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INNOVATIVENESS AND INNOVATIONS UTILIZATIONS
Oy LM Ericsson Ab

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CONTENTS

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Tämän toimintatutkimuksen tavoitteena oli parantaa tutkimus- ja kehitysyksikön henkilöstön innovatiivisuutta LM Ericssonilla Suomessa.

Yksi tämän tutkimuksen tarkoituksista oli ymmärtää innovatiivisuuden taustoja. Käytetyssä tutkimusmenetelmässä peilattiin kohdeyrityksen toimintaa, käytäntöjä sekä työrealismia tutkimuksen taustoihin.

Innovatiivisuus esiintyy ihmisten sisäisenä ominaisuutena, ja se pohjautuu täten yksilöiden sisäiseen motivaatioon. Luovuus, rohkeus ja sinnikäs työnteko ovat innovatiivisuuden ilmentymisessä olennaisia elementtejä. Sisäinen motivaatio tarvitsee yleisesti jonkin herättävän tekijän käynnistyäkseen. Työssä tutkittiin myös johtamistyylien, verkostoitumisen sekä yrityskulttuurin vaikutuksia innovaatioiden syntymiseen ja tukemiseen. Lisäksi tutkimukseen kuului innovatioiden syntymisen seurannan- ja mittaamisen mallien vertailua ja ehdotuksia.

Toimintatutkimuksen kehitystoimenpiteiden tulokset ja analyysit koostuvat reflektioista, havainnoista, tietojen analyyseistä sekä yhteenvedoista. Tähän raporttiin on koostettu tiivistelmiä erillisistä osatutkimuksista, jotka on analysoitu erillisissä liitteissä.

Kooste- ja yhteenvetokappaleet sisältävät päähavaintoja ja löydöksiä muun muassa innovatiivisuuden pääoman saatavuudesta. Ne sisältävät myös parannusehdotuksia nykyisiin toimintatapoihin ja tuleviin tutkimuksiin.

Avainsanat	Innovaatio, innovatiivisuus, motivaatio, yrittäjyys, flow

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ABSTRACT

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The aim of this action research was to improve the innovativeness amongst the R&D personnel at LM Ericsson Ab in Finland.

The main purpose of this study was to understand the background of innovativeness and to practically compare the research results with the actual company situation.

Innovativeness is predominantly a personal, internal matter and it is based on the intrinsic motivation of an individual. Creativity, courage and persistent effort are the key elements of innovativeness. The triggers for inspiring internal motivation are also of significant importance. Supportive leadership models, networking; and company cultures were also studied. Performance management models were also compared and proposals for KPIs were stated.

The analysis and results chapters contain reflections, observations, data analysis and summaries regarding different activities on innovations during the research period.

The summaries and conclusions chapters contain the results and solutions e.g. regarding the innovation capital, incomplete structures and practices. There are also proposals for future recommendations.

Keywords	Innovation, innovativeness, intrinsic motivation, intrapreneurship, flow

1. INTRODUCTION

One intention with this action research is demystifying the innovations and innovativeness. The innovativeness handbook was written to clarify the reasoning and background about the innovations. This also covers human aspects including motivation, commitment and optimal experiences, as well as managerial portions for e.g. enriching the work climate and defines structures for following up the activities in the organization (Helin 1990). This research report contains also several analyses of the individuals' and groups' interviews, brainstorming sessions and questionnaires, which are assisting the organization to understand the innovations and innovativeness in depth and to find out a new business model, which applies to this particular organization, in this particular industry and business situation.

1.1. Objectives

The main objective for this thesis was about improving the company's innovativeness by utilizing action research principles.

The innovativeness in this context is a capability to create something new or combine existing elements in new ways in order to create new meaning and value for the users or customers. This can be bound to the products, services, processes or business model.

One area of importance was to focus on the methods in order to get ideas further developed into innovations in R&D at Oy LM Ericsson Ab in Finland.

Other expected research objects were the recognitions, incentives and rewards. Also other enablers for innovations were to be studied, such as trust- and feedback culture, openness and cross-functional teams.

The results were expected to be available in the autumn of 2010.

1.2. Scope

The scope is based on the objectives identified in the three party agreement agreed on 1st June 2009.

The analysis of the context and operational environment, the identification of suitable actions for trial attempts, the analysis of results, reporting of the outcomes, and execution of revised activities based on the former analysis belonged to the research scope.

This final report is the main artefact of the action research.

1.3. Acknowledgements

Thank You all at LM Ericsson Ab who helped me to complete this thesis. Special thanks to the local tutor Mika Peuhkurinen, who identified a possibility to work with the innovations related areas. The special acknowledges belong to the innovation coaches and the team mates, who inspired me for continuing with the thesis. Minna Hallikainen as a supervisor and later Risto Kivioja accordingly helped me mentally to finalize this report – Thank You.

I am greatly thankful to Scott Linden, for assisting with the grammar and English text in this thesis and handbook (Appendix 1).

Most of all I would like to give acknowledgements to my tutor Pia Koskenoja at Metropolia University of applied sciences for her superior coaching, encouragement, reflection on the situations and for the academic support in addition to her advisory assistance.

2. BACKGROUND ANALYSIS

2.1. Literature analysis of the subject

The background knowledge for this study is gathered from the literature. The list of the references used in this paper or in the Appendix 1 is found in the chapter 9. This framework is illustrated in the FIGURE 1.

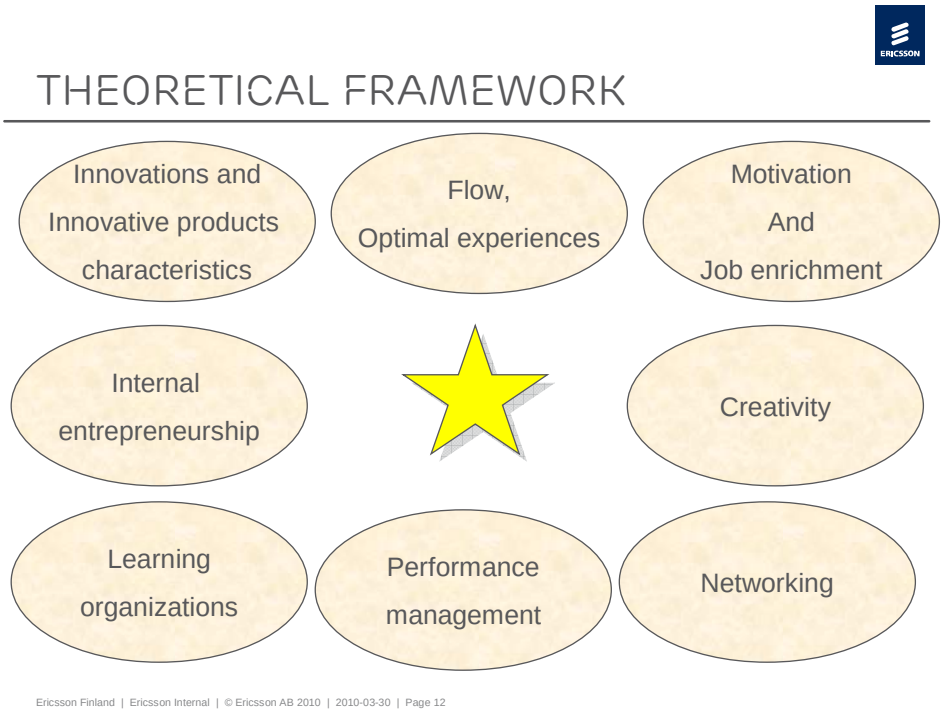

FIGURE 1 The theoretical framework of the action research.

2.1.1. Towards the common goals

What kinds of images do you get and associations do you create when you hear the term innovations today? What is really expected of you as company strategy emphasizes the importance of it? Is there a reason for making something happen for real? What awaits you when you make major steps on innovations? Where is your peer for discussing innovations and on how to get ideas developed further?

The questions above often crop up in one form or another when any strategic change is introduced in the organization. Strategic renewals through innovations do not make a difference in this case. (Godin 2008; Godin 2009; Gibson & Skarzynski 2008; Kim & Renee 2004; Cagan & Vogel 2003; Hamel 2007; Chesbrough 2004; Drucker 1993; Pinchot 1986.)

Typically, transformation programs are executed speedily and with full focus and attention . If the transformation programs resemble process or methodology improvement, the changes are likely rooted to operations in an acceptable manner. One reason for successful implementation is e.g. the changes were almost tangible or concrete enough to understand by everybody. Larger business process changes can become expensive experiments for many reasons, such as misaligned direction or expectations on the process repositioning. (Amabile 1993; Jaakkola & Liukkonen & Kataja 2006; Hamel & Phahalad 1994; Koiranen & Pohjansaari 1994.)

2.1.2. What kinds of innovations to be expected?

What is the next killer application? The innovations which are changing personnel practices and social behaviour form each technology companies' aspirations for a better future and improved opportunities. High tech prototypes and pilots projects receive the most attention in the organization. What if these fail, and how likely are they to fail, especially if the customers association and trials are loosely-coupled or none existing?

New products and services are needed business continuity and business expansion. R&D developers need to understand and solve the customer problems in order to produce creative and outperforming solutions for the customers. Customer relations though, are typically handled by organizations other than R&D. Innovations are said to be happening close to markets and customers. Operative innovations could initially be aimed for the internal customer, which later impact the cost structures or productivity. (Drucker 1993; Kim & Renee 2004; Cagan & Vogel 2003.)

As identified above there are different types of requirements in the organization, to which the innovators need to comply. That is, depending on individuals' ambitions and organizational needs, there could be a variety of different innovation opportunities available. Nevertheless, which ones are supported, discussed, and which from those innovation candidates and –types are anciently expected to take off? (Drucker 1993; Koiranen & Pohjansaari 1994.)

2.1.3. Innovativeness and increased productivity

On many occasions, people need to achieve a balance themselves between frustration and anxiety. This is a requirement which is achieved fairly often at the work place today.

On the one hand when the employee competence levels are increasing e.g. specializing in certain duties, the frustration may occur in the long term if there are not enough learning possibilities and new professional challenges available. Also the increasing competition and pressure to maintain the pace whilst exhibiting progress forces many employees to remain in the known and predictable areas (although this may no longer be the comfort zone for him- or herself either). Performance management principles, e.g. the annual personal performance reviews can encourage the personnel to improve their existing performance in specialized and existing duties and behaviour (Culbert 2008).

On the other hand business environments may be so hectic and in continuous transition today, that personnel may experience insecurity or instability as the next transformation program is knocking on the door. This causes anxiety amongst the people. What is the middle path to take i.e. where frustration or anxiety is not distracting too much?

Psychologists have identified an optimal "area" between frustrations and anxiety. This area enlarges as competence and human capital increases, and while the challenges are gradually increasing. These optimal experiences, a.k.a. the flow experiences, are the key in creating innovative solutions. (Csikszentmihalyi 1990; Csikszentmihalyi 2004; Seligman 2002; Sinnemäki 1998.)

Toyota's business model has been copied by a majority of competitors for many years. Is this providing the best competitive advantage to the company? Is there something that could be done in a new way which is unique and best suits this organization? Process run rate improvements, cost savings and rationalizations could often be achieved within a reasonable budget if the grass-root workers are properly engaged in the improvement programs. This does not mean though, that employees are denied knowledge the big picture and purpose, but the leadership practices should support the complete initiative accordingly. (Helin 1990; Hamel & Prahalad 1994; Hamel & Prahalad 2006; Csikszentmihalyi 2004; Barberra & Macey & Schneider & Young 2009.)

That is, the productivity of the organization can be improved by many means. The common tools and methods, which are often associated to innovations, could be used in many situations. That is e.g. constructive collaborations, problem solving and brainstorming could be offered to people to improve business processes and situations. These often serve the needs for the optimal experiences, which is the major inspiration source for many people. Therefore the innovation related activities are not necessary just wasting the resources of the core businesses nor regarded as the baseless or directionless duty of amateurs. Innovations are supporting the organization in guiding the company culture towards a collaborative and networking direction instead. (Kesti 2007; Koiranen & Pohjansaari 1994; Drucker 1993; Sachau 2007; Handy 1993; Lakhani & Wolf 2005.)

The timeframe needs to be correct for the innovations, but there are not necessarily accurate and reliable market analyses performed for these disruptive innovations. Therefore the innovations' productivity and efficiency could be understood so that market trials should be revised further, if the first one fails. Hesitative and overly slow, deliberating –types of responses to these initiatives can dramatically affect the optimal timeframes for customer pilots and trials, as well as for the motivation and therefore also the performance of the innovator. (Nordström & Ridderstråle 1999; Godin 2008.)

2.1.4. Innovative managerial structures

Well-defined and maintained processes assist management in maintaining the high quality of the products and in keeping costs at an acceptable level. Organizational structures and practices are created to monitor different activities in order to gain efficiency and high quality results. Such rational and mechanistic organizational structures are not necessarily supporting innovativeness by themselves. Operative improvements can be exceptions to this since they are implemented in many mechanistic organizations in an undercover manner due to these monitoring and control structures. (Handy 1993; Pinchot 1986.)

However, anarchy should not be introduced as a solution to a complacent, stalled or mechanistic organization. There may be such uncertainties due to loosened control in the innovative managerial structures, though. However, as the innovations are typically changing the practices either internally or externally, there is a need to cope with the potential resistance in the community when breaking the disciplines and rules with the innovative solutions. The people who are breaking the organizational borders, connecting new networks and binding people are promoting a positive viral spread. These are the missionaries and entrepreneurs who are acting as the centres of information, as the hubs of the personnel. These kinds of collaborative, rule breaking and creative solutions should be accepted, supported and recognized in order to allow innovative solutions to emerge. (Pinchot 1986; Godin 2008; Godin 2009; Himanen 2007; Hämäläinen & Heiskala 2004; Koiranen & Pohjansaari 1994.)

What if the solutions fail on the market despite being enthusiastically driven and trialled by an intrapreneur? Should there be a failure penalty for those wasting company money and resources? Innovative companies should include a risk tolerance and be ready to take possible failures into account for their intrapreneurs. Management should support pilot runs and trials on markets, and allow for errors, otherwise people will be cautious and will avoid risk in the operations. Next time, there are probable lessons learned and an improvement in revenue judgment or other competitive benefit associated with the innovation. (Pinchot 1986; Koiranen & Pohjansaari 1994; Heikkilä 2006; Orre 1987; Ranta 2005, 30; Gibson & Skarzynski 2008; Sydänmaalakka 2001.)

There is an abundance of literature available regarding optimal and idealistic managerial values and practices which can be benchmarked and adopted for innovations. A truly innovative company climate supports open-minded networking and information sharing practices. The values, which are closely bound to innovations, are trust, respect, loose membership norms and good team spirit. Coaching and mentoring are also key elements to the company way of working. Communication in an innovative company should be informal, plentiful and rich. People should be given autonomy i.e. a large degree of freedom to decide. This, in turn automatically creates more responsibility, to the job in-hand. Intrinsic motivation is always behind innovative activities. These are not necessary managers' insights and actions, however, the managerial behaviour could encourage subordinates to gradually boost the company culture in the ideal direction. (Tapscott & Williams 2006; Orre 1987, 155; Ranta 2005, 30; Gibson & Skarzynski 2008; Sydänmaalakka 2001; Barberra & Macey & Schneider & Young 2009.)

2.1.5. What drives the driver?

It is commonly accepted and understood, that there is a need to have drivers for certain initiatives in order to witness solid results. What should the management do in order to foster personnel into taking the next step and to start acting as leaders, i.e. the intrapreneurs?

Risk taking tolerance in market trials was mentioned earlier in this paper for supporting the innovativeness and entrepreneurship in the company.

The other issue is the support of networking, especially across the organizational borders. The atmosphere should encourage workers to strive beyond the limits and to create accidental but advantageous social connections with divergent people. The functional or team silos are not encouraging personnel to network. On the other hand, the network size shall not exceed the "magic number (=150)" in order to enable and maintain transactive memory. (Hamel & Prahalad 1994; Pinchot 1986; Watson 2007; Parikh 1999; Koiranen & Pohjansaari 1994; Hämäläinen & Saarinen 2006; Himanen 2007; Gladwell 2002.)

What else is required to get people motivated? Positive feedback may still be a factor which empowers the driver or any human. According to a number of research articles, the transformational leadership style is seen as one of boosting the characteristics of an innovator. (Kark & Dijk 2007; Sydänmaalakka 2004; Watson 2007.)

Drivers have a specific human internal characteristic and appropriate background for that task. Competence and industry knowledge are vital backgrounds for an innovator. It is a remarkable step in taking the leader's role. The internal motivation of the driver supports the person to formulate creative decisions. People may remain in the opinion, that vision about the future is a managerial issue, but in the innovations' case, this may not necessarily be so, since the innovator may see a positive future occurring via the innovation(s) he or she drives further. (Handy 1993; Csikszentmihalyi 1990; Niermayer & Seyffert 2004; Hämäläinen & Saarinen 2006; Watson 2007.)

One may think the entrepreneur works only for his or her internal motivation, or just for "the community". These are naturally key drivers, but there are also earnings-related expectations, and other instrumental motives. Additionally there are emotional motives like increase in respect, appreciation and entertaining factors, which are impacting positively to the performance of the entrepreneur. People are often complex regarding their motivational directions, especially when situations change e.g. on momentary and the contextual basis. (Handy 1993; Koiranen & Pohjansaari 1994; Dewett 2007; Amabile 1993; Vakkuri 1989; Hämäläinen & Saarinen 2006; Posner 2003; Pinchot 1986; Grönfors 1996.)

2.1.6. Whose job is this?

Innovation is a strategic renewal procedure. In that sense, the mandate, the strategy deployment orders should emanate from the highest management to the rest of the organization. The managerial tasks are e.g. to inspire people to commit to the innovation activities by duly enabling the appropriate structures, service opportunities as well as encouraging and motivating the employees. Assurance of immediate feedback and performance management together with recognition practices are mostly the managers' duties. The production factors, mainly human resources, time and financing should be also assured for innovations by the management. (Hamel 2007; Pinchot 1986; Hamel & Prahalad 1994.)

On the other hand, innovation could provide personnel with possibilities to learn and explore something new. Personal growth and networking possibilities could also be the most attractive triggers for many people, if only such were available and achievable. The potential success in a purposeful job could interest many developers to take changes. Based on these assumptions, the innovations could be seen as a refreshing change if not, even perhaps a real restart of career. (Koiranen & Pohjansaari 1994, 61; Pinchot 1986; Gibson & Skarzynski 2008, 24-25; Drucker & Maciariello 2006, 298; Sloman 2008, 239.)

