

## **AT THE MERCY OF DISCONTINUITY: AN ICT COMPANY IN A TURNING POINT OF BUSINESS**

Key words: Discontinuity, activity concept, cultural-historical activity theory, business development

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### **Abstract**

This paper delineates a historical trajectory of a Finnish ICT product development company. In 1980's the company invented a radical innovation that accelerated growth and a dominant position in global and local market. After 25 year the company reached a turning point of business in consequence of discontinuity. An activity-theoretical approach is used to trace historical events and elements of activity concept that manifest the principles of their business. The intertwining notions of discontinuity and activity concept are used to elaborate the business logic transformation and discontinuity driving forces.

## 1. AN INTRODUCTION

The phenomenon of discontinuity was adopted to social sciences in the book of Peter Drucker (1970) as he anticipated the macro-level technological, economic and politic progress and the strands of emerging knowledge-intensive economy. Since then the concept is often interpreted as "common-to-all" driving force of business environment that is supposed to change the predominant landscape of business. Above all, discontinuity is well adapted concept in the discussions of technology-related management and in elaborating technology innovations, technology evolution and emergence of dominant designs (see e.g. Tushman & Anderson 1986). However, the studies of discontinuity at a micro-level contexts of business and effective implications of discontinuity for business logic transformation are very much missing.

This study is about an ICT company that has a pre-history strongly influenced by an innovation and that later in its history has experienced "new technology pushed" business discontinuities. My aim is to elaborate actual-empirical nature of discontinuity in the history of an ICT company. I claim that previous technology and business discontinuities as well as the succeeding focal events and decisions of the past mediate the developmental motives of company's management team and inevitably set limits to the company's business opportunities of present. Furthermore, founding on Ilyenkov (1974) I propose that when finding at a micro-level more concrete-empirical nature and interrelations of different motivating elements of discontinuity the analysis provides also for relevant and realistic understanding of business logic transformation and more profound meaning for discontinuity even at an universal level.

My theoretical and methodological research framework rests on cultural-historical activity theory (CHAT). In order to trace a progression in the company's business activity and events that triggered discontinuity in the activity I present a historical trajectory as temporal allocation of events. With a notion of activity concept I qualitatively depict activity into a systemic whole. A activity concept represents a set of company's generalized principles and meaning of activity reflecting a certain business historical moment (Virkkunen 2007). The discontinuity is then appearing in the contradictory or otherwise negating elements against the existing activity concept and launching changes in the activity concept. The notion of activity concept is relative to the notion of business model. Recent research is mostly focused to find an optimal, abstract description of business model (see a classification of business model definitions in e.g. Al-Debei, El-Haddadeh and Avison 2008). Instead, an activity concept is an abstraction of a new solution gradually materializing into reality along with experimental learning actions and reconfiguring an organization's activity system and context. An essential assumption in my study is that development of activity is interrelated with organizational learning. Learning actions precede development and the modes of learning transform along with development.

In this paper I will first give a short background information about the case company. Then, I will theoretically elaboration the two main concepts of discontinuity and activity concept as phenomena intertwined with each other. A compact methodological discussion is then following to capture the methods of data collection and analysis of the

case company's historical trajectory. In my analysis, first, I will scrutinize the historical events causing discontinuity and then depict the activity concept to illustrate the cultural-historical layered activity of the company. The ultimate analysis is the essence of the business discontinuity and emerging new managerial challenges founding on the historical events and materialized activity concept. The conclusion of the paper will include a case example related more general discussion about discontinuity as a micro-level phenomenon.

## **2. A SHORTCUT TO A CASE COMPANY**

The Finnish small-sized company offers workgroup software application, mobile solutions and support of associated infrastructure. The company is an affiliate of one of the most biggest ICT company's in the world that is also established in Finland. The organization of the case company is divided into four functions operating under the CEO. They are the functions of finance, sales, customer services and product management. The marketing manager is subordinate to sales. The company has also two foreign subcontractors.

The main product of the ICT company is a software solution for workgroup information management. It is basically an e-mail system. The additional applications are software tools for communication and collaboration, time and resource management and documentation search and management. The company offers also mobile and wireless groupware solutions and solution for intranet, extranet and internet with affiliates. Besides, the case company is nowadays an application and service provider of some other ICT companies that have a value-adding features to company's main products. One example of these applications is a remote mobile device management solution.

At Finnish markets the company's sales activity is twofold. They sell directly to middle-sized organisations and operate with ICT dealers or sales partners. The parent company is one of the sales partners and sells their products and services for large public organizations and private companies. The case company's customers represents also public sector organizations: municipalities, government institutions and state-owned companies. They have also a limited number of private sector companies as customers. Additionally, the company has also foreign business activities that are either direct customer relationship or operated indirectly collaboratively with the parent company or with international sales partners.

## **3. A DISCONTINUITY AS A DEVELOPMENTAL TRIGGER OF BUSINESS**

### **3.1. Discontinuity - from macro-level phenomenon to micro context-level contradictory force**

In his re-edited version of "The Age of Discontinuity" Peter Drucker (1983) defines the concept of discontinuity with geological metaphor as "a revolution that is the earthquake ... that obliterates the familiar landscape and creates a new one" and he continues: "but these revolutions are largely the shift in the foundations that precede them and make the revolutions inevitable." Thus a discontinuity is an era of instability after stability that is firstly triggered by something that is deviating and causing profoundly novel criteria for

business. According to Drucker a discontinuity is not only related to technology or economy, but have even a more fundamental, social nature.

