived through the examination of participants perspectives via the conduction of the interviews and the workshops. Thereafter, the strategic adoption of Soft Systems Methodology worked sufficiently as a practical toolbox in order to establish conceptual models that resulted systemically desirable and culturally feasible changes in order to improve the problematic. The systemically desirable and culturally feasible changes which derived respectively through participants’ needs and desires, were implemented in the e-Journal system, and thus, they improved and optimized the visibility and the accessibility of it in search engines and hence in the internet world.

From research perspective, the aforementioned roadmap of implementations contributed in a deeper level, answering in this way to our research questions. More specifically:

- How the changes that the internet-based system needs could be identified, based on its users’ needs and desires, in order to improve its visibility and accessibility in the World Wide Web?
- What are the changes that need to be done on the internet-based system, based on the users’ needs and desires?
- After completing all the changes based on user’s needs and desires, will the internet-based system have an improvement on visibility, accessibility and search results ranking, or the system will be fluctuated at the same level of ranking and visibility?

Regarding the first research question, without doubt, the SSM adoption and implementation contributed maximally in the way on how to identify a formula that, on the one side extracts particular pieces of the holistic problematic situation, and on the other side, helps in a strategic way to determine and implement the changes. In addition, through the perception of the interpretative qualitative research approach, the SSM adoption involved the systematic collaboration amongst stakeholders and facilitator in order to:

- Capturing in an organized way the whole problematic and its parts
- Giving the right to all stakeholders to express their worldviews about the problematic
- Organizing the process of optimization and improvement through the creation of purposeful activity models
- Selecting the changes from the prism of a fruitful argumentation and under an umbrella of debate among stakeholders, which extracts feasible and desirable changes by all
- Implementing the changes based and relied heavily on what supported in the previous chapters.

Hence, the process of collaboration between facilitator and participants with the combination of the SSM adoption and its stages was a fundamental factor for completely collecting rich data, and identifying the changes that will potentially improve the problematic situation.

As regards the second research question, the process of conducting interviews was a solid stepping stone for deeply understanding of which might be the changes that need to be done on the system. The extracted empirical findings of the interview through a thematic analysis perspective, encapsulated a multidimensionality of different needs and desires that could improve the system. These needs involved the establishment of a set of changes for completing basic first steps in order to improve the visibility and the accessibility of the e-Journal and the examination of the design and layout that the system has for improving the navigation user’s experience. In addition the third one axe of the optimization related with the improvement of the text and the content of the e-Journal for satisfying the informational needs both of the current and the potential visitors.

As regards the last question, the whole e-Journal system lastly achieved to improve its visibility, accessibility, ranking in Google Search Engine, and load speed time, in the internet world. The foursome of those benefits achieved to highlight participants contribution in the optimization process, as their suggestions, ideas, and different worldviews brought up the whole improvement. They were the users of the system, they will continue to be the users of it, and thus, they showed the full right to have a say in the whole process of change (Bergvall-Kåreborn et al. 2010).

6.2 Reflections

The whole study followed the strategic path of improving problematic situations based on the SSM strategy which is an action oriented process for dealing with messy situations (Checkland and Poulter, 2010). Indeed, the adoption of such methodology in this study shed the light to organize a fuzzy situation, making it resolvable and tentative by all members. In addition, the adoption of the SSM process, extracted the impression that the whole change, could be acted as a feeling of learning others and learning from others as well. More specifically there were cases that some of participants expressed ideas that some others were completely out of the knowledge of them, creating in this way an accommodated mindset where all the changes are commonly accepted and desirable by all.
In addition, another useful remark of this research related with the challenge to work within the area of research optimization, and trying to have a balance in a fuzzy and complex situation between different perceptions, beliefs, tensions and worldviews that participants expressed. This was a challengeable task, due to the fact that the main purpose for me as a facilitator, was to consciously be objective and to avoid being biased or prefer mostly some ideas and suggestions that participants expressed than others. Subsequently, another one reservation and challengeable task was the arrangement and the scheduling of meeting in order to conduct the interviews and the workshops. However, the communication with all the participants was in the right order and no problems arose on that occasion. In order to deal with that problem we both agree to conduct all the interviews in close days to each other or in one day for some groups in order to avoid potential delays or time changes that will finally cause the delay of the research completion. For example, all the interviews of the managers were conducted at the same day.