Professional (read: conventional) managers tend to maintain the status quo and current production and process, but diminish all the risks. At the same time, they can block many innovators' ways to create constructive destruction with their innovations. Everybody has surely encountered rejections from management and also from other budget owners, even on minor investment requests. This may be a confusing and contradicting situation, since the results from initiatives and especially from trials and experiments are always expected of you. Modern leaders are often other people than these professional managers. These are the ones who are followed and who are forming the supportive networks around themselves. If there is too much resistance or political game behind the scenes in the community, the creativity is turned into depression, the loss of self-confidence, and so called psychic disorder. It will be the managers' duty both to give freedom to act and to assure prerequisites for the successful realization of the innovations. They must additionally provide positive signals and motivation regarding the operations and the future. The innovators' and intrapreneurs' duty or at least a dream is to progress well with innovations. These kinds of changes may challenge many stakeholders, but these should be attempted, since the business will not turn to a path of growth automatically. (Koiranen & Pohjansaari 1994; Drucker 1993; Pinchot 1986; Handy 1993; Csikszentmihalyi 1990; Barberra & Macey & Schneider & Young 2009.)

2.1.7. Make another suggestion

Be creative, you must be, even though you cannot be forced to be creative. The trigger for being creative may arise from the work tasks, the manager, other external source, or totally from the people's own imagination. The initial emotion after the trigger is typically dissat-

isfaction. There should be a conviction that the duty should be performed successfully. The intrinsic motivation is the driving force for creative solutions in the resolute tasks. (Hampden-Turner 1994; Juuti 2007; (Koiranen & Pohjansaari 1994; Csikszentmihalyi 1990; Anttila & Halonen & Kalakoski & Kreivi & Paavilainen 2007.)

Quite often though, if people think their idea is perfect, the opposite may be true. The idea may even be incomprehensible. Therefore it is better that there are divergent parties analyzing, brainstorming the ideas and improving them. Maybe some managers think this is an idealistic dream, since there may be no time and resources allowed for such "socializing" events. Additionally, these ideas may be so disruptive that they change the whole business and may drastically re-organize the managerial structures when deployed. On the other hand, innovative duties may be regarded as a juvenile sandbox game in this serious business life. Successful innovators are creating a number of ideas which are submitted to others for comments even as drafts. This type of innovator will not mind if the ideas do not always fly. (Godin 2008; Sachau 2007; Sydänmaalakka 2001; Thomas 2002, 101; Lennon 2009; Borg 2007; Bovée & Thill 2008; Anttila & Halonen & Kalakoski & Kreivi & Paavilainen 2007; Grönfors 1996; Sinnemäki 1998; Vakkuri 1989; Seligman 2002.)

2.1.8. Internal burn

What does the man "on fire" look like? Quite many people find scientific duties missionary and internally driven. Perhaps musicians' and sportsmen's exercises may also look like tedious and disciplined jobs to outsiders. Those kinds of examples are often referred as internally motivated duties and stereotyped persons who use their internal burn to improve themselves. (Csikszentmihalyi 1990; Barberra & Macey & Schneider & Young 2009.)

The motives, which are in this case intrinsic ones, are steering people's actions towards the goals. It is vital to know the prerequisites which impact the opening up and the utilization of internal burn. The incendiary agent to set alight the intrinsic motivation is that people need to be willing to be competent and experts in specific areas. The other prerequisites or characteristics are both contextual and internal ones. Namely, intrinsic motivation requires a large degree of freedom, autonomy and self-governing and –guiding environment in order to act. In the end there shall be a significant vision, duty or meaning towards a better

future, which triggers the imaginary mind to explore the uncertainties. (Thomas 2002; Sachau 2007; Herzberg 1982.)

Why is it so rewarding even in the absence of material rewards? The degree of freedom enables the expansion of the perspectives, since people have the possibility to choose alternatives and the means to compete with these challenges. Self-empowered and –gratifying situations are likely to occur, if people feel confident with their increasing competence and their evident progress in meaningful endeavour. (Dewett 2007; Amabile 1993; Shalley & Oldham 1985; Anttila & Halonen & Kalakoski & Kreivi & Paavilainen 2007; Pink 2009; Sinnemäki 1998; Grönfors 1996; Vakkuri 1989; Thomas 2002; Sachau 2007; Herzberg 1982; Csikszentmihalyi 1990.)

2.1.9. Socializing and peer disappointment

A typical misunderstanding is to regard intrinsic motivation as being solely achieved via own reflection of the duties. Social power, respect and informal communication are factors, which are heavily associated to intrinsic motivation. In the optimal context, individuals will additionally receive positive, constructive and immediate feedback from their peers and stakeholders. (Heikkilä 2006; Sydänmaalakka 2001; Csikszentmihalyi 1990; Parikh 1999.)

Creative individuals are stimulated by social networks, since knowledge and sources of information are available from those connections. This so called transactive memory is associated to the networks, where people wish to remain. One of their biggest fears is getting side-lined from those collaborating networks. (Watson 2007; Anttila & Halonen & Kalakoski & Kreivi & Paavilainen 2007; Himanen 2007.)

Networking is a typical, regular requirement, but similarly it is can result often in disappointment. How often does networking and idea selling end up with rejection, delays or unreliable support chains? The assumptions and expectations are not just matching with the actual behaviours and intentions. An egoistic approach can typically cause rejections in relationships and focus on others can be diminished. However, on the other hand, success

with new connections and collaborations is often the best type of reward in these tasks. (Parikh 1999.)

Networking may also be regarded as distracting from operational efficiency, a.k.a. generating waste. New connections require nurturing, effort and manpower to flourish and even more interactions to improve financially beneficial results. The narrow-minded employee may find, this as “amoebic behaviour” i.e. it should be lifted onto the rocks for drying out. However, is politically appropriate socializing and approval a better form for producing creative, innovative and fresh blend for a business model? Typically though, such politically tainted trials fail, due to the fake, uncommitted and unauthentic approach.

Should the company foster people to use alias and virtual persons (avatars) since many people utilize these in the internet in their personal lives? Socializing and networking happen in virtual and networking reality today. Thus any possible any virtual injuries do not cause that much harm as would disappointments in “real human relations”. Also more juvenile behaviour without authority and control may encourage people to generate crazier ideas e.g. by inventing in virtual research garages, without hierarchical organizations, authorities and control mechanisms. (Hamel & Prahalad 1994; Anttila & Halonen & Kalakoski & Kreivi & Paavilainen 2007; Parikh 1999; Handy 1993; Cross & Cunningham & Showers & Thomas 2010.)

2.1.10. External inspiration sources

Internal motivation can collapse, if someone starts to control the activities. This generally applies to external motives (Anttila & Halonen & Kalakoski & Kreivi & Paavilainen 2007).

Traditional rewards and bonus programs most often utilise remuneration methods. These are typically useful for tedious duties, which just need to get completed. As these are acting like shortcuts to the targets, perhaps the best solutions or alternatives are not always selected. (Sachau 2007; Herzberg 1982.)

Environmental (a.k.a. hygiene) factors, such as pleasant work conditions, salary increases, monetary prizes, ranking and similar, do not provide long term satisfaction. Such needs tend to escalate in time. If management uses these means to motivate people, these need to be continuously used these in order to maintain employee satisfaction. However, if such motivations are eliminated, people subsequently feel punished, and drive and motivation may diminish further. Inequality in the utilization of external motivation also causes frustration, jealousy and anger. (Sachau 2007; Herzberg 1982.)

Fear of unemployment is the motive, which makes people concentrate mostly on core business related duties i.e. fear is a much more effective motivation than bonus. However, innovativeness may suffer the most, unless the "survival solutions" and expectations from management are genuine innovations, and offer possibilities for the group to remain in place. Since a portion of the employees are motivated most by losses and negative feedback, this may be efficient when faced with operational challenges i.e. true business challenges could be offered to the innovators to meet the business reality, which may make the initiatives appealing. (Amabile 1993; Kark & Dijk 2007.)

Job enrichment, i.e. making duties appear more satisfying and inspiring, cannot be performed by utilising external motivation. (Amabile 1993; Dewett 2007.)

On the other hand, when the competence level of the person is high enough, feedback and recognition are the means which do not impact negatively to the intrinsic motivation, but are improving the motivation instead. (Amabile 1993.)

2.1.11. Different people, different measures

In the R&D organization, you may find people who seek challenges, the real trouble shooting duties, in order to intellectually stimulate. On the other hand there are plenty of other people who like to work towards specific goals in steered projects (although these are not fully predictable tasks either). These people are the most pragmatic individuals. (Jaakkola & Liukkonen & Kataja 2006.)

The process-oriented, conventional types require discipline and rules for guidance. Many others may think there are not enough alternatives to choose from and compose things differently. These alternative-seeking types may find abstract ideas, creative abilities and imaginary issues fascinating. (Gibson & Skarzynski 2008; Helin 1990; Dewett 2007; Anttila & Halonen & Kalakoski & Kreivi & Paavilainen 2007; Pink's 2009; Orre 1987; Ranta 2005; Handy 1993; Kark & Dijk 2007.)

The enterprising people are the most impulsive and energetic personalities. These kinds of individuals have entrepreneurial drive and ownership values driving their activities further (Handy 1993).

The self-regulating system is still another motivational model. People get motivated either on promotional goals or prevention goals, which require either transformational or transactional leadership styles accordingly. This model shows how difficult it is to match the quality and efficiency culture with the creative, risk taking and entrepreneurial one. (Kark & Dijk 2007.)

This brief summary shows that one model for everybody is insufficient - there should be different alternatives on offer and different situations to take into account. Innovations and creative solutions are mostly supported by a transformational leadership style, according to multiple research reports.

2.1.12. Optimal experiences

The most creative results are obtained in an environment, where people have worked with complex and challenging duties, where they are supervised in an uncontrolled and supportive way, where there is no fear of embarrassment or humiliation. (Watson 2007).

The optimal experience a.k.a. the flow, is happening when activities are sweeping the worker along with ease. In this situation, concentration is perfect for losing sense of time and place. These most agreeable moments can occur if people know the task can be completed; there are possibilities to concentrate fully on the subject, the duty is clearly defined, and there is an immediate feedback possibility. (Csikszentmihalyi 1990; Csikszentmihalyi 2004; Seligman 2002; Barberra & Macey & Schneider & Young 2009; Juuti 2005; Hämäläinen & Heiskanen 2004; Anttila & Halonen & Kalakoski & Kreivi & Paavilainen 2007; Ceserani 2003.)

These kinds of experiences may be rare at work, if there are too many external triggers and disturbances leading to mental disorder that is the psychic entropy (Csikszentmihalyi 1990). Hasn't everyone encountered continuously increasing distractions in the work environment?

Optimal experiences may overly engage people and cause work addiction or any other activities causing this tight coupling. This is naturally not a healthy and preferable situation either. (Csikszentmihalyi 1990; Csikszentmihalyi 2004; Seligman 2002; Barberra & Macey & Schneider & Young 2009.)

2.1.13. Lessons learned

Individuals need to update their competence constantly in order to cope with the business model and industries' paradigm changes. Personal competitiveness is highly coupled with the competence as well as to social capabilities and -networks. (Nordström & Ridderstråle 1999.)

The diverse work groups and teams, engaging personnel from cross functional, cross cultural and multi scientific sources represent the most creative, and adaptive learning organizational unit. That is, the managerial practices for maintaining activity in competence, learning and innovativeness in the company, is to support and empower the cross functional activism and structures in various manners. The organizational arrangements could break the solid and harmonized project groups and teams, which acts as a managerial trigger for changes. One other way is to utilise employee recognition and awards for individuals and teams who act in this networking and inter-organizational manner. (Leffingwell 2007; London & Sessa 2009; Handy 1993.)

The most receptive teams don't have necessary harmonic pitch in their collaborations. That is, the transformational education happens mostly in dysfunctional and conflict-prone work groups, where argumentation is used to handle the contradictory information, which has triggered the team to act. On the other hand, there should not exist a fear of receiving strong criticism or flak in order to keep prerequisites for the optimal experience available. That is, the satisfaction does not necessary lead to productivity, but the productivity may produce positive sentiment. (London & Sessa 2009; Handy 1993.)

However, what happens to "the transactive memory", which is created in the networks when the groups are split or organized again as the team dynamics change? (Anttila & Halonen & Kalakoski & Kreivi & Paavilainen 2007; Kesti 2007.)

Employee wisdom cannot be utilized and its benefits taken in use, if the vision and targets are not clear for the personnel. The efforts may instead be addressed to the wrong areas. The learning possibilities could be aligned by using immediate and early feedback, and proper feedback mechanisms. This can enhance company competitiveness as it learns quicker than competitors do. (Juuti 2005, 130; Sydänmaalakka 2001.)

When and how do people learn things and increase their competitiveness if the operational duties require all the time and energy from them?

2.1.14. Changes are there to stay

Is this just a lot of talk or a really systemic change? People have generally different opinions on transformation programs in the company. Also, most of the changes are associated to the managerial and organizational structures. The innovations are mostly happening on grass root level as the innovativeness is mostly impacting personal decisions and behaviour, or are they? The support and strategic directions are mostly top managerial issues. Which decisions make the changes sustainable in the company operations? (Ranta 2005; Hämäläinen & Saarinen 2006; Helin 1990; Godin 2008; Koiranen & Pohjansaari 1994; Kotter 1996; Hämäläinen & Saarinen 2006.)

Many find the changes more believable if there are possibilities to impact the changes and to the ways of working in general. If all orders, rules, processes and disciplines shall be followed as well made beef, many people will find the changes artificial and the commitment could only be loose or "politically appropriate". If the career path, personal benefits or social network is potentially improved, the commitment to innovations may improve in many ways. There are always people who sense the presence of the career or any other environmental factors, and who can perceive the benefits. Most personnel believe most of what a colleague or friend may tell them, rather than what the manager or salesman may claim. There are also certain people who will want to work in well organized and solid environment e.g. since the personal life may already be complex enough already. Therefore the foundation of the systemic changes is often problematic. (Thomas 2002; Pinchot 1986; Handy 1993)

Even though there has been a long, successful business period for many players in the mobile core telecommunication network industry, the business situation is always dynamic and challenging for every competitor. The importance of continuous innovations is not necessary understood by everybody in the organization. For most of the people, the operative and "core" duties are still of more importance than the strategic changes like the innovations which require driver's persistence and struggle to persuade and sell the ideas (read: changes) in "unprecedented waters". (Kim & Renee 2004; Gibson & Skarzynski 2008; Drucker 1993; Pinchot 1986.)

Innovative solutions do not have a predictable reference model to compare. How can the budget owners or supporters provide permission to launch pilots to the markets? How can the high tech company ever publish and attempt something which may not necessarily become a success story? Can the quality of the pilot projects be perceived differently from the real products? The external partners' and customers' impact on the R&D procedures may be more remarkable and drastic and result in something which may not have been seen nor executed for decades. The business trials and co-operation with customers will thus change the ways of the working even more than what has recently been perceived and experienced. The adaptability, tolerance and acceptability for changes are the key characteristics of personnel in the whole organization in upcoming years. (Juuti 2005; Juuti 2007; Huy 2006; Drucker 1993; Pinchot 1986.)

As many of the innovations are gap fillers for business needs, the long tail niche solutions, there is a need to identify those potential niche markets somehow. The IT managers should ensure there are strategic data, business intelligence information available for the innovators. The IT systems could also assist with the analysis in order to find proper and cost efficient solutions for the market trials. It is another story whether the innovators are willing (or dare) take the IT department's systems into use or not. (Chaffey & Smith 2008; Gordon & Tarafdar 2010.)

So who drives these strategic renewal changes? Where are the leaders, who gather the followers and make the organization a winning one? Should I support and search for inspirations from thee changes which are aiming for a more successful future? If the organization is not mature for these changes, competitors will pass and steal a march on the new businesses, credits and benefits. Strategic renewal and innovations are therefore everybody's job and should be as appealing, appropriate and noteworthy as other duties. (Pinchot 1986; Koiranen & Pohjansaari 1994; Godin 2008; Godin 2009; Gibson & Skarzynski 2008.)

2.1.15. Performing well with innovations?

There will certainly be contradictory goals and difficulties encountered, when discussing innovations and the well performing R&D organization. On one hand there are expectations to be creative and secure the future of the organization by inventing new products and solutions and securing those by any IPR means. This is what the research people are traditionally striving for. The cost efficient realization of product development has been executed by the product development organizations. That is, the R&D has had a number of different goals for the performance management purposes - these will not vanish either in the future.

On one hand, where are the systematic utilizations of customer relations in order to find the creative solutions in the R&D organization? The post marketing, or in practice, the product maintenance personnel in the R&D, are handling faults on released products' which may be experienced and suffered by customers. Could the closer-to-customer market units' and customer solution organizations be more closely coupled with the daily work in the R&D? In the absence of customer feedback and close co-operation, the product, service or solution innovations will rarely occur.

Naturally there are improvement types of innovations happening in the development organization all the time. These improvements are carried out in different areas, possibly making the work processes or tools work more efficiently. These improvements are mostly not driven by managerial program owners, but by enthusiastic developers instead. The effective impacts of improvements are decreasing in time, and there are bigger investments or radical innovations needed in order to gain even something minor. That is, the improvements themselves are not enough in long run.

The risk or opportunity for radical innovations are realized when the new practices are attempted either by replacing existing products, ways of working or customer solutions with the new candidates for innovations. The support for such learning and organizational growth possibilities is essential for witnessing any innovation taking place. Collisions and tense relations may occur if the change driver, the intrapreneur, encounters only defensive

comments and rejections in these inter organizational collaborations. There are “organizations’ own needs”, financial perspectives and goals maintained in all organizational units which are typically causing these defensive reactions. These new learning possibilities and responsibilities are factors for increasing the overall performance in the organization despite the “irritating nature” of the continuous adaptations. (Pinchot 1986; Koiranen & Pohjansaari 1994; Godin 2008.)

Goal setting can be an effective tool for showing the importance of the issues, i.e. the big picture could be extended and the vision clarified, if the goal setting is handled properly. Typical failures are e.g. making the goals unreachable and similarly uncommitted, just by believing the best way to increase the performance is to “tighten the screw”. This is working often in a contrary way as the internal burn is shut down and the fear of failures is increasing. The bonus programs are also working well e.g. in tedious or less extremely creative duties compared to other environmental factors. When these motives are removed, individuals may regard it as a punishment and the innovation activities are ceasing rapidly. (Grönfors 1996; Koiranen & Pohjansaari 1994; Hamel & Phahalad 1994; Csikszentmihalyi 1990; Sachau 2007.)

