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EVALUATING E-BUSINESS IN IT COMPANY

– ATR Soft OY

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EVALUATING E-BUSINESS IN IT COMPANY

The internet is now at an age where company can't ignore having their products and services advertised on this channel. Internet is becoming a new way to gain and attract customers. The objective of this study is to evaluate if implementation of E-business could be viable for an IT software company.

This study was commissioned by ATR Soft Oy and it begins with an overview of the company business model and product line. The theory section examines frameworks regarding E-business transformation inside a company. The theoretical frameworks are compared against current business model and strategy. An interview from a member of IT Company that has implemented E-business and a market research were conducted to answer the research questions**.** This study was conducted to create changes inside the company.

The findings are that the company business framework was in accordance with the basic requirements of e- business implementation and that the company should take advantage of E-business channel.

The paper contributes to a better understanding that IT Software Company can't implement E-business without re-examine business models and strategies. Products that are created traditional business needs to be rethink and redesign in order to be to appealing for users on E-business portal. E-business is a great opportunity for an IT software company to develop to business channel and gain new range of customer. Based on the steering group results, it serves as a basis for further research in the field.

KEYWORDS:

E-business, e-commerce, software development, process development.

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LIST OF ABBREVIATIONS (OR) SYMBOLS

CAD	Computer-aided design (CAD) is the use of computer systems to assist in the creation, modification, analysis, or optimization of a design (Narayan, K. Lalit (2008))
PDM	Product data management (PDM) is the business function often within product lifecycle management that is responsible for the management and publication of product data. (Kenneth Crow (2002)).
PLM	In industry, product lifecycle management (PLM) is the process of managing the entire lifecycle of a product from inception, through engineering design and manufacture, to service and disposal of manufactured products (”About PLM" (2012)).

1 INTRODUCTION

1.1 ATR Soft OY

ATR Soft is a software company founded in spring 2000. The main premise is located in the Science Park in Turku, Finland. The company is having another office in Tampere, Finland. The company is the owned by Mika Reinilä, Esa Aaltonen and Raimo Tammero. The turnover in 2012 was approximately 4.6M €, and the company has currently 42 employees.

The company is working in the following areas:

- System development
- System integrations
- PDM/PLM systems
- Document Management systems
- CAD systems
- Business intelligence

The organizational structure of ATR Soft Oy in 2013 is described in figure 1. The company is divided into five business units which operate around software development. Each unit is specialized in a different area which depends directly from the management.

ATR Soft Oy provides services to existing CAD/PDM/PLM platform such as software customization, maintenance, data migration. In addition ATR Soft Oy can create custom software based on customer needs.

Business intelligence unit offers dashboard creation, consulting and maintenance of existing business intelligence platform.

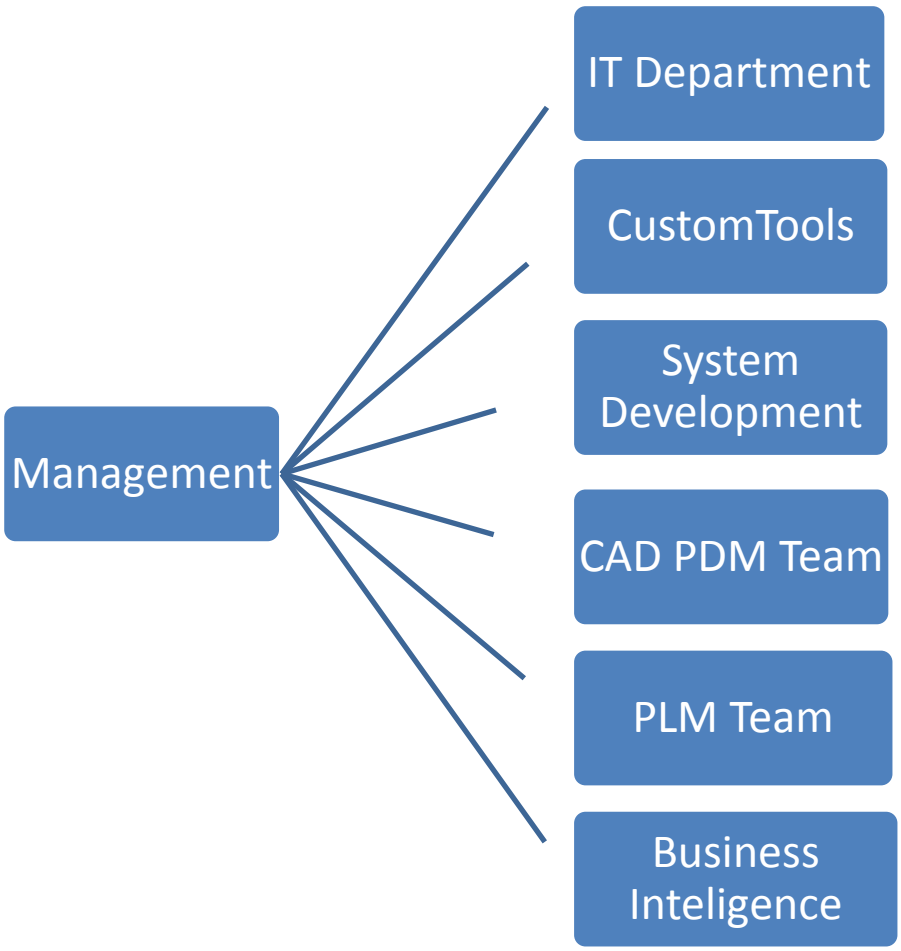

Figure 1 Organizational structure of ATR Soft Oy in 2013(ATR Soft Oy. 2013a)

1.2 Products

In addition to providing services on existing PLM\PDM system ATR Soft Oy has created some retailed products over the years.

1.2.1 ATRWorks

ATRWorks is a web based tracking time management solution which allows to report and monitor work hours, projects, project resources & allocations, tasks, travels and expenses.

1.2.2 Material declaration creator

Material declaration creator is a tool to gather the environmental information of products from suppliers.

1.2.3 CustomTools

CustomTools is an add-in for 3D mechanical CAD program named SolidWorks. SolidWorks is one of the most popular CAD mechanical design software available on the market; it allows you to rapidly create a 3D model base on sketches.

CustomTools is used with SolidWorks to offer additional features to the users. The main feature of CustomTools is to automate the customers' daily routines. CustomTools is a suite of tools that allows SolidWorks user to create and publish design in the most effective manners.

1.3 Research process

1.3.1 Research problem and philosophy

The goal of this thesis is to explore a new business perspective for the company. The philosophy of ATR Soft Oy is to improve every day work and software quality based on experience and good practices. ATR Soft Oy current business framework has been built using this method. One goal is to analyze current business framework and see the possible evolutions toward E-business.

Similarly to the company philosophy the research will use the interpretivism approach. Interpretive studies assume that people create and associate their own subjective and intersubjective meanings as they interact with the world around them. Interpretive researchers thus attempt to understand phenomena through accessing the meanings participants assign to them (Orlikowski and Baroudi

1991). Researchers gaining experience through the research is the main idea of interpretism.

When trying to innovate inside the company, the researcher needs to be part of the process. The researcher cannot be separated from what's being researched. The reality is impacted by the act of researching it (Collis and Hussey 2009, 57). The thesis will be completed mostly by employee working for ATR Soft OY. Social process is not captured in hypothetical deductions, covariance and degrees of freedom. Instead, understanding social process involves getting inside the world of those generating it (Orlikowski and Baroudi 1991).

It is easier to understand and interact with the research process when working daily in the environment. The interpretivism approach suggests that the researchers and the research need to be as close as possible to result in positive outcome.

1.3.2 Research method

Action research

The action research will be used in this thesis. In order to ensure that changes occur inside the company it is important that actors and management are part of the research process. It is crucial that management show interests into the process and encourage all employees to be open to changes.

Action research is used in real situations, rather than in contrived, experimental studies, since its primary focus is on solving real problems (O'Brian, 1998). Action research consists of a sequence of events and an approach to problem solving.

The following events are required to complete a cycle:

- Gathering data
- Feeding data back to those concerned

- Analyzing the data
- Planning action
- Taking action
- Evaluating that leads to data gathering.

(Coghlan and Brannick 2010, p.5)

An action research cycle is composed of four basic steps: constructing, planning action, taking action and evaluating action (see figure 2).

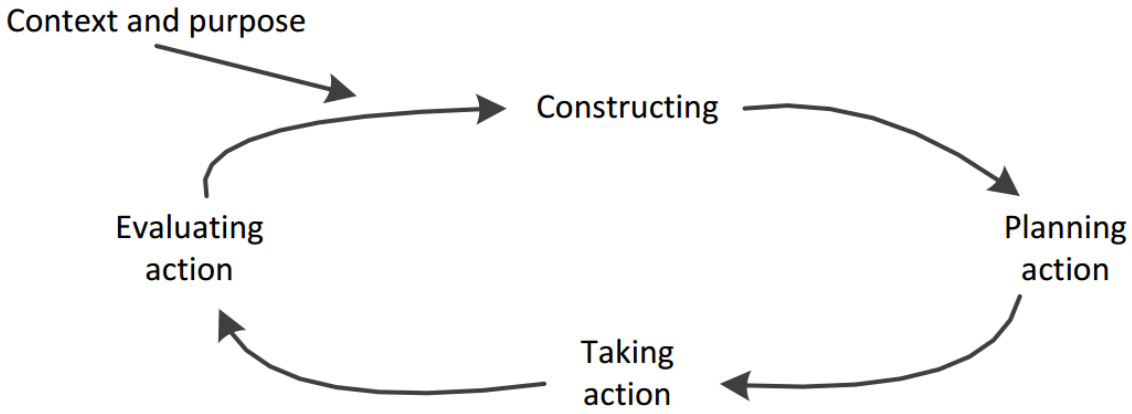

Figure 2 The action research cycle (Coghlan and Brannick 2010, 8)

- Constructing

  In this step the stakeholders of the project defines what the current problems are. The diagnosis can be based on practical or theoretical knowledge. This step needs to be carefully completed as it defines the scope of actions for the next step. The constructive step needs to be collaborative.