Lastly, one of the most demandable tasks was the process of transcribing the Greek language to the English one and organizing in a strategically way the collected data. That process was challengeable due to the fact that it was needed a careful attention on how to transfer in exactly the same way participants’ words and thoughts as well. Indeed, it should be noted that from facilitator’s perspective, the most challenging part and moment of that research process was the analysis and transcription of the gathered data, namely the time after completing the interviews and before the workshops started.

6.3 Future Research

In this research the problematic situation, in which an internet-based system showed low visibility and accessibility in the internet world, was explored in order to be improved. The whole outcome of this research is based on participants’ needs, desires and worldviews that emerged conclusions of feasible and desirable changes which were able to improve the situation. The proposed changes were finally implemented and resulted system’s optimization and its web services visibility and accessibility in search engines and thus in the WWW. However, this fact opens a new research journey for future research that needs to be conducted in order to reevaluate the situation. As the SSM mindset highlights the improvement of a problematic, making it less problematic and not the entire solution of it, a new SSM learning cycle should take place in order to emerge new knowledge, new desires and worldviews that further improve the situation.

From a technical perspective the outcome of that research was the improvement of an internet-based system in its visibility and accessibility in the internet world. That process encapsulated the improvements of the usability, the better design of the system for better navigation and the addition of content for satisfying users’ informational needs. Therefore the system is able to provide a better service environment to its visitors, while at the same time should adopt more and more visitors’ needs, as the desires of them change over time. From
that prism, it is possible to change the environment of the services as well, and hence, that kind of perspective could be conducted through the critical reflection thinking that the SSM adopts its fifth stage.

Closing this scientific effort, in this study, I based on the mindset that each kind of improvement and implementation should be based on a user-centric approach. Indeed, this study followed what the users desire, and not normative predetermined statements that other studies probably come up with on the IS/IT concepts. This assertion allowed me to rely heavily on the humanistic perspective of information and communication technologies. Thus the aim was to taking into serious consideration Bradley’s (2010) aspects for a good ICT society in which technology is made by people, for the people, and not only intended to improve the visibility of a system without providing qualitative information to internet users based on their needs and desires.
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Appendix A.

A1. Interview Guide for the Managers of the e-Journal

Hello dear participant! I would like to inform you that the specific interview contributes to a research study that is performed for a master thesis at the Linnaeus University of Sweden. I would be thankful if you review and sign the informed consent form and agree with the terms before the interview starts. Also, I would like to remind you that your participation is voluntary and you can withdraw at any time you want. If you also agree, I would like to record our discussion.

1) Which is your status, your department inside the Publishing Organization and how long have you been working in this organization?
2) How long have you been involved in this specific e-Journal and in which functionalities are you responsible for?
3) Do you think that the e-Journal in its current form receives the proper reputation and visibility in the world wide web?
4) Do you think that the e-Journal in its current form provides a friendly environment to its visitors in order to navigate on it?
5) Do you think that the e-Journal and its texts and content is able to satisfy visitors informational needs?
6) Please describe any kind of problems you have experienced or any kind of discomfort you may have as an administrator of the e-Journal.
7) Can you share any kind of ideas or proper practices that you think that can improve the current situation of the e-Journal?

A2. Interview Guide for the Authors of the e-Journal
1) How long have you been involved and used this specific e-Journal and which functionalities of it do you use as a visitor and more specifically as an author?
2) Do you think that the e-Journal in its current form receives the proper reputation and visibility in the world wide web?
3) Do you think that the e-Journal in its current form provides a friendly environment to you in order to navigate on it?
4) Do you think that the e-Journal and its texts and content is able to satisfy your informational needs as an author?
5) Please describe any kind of problems you have experienced or any kind of discomfort you may have as a visitor of this specific e-Journal.
6) From visitor’s point of view, can you share any kind of ideas or proper practices that you think that can improve the current situation of the e-Journal?

1) How long have you been involved and used this specific e-Journal and which functionalities of it do you use as a visitor and more specifically as an author?
2) Do you think that the e-Journal in its current form receives the proper reputation and visibility in the world wide web?
3) Do you think that the e-Journal in its current form provides a friendly environment to you in order to navigate on it?
4) Do you think that the e-Journal and its texts and content is able to satisfy your informational needs as a reader?
5) Please describe any kind of problems you have experienced or any kind of discomfort you may have as a visitor of this specific e-Journal.
6) From visitor’s point of view, can you share any kind of ideas or proper practices that you think that can improve the current situation of the e-Journal?