Perez (2002, 2006 & 2009) has also emphasized wider impacts of each technology revolutions that she regards to be at least a half century lasting "great surge of development ...of a collectively shared logic..including shared perceptions, shared practices and shared directions of change". In her studies of techno-economic paradigms she present that the initial stage of a paradigm a revolutionary technology is a shock for the whole society when diffusing and gradually but focally changing the principles of production and consumption. Thus each paradigm provides a new technological infrastructure and new organizational principles and, still, every paradigm have identical two recurring elements. The first element is in the double nature of each revolution; each technological revolution is actually linking the "the old" and "the new" that generates a new potentiality in form of new constellations of technologies. The other recurring element is the sequence of a paradigm. Each paradigm is divided into two diverse phases of technological diffusion: an installation phase and a deployment phase.

During the installation phase radical, technological innovation emerge with the support of financial capital. First there is space for diverse, simultaneous technologies, but as dominant designs emerge a more focused and standardized technology evolution start up (Tushman & Anderson 1986). The deployment of technology that is the latter phase of a techno-economic paradigm there exist a whole different criteria of technological, economic and social development. The new technology spread to wider social and production practices and slightly matures, but more evenly benefits the whole society (Perez 2006). In between the the phases of technology installation and deployment there is an unpredictable and tension-causing period of a turning point. Perez's theory elucidates that the now experienced turning point of the ICT paradigm is supposed to be a cutting edge of the mass-production paradigm starting a full deployment of information technology and of the principles of ICT paradigm.

Despite that the theory of techno-economic paradigms is mostly focused on the macroeconomic level impacts of technology evolution Perez (2009) highlights that the macro-level phenomena stem from technical inventions, innovation trajectories and organizational changes at micro-level. Her analysis of paradigms shows that in the ICT paradigm an extensive era of discontinuity is starting when the technology installation phase of "technology push" is turning to the technology deployment phase of "demand pull".

A more micro-level theoretical picture of discontinuity can be traced from the lifecycle model of Cusumano, Suarez and Kahl (2007). Their model formulates a sequence of changing strategic focuses of business that moves from products through process to services. First, products are the main competitive base of an industry. As the markets mature and several substitutive products are available, the main competitive base transforms to production principles. Therefore, the signs of discontinuity are the selection of dominant design, standardization of products and the shift from competing with products to competing with costs and prices. However, this progression may be disturbed if a new technological innovation emerges and interrupts the maturation with a new technological cycle.

A vital, new point in this lifecycle model is the incorporation of service to the product lifecycle model that has been applied for industrial business settings. During the ICT

paradigm services are playing an essential role. In the initial stage of the paradigm services were mainly needed to help for coupling technology with social practices. Later services have produced new constallations for technology products (Virkkunen, Pihlaja & Ristimäki 2010). As the information and communication technology transformed into complex infrastructures some companies have even changed their main attention on service production. We can say that service are activities or element in products that customers increasingly need and value in technology based activities and production. The model also ignores a wider perspective on discontinuity and conceptualizes only as a technological discontinuity along with technology evolution. The processes and service are perceived as an extension of technology product life cycle. The potentiality of business continuity and processes or services as a discontinuous business generators is eliminated in this paper.

Comparable to industry lifecycle model is Victor and Boynton's (1998) strategic path of business activity transformation which they have elaborated from several empirical company cases. A path from a craft work through massproduction, process enhancement, masscustomization to co-configuration type of business logic is a route to create value for and of developing market potentials and regenerating customer needs. As the competitive base of the company expands along the path, the quality of customer knowledge and relationships accumulates through learning. Virkkunen (2010) uses a concept of continual use value learning for company's active perception and reaction to customer needs and potentials. However, continual use value learning is more than keeping the company continuously aware of customers' needs and satisfaction level of the products. Learning actions can lead to questioning or expanding the perspective of companies own business, reveal new opportunities and mediate a new object for business activity. Continuous use value learning is then essentially intertwined with management of business development. (Virkkunen and Ahonen 2007.)

### **3.2. An Activity Concept as a Configuration of Business Logic**

The legacy of massproduction has produced one common business logic that is founding on independent organization functions, product-based sales and production principle of economies of scale (Pihlaja 2005). The manufacturing of physical goods have separated production and consumption and channelled the business development focus to internal variables. The massproduction standardizes production and sales for mass segment of customers. Instead, the era of new information and communication technology creates new contexts for customer value creation and shifts the business focus from production towards relationships, networks and collaborative innovations. The development from product-and internally orientated towards customer- and externally oriented is a major shift in companies (Virkkunen 2010). Normann (2001) articulates that the change of business logic in a new business landscape - is empowered with two developmental activities: reframing and reconfiguration. His main argument can be depicted to an activating role and expanding demands of customers as well as to development of new strategy logic and new value creation logic (reconfiguring) as well as the mobilization of organization and managing knowledge (reframing).

