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A description of an e-Commerce Lab in Finland

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Abstract

International online retail stores are increasingly challenging Finnish retailers. In order to strengthen the Finnish e-retailing competence and to educate the retailers of tomorrow an e-Commerce Lab was created. The Lab is the first of its kind in Finland and it is built around a concept that *we call "reality-based simulation before a live audience". This paper describes the e-Commerce Lab, shows the simulated business processes and provides lessons learned on what is gained by setting up an e-Commerce Lab together with different stakeholders of e-Commerce in Finland. We also propose some initial thoughts on how to further develop the Lab.*

Keywords: e-Commerce, Lab, simulation

1 Introduction

In recent years the development of e-business has been rapid and B2C e-commerce is expected to reach nearly a 450 billion market in 2015 on a global level (Laudon et al., 2012). During year 2012 Finnish consumers spent 9.65 billion euros in e-commerce. In 2013 (H1) this continued to grow, with 5,9% compared to 2012. Internet buyers will continue to grow and 75 percent of active-aged Finns have already made purchases online ([1] TNS, 2013). All consumers are increasingly searching cross-border to meet their needs (Google, OC&C Analysis, 2012). One third of searches in UK based web-shops stem from international searches and

17% of sales come from abroad. In 2011 approximately 40% of Finns purchased from UK e-retailers and this figure is likely to continue growing in the coming years. According to TNS ([2] 2013) the foreign e-commerce accounted for 15% of the total net sales and compared to the previous year the growth was 16%. However, according to figures from Google, the share of foreign trade is said to be even more significant ([1] Helsingin Sanomat, 2013).

The fact that both service and retail trade growth is driven by foreign e-commerce is a concern for the Finnish national economy. The traditional model, in which a company consolidates a position in the domestic market and then moves towards the rest of the world, is dead in the water. International competition has become a real threat to e-business in Finland, which again places high demands on Finnish retailers. (Deloitte, 2009). As the Internet presents new opportunities to create customer value, it has at the same time intensified competition.

The previously mentioned figures were one of the driving factors for the Finnish Commerce Federation (hereafter FCF) to start arranging a national e-commerce seminar twice a year. The seminar consists of five different modules, all tailored to systematically discuss critical areas in the value-chain. Contributors in the seminar are well-known Finnish and international companies such as Descom, Google, Itella, Klikki, Maksuturva, NearMe, ProCountor, Sanoma Digital, Smilehouse, TNS Gallup and Vilkas. (Kaupan Liitto, 2013). The long-term objective is to get more entrepreneurs into e-business and to see the possibilities with internationalization. According to a research by Digile (2013) there is a clear concern about the level of digitalization in Finnish businesses. Consumers again belong, according to many factors, to the top three among consumers in the world.

Vilkas (Korkiakoski, 2013) recently conducted a study where 2300 Finnish webshops were examined and six years of data (2008-2013) analyzed. This study showed that only 2,35% of a total of one million transactions came from abroad in Finnish web-stores. It is fair to conclude that Finnish e-retailers have failed to succeed in international trade and in marketing their webshops for a broader public. This is confirmed by Google's country manager Anni Ronkainen who thinks Finnish companies have made it very easy for foreign e-businesses to conquer the Finnish market. ([2] Helsingin Sanomat, 2013).

Based on the discussion above it seems obvious that there is a great need to educate and support Finnish e-retailers to lower the thresholds for opening web shops and to strengthen the e-retailing competence among them. Therefore, Arcada University of Applied Sciences, Maksuturva Oy, Itella and the FCF joined forces to create an e-Commerce Lab that will support the e-retailers of tomorrow in Finland. The e-Commerce Lab is first of its kind in Finland.

The aim of this paper is to describe the e-Commerce Lab, show the simulation process and provide lessons learned on what is gained by setting up an e-Commerce Lab together with different stakeholders.

2 Business process simulation and labs

Simulation is according to Britannica (2013) a research or teaching technique that reproduces actual events and processes under test conditions in industry, science, and education. Robinson (2003) again defines it as - an imitation of a system. Another approach to developing and using a simulation model would be the use of a real system for experimentation (Robinson, 2003).