Positivism, rapid feedback possibilities including questioning and argumentations are often associated to the innovativeness. As the innovations are typically happening in social networks, the interests of the group and individuals should also be aligned. The new and experimental work model may provide hope and meaningfulness to the daily work routine as permitted autonomy is strengthening the sense of respect and recognition. All this requires naturally authentic, caring, individuals and a sensitive approach also by management. (Csikszentmihalyi 1990; Barberra & Macey & Schneider & Young 2009; Seligman 2002.)

Managerial practices which are not diminishing the internal motivation of the innovator are delegation of authority, increasing trust in workers by ensuring the security, communication of purpose of the duties. A visionary and non-cynical atmosphere is essential for a creative organization which should be fostered by showing such self developing behaviour. The coaching practices are seen as vital by providing rapid and positive feedback e.g. on skills and knowledge. Celebrations of progress and of results are vital to empower the belief in a more successful future. Different compensation means are closely associated to the

recognition palette of the managers. (Thomas 2002; Posner 2003; Hämäläinen & Saarinen 2006; Csikszentmihalyi 1990.)

There is a need to identify suitable KPIs for measuring the performance of the innovativeness. Many knowledge, learning and motivation related issues are tacit information, which can be difficult to measure with questionnaires. As the innovations require plentiful communication and collaboration in the networks, the observations of the performance could also be obtained in the networks e.g. by official interviews and in informal dialogs continuously in a creative environment. (Kesti 2007; Seligman 2002.)

2.2. Situational analysis at start-up phase

2.2.1. Personal association for the innovations duties

I was introduced as a thesis worker in an innovation team's bi-weekly meeting in the middle of December 2008. This action research started at the beginning of the year 2009.

The official assignment to the thesis was provided by the local tutor at LMF, Mika Peuhkurinen on the 12th of February 2009. The initial title and scope was about reward and incentives of the innovations, which is covered therefore by the performance management area.

2.2.2. Local company and innovations

At the beginning of 2009, there was approximately half a year gone by when an initiative to start the innovation activities at LMF was introduced. There was an initial idea collection performed in section meetings simultaneously all over the R&D organization. These initial "seeds" of innovation were stored to the first version of an ideabox database in autumn of 2008. This ideabox is a web-application providing comment and voting capabilities where everybody interacts with his/her own name. This "one shot activity", the top-down ordered collection of ideas was in the ideabox almost untouched at the start up.

The innovation related activities were handled in a committee type of manner in the innovation team every second week. The members were mainly department managers and an innovation manager. These meetings were then mostly about how to get organized and on discussions of managerial structures instead of innovations, direction and targets or strategies.

I observed that innovations related activities were not taken to the balanced score card at the beginning of the 2009. That is, there were not any key performance indicators identified for innovations as there were ones for the other “core business” related activities. Therefore innovations did not have as similar an importance as the other operational activities at those times (although innovation was supposed to be everybody’s job).

There were also innovation coaches’ appointments done in each of the sections at that time. Some volunteers and appointed personnel took their charge to act in such roles. These roles were not defined or clarified by means of strategic goals and expectations.

The organization structure and operations were as follows in the FIGURE 2:

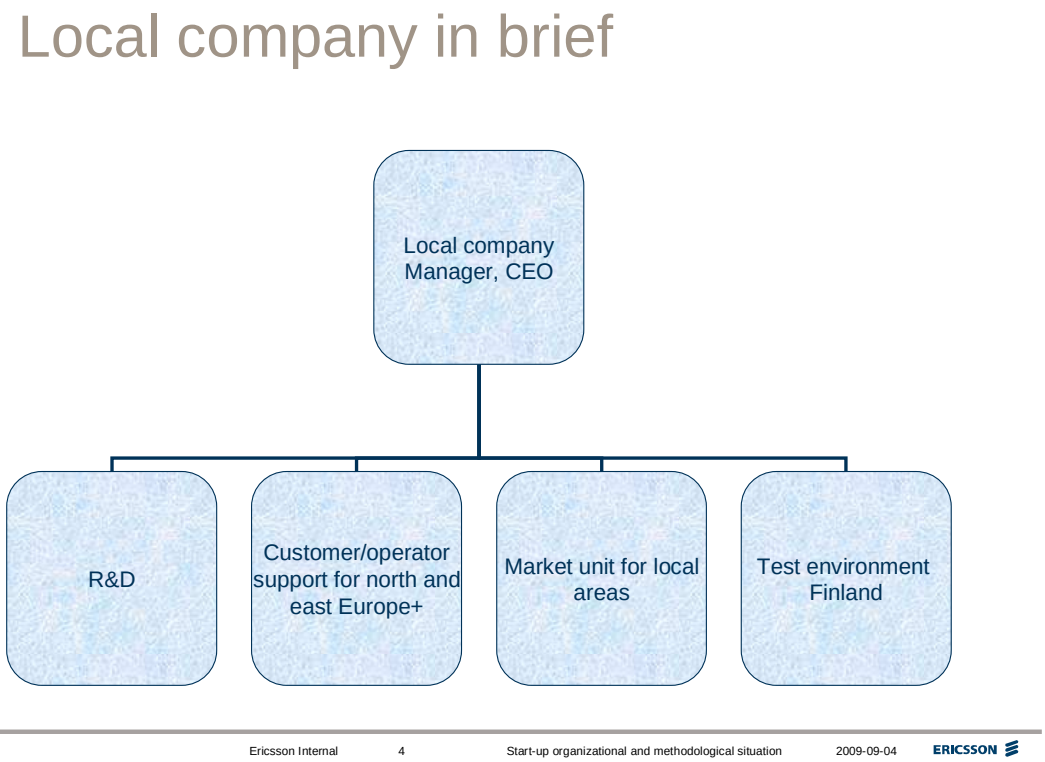

FIGURE 2 Local company (LMF) structure.

The thesis' target organization, R&D was one of the four main areas in the local company, LMF. The innovations initiative was limited to the R&D only i.e. the customer support, market unit (sales) organizations or HW test plant support organization were not included in the innovation team's driven activities. Also the ideabox users were limited to LMF R&D personnel only.

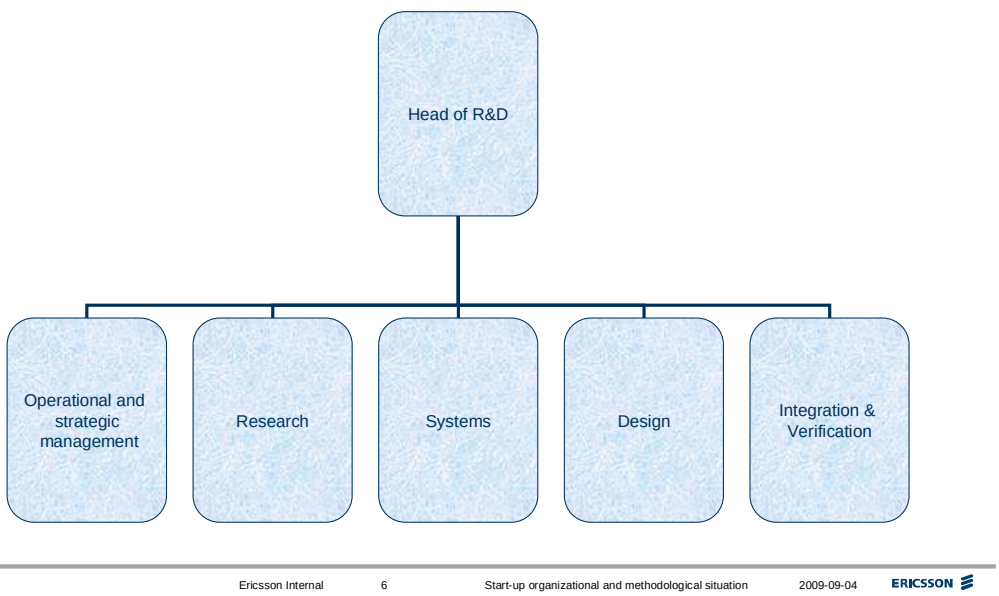

FIGURE 3 R&D organization's simplified structure in 2009.

As it is seen above the operations were mostly functionally organized, even though the borders were not strict regarding an individuals' level or abilities. That is, in the design organization there were lots of activities and efforts put on testing of the variety of products.

The loose buffer and slack was mostly removed during the past years, when specializing of the responsibilities took place. This construction contained solid and homogenous teams. This kind of semi-constant setup was successful in realizing incremental development requirements. There were improvements performed inside the team's own scope, when individuals found free time between operative responsibilities when waiting for responses e.g. from system verification. Systematic and more generic improvements were deployed when technical area strategies were taken into practice.

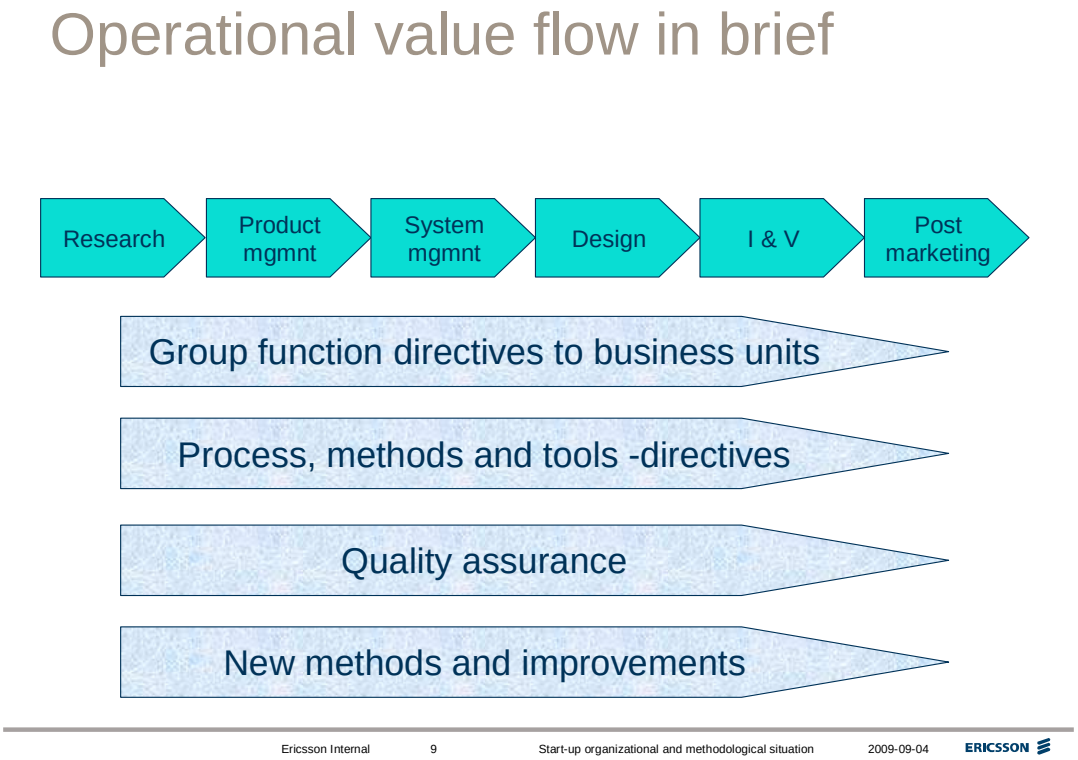

FIGURE 4 The operational value chain.

Many operations were centralized and the decision making process was often perceived fairly slowly. The decision making was typically performed a couple of "layers" above the operational value addition layer.

2.2.3. Personally taken 1st step in innovations

As a "green fielder" in the innovation area in this innovation team, I presented the initial ideas about the innovations, already in the 1st meeting in December 2008, as an enthusiastic student. I proposed commencing with multi channel communication and social-media-assisted innovation strategy deployments. Agile work methods, improved feedback methods and social networking power, for instance, were example key words in this initial proposal.

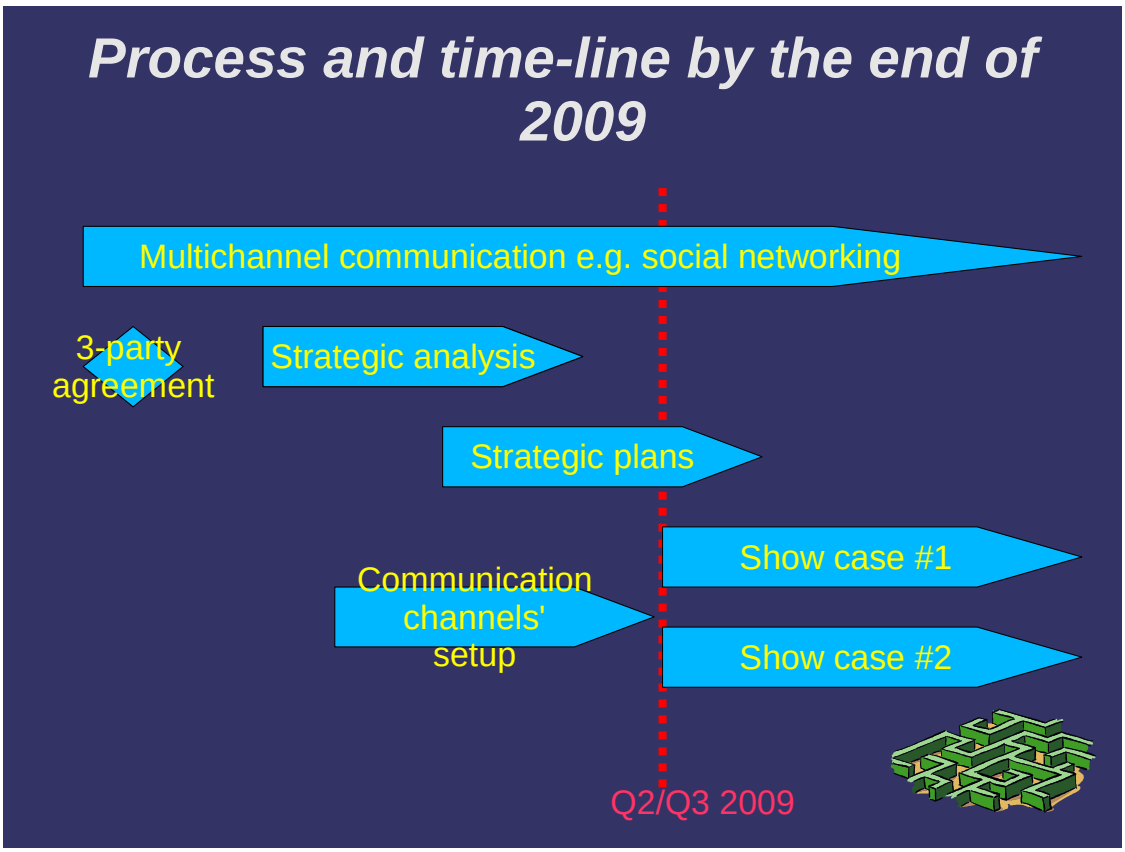

FIGURE 5 The proposed time plan and main streams for deploying the innovation strategy. The complete presentation in found in Appendix 11.

As this was a rather radical proposal for the innovation team regarding its problem solving domain at that time, these issues did not take off immediately. I noticed, the style of introducing new business models should be handled in another way i.e. in a more persuasive and gradual manner, instead of bringing forth the complete solution to this or to any other unfamiliar audience. Another reason for not receiving full acceptance was likely the lack of formal agendas and agreements in the team which I was not aware of.

2.2.4. Basic knowledge about innovations

There are multiple definitions regarding innovation and innovativeness available in the literature, and these terms tend to have as many meanings as there are interpreters. A common terminology and glossary were missing in the company, which especially caused major problems to get properly started with the innovation activities. Innovations are typically confused with inventions (and patents). However, innovations are new, notable combinations of existing and known technologies or building blocks. Often there are too high hopes for totally new products and for the service to be created (which actually solved the major

business problems). Thus the expectations were not clarified to the personnel appropriately.

There was a lack of innovation candidates. At the beginning of 2009, there was no systematic analysis of the business situations or brainstorming of new ideas. Many kinds of product impact analyses were performed in the product management organization. The business intelligence information was provided only at the overall level in specific auditorium presentations. These were not widely marketed nor promoted by the line management in order to increase the knowledge of the personnel and to illustrate the potential business opportunities. The natural business feedback from market (sales) units and post marketing operations was mostly missing since such information was only reaching a limited set of people in the R&D.

The key elements of the innovations were not identified or noted properly. Different business and contextual needs, motivation, creativity, networking capabilities and improvements are vital elements to be taken to account in everyday work life as well. These were not covered in the innovation team discussion at the beginning of the 2009. Many ideas to improve the situation were often postponed with messages like “maybe somewhat later”. An open and rapid feedback, participatory commitment and goal setting were not fully in place at those days.

2.2.5. The strategic change organization and business model

Initially at the start-up moments, there was an innovation team built up to think about how to gather ideas and how to share the information. This coalition structure continued for almost one year.

The innovation work was organized in a hierarchical manner. The management wished and had a belief that the innovation coaches are driving the mission forward. The entrepreneurial behaviour and drive were, however, missing in most cases. Those who have been working in a research organization found this work model natural. Many innovation coaches were unaware of the expectations on them, and how the innovation related work is

organized and budgeted with their line manager. This similar uncertainty applied also to the line managers. The real activities were thus missing in order to get registered ideas developed further to innovations. That is there were not openly available innovation development groups seeking people, nor truly active change agents (intrapreneurs) who “hire” the talents nor socially compatible fellows to foster the creative duties and who “compete with” each other for the best atmosphere in their team.

The organization has a professional way of creating processes and defining disciplines for all activities. The activities will not “automatically” be rooted into operations unless the receiver is eager to study and deploy. This applies also to the innovation strategy deployments. As mentioned earlier at the beginning of the 2009, there was no guiding strategy defined, that is, the managerial structures were not available for innovations then.

The innovations related duties did not have any networking activism in the beginning. Creation of new ideas and commenting of other persons’ ideas in the ideabox were the only duties which initially belonged to the innovation framework activities. The common perception and understanding was that everybody shall sell of his/her own ideas to innovation coach, who should then analyze whether to market them further to innovation managers. The supportive information systems and collaboration tools have recently been introduced and taken to pilot use in some of the product development work groups. The interest for wiki pages and Web 2.0 tools in general was rising amongst the early adopters and innovators. Unfortunately, the selected tools were fairly slow and somewhat unstable. A noticeable issue in this was, that improvements or activities e.g. inventing something outside the ideabox were not regarded as innovations during those times, since they were not visible in the official ideabox tool.

2.2.6. Performance management for innovations in start-up

The balanced score card (BSC) is used as unit’s strategic goal setting tool. This was earlier revised once a year, and more recently in every quarter. As depicted earlier, there were no entries in the BSC at the beginning of 2009. People need to first know the importance and purpose before the motives and other means are steering their activities. Thus the elements

of the innovativeness should have been identified and relevant KPIs defined for measuring the performance of the innovation strategy deployments.