The research around the concept of business model has attempted to grasp business logic in the information era ( see e.g. Amit and Zott 2001; Magretta 2002; Hedman and Kalling 2003; Pateli and Giaglis 2004; Al-Debei et al. 2008). However, this research area has mainly theoretically pursued to profile the essence of business logic. These descriptions

neither link much of development aspects nor empirically elaborate transformation. The key emphasis in business model definitions is: how value creation is enacted. Osterwalder, Pigeur and Tucci (2005) are grasping the concept of business model as follows:

*"A business model is a conceptual tool containing a set of objects, concepts and their relationships with the objective to express a business logic of a specific firm..(and for them it is necessary to understand)... "what value is provided to customers, how this is done and with which financial consequences."*

The authors claim that a business model is a mediating tool between the strategy and practice. They consider a business model to be an extension of strategy that blueprints how business is done in a company. Although, in their definition they refer to the purpose of business model for concrete activity, there is no direct reference to the contextuality or historicality in which the activity of company is always rooted. Yet, a business model can be one mediating artefact for evoking a new business logic.

The idea in my paper is elaborate the company as a boundary-crossing and developing activity concept that has a cultural-historical and contextual character. The notion of activity concept can be traced with the general meta-model of activity system that depicts actions and operation of actors into a collective and systemic whole of activity in a historical continuum. The meaning of an activity is revealed in the object and outcome of activity (Engeström 1987).

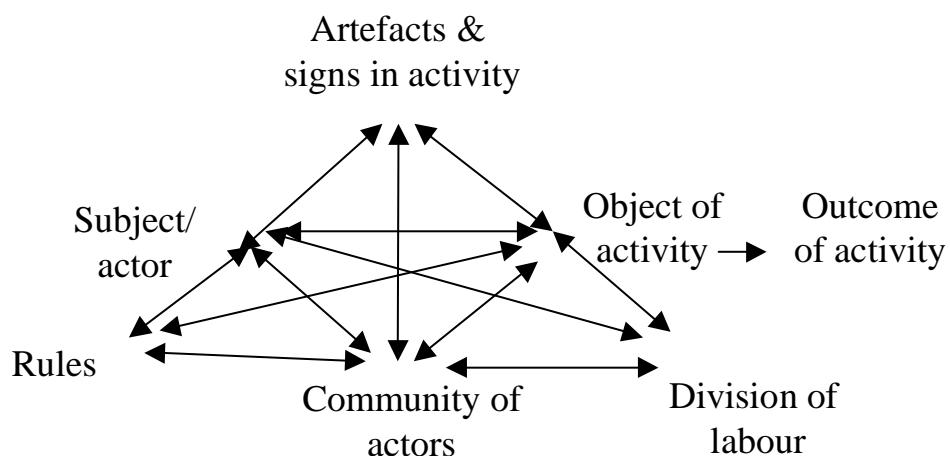


Figure 1. A general model of an activity system (Engeström)

The object mediates the motive and direction towards which a community of actors (e.g. a company) is aiming to achieve a desired outcome. The specific content of the concept of object is clarified below (Engeström and Blackler 2005; Engeström and Kerosuo 2007).

*"The object embodies the meaning, the motive and the purpose of a collective activity system. Object is not reducible to short-term goals; it is durable and become reproduced in each string of actions vital to the activity. The object is given as "raw material" to the subjects (actors) involved in an activity - just like illnesses and patients are given as "raw material" to health care practitioners. But it is also interpreted, constructed and changed by the subjects' actions - just like health care practitioners construct illnesses and patients by means of their tests, diagnoses and treatments. The object is multi-faceted and open to innumerable partial interpretations which stem from the different perspectives and mediating instrumentalities available to different members of an activity system occupying different positions within its division of labor. Yet the object is also a unified whole, bounded by the efforts of the activity systems engaged with it. By acting on their objects, activity systems both stabilize them and push them into movements."*

As the citation highlight together with an object other mediating elements in a collective activity. An activity is temporarily balanced when these element - tools, rules and division of labour - are compatible to each other. According to the theory inner and external contradiction are a driving force that disturb activity-mediating elements and create movement. (Engeström 1987.)

#### **4. CHAT METHODOLOGY AND METHODS OF DATA COLLECTION AND ANALYSIS**

The particular theoretical and methodological approach that cultural-historical activity theory (CHAT) outbid is a meta-level framework for understanding, seeking, explaining and influencing qualitative development of human collective practices and social construction of organizations that are multifaceted and dynamic. Engeström (1987) developed a general model of activity system (presented in the previous section) from Vygotsky's (1978) conception of individual mediated activity and expanded it into a collectively constructed activity by using Leontjev's theorizing of activity levels that are operations, actions and activity (Leontjev 1978). The theory is dialectical and multidisciplinary. A human or a community is not researched as isolated from the culture, but as mediated with the elements of the activity and as a mediating community of actors. The meta-model of activity system is fit for intertwining other theories for generating a full setting of context, concepts and research focus. (Engeström 1999a, Engeström 1999b.)

Atkinson & Hammersley (1998) depict that ethnographic research has three common characters. Firstly, ethnography is a process that searches for the nature of a social phenomenon. Secondly, a researcher is working with an unstructured data of a limited number of cases. Thirdly, the analysis of ethnographic data is explicating meanings and functions of human activity in a form of explanation and description. My PhD research is a longitudinal case study using ethnomethodology of "micro social phenomenon" that are connected and related to larger social and historical forces (Lynch 1993). The research process is materialized in the context of an ICT company of a study that started in September 2006 and still continues. This paper concerns the historical analysis of the case company. The method of data collection is interviewing as reconstructing the history

by remembering. The historical ethnography is used to collect data of events, activity and development in company's twenty-five-years history. The historical data is completed with some documents.

