The University Business Incubator.
Exploring Digital Capabilities while using Information as an Asset.

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Executive Summary

The University of this interest and its library division is involved in a major transformation process, aiming to enhance the learning experience for students by modernizing learning spaces, enhancing the personalized learning, and extending support for faculty and student scholarship. One part of the transformation consist of rearranging the library space and its services and introducing a new media based faculty consisting media related career paths.

During the investigation and analysis of the library, we have looked into a wide range of data including history of the library, strategic plan of the university academic technology blueprint, academic plan, the media program, reports on workshops and meeting held by the authority of library, etc. provided by the university. In order to encapsulate more information and insight, we have conducted a couple of meetings with the head of the library and the head of library IT. By considering the stakeholders’ interests, we examine the status quo and illustrate the situation in form of a Rich Picture. By means of the Soft Systems Methodology we try to identify potential relationships between the new media faculty and the library services and eventually finalized our examination by recommending additional value enhancing services. After rigorous analyzing all of the data, specifically strategic mission of the university and library, and the media program, we recommend to establish a Business Incubator, which will enhance core capabilities of a student including creativity, managerial, and analytical ability as well as provide essential guidance, supports, and tools to students to implement their idea.

The suggested Business Incubator will act as a bridge between academic learning and the real world applications. Finally, we recommend specific services including market research and assistance, access to networking and funding information, center for research and development, and Entrepreneurship and innovating education forum, which will enhance digital capabilities of students/participants and fulfill some of the core strategic objectives of the library and the university as well.

Keywords

Soft Systems Methodology, DIKAR, Balanced Scorecard, Critical Success factors, Infusion/Diffusion Model, Business Incubator, Digital Capability, Library Services
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1 Introduction

This report examines opportunities of improvement and supports the redesigning process of the library of a private university in North America. The aim of the university is to guide students towards successful careers, support them to obtain lasting achievements and to become responsible leaders.

The university offers a wide variety of programs in subjects such as law, business, education, engineering or dentistry. It consists of three locations from which two have on-site libraries and the other is limited to a virtual library.

The new head of the library, and the library staff are situated in an ongoing process of re-designing and re-shaping the organization of the library. The aim is to identify possible IS/IT capabilities and develop a novel vision for the library. This process not only examines library services but also considers a reshaping of the physical library space. These services provide students support for their academic and professional careers and comprise services like Tutoring, centers for teaching, learning, and writing related matters as well as an IT Help Desk. Furthermore, the current field of studies is intended to be complemented with a new interdisciplinary undergraduate programme, which incorporates evolving technologies of the 21st century and therefore holds valuable opportunities to link the library, its services and the programme.

This report and the examination that lies behind it has been conducted by team of four master students in Information Systems with a diverse set of skill sets by means of a different educational background. Our qualifications range from expertise in e-commerce over knowledge in business information systems and management of information systems to practical know-how in a library. Throughout our studies at Linnaeus University we have all gained knowledge in the action-oriented process to improve difficult conditions which is called Soft Systems Methodology.

1.1 Soft Systems Methodology (SSM)

This methodology is going to form the framework for our investigation of improving the structure and processes of the library. The plurality and the multidimensionality of the produced information into daily basis in an organization is a well known fact. In addition, another well known fact is that although the vast amount of information that an organization has in its disposal, it cannot be said with certainty that a problematic situation can be solved. However, setting the base of the pyramid in order to tackle a problematic situation, requires a dynamic representation of the current situation that an organization has, in order to mine and exploit all the available information. Capturing the current situation in order to potentially solve problems, could be achieved through the utility of the Soft Systems Methodology (SSM). The SSM is an overall troubleshooting approach that survived over the years through a soft system thinking holistic mindset rather than a reductionist one in order to handle problems (Jackson, 2000).

The SSM authored by Checkland and Poulter, is an approach to organizational process modeling (Reynolds and Holwell, 2010). According to Checkland and Poulter (2010), SSM arises a duality of benefits. The first one related with the process of creating a “learning your way” through problematic situations to actions to improve as a general framework. The second benefit related with the secureness that this ‘learning on how to act’ is organized and structured via using a source of questions that relied into the real world. In this case, SSM as an interpretivist approach -appropriate for understanding different worldviews of stakeholders- is involved for improving the current situation (Checkland, 1989). The backbone of the SSM as a deep analytical troubleshooter is composed of the ‘Finding Out’ phase which illustrates the initial
problematic situation, the ‘Modeling’ phase for creating purposeful activity models as intellectual devices for tackling the problem, the ‘Usage of Models’ to question the real world situation and lastly the ‘Taking Action’ phase for finally improving the situation.