The use of a simulation has some advantages to using a real system, for example cost, time and the control of the experimental condition. With a simulation model the conditions under which the experiment is performed can be repeated many times. Simulation is however not suitable for every situation, but Banks et al (1996) suggest that business process reengineering and management is one area that can be modelled with simulation.

It is possible to distinguish between three different types of labs; a demo lab, a simulation lab and a Living Lab. In short, the difference is the following: In a demo lab, we interact with reality and we demonstrate the possibility or necessity of a particular process. In a simulation lab, we just pretend we have interaction with reality because the simulator is designed so that it gives the predicted response to everything we do. Simulation laboratories are environments that, in a sense, have been built on the demo lab, but made, but made it an instrument for secondary production of knowledge or learning. By the use of a simulation, known processes for studying a secondary phenomenon, which depends on the simulation, are studied. The simulation lab is therefore a step in the direction of the Living Lab method. The interaction in a Living Lab is in the reverse direction compared to the demo lab and simulation lab. In a Living Lab it is the outside world that interacts with us researchers. (Lundsten, 2013)

3 The e-commerce lab – reality based simulation

In December 2012 a research group called ARBIT (Applied Research in Business and IT) at Arcada started a one-year long joint-project with Itella, Maksuturva, the Finnish Commerce Federation (Kaupan Liitto) and Vilkas Group. The aim of the project was to create an e-Commerce Lab for a national e-Commerce-seminar held by the Finnish Commerce Federation. The project was to include participation in two different e-commerce seminars, the first in March 2013 and the second in October the same year. The main objective was to demonstrate different processes both from a back-end and front-end perspective. Hence, a complete web-shop environment published under a public domain address was built-up. Additionally, different live systems with delivery, payment and web-analytics features were connected to the back-end of the web-shop. These live systems included possibilities to execute real monetary transactions and product deliveries. Hence, the e-Commerce Lab uses what we call *reality-based simulation before a live audience*, i.e. it is a hybrid version of business process simulation and lab demonstration.

The management team consisted of representatives from Itella, Maksuturva, Vilkas, FCF and Arcada. For the operative development of the web-shop and the preparation of simulating different processes within the store, three international business students were recruited to the team. These students had previously taken part in an e-Business and digital marketing course and they had the prerequisites and knowledge for a real case project.

For the purpose of the simulation a web-shop called Arc Store (inspired from Arcada), which sells Arcada-branded merchandise, was developed. A natural choice for building the web-shop front-end was E-pages[1], a platform the students had been using in an e-business course at Arcada. The student team was responsible for the whole life-cycle of the web-shop development. This included e.g. layout development, photographing products, implementing payment systems, integrating delivery options and making sure all legal aspects were according to Finnish law.

For the e-Commerce seminar the students carefully planned and prepared a reality based simulation of the order process, i.e. a detailed go-through of the consumers´ buying process. In addition, all back-end processes for the retailer were planned in detail. All processes were finally tested and fine-tuned for the simulation. This included real money transactions through PSP Maksuturva[2], order confirmations, delivery and tracking of products via Itella Smart Post[3] and the whole return-logistics process including handling product returns and reimbursing money to the consumer. The process scheme was then fine-tuned for the simulation at the e-Commerce seminar.

In addition, an e-Commerce Lab room (see figure 1), which included an office for the Arc Store retailer and a living room for the consumer, was built for the seminar. This was a separate room especially built for the simulation of different front-end and back-end processes. Two big tv-screens were set up; one where the audience was able to follow all processes from the retailer´s perspective and one from the consumer´s perspective. Hence, the participants were able to see what happens "behind the scenes" when a retailer receives an order. A corner in the room acted as the warehouse with boxes, products, address labels etc. needed to send the order.

1 ePages is a leading provider of eShop software in the cloud. More than 80,000 small and medium-sized enterprises worldwide use ePages to run their online shops and business websites. (E-pages, 2014)

2 Suomen Maksuturva Oy (Payment Trust Finland Ltd) provides Intelligent Online Payment Services consisting of a comprehensive set of high quality payment service features in the Finnish market. (Maksuturva, 2014)

3 The SmartPOST parcel point is a new, simple way of sending and receiving parcels. The total number of parcel points in Finland is over 300. There are four locker sizes available: S, M, L and XL and consumers receive a text message notification with a locker opening code when the parcel arrives at the parcel point of their choice.