The official performance feedback sessions in the personal development meetings do not serve anybody much. The delay in the feedback information loop is too long. The feedback is not directly from the person who gives it, but it is interpreted by a line manager before the feedback is given to the actual person, who is supposed to get constructive information about the performance. This method is mostly insufficient, both for recognition and for steering purposes. The gratitude awards in the auditoriums two years after the actual talented effort took place, do not necessarily serve a forms of positive feedback either. See Culbert's (2008) opinions for more.

Personalized recognition, including provision of credit and positive feedback, was not utilized in large scale. The recognition would serve the strategic purposes, since the person would understand the importance of the duties better from the result aspect. Thus the feedback loops were not widely in place to ensure proper and enriched continuation of the innovations.

2.2.7. Company cultural and commitments analysis

I found that there was a need to obtain a wider perspective to the innovativeness and to how personnel found the situation at the start-up phase. On my own initiative, I started to create questionnaire forms to be used for such purposes. The identified areas, which were hypothetically impacting the innovativeness of personnel, were included in the initial questionnaire as follows:

- About you
- Organization
- The Innovation strategy of LMF R&D
- Social networking and media
- Other work duties
- Business environment
- Motivation, creativity and innovativeness

- Recognition and rewarding
- Ideabox and ericoll tool
- Free text and development ideas

The proposal for making such an analysis was initially rejected, but within some days, this took off. That is, the management took these questions as seeds for the questionnaire, and this was decided to be run by an external consulting company, Mercuri international in May 2009. See the Appendix 12 for details.

As Mercuri consultants provided only the descriptive results, despite initial agreements about raw data delivery to me, all dependencies were not possible to identify afterwards from these result documents. I did an additional analysis of these results and reflected those in my own perceptions about the situation. These analyses are found in Appendix 12.

A brief summary regarding the cultural and contextual aspects of the start up phases follows. The lack of recognitions and awards may be seen one reason for the company's gap in supporting innovations. The innovation drivers found the culture gap in support remarkable. There were significant differences between different sections how innovations are discussed, as well as how creativity is fostered and supported. Some parties found the innovations important in general, but that is was not for them. The sections which had a non-controlled method of managing achieved the openness and creativity values. Section and project managers did not have innovativeness in their daily operations. Section managers wanted to get clear visions for their duties, and they thought there is an open discussion going on about these subjects. Department managers were more suspicious than others about the change management capabilities of the organization. Management did not emphasize a big need to catalyze the innovations.

3. METHODOLOGY

This action research has been going on since spring 2009 in the target company. This contained different innovation management aspects i.e. the values and beliefs, structures, and leadership practices which are impacted due to the research. Different methods were used

to intensify and align the innovativeness of the personnel. These are handled in the following paragraphs in more depth.

Structures, practicalities and processes are often seen as important, especially when the company culture and ways of working have been based on well-defined processes, tools and methods. There were several structures set up for supporting the innovations. For instance: an official innovation coach structure was set up; web 2.0 based tools were taken in use for multiple work groups and purposes; innovation managerial and a communications-responsible organization were set up; ideabox database was launched; decision forums were set up.

Traditional performance management principles were initially taken in use. That is, there was a bonus goal set up on a couple of quantitative KPIs around the level of ideabox related activities.

The specific methods of this action research were consultancy, participatory activism and promotions of innovation activities, and open-minded brainstorming. There was a handbook written about innovativeness and innovation utilizations, which was a foundation for the actions performed. This contains structural elements like the supportive business model for innovations. Additionally enhancements of ideas, interviews, questionnaires and brainstorming meetings were established and used as tools. Small group and larger audience presentations were held on different topics and results while the research continued. Also active participation in developing improvements, incremental innovation a.k.a. operational innovations belonged to the methods used.

4. ACTION PLANS

This action research was, in practice, about determining the means to make contagious activities with different stakeholder groups in order to spread the mission of innovativeness, and actually running such activities with stakeholders. The different stakeholder groups were e.g. innovation team members, innovation board members, innovation coaches, other idea creators, and later a larger audience through the innovation handbook publishing in the document repository.

The planning of the actions was a continuous and very dynamic procedure. As indicated earlier at the start-up phase analysis, there were multiple stakeholders running and steering as well as managerial operations for innovations. Therefore I took another approach after the first half year. That is, the actions were bound exactly to those specific moments, solving problems, assisting others or trying to encourage and "infect" others by acting as an example. So, the dynamic actions were targeting niche opportunities, small group actions and networking capabilities. This approach I found feasible since the initially allocated target audience, innovation coaches, were targets of multiple executors already. The traditional project planning with Gantt charts was found not feasible due to the dynamics of the system.

There were few agreements and contracts set up for securing the execution of the actions, but the timing of these was the most critical issue for performing and completing these in order to produce value for the community. Sometimes the I&C management or other stakeholders requested me to make an action or activity for e.g. clarifying a specific subject, which bothered e.g. amongst innovation coaches at that moment.

Naturally there were some other basic elements planned or taken into account. That is, there were observations and registering of the current status actions themselves and the analysis and reporting of analysis results. Typically, the results of the separate actions were sent to key contributors, R&D management, innovation coaches and innovation management. There were additionally some actions, which were not reported until this final report took place.

5. ACTION ANALYSIS AND RESULTS

Transformation programs always raise questions amongst the target audience. Therefore different actions are arranged below in themes, which are answering some basic questions. Some of the actions have been going on in parallel. From now on, a more personalized perspective is taken towards this action research report. In order to see and understand different stakeholders' involvement, co-operation and cross dependencies, the stakeholders in these summaries are identified at a rough level below.

There are also appendices available, which contains time stamped actions and observations about the contextual changes, which happened during this action research.

5.1. What is this innovation all about?

Many times during this research there was need to clarify the basics about innovations, and discuss reasoning for innovations with the audience. The "What" -question is elaborated next.

5.1.1. What is an innovation and how is it connected to the work context?

I started the action research by gathering, reading, analyzing and modelling the innovations and business models from the literature. My intention was also to visualize and understand the bigger picture. One intermittent reflection about requesting feedback to the theoretical model follows.

In the middle of September 2009, when we had one innovation team meeting, I asked my former supervisor for comments and exchange some thoughts about the mind map I had created about the literature summaries. He liked the division, and especially the motivation and the leadership portions were applicable to him. This mind map follows:

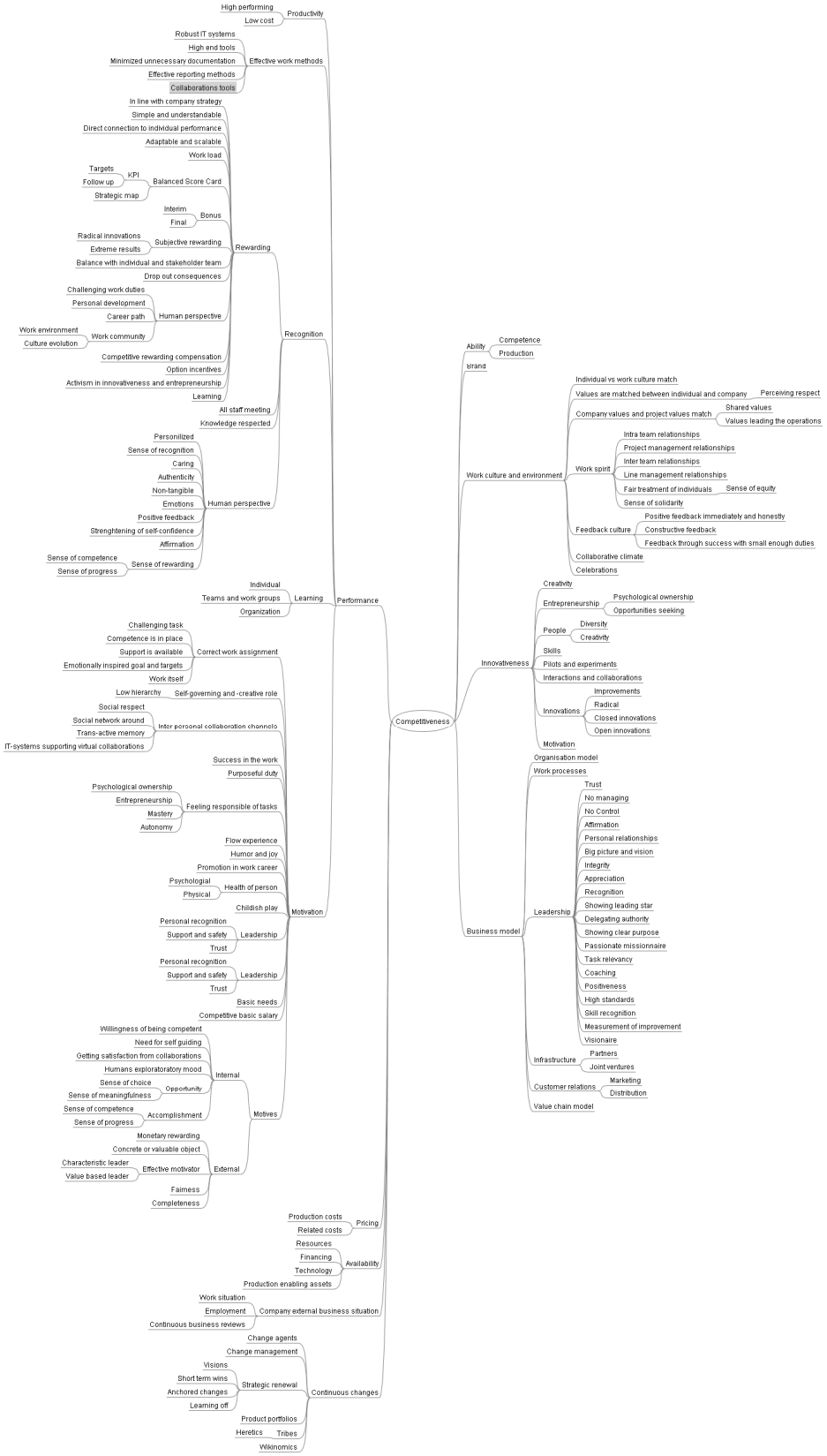

FIGURE 6 The competitiveness model, where innovation is in an important role.

The model in FIGURE 6, which was also included in the early published theory summary, became even more important later in autumn. Namely, the global financial crisis made a significant impact on the company's operations.

5.1.2. What about writing a separate handbook about these?

Pia Koskenoja, the tutor at Metropolia, gave me feedback to make a handbook from the theoretical models on week 42 in 2009. The literature summary contents had expanded to 100 pages. The long editorial time frame was visible in the text quality already. There was a need to start splitting and re-analyzing this content. On the other hand, I did not want to cut off too much of the important references and models, but re-arrange and cluster the contents instead.

There was still another intermediate version of the theories published to all stakeholders at the end of November. This version was already summarizing many themes, but there were too many issues which still resembled other themes. The division of the themes into small pieces was insufficient and the identification of core themes was unsatisfactory. The tutor requested me to re-organize the contents still one more time.

The next large exercise with the innovation handbook was a totally new mind-map covering all topics. This 21 page mind-map was ready at the end of January 2010. This mind-map was a tool for rewriting the themes of the handbook and reducing the size by half from the original. The rewriting and compression of themes and items continued until week 10. The linguistic check service from the CPI documentation organization was granted. I got a rapid answer from one CPI specialist then, but I perceived there was not “enough” to be corrected, I decided to persuade one co-worker who is a native English speaker to check this for me. This was a bigger exercise, which continued until 3rd week in April. Thereafter the innovation handbook (Appendix 1) was published in a global document repository for everybody in the company.

The paper was marketed by one innovation coach, who was encouraged after reading the earlier pre-published document and also from different joint collaborations. Also another thesis worker from I&C team took interest on the themes in the handbook during that stage days, and provided feedback.

5.1.3. What is the direction and impacts on the image of the company?

5.1.3.1. Brand strategy

The innovation strategy work started by the I&C team in June 2009 as there was also corporate level brand strategy work ongoing. The strategy work was based on innovation vectors (Gibson & Skarzynski 2008), which are the identified key areas to be focused on in the operations. In autumn such areas were commented by the innovation coaches in a collaborative manner, in online web discussions, called E-STORMS.

I&C team also held external discussions to obtain comments on these vectors and strategies. i.e., Aalto University's industrial management students provided comment, analyzing and proposing changes to the strategy work in their group exercises. I participated in the specific E-STORM (a distributed online-collaboration session) and gave feedback to all of those study groups' end reports.

5.1.4. What is the evolutionary path of the business model?

Management identified that the extent of change needed requires full scale modification within the organization as well. At the beginning of March 2009, there were changes performed in the innovation team. The organizer of the team changed. A couple of weeks later there was also a strategic manager appointed to handle the business model changes. I proposed to enlist communications professionals into the innovation team in order to publish clearer and structured messages to the bigger audiences.

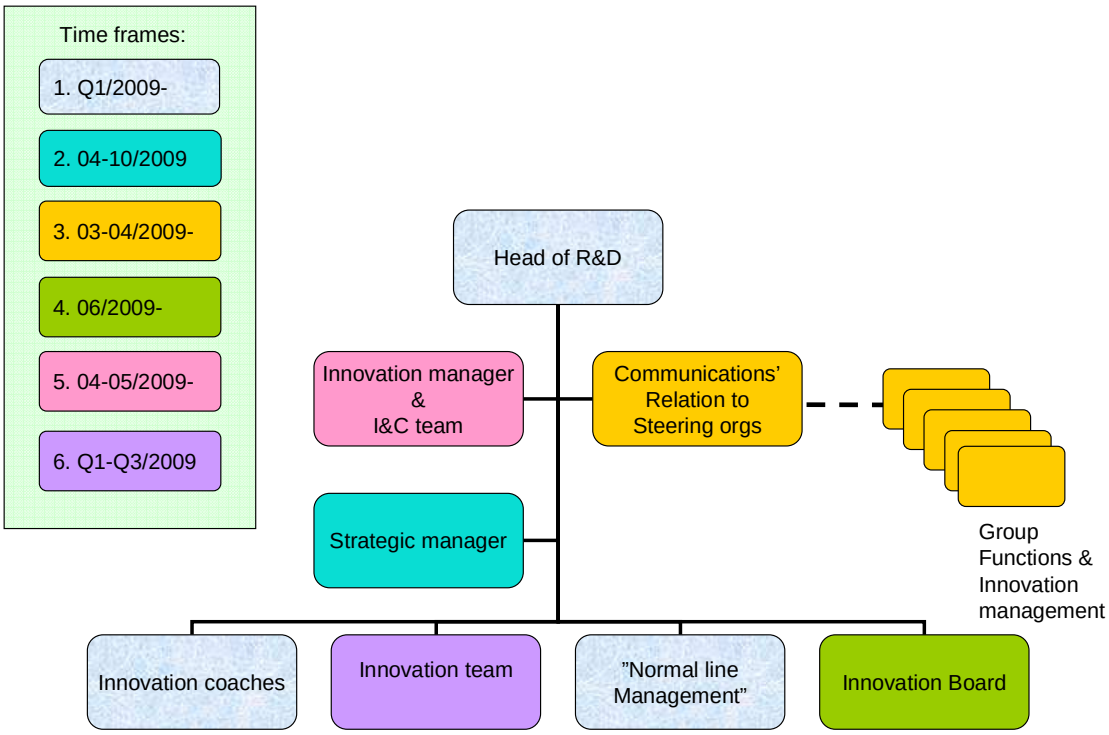

FIGURE 7 The simplified innovation organization during the action research.

The innovations related organizational structure was a living one. There were multiple stakeholders and interest groups managing innovations and competing with each other. The corporate steering and control started to develop from the corporate group functions. Those functions are "external" parties involving sometimes the internal operations also in this area. The web 2.0 based structures helped for sharing information since this collaboration site-based information system was created for the innovation team. There was clearly a need to simplify the structures and collaboration channels in order to improve the efficiency of the communication and networking. In spring 2009, the innovations and collaborations team (I&C) were built around an innovation manager and his trusted partners and the communications specialist.

The interest for participating into the innovation team was gradually decreasing during spring 2009. Some technical specialists were invited to provide their opinions about needs and problems seen so far. One clear outcome from this innovation team was related to the collaboration site and the basic content in these wiki pages. I added content to this wiki site, regarding the reward sections, since I have been studying motivation and performance

management literature. In the last few days of April the site was published for everybody in the company. This wiki page's contents follow:

Innovation Rewarding

Rewarding is traditionally associated to the performance management functions (e.g. balance score card) in the organizations. It is often thought that the external motives like remarkable incentives or regular bonuses and any similar monetary compensation are creating and maintaining a good pace and inspiration. The human and "soft" values are typically not often discussed in normal occasions at work - honest feedback, trust, ownership, a sense of the importance of the task, learning and social collaborations among others are factors which are also impacting to the sense of recognition and rewarding.

The following chapters are describing the background and utilization areas of rewarding as well as the proposal for the rewarding system in the LMF R&D regarding the innovation management.

Background about rewarding and a sensing of recognition

Motivation for changes and activities can come either externally or internally from the individual. The *external motives* in the innovativeness context are the rewarding of activities, money, admiration, acknowledge and other related tangible prizes. The *internal motives* are the willingness to being competent, need to be self-governing and self-guiding and getting satisfaction from human collaborations. These internal motives are bound to the human's exploratory motive for trying to find and experience new things. The creativity and innovativeness as also associated to the freedom, as listed in these internal motives above. There are also many other factors, which are increasing or decreasing the motivation, which are not covered in this context.

Goals and need about recognition and rewarding in the innovation management

- Making people feel valuable and their duties meaningful and increasing the positivism
- Emphasizing the importance of the subject and engaging individuals to feel responsible for it
- Encouraging people to experience memorable moments while being recognized in a personalized manner
- Providing short term wins, marketing and showing importance of activities or subject
- Directing the operations towards the strategic goals
- Acknowledging hard and persistent work
- Recognition of cross-functional, dynamic and self-organizing and goal seeking teams
- Giving more time and freedom to develop ideas and himself / herself further
- Increasing the sensing of recognition and thereby improving the rewarding organization culture by receiving positive feedback and appreciation from the community

Even though many of the items above are fulfilling to the internal motivation needs and sensing of the recognitions, there is still a place for the external motives e.g. for internal marketing and innovation strategy deployment purposes.

One proposal for rewarding methods, based on different cases in literature

The following proposal tries to tackle different angles of motivating and recognizing people. For sure there are multiple other solutions and proposals, which may fit into the innovation context as well.