2 Finding Out Process

At the first stage of SSM, the main goal is to depict the actual situation of the under examined organization in which a variety of possible choices is unfolded as Checkland (1981) pointed out. According to Checkland & Poulter (2010), the enquirers need to know as much as possible for what the situation presents as they initially be outsiders or need to identify a range of entities that related and influence an organization. Following the mindset that a ‘picture worths a thousand of words’, the Rich Picture of the Finding Out phase took place as a commonly accepted method not only by Checkland’s contributions but also from other studies (Somerville and Chatzipanagiotou, 2015; Mirijamdotter and Somerville, 2009).

Rich Pictures are traditionally being used to illustrate in a modeling way the perceived real world situation encapsulating the main actors involved in the situation (Mirijamdotter and Somerville, 2009) or informally capture the main entities, structures and viewpoints, the current issues or the potential one (Checkland and Poulter, 2010). Following these assertions, the authors of this study illustrated the current situation of the library not only for deeply understanding the entities and the interplay among them, but also to make more comprehensible a ‘three stage analysis’ of the Finding Out process which is the Intervention, the Social and the Political analysis as well.

2.1 The Case: A University in the North America

With reference to the case of a North America university, the Rich Picture (see Appendix 1 with a further explanation of the Rich Picture) embraced here in order to focus on the Library which is located on the main Campus of the University. This is due to the fact that the majority of the changes are planned to take place there. Certainly there are also further actors, entities and relationships involved on administrative level and the other locations, however, for the sake of lucidity and to stay within the scope of this examination, this point of focus has been determined.

A pivotal part of the reorganization of the Campus Library is the rearrangement of the physical library space. As it can be seen in the Rich Picture (see Appendix 1) the library should incorporate a space consisting of different elements such as study rooms, labs, offices or a coffee house. The goal is to provide a 24h space for students for socializing, learning and relaxing that blends in old and new books and technology. Besides the student as an active actor in this space, project architects take in an important role too as they redistribute the physical space by trying to ensure an optimal co-location proximity for the services offered by the library.

Services offered by the library are services such as support and training regarding matters of pedagogy, classroom or technology by the supporting centers. They aim to provide support for students in order to ensure successful studies and an ensuing professional career.

Librarians, IT staff and professors as employees within the University can be the actors whose conduct, intervene or are affected by the reorganization of the campus library. As shown in the Rich Picture (see Appendix 1), we have emphasized some of main characters in campus employees, including the head of the library, the head of library IT and other campus colleagues are sub-divided into librarians, IT staff and professors. The relationship among professors and the supporting centers has been
illustrated, here professors learn to use digital pedagogy and digital technology tools to transform curriculum and assignments. Otherwise, during the process, employees play an important role for empowering the support of student learning. A shared vision for the reorganization has been co-created by campus stakeholders, with library director and library IT director leading the direction. They are seeking the collaboration in order to develop IS/IT capabilities with their campus colleagues. The key services of IS/IT capabilities are listed in the Rich Picture (see Appendix 1 with an extended description of the current situation), which enable practitioners to meet their project goals. They furthermore envision a new media programme which comes along with a faculty that is going to be engaged in the design plans of the programme. Besides the new technologies that are to be introduced, the services and new facilities are meant to foster the success of the programme in order to lead students to the graduation so they become influencers and producers of digital content. These new technologies are meant to consist of a digital wall which is capable of displaying study related information’s.

Our particular focus of this investigation is the desired relationship between the new media faculty and the library. The conversations with the head of the library disclosed that the organization has not figured out yet how such a relationship could look like. Therefore, we decided to use this uncertainty to discover and recommend ideas of a possible relationship to them. The following image (Image 1) is an extraction of our Rich Picture and contains the services that are offered by the library, and that are collaborating to support students success. It further contains the new media faculty with its new media programme. The connection between the faculty and the library is marked with a light bulb and three question marks, which indicate the uncertain nature of this relationship and our set of attention to this uncertainty. The image enables a clearer view on the situation we are assessing.


3 Performing the Analysis
3.1 One (The Intervention)

In the effort to deal with a the problematic situation within the library, one important aspect for SSM that Checkland and Poulter (2006) stated, is the multidimensionality of different worldviews of the situation as it contributes drastically to the creation of penetrated activity models. Therefore, it is really important to define the ‘clients’, the ‘practitioners or problem solvers’ and the ‘owners of the issue
addressed’ as the Intervention Analysis of the Finding Out phase recommends. It is noteworthy to refer that one person might be in more than one role of the abovementioned (Checkland and Poulter 2010). The client is represented by one or multiple persons that cause the intervention to take place. With regards to the case, the head of library and the head of library IT take on the role of the client.