Appendix B.
1. Informed Consent Form In English Language

Title of the Thesis
Improving the Visibility and the Accessibility of Web Services. A User-Centric Approach

Researcher
Ioannis C. Drivas

Purpose of the Research
The purpose of this research is to improve the visibility and the accessibility levels of an internet-based system in the World Wide Web. An exploration takes place about the perceptions of users of an online academic e-Journal and its recognition and reputation in the World Wide Web. Examined in depth, stakeholders’ ideas, namely the Managers, the Authors and the Readers of the e-Journal, an effort is conducted in order to extract ideas and suggestions for the e-Journal optimization regarding the visibility and the accessibility of it in the World Wide Web. All the extracted ideas and suggestions derived accordingly from the participants of this research.
**The Benefits of the Research and the Benefits to the Participants**
The whole research adopts a user-centric approach highlighting in this way users’ perceptions and in order to optimize a system based on their needs. More specifically, this research intends the optimization of the analogous visibility and accessibility levels that the system has, based on the suggestions and ideas of its users. The realization of this scope could be achieved based on the Soft System Methodology which gives, on the one side the ability to record the current situation of the internet-based system, and on the other side the strategic encapsulation of the rectifications and the implementation of them in the internet-based system. Therefore, this research is able to contribute to other practitioners and professionals in order to adopt the recorded practices for improving in a strategically way the visibility and the recognition of other internet-based systems. From Participant’s perspective, this research gives the ability to express her/his aspects and concerns for this specific system in order to record and implement systemically her/his suggestions and ideas on the system itself. This would have as a benefit for the participant to use a system and its functionalities in a flexible way, while the system will be in an easier way visible and accessible in the internet world.

**Participant’s Right on this Research**
The participation for all the participants is absolutely voluntary and they are able to withdraw at any time they want without giving any kind of explanation. The analysis of the collected data after finishing the interview process and the workshops will be available to all participants whenever they ask for it.

**Data and Confidentiality**
All the data will be collected and used solely by the researcher and will not be shared with third parties. All the data will only be used solely for the purpose of this study.

**Informed Consent**
I have read all the above terms and I agree with them.
Yes[ ] No[ ]

I am aware that my participation is voluntary and I am able to withdraw at any time
Yes[ ] No[ ]

I agree to participate in this research and I allow the researcher to use the information that I will provide for the purpose of this study.
Yes[ ] No[ ]

I agree and I allow the researcher to record the interview.
Yes[ ] No[ ]

Date...........................................

Place……………………..

Participant’s Name (only the Name)……………………

The Researcher……………………………………
2. Informed Consent Form in the Greek Language:
Φόρμα Συγκατάθεσης για συμμετοχή σε έρευνα

Τίτλος Έρευνας
Ανάπτυξη της Ορατότητας και της Προσβασιμότητας Διαδικτυακών Υπηρεσιών. Μία Χρηστο-Κεντρική Προσέγγιση

Ερευνητής
Ιωάννης Χ. Δρίβας

Σκοπός της Έρευνας
Σκόπιμος ο στόχος της έρευνας ισοδύναμος με την προσπάθεια αναπτύξεως και επίτευξης μιας συστηματικής βελτιστοποίησης από τους χρήστες. Πιο συγκεκριμένα, η έρευνα αυτή επιδιώκει την ανάλυση και καταγραφή των αναγκών και ανάγκες των χρηστών, με βάση την δομική μορφή του Διαδικτυακού Συστήματος.

Τα οφέλη της Έρευνας και τα Οφέλη προς τον Συμμετέχοντα
Η έρευνα στο σύνολο της αναπτύσσει χρηστο-κεντρική προσέγγιση αναδεικνύοντας τις αντιλήψεις των χρηστών ένα σύστημα διαδραμάτιζε σαρωτικά τις ανάγκες τους.

Δικαιώματα Συμμετεχόντων
Η συμμετοχή σε αυτή την έρευνα είναι εθελοντική και οι συμμετέχοντες μπορούν να αποχωρήσουν στην κατάλληλη στιγμή χωρίς να χρειάζονται να δώσουν κάποια εξήγηση.
εργαστηρίου συζήτησης θα είναι στη διάθεση των συμμετεχόντων εάν και όποτε το ζητήσουν.