NOTE: The following means are only based on the author's (*) perception and summary from different sources of literature. As the wholeness of the model requires a survey to be done among personnel, this is a limited view only, for now:

Bonus and loyalty incentives: Different activities for the idea generation, implementation etc. is ranked with bonus points as e.g. in airline and supermarket loyalty programs. There is a payback period, when earned points could be replaced by tangible assets like concert or opera tickets, artistic brand products or any suitable culture related services, which are mentally associable to creativity and innovativeness, and which are likely to raise positive emotions among recipients. This is about creating the commitment and the sustaining relationship to these activities. It is important to

avoid the company's own products as prizes or compensation. Example: All activities which are heading to improve the innovativeness in the organization are defined, valued, communicated, measured and performances are gathered to a total "bonus" program.

Prize and wins: Short term competitive or marketing type of reward to extend the awareness and activation of the wider number of people. This should be arranged so, that it is easy enough to achieve for everybody. Such campaigns should be launched e.g. once in quarter including common celebration with trophies and minor personalized award. Example: a) competitions have well specific criteria for the prize b) non-serious competition for brainstorming sessions are ranked by participants and a trophy is given to best-voted ideas c) smaller gifts are given in a campaign when smaller efforts like one day try out is out-performed.

Talent and team recognitions: Time allowance and autonomy is given to foster talent in order for them to be even more creative. A recognition ceremony includes the talented persons' short briefing about the subject and chair person's personalized greetings. Scholarships etc. could be used as an example. Example: Total efforts of the person or group are evaluated and the learning or creativeness related appreciation is awarded.

Innovation share: There is a remarkable compensation is given to the innovator, when a successful idea has reached an implementation point as a new innovation of any kind (technological, business, design, cultural, operational, cost, experience, management, industry or value innovation). Example: Personnel are advised that the successful ideas should be recognized in a manner which the business invention is worth to aspire.

There is in general a need to have larger involvement and participation in discussions about innovativeness and about the sensing of recognition and motives shortly. (*) Vesa Saarinen

FIGURE 8 The author's value additions, the contents in the innovations wiki pages regarding reward.

The I&C team, driven by the innovation manager was aiming to get more attention, decision power and more diversity to the innovations. That is, the innovation board was established, where also other than development organization managers and I was invited. This board was gradually being enhanced with stakeholders from the market (sales) unit and customer support organization. One task for the board was to analyze and grant acceptance for pilots and prototypes from research departments and, naturally, to make common decisions and discuss specifically on innovation related topics. This concept has been the most solid organizational unit since June 2009.

The innovation budget's decision rights were provided to the innovation coaches later in autumn of 2009. The innovation coaches then gained possibilities to manage and decide, in their monthly meeting, which pilot projects should be pursued bearing in mind the limited innovation budget (and time frame). I also started to participate in the innovation coach meetings in the autumn 2009. These meetings did not resemble innovation ambassadors' or entrepreneurs' opportunity and inspirational sessions in those days. Anyway, the responsibility for dividing the innovation hours for different trials was placed on the innovation coaches. This proved to be a good change for the better in the managerial practices.

5.1.4.1. Innovations and the core business model.

There have been a number of different iterative development processes and methods attempted in the organization during the last ten years. These have mostly been specialized groups and individuals as well as functional organizations performing modern SW development procedures.

When I studied the leadership module in EVTEK University of Applied Sciences in 2007, there were strategic analysis and business planning duties to be prepared for the company. In late February 2007 I published my analysis and business plans for LMF R&D management. The strategic analysis and business plan were in relation to improvement of the user plane verification of the M-MGw. These analyses covered also the business model changes. There were items e.g. concerning job rotations on grass-root level, as well as deployments of Agile SW development models in cross-functional and task-force means. Customer feedback was also one of the key issues in these analyses. The task-forces or "tiger teams" were introduced in many hectic and difficult situations amidst the normal core business operations used for solving acute show stopping issues. The agility remained an incompatible and theoretical model for big companies in those days.

At the beginning of the 2009, when this action research started I created a pair of ideas into the ideabox database regarding the agile way of working and improved communication model. The first proposal was on the principals of how the functional and a sometimes 'sticky' organization could be rearranged in a way in which many big companies are also working in the SW development industry today. The latter idea was concerning cross functional teams and diversity which I found as prerequisites for both innovations and agile working models. This set-up can also found in the literature as a proof of the proposed concept. Even though I did not expect much gratitude or encouragement regarding these ideas, I felt disappointed about the lack of feedback on these ideas. I later understood that there was an improvement program going on in the management regarding the FIS (Feature Impact Study) way of working, but there was not much published information available except the term "solid feature teams". The line managers also started to promote the Scrum method's daily stand up system or daily status meetings for the ongoing teams from

March to April. Some bigger teams perceived such daily status meetings as useful for improving the development speed and internal communication.

As there were quite a lot of uncertainty and mixed feelings in the air regarding cross functional teams and agility, I decided to take a quickly ‘test the water’ to check attitudes by introducing a questionnaire amongst different functions in the R&D at the beginning of May 2009. There was nothing really working specifically and officially in an agile way in those days. This recent line activity of the management towards the team work, web 2.0 and feature teams (as a Scrum’s term about cross-functional teams) was the trigger for my survey concerning agility.

5.1.4.2. Summary of the agile SW development survey

The analysis is mostly based on the agile principles, namely “Agile manifesto” and “Agile SW development”, but the questions are adapted to tackle different viewpoints in the company. The details about the results can be found in Appendix 2.

The highlights of the findings and characteristics of the results followed. The FIS way of working was seen as mostly positive although the portion of negatively tainted answers was fairly large. The roles and responsibilities were not clear for 40% of the people participating in the survey. The internal motivation to the change was considerable, since four out of five answers were directed at the need for change. The comprehensive handling and coordination of processes and methods are seen important in 60% of the answers. More than 20 % of the individuals wanted to obtain more freedom and self-responsibility to act. Professional documentation was seen important for the customer in half of the answers. The lack of the customer contacts in the R&D and customer collaboration was not in a level it should be, as stated by 44% of the respondants. People wanted to have proper planning and stick to those plans instead of being overly flexible to changes along the development process. Intensive team work is seen as vital to keep a high competitive edge. The open questions were meanwhile supporting the quantitative analysis data. There is a resistance and negative attitudes towards agility in general. The processes, being condensed and made more lightweight, was seen as an alternative or an answer for the FIS way of working.

Cross tabulation analysis results were showing slightly more information about the situation. The FIS way of working was seen as mostly positive in the system- and I&V – departments. Those people who wanted to have more freedom to act disliked the current way of working. Role definitions were mostly unclear in design- and I&V -departments.

5.1.4.3. Conclusions from the agility survey in May 2009

The importance of team work is seen extremely important on the whole. In May 2009 there were no such cross-functional teams (as depicted in textbook agile theory). The level of co-operation between functions was dependent on individuals' personal relations. There was not enough customer inter-action as agility requires today. There were however, satisfactory change management procedures in place in that time.

There was every one out of five people (mostly designers from systems department), who wanted to get more freedom to act and in that sense take more responsibility. This is also the corner stone for the innovations. A similar effect was also seen in the changes towards the agility compared with innovations already experienced earlier. That is, people want to know what their personal role is in the big picture. This uncertainty about personal future is not improving creativity, commitment or innovativeness.

5.1.4.4. The agility in operations

The strategic management decided to involve an external partner company, Reactor Innovations, to assist with constructing the agility methodology, specifically assisting with introduction of the Scrum methodology in the organization. In September 2009 Reactor consultants prepared some presentations and soon after that they achieved rights, full support and the visibility to operate with the initial team of specialists, "Jorvas tigers" as a show case.

The second step was to introduce a couple of other teams to find out how to inter-operate between diverse teams.

The full scale deployment of Scrum started right after the establishment of new line management organization in the R&D in March 2010. That is, the cross functional teams and totally new way of working is impacting everybody in the R&D organisation since then. All development operations have been utilizing the scrum way of working for new development objects since September 2010.

5.2. Why to put effort and invest in innovations?

It is always important to understand the reasoning for changes and the antecedent. There were a number of situations and sessions, where the reasoning was questioned and arguments provided. The following chapters are to tie these motivation related themes and actions together.

5.2.1. Why commit to innovations?

In spring 2009, the in-flow of ideas in the ideabox database was increasing, but there was only a very limited interest on commenting on the ideas in a value-adding and constructive manner.

In summer 2009, I proposed to the innovation management that I could run a number of educational activities concerning innovations, motivation and leadership for innovation coaches during the autumn. This proposal did not, at least, gain any negative feedback which I regarded as “go-ahead”. The strategic management took this opportunity instead to arrange educational events for innovation coaches run by external consultants. Education was expected by many, but it was also an unfortunate co-incidence from my educational activity perspective. This drove me to study even more the change driver’s roles and entrepreneurship.

I had published my initial theory summaries to the steering parties earlier in spring. This summary consisted of the intrinsic motivation, external motives, including reward and recognitions, and innovative business model. These kinds of proposals were expected of me since the initial stages of the thesis.

During that summer there was an increasing worry and frustration intensifying amongst the innovation coaches, who felt like they standing between the innovation management and the idea creators in their own sections. “What next” and “why should we innovate” types of questions and e-mail discussion threads were typical during August 2009. There was also an active discussion thread in the ideabox about the innovation recognition and awarding, where also line management took part. That is, the motives for making the innovations were actively discussed in many ways and occasions. This exceeded my threshold to wait for more before taking the next step onwards. Thus I quickly created another questionnaire this time regarding the different motivation aspects of innovations.

5.2.1.1. Quick scan of the motives of developers and innovation coaches

At the beginning of the September 2009 I selected two sample groups for the motivation survey of the innovations. One was a SW developer section and the other group was the innovation coaches who are representing all sections and different competence areas.

The main purpose was to illustrate to the R&D personnel that there could be multiple motives steering the activities, and to especially identify which are the drivers at LMF. For me it was a possibility to see whether the theories and research results from literature are valid also locally in the R&D organisation. This was also a proof-of-concept test for my innovativeness model which I had been gradually constructing and publishing since February of 2009.

5.2.1.2. A brief summary and conclusion regarding the motives for innovations

The following prioritized list of motives is also available in Appendix 3.

	N	Range	Minimum	Maximum	Sum
Meaningful job duties are most important motives for me	41	4	2	6	209
I get inspired when I can modify the status quo and seek alternatives	41	3	3	6	206

I get good "vibes"/satisfactory emotions when I can help to solve problems in different work groups	41	4	2	6	199
My own experiments and feedback from my personal success is The driver for me	41	6	0	6	193
I feel trusted and am committed to creative improvement work	41	3	3	6	192
I think it's important that my activities are recognized in the community	41	6	0	6	187
I feel I am in control of my own duties and I have the freedom to choose and be responsible	41	6	0	6	182
Personalized recognition from associates and management is the best reward of all	41	6	0	6	179
Innovation is offering me learning and rotation possibilities	41	4	2	6	177
I have enough competence, courage and authority to drive ideas forward to innovations	41	4	2	6	176
I am at my best, when the goals are clear and I receive regular feedback on my performance	41	6	0	6	176
I know already where to aim/go with my innovativeness	41	5	1	6	170
My career development/position is impacted due to my innovativeness	41	5	1	6	160
A worthy incentive bonus engages and commits me to work on my tasks for a longer period	41	5	1	6	158

Social celebration events are good opportunities for recognizing achievements	41	6	0	6	158
Processes and instructions must be adequate in order to allow me to get going on the tasks	41	5	0	5	144

TABLE 1 Prioritized list of motives according to the respondents

Inspiring duties would be motivating, if there were possibilities to change and prototype new ideas. There seemed to be a need to improve the mastery of duties by allowing more freedom to act.

Mass recognition and incentives as long term solutions, were not highly ranked amongst the respondents.

Innovation coaches were expecting more recognition on their duties in the community. Others were expecting immediate feedback from their goal oriented activities instead. This difference in feedback perceptions and therefore also in the communication style and method expectation was a significant finding in this analysis.

Summing up, the human values, networking and peer-assisting were the key motives according to the respondents.

5.2.1.3. Responses from the analysis

Even though the questions were not fine-tuned and perfectly formulated, the responsiveness was good from many stakeholders. That is, some people, who were not even in the mailing list, came to discuss these results. That is, the motivation theme is therefore seen as important as well as these human aspects, which were seen as important in general by the respondents.

Later in the autumn I received many mails, where intrinsic motivation was highlighted and the human matters seen as important. In that sense, I find that this analysis served that par-

ticular moment's requirements although this did not pinpoint the obstacles of individuals which need to be diminished.

5.2.2. Identifying the mission of the thesis

The feedback from the motivation and reward questionnaire in September 2009 made me more confident on this theme of these literature studies and action plans. I&C team ordered one course run for innovation coaches and I in October. This course was called "Communicating Value" and it was arranged by external consultants from the UK. The main objective was to improve the idea's or mission's message further during the course. My mission was entitled "humanizing the innovations", where the leadership, networking and support for intrinsic motivation forms the core aspects. Also present, were innovation management as observers during the ideation sessions and presentations. The course themes were well known: mostly the basic of communications, but the course was professionally arranged and the exercises were well prepared.

5.2.3. Motivation boost group

The motivation related discussions continued in the innovation coaches' monthly meetings during the autumn 2009. I proposed to gather a group of volunteers, who are interested in improving items for innovations under the theme of motivation. It comprised one coach and a group of people in the same section, including their section manager, who wanted to take the changes beyond the normal route for innovations.

We had an initial meeting in week 50, where I introduced and proposed the practices and process to be followed in these exercises as follows:

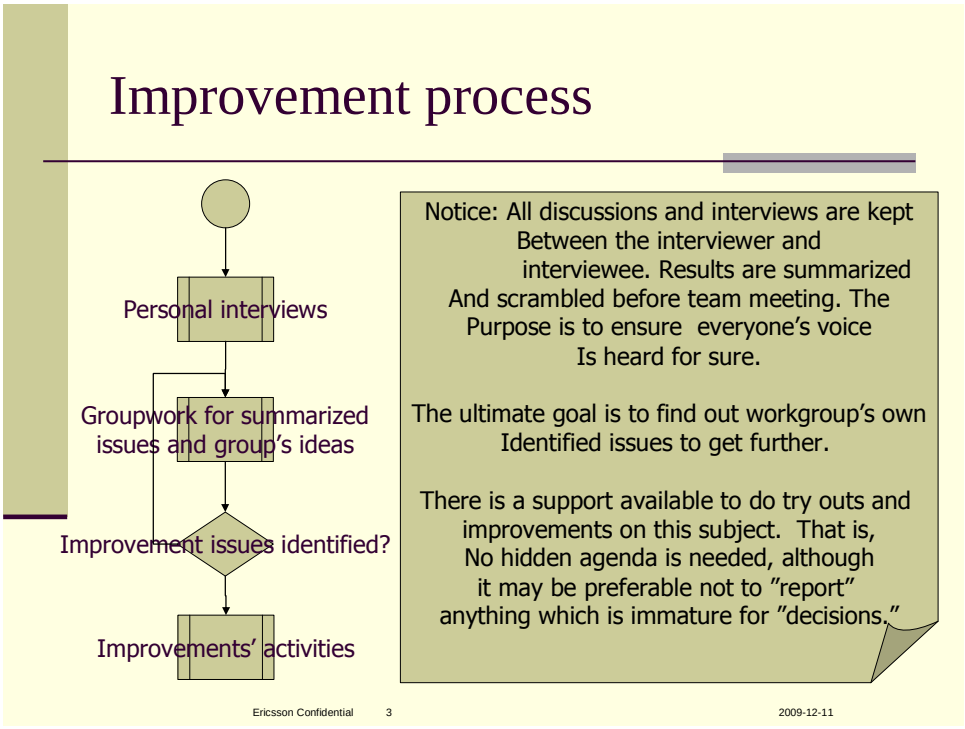

FIGURE 9 Main principles introduced in the initial meeting for the motivation booster group.

5.2.3.1. A brief summary about the interviews of the motivation group

The interviews took place around late December 2009. There were around half a dozen of people interviewed, and the detailed and scrambled answers are included in a report which is found in the Appendix 5.

The insights, opinions and opportunistic philosophy about innovations from the interviews demonstrated the following: Innovations provide possibilities to carry out something else other than normal duties; Innovations enable better utilization of the individuals, as well as providing a possibility to make life easier. This can differentiate people by increasing their personal competitiveness e.g. by extending the networks.

The interviewees also listed many issues, which are important for the continuity of the business. Innovations keep the company alive and competitive, which is important in this life cycle state of our current M-MGw product. This also extends green thoughts and envi-

ronmental thinking. The ideabox database offers possibilities for everybody to have their voices heard.

The company's cultural aspects were also brought up in these interviews. Open-minded discussions and a secure community would make the innovating easier. People felt the autonomy, which is built into the model of the scrum way of working, could help people to make their own decisions in the team if the surrounding support is sufficient. The bonus programs could be more selective in order to avoid 'free-riding' and in order to increase the quality of the activities. The interviewees indicated that all appropriate stakeholders shall be recognized.

There were however, a set of issues, which were bothering and worrying the interviewees. Continual business pressure and limited possibilities to join in on the activities was limiting the ability to act on the innovations. There were not enough correct opportunities to help take a grip of the innovations. Concrete activities are the privilege of the few - this was felt as a discouraging aspect. Time sharing between the core work and the innovations was not balanced. People felt guilty and suspicious about spending time for scanning ideas in the ideabox. Some felt afraid of making mistakes, which causes delays for situations in their cases. People did not have much interest or time on selling their own or others' ideas. Therefore cynicism increased due to the lack of feedback. On the other hand there was no risk taking today to learn and try-out something new. The lack of idea drivers was evident – "nobody takes the ball" –deadlock was thus introduced. Some environmental factors were also discouraging some interviewees.

5.2.3.2. Group working, brainstorming and learning

We had bi-weekly meetings from January up until the wide scale deployment of the Scrum methodology in the development unit at the end of March 2010. There were open discussions about values, visions and about the initial interview findings. We found out that there is a need to have trusted peers or a team to share the ideas and boost confidence about these matters, as well as refining those together before publishing ideas for wider audience. i.e., the group's team working capabilities were the corner stones for many things - especially for creative and tentative improvement areas. The team's intelligence and joint

memory a.k.a. the transactive memory was therefore an issue, to achieve improvement in this team.