As the practitioner or problem solvers we have identified the head of library, the head of library IT, the project architects as well as us four of this group. This group of people conducts the investigation to happen in order to solve the issues. The owner of the issue includes people who are the inheritors of the completed process. They are concerned about the situation and influenced by it. In our case these are the students, the librarians and besides that also other campus staff.

3.2 Two (Social)

In this phase, ‘culture’ of the library will be considered carefully at the level beyond that of individual worldviews. According to the model presented by Checkland and Poulter (2006), three closely related elements are identified that aim for analyzing the ‘culture’, including roles, norms, values. In this phase, we are going to write down our findings throughout the engagement, anything about roles, norms, values which are taken seriously in the case and characterize this situation.

From reading the documents provided by the examined University, we have found that the value of these services in the library is about to support student become graduates and help to improve their skills, knowledge, and expertise. We have also identified that the curriculum of the media programme prepares graduates to become digital content producers and digital culture influencers. Furthermore, the significance of services in the library will appreciably increase when new facilities, designed to support a new degree program. So that, the role of services in the library have few significant impacts to support the programme’s effectiveness and elicit its value while students learning, in other words, the library's services have potential to influence the value created by the programme, and then make impact on students' roles, norms, and values in the future.

3.3 Three (Political)

Organizational politics occurs when many people with different roles and interest work together and express their opinion. Politics and power are interrelated. According to Checkland and Poulter (2006) ‘occupying a particular role embodies power’. Checkland and Poulter (2006) argued that ‘accommodating different interest’ is the most critical part organizational politics, especially regarding changes, encounter. In this case, the authorities of the university have decided to modernize and redesign the library. In this project, different people with different interest - including library colleagues, students, faculty members, project architects, consultancy firms, administration and the governing body. All these stakeholders might have different interests and opinion.

Accommodating all of their interests and opinions to redesign the library in order to create technology enabled and an aesthetically beautiful learning ecosystem might be a challenge. However the good news is that the head of the library, with her colleagues and faculty members, has already successfully conducted several meeting and workshops. An participatory design approach was followed in that workshop, which resulted with some specific suggestions.
3.4 PQR

In Soft System Methodology, the PQR formula refers to - “do P, by Q, in order to help achieve R, where PQR answers the questions: What? How? and Why?” (Checkland and Poulter, 2006). Any purposeful activity can be expressed in the PQR formula. In this case for redesigning the library, the PQR formula was applied to analyze the Rich Picture of the library. This resulted into the plan to create a supporting service for students, by establishing an incubator for improving startup projects of the new media programme students in order to enhance their chance of real-life implementation of ideas and achieve the best possible student support (see Appendix 2).

3.5 CATWOE

The acronym CATWOE stands for Customer, Actor, Transformation, Worldview (or Weltanschauung), Owner, and Environmental Constraints and depicts different characteristics to describe the system of interest and is part of the SSM analysis (Checkland 1999; Checkland, 1989; Checkland and Poulter, 2006; Jackson, 2000). We have conducted the CATWOE analysis for both, the whole organization as well as for our focus, the subsystem consisting of the media faculty and the library services and their mutual relationship (see Appendix 3). Regarding to the focus, we have identified students as the affected party of the system transformation (the customers). The library staff and the professors make the transformation happen through their work (actors) which emerges into an incubator for improving startup projects of media programme students (transformation). The premise is to support creative ideas to evolve into real-life implementation and to build a foundation for a successful career for the students (worldview). The Head of Library, the University Council, the Service Staff and media programme staff have been identified as the owners of the transformation as they can cause the transformation to change or stop, which is additionally limited by environmental constraints such as money, time and skilled staff.

3.6 LUMAS

The SSM methodological approach as an action-oriented process of inquiry into problematic situations of everyday world (Checkland and Poulter, 2010) proceeds into the adoption of another one model that questions the real-world. The LUMAS model, as a generic model that makes sense of any real world application, unfolded in a Learning process for User by a strategic Methodology of an informed framework of Approach in order to deal with a Situation (Checkland, 2011; Checkland and Poulter, 2010). In this case the Users are the students of the media programme, they perceived into a Situation which is the creation of an incubator in order to strengthen their business ideas, via a Methodology in order to produce a specific Approach. In this case, the Methodology which is adopted relied heavily into the construction of a framework which involves a plurality of strategic models that contribute to establish a service that helps Makers, Managers and Analysts students to strengthen their business ideas. The meaning of Approach is related with the improvement of their innovative business ideas, under the umbrella of Learning while students will be fortified with specific knowledge and experience.