Figure 1. The e-Commerce Lab room built up for the reality based simulation

A 60 minute simulation of key processes, which included what the retailer needs to do when receiving an order, was presented. All main steps presented during the simulation can be seen in figure 2 – The order process – retailer perspective. The buying process seen from the consumer's perspective can be seen in figure 3 – the order process – consumer perspective. During the e-Commerce lab simulation all processes were presented simultaneously, however, figures 2 and 3 below present them separately for clarity.

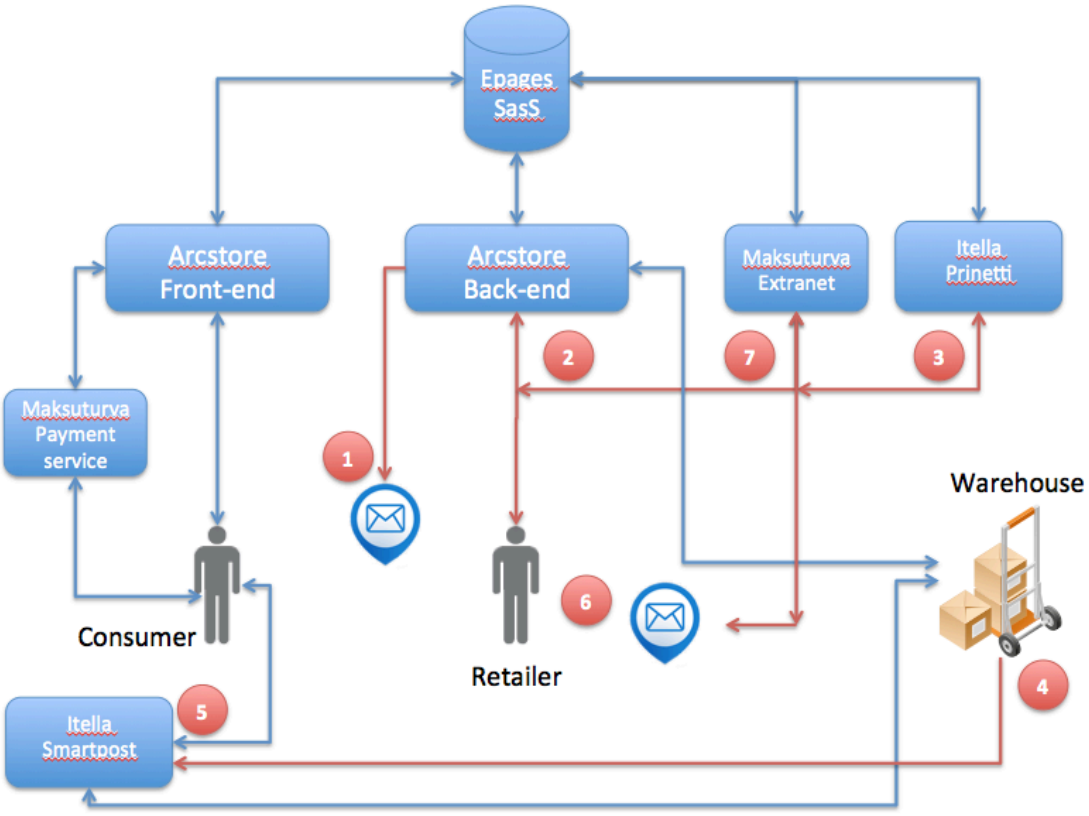

Figure 2. Order process - retailer perspective

1. The retailer receives an order notification from the e-pages back-end
2. Retailer logs into the back-end of the e-pages and processes the order. Maksuturva extranet connected to the e-pages SasS informs the retailer that the order has been paid. Maksuturva will keep the money for 14 days (inspection period) before the money is transferred to the retailer.
3. The retailer uses Itella Prinetti service that has been integrated into the e-pages back-end. Prinetti is an address label printing software for Itella's domestic and international deliveries. This makes delivery handling, tracking and delivery data management quick and easy through one single application.
4. After printing address labels the retailer packs the merchandise, which is picked up by Itella at 17.00 (depending on contract details).
5. The parcel is sent to Itella SmartPost according to the consumer´s premises. The retailer puts Maksuturva´s form for returning goods in the parcel. The form includes information about the satisfaction guarantee offered by Maksuturva.
6. In a case where the consumer wishes to return all or some of the goods or make other changes to the order the retailer receives an email notification.
7. The retailer can then log in to the Maksuturva extranet from the notification e-mail and see why the consumer wants to return the products. No action is required from the retailer, if all products are returned all money will be transferred back to the consumer from Maksuturva´s service. In case of a partial return, some of the order amount is returned to the consumer and some transferred to the retailer. The retailer is by law obliged to pay for the delivery costs when a consumer wants to return some items. This must be done within 14 days.