The historical interviews were collected in December 2006. The interviewing process started with selecting the informants and agreeing on the means of approaching the historical issues with the informants. The interviewer used conceptual tools for depicting the narratives of the informants into several historical phases that they first had to agree on. The informants were interviewed successively and a conceptual tool was also used for data collecting and for completing "a big picture". Each developmental phase and significant issue that an informant raised was discussed thoroughly. In successive interviews each informant was adding information to the already built narrative of the previous informants. Everyone was independently able to "negotiate" the events through their own experiences and own professional perspective. The idea of this interviewing concept was to give space for multivoicedness and, nonetheless, construct a shared object of the past activity. The first informant was the CEO of the company who had the most extensive work experience, because he had worked in the company through the whole history. Altogether, seven informants were interviewed, who represented mainly the existing management team. However, some other employees with a long working experience were also interviewed. The informants covered all the organizational functions: general management, sales, product development, support service and marketing. In the end the collected historical trajectory was scanned once more in another discussion with the CEO. The advantage of the conceptual tools and the scanning discussion with the CEO was that it helped to formulate a preliminary analysis of the history. The data collection was finally completed with the chronicle of the company. The statistics of turn over and organization charts from different years were also helpful for understanding of the historical events.

The analysis of my study is divided into three research perspectives: object-historical analysis, theory-historical analysis and actual-empirical analysis (Engeström 1987). The preliminary analysis is for contracting the transforming object of activity and periods of business activity. Theory-historical analysis is connecting the activity concepts of the case company to wider perspective of development at societal level. The actual-empirical analysis is a complementary analysis of the earlier analyses for creating a hypothesis of the main contradictions and a comprehensive picture of discontinuity in the recent business of the company. These analyses are compactly delineated in two following sections. First I will describe the company historical trajectory in a temporal narrative. Secondly, I will analyse the culturally-historically layered activity concept of the company in a turning point of business. The final part is an elaboration of drivers of discontinuity in the company's activity concept.

## **5. THE HISTORICAL TRAJECTORY OF THE ICT COMPANY**

In the turn of 1970's and 1980's a group of product developers from two different Nordic ICT company's were jointly working out with a challenge of microcomputer's technical connectivity. By that time the computers were still "dumb" terminals in an individual or collective use. The aim of the product development collaboration was to link computers at a same site into a networking infrastructure. The outcome of the work was an innovation that became an e-mail software and one of the first-in-the-world office systems and workgroup applications. The software was about 10 years ahead

Microsoft with a modern pc architecture and graphic user interface. In Finland the product was a market leader for years. An interviewed sales managers indicated how excellent - and radical - the innovation was at that time with the following words.

*"..and so did Bill Gates himself praise it (the software application) to the skies; how excellent it is."*

Soon after the launch of the product the two Nordic companies merged. The product family was growing in the hands of the product development division that put a lot of efforts to develop new features and ICT architecture. In 1991 the product development division experienced another ICT company merger and a new e-mail system was developed as a combination of two e-mail systems and their best features. Another completely new version of the e-mail system with new user interfaces and a better architecture was launched in 1995. In the beginning of year 1997 the product development division finally became a firm and a year later after one more company merger the company was an affiliate of one of the largest, global ICT companies. In the end of 1990's the case company had several product groups for workgroup management and other ICT application. Product development was still the main activity of the company. Then most of the sales activity was still channelled through the parent company's sales offices. During that time there were already several competitors in the market. It was already obvious that Microsoft was the dominant design. However, company's e-mail system was ranked as the fourth of corresponding systems in the world. Therefore, it was the most promising and growing product family in the company. The marketing manager argued the importance of the e-mail system for the parent company.

*"I would say that most significant transformation from the point of view of the product X(the e-mail system) was that Y(the parent company) took it as their workgroup software and financed and supported our development a lot."*

One of the indicators of the company growth was the increase in employees and opening of offices. The pre-history of the company had started from a product development team of less than ten people. During the incorporation in 1997 an sales office was opened in England to complete the product development functions that were then in Finland and Sweden. There were more than hundred employees mostly working for different product management groups for simply for e-mail system product features and applications. In the beginning of 2000 the amount of employees was already about 350. As the sales had been in the hands of the parent company the customer segment was shaped according to the parent company's clientele that was the public sector organisations. The diffusion of technology contributed positively to the sales of e-mail system licences due to the labour-intensivity at the public sector. Although the customer sector was a stable customer segment and sales was growing, a need for the product marketing was increasing. The competition was getting harder and the sales promotion was needed to support the sales.

During the turn of millenium when the world wide web was commercialized. There was a strategy group that was working for creating new guidelines of innovation activity that could continue the success story of the company. The idea was to develop an 'ever-growing' company with emerging new technology domain. The conclusion of the strategy development was to give a fully new mission for the company. The main point in the new missio was to expand the perspective of company's business logic. In

the future the company would create more than software products. The mission was to create new business models that the internet technology would support. The strategy group had also come to a conclusion that the "old" workgroup application would not guarantee growth any more. The company needed new capabilities for developing an internet solution and they acquired two small companies that were already working with internet technology. The know-how that the office in England had was also exploited. This new domain of product development became the main focus of the company with a strong support of the management team. In 2002 a new financier was found to support this development. A venture capital company became then another owner of the case company. The ownership of the parent company was decreasing to fifty per cent and the main product development activity of the e-mail system was relocated to the parent company. Only a small group of product developers were left in the case company. Owing to these changes the work for the software development of the "basic product" was gradually cut down to "a minimal sufficient level". However, the e-mail product was so profitable that a lot of financing of the new internet platform product development was based on that the profitability of the e-mail system.