3.7 Purposeful Activity Model & Suggestion

In order to ensure that the whole process is set in an organized way, while improving organizational learning culture, a pure and declared worldview should be defined in order to express the current situation and the potential optimization that will
take place. The SSM approach describes this activity as the Root Definition (RD) of the problem, while the metaphoric “root” means that there is only one core way of describing the system (Checkland and Poulter, 2010). In that case, the RD is clearly arose after the sub-processes of PQR (what, how, why), the CATWOE analysis and the LUMAS generic model to question the real world. After the representation of the current situation of the whole organization and its sub-entities via the Rich Picture, the PQR, the CATWOE and the LUMAS of the SSM, our rich Root Definition expressed as: A service as an incubator that connects the potential media programme students with the library services in order to optimize their innovative business ideas while they build and strengthen these ideas with the appropriate knowledge fortified via library information dissemination services. Business incubators are widely believed that they provide a nurturing environment for new business start-ups. The business incubators concept seek to link efficiently talented skills, technology, capital and know-how to leverage entrepreneurial processes, accelerate the development of new companies, and thus speed the commercialization of technology (Sarfraz 1996; Smilor and Gill, 1986).

During the analysis of the Rich Picture and problematic situation, we have given emphasis on the vision and strategies of the University. To become a leading university, preparing graduates for meaningful life and successful career, the university has taken multiple goals and strategies which will be implemented out step by step. Since the case is redesigning the library to create better learning environment, we focus on the new media faculty and its relationship with the library services which will fulfill some of the strategies that will impact the library and learning environment. These goals are: 1. Embrace new technologies and innovative learning models, 2. Attract, retain and support talented teacher-scholars with a passion for humanistic, student-centered learning, 3. Leverage their campuses in the three cities to provide learning and career networking opportunities, 4. Advance the diversity and inclusiveness of the community to enhance the learning environment and 5. Introducing multidisciplinary programmes in healthcare business law and other field.

In order to modernize the learning space and redesign the library the university has taken some specific strategies such as support digital learning space, promote collaborative learning, utilize open educational resources, collect, share and promote student scholarship, etc. The media faculty could be a central point whereas student, researcher and faculty member from multidisciplinary programme can meet and work together. It could play a significant role to materialize these strategies.

Although there is not a potential palpable connection between these two entities, the library and the media faculty, they present a common vision via the services they provide which is divided into two main objectives 1) Supporting students to become graduates, 2) Contribute for improving their skills, knowledge and expertise. The media programme is composed of three main curriculum orientations that students can choose, the Makers orientation related with the skills of production, performance and design, the Managers’ orientation related with the expertise of the creative entrepreneurship, persuasive communication plus social media management, and the Analysts orientation related with the skill in the field of research, analytics and the interpretation of them.

However, even if the three curriculum orientations give the skills and expertise into Makers, Managers and Analysts of the media programme, their potential innovative ideas should be supported with the appropriate information that can be exploited via the library services (see Appendix 1). Hence, it will be very useful for the library to provide services that established the meaning of information as an asset to the programme students improving in this way their decisions under the umbrella of the organizational learning culture environment.
In order to provide a connection between the media programme and library services, it is possible to establish a service that encapsulates the business ideas of Makers, Managers, and Analysts of the programme and then to be reinforced and strengthened by the services of the library in order to be potentially improved with the appropriate knowledge. A service that provides consulting for the innovative ideas of the programme students in order to implement them in the highest level of knowledge and readiness into real world in today’s competitive business environment depicts a duality of core benefits for the library. Firstly, students will be provided with additional consulting on how to implement their ideas by library personnel improving in this way the utility of librarians. Secondly, the library will optimize the value of the current provided services, hence more popularity about its core added value on the whole university and therefore more patrons.

4 Usage of Models

In this problematic case, the SSM and the core stages of it work as a cornerstone for adopting other models for implementing the suggested solution. As it can be seen in the figure of the Rich Picture, there are entities such as librarians and professors who are engaged into the provision of several services and support such as access on tangible collection and e-collections for students’ learning. The supporting centers provide technology support and training, and the library resources consulting and tutoring for students’ curriculum needs, are other additional services. However, in order to build a sustainable IS service that incubates the business ideas of the media programme students, a strategic framework of combined models should be established. In the next chapters the unfolding of models takes place.

4.1 The DIKAR Model

It should be noted that each of the current library services produce multiple data that must be put together in order to gather the appropriate information that reinforced and strengthened the innovative ideas of the media programme students. For the handling of information that is derived from the multiple library services, the DIKAR model (Data, Information, Knowledge, Action, Results) will be adopted. According to Peppard and Ward (2016, p.146) the DIKAR model “is very useful in understanding in a knowledge and information sense how business is actually done”.