There were also a number of ideas discussed, improved and the updated situations were documented into the ideabox as adding to the value of these brainstorming sessions. We also noticed, that it did not “hurt” the personnel if their ideas were argued and discussed properly from different angles but finally their ideas were “terminated”. The key was the immediate feedback, honest handling and analysis of the idea and a common understanding about the situation. Of course those ideas, which were encouraged and were brought further, provided more satisfaction to the idea creator.

The major finding was that the group pressure in the scrum team can be remarkable. That is, the concentration on totally new ideas, which are “out of core business”, can be impossible, if the full commitment (a.k.a. passionate behaviour or engagement) to such duties is not in place. The summaries of those sessions can be found in Appendix 15.

5.2.4. What makes the motivation, commitment and competence so important?

5.2.4.1. Customer KAM’s viewpoints

In the middle of February 2010 there was a customer operator presentation about perceptions on our way of working and products. The key account manager (KAM) for Ericsson introduced the way of working model about early integration of the customer operations to the product or service deliveries. The characteristics of the persons who should take part in customer support activities shall have the “MotivEnce”. The abbreviation comes from motivation and competence, which are required to work in such joint integration duties in customer environment (and premises). I found this was inspiring since I also encountered this same analysis and model in the handbook already (Appendix 1). (Heckhausen 1980.)

5.2.4.2. R&D leadership evolution

There were management team workshops held in the spring of 2010 on leadership matters, innovation and scrum. The professor Satu Teerikangas from Aalto University was invited to offer discussion on the employee engagement theme. For me, this theme was similar to

my key concept the flow concept, flavoured with some managerial approaches. As this theme was discussed and brainstormed more thoroughly in the second workshop, we aligned the perception with professor Teerikangas, that it is mostly flow, this is all about. Thereafter I perceived that the key concept of the theoretical framework was starting to take root now in the organization.

5.2.4.3. Innotiimi consults' involvement

At the beginning of March 2010, the innovation coaches' meeting differed from the standard meeting, since the I&C management had invited an external consultant group to assess the coaching situation. The brainstorming of the issues and voting for the prioritized issues hit the motivation theme, again. There was no continuation of these external actions agreed. I had booked a separate meeting for the innovation coaches earlier for presenting, group interviewing and for having dialogs about these findings i.e. about the understanding the purpose and motivation.

5.2.4.4. Innovation motivation with coaches, the group dialog and interview

As detailed earlier, the motivation for creating innovations related duties was still an acute topic amongst the innovation coaches during the spring 2010. I arranged a specific session in the middle of March for innovation coaches and innovation management. The topics were concerning opening up the innovations, innovativeness and motivation as included in my model of innovativeness.

The methodology in the meeting was not that of an ordinary presentation; neither was it an assessment of the motivation of the coaches. The first part was about a brief walkthrough of the "theoretical" models with entertaining visuals. The second half of the occasion was on opinions, open round-table discussion on these themes, clarification and repetition of issues, the argumentation of the procedures at LMF, and opening up the feelings and emotions around these personally perceived matters. The details and the summary of the recorded discussions are found in Appendix 6. The fine tuned and slightly modified visuals are found in Appendices 9 and 10.

One finding was that there seems to exist some scepticism about intrinsic motivation as a driving force. That is, if the innovation coaches are expecting monetary, admiration, career development or anything similar, their inspiration and engagement may not be deemed best for assisting others in succeeding.

A set of managerial issues were seen as either missing or not properly communicated to the coaches. The vision, goal and company strategies were not perceived as innovative or they were not communicated properly. The leadership issues were seen as important, as well as the innovation capital. The recognition of the stakeholders was seen as essential for many. The core business and the innovations were deemed as separate and competing activities today. That is, it is difficult to put efforts on both without feelings of guilt.

The missing feedback from achievements is seen as one activity to be improved in the community. A set of coaches saw the risk taking also apprehensively. The employability and personal competitiveness may collapse if the wrong ideas are developed further.

5.3. How are the innovations and innovativeness progressing in the community?

5.3.1. The performance management of innovations in 2009

5.3.1.1. Starting up of the performance management for innovations

The R&D management team specified two KPIs on the innovations at the beginning of March 2009. Namely a level of ideas generated in the ideabox database and the rate of the participants creating ideas were identified as indicators for innovativeness in the R&D. These quantitative targets were set as those KPIs so, that almost everybody shall participate by creating a specific set of ideas, giving comments on others' ideas and storing challenges (extreme problems or show stoppers) in the ideabox.

The follow-up methods were performed even on the individual level - this was aware to everybody, even though the official statistics were only shown on section levels. This is

naturally providing good visibility to people, who are eager to show and share their participative activism. This mechanism also identifies people, who have not done anything for the activity. This kind of classification of people as creative and uncreative individuals is, though, destructive, according to literature.

These BSC targets were bound to rewards. There was two level bonus program introduced for whole company at the beginning of Q2 in 2009.

This identified KPI context had assumptions that people would enter all ideas, which could be regarded as real innovation candidates to the ideabox. The other assumption was that the quality of ideas is increasing, since people would be rewarded to provide comments and on the amount of comments. The third perspective in these assumptions was that bigger obstacles or challenges are minimised or even removed by entering those into the ideabox.

The reward term was misused and misunderstood continuously. The rewarding culture and rewarding duties were still regarded as bonus programs' associated operations. That is rewards were aimed to make innovative duties rewarding and purposeful. Unfortunately rewards are not fulfilling the needs of the job enrichment.

These quantitative and objective measurements do not cover all the parts of innovativeness. There was a need to identify a qualitative means to analyzing e.g. customer satisfaction, development and the stakeholder spirit, evaluate learning, coaching and teams. These kinds of analyses were identified as important and proposed by me to the innovation manager at the beginning of March 2009. The performance of individuals is composed of knowledge, skills, technological conditions, requirements, needs, goals and expectations, motivation, recognition and reward, and the opportunity to utilize all available capacity. Also the supportive networking could be seen as an attribute which impacts the performance remarkably. This area, the human approach of the performance management is covered next in more detail.

During the quarter 2 in 2009 the cultural aspects were intensifying in the discussions. It was identified that the leaders should ensure that the internal motivation is not disturbed by managerial activities, which happens every now and then. The perception was that there should be enough delegation of authority - people are trusted and a clear purpose and vision is communicated – a secure and inspiring environment for completing work and activities is assured. The duties should also be challenging enough and they should be complete duties, not piecemeal. The competence should be ensured by mentoring, by offering positive feedback and by the recognition of skills. Meanwhile, the other managerial program which had similar values and contextual structures was starting to evolve, i.e. the agile methodology got high attention in the line management as a next generation core business model. This subject is handled separately in this paper.

5.3.1.2. Individual perspective

Personally, I was above the average, or possibly within top 10 in the total “innovation point” counts at LMF. Innovation points were received for certain duties, which belonged to the scope of the performance management in 2009. That is, I created a number of different ideas from business process and tool improvements to the extended use of the M-MGw product. Naturally I commented three times more than I created ideas. At least one challenge was also entered by me. High rates in such “ranking” did not mean I worked more than many others with innovations. This did not either mean that my efforts for the innovation were more valuable than others’ e.g. who “only” created one idea or a comment into the box. That is, this performance measurement was just taking to account a quantitative perspective of the candidates for the innovations, which were entered into the ideabox.

Since it is not possible to lead others if you don’t act accordingly yourself, my behaviour for the “ideabox activities” could have been regarded as an example for others. These different kinds of ideas could be entered into the box without even expecting feedback from others. Some ideas may not get feedback due to the lacklustre title, unclear contents, politically and organizationally sensitive reasons, or just due to person’s reputation, role or authority in the organization.

5.3.1.3. The results from the bonus program period

5.3.1.3.1. The recognition case

There were a few section based groups, which started to work actively for innovations during the summer of 2009. For instance, one of the most active groups, which used mature project oriented work processes naturally, started to create ideas around their processes and work methods. That is, they took an approach where innovations mean operational improvements for them, despite having the reputation of being “second class innovations”. Some key stakeholders in particular, wanted to see innovations only as arrow tip products leading to hype phenomenon. In any case, the innovation coaches in this group handled every person’s ideas in an open and honest way, and kept track on what has been decided and handled for each of those ideas. They also created their own follow up systems to ensure networking and results in group interest work, (since the ideabox did not have such features). These active coaches also created commitment to the activities by assigning responsibilities for certain analysis and piloting tasks. The support for the internal tasks of the section was provided by their line manager. As this group improved and changed their processes and developed IT systems to support the new processes, the benefits were outstanding. There were also a growing number of questions about how else the individuals could be recognized and awarded. There were discussions amongst the innovation coaches and innovation manager, and at this point I promised to assist the group with their current problems. The “recognition case” was completed, and the practices were agreed on with three of the most active coaches and a line manager. The detailed proposals as to how to recognize the stakeholders are available in appendix 4. The celebration event and recognitions of the stakeholders took place later in January 2010.

5.3.1.3.2. Statistical view at the end of bonus program

Both KPIs were reached in the bonus program. The trend of the idea in-flow and personnel participation share was asymptotically reaching the target level later in the autumn of 2009. That is, the communicated, well understood and achievable goals associated with the bonus program were motivating people to enter ideas and to provide idea comments. Focussing only on the KPI point of view, these external motives worked successfully and worked as they should. That is, the ideabox activism was kept up as long as these motives were active. Soon after though, the perception of the earned bonuses, activism was decreasing, as generally happens with the hygiene factors a.k.a. the extrinsic motives.

I observed there were many ideas which were not commented, even though these were important for many, and impacting the massive, ongoing changes. Some of the ideas were getting started, and later they were implemented, despite lack of responses in the ideabox. That is, all efforts on the innovations were not channelled through the ideabox. On the other hand, most of the ideas were "waiting for" comments or for a driver in order to get completed in one way or another.

The end of the year 2009 was difficult from economic perspective. The financial crises also hit the market leader, but much later than the major competitors. This triggered a statistical discontinuation or extreme (positive) change in the ideabox statistics. Namely, the head of R&D entered a challenge in the ideabox, which was about how to cut costs dramatically in order to keep the R&D group competitive. No other idea, not even the populist ideas such as the "outdoor grill for socializing", received as big a flood of comments as this did. Such an external motive made dozens of people to comment on this challenge due to personal anxiety and fear. For some, this was surely an appropriate trigger for expressing how to improve the utilization of common assets and how to streamline some expensive operations. Certainly, this was also an occasion for personnel to be visible around a matter which was important for everybody.

The ideabox statistics showed also that the number of implemented ideas was not of an acceptable level. The validity of the metrics could be questioned though, since not all of the

innovative activities are channelled via the ideabox database. Also, a lack of comments and feedback can be biased, since not every comment is stored but given in a peer to peer manner instead.

5.3.2. Trials and pilots in 2009

There were approximately half a dozen official pilots getting started during the summer of 2009. At those times, the innovation board received some proposals e.g. to get approvals for piloting and allocating resources for the 3-month prototyping of an appealing, researcher-driven mobile application. These researchers had the courage and a sense of drive in their work. They needed to struggle past many obstructions in order to get acceptance even for such fashionable, trendy high technology pilots. I provided comment on their work models at an innovation board meeting i.e. that these were real entrepreneurial and heretic-driven pilots, which resembles the optimal models in the literature. There were some similar pilots in different areas, which all had similar approaches and problems with networking and on getting support in the organization, since we had discussions e.g. in the innovation coach meeting and unofficially. One proto case was developed together with the Helsinki University of Technology (HUT) designers. The persistent and spirited personalities helped in each case to get ideas and funding further even to the point of customer demonstrations and potential businesses.

5.3.3. Why to change from annual to continuous feedback meetings?

The strategic transformation programs and long term improvement require regular directional adaptations. This means coaching as well as encouragement from the supporting organization. i.e. the personal development meetings a.k.a. IPM-sessions are insufficient feedback-wise to communicate about the programs which are typically set as personal targets for program owners.

We agreed together with my supervisor in June 2009, that we are at least going to have regular meetings every second week covering what has been performed on the thesis work, innovations in general and exchanging details on the climate of the business model changes which the organization was starting to implement full scale.

These meetings were held regularly and these were improving our interpersonal communications and relationship, giving more strength to continue or to maintain calm in the face of these slow changes with multiple stakeholders. These sessions also served the three party agreement's requirements of line manager's responsibilities. The learning experiences were certainly mutual. These regular meetings ended co-incidentally with the major reorganisation, which took place at the beginning of April 2010, when all teams were torn apart and new scrum teams were established. This meant a new supervisor for me. We managed to arrange a couple of meetings with my new supervisor despite busy times during the business model changes.

Also the core-business related feedback loop was shortened by means of Scrum embedded daily meetings, sprint reviews, and climate thermometers called retrospectives. These "mandatory" methods from Scrum have been gradually improved in value e.g. due to the new team's spirit and co-operative points of view. This new methodology is making new team's internal pressure higher and enhancing the transparency of operations, which impacts to the child-tasks and trials. That is, the innovative pilot projects cannot be hidden from others in order to maintain an open discussion and open work atmosphere.

5.3.4. How to measure the innovativeness?

There are many things, which can be seen or observed from human behaviour, and therefore these actions can also be measured. This applies to innovativeness as well. The handbook of innovativeness (Appendix 1) is listing different performance indicators, which could either be measured in a quantitative manner or by performing e.g. interviews.

5.3.4.1. Innovation climate and innovativeness empowerment survey

In week 12 in 2010, I published a survey based on the model of the innovativeness (Appendix 1). The survey was an e-form for the whole LMF R&D personnel to be filled within a couple of days. At the end of the survey, there was a lottery of two movie tickets for answerers offered by me. There were only two people who returned these lottery candidates. i.e. such lotteries do not drive people much for expending efforts into opinions in such

questionnaires. There must be a belief that something worthwhile occurs as a result of the given feedback.

The report, including the summaries and conclusions is found in Appendix 7. The answering period was limited to a couple of days on purpose and the answering rate was only 13.2% of all R&D personnel.

The most severe findings were the lack of autonomy, and possibility to manage innovation capital and resources. The biggest obstacles were in the lack of motivation, lack of opportunities and capital offered. Approximately 1/3 of the answerers felt they have been offered possibilities to work with innovations.

A small portion of people were satisfied with ongoing activities, namely informal discussion and collaborations. Those who acted as active supporters for innovations sensed the offered opportunities good and capital sufficient. Those who felt themselves key contributors for innovations also had higher risk-taking courage than others.

The respondents felt the most important factors for improving the innovations are a supportive climate, acceptance of making mistakes and possibilities to influence the ways of working. The least important factors were the status and ranking of innovation and good chemistry in solid teams.

5.3.4.2. Continuation after the measurements

I was invited to a discussion with the I&C team at the beginning of May 2010, immediately after the publishing of the results for the personnel and management. We had a 1.5-hour meeting about the findings and situation.

There were even more questions mounting about these issues identified in the report. We decided that I will have a time slot in June's innovation and collaboration information shot, "the Magnus auditorium session", for presenting the results and ways forward. Additionally we agreed on that there is a need to dig more under the surface with these topics. The

following actions would be deeper interviews of selected personnel representing different interest groups.

Besides these decisions for continuing the investigations after the questionnaire results, the other master thesis maker in this I&C team had just invited me to her brainstorming sessions to create introductions for the themes, retrieved from my recently published handbook of innovativeness.

5.3.4.3. In-depth interviews on innovative climate and innovativeness empowerment

The interviews were held during the weeks 20-22 in 2010. Ten selected people formed a divergent group of opinions, gender, ages and roles. The details and summaries are found in Appendix 8.

The items for these questions came from the findings of the questionnaire collected approximately 2 months earlier. Results were published to the R&D management and the participants in July the 16th.

The perceptions, on who should give support, and how the support shall be obtainable, differed significantly amongst the interviewees. It was seen as important to have a trusted partner or group to try out the idea first. Innovations are happening in networks, which are also seen as problematic to manage. Most of the interviewees expected support from the line manager. Innovation coaches were regarded also as 1st contacts for supporting and networking by some of the interviewees.

The scrum methodology deployment has pushed the innovations related activities and discussions to the background during the last half of the year. Innovations are almost invisible according to interviewees. The commitments to the core business activities were additionally limiting the interviewees in bringing forward some ideas. The common perception was that if the core businesses are handled well there is possibility to work for innovations also later.

The interviewees expressed hope that the new teams are starting to operate properly so, that the discussions and implementations of improvements are re-vitalised

Interviewees expressed uncertainty on whether improvements and operative innovations should be stored to the ideabox or not. Some of the interviewees had noticed that such innovations were stored there, but that the motivation for such an idea/innovation was unclear. An immediate publication of poorly thought-through or immature aspects and transparency is not always a good characteristic for creativity - I perceived this from their statements. i.e. some personnel thought that only major ideas are for the ideabox, as there was no a rule or definition neither of what was expected nor on what kinds of ideas should be stored there.

Some people thought the biggest obstacle is in the mindset. As innovations are always connected to change, there are collaboration and networking problems introduced with those (complacent) personnel who wish to maintain the status quo.

There were mixed feelings and opinions on the time allocations and innovation capital. There were proposals for sharing and allocating personal time schedules more efficiently. Also the innovation coaches' budgets were known by some of the interviewees. There were also possibilities to reserve official budgets and reporting cost-centre numbers for such tasks, but these are seen too complex for individuals to aim for if such access routines are not achievable.

Also this group found there was a missing vision and lack of inspiring tasks in the innovation arena. Networking was seen vital for innovation. Networking is not understood properly nor adopted correctly even though there were some channels offered.

The rigid IS/IT rules and practicalities were also obstructing some people from trying modern methods and tools in the development unit.

Feedback is the most important aspect in our work duties – the best feedback is seeing the idea to take off amongst the community or business and is perceived as most motivating. Lack of feedback is seen as frustrating and decreases the inspiration to add further ideas in the ideabox database.

During the interviews the management accepted a time-slot for innovations for each scrum team. That is, these cross functional teams may decide on how a half-day portion for each person during a two week sprint period should be utilized for the innovations. This news about granted innovation capital was also regarded well amongst the interviewees.