A solution of new business concretized in developing an internet platform to be tailored for each customer. This new solution had impacts on the business logic. The company was recruiting consultants for the tailoring project work. The product families that the company were remained as another part of the business. Because the product development of e-mail system was outsourced and the sales logic of the company was also changed and a lot of sales staff was recruited to start a direct sales. A division of labour in sales function was developed between the parent company and the affiliate as the parent company remained as sales channel for big organization. The company had now offices in two cities in Finland and new offshore offices were established in Germany, Holland and USA. The internet development had been a heavy process and the outcome was a project-type business logic since the tailoring of an internet platform for a customer could last a half a year. The investments were heavy, but sales revenue and profit did not increase as expected. Suddenly, the whole business of the ICT company was at stake. The solution was to break-up two business domains that had different business logics and different customers. The ICT managers were the key contacts in e-mail system and other workgroup solutions, meanwhile, the communication and marketing people was main users of the internet solution. In 2004 the internet business became an affiliated company of the case company.

A year earlier the company had started a collaboration with Nokia. The initial aim of the collaboration was to create a second generation internet platform that would be a mobile version. Next year Nokia withdraw from the collaboration in product development that had, however, transformed into another development field: the integration of mobile technology and e-mail system. The ICT company wanted to continue the product development activity of new mobile technology. The product development of mobile was expected to provide a volume product that would offer growth for the company and, therefore, it became then the third main business focus in the history of the company. In order to continue the mobile development the case company needed to acquire resources for mobile technology development. Novell became their new partner and two small mobile expert firms that already were their partners were merged into the case company. During the shift of the focus to mobile technology, several other lateral products families of the company were sold or outsourced to other ICT companies. After that the size of the organization in number of employees was now less than hundred. Now, the remaining product families were

build around mobile and e-mail system applications and supporting services of infrastructures of workgroup systems. The support service business started to grow. As most of the employees were working in product development and there was a huge loss of sales personal a development of a dealer network became a new solution for restructuring the sales.

After twenty years of product development around one product and dynamic, new millennium of new technology development the company had moved from stable, growing company through hype to a rollback. The Novell collaboration had ended fast and the second new attempt to build a growing business in new technology was failed. The situation was even more aggravated due to parent company's redemption of the shares from venture capital company that was also withdrawing from the ownership in 2005. The managing director indicated this turning point with the decisions and actions of the parent company.

*"The decision made was not self-evident, it was an either-or-situation. They (the parent company) decided that our business activities will continue on the basis of what we are now - as a much smaller company than what we were then. And then this product development of mobile was relocated to our partner and our personal was reduced so that the sales offices in Sweden and Holland were closed."*

Thereafter, the interests of the parent company were not any longer in the growth but in the profitability of the case company. The mobile technology product development was outsourced to a partnering company. Now, almost all of the product development activity was outsourced. The decision of the parent company had suddenly changed the case company from a full-scale product development company to "one product management" company. The product development-based business logic that had dominated the whole history of the company had now finally ended.

## 6. A TURNING POINT OF BUSINESS

### 6.1. Cultural-historically layered Activity Concept of the ICT company

During the installation phase of ICT paradigm the technology was young and, therefore, the product development activity was a dominating logic of ICT companies for long. A radical innovation boosted an emergence of a company from a product development division and carried the company over the pitfalls that "the technology evolution pushed" business discontinuity caused. The historical trajectory of the company can be allocated temporally to three phases of product development: the integration of hardware and software technology into an innovation of an e-mail system, the integration of new internet technology and organization communication practices and the integration of mobile technology and software technology. The last two phases were conducted under overheating conditions and risky technology hype which left the company "on its feet, but shivering." What was left consisted of a semi-independent company with a highly profitable and solid product of e-mail system and personal support service. The support service team had been expanding and was creating value to the middle-sized organizations that could not achieve a good enough service from the bigger ICT suppliers focusing on bigger organisations.

The following figure depicts the activity concept with essential elements of leftover business of the ICT company.