- Planning action

  Once the definition of the problems to be solved is clearly defined; the stakeholders of the project needs to plan which steps of action will be

accomplished in the current iteration. Again the step must be completed using collaboration among stakeholders of the project.

- Taking action

  The plan is followed according the definition. The action can be done by one or several stakeholders of the project.

- Evaluation action

  The outcomes of the action are reviewed both planned and unplanned.

  The following question needs to be answered to analyze the current iteration and prepare for the next one:

  - Was the constructing step in accordance with the result?
  - Was the action achieved according to the plan?
  - What result will be used for the next iteration?

Like shown in Figure 3 the process of action research is to make some iteration in order to achieve a goal. These iterations have different time span as one iteration results of the previous one. The number of iterations is not known when starting the research process and the scope of the goal might change during the action research as some solution or problem can emerge during the iteration.

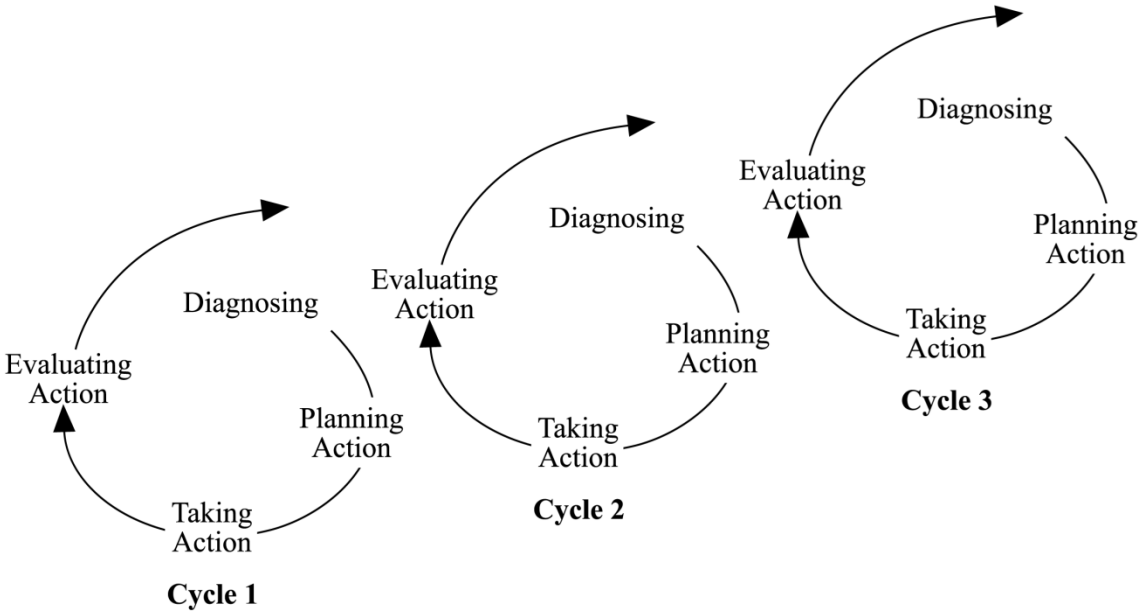

Figure 3 Spiral of action research (Coghlan and Brannick, 2001, 10)

Researching your own company involves undertaking research in and on your own company while a 'complete member' (Adler, PA and Adler, P., 1987). The research will first be completed using the individual reflective study approach (see figure 4) where the researcher is engaged in an intended self-study of himself but the system is not. If the outcome of the research allows it, the quadrant will be switch to a “transformation change” where both researcher and the system and engaged in intended study in action. This can only be accomplishing once the company management is committed to changes.

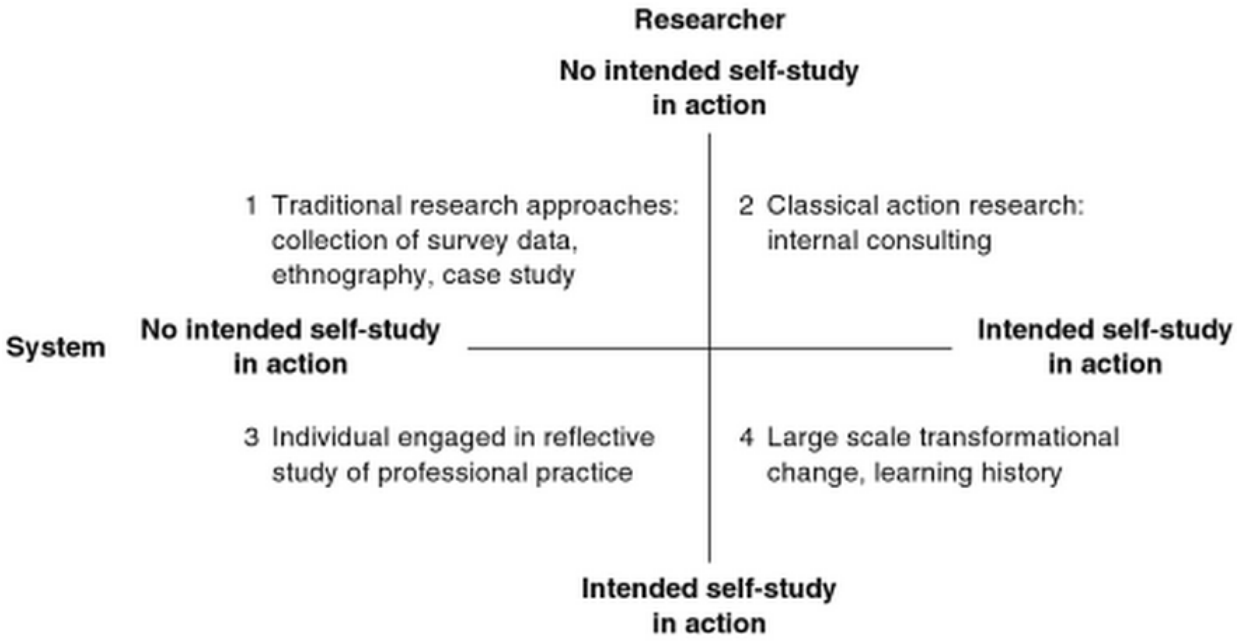

Figure 4 Focus of researcher and system (Coghlan and Brannick, 2001, 103)

The reason why action research was chosen is that aim of the research is to create changes in the company. When discussing with the management, it was understood that this research could not be carrying out without applying it to the company. Additionally the process of building something using increment step is a common practice in IT Software Company. For example when developing software application, incremental steps are used to evaluate potential problem and misconception during all the development phase. The philosophy of action research is similar; the changes are built step by step using increment and future actions are based on experience from previous cycles. The action research contributes to the planned change process because it has collaborative inquiry and learning built in. (Coghlan and Brannick 2010, 70.)

Research process

The literature review can be found in the chapter 2. Two theoretical frameworks related to E-business evolution for a company and innovations in the internet age are reviewed. The literature review is used as based knowledge of the

“Constructing” step of first action research iteration. The literature review gives basic knowledge to the steering group regarding actions that are required when implementing E-business in the company.

In the chapter 3 the company business model is detailed through the Business Model Canvas. The goal is to give general understanding of the current company business model. The two theoretical frameworks are compared against the current business model. The purpose is to give to the steering group a new perspective before planning actions. It is important to know the company current business model and apply it against theoretical framework to understand what changes are needed in the company. It will be used to stimulate the “Constructing” step of the first action research iteration.

The chapter 4 is a journal of the action research process; it separated into two main parts.

The first iteration is focused on evaluating the possibilities of implementing E-business in the company. An E-market research is completed as well as an interview of an IT actor that already implemented E-business portal.

Base on the result of the first iteration, the second iteration explain processes that are required when implementing the first step in evolving the company to E-business. The outcome of the second iteration is the launched of a web portal.

Figure 5 Research time line

The time line of the thesis research can be seen in the figure 5. The whole research process took around one and half year from literature research until closing of the action research.

1.3.3 Steering group

The steering group is composed of four members of ATR Soft. The participant were chosen base on their position in the company and interest toward the research project.

The Executive Vice President was chosen to represent the management. His position in the company can be helpful if structural changes are needed during the research process.

The CustomTools Product Development Manager was chosen for his direct implication in the project has been the researcher’s tutor and interested in developing the concept of E-business in the company.

The CustomTools Sale Manager was chosen for his business competences as all the other participants in the group are specialized in CAD\PDM software development.

For the completion of action phase in the second cycle other participants were added to the group.

Web designer was assigned to the thesis project to assist during the web portal implementation.

External consultant art designer helped in the creation and implementation of the web portal design.

Software engineers was assigned to create retail products and maintains the applications once published.

1.3.4 Research questions

The research questions that need to be answered during the thesis are formulated in the table 1.

Problem/research question	Data collection methods
To check if current business model is in accordance with existing E-business framework?	Self-assessment Literature review Research group assessment
To determine if there is existing company in CAD\PLM fields take advantage of E-business?	Self-assessment Semi structured interview
To determine if E-business could be a viable evolution to current business model?	Internet survey Self-assessment Group-assessment
How to implement E-business in the company?	Self-assessment Group-assessment

Table 1 Research questions and data collection methods

During the thesis data triangulation will be use which means collecting data from different sources or at different times (Collis and Hussey 2009, 85).

2 LITERATURE REVIEW

E-business is now changing the way that many companies make business. The main challenge of E-business is to define how to accomplish successful business into the digital economy. It is a ”disruptive” innovation that is radically changing the traditional way of doing business (Lee, C.S, 2001).

The basic definition of E-business is using Internet to connect with customer, partners and supplier, as well as to adopt new organizational rules to make business more effective (Spremić, 2003).Transforming a company to E-business might require in some cases major changes in the business strategy and a completely new web enabled business.