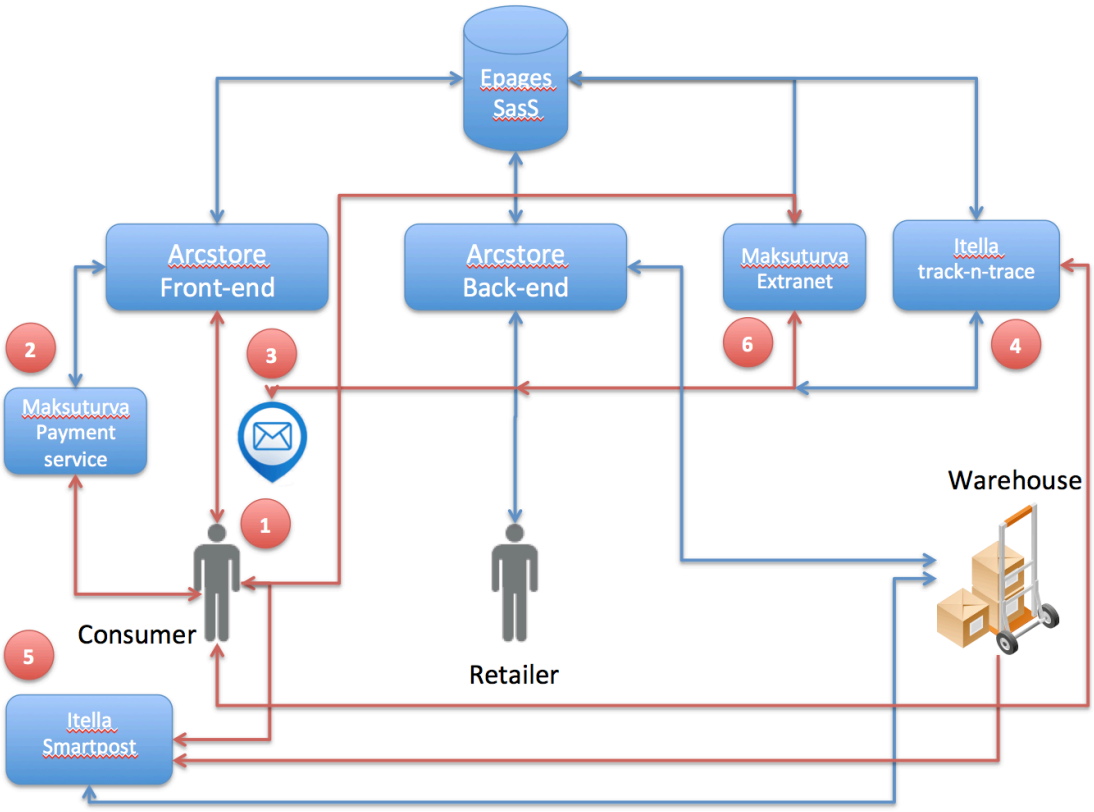

Figure 3. Order process – consumer perspective

1. The consumer visits www.arcstore.fi and puts two Pink Arcada T-shirts (Size M and L) in the shopping basket. During the order process the consumer chooses delivery to Smartpost due to its convenient pick-up in a SmartPost located at the supermarket.
2. The consumer chooses Maksuturva as payment method and is redirected to Maksuturva's payment service. On the site the consumer chooses to pay by credit card (Online bank payments, invoice and part payment also available). Maksuturva stores the payment for 14 days (inspection period) before transferring it to the retailer.
3. After the payment the consumer is redirected to Arcstore and automatically receives an order confirmation from Maksuturva's extranet service. Using this service the consumer can keep complete track of the order.
4. When the order has been processed and Itella picks up the parcel from the retailer, the parcel is registered in Itella's systems. The consumer receives a text message with track and trace information.
5. The consumer receives a text message notification when the parcel arrives at the parcel point of his/her choice. The consumer picks up the parcel and opens the SmartPost locker with a pin code received as a text message
6. If the consumer is dissatisfied with the product or would like to return them, Maksuturva's Web Buyer´s Service can be used. From a link in the confirmation mail the following services are available: Give Feedback, Make reclamation, Propose discount, return items, and cancel order. Returning products is free of charge to the consumer as stated by the Finnish Consumer Act. The return must be done within 14 days after delivery. In case of a return, the money is transferred from Maksuturva to the consumer within three business days.

During the reality simulation live systems were used with real money transactions and delivery of products via Itella Smart Post. For the presentation, two short films were shot to show how SmartPost parcel points work as this was not possible to simulate live in the e-Commerce Lab at the seminar. A key element in the simulation process was Maksuturva Extranet. This enables safe shopping experiences regarding either paying, returning the order or giving feedback after ordering. The consumer is given a wide range of payment solutions, from Internet banks, credit cards and invoice.

Maksuturva acts as a middleman between the consumer and the retailer. When a consumer orders products and pays them using Maksuturva as a payment service provider, the money will be stored for 14 days at Maksuturva. This is called the satisfaction guarantee and during that time the consumer can change, cancel or return the products via Maksuturvas extranet service. 14 days is also the return policy as stated by the Finnish Consumer Act. If a consumer returns all or some products the right amount of money will be transferred to the consumer and the retailer based on the information in the extranet service.

