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eBusiness Lab

- A Living Lab environment for educational and R&D purposes -

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Abstract

In this article an eBusiness Lab of Arcada Polytechnic in Helsinki Finland is presented and discussed. The purpose of the article is to discuss the development, the conceptual approach and the practical use of the eBusiness Lab. We first give a background to what the eBusiness Lab is and why it was developed. The eBusiness Lab is based on the core competences of the Business Administration programme at Arcada. The core competence areas are logistics, accounting and marketing. The framework within which we started to plan this laboratory is our distribution approach that is presented in the article. The eBusiness Lab is then discussed from two main perspectives. First the perspective of how the lab is integrated in the education in our business administration programme. Second from the perspective of how the eBusiness Lab is integrated in the research and development work at ARBIT, "Applied Research in Business and IT". Finally in the article we propose some tentative ideas of how the eBusiness Lab could be developed in the future.

Keywords: eBusiness Lab, eInnovation, Living Lab

1 Background

The eBusiness Lab was started in 2005 by researchers within the ARBIT ("Applied Research in Business and IT") research community at Arcada Polytechnic in Helsinki, Finland. ARBIT is tightly connected to the degree programme in Business Administration at Arcada. The main idea with the eBusiness Lab (eBL) was to create an innovative living lab environment where researchers, teachers, students, company representatives and potential customers can together develop, test and commercialize products and services. An important aim was to set the focus on value creation in business rather than focusing on the IT technology. An important aspect of our eBL is related to our location, i.e. our

campus is located in the Helsinki Living Lab area where our eBL will be part of active research and development work. An important element in the Helsinki Living Lab approach is to mobilise users to take part in the R&D work of new innovative solutions. Within the Helsinki Living Lab area there is now 13 000 students, 5000 inhabitants and 250 companies, i.e. there are good opportunities to mobilize persons from these groups to test and develop new prototypes in the eBL.

2 Combining our core competence in business with IT platforms

In the degree programme of Business Administration we focus on three main subjects, i.e. logistics, accounting and marketing. These three form the substance of the core competence and represent the areas that the students can choose as their main subject to study. The main idea of integrating the eBL in our education therefore clearly affected our planning of which type of software platforms should be used. Apart from this core competence we have during a decade developed high knowledge and skills in IT applications at the degree programme in Business Administration. This knowledge and skills was a prerequisite to even start thinking of starting our own eBL. This is because without good in-house capabilities in IT applications we would not have managed to choose the appropriate software and to start and use them in education as well as in research and development work.

From a structural perspective we started to plan the lab related to a business context. The business context was divided in two parts, i.e. the back office and the front office. The *back office* includes a company's logistical processes. The logistical processes can for example be purchasing, warehousing, transportation etc. These logistical processes are vital when developing different distribution strategies for a company. The *front office* includes a company's marketing processes, e.g. sales, product and service assortment, communication, payments and invoicing etc. Overlapping both the back and front office we have the accounting processes that can for example be registration of sales (revenue), purchasing (costs), warehouse activities, financial reporting etc.. Thus we needed software platforms that could be used to develop and test innovative ways of distributing products and services that would include our competence areas, i.e. the processes of logistics, marketing and accounting. For the back office we saw that an ERP system could manage the logistics, the accounting and even in a business to business context the marketing processes. Although the ERP systems manage all three areas we wanted to include in the lab a software platform that enables us to create real e-shops. The e-shop tool is central for developing innovative marketing processes in the lab.

With this background work we started to study different ERP and e-shop software platforms that would suit our aims. We originally saw that our lab would mainly contribute to the business development of small and medium sized companies and therefore this had to be taken into account when selecting the software platform. However, lately we have also seen the potential of working with larger companies in for example building up their e-shop. Another important aspect affecting the choice of platform was the focus on business development and not technological

development. Thus we needed platforms that were standardized software, already used in business and user friendly. After discussing with different software suppliers we selected Microsoft’s Navision ERP system and ePages e-shop system.

3 A distribution approach

Our core competence areas of logistics, accounting and marketing are central elements of a distribution approach. A driver for new value creating distribution solutions is the digitalization era we live in today. We have structured our distribution approach in three types of flows, i.e. the product or service flow, the information flow and the capital flow. In figure 1 we combine all three flows.