2.1 Framework 1: Evolving the E-business

Transforming a company to E-business is a long process where several steps are required. According to Earl, M.J here is six stages to complete the process (See Figure 6). Those stages are “ideal types” but the model should reflect in most company’s (Earl, M.J, 2003):

- Stage one: External Communications
- Stage two: Internal Communications
- Stage three: E-Commerce
- Stage four: E-business
- Stage five: E-Enterprise
- Stage six: Transformation

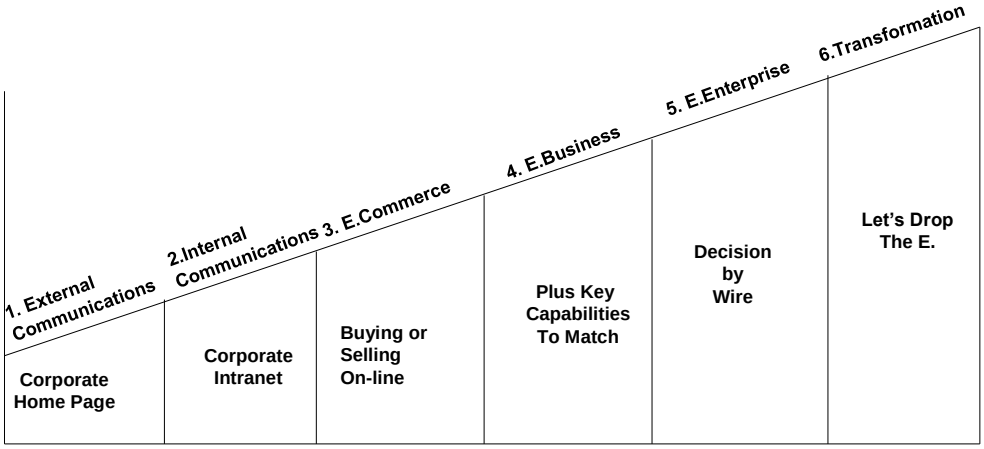

Figure 6 Evolving the e-Enterprise (Earl, M.J, 2003)

Stage one: External communications

Around the year 1994/95 corporations started to implement their internet home page. It became rapidly clear that Internet was a potential channel of communications. The websites were created in order to promote the company assets and products. The only interaction used at the time with the viewer was the e-mail. The first issue that rises was that the web pages need to be kept up to date in order to be appealing for the viewer.

To accomplish the stage one "External Communication" the website contents needs to be updated continuously to be interesting for the viewer.

Stage two: Internal communications

From 1996 to 1998 IT professionals started to recognize the possibilities offered by this new technology. Typically they saw it more as a technology point of view than a real business opportunity. Intranet solutions was created during this

stage with the goal to develop the communication inside the company; developing tools such as e-mail, ticketing system, support, forum, discussion board. While creating the intranet the notion of security became more and more critical. The company needs to segregate their data from the internet by using “Firewall” and create policies inside the intranet.

The state two “Internal Communications” is an essential to the success of E-business as it allows the company to be aware about security risk and data protection.

Stage three: E-commerce

Some company understood the potential of buying and selling over the internet by the year 1996. Dotcom startups were the first the experiment the concepts of business to consumer (B2C), business to business (B2B) and e-commerce. Around the web, internet pages became more and more user friendly, surfing on the net became more common and search engine were evolved enough to drive customer to company web pages. A completely new sales and distribution channels is being developed. One of the main challenges during this stage for the company is to come up with a new business strategy. How should the balance between traditional and electronic channels be? Should the user be able to complete same purchase using both channels? Company needed to test and understand this new channel of online buying and selling.

To accomplish the stage three “E-Commerce” the company need to focus on online buying and selling , balance their traditional and electronic channels and finally to came up with an separate electronic channel strategy.

Stage four: E-business

One the journey of transforming a company to E-business Company is experiencing a critical lesson. Building online channel on top of inadequate or inefficient business processes achieves only one goal: it display to the user that the

company's back office system and operational processes are not operational and can create a bad image of the overall company. Therefore, the fourth stage of E-business is about re-engineering or redesigning business processes and strategy to create the best possible user experiences. Customer will recognize rapidly business incompetence for example if goods do not come on time, if email do not get answers in timely manners, if support cannot be reached, if the website is down for a too long period.

Company needs to anticipate customers' needs and prepare his service to be up to the task. Server must be powerful enough and internet traffic needs to be handled with sufficient bandwidth to avoid any possible slowness or server break down. Security and Piracy needs to be taken care as well.

Traditional companies need to re-engineered their processes and strategy in order to be prepared to accomplish the state four. Most firms learn this stage the hard way.

The state four "E-business" allows the company to level up or re-engineered their processes to match E-business needs.

Stage five: E-enterprise

While re-engineering their processes, some companies realize that management processes as well as business processes could be improved by being redesigned (Rockart, Earl and Ross, 1996). They are not synchronized with the newly created business process and do not integrate the new technology and information system in the everyday work.

Online business needs to have a dynamic decision making process, Nowadays set of tools are available to monitor transactions and analyze the business almost in real-time. This means that the company can understand consumer behavior and needs continuously. A new way to communicate in the company needs to be implemented in order to follow the evolution of the online business; one wrong decision could have disastrous impact on the business.

The state five “E-Enterprise” is about transforming every part of the company to the latest technology to improve data flow and decision making inside the company. The key factor is the ability of people inside the company to use the information and act accordingly.

Stage six: Transformation

The stage “transformation” implies that a company has successfully negotiated the journey to E-business (Earl, M.J, 2003). Previous stages allow the company to evolve and adapt to the new business channel that is E-business.

The state six “Transformation” is about capability of evolving. The critical factor is the capability of the company to continuously evolve with the market and the available technology. Adaptation is the key of E-business.

2.2 Framework 2: Evaluating E-commerce business models and strategies

The industry is moving so fast because it operates under totally different principles and rules. A general rule in E-commerce is that there is no simple prescription and almost no such thing as an established business or revenue model for companies even within the same industry (Lee, C.S, 2001).

According to Lee analytical framework there are five steps for a company to accomplish in order to succeed into e-commerce.

- Redefine competitive advantage
- Rethink business strategy
- Re-examine traditional business and revenue models
- Re-engineer the corporation and Web site
- Re-invent customer service

This framework should allow the E-commerce planner and strategic managers to evaluate potential E-commerce success. The main challenges for most company is to be able to establish the best approach for doing business in the digital economy and be able to dramatically modify the way of operating business.

E-commerce allows both customer and supplier to reduce transaction costs significantly and to enable information to reach more people without sacrificing the richness of content (Evans and Wurster, 1997).

Internet is transforming way of doing business and some new propositions are created in order to satisfy the demands. Here are the major disruptive attributes that emerged from the E-commerce according to Chung-Shing Lee:

- Economics of exchanging information
- Connectivity and interactivity
- Network economies of scale
- Speed of change
- Economics of abundance
- Merchandise exchange
- Prosumption
- Industrial context

All those key performance needs to be handled and thought carefully in order not to end up with business failure.

Business transformation process

A company can be represented simply by the input and output transformation process:

$X \longrightarrow \square \longrightarrow Y$

- X represents the input that is required to produce the final product; the input can be physical or virtual (for example a raw material or data used to create product or services).
- Y represents the final product or a possible input for another transformation process.

The table 2 compares the physical and virtual transformation process.

Table 2 Transformation processes in the physical and virtual economies. (Lee, C.S, 2001)

X → □ → Y	**Physical (marketplace)**	**Virtual (market space)**
Transformation process (□)	Alter, transport, inspect, and store	Gather, organize, select, synthesize, and package
Input (X)	Raw materials or intermediate goods	Data or information Sources of input: information generated and gathered from the traditional physical transformation process; and information about customer
Output (Y)	Finished products / services or intermediate goods	Information or knowledge products or services; New information services bundled with physical products
Role of information	Supporting element that facilitates the traditional physical transformation process	Source of value
Economic principle **Management focus**	Economics of scarcity Improve the transformation process (&)	Economics of abundance Gather and utilize information (X) to create more value (Ys) for the customer

When a company wants to move to E-commerce there are at least 5 concepts to consider.

- Scale effect

The economy of scale is used when the production cost decrease with the amount of unit produced. E-commerce and virtual value chain has redefined the concepts of economies of scale which allow small companies to achieve low unit costs for products and services in markets dominated by big companies (Rayport and Sviokla, 1995). The growth on the demand side reduces the unit cost (and price) on the supply side and makes the product more appealing to other users. The result is the acceleration of growth in demand for the products.

- Scope effect

  The concept behind the scope effect is to provide to the customer a set of "digital assets" by developing for example several applications jointly in order to reduce the total cost.

  Amazon.com is dominating the online retailing market through strong customer relationships; it was made possible by exploiting this digital assets. The company is able to constantly expand its scope by providing customers products and services across numerous industrial sectors (Lee, C.S, 2001).

- Switching costs

  Switching cost allows a company and their pattern's to lower the product costs. There are several ways to decrease the cost for example the consumers could be involved into the conception, design and testing phase of the product. It could therefore develop trust relationship with the end-user.

- Transaction costs

  Tapscott et al. (2000) suggest that planners must transform the value proposition for the benefit of the end-customer by understanding how Internet technologies enable them to add new forms of value in every step of the value-creating process. In addition, they must be able to creatively "reaggregate" a new set of value offerings as well as the enabling resources, structures, and processes.

- New sources of revenue

In e-commerce, pricing issue is important in the sense that it can be done in real time and product or service can be priced below their unit cost even in the long term, as long as other E-commerce revenue models, such as online advertising and referral fees, are sustainable (Lee, C.S, 2001).

The analytical framework can be used to evaluate if the company E-commerce is viable. According to Lee a viable E-commerce must satisfy the following features:

- Design programs that take advantage of the Internet network effects and other disruptive attributes to achieve a critical mass of installed base of customer.
- Leverage on a single set of digital assets to provide value across many different and disparate markets.
- Build trust relationships with customers through E-business communities or e-web to increase their costs of switching to other vendors.
- Transform value propositions and organizational structures for enhanced value creation.
- Generate synergy effects on E-commerce product and service offerings.

Lee suggests that in order to be able to transform a traditional business practices into e-commerce, the five following steps needs to be accomplished:

- Redefine competitive advantage

  E-commerce is changing the way of doing business. Nowadays business needs to be handled in timely manners, Internet is opening new opportunities and people are selling goods in total new manners. E-commerce has changed the rules of distributions; it is now becoming more difficult to differentiate his product from the similar one available on the market; price and features can be easily compared.