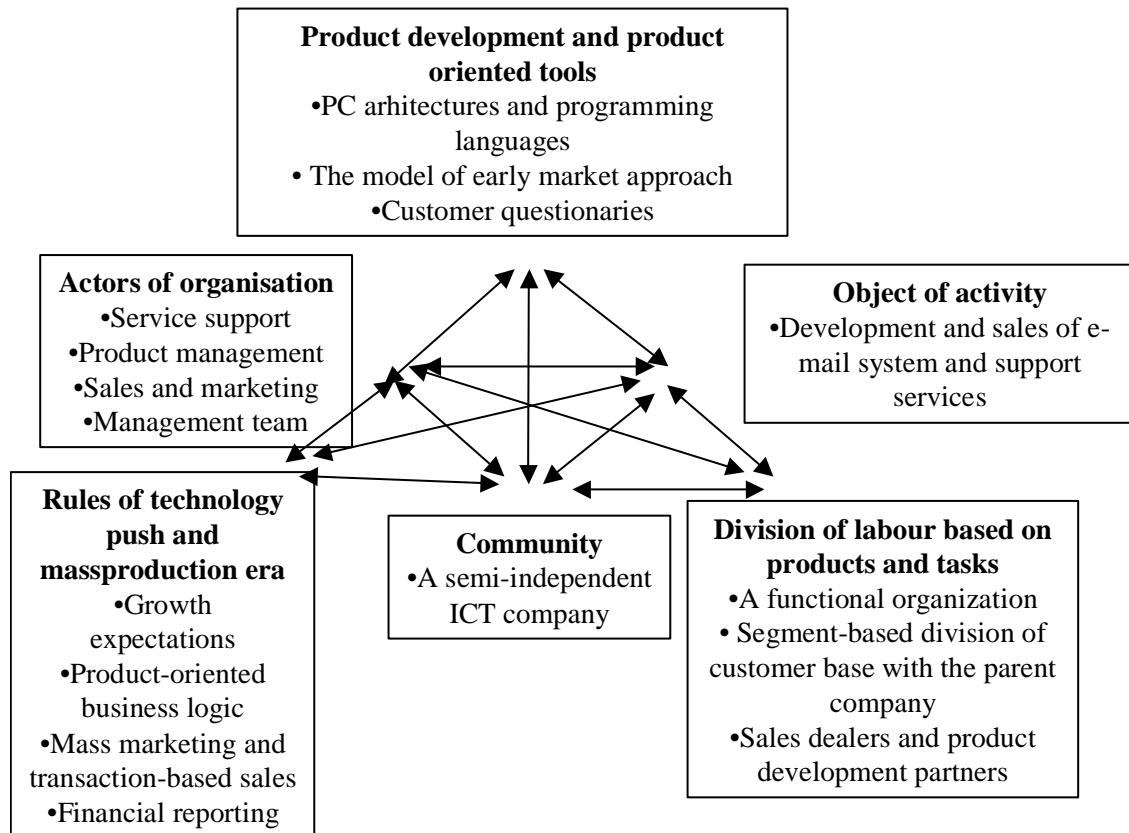


Figure 2. Prevailing activity concept of the ICT company.

The object of the remaining business in the organisation was to be founded around the e-mail system and potentiality of the additional features and services that would support the survival of the company. When the development responsibility of e-mail system was shifted to the parent company, a small-scale development was still left in the company. The revenue basis of the business was depending on sales of product licences, updating of the new product versions and supporting the system that as a stand-alone product with little integration to the customers' ICT infrastructures.

Earlier development projects and different product features were managed separately and the division of labor between the different product teams was strict. Therefore, we can say that the activity concept of the company was based on product development logic of many different activity systems. The CEO's revealed that the product development people have always been jealous about their products and highly self-confidential about their capabilities, knowledge and work. The product organizations used also different tools for activity, because the technology architectures and programming languages of the e-mail system, internet platform and the mobile technology were totally different. Therefore, for introducing a new technology, resources were acquired outside from other companies. Merging a new company created even more strict division of labor in boundaries between the different development functions. There were not much internal networking or collaboration between the different product organizations.

We can say that the company had been as a trustful expert in high-technology business, because companies like Nokia accepted the company as a product development partner and because the financial investments in company continued some time after the ICT bubble collapsed in Nasdaq in April 2000. New product development partners emerged from the companies that, now, were the managed the product development.

The logic of marketing and sales were based on the principles of massproduction era. Direct marketing campaigns preceeded sales. The company had adapted Geoffrey Moore´s (1999) model of Early Market Approach for launching products. The basic idea of the model is to promote a new product for enthusiasts and early adaptors of technology as early as possible in order to get the best out of the mainstream markets. The product launching started as soon as there were signs that product was suitable. After the direct marketing campaign the sales then reserved visits to customer and e-mail system dealer for presenting the new products or product features. Customers' feedback was primarily collected with customer questionaries in order to achieve a general opinion and an overview about the features to be developed next. The role and the amount of support service people had increased since earlier years as the e-mail system had more features. They were managing the daily contacts with the customer. However, the focus of their activity was on the tecnical defects or other customer inputs.

The relationship to the parent company was rather reserved. The ICT company and Finnish office of the parent company had a collaboration of the customers using the case company's e-mail system. As the intrests and expectations of the parent company changed new delimiting prerequisites were established for the case company's business activity. The case company was to be profitable in the business activity level that it had after the outsourcing of internet, mobile and other earlier straggling business activities. As the parent company was a listed company the business activity was measured quarterly. Another prerequisite was the maintaining of the present customer base in order to ensure a definite level of turnover.

## **6.2 Discontinuity in the Business Activity**

In the history of the company we can be divided into two rythmically different periods related to growth and decline of the company's business. Retrospectively we can roughly say that the decades of 1980 and 1990 were years of evenly proggessive growth which were followed by a bumpy decline. However, business progression of the so-called basic-product was consistent. The company mergers as such seemed not to disturb the development. Instead they guaranteed continuity for technology development. The company was able to stay as a frontplayer in the evolution of information and communication technology approximately twenty years. On the other hand, the accumulation of different product families created incoherence inside the company, because there was not much synergic activity build around these product groups. The more the resources were decentralized in different products the less there was insightfullness of the single products.