5.3.4.4. Mercuri's second measurement on innovations

Directly before the main summer vacation period, the head of I&C launched the Mercuri's innovations "thermometer" for R&D. Results were published at the end of week 35 for innovation board members. I performed the following analysis out of the descriptive and frequency results as follows:

I noticed the results are showing that the five most important and desirable areas for innovations are (in order of importance):

1. Our culture supports and encourages innovation
2. Our culture allows us to do things in new and creative ways
3. We have an open discussion culture across the organization
4. There is a high community involvement in our organization i.e. people are openly sharing their ideas and knowledge in order to support innovation
5. In our culture it is acceptable to try new things and not to succeed every time

The five least important factors (least important first):

1. Project managers are able to catalyze the change in culture and the WoW to support innovativeness
2. Innovation coaches are able to change the culture and the WoW to support innovativeness
3. My skills are on a sufficient level to meet the future demands for innovation
4. Innovation coaches support successfully, the realization of innovativeness in day to day work
5. I feel that my responsibility is to drive my ideas forward

Top 3 successful or well performing areas (the highest rating 1st):

1. I want to contribute to the success of our organization
2. Innovating/creating something new is motivating me
3. Innovation is fun

Least rated triple (the least rated 1st):

1. Project managers support successfully, the realization of innovativeness in the day to day work
2. Project managers are able to catalyze change in our culture and ways of working to support innovativeness
3. The energy level in innovation is high

Three of the most deviating factors in the importance ratings scale are:

1. Our company culture supports and encourages innovation
2. Our innovation realization capability (skills, motivation and activity level) is on high level
3. Our culture allows us to do things in new and creative ways

The biggest positive changes are seen in the department managers ratings, especially in vision, reasoning and cultural areas. The realization capability (including motivation) in performing innovation has dropped though from last year. The same trend is seen in the line management although not that significantly. Department managers did not see the innovation realization capability (motivation, skills and activity level) so importantly as line managers. The line managers found the innovation more important for daily work than the department managers did.

Innovation coaches' results also indicate that the cultural changes are happening but the changes are even smaller than in the line management case. The realization capability (motivation, skills and activity level) has dropped remarkably. The open discussion and allowance to perform trial ratings has increased. The importance of open discussions is not ranked as high as amongst other groups. Coaches did not see the importance of their contribution to success of the company as important as others did. Innovation coaches were more pessimistic about company's ability to change.

This realization capability (motivation, skills and activity level) in other words, equals the production factors or innovation capital. This finding was noticed very clearly at an earlier stage in other surveys, collaborations, brainstorming sessions and during in-depth interviews.

5.3.4.5. Web2.0 tooling value evaluation

A corporate level tool set for supporting and aligning web 2.0 has been available gradually since autumn 2008. There was a questionnaire for randomly picked collaboration site responsible people during June 2010. Results were presented in week 36.

These new wiki- and blogs-based systems are in use all over the documentation and information areas today. The extension of personal network, innovation support and the speeding up the processes were the main benefits identified, according to the analysis. There were still quite a large number of sites blocking out and restricting the access to the sites due to “unfinished/not ready” types of reasons. On the other hand there were certain sites, which contained confidential material, which is not targeted for “outsiders”.

That is, “the wikinomics” types of transparent processes and tools were helping us to network and quickly share relevant material, in a “good enough” form. As the perceptions were that this also saved efforts and money, this made these investments feasible.

5.3.5. Miscellaneous “infecting” actions during spring and summer 2010

The following operational innovation actions and activities also impacted me. Even though these were partially connected to the core business, I found that these were potential candidates for operational innovations.

5.3.5.1. Pre-scrum investigations for finding “contagious” sources

The new Scrum teams were set up, and I took part in the tools and methods team, which is supporting test automation and design activities, investigating and piloting new methods and integrating existing tools to operations.

The new supervisor advised me and one new team member to start investigating the CPP emulator. It is a target HW environment emulator. I considered this to be a potential operational innovation. This was a networking-centric duty, and the number of stakeholders, who have been involved in trials earlier or who are still putting efforts on this e.g. on the coordination meetings, was extensive. This was also a politically tainted task and it turned out to be more of an alignment and collaboration related activity rather than a technically difficult challenge. In that sense, it raised my personal interest. The first efforts in the deployment task were made to get major obstacles cleared out during April.

Some other tools and methods related analysis and trials were performed then.

These activities were postponed or stopped at the beginning of May 2010 since the product owner started the team sprints with the prioritized duties focused back on the core business.

5.3.5.2. Networking and re-initializing the brainstorming in the new business model

There were some coaches, who indicated that they were interested in brainstorming earlier or unofficial discussions during the spring. I discussed with a couple of innovation coaches at the beginning of April 2010, whether they were interested in getting started e.g. with brainstorming sessions again, before the Scrum starts in full speed. We (some coaches and I) had a meeting on 13th April on the ways to integrate the innovations and Scrum together. The retrospectives were indicated as the moments today for retrieving the findings and potential improvement or innovation ideas. Innovation coaches could gather and identify the potential ideas for brainstorming. We also identified the presence and required involvement of the product owners and portfolio management with the innovation activities. We discussed the “recognition case” and how the two coaches had been working on best practices since summer 2009. We agreed that we could try the active idea quality and activity status rounds in a distributed manner also in our own sections and teams.

As there was enough interest to find out the ways to the “company-external environment”, I arranged another meeting on 11th May. It was an open discussion about external collaborations with R&D’s specific collaboration manager. The coaches from the “recognition

case" were also invited into this discussion. We learned that this external collaboration manager creates contacts for financing and research projects LMF-externally (outside the company). We also understood and agreed on those innovations or at least opportunities for those that are identified in accidental and abnormal collaborations. These could be regarded as fortunate "collisions" with work-external partners. The understanding about these aspects is progressing to other levels in those collaborations, at least if people are struggling with somewhat similar problems. The customer projects and experiences were something we (coaches and I) were chasing. We wanted to see e.g. what kinds of problems customers face when taking Ericsson systems in use. This case was currently open in the external collaboration (TIVIT), which created therefore extra connections internally. Other market unit (sales, support) contacts and references were also discussed. Any former school contacts were also appreciated and the utilization of those was encouraged by the external collaboration manager. Totally, this session set up at least three new triggers and contacts were to aim, that is, specific knowledge sharing and interview needs were identified in this meeting.

5.3.5.3. Giving feedback and discussions with new peers

As we agreed with some coaches, in order to get re-started with active idea feedback and brainstorming matters, I also started to work accordingly with co-operation with the appointed coach of the section. I discussed with 2/3 of our members of the section about their ideas in the ideabox. I created an spreadsheet, where the updated information regarding status and interest for progressing things further was stored. As a summary there were some ideas implemented without any updates in the ideabox, some ideas were still awaiting any comment, and some were deprecated. These updates were also stored into the ideabox database, that is, there were some dozens of ideas updated with the latest information in the ideabox. My intention was to activate people for discussions about ideas, and also to show some example, that the driver for ideas does not necessarily need to be an innovation coach or the ideator him or herself.

5.3.5.4. Joint operations with another master thesis makers

There was also one master thesis maker for TAIK/Aalto University who was working for I&C management during her thesis period. She was inspired by my handbook earlier this

spring and she invited me to make introductions for her two brainstorming sessions, and take part to the group works about these topics.

5.3.5.4.1. Innovative company model –intro for the first session

This session was meant for innovation coaches and the I&C team took part as well. There were less than half a dozen coaches present though.

The presentation visuals can be found in Appendix 9. This introduction contained definitions of the innovations, new products and hype phenomenon, internal entrepreneurship as innovative company model, epidemic injection functions in so called infected company model. In this brainstorming session it was indicated by one coach, there is still a need to have bonus programs as in last year in order to continue with the innovations.

The best benefit out of this was that the networking between coaches which started during the spring continued, and developed positively by connecting “new people” together.

5.3.5.4.2. Introduction to motivation and commitment theories –presentation

The second brainstorming session was about human behaviour and innovativeness. This was about the motivation, flow, intrapreneur’s psychological boundaries, and innovativeness model.

The presentation visuals can be found in Appendix 10. The brainstorming session contained themes and role playing, which were also recorded on video. The fun factor was high in this situation.

5.3.5.5. Innovation day

The I&C, together with some active innovation coaches and external partners, arranged an entertaining and an interesting day around the theme of innovations on 16th June. As a

whole, this day was a good opportunity for networking, seeing pilot project results and for having fun with exhibitions and additionally enjoying some excellent food and beverages.

5.3.5.6. Getting together, the lunch meeting

The coach I worked and brainstormed with one another's thesis worker's sessions in the beginning of June were inspired into getting active coaches together for a lunch meeting right before the midsummer. This session was good and a trust building session, where we agreed on certain things other than the good food. For instance, a web2.0 based tool was decided to be used instead of e-mailing in order to discuss innovation specific matters in such a way that the discussions are persistently available for everybody who joins the system at any moment. Also some new collaboration structures were proposed and some new ideas within current product portfolio and in mobility areas were discussed. Question after this was – who was the driver who continues to arrange these besides the core business i.e. who is the glue or the connector of the innovators?

5.3.5.7. Rich media collaboration

There were a number of ideas in the ideabox for utilizing rich media more in many ways in our day to day work. As these popped up visibly in the ideabox survey in April 2010, I contacted my former teacher from late 80's at EVTOL, Erkki Rämö.

I managed to agree an appointment with the media laboratory people at Metropolia in June where I witnessed some potential tools and methods where both parties could possibly find some synergies. There was some resistance to get rich media and communications people at LMF even for discussing about this subject in June. I found some persons from customer documentation area and research, as well as from development sections who found this interesting and supporting for their ideas or daily duties.

Representatives from Metropolia's media laboratory came to LMF on 19th August for presenting these tools and methods, and thereafter we identified at least three different use cases, different scenarios for applying these tools. The seed was planted and information

about possibilities was shared amongst the interest group members. Also the IS/IT people were informed about these techniques.

5.3.5.8. CPP emulator integration and demonstration

The post vacation time was an excellent time for trying-out and testing new things, which were not prioritized nor time constrained activities. I took the CPP emulator related user guides into use after the three-month delay in the activity. I contacted some HW and network support people in order to get systems configured properly and right SW versions to be loaded.

The tools and methods team soon received prioritized work activities for this specific item since there was a successful start witnessed by the product owner and by other team members. The aim with this exercise was to find supportive co-workers and an internal customer to demonstrate. One important factor in this activity was also to infect other users to utilize new methods which have potential to decrease HW investments, and which can enable different possibilities to troubleshoot the system .

The interest in this trial was high, and therefore served the means to introduce new methods in a “wikinomics” and “the word of mouth” assisted methodology.

5.4. Merging the core business and innovations together

The I&C interpreted the different signals, from many sources, that there is a need to start incorporation of the innovation activities into daily practices. e.g. from the results of this action research and collaborations,

The allowed innovation capital, both the budget of the innovation coaches and the time slice for scrum teams are the required investments for the innovations.

The engagement of the Scrum and innovations are the themes for the autumn 2010. There are workshops bought from an external consultancy company called Pertec for innovation

coaches, product owners and management. These workshops are aiming to get people together to think how to enable and foster the innovations in daily businesses without disturbing the existing business commitments.

6. RELIABILITY AND VALIDITY ANALYSIS

This action research contained components of the quantitative and qualitative research methods.

The quantitative analyses were derived from questionnaire results. These questionnaires were targeted either at the whole personnel at R&D or for systematically sampled groups. These analyses were following the rules of the statistical analysis, such as the examination of statistical significance.

The qualitative methods, such as the personal or group interviews and brainstorming sessions were either documented by writing notes or recorded to a mobile phone. The most significant evidence is attached as appendices to this paper. Most of these documents were delivered or presented to the stakeholders immediately when they were ready to be published. The majority of the collaborations, unofficial and informal discussions were naturally not recorded or written down as minutes of meetings. There were reflections and a diary compiled about many events, happenings or ad hoc situations at least on weekly granularity (Appendix 13 and Appendix 14).

The analysis of the results is summarized in this paper although the specific appendices contain summaries and conclusions about the specific actions or sub-studies. The results are compared with the theories in the summaries chapters. The generalization of the results is also handled in the summary chapter. The analysis of the results were also verifying the participation share of the researcher as well as documenting the whole change during the action research.

The reproducibility is low in this thesis, since the situation in the whole system i.e. the organization is totally different now after these changes. Even though the tools and methods could be re-used and the theories about innovativeness are universal, the transferability of this study is low, since the other companies' culture and environments are different due to their own systemic characteristics.

Based on these statements above, the conclusions are the following. The reliability is low since the reproducibility is low due to the changed situation in the organization. The validity of the research is high, since these actions and analyses were performed in the targeted organization. These actions were specifically completed for assisting the organization to understand the situations and to change target groups' behaviour to adopt new activities and to improve the feedback and learning possibilities. (Metsämuuronen 2002; Vilpas 2009; Koskenoja 2009.)

7. SUMMARY AND CONCLUSIONS

7.1. Summary

This report is a master of thesis work for the R&D unit in LM Ericsson Ab. The purpose of the thesis was to improve the innovativeness and utilization of innovation in the organization.

The action research contains basic study elements such as the investigation of the problem domain, the identification of the problems to be studied, the execution of the actions, the analysis of the results of actions as well as the documentation of the results. The following notes regarding the results are tagged with references to similar or related results in the literature.

As the understanding of the innovations and innovativeness was an unclear and inconsistent issue for many, a handbook of innovativeness was created and published in the organization. There were multiple situational analyses performed by means of observations, by

using quantitative measures as well as by utilizing qualitative research methods along the research time span.

The following action types were utilized during this research:

- consulting of different stakeholders
- execution of brainstorming sessions for adding value to the ideas
- identification of the improvements to the ways of working
- active participation in the decision forums
- acting, by example, in the creation and commenting of ideas
- assistance of innovation coaches in idea value propagations
- publishing of research results iteratively to the decision bodies and key stakeholders
- participation of the implementations of the operative innovations
- modelling of theories and interview results were also used for understanding the context and situation as well as for the communication purposes

The changes were implemented on a large scale. That is, there are a plentiful number of ideas stored in the ideabox database. There is a portion of the ideas implemented which are utilized in customer demonstrations and trials. There were a number of prototypes developed, and some of them were taken into use in the operations internally in the organization.

At the same time as this innovation program was run, there was a totally new business model taken in use on a full scale. This was called the ‘Scrum Methodology’ which is an agile SW development protocol and process. This change also impacted the whole organisation e.g. by means of totally re-constructed work groups, which comprise the new scrum teams.

The brainstorming, informal dialogue and networking were seen as the key drivers for increasing the innovativeness. The possibilities to see the results of the innovation were also driving people towards creating innovations. (Cross & Cunningham & Showers & Thomas 2010.)

The main problems in practice were related to the need to be cost efficient and to be consistently over-performing. The project slack for carrying out any crazy experiments and or attempting something outside the project tasks was not often allowed or supported in a proper scale. There were outstanding networking and support related challenges identified despite the arrow-tip prototype development methodology employed in high technology. The innovation capital related issues, as well as the integration of the new business model and innovativeness was identified. There were managerial actions taken to improve the situation of the production factors, mind set and competence. Similar research results are seen by Drucker (1993), Pinchot (1986) and Koiranen & Pohjansaari (1994).

The biggest lessons were learned in the networking area. That is, the formal methods for selling ideas to the supervisors and to the decision-making bodies may be difficult for a single idea creator, unless the person is a good and persistent persuader or an known high-performer (Bovée & Thill 2008; Lennon 2009). The informal networks were seen as the key viral spreading and supporting channels for most of the innovators. Also the new ways of collaboration with Web2.0 related tools were seen as effective and efficient to influence the people and share information, as the "wikinomics" model states. (Tapscott & Williams 2006; Gladwell 2002.)

The innovations and the agile way of working contain many similarities e.g. the cross functional thinking and efficient production in diverse teams. The introductions of the operational innovations and the accountability to those in the Scrum product backlog (as a priority list of duties) are continuously discussed, optimized and aligned issues. The opportunities to implement even more radical ideas are challenging the organization which aims for the cost efficiency and provides high quality core business products (Handy 1993; Andrew & Sirkin 2006).

The human character values such as openness, trust and respect are highly valued amongst the personnel. The possibility to try out ideas and the acceptance for making mistakes were highly accepted. This innovation capital related issue was implemented by permitting developers to spend five percent of their work time on the innovations.

The innovativeness model is tested a number of times during the action research by the author. That is, there was a TV program about children's brain development towards creativity versus control-oriented parents. This demonstrated the increased connections in the brains of the loosely controlled and creative people. The sports psychology studies demonstrated that anxiety driven athletes are more nervous and unfocused than the ones who are gaining from their own successes (Hanin 2007). This athletes' model was also tested by interviewing an ice hockey player, who has played professionally in Switzerland and Canada. This interview proved that both the anxiety and the positive psychology models (the Russian and Canadian play models accordingly) motivate the athletes towards high performance. The key model in the thesis is the flow, which is referred as a high performing model for creative duties. (Csikszentmihalyi 1990; Seligman 2002)

7.2. Conclusions

The support for innovations is a large issue to cope with. There are business requirements and other operational expectations to be fulfilled in a cost-efficient manner. The continuous cost reductions are not solutions in the long term. There is a need to keep the company competitive. The innovations are offering possibilities for making the organization competitive. The same applies at the individuals' level, where the innovations are providing the opportunities for learning, personal development and networking with the new stakeholders.

The innovations and networking are highly related to the individuals' intrinsic motivation as these activities require persistent and persuasive drivers to infect others, as well as for implementing such changes in the organization or with the customers. The unofficial discussions and networks are the main methods used by the missionary or preacher to virally spread innovation in the organization. Networking and innovation are supported by allowing the innovation coaches to decide which pilot projects or trials are to be started. It is now also allowed to spend some time on the innovations. The innovativeness develops as a social epidemics as the "broken window" –program. That is, the small actions can be essential and effective.

There are over one thousand ideas collected during the research period. There are several pilot projects started and some of them are deployed as customer pilots. More recently, the

operational innovations have been recognized as innovations, since they also add value to the customers.

The autonomy and therefore the responsibilities in the teams are implemented by the Scrum methodology deployment program. The transactive memory develops gradually within the new teams, that is, the trust and openness is needed in order to project or advertise the innovation message to the new peers.

7.3. Proposals for further actions

Openness in communicating idea or innovation opportunities should be improved e.g. by offering the innovation projects for everybody. This is a managerial action point.

The understanding of peer pressure in the Scrum teams is vital, since it is much more powerful than the concept of a boss. i.e. the balancing of the core business tasks with the innovations is important, since commitments to the “external duties” in such self-organizing teams do not happen automatically if the risks for failure is too high or the support is not assured.

The recognition of people is always essential in such important efforts as innovations. This shall not exclude the instrumental motives either in order to maintain the entrepreneurial drive in the innovation operations. Alternative feedback methods could be realized also by simply improving the statistics mechanisms in the ideabox database, improving the methods for the accounting on idea enhancements and measurements. The unofficial and regular face-to-face feedback meetings with appropriate stakeholders could also improve the understanding of the importance, performance and efficiency of the innovation duties.

The nurturing of the future-mindedness, expectations, optimism, networking skills, the courage for action, the capacity of the flow experiences and the work ethic should be continuously advertised and supported. These are the elements for generating positive spin, and these are enabling more productive and happier people.