- Rethink business strategy.

  It is very simple to set up a Web presence but quite difficult to create a web-based business model (Ghost, 1998). Management must generalize the company transformation beyond the web site architecture and include the company strategy into the E-commerce strategy. E-commerce allows to reduce the cost and to be able to access a large range of customer at the same time. The main focus should be to enable customer to make business with them.

- Re-examine traditional business and revenue model

  Every opportunity with current customers' needs to be analyzed as relationships is already in place; it is easier to get to new business prospect (e.g. new services or products). Management still needs to consider that new added values can be available in both physical traditional business and e-commerce.

- Re-engineer the corporation and Web site.

  The web site should not be seen only has a portal to display the company product portfolio. The most effective Web sites are also able to foster a feeling of community among customers (Armstrong and Hagel, 1996). All critical parts of E-commerce process needs to be handled carefully to ensure a seamless user's experience while the user is browsing the web site.

- Re-invent customer services

  Internet is changing the company's relationship with customers. A company needs to take the advantage of e-commerce's attributes in order to improve and build stronger relationship. To achieve this goal the company must design products that fulfill the requirements of individual customers. It is important in the Internet economy to let consumers be involved in the actual design process (Tapscott, 1999). In addition company needs to build knowledge database regarding their current customers

in order to grant them with fully customize product and services. This will allow you to create a new digital asset made up of customer profiles and preferences.

2.3 Business strategy and innovation in the internet age

During the process of moving a company into E-business it should be not forgotten that business strategy and innovation needs to be remembered during the transformation stages.

As the internet and subsequent globalization increase the volume and accessibility of new ideas, it has become even more important for companies to innovate intelligently, consistently and quickly. The internet is now at an age where its disruptive capability has reached critical mass, and it will only further amplify challenges for companies not steadily engaged in innovation (Skinner, 2010).

It is now acknowledged that customer will perform internet research before purchasing either online or stores (Sehgal, 2010) so it becomes clear that internet can offer new possibilities for a company. The internet is now part of the company and should be taken into consideration when doing innovation.

According to Skinner the reason many company fails moving to the E-business is that they prioritize resources instead of the content. The already existing application needs to be adapted to fit the new business model. For company that use internet simply as an alternative sales sources and do not see the structural changes in term of application, resources, processes the end result will most of time be a failure.

As defined by Christensen, the following question helps managers to understand what changes need to be achieved in order to move to the internet integrated company:

- Does the company have the resources in place to develop Internet Integration?

- Does the company have process in place that prevents or accepts the Internet into all parts of the company and allow modification of process over time?
- Can the company’s values change over time as it learns what the customer wants and can it design products and services that the customer can’t even imagine today?
- Will the company's culture support change that is healthy and self-sustaining, allowing the company to thrive long after changes are made?

3 COMPANY CURRENT BUSINESS MODEL

The first step in order to evaluate if a company can evolve to E-business is to fully understand the current business model. The aim of this chapter is to describe ATR Soft OY business model, the content of this chapter will be used by the steering group to plan the action of the first action research iteration.

3.1 Company current business model:

Business Model Canvas (B. M. C, 2013) will be used to represent the current business model. The canvas representation can be found in Appendix 1. It is a tool to create a clear vision of the current business model. The canvas is separated into nine different focus areas.

- Customer segments

The customer segment are CAD\PDM users that are looking how to improve their productivity either by using some applications or be creating or improving existing services.

The company is also working as software consultant for various CAD\PDM vendors.

- Customer relationships

CAD\PDM Software is a niche market and the number of actors is limited. It is crucial for the company to ensure the best possible relationships with customers and resellers. To keep being appealing to customer; features are constantly added to the product line. Having a good relationship with customers can gain possible project outside the current product line.

The reseller relationship is really important for the company because it is the channel that brings most of the incomes. The sales and marketing department is working closely with resellers to get feedbacks from them and ensure that the product line is following their user expectations.

With the SolidWorks service partner program the company can offer services to CAD\PDM users worldwide such as custom software, training and consulting.

- Channels

A web site is available to promote the company product line, viewers can get an overview of the possibilities of the products, and each feature is advertised with detailed description and video. Social network such as Facebook, Twitter and Linkedin are used to promote the company products lines and give status update.

The reseller channel allows the company to reach potential customer. The resellers have the advantage of working with a customer base.

Once a year the company is attending the SolidWorks World fair, it is an opportunity to meet with SolidWorks representative, resellers and potential clients.

- Value propositions

The company is having competences in CAD\PLM\PDM environment and can deliverer advance set of applications, services in those fields.

- Key activities

The key activity is to be able to resolve CAD\PDM user issue and improve their productivity.

- Key resources

The Customer relationship is the most important resource that needs to be focus on. The SolidWorks market is a close market and numbers of potential customer is limited. The company needs to ensure that current customers are satisfied with the product before looking for new prospect.

In order to be able to deliver specific proposition the company need to have skill employees that understand and are able to translate customer needs

- Revenue stream

Most of the revenue stream comes from license sales and maintenance subscription fees for the product line.

Customer specific project and script are charged per hour.

Consultancy and training services are charged per hour.

- Key partners

Key partners are resellers and SolidWorks.

Reseller expands company sales by delivering CustomTools to their customer. SolidWorks through the service partner program allows the company to extend its activities.

- Cost structure

The important costs inherent to current business model are paying employee salaries, rents, and hardware, travels etc.

3.2 Status of the company regarding the theoretical frameworks

In order to be able to evaluate how to implement E-business in the company it is important to understand what the current situation is. In this chapter the framework described in the literature review will be compared against current business model.

3.2.1 Framework 1: Evolving the E-business

As mentioned previously the framework “Evolving the E-business” developed by Earl, M.J is having six different steps to accomplish the business model transformation.

Stage one: External communications

The company external communications has been developed over the years; CustomTools is currently having the following channels of communication:

- CustomTools Website (http://customtools.info/)

  The website is updated on monthly basis, video regarding new features are constantly added.

- Social networks

  Facebook and Twitter accounts are updated when new features or releases are available.

  Through the blog product line features are explained and detailed, some case studies are presented to show integrations with different systems.

The external communication is currently implemented in the company and continuously updated.

Stage two: Internal communications

The intranet is in place inside the company. The IT department is constantly maintaining and updating the environment.

The technologies currently in place are e-mail, ticketing and support platform, discussion board, intra website, VPN to allow remote access, dedicated rack servers, firewall.

The internal communications stage communication is currently implemented in the company and continuously updated.

Stage three: E-Commerce

The company does not currently have any “pure E-commerce” in place. Customers are able to check current product line on the official web page but they need to contact us using email to purchase a product.

The pure E-commerce stage is not currently in place, the web site is not designed to act as an E-commerce portal. Additionally the company does not have business strategy in place about selling product over the internet.

Stage four, five and six: E-business, E-enterprise and transformation

Those stages are currently not in place. The company does not have enough insight regarding the whole business model transformation to achieve and comprehend those goals.

3.2.2 Framework 2: Evaluating E-commerce business models and strategies

The analytical framework presented by Chung-Shing Lee is designed to evaluate and analyze company current business model and re-think the E-business strategy.

According to Chung-Shing Lee there are five concepts to consider if a company wants to move into E-commerce.

- Scale effect

  The scale effect is not currently in place in current product line, in software business the concept of “unit produced” does not apply as the company does not create anything physical.

- Scope effect

  CustomTools itself is using the scope effect. The application consists of a suite of features. The customer can defined which features he wants to get base on different license type available.

- Switching cost

  In relation with CustomTools, resellers are now consulted when developing new features. Resellers have direct contact with customers and can guide us regarding which features or applications might be appealing for their customers.

- Transaction cost

  The company created software is hosted on internal server; the current transaction cost is already low as it does not depend on any external services.

- New sources of revenue

  As E-commerce is not in place the concept of new sources of revenue was never considered.

To be able to transform a traditional business into e-commerce, the five following steps need to be accomplished.

- Redefine competitive advantage

  The company product line was never intended to be sold on the internet. The product requires advance skills and training so that customer can use the application efficiently. The company competitive advantages needs to be redefined in order to take E-commerce into use.

- Rethink business strategy

  In order to achieve changes of the business model you need to be prepared and ensure that the entire infrastructure is able to withstand the drastic

changes that might require E-business. This concept is in accordance with Earl M.J stage three E-commerce Evolving the E-business frameworks (Earl, M.J. ,2003). During this process it should always be kept in mind that the main focus is to enable customer to make business with the company (Lee, C.S, 2001).

- Re-examine traditional business and revenue models

  The company has a strong base of existing customers. It is important to take every opportunity with current customer. The company product line should propose additional services to existing customer.

- Re-engineer the corporation and Web site

  The structure of the corporation is usually changing once a year, current status of department are analyzed and re-structured according to the company needs.

  The company and product line portal are constantly being updated. Internet viewer behavior is analyzed using analytic tools and website is modified to ensure that the portal content is correctly accessed.

- Re-invent customer service

  The company is having customer support in place. Current customer can reach the support either by using telephone or email. They can access anytime their support tickets status.

4 DEVELOPMENT PROCESS DETAILS

4.1 First iteration

4.1.1 Constructing

This self-assessment was made the 10th of June 2013 to introduce the research concept to the research group and create a starting point for the discussion.

While the framework “Evolving the E-business” focus solely on company structure and what are the steps that needs to be accomplished to evolve to E-business the second framework “Evaluating E-commerce business models and strategies” focus on business model and strategy. Those two frameworks are complementary because they comprehend the same problem from two different perspectives.

In the first proposition the steps that need to be handled as priority are:

- Redefine competitive advantage
- Rethink business strategy
- Re-examine traditional business and revenue models

The steps “Re-engineer the corporation and Web site” and “Re-invent customer services” are not relevant at this point of the research. The web site has been redesigned last year and it is refreshed on monthly basis. Customer service has been part of company services, it might be possible to improve the quality of the service in the future be applying ITIL or COBIT frameworks.