The e-Commerce Lab reality-based simulation was followed by a discussion among all participants. During this, participants were able to discuss with Arcada representatives and all partners enabling the simulation. The back-end and front-end of the shop was also opened for the audience to take a closer look at different systems used in the simulation. In general the feedback from the simulation was highly positive and the participants valued the reality-based approach, which gave hands-on experience on different processes in a real web shop.

4 Lessons learned and further directions

We have here described an e-Commerce Lab and showed the simulation process. The lab is the first of its kind in Finland and it has so far been used in two simulation sessions in front of a live audience. All stakeholders in the live audience gained valuable insight into how reality based simulation can be used to enhance Finnish e-Commerce. We see that there was an information and knowledge exchange between all parties.

For example:

- Participating retailers gained hands-on experience from a real web-shop, insight into different business processes in a web-shop from both a consumer and a retailer perspective and knowledge regarding issues in international trade.
- Arcada as an educational and research institution can apply the lab in degree programs to disseminate e-Commerce knowledge among young business students.

- FCF as a support organization gained a valuable educational tool in their training program for retailers.
- Moreover, the e-Commerce lab gained extensive national visibility in the press, which benefitted all parties.

All these aspects we see that contribute to the enhancement of Finnish e-retailing of tomorrow. In other words we find the e-Commerce Lab concept that we call "reality based simulation before a live audience" very successful. This concept could, nevertheless, be furthered developed and conceptualized within the field of business process simulation and labs. In fact we have not in this article properly classified or positioned the e-Commerce lab within scientific research on business process simulation and lab theory. However, we see that the concept "reality based simulation before a live audience" could contribute to the scientific discussion on different types of lab environments and their value propositions. Hence further research could focus on a structured evaluation of the lab and on a classification of the lab within business process simulation and lab theory.

The e-commerce Lab could also be extended with Enterprise Resource Planning (ERP) and customer relationship management (CRM) systems. Feeding the consumer data, i.e. contact information and purchasing data, to CRM and/or ERP systems and merging it with the data gained from web-analytics, would benefit the understanding of consumer behavior in a web-shop. In fact, as described in the introduction many Finnish retailers have failed in marketing their web-shop to a broader public. Therefore, a Lab that makes reality based simulations of e.g. targeted online campaigns ought to be highly valuable from a retailer perspective. This further development work will be planned, evaluated and implemented during the academic year 2014-2015.

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