In this case the DIKAR model will be adopted to identify how the new one service will potentially be established in order to link together the library services and the media programme as it collects appropriate information and knowledge that can be exploited by Makers, Managers and Analysts for their ideas. In other words, the new one service is responsible for collecting (D)data transforming them into useful (I)information and applicable (K)nowledge, then providing it to students as an (A)ction and finally reinforced and improve their business ideas as a (R)esult. In addition, as any kind of IS/IT service implementation requires a potential evaluation, the RAKID modeling approach will take place. Due to the fact that much of the content that the new media incubator will produce data in order to help Makers, Managers, and Analysts for better decision making processes, it will be very helpful to establish a evaluation process of the provided data and service effectiveness. Therefore reversing the acronym of DIKAR into RAKID an evaluation of the service effectiveness will take place.

In the RAKID direction, a number of fundamental questions are posed (Peppard and Ward, 2016) in order to evaluate service effectiveness. Regarding the desired outcomes and the current results, what actions are needed to improve our service? What additional knowledge do we need to seek in order to achieve these potential actions? Do
we have a sufficient amount of data and information to achieve these actions that improve our service? Are these actions and optimizations based on the needs and the preferences of the students? These are some fundamental queries to evaluate our service based on the RAKID perspective approach. However, although the model depicts organization’s steps outside its day-to-day processes, it cannot explain how to strategically achieve these processes (Peppard and Ward, 2016). Tackling this omission of DIKAR model, the adoption of other two sub-models the Balanced Scorecard and the Critical Success Factors analysis will take place.

4.2 The Balance Scorecard Model

The Balance Scorecard works as a solid stepping stone for identifying the required knowledge to measure performance, related with the business objective, which is the provision of appropriate information services to students for their business ideas. Kaplan and Norton (2001) indicated the examination of organizational performance into four interrelated perspectives. Each one of these perspectives can be adopted into this problematic case which is the lack of connected services among the library and the media programme:

- **The Financial:** How we will keep the budget in balance? The new one service does not presupposes the construction of new IS/IT capabilities or services, hence new additional financial headaches. It depends on the combination of the existing services in order to gather information and thereafter to provide it to students.

- **Internal Business Operations:** How can we satisfy students and what organization processes must we adopt? All the suggested start-up innovative business ideas of students should be supported with the appropriate knowledge for any kind of ideas optimization in order to satisfy students’ needs. Several library sub-services and operations such as library resources, consulting, or tangible and electronic collections are adopted in that service.

- **Customer perspective:** In that case the main “customers” are the students and the main aspect that derives from the benefit of this service is the added value that the services of the library receive. In other words, students will potentially appreciate more the value of the current library services.

- **Innovation and learning perspective:** The crucial key point indicator in that stage of the Balance Scorecard model, is the meaning of evaluation as this service can be characterized as an iterative process of implementation, while students will potentially evaluate the efficiency of the provided information consulting for their ideas.

4.3 The Critical Success Factors Model

If the Balance Scorecard identifies major business information to measure the overall performance of the business goal -in that case the construction of the business incubator-, Critical Success Factors model clarifies what has to be done, or changed, in order to achieve the goal that has been set. Critical Success Factors (CSF) model will be adopted for the strategic implementation planning of this service as a commonly used IS strategic tool (Peppard and Ward, 2016). The CSF model contributes for interpreting clear business objectives in terms of actions and processes required to achieve them. According to Rockart (1979) CSFs are the limited number of areas and services that if they are satisfactory, will ensure successful competitive advantage and performance for the organization. In this case, the major CSF that needs to be satisfactory, is the provision of proper data and information to Makers, Managers and Analysts students for strengthening their business ideas. Contrariwise, if the business incubator will not
provide proper information in quality and quantity to its users, then any kind of potential competitive advantage will be lost in comparison with other universities which had already established these kind of consulting business services into their organizational functions and therefore attract more students.

In addition, the CSF also will define the key information and application which are needed and the stakeholders that will be involved into that service construction, as it will assessing the strengths and weaknesses of the existing systems and services. Moreover, according to Peppard and Ward (2016), the CSF process can assist in prioritizing activities and information requirements at individual executive level. Lastly, CSF model will work individually for each of the stakeholders in order to determine which of the existing services are the most important in order to be adopted by the business incubator in order to provide information to students for strengthening their business ideas.