Redefine competitive advantage

The company has been working in CAD\PDM for over 14 years, the primary focus always been to customized customer environment to fit their needs. The

drawback of such implementation is that you end up with a complex an advance suite of applications that can't be setup easily on different customers.

The CAD\PDM market is a niche market, in order to gain most customer the steering groups needs to redefine how existing applications can be used with E-commerce and what changes do they require.

Rethink business strategy

As Chung-Shing Lee suggested the main focus should be to enable customer to make business with the company.

Over the years several custom applications have been created. It would be a good strategy to standardize and advertise them on a web portal.

On the long term it might be good to consider starting a new line of product in relation with the CAD\PDM market. At the moment only one retailed applications is available for the CAD\PDM market.

Marketing is another way to gain customers, time needs to be dedicated to create marketing campaign and advertise company competences and product line.

Re-examine traditional business and revenue models

The current business and revenue model is mainly coming from the reseller channel. This is a strong base for the company and it should not be changed in any way.

The E-business should be seen as a chance to expand company market to new customers. It is always recommended to have incomes from different channels in order not to be dependent solely from reseller's channel.

The new created applications could be as well sold by resellers, it should be seen as a new way to gain customer. The both business model should be run

side by side as some customer rely on their reseller while other are more independent and seek for solution on their own.

4.1.2 Planning action

The first of August 2013 the Product Development Manager, Executive Vice President and Sale Manager attended the meeting during one hour and twenty minutes.

The meeting was separated into several parts:

- Literature review
- Company current business model
- Frameworks against current business model
- Action research introduction
- Planning action?

The following frameworks were presented:

Earl, M.J., (2003): Evolving the E-business, Business Strategy

Lee, C.S., (2001): An Analytical Framework for Evaluating E-commerce Business

Based on the literature review the steering group came to the conclusion that market research needs to be done. One current problem is that there are lots of uncertainty regarding the customer market and the demands for acquiring CAD\PDM application online.

Here is a list of actions that needs to be completed during this cycle:

Action research

- Survey needs to be created and presented to existing customers
- The Sales Manager will help gathering customer contact
- Research existing CAD\PDM software vendor using e-commerce
- Get information regarding sales if possible

4.1.3 Taking action

This cycle was separated into four tasks:

- Preparing Interview regarding e-Commerce
- Interview with Hawk ridge system regarding their web portal
- Survey Creation
- Survey report

The details of each task can be found in this chapter.

Preparing Interview regarding e-Commerce

The third of September 2013 during half an hour the Executive Vice President and sales manager attended the meeting.

The director of data management and software development at Hawk Ridge Systems (http://store.hawkridgesys.com/) agreed to have an interview regarding their company web portal. A hawk ridge systems is having one of the most developed web store in CAD\PDM software related to Solidworks available online.

The questions can be reviewed in Appendix 2.

Interview with Hawk Ridge System regarding their web portal

The interview was done the fourth of September 2013 using online meeting and took around 40 minutes

John Peros is Director of Data Management and Software Development at Hawk Ridge Systems. Hawk Ridge System is currently having over 12000 customers and they have 16 offices in North America and Canada. They were named the #1 worldwide SolidWorks resellers and the top reseller in North America at SolidWorks World 2013.The web store was created at the beginning of 2012.

The motives regarding of the creation of the web store were as follow:

- During years 2010-12 SolidWorks was selling the vision to reseller that reseller should start selling software and licenses online
- Offer online training

The web store was created first to propose online training to SolidWorks users. One reason was to ease access to training for their customers and it was a great opportunity to gain new potential customers.

Hawk Ridge System is having 16 offices in North America and Canada with training center, when comparing the profit generated by the training the web store is ranked in 5th among all offices.

Regarding the marketing, they have not yet spend much time doing advertising, direct e-mail was sent to their customers, and post were created on blog, forum and social media. When having meeting with customer the web store is not currently advertised.

The training is the main sources of income for the web store, and it is currently generating profit for the company. It represents more than 95% of the total web store incomes.

Applications to be purchased were added in June 2012 to the web store. The tools section has generated 700 downloads since it has been launched. They have never been able to sell a single SolidWorks license thought the web store. The applications provided on the web shop are either retailed solution of customer tools or tools created explicitly for the web store. As an example they have a tool called "Treeview" (https://store.hawkridgesys.com/Treeview_p_1225.html) which is a rewrite of the old SolidWorks tools named "Tree house". The tool was created explicitly for the web store as Hawk Ridge System management was seeing the potential of such tool. Since the launch the 18th of august 2013 the software has been downloaded over 100 times.

When a customer is buying software they receive by e-mail a download link with a unique activation code. In the current implementation they have no licensing in place. The licensing is still an issue for Hawk Ridge System and they are working on it.

In October 2013 a new web store was launched, it included new applications and services around CAD\PDM. As an example they are currently working on advertising different services such as EPDM performance check, SolidWorks hardware check, API and macro customization. According to John no matter how much marketing they do; their customers are never aware of the services Hawk Ridge System can propose, it is valuable to advertise them on a web store.

The content of the web store is updated on monthly basis. They just launch the 4th refresh since they have launched it.

John Peros sees lots of potential if the free tools attract new customers to their company. He mentioned that "We don't necessarily sell lots of tools over the web store, but it makes people aware of Hawk Ridge System, for their point of view it is as good as a sell".

The most common payment systems are credit cart and purchase order. Purchase order can be done with existing or new customer. Once the order has

been placed the accountant department will contact the company in order to get the details where to bill the order. It makes extra work to the accountant department but customers are used to this purchase process. One advantage is that CAD user can order training of software online without having any company credit card.

The framework they are using for the web store is named 3dcart (http://www.3dcart.com/), they have an internal team that is updating their web site and web store continuously. Since the launch of the web store they have encounter all possible problem for example they had issues that prices did not show up correctly or that wrong item was added to the cart.

The overall feelings regarding the web store are:

- The store is attracting customer and generating incomes
- Hawk Ridge System CRM system is integrated with the web store so everyone using the web store is automatically added to their CRM system
- Marketing team want more traffic to be generated
- Marketing team want more products and services to be advertised
- The look and feel requires lots of works in order to keep the web store "fresh"

As future development Hawk Ridge System is really interested into proposing external tools to their web store. According to John Peros they are planning to propose CustomTools as soon as possible. They have currently some agreement with Razor Leaf (http://razorleaf.com). Razor Leaf became in contact with Hawk Ridge System because they were having trouble selling their products over internet.

Hawk Ridge System is as well investigating how to implement finder fee with the partners so that any potential client that go to their web store thought a partner web page get a fee.

Survey creation

The 18th of august 2013 the Product Development Manager, Executive Vice President and Sale Manager attended the meeting during half an hour.

A draft version of the survey was previously created and questions were reviewed and corrected. The survey can be reviewed in Appendix 3.

Sending the survey

The 25th of September 2013 the survey was sent to 2027 e-mails. The e-mails include the following contacts.

- SolidWorks world 2010 to 2013 leads e-mail
- CustomTools reseller e-mail
- Registered CustomTools Users
- CustomTools user using company ticketing system

The survey was created with webropol and sent once a week for three weeks to all recipients that did not yet reply to the survey.

Survey report

The Survey was answered by 60 persons. Some resellers gave feedbacks that they never received any email. One possibility is that when the survey servers send all the email at once, company firewalls block the emails. The survey was sent three times at one week interval.

Q1. Would you consider acquiring CAD\PDM applications or services over internet if available?

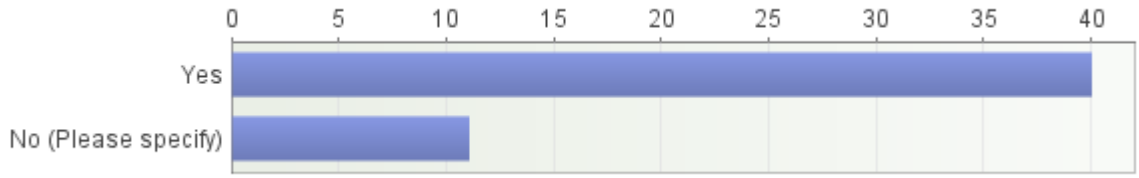

Figure 7 E-commerce survey question 1 (ATR Soft Oy. 2013b)

78% of the respondent would consider acquiring CAD\DPM applications or services over internet.

Respondent that have selected “No” added the following comments:

- Worries related to security issue
- Already using other system (DBWorks etc…)
- Don’t see the potential in such store

Q2. From which area(s) would you be interested in seeing content on the web store?