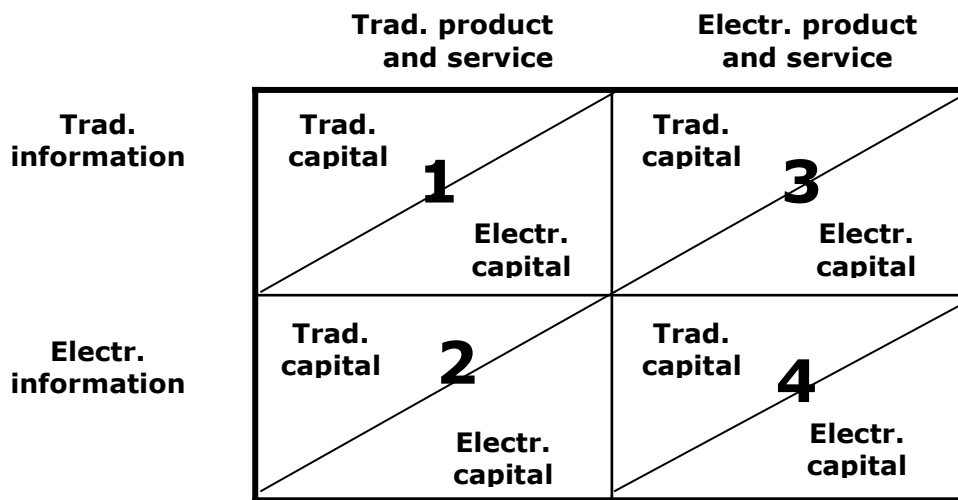


Figure 1: The distribution approach used in the eBL

All three flows are divided in a traditional and an electronic type of flow. *First*, when the product or service flow is traditional it means that the product is physical, i.e. it has to be physically distributed (warehousing and transportation) to the customer, e.g. groceries and textiles. If it is a service then the traditional distribution refers to the situation where some person is “manually” servicing somebody or something, for example construction, car or physiotherapy services. Whereas if the product or service is electronic then the distribution of it can be managed by IT solutions. *Second*, if the information flow is traditional then the information is shared through face-to-face communication. Whereas if the information flow is electronic then the information can be shared with IT solutions. *Third*, if the capital flow is traditional then the products or services are paid for with physical money. Whereas if the capital flow is electronic then the customer pays for the products or services purchased by using electronic payment.

In the matrix in figure 1 four boxes are created which illustrate four different distribution situations. We have also divided each box in two alternative types of capital flow, i.e. traditional and electronic capital flow. This gives us all together eight different distribution situations. However, in this article we will mainly

focus on the four situations created when the flow of product or service is combined with the flow of information whereas the capital flow will be left at less attention.

The *first distribution situation* appear (box 1/upper left corner) when a product or service is physical and the information between individuals, for example a seller and a customer, is shared in face-to-face communication. This has been the most common way of trade for centuries. However, the digitalisation has enabled individuals through solutions in both data communication and telecommunication to share information in a digitalized form. This brings us to the *second distribution situation* (box 2/lower left corner) where the product/service is still physical but the information is managed through IT solutions. This situation can for example be when a customer buys an Ipod in an e-shop on the internet, i.e. the customer enters the e-shop where she orders and pays the Ipod but the physical character of an Ipod require it to be sent by traditional mail to the customer's home address. In the *third distribution situation* (box 3/upper right corner) the product or service is electronic, i.e. digitalized. This enables the seller to distribute the product/service by using IT solutions. However, in situation three the customer prefer to have face-to-face communication with the seller. This could for example be the case concerning private banking services, i.e. a customer wants to meet face-to-face an investment expert before deciding on what shares to buy. The communication is here traditional face-to-face but the product shares in a company is electronic. The *fourth distribution situation* (box 4/lower right corner) is the situation where both the product/service and the information flow is electronic. This situation can for example appear when a customer buys music on internet. If the customer prefer to by music in this way then the customer visits a music e-shop, selects, pays and downloads the music on the customer's own computer.

These four different distribution solutions have been guiding our thinking when the eBL has been planned and started. We see this matrix as central for understanding the different situations and challenges that occur in distribution relating to our competence areas of logistics, accounting and marketing. As mentioned above the discussion concerning payment method is not here discussed.