4.4 The Infusion/Diffusion Model

In the effort to establish an IS service that is based in the tenet of information as an asset provided to students for strengthening their business ideas and projects, it is very useful to understand and reconsider which might be the technological pressures and tensions behind the management of this business incubator service. Library personnel, professors, and other staff of the whole university administration are engaged into several existing services (supporting centers regarding teaching, learning and writing issues, resource consulting, etc.) as each one these services produce daily data and information that must be encapsulated into the existing IS/IT services such as the current working databases of the whole organization. However, a strategically theoretical assumption must be established in order to make more comprehensible which might be the level of infusing and diffusing existing IS/IT services that potentially influence the new IS business incubator service. For understanding IS/IT organizational environment, the adoption of Infusion/Diffusion model takes place.

According to Sullivan (1985), Infusion is related with the degree to which organizations (in that case the university as a whole entity and the other entities: the library & the media faculty) become dependent on IS/IT to perform their core operations and businesses. Diffusion related with the degree on which IS/IT services are distributed throughout the whole organization. In any case, the adoption of this model will give the advantage to the designers in order to deeply understand which IS/IT services pervade the functions of the whole university campus and in what degree they influence the proper construction of the business incubator. The level of high diffusion and low infusion should be adopted giving in this way to stakeholders the ability to satisfy and prioritize their needs and in that case the construction of a service that optimizes the startup projects of the programme students based on the asset of information. However, the understanding regarding the level of infusing/diffusing IS/IT inside an organization can be characterized as a dynamic changeable environment. Due to this fact, the authors need to refer that, the potential combination of processes and services from the other entities of the university opens a new window for understanding the internal organizational environment with high diffusion and high infusion level while arising high levels of complexity and dependency on IS/IT among all the functions of the organization.

4.5 Using the Models to Question the Real Situation

The usage and the combination of these four models DIKAR, Balance Scorecard, Critical Success Factor and Infusion/Diffusion, will lead to an effective
construction of a strategic framework on how to apply a business incubator service for Makers, Managers and Analysts students. However, the adoption of these models needs to be set under a discussion in order to understand if the business incubator construction is both desirable and culturally feasible for this educational organization, the university itself. More specifically, the authors of this study proceeded into the analysis of all the provided data that correlated with the university and its entities (academic blueprints, results of workshops, statistics of services usage, etc.) in order to understand its current situation as regards its facilities and services. The whole analysis depicted that the construction of a business incubator constitutes a point of progress for the university, while same or similar services are missing from the functionalities of the whole organization, in order to strengthen the business ideas of students in order to be implemented into real-world situations.

In addition, the combination of the four aforementioned models takes place in order to make more comprehensible the utility for into the real world, while constructing the business incubator. More specifically the DIKAR model will be adopted for the implementation of data gathering, transforming into information and hence into knowledge, for the provision of right knowledge to students as an action and result of the process. Complementary, the RAKID process will evaluate the effectiveness of this implementation of knowledge sharing. Moreover, the Balance Scorecard model will be adopted in order to deeply understand which information is needed (financial, internal business operations, students perspective, information and learning perspective) for measuring the performance of the business incubator. At the same time, the CSF model, will identify the critical core value of the business incubator, which is the provision of the proper business information in quality and quantity for students and hence, if this factor is at a satisfactory level, then it will provide to the university a competitive advantage against other educational institutions. Lastly, the adoption of Infusion/Diffusion model, will make more comprehensible, which might be the level that the current IS/IT services of the university affect the construction of the business incubator.

5 Taking Action Phase (service recommendations)

In this section the description of the services that the business incubator provides will take place. These services could help Makers, Managers and Analysts students to get through initial obstacles in starting up a business or implementing their ideas and projects in real world situations. However, these services are not only meant to be provided in the physical space, but also be supplemented with digital technologies that hold valuable support and information within for example knowledge and information databases.

5.1 Market Research

If a business idea is to succeed or even survive, it must deal effectively with the forces that influence the industry in which it competes (Peppard and Ward, 2016). So that, this service provide information about current possible competitors. Once students understand how competitors are running their businesses, they can find the gaps, exploit their weaknesses, strengthen themselves, and then possibly be successful. The new service as a business incubator could provide training on market research to all participants. Besides, data and information on market research can be stored and participants should be given access to the research data to derive useful insight.
5.2 Marketing assistance

The service supports with instructions about how to deal with day to day marketing, administrative, and procedural tasks. Those daily tasks keep the company functioning and bond every parts of the organization as a whole. The information and knowledge produced by this service is critical for students to manage a business in the future.

5.3 Access to funding information

Many projects may be just realizable if investments are made. As most of the young students are lacking on capital, they are in need of some sort of borrowed capital. Thus, a service of knowledge that is able to provide useful information and support about how to acquire funding such as bank loans, loan funds or venture capital, is highly valuable for innovative and creative students.