Δεδομένα και Εμπιστευτικότητα

Τα δεδομένα που θα συλλεχθούν θα χρησιμοποιηθούν αποκλειστικά και μόνο από τον ερευνητή και δεν πρόκειται να διαμοιρασθούν σε τρίτα πρόσωπα. Όλα τα δεδομένα θα χρησιμοποιηθούν μόνο για τον σκοπό της ερευνητικής διαδικασίας.

Συγκατάθεση:

Έχω διαβάσει τους παραπάνω όρους και συμφωνώ με αυτούς

NAI [ ] OXI [ ]

Γνωρίζω ότι η συμμετοχή μου είναι εθελοντική και μπορώ να αποχωρήσω οποιαδήποτε στιγμή θέλω

NAI [ ] OXI [ ]

Συμφωνώ να συμμετέχω σε αυτή την έρευνα και επιτρέπω να χρησιμοποιηθούν οι πληροφορίες που θα παρέχω για τους σκοπούς της έρευνας αυτής.

NAI [ ] OXI [ ]

Συμφωνώ να ηχογραφηθεί η συνέντευξή μου από τον ερευνητή

NAI [ ] OXI [ ]

Ημερ. Συνέντευξης:........................................

Τόπος Συνέντευξης:.................................

Στοιχεία Συμμετέχοντα (Μόνο το Όνομα):.....................

Ερευνητής:................................................

Υπογραφή Συμμετέχοντα                   Υπογραφή Ερευνητή

.......................................................

.......................................................

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Appendix C. Screen Displays of the e-Journal

C1. The backend Joomla environment of the e-Journal

C2. The backend Joomla environment of the e-Journal and the System’s Information
C3. The frontend environment of the e-Journal, or in simplicity what the users see. This is the initial situation of the System before the changes.

C4. The frontend environment of the e-Journal, or in simplicity what the users see. This is the current one situation after implementing the changes.
C5. Welcome Page, information that the e-Journal provides. This is the initial situation before implementing the changes.

C6. Welcome Page Information that the e-Journal provides. This is the current situation after implementing the changes.
C7. Initial Situation of the e-Journal and the provided information to internet uses as regards the Aims and Scope of it.

C8. The current situation of the e-Journal and the provided information to internet users as regards the Aims and Scope of it.
C9. A case of a submitted Article on the e-Journal before the changes.

How intention to purchase is affected by the use of Comparison Shopping Websites
Theodora Katselis-Renios, Prokopios D. Chatzoglou
Abstract. The internet is becoming the preferred media for most people to find the information they need about their purchases. However, even though search-engines are able to catalogue vast amounts of the data available online, consumers’ searches often lead to results based on website popularity and keyword advertisements. For that reason, search engines giving only information about products and services have allowed, cataloguing from consumer products, hotels, all the things in the town. In fact delivery. These comparison shopping websites provide a unique opportunity between consumers and businesses. This paper explains how comparison shopping websites affect businesses and commerce is general. The proposed conceptual model incorporates various demographic, psychographic and other factors that are found to affect the use of comparison shopping websites, consumer selection checks and their purchase intention. In order to test the validity of the one model, data from 307 participants were collected with results suggesting that the use of product comparison shopping websites is affected mainly by the frequency of internet usage, perceived usefulness and ease of use offered by these websites. Furthermore, comparison shopping websites seem to play an important role in shaping purchase intention.

Additional Info
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Corresponding author: This email address is being protected from spambots. You need JavaScript enabled to view it.
Keywords: comparison shopping websites, purchase intention, B2C marketing
Article Type: Research
DOI: 10.1556/JSME.2013.03.05.32
Read 103 times
Published in: Volume 03 Issue 03 (2016)
Download attachments: 10.1556/JSME.2013.03.05.32.pdf (2.06 MB)

C10. The same submitted Article on the e-Journal after the changes.

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Corresponding author: This email address is being protected from spambots. You need JavaScript enabled to view it.
Keywords: comparison shopping websites, purchase intention, B2C marketing
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Read 103 times
Published in: Volume 03 Issue 03 (2016)
Download attachments: 10.1556/JSME.2013.03.05.32.pdf (2.06 MB)
C11. Set of implementations. Insertion of Sitemap for easier and flexible navigation, button of automated scroll on the top of the system’s interface again, and involvement of social media buttons.

Flexible and Easy navigation via the Sitemap Choices

Button of automated scroll on the top again

Social Media Buttons

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