Apart from the static view on distribution presented above we think that a dynamic view is required. With a dynamic view we are able to focus on change in product/service and information flow. When it comes to value creating innovations that we aim at creating in the eBL it is especially interesting and important to focus on changes from traditional to electronic flow. This mean that we should focus at products/services that move from traditional to electronic form, like for example music, film, photo and tickets has already done. These products in new digitalized form can logistically be distributed much more efficiently and the warehousing capacity for these products are more or less unlimited. A central challenge for us in the eBL is to try and anticipate, identify and/or create new digitalized products or services that could be commercialized.

4 The integration of the eBusiness Lab in education

As presented above the core competence areas are the backbone of the degree programme in Business Administration. The back and front office structure with its corresponding software platforms in the eBL enables us to integrate education in all three substance areas, i.e. logistics, accounting and marketing, to work within the laboratory. This is vital for continuous knowledge development within our core competence areas both in respect to students as well as to teachers. In practise this mean that we are at present planning and implementing the use of the different software platforms in our courses in logistics, accounting and marketing. We have two ways of integrating activities in the eBL environment in our education. First, we include the software platforms in our courses by educating our students to use the software, for example using the ERP software is taught in a logistics course and the e-shop software is taught in a marketing course. Second, we mobilise students to perform projects in so called project courses. The first type of basic education in the software is important so that we in the project courses can directly focus on the r&d work to be done in the project. The project courses are put up with a clear aim, for example developing a new e-shop for a company. In this type of project we work in close cooperation with companies to develop the new e-shop application. The project course can also be initiated by a business idea that is either created by researchers within ARBIT or by students or both together. Apart from courses we can engage students in work within the eBL through work-practise which mean that they can work with longer projects and be credited work experience from their work in the eBL. Finally, every student is required to produce a thesis. This thesis can be based on r&d work made in the eBL. In figure 2 the integration of the eBusiness Lab in our business education is presented.

The business education

Logistics

How can eBusiness Lab be part of our education?

Courses: Education and projects

Accounting

Work practise: As assistants in r&d projects

Marketing

Thesis: The student makes the thesis as project work in the lab

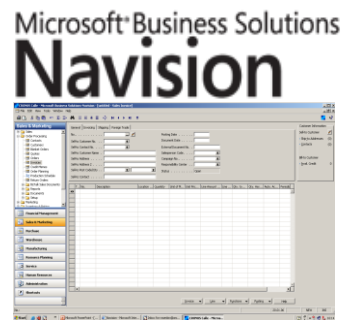


Figure 2: The integration of the eBusiness Lab in education

5 The integration of the eBusiness Lab in R&D work

The R&D work in the eBL is based on a circular process model (see figure 4). The main aim with this model is to create possibilities to develop the same application further based on research, i.e. analysis, testing and simulation, after it has been taken in commercial use. This enables us to create long-term innovative and value creating applications. The central concept in the model is innovation. We have defined innovation for our purposes to be a process of Idea – Application – Value. Although Idea comes first we think that the Value element has to be in focus right from the start. The focus on how the application can create value for the customer is critical when it comes to commercializing the application. By value we understand; Value = Benefit – Cost. In figure 3 we illustrate our customer and behaviour based approach (right side) in opposite to the traditional product and technology based approach (left side).