5.4 Access to networking information

Networking with the right people is of major importance when doing business or conducting projects. It can not only open up new opportunities like collaborations, but also gives the student experts with important advices at hand. As both parties can learn from each other networking can lead to a win-win situation. The service can facilitate networking and collaboration possibilities with for example local industries by supplying students with the right information and therefore increasing the chances of success.

5.5 Center for research and development

The Manager pathway examines the intersection among business, creativity, and technology and necessary tools for students to realize their innovative ideas into business. Producer pathway enables students/participants with training and tools to create innovative media content such as documentary film, podcasts, etc. On the other hand, the Analyst pathways provides data analytics tools to analyze current and historical to data to discover business intelligence and insights. This business incubator service could play critical role to make bridge among creative and innovative people, whereas people with same interest can work together. Besides all of the current and historical data will be stored. As a result students and researchers can access to information about current and previous research and development.

5.6 Entrepreneurship and innovating education forum

The forum is a web-based platform maintained by the library. It allows students to spread their ideas about entrepreneurship and innovation by uploading an elevator pitch in the form of a short video speech within 10 minutes. Other people can also participate in the forum, such as successful entrepreneurs, scholars and previous students who made some achievement in the specific field. This suggestion is inspired by TED (Technology, Entertainment, Design) which posts talks online for free distribution, under the slogan "ideas worth spreading". TED hold multiple projects and events with different organizations all over the world such as TEDGlobal, The Open Translation Project, TEDx, and others, in order to facilitate knowledge sharing all around the world.

In this case, the forum is presented in the form of web-based knowledge sharing platform rather than the actual conference. All uploaded videos will be organized regarding different application field (maker, manager, analysts) and easy to be accessed.
by students. The goal of the forum is to stimulate interdisciplinary communication and exchange of ideas freely. Through this process, the information produced by students, can be transformed into knowledge, and then be assimilated by other students again, and subsequently to help them establish a better decision making process.

6 Conclusions and Expected Outcomes

As suggested above, the under examined North America university of interest has enormous potential and opportunities to improve the overall performance and redefine the processes of the library. The recommended services serve as a bridge between the media programme and library services, which enable the programme to be reinforced by the library services, and students ideas and projects to be supported by our recommended services with the appropriate knowledge. The possible benefit of our recommendation also contributes to develop IS/IT capabilities for the university. In this study, the authors proceed into the strategically recommendation for constructing a business incubator service via the SSM methodological approach. The Rich Picture illustrated the operationalization of the whole organization, however, the richness of the Rich Picture, it could be richer (Checkland and Poulter, 2010) while the whole university as an organization and its operations has a dynamic changeable character that potentially creates new entities, functionalities, and therefore opportunities.

These recommendations will enhance digital capabilities through enabling participants to conduct market research, collect and analysis current and historical data to discover business intelligence, enhance capability and creativity to develop innovative content. According to Peppard and Ward (2016, p.469), the meaning of digital capability is the “ability to use IS/IT effectively and advantageously” for completing daily tasks and activities. In this case, the authors of this study, recommended an incubator service which, from the one hand improves and strengthens the business ideas of the media programme students in order to be implemented into the real world. From the other hand, it fortifies the students with a digital capability in which each individual student should work, gather data, transform into knowledge, learn new skills and procedures for the best possible decision making process, while based on the meaning of information as an asset to their potential business idea implementation. Based on the theoretical aspect of Orlikowski (1992), which refers that technology is shaped by people and shapes people’s daily tasks and activities, the digital capability which is offered to the media programme students would change radically the way they influence and get influenced by technological capabilities in order to improve their business ideas and projects.

Furthermore, the authors proceeded into the recommendation for constructing a business incubator service for the media programme students based on the informed learning approach. Informed learning focuses on people’s experience of using information to learn in different contexts (Somerville, 2015) based on their needs. More specifically, informed learning related with the effort to change learners experiences in order to become reflective learners, helping them establishing more complex environments of working with information (Somerville, 2015; Bruce and Hughes, 2010). Based on the informed organizational learning principles, it is very useful to state that informed learning promotes a sustainable contemporaneous learning of a specific knowledge while using information as an asset in order to professionally learn. In this case, the business incubator service provided a plurality of several recommended sub-services which all based on the meaning of information in order to improve in an optimal way students’ decision making process.