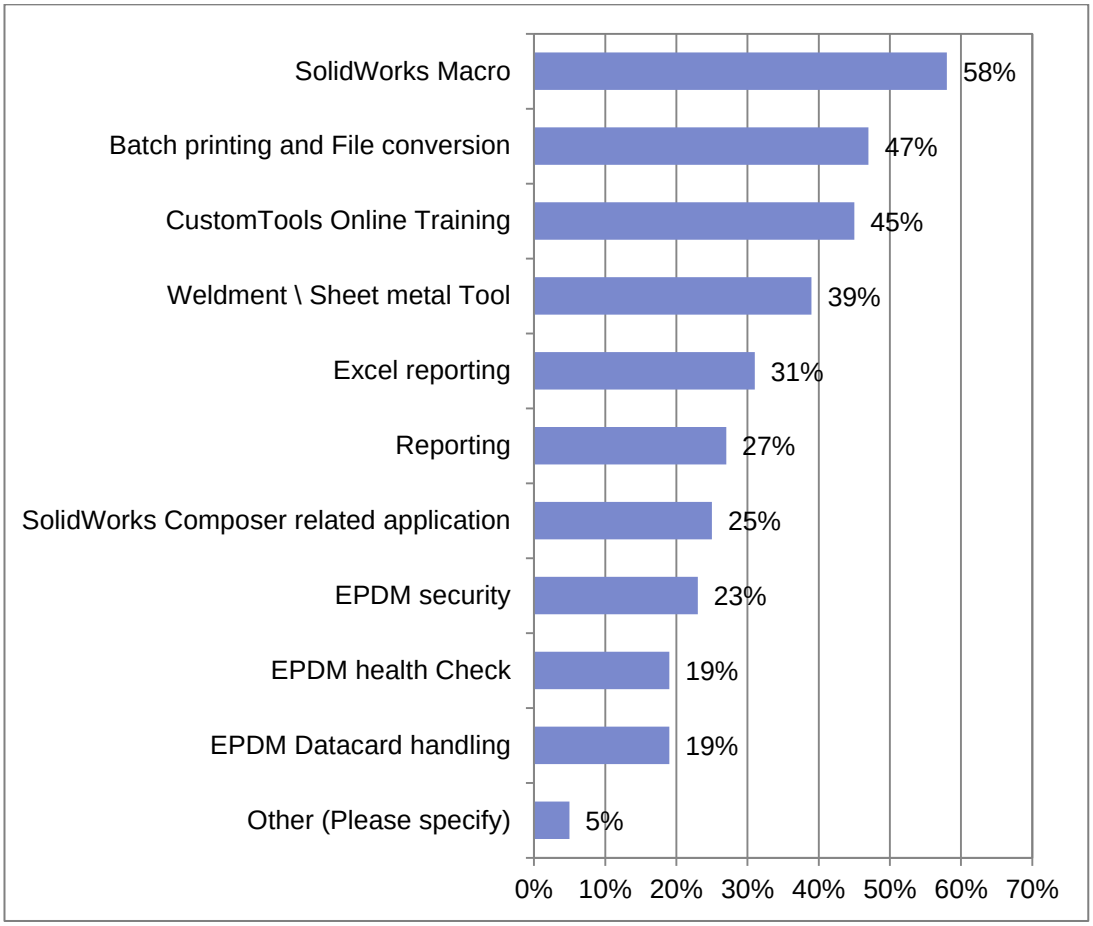

Figure 8 E-commerce survey question 2 (ATR Soft Oy. 2013b)

The areas that gain the most attentions were:

- SolidWorks Macro
- Batch Printing and conversion
- CustomTools Online training

The average responses for this question per respondent was 5.34

Q3. Which issue(s) or business need(s) would you like to be able to resolve with application purchased from a web store?

58% of the respondent replied to this question.

Here are some suggestions that can already be covered with current product line:

- Automation in filling drawing / property details like date name etc. speedy printing (drawings, PDF's, DXF's) from assembly associated models/drawings
- Time consuming tasks like printing or exporting to DXF security issues about EPDM performance issues for EPDM
- Training issues, tools are sometimes hard to use.
- Interface for export metadata to ERP. Creation of customized tables.
- custom property assignment for large assemblies

Here are some user requests:

- Security around CAD\PDM system
- Embedded File sharing application

Q4. How much you would be ready to invest money in online purchase?

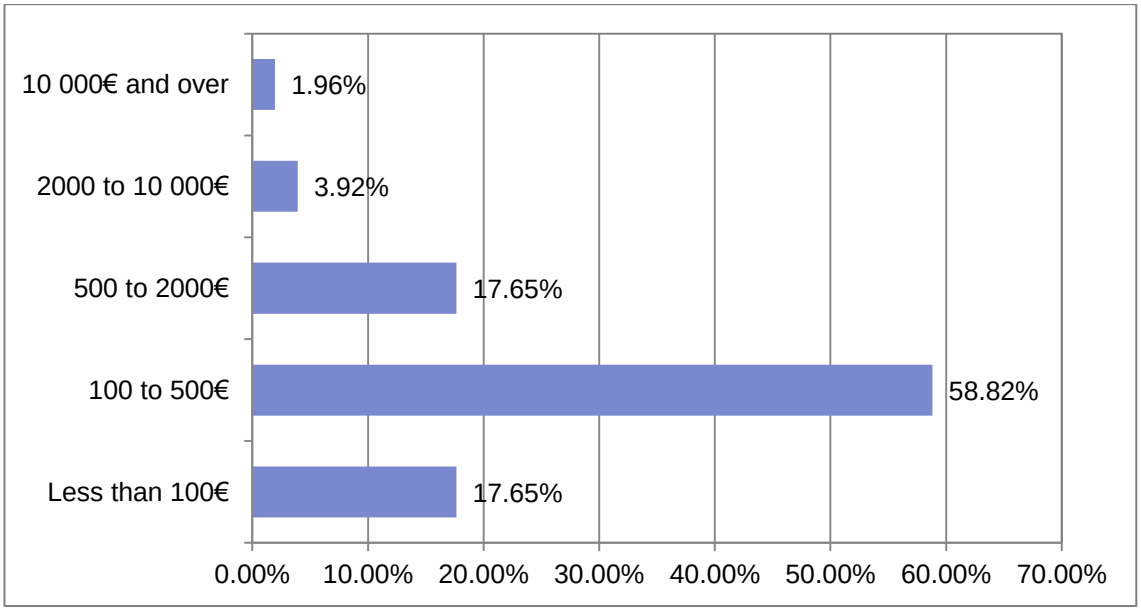

Figure 9 E-commerce survey question 4 (ATR Soft Oy. 2013b)

Over 58% of the respondent would like to invest from 100 to 500 euro when buying an application.

Q5. What kind of payment would you prefer to use?

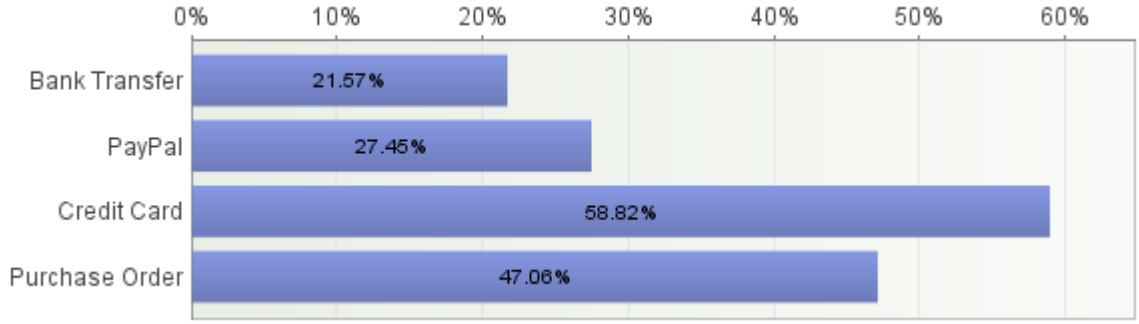

Figure 10 E-commerce survey question 5 (ATR Soft Oy. 2013b)

Credit card and purchase order are the most common replies, Purchase order allow designer to acquire some items on the web store without having to have any company credit card.

Q6. Would you be interested in taking part in the development process of application to be proposed on the web portal?

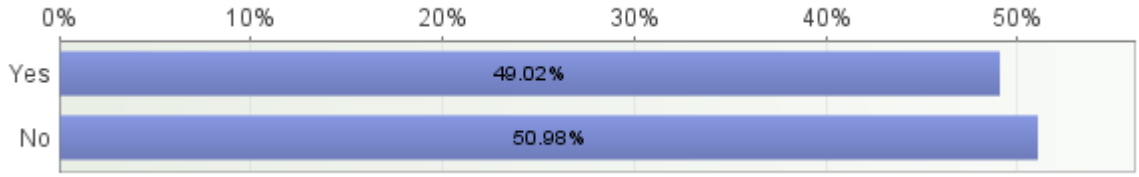

Figure 11 E-commerce survey question 6 (ATR Soft Oy. 2013b)

49% of the respondent would like to be consulted when developing a new application for the web store

Q7. Would you like to be informed when new applications are available?

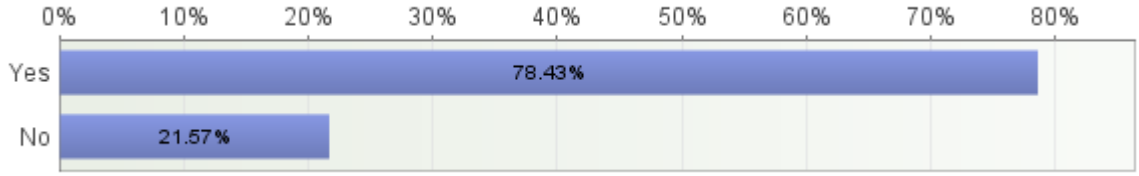

Figure 12 E-commerce survey question 7 (ATR Soft Oy. 2013b)

Over 78% of respondent would like to be informed when launching a new application.

Q8. Please feel free to share additional comments or suggestions.

12 Respondents replied to this question here are the useful comments.

- I believe a process order is the only way to pay; many companies can't use other methods of payment. Product price must be small enough to be handled as an internal decision of (e.g. design) company, web purchases are not possible if the purchase must be accepted in the higher level of the company)
- EPDM is a good platform but still needs little modifications to make daily usage easier. Purchasing from online idea probably will have some reliability issues. Is some error happened then response time is important. And also integration about SW service packs and main versions is important
- There are a lot of features in each module. There are only a few features I could use repeatedly from any one of each module. I would like to purchase smaller modules for personal use with my private seat of SolidWorks. I do contract / consulting work and this would be more beneficial for my situation. I like the idea to have a share development.

4.1.4 Evaluating action

The 16th of October 2013 the Product Development Manager, Executive Vice President and Sale Manager attended the meeting during an hour.

The following topics were presented and discussed during the meeting:

- Review of John Peros interview from Hawk Ridge Systems
- Survey result
- Analyze and Findings
- Planning next action?

Hawk Ridge Systems Interview

The interview of John Peros allowed the steering group to understand the reasons and motivations behind the creation of their web store.

- Propose Online training
- Extend their current sales territory
- Gain new customers
- Promote their competences online

At this moment Hawk Ridge Systems customers mainly used the web store to buy online training. It is the main sources of incomes of the web store. They are constantly updating their web store to propose additional contents in order to use the traffic generated by online training sales to expand their market.

The main issue that Hawk Ridge Systems is facing is those customers are not aware of all solutions and services that they can offer. The web store is a new alternative to promote their competences.

Survey report

Similarly than Hawk Ridge Systems the goal of company web portal is to advertise company competences over the internet.