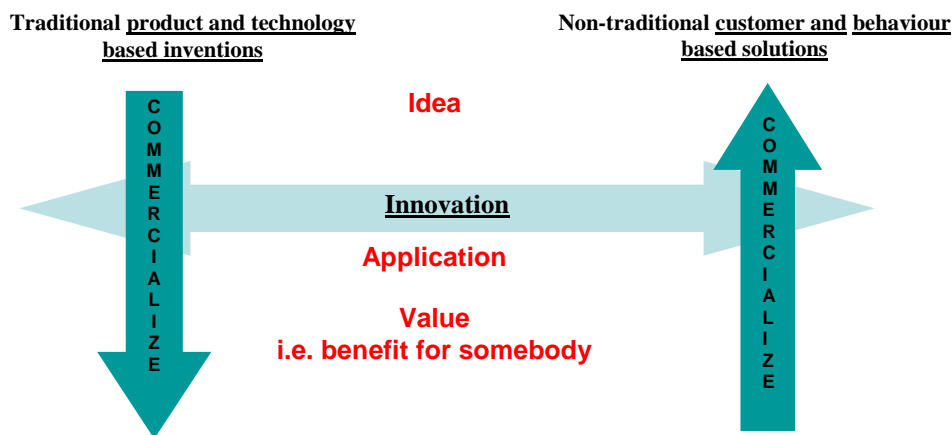


Figure 3: The innovation model

We see that understanding the behaviour of the customer is an important starting point for value creation. The main aspect in a customer's behaviour is the activities that the customer performs. These activities can be developed so that value is created. The value that is created can be of economical, technical, service or social character. Economical value is for example lower price, better price/quality, image value, cost efficiency (saving time), investment value etc.. The technical value can be functionality, features, efficiency, development, reference value etc.. The service value created can be support, knowledge/learning, flexibility etc. The social value can be e.g. trust, support, image, appreciation, fun etc.. The key is therefore to identify the type of value that can be created with each new product or service.

As mentioned above the integration of eBL in research and development work is a circular process. In figure 4 the r&d process model of the eBL is presented. In the first phase (right side) the innovation process, i.e. Idea-Application-Value, is started. If we work with a company in the eBL our project group consisting of project manager (ARBIT researcher) and students meet several times with the

company representatives to set the aim with the project, for example planning, testing and developing an e-shop for the company. Apart from creating the e-shop the students test the e-shop with potential users, i.e. customers of the company to get feedback on how the e-shop could be further developed. Based on the feedback, that can be collected by either a survey, personal interviews, focus group interviews or by an observation method, the e-shop is then developed further. This important testing and development phase is the main idea in the living lab approach where the real users will take part in the service development, i.e. in the e-shop concept development, before it is launched. This is a critical element in the project because this enables us to understand what creates value for the user and what does not create any value. It furthermore increases the probability that the e-shop design and usage is as ready as possible before it is launched, i.e. the launching risks are decreased and the probability of customers really starting to use the service is increased. In addition to the testing of the created e-shop the important aspects of logistics and marketing is studied in the project. The students are mobilised to study how the logistics of the company's products or services should be managed so that value is created, i.e. the distribution is cost efficient, time efficient and convenient both for the customer and the supplying company.



Figure 4: The integration of the eBusiness Lab in research and development

When the project has reached the phase of testing and further development the first version is ready for possible spin off, i.e. the e-shop is taken into commercial use. When the e-shop is launched in commercial use ARBIT can continue the project by monitoring and studying the actual usage of the e-shop. For this we have started a cooperation with a Finnish software company Snoobi that offers an internet tracking system that can follow the user traffic to and in the e-shop. Apart from Snoobi we also use Google Analytics free software for the data collection. Based on this data we hope to be able to create relevant data analysis methods that

would increase our understanding of how the user behaves in relation to the e-shop. This analysis enable us to further develop the e-shop, its marketing and logistics so that more value is created.

6 The future development of the eBusiness Lab

As presented in this article the eBusiness Lab is in its starting phase and we see that we can in the future include other software platforms that are relevant and critical for innovative research and development work in the coming even more digitalized world.

A clear need that we have identified during our first year of operation is that the eBL needs a state-of-the-art and flexible content management system. With a CMS system we are able to create the whole environment for a new internet based business concept. This CMS environment can then be linked to our e-shop and/or ERP system. One problem with the e-shop system is that it is very product oriented, i.e. it is difficult to create an environment to sell services with this type of system. The CMS system could be more flexible in this respect. When it comes to service development many service contexts include the process of reserving time (e.g. massage, squash game, hairdresser, dentist etc.) therefore a flexible time reservation tool could be beneficial to include in the eBL:s “tool box”.

The media sector is also an area where we could develop internet based solutions from a user perspective. The distribution of media content is radically changing and at our polytechnic both within the business administration programme but especially within the media programme the mobile solutions using 3G and DVB-H (mobile TV) networks have already been tested in the autumn of 2006.

Finally we see that a crucial area, for creating innovative and commercial new e-business concepts, is for us to conduct research and increase our understanding of different earning logics used in internet business today. Based on this we hope to create beneficial earning logics for the innovations developed in the eBusiness Lab.