The asymmetry of activities became even more critical after the turn of millenium, since the prioritization between the two business sector of internet and e-mail that even had two different activity concepts. The other was a project-based consulting activity, while, the other was a ready-made software licence selling. As Cusumano (2007) et al. would

denote there was not backward compatibility between these two products that could extend the lifecycle of the former product. This was practically a technological discontinuity from the e-mail systems point of view which, however, did not destroy it.

The dominance of product development and technology-orientation in the business logic within all the technology development phases of the company was doubtless one of the drivers of the recent discontinuity. The focus of the business development had been too long on the products at the expense of customers. The public organizations as a customer segment was indirectly explicated as one of the success factors of the company. In these organizations there had been a lot of handling of papers before ICT technology. The e-mail systems dramatically diminished this kind of work. Nevertheless, the stability of the customer in municipalities and state government created a stability in customer demands which were not a dynamic as in the demands in the private sector. Later when the demands for the e-mail system sharpened they were not respected accordingly. Furthermore, the competition got harder and the competitors started to be interested in this customer segment that, now, was in a movement. Namely, a great number of mergers and restructuring local governments and services in municipalities as well as a harmonization of ICT systems and the information modelling projects of government organization have been undergoing lately (Local and Regional Government Finland 2010; State Treasure 2010).

There is lack of evidence on specific investment in developing production processes or services. Instead, when the company reached the turning point in the business logic and the data collection of this study the management initiated an internal development project that was activated that caught out some of the processual shortages like missing documentation of products. Therefore, my interpretation is that during the whole history of the company the business focus has only been in the products and the product development type of production. The processes have not been harmonized or standardized in any way in order to bring firmness to the strategic decision-making. One concrete example of this was the abandonment of a profitable product of e-mails system.

The most significant driving force of business discontinuity that left the future of the company at stake was the maturing product against the shift from capital financing to cash-flow financing. For a long period of time the capital financing allowed the company to focus on the creation of "technological" use value. This became a principle rule in the business. The interviewed product manager stated that "that time was easy-going". At short notice the rule was inverted. The cash-flow financing was the driver why the management team set up a project for tracing new solutions in order to create a sustaining profitability and new business logic. The management pursued a new business logic founded on development of technology service and customer orientation. One of the practical ideas around this new vision was to create a service organization that would act proactively with customers and thereby support creation of additional sales.

The vision of future and the prevailing activity concept creates a discontinuous gap between two different types of activity. As the learning and development of organization was conducted through products and the technical procedures and tools that mediated an orientation of internal activity and creation of "a technical use value". Now, the learning should be reframed with "customer use value" based activities and production. However, the marketing and sales functions with massproduction principles do not underpin the new business development focus. The technological discontinuities and transformation of business logic that were full-bloodedly directed by technology evolution drove the

company off a strategic path that would have exposed the company to experiments and learning convenient for conducting the new vision.

## 7. CONCLUDING REMARKS

Discontinuity as a phenomenon that triggers a fundamental transformation in society can also be traced in the events of a single organisations. As a macro-level discontinuity reveals new foundations for economy and industries, a discontinuity at micro-level is related to basic contradictions in the activity and business logic. We can even say that the emergence of the company was created by the technological evolution and discontinuity that "the germ-cell" activity of product developers did when they were working with connecting of different computers. The discontinuity of a prevailing activity concept of the company was due to later technological discontinuities and due to the expanding implications of a fast accumulationg technology to business and social constructions of the company. Finally, the discontinuity posed a full turning point of business that did not leave any other choice than an activation of learning and development that the company later conducted.

With the evidence of this case example can be illustrated that a concept of discontinuity can be reduced to micro context-level. This reduction and empirical elaboration produces an understanding of a vivid and complex phenomenon of a notion that embedds a systemic development. This paper also shows that the notion of activity concept is an workable intermediately tool for elaboration of business logic transformation and for depicting a multifaceted activity and development.

## References

- Al-Debei, M.M., El-Haddadeh, R. and Avison, D. (2008), 'Defining the Business Model in the New World of Digital Business', *Proceedings of the Fourteenth Americas Conference of Information Systems*, Toronto, ON, Canada, August 14th-17th 2008, Available at <http://bura.brunel.ac.uk/retrieve/8387/licence.txt>.
- Amitt, R. and Zott, C. (2001), 'Value Creation in eBusiness', *Strategic Management Journal*, vol. 6-7, no. 22, pp. 493-520.
- Atkinson, P. and Hammersley, M. (1998), 'Ethnography and Participant Observation' in Denzin, N.K. and Lincoln, Y.S. (eds), *Strategies of Qualitative Inquiry*, Sage, London, pp. 110-136.
- Cusumano, M., Suarez, F.F. & Kahl, S. (2007), 'Product, Process, and Service: A New Industry Lifecycle Model', Available at <http://web.mit.edu/sis07/www/cusumano.pdf>.
- Drucker, P. (1970), *The Age of Discontinuity*, William Heinemann Ltd, London.
- Drucker, P. (1983), *The Age of Discontinuity*, William Heinemann Ltd, London.
- Engeström Y., (1987), *Learning by expanding: An activity-theoretical approach to developmental research*, Orienta-Konsultit, Helsinki.

Engeström, Y. (1999a), 'Activity theory and individual and social transformation', in Engeström, Y., Miettinen R., & Punamäki R-L. (eds.), *Perspectives on Activity Theory*, Cambridge University Press, Cambridge, pp. 19-38.