The Web store content needs to fulfill the needs of the following users:

- Current customer that is aware of the company competences.
- Potential customer does not have any connection with the company

Here are the key results from the survey and during the discussion that preceded the presentation:

- The survey result shows that there is a potential in proposing applications and services online.
- The respondents can be categorized as follow:
    - Reseller: 11,6% (7 replies)
    - CustomTools customer: 46,6% (28 replies)
    - Non ATR Soft related: 41.6% (25 replies)
- 90% of current CustomTools customer selected it the option “CustomTools online training “in the survey. It could be a good opportunity to develop such feature but it should be kept in mind that those training are having limited audience due to the fact that it only affects CustomTools users.
- As Hawk Ridge Systems is going to advertise CustomTools on their web store starting from November 2013, it could be an opportunity to gather feedbacks from them regarding user interests and monthly number of purchases and demo downloads.
- ATR Soft has been on the CAD\PDM market over 14 years; the company has a substantial amount of applications around this area. All the applica-

tions selected needs to be listed and some of them should be selected to be advertised on the web portal.

- The web portal needs to be used to advertise the company competences. The survey report shows that CAD\PDM users are interested by such platform. Respondents that have no business connection with ATR Soft Oy often requested features that were already implemented.

- Current CustomTools website is generating over 800 monthly visits. Some recurrent traffic is in place. By using analytics tools, user traffics could be monitored.

- Web store content should be designed to apply to individuals CAD\PDM user as it might be challenging to offer tools that needs to interact with several CAD\PDM users at the same time; as an example in EPDM when an add-in is deployed in the vault it is available to everyone, it might then be harder to sell such content as management and IT department needs to agree on using such add-in before applying it to the vault. In another hand a standalone application can perform on a single machine without interfering with PDM system.

- Applications that would be deployed on the web store needs to be easy to configure, a lambda user needs to be able to use them without any external assistance. Deploying application on the web store will generate support. Applications needs to be user friendly and well documented in order to avoid additional support at all cost.

- Reseller can be contacted once the best approach is defined.

- Survey respondent that wrote some suggestions related to their business needs to be contacted to gather additional information.

Iteration conclusion

The constructing and planning action were in accordance with the iteration result. All the actions were completed successfully and no problems occurred during the action phase. The steering group was able to gather knowledge regarding the potential market and the interview proved that there is potential in implementing E-business in the company.

The market research will be used in the next iteration to choose which application will be advertised. The result survey is able to show which area will have more audience.

The interview result will be used in the planning action when choosing if the company will implement or not a web portal.

4.2 Second Iteration

4.2.1 Constructing

Here is a list of different approaches how to develop company web portal:

- Propose applications at really low price.
- Propose free Macro and small applications to attract potential customers. It will not generate direct sale but instead add traffic to the web portal and make CAD\PDM user aware of the company competences.
- Portal could be created additionally to the web store to allow users to access online contents. A yearly subscription fee could be defined and added to CustomTools subscription automatically to every new customer.
- Content could be as follow:
    - CustomTools advance training, each features option could be explained in detail.

  - CustomTools guideline, for example how to prepare for a migration from Solid Edge to SolidWorks etc.
  - Predefined Excel export profile.
  - Set of applications could be included with the subscription.
  - New content could be implemented according to the user's needs

- Advertise all company services on the web portal such as EPDM security health check and EPDM performance check.
- Propose reseller to advertise the company web portal on their website.
- Display current applications and services on CustomTools website without web store capabilities, but just as an advertising display.

4.2.2 Planning action

The 28th of October 2013 the Product Development Manager, Executive Vice President and Sale Manager attended the meeting during 40 minutes, a summary of the Cycle 1 Evaluating Action Report was presented and actions were planned for this Cycle.

The approach selected was to advertise existing applications and services on CustomTools website without web store capabilities but as an advertising portal. The goal of this iteration is to validate if a web portal can attract audience from CAD\PDM customers when promoting the company expertise.

The page will be added to the CustomTools current website (http://customtools.info/).

Here are several reasons why this approach was selected:

- Fast and easy to technically implement on our current website.
- User traffic can be monitored and compared with the previous periods.

- The contact form is already in place and needs to be extended to send additional content regarding applications.

Actions that needs to be completed

- Defined the content that will be advertised on the web portal. Applications, trainings and services needs to be categorized
- Defined a layout and content of the web page and present it to the research group before involving the IT team
- Check with the IT team how to technically implement the advertising page, form page and download link
- Once the advertising page is implemented feedback needs to be gathered from current resellers
- Defined a marketing campaign to advertise the advertising page content using e-mail, social media etc.

The goal of this cycle is to check the potential of a web portal and evaluate if CAD/PDM users get interested by the advertised applications. It can be seen as a step in the web store implementation.

4.2.3 Taking action

This cycle was separated into two tasks:

- Implementation of web portal and select applications
- Prepare applications to be published

The details of each task can be found in this chapter.

Implementation of web portal and select applications

From November 2013 until beginning of March 2014 the web portal layout and content was implemented.

During the beginning of November twelve applications were selected to be published on the E-business platform.

Using the help of a consultant art designer the group published the first version of the web portal. One challenge was to integrate a new branding inside the current CustomTools website. The idea came to promote the applications as “CT Apps” and services as “CT Services”. It is important that viewer understand that CustomTools, CT Apps and CT Services are different package. The website was adjusted according the new branding.

In order to gather feedbacks from company resellers and customers a brochure was created and presented at the SolidWorks world in San Diego, California during January 26-29, 2014. Positive feedbacks came during reseller’s meetings and few applications were sold.

During the action phase the steering group came to the conclusion that twelve applications will require too much work to be ready in the time line of the research. It was decided to reduce the number of application at the E-business platform launch. The number of applications to be advertised was reduced to six. The reason is that each application needs to be translated into different languages, licensed, tested and documented. Additionally the support department needed be trained to handle customer supports.

On the 30th January 2014 a third version of the web portal was completed. Each application is described in few lines; a descriptive video and link to request a demo is available.

Prepare applications to be published

The 11th of March 2014 the Product Development Manager and Application Developers attended the meeting during one hour.

The goal of the meeting was to assign company personnel to handle maintenance and support for the advertised applications. Once the E-business platform is published the company personnel must be able to handle support and maintenance.

The six advertised applications were assigned to different developers. Their role is to maintain the application when support tickets are created. An application life management portal was setup to be able to keep tracks of every support cases.

A tester was assigned to test and verify all applications.

It was defined during the meeting that selected application needed to be version controlled in order to know precisely which version was installed at the customer computer. It allows service support check and verifies if issues are fixed.

In order to reduce support calls it was decided that for each applications an installation guide video will be created.

4.2.4 Evaluating action

The fourth of April 2014 the Product Development Manager, Executive Vice President and Sale Manager attended the meeting during one hour, a summary of the first and second iteration was presented.

The second iteration focused on implementing the web portal for the company. The Iteration was separated into three main tasks: web portal layout, website content, advertising and marketing.

Web portal layout

The web portal was added to company product line website. Two new pages were advertised on the web page (CT Apps and CT Services). A branding was created around CustomTools.

CT Apps advertised the application created by the company while CT Services enumerate the competences in the fields of CAD and PDM.

The web portal can be viewed at the following URL “http://customtools.info/apps”.

Website content

At first the steering group agreed to advertise twelve applications but due to the amount of work required to complete the task the number was reduced to six.

All the applications were tested and versioned. A portal was created to handle support.

Advertising and marketing

The web portal was advertised using the company reseller channel and social media. Some resellers were made aware of the web portal content.

A Facebook campaign was launched to make current customers aware of our new product line.

Iteration conclusion

The constructing step was in accordance with the result. During the constructing phase the steering group made several propositions how to implement the web portal and one of them was chosen.

Most of the actions were achieved according to the plan. Due to the thesis time limitation the marketing campaign could not be clearly defined. The iteration took always more time than expected and the management wanted the website to be released.

For the future iterations, all the analytics tools that were setup for the website will be used. Additionally the web page layout will be reused when adding new applications.

4.3 Closing

During the two iterations the steering group was able to acknowledge those customers were interested into E-business solution. It is currently too early to know if the web portal will have a positive impact on the company sales or if it will be able to extend the range of customers. But due to the feedbacks from resellers it became clear that they are interested by the concept. An application was sold during the first week when presenting to one reseller.

The next step when it comes to reseller is to propose OEM bundle. Reseller could get all the applications as a single package. Two resellers were already interested by this approach.

Analytics tool needs to be used to better comprehend website viewer behavior. Two weeks after the new version of the website launched CT Apps and CT service were respectively viewed 262 and 93 times. CT Apps was the second most visited page in the web site (ATR Soft Oy. 2012c. Google Analytics).

Those two iterations are just the beginning of the E-business transformation within the company. Those changes take time and needs to be validated one step after another. The next steps are to advertise more applications, propose training. Web site content needs to be updated on monthly basic. Marketing campaign on Google and social media need to be tested and results must be evaluated using analytic tools.

5 DISCUSSION AND CONCLUSION

The first research question was to check if the company current business model was in accordance with existing E-business framework. The current business model was compared against two theoretical framework, “Evolving the E-business” (Earl, M.J., (2003)) and “Evaluating E-commerce business models and strategies” (Lee, C.S., (2001)).

The framework “Evolving the E-business” mainly focus on how the company is structured. As the company is a software company it is not bound to any physical limitation. Instead it is possible to adapt the company structure to fit certain requirement. Analyzing these frameworks demonstrated that some basic of E-commerce were already in place but some adjustments were needed to fit the needs of implementing a new business model.

The framework “Evaluating E-commerce business models and strategies” clearly focus on business strategy. During the “Constructing” phase of the first action research iteration the framework allowed the research group to comprehend that the current product line could not be modified and adapted to the E-commerce business model without rethinking and redesign.

As a result it was found that the company business framework was in accordance with the minimum requirements of E-commerce implementation. As Chung-Shing Lee suggested the programs needs to be designed to take advantage of the Internet network effects and other disruptive attributes to achieve a critical mass of installed base of customer (Chung-Shing Lee, 2001). Currently our current retail product line does not fit those requirements due to complexity of use, installation and support.