Concluding this study it is very useful to refer that the main idea behind recommendation of the business incubator service construction and its sub-services is to
bring the dynamic utility of library into the media programme students. The bidirectional relationship between the media programme students and library services arises a duality of core benefits for the two entities, the benefits for the students while using library services and the benefits from the library services through students. Regarding the benefits for the students while using library services that encapsulated and adopted into the business incubator service, it is expected that the students will improve their creativity process while receiving a plurality of new digital capabilities. Collaboratively working with the appropriate information of how to implement into the real world innovative startup projects and ideas, can achieve practical experience and impact to the study environment for future generations of students under the umbrella of information sharing among them. Lastly, it is very useful to refer that, regarding the benefits from the library services through students, the library staff will optimize and improve all the values of the current provided services, while at the same time, the dependence of students to library services will be augmented.
References


Appendix

6.1 Appendix 1. Rich Picture

The Rich Picture displays a comprehensive representation of the university and goes into detail for the relevant elements such as the library itself, actors in the organization and the new media faculty.

The main element of interest is contained in the big main box Campus A which contains most of the elements of this Rich Picture. Campus A is a facility of the university while the university consists of two further mentionable campuses Campus B and Campus C. As they do not depict the focus of this investigation no further details are given.

The heart of Campus A is the physical library space which is part of the Campus library. The space is 24 hours a day opened and contains beside books different facilities such as study rooms, a media lab or a coffee house. The aim is to create a space that blends in technology with old and new books. The main beneficiary of the library is going to be the student that uses the library for not only studying but also as a space for socialization. A further user group is going to be staff that provides a wide variety of services. They are located in offices in the library space. The university instructed project architects to find an optimal co-location proximity of the different services in the physical library space and redistribute the space accordingly.

The services, which are displayed on the right hand side of the Rich Picture, contain of a center for teaching and learning related matters. They provide support for example regarding pedagogy or technology related questions. The services are supplemented by the writing service and a variety of other services such as tutoring or an IT-Help Desk. All these services work together in order to support the students success.

Above the services, employees of the university can be identified. They consist of the Head of Library, Head of Library IT and other campus colleagues that collaborate in order to develop new IS/IT capabilities such as new technical services. Their aim is to create a positive return on investment by for example increasing the organization's efficiency or by saving time of students. The other campus colleagues are separated by librarians which interact with the students to empower the support of student learning and by professors, which learn how to use technologies for a new media based faculty.

This new media faculty offers a new study programme. One main element of the media programme is a digital wall that can be used to display student scholarship work from one of their different career paths. The aim of this programme is to support students towards their successful graduation.

Furthermore, a desired relationship between the new media faculty and the campus library is mentioned. As the responsible employees for the library transformation were not certain how this relationship might look like, our focal point is to identify a possible relation between those two. It is represented by a light bulb in the Rich Picture.
6.2 Appendix 3. PQR Analysis

<table>
<thead>
<tr>
<th>Whole Organization</th>
<th>Create a link between the media faculty and Library Services</th>
</tr>
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<tbody>
<tr>
<td><strong>P</strong> (What to do?)</td>
<td>Reorganize the library organization</td>
</tr>
<tr>
<td><strong>Q</strong> (How to do it?)</td>
<td>Evaluating existing and potentially new structures</td>
</tr>
<tr>
<td><strong>R</strong> (Why to do it?)</td>
<td>To improve the education of students</td>
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6.3 Appendix 4. CATWOE Analysis

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<td><strong>Customer</strong></td>
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<td>students</td>
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<tr>
<td><strong>Actors</strong></td>
<td>University staff</td>
<td>Library Staff, Professors</td>
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<td><strong>Transformation Process</strong></td>
<td>Reorganize the library organization</td>
<td>An incubator for improving startup projects of media programme students</td>
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<tr>
<td><strong>Weltanschauung (world view)</strong></td>
<td>Building a foundation for a successful career</td>
<td>Supporting creative ideas into real-life implementation</td>
</tr>
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<td>Head of Library</td>
<td>Head of Library</td>
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<td><strong>Environmental Constraints</strong></td>
<td>Money, Time, Space</td>
<td>Money, Time, Skilled staff</td>
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### 6.4 Appendix 5. Contributions

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<th>Ioannis</th>
<th>SSM, Finding Out Process, Analysis One, LUMAS, Purposeful Activity Model, Usage of Models, DIKAR, BSC, CSF, Infusion/Diffusion, Conclusions and expected outcomes</th>
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<td>Jinto</td>
<td>Executive Summary, Analysis Three, PQR, Purposeful Activity Model, Market Research, Center for research and development, Conclusion</td>
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<tr>
<td>Julian</td>
<td>Executive Summary, Introduction, The Case, Analysis One, PQR, CATWOE, Access to funding information, Access to networking information</td>
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<tr>
<td>Shen</td>
<td>The Case, Analysis Two, Taking Action Phase, Market Research, Marketing assistance, Entrepreneurship and innovating education forum, Conclusions and expected outcomes</td>
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