Engeström, Y.(1999b), 'Innovative learning in work teams: Analysing Cycles of Knowledge Creation in practice' in Engeström, Y, Miettinen R, & Punamäki R-L (eds.), *Perspectives on Activity Theory*, Cambridge University Press, Cambridge, pp. 377-404.

Engeström, Y. and Blackler, F. (2005), 'On the life of the object', *Organization*, vol. 12, no. 3, pp. 307-330.

Engeström, Y. and Kerosuo, H. (2007), 'From workplace learning to inter-organizational learning and back: The contribution of activity theory', *Journal of Workplace Learning*, vol. 19, no. 6, pp. 336-342.

Hedman, J. and Kalling, T. (2003), 'The Business Model Concept: Theoretical Underpinnings and Empirical Illustrations', *European Journal of Information Systems*, vol. 12, no. 1, pp.49-59.

Ilyenkov, E.V. (1974), 'The Universal'. Available at:  
<http://marxists.anu.edu.au/archive/ilyenkov/works/articles.htm>

Leontjev, A.N. (1978), *Activity, Consciousness and Personality*. Prentice-Hall. Inc., New Jersey.

Local and Regional Government Finland (2010), *Project to restructure local government and services*, Available at: [www.localfinland.fi](http://www.localfinland.fi).

Lynch, M. (1993), *Scientific Practice and Ordinary Action: Ethnomethodology and Social Studies of Science*, Cambridge University Press, Cambridge.

Magretta, J. (2002), 'Why business models matter ', *Harvard Business Review*, vol. 80, no. 5 pp. 86-92.

Moore, G.A. (2002), *Crossing the chasm: marketing and selling the high-tech products to mainstream*, HarperCollins Publishers Inc., New York.

Normann, R. (2001), *Reframing business: When the Map Changes the Landscape*, John Wiley & Sons Ltd., Chichester.

Pateli, A.G and Gigaglis, G.M. (2004), 'A research framework for analysing ebusiness models', *European Journal of Information Systems*, vol. 13, no. 4, pp. 302-314.

Perez, C. (2002), *Technological revolutions and financial capital: The Dynamics of Bubbles and Golden Age*, Edward Elgar Publishing, Cheltenham.

Perez, C. (2006), 'Respecialization and the Deployment of the ICT Paradigm - an Essay on the Present Challenges of Globalization', in Compañó R., Pascu C., Bianchi A., Burgelman J-C., Barrios S., Ulbrich M., & Maghiros I. (eds.) *The Future of the Information Society in Europe: Contributions to the Debate*, Technical Report Series,

European Commission Joint Research Center and Institute for Prospective Technological Studies. Available at <http://www.carlotaperez.com>.

Perez, C. (2009), 'Technological revolutions and techno-economic paradigms', *TOC/TUT Working paper no. 20, Working paper in Technology Governance and Economic Dynamics. The Other Canon Foundation, Norway and Tallinn University of Technology.* Available at <http://www.carlotaperez.com>.

Pihlaja, J. (2005), *Learning in and for production: An Activity-Theoretical Study of the Historical Development of Distributed Systems of Generalizing*, A doctoral thesis of Department of Education at the University of Helsinki.

Punch, K.F. (1998), *Introduction to Social Research: Quantitative and Qualitative Approaches*, Sage Publications, London.

State Treasure (2010), *The Government IT Shared Service Centre*. Available at: [www.statetreasure.fi](http://www.statetreasure.fi).

Tushman, M.L. & Anderson, P. (1986), 'Technological Discontinuities and Organizational Environments', *Administrative Science Quarterly*, vol. 31, no. 3, pp. 439-465.

Victor, B. and Boynton, A.C. (1998), *Invented here: Maximazing Your Organizations's Internal Growth and Profitability, A Practical Guide to Transforming Work*, Harvard Business School Press, Boston.

Virkkunen, J. (2007), 'Collaborative development of a new concept for an activity', *@ctivités*, vol 4, no. 2, pp. 158-164.

Virkkunen, J. (2010), 'Miksi nyt tarvitaan uudenlaista johtamista?' (the title in English: 'Why do we need a new type of management now?) in Hyötyläinen, R. and Nuutinen, M. (eds.) *Mahdollisuksien kenttä: Palveluliiketoiminta ja vuorovaikuttelinen johtaminen* (the title in English: The Field of Opportunities: Service Business and Interactive Management), Teknologiainfo Teknova Oy, Helsinki, pp. 21-53.

Virkkunen, J. and Ahonen, H. (2007), *Oppiminen muutoksessa - uusi väline työyhteisön oppimiskäytäöjen uudistamiseen* (the title in English: Learning in change - a new tool for regenerating collective learning practices; book available only in Finnish). Infor Oy, Vantaa.

Virkkunen, J. Pihlaja, J. and Ristimäki, P. (2010), 'Tuotteesta palveluun - liiketoiminnan kehityksen epäjatkuvuuden hallinta ohjelmistoityksessä' (the title in English: 'From products to services - managing business discontinuity of a software company') in Hyötyläinen, R. and Nuutinen, M. (eds.) *Mahdollisuksien kenttä: Palveluliiketoiminta ja vuorovaikuttelinen johtaminen* (the title in English: The Field of Opportunities: Service Business and Interactive Management), Teknologiainfo Teknova Oy, Helsinki, pp. 72-88.

Vygotsky, L.S. (1978), *Mind in society: The development of higher psychological processes*, Harvard University Press, Cambridge.