It was decided by the steering group to select a set of applications that were developed internally and that fitted the E-commerce strategy.

The second research question was to determine if any existing actors in CAD\PLM fields are taking advantage of E-business. The interview of John

Peros, Director of Data Management and Software Development at Hawk Ridge Systems allows us to gather positive comment regarding the E-commerce implementation. It was the only company that could be found that really had dedicated resources to propose such service.

John Peros mentioned that “We (Hawk Ridge Systems) don’t necessarily sell lots of tools over the web store, but it makes people aware of Hawk Ridge System, for their point of view it is as good as a sell”. ATR soft is having the same problem. The company has competences in CAD\PDM fields but it is not easy to advertise them.

The result of the first iteration showed that few actors were taking advantage of E-business in CAD\PDM fields but it should not be underestimated and there is potential for IT Software Company to propose such service.

The third research question was to determine if E-business could be a viable evolution to our current business model. To answer that question the steering group created a survey of height questions. It was sent to a mailing list composed of resellers, current customers and leads gathered during the Solidworks world event.

With 78% of the respondent that would consider acquiring CAD\DPM applications or services over internet the survey result shows that there is a potential in proposing our solutions and services online.

The last research question was to clarify how to implement E-business in the company. The steering group defined that the best approach would be to select a set of application to be advertised on an E-business portal. The E-business portal needed to be added to the existing CustomTools website (http://customtools.info/) without web store capabilities but just as an advertising display.

The applications selected were the following:

- Office to PDF for EPDM
- Property Propagator for EPDM
- EPDM Drag & Drop
- Track file usage in EPDM
- Vault Analytic for EPDM
- SW Property Batch Updater

For each of them a project was created on the ALM portal and Quality Assurance department started running test cases against them. Each application is having a trial period of 30 days.

The web portal was released on 26th of March to the public.

5.1 Action research process

The objective of this development work was to evaluate a new way of doing business with CAD\PDM customers. It was all possible by the use of the action research. The action research second iteration could not have been accomplished without full management and IT support. The key in action research is that all stakeholders need to participate in the research process.

The process started in June 2012; a steering group was created and focused initially in analyzing current framework against theory.

The first iteration started in August 2013 until October 2013. The main goal was to gather feedbacks from existing E-business actors and potential customers. The results of this iteration directly influence the next one. As a result the steering group was confident enough that E-business platform could start to be beneficial for the company.

The Second cycle started in October 2013 until March 2014, during this cycle the steering group went from theory into practice. A technical group was created to handle E-business portal creation and applications to be published. Over 12 employees in the company were at some point involved in the project. During this period the project was made public to everyone from the company. It was important to acknowledge everyone comments in order to move forward in the research.

The action research was in accordance with the research questions. The steering group was composed of employees of different status in the company, the meetings were constructive and everyone's opinion was taken into consideration.

Implementing action research in your own company requires rigors and personal investment. Scheduling meetings and allocating time for the research during working hours can be challenging with the everyday work and project deadlines. Meetings schedules with all steering group member is not always easy.

5.2 Research conclusion and future actions

The research process allowed the steering group to gain knowledge regarding ATR Soft company structure. The action research was done in accordance with framework "Evaluating E-commerce business models and strategies". It was crucial to examine traditional business and revenue models to rethink business strategy in order to be able to propose adequate content on the E-business portal.

At the beginning of the research project the idea was to check how to advertise one of current product (CustomTools) on the web portal. The literature review showed that the company needed the "Rethink business strategy". During the constructing step of the first iteration the steering group moved toward the idea of advertising applications that would fit the E-commerce business model. The Implementation of E-business for a Software company requires that advertised applications must be easy to use and configure.

The Research project met the research objectives as the outcome of the thesis research was the implementation of the first iteration of the company web portal. Like shown in the Figure 13, prior starting the research project the company did not have any E-commerce in place. During the two action research iterations the business strategy was created for E-commerce when advertising existing application on the web portal. This is just the first step in transforming the company to E-business but now it is possible to validate through analytic tools that CAD\PDM users are interested in web portal.

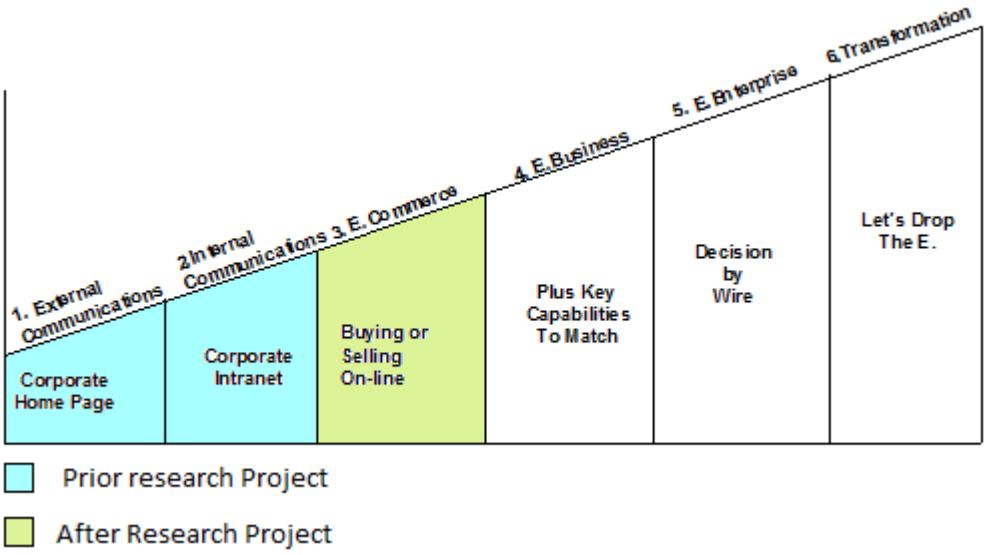

Figure 13 ATR Soft Oy According to Evolving the E-enterprise Framework (ATR Soft Oy. 2013d)

The research project answered most of the research questions. The steering group was able to understand changes that were needs in the company structure and strategy in order to transform the current business model strategy to E-business. When applying the framework “Evaluating E-commerce business models and strategies” (Lee, C.S, 2001) to the company product line the steering group decided to use simple applications that will fit the framework requirements.

The Interview with John Peros acknowledges the fact that other company was able to use E-business to promote their competences.

The research project could not fully answer at the current state if E-business was a viable evolution for the company. The steering group agreed that the web portal was a new way to promote our competences. Potential clients are now made aware of our skills and competences. It will require time to determine the web portal impact on the company.

Implementing E-business through the web portal is the first step in transforming the company. During the research project the steering group did not see a mean to implement online purchase.

The overall conclusion of the research process is that a company needs to use all possible channels to gather new customers. With the use of internet any company is able to advertise their competences. This is a channel that should be taken into consideration when building business strategy. At the internet age this is one way for company to make a difference against competition.

As a further research it would be interesting to study the impact of the E-business portal on the company current website traffic and analyze the viewer's behavior.

Another topic of research could be to study the impact of web portal for the awareness of CAD\PLM users, as stated previously one of the company main issue is that potential customer are not aware of company skills and knowledge. Can E-business portal be of any help by exposing company competences?

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Business Model Canvas

Key Partners

Solidworks when working as consultant

CAD reseller

Key Activities

Channel

Key Resources

Customer relationship

Value Propositions

Advance CAD\EPDM product line
Knowledge as Solidworks® Service partners
Competence's gained as being Solidworks® consultant

Customer Relationships

Solidworks
Co-creation with resellers
Support, Upgrade, features for customer

Channels

Resellers
Web Page, Blog, Social network
Solidworks territorial channel
Solidworks as Consultant

Customer Segment

Selling consultant works
Build application and services
CAD\PDM user that needs special expertise

Cost Structure

Employee's Salary
Building rents
Hardware maintenance

Revenue Streams

License sales, Yearly subscriptions
Consultation hours, Customer project

E-commerce Interview Questions

- When did you deploy the web store?
- What was the history\motives behind the web store creation?
- Do you think that the web store is an asset for your company?
- Do you have any estimation of weekly visits (100, 500, over)?
- Which category\product is the most popular (product, productivity tools, training)?
- Is the web shop currently generating profit?
- How many percent of your current customer are using this portal?
- How often are you updating the content of the web store?
- How do you deliver the sold product (download link, sending media...)?
- Did you create product specifically for the web store or did you use existing software developed previously for specific customer?
- Is the web portal a way to make customer interested into new services and product?
- Is it helping you to attract new customer?
- Are you advertising the web store content by email, social network?
- How do you attract shoppers?
- Have ever encountered any technical issues?
- Did you create the web shop internally? If yes are you using existing framework to create it?

- What is the most used payment system?
- What do you think is good and bad points related to the web store?
- What would you like to improved\develop?

E-commerce Survey

E-commerce survey

1. Would you consider acquiring CAD\PDM applications or services over internet if available? *

○ Yes

No (Please specify)

○ _____

2. From which area(s) would you be interested in seeing content on the web store? (Select all that Apply.) *

☐ CustomTools Online Training

☐ Reporting

☐ Weldment \ Sheet metal Tool

☐ EPDM security

☐ SolidWorks Macro

☐ Batch printing and File conversion

☐ Excel reporting

☐ EPDM Datacard handling

☐ EPDM health Check

☐ SolidWorks Composer re-lated application

Other (Please specify)

☐ _____

3. Which issue(s) or business need(s) would you like to be able to resolve with application purchased from a web store?

_____

_____

_____

4. How much you would be ready to invest money in online purchase? *

◯ Less than 100€
◯ 100 to 500€
◯ 500 to 2000€
◯ 2000 to 10 000€
◯ 10 000€ and over

5. What kind of payment would you prefer to use? *

☐ Bank Transfer
☐ PayPal
☐ Credit Card
☐ Purchase Order

6. Would you be interested in taking part in the development process of application to be proposed on the web portal? *

◯ Yes
◯ No

7. Would you like to be informed when new applications are available? *

◯ Yes
◯ No

8. Please feel free to share additional comments or suggestions.

_____

_____

_____