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9. APPENDICES

Appendix	Title
1	Handbook of innovativeness and innovations utilizations
2	Ketterien ohjelmistotuotannon menetelmien toteutuksen alkutilanteen selvitys
3	Innovativeness motives, rewarding and recognition survey
4	CASE: Innovativeness awarding, rewarding and recognition in operative innovations
5	Summary of the innovativeness interviews in motivation booster group
6	Motivation for innovations – presentation for innovation coaches and group dialog
7	Innovation climate and innovativeness empowerment survey
8	Deep interviews about Innovation climate and innovativeness empowerment
9	Innovative company model
10	Introduction to the motivation and commitment theories
11	Deployment of the innovation strategy assisted by the multi channel communication and social networking media
12	Innovation start up analysis, together to the top
13	Study diary about the innovativeness and innovation utilizations
14	Innovativeness and innovation utilizations action research reflections in 2010
15	Motivation booster group’s bi-weekly meeting summaries

Appendix 1

HELSINKI METROPOLIA UNIVERSITY OF APPLIED SCIENCES
CLUSTER OF BUSINESS KNOWLEDGE
ENTREPRENEURSHIP AND BUSINESS KNOWLEDGE DEGREE PROGRAM

HANDBOOK OF INNOVATIVENESS AND INNOVATIONS UTILIZATIONS
Oy LM Ericsson Ab

Vesa Saarinen
Thesis
Master degree
2nd November 2010

Appendix 1

Contents

1. INTRODUCTION

The ICT-business is in a turbulent situation at the moment, with the financial crisis heavily impacting all competitors. In order to cope with the situation, industry needs to adapt by introducing operational savings, improving production efficiency, and, in the longer term, by increasing innovation amongst employees. This will prepare the industry for future business and new competition.

Innovation management comprises e.g. leadership and change management matters, business model improvements, innovator and supporting personnel recognition as well as motivation perspectives. This document summarizes a number of these theories and concepts and forms a framework for this research. This framework is deployed into practice as a tool when assisting groups to improve the innovativeness.

This thesis is prepared for the R&D department in the Oy LM Ericsson Ab.

Ericsson provides today:

- Communication networks
- Global telecom services
- Multimedia solutions

Ericsson is making it easier for people everywhere to communicate by helping operators to bring new services to their customers and by evolving and improving the networks that make these services possible.

1.1. Abstract

The purpose of this handbook document was to gather information from a number of books and research articles about innovation, creativity and behavioural psychology associated to this arena.

One aim was to clarify the common terminology about innovations and reasoning for the innovations, as well as to assist to identify potential sources for innovations.

As innovativeness is an individuals' behavioural concern, this document is handling motivational, commitment, learning and creativity related subjects in multiple chapters.

The intrapreneurship is proposed as a company's internal entrepreneurship concept for increasing the inter-organizational collaborations, psychological ownership and efficiency for the innovations. Innovation capital is a key rewarding model in this concept.

Since change and operations always need support from company management, cultural and operational issues are also covered for improving and assisting with innovativeness.

Movements and missions need a leader, not necessary a manager, who stands for the mission with appropriate courage to act creatively. This change agent is named here as an intrapreneur, although this document lists over a dozen synonyms for an innovation driver.

The human behavioural issues, such as the driving forces for innovativeness and the triggers to creativity are in essential roles in this paper. This study contains chapters analyzing how these motives and leadership behaviour are impacting individuals in creative and innovative duties.

Change management issues are summarizing different processes and methods from literature on how changes are supposed to be executed, and how messages tend to spread in the companies and other social environments.

Different performance management issues, including recognition and reward of the innovative behaviour and achievements, are compared and analyzed. The study contains proposals for key performance indicators, the measurable identities and proposals for metrics for measuring the outcome. These are proposed as tools to understand how the innovativeness develops in time in the organization

The summary is a model from the action researcher, the author of the study. The model covers the key components of the innovativeness and means to improve it as a whole.

1.2. Terms and abbreviations

Term or abbreviation	Clarification of term
Innovation	New combination of different aspects and initiatives to the user and markets, which add value.
Innovation vector	Key area in the innovation portfolio, which needs attention for gaining a strategically important advantage.
Intrapreneur	The change agent, a.k.a. internal entrepreneur who drives innovations
IP	Intellectual property, that is protectable under copyrights or patents or similar.
KPI	Key performance indicator, an attribute for statistics which is measuring performance on a business critical area.
NIH	Not invented here, tendency to ignore others ideas and proposal.
NSH	Not sold here, the sales person equivalent to NIH in R&D
Psychic entropy	Human internal disorder; fear, anxiety, boredom or sadness is causing loss of focus on own targets.
Trigger	An external event or internal emotion or need which makes a person to think and behave differently, a.k.a. antecedent.

2. LITERATURE SURVEY

2.1. Reasoning, background and definitions of innovation

2.1.1. Why to innovate?

Financial turmoil and fierce competition are forcing industry to re-think their business models, re-write their strategies, and deploy these strategies in an efficient way in order to survive on the field and in order to find new businesses through innovative products and services.

There is a need to invest for uncertainties, i.e. to pilot, try out, and to tolerate risks. Godin (2008, 110-111) states: “The safer you play your plans for the future, the riskier it actually is.” That is, the incremental improvements are not enough in those businesses which are having declining profits. Mature industries require radical innovations on products, services and business models (Gibson & Skarzynski 2008, 128). This radicalism in the innovativeness is also emphasized by Kim & Renee (2004) in their book about blue oceans strategy by meaning that there is a need to find new strategies such as allowing more freedom to act on new markets and initiatives instead of remaining in the same business by cutting the profits.

2.1.2. What is innovation?

There are number of different definitions available about innovation. Quite often the innovations are bound to new products and possibly new services. There are plenty of other perspectives and ways to see this. The way of working and business model type of innovations are also important innovation types today. The following chapters combine a set of definitions, which are used in the literature for defining the innovation and formulating characteristics for innovative products and solutions.

2.1.3. Definitions of innovation types in changing businesses

There are number of different definitions for the term ‘innovation’. The following definitions are expanding and clarifying this matter. (Himanen 2007; Gibson & Skarzynski 2008, 98-101; Hamel 2007; Kim & Renee 2004, 33-43; Cagan & Vogel 2003; Hämäläinen & Heiskala 2004; Chesbrough 2004.)

One set of definitions of the innovation types is detailed below:

1. Technological innovation: create new technology or utilize creatively existing
2. Business innovation: the actual competition between companies are held between business models
3. Design innovation: usability belongs also to this artistic category, which brings added value
4. Product-/service innovation: typically only of note when combined with other innovation types
5. Cultural innovation: re-structuring of organizational culture and -structures in a creative manner
6. Operational innovation: refined operational processes
7. Cost innovations: Cost reductions done by utilizing partnering in low wages regions
8. Experience innovations: Re-invention of customers’ experiences in the purchasing processes, or introducing extraordinary easy usage of products or services.
9. Management innovations: company’s core management processes such as strategic planning, scenario planning, brand management, total quality management, lean manufacturing, Six Sigma, capital budgeting, project planning, training and development, internal communication, knowledge management, business reviews, performance management, compensations.
10. Industry innovations: building new industry architectures
11. Value innovation: a combination of increased value to the customer and reduced cost factor
12. Social innovation: The new structures and models for societies, improving society’s welfare and performance
13. Open innovation: Company internal and external ideas and R&D and joint business model.

Such a list may cause confusion among developers and even among management due to the multiple dimensions, but it can also be regarded as an eye opener for personnel with opportunistic thinking. The actual innovations in practice are combinations of multiple innovation types (Himanen 2007).

2.1.4. Innovations and value propagation

Value may be construed as a vague term. It is extended from the economical perspective by Cagan & Vogel (2003) as it is an influence level of products and services expected by people. Value impacts lifestyle, enables and improves new possibilities and it exhibits good ergonomics. All these attributes together are making the products useful, practical, pleasant and desirable.

The innovation brings something new to the business and market. The real radical and disruptive innovations are also altering the social practices. The internet or mobile phones are examples of such innovations, which have changed the social practices a lot. (Chesbrough 2004.)

The value propagation with the innovations is seen in the principle of the blue ocean strategy's corner stone principle next (Kim & Renee 2004):

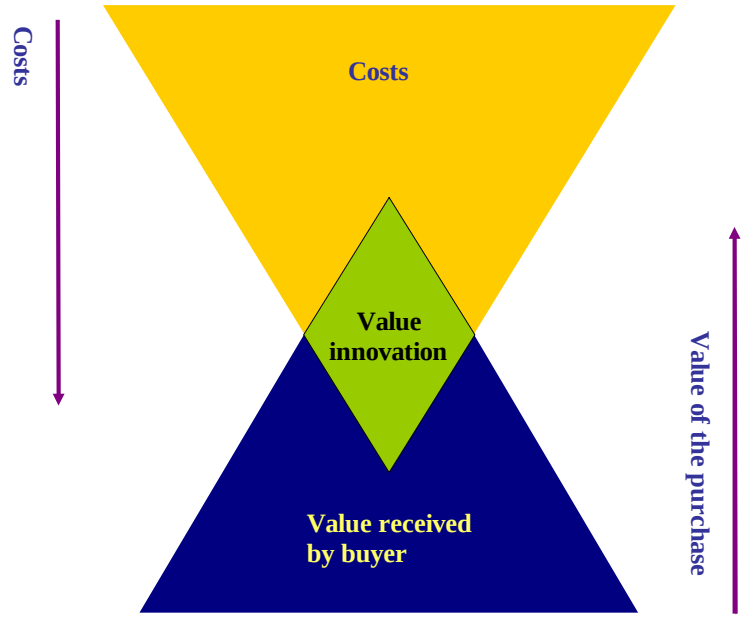

FIGURE 1. Value innovation is achieved by combining differentiation strategy and low cost structure, and therefore new business areas could be entered with new demand created. (Kim & Renee 2004, 37.)

Drucker (1993, 139) points out the importance of market presence by saying: “Innovation always has to be close to the market, focused on the market, indeed market-driven.” That is, the target audience, the customers may be forgotten if the value is regarded only as evaluations from internal efficiency or technological or any other biased perspectives. Innovation has to be feasible with the existing, known technology, and with easily available resources. The implementation and deployment requires hard development work though. (Drucker 1993, 60.)

Drucker (1993, 107-117, 130) continues by saying that the knowledge-based innovation gets the publicity as it is a “super star”, since they’re having assets for strategic positioning. The innovator has to be right at the first time, since the bright ideas are the riskiest and least successful source of innovative opportunities, since the casualty rate is enormous!

FIGURE 2 below shows that the time window is critical for innovations. The benefits may be gained during a short time frame and the business case and therefore the value propagation can become unfavourable if the innovation is introduced too late. Competitors are applying similar solutions from other companies’ e.g. trendy management innovations, like

new SW productions methodologies. The quickest learner gains and wins. This creates challenges to feasibility analysis of the ideas and rapid and cost efficient prototype and market trial executions.

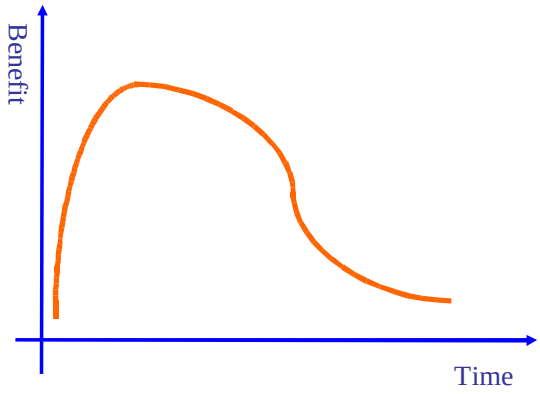

FIGURE 2. Benefits of almost any innovation over time (Godin 2008, 120)

Innovation activities shall therefore be timely correct and aimed to propagate value to the customer.

2.1.5. Sources and triggers for innovations

There is no single “silver bullet” available for innovations and. Typically both individuals and organizational characteristics are connected to the innovativeness. Extremely hard work, persistent attempts and learning are often associated to innovations. Visionary and open minded thinking with passionate drive towards the visions are seen as innovators' characteristics. The company business model, as a supportive and driving force, can also be regarded as a source for innovations.

Innovation processes are not often specific and deterministic, but unexpected and disruptive instead. This leads to often to non predictable results and the development and creation time varies also in a case by case manner, according to Erkki Uusi-Rauva (Juuti 2005, 31). As the ideas are likely to come from unexpected collaborations and fortunate accidents, there cannot be strictly defined processes on “how to develop an innovation” or similar.

What then inspires the innovators to act? The triggers for innovativeness and entrepreneurship are at least the following: (Juuti 2005, 53; Drucker 1993, 35; Gibson & Skarzynski 2008, 101; Cagan & Vogel 2003, 40.)

- Observed price difference in the market
- Observed need and opportunity in the market or process
- Problems in the market, scarce resources and fluctuating situations or unexpected events (success, failure or external event)
- Opportunity for creative copying
- Opportunity for new combinations
- The incongruity – gap between the reality and the assumptions
- Changes in the industry or market structures
- Demographics – population changes
- Changes in people's perception, mood and meaning
- New knowledge, both scientific and non-scientific
- Interception points of the insights
- Cultural differences

These triggers for innovations could be utilized when brainstorming around problems, and also these could be used for feasibility analysis in order to analyze the candidates for innovations from many angles.

2.1.6. What makes innovative products desirable?

Often the technological features are regarded as key factors for success. How can the consumers understand the differences between the features and even worse how to use the over-abundant features built into the products? Are these features the value-adders for the customers? The average products will not win in the long run, but there shall be something which differentiates products from others, and therefore make them unique in the view of the customer. Especially in consumer products there are other driving forces for making the buying decisions as depicted below.

There are four main ways influencing and changing the people's behaviour (Nordström & Ridderstråle 1999, 250). These means are appealing to human's 1) intelligence and logic,

2) emotions and feelings, 3) intuition or 4) desire. The innovative solutions and products should raise emotions aside to the technological features.

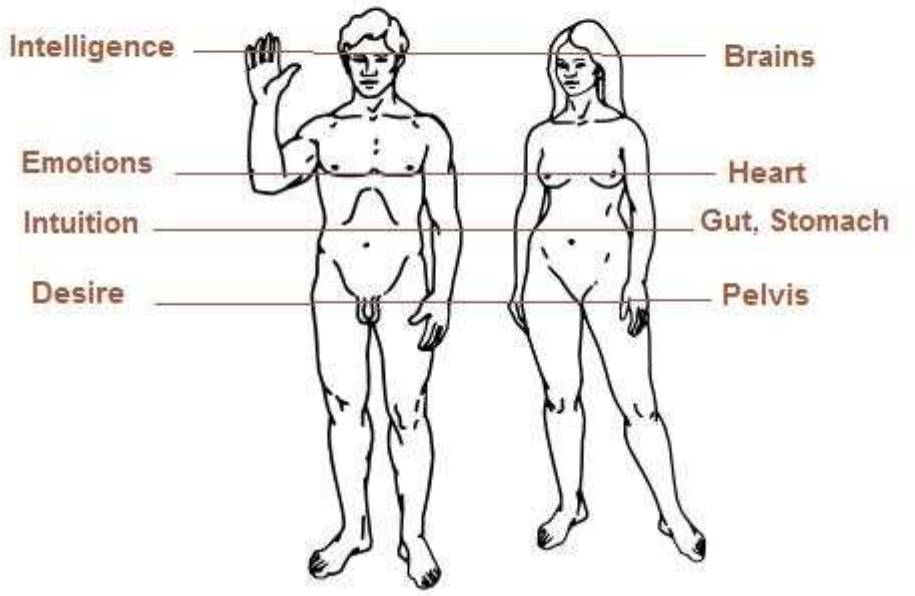

FIGURE 3 Humans and the principles to influence them (Nordström & Ridderstråle 1999, 250).

Cagan & Vogel (2003) state that people are using new products for solving specific problems and in order to experience something new and exciting. The experiences are reflected in their associated dreams and expectation. The successful products have therefore more emotional value than the non-successful products.

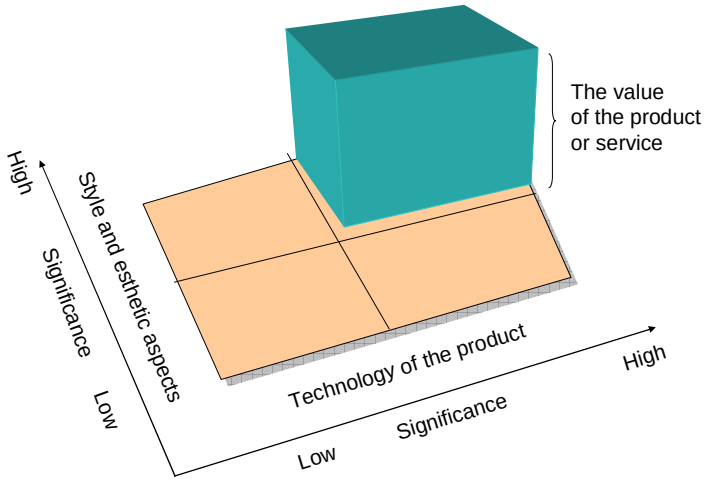

FIGURE 4. An illustration about product's characteristics versus value. The successful products are located in the up right most corner, and the value exists mostly in this quarter according to Cahan & Vogel (2003). The impact and significance to the lifestyle is high, the ergonomics are in place and the features are sufficient.

The summarized value generation factors of the products and goods according to Cahan & Vogel (2003, 120) are:

1. Emotion: Experiment, self governing, secure, senses, self confidence and influencing power
2. Ergonomics: Comfort, ease of use and safety
3. Esthetics: Appearance, feeling, taste, smell, touch and sound
4. Identity: Time, place and personality
5. Impacts: Social and environmental
6. Basic technology: Reliability, options for future enhancements
7. Quality: Quality of finalizing the work, long term performance characteristics

2.2. Enablers for innovativeness

Innovativeness is a human and personal matter. On many occasions the innovations are bound to human collaboration as mentioned already earlier in this paper. Business' interest is to influence to personnel productivity. There are many means to impact this subject. Traditionally individuals' performance is rewarded, which may lead to egoistic and polarized behaviour in the organization. There are many other means to improve the operational culture and ways to manage operations, where, via group behaviour and constructive collaboration, problem solving and innovativeness is recognized thus further increasing productivity. The individual, and work group behaviour is reflected in the change management, innovativeness and learning in FIGURE 5. (Kesti 2007, 46-47; Csikszentmihalyi 1990, 117; Csikszentmihalyi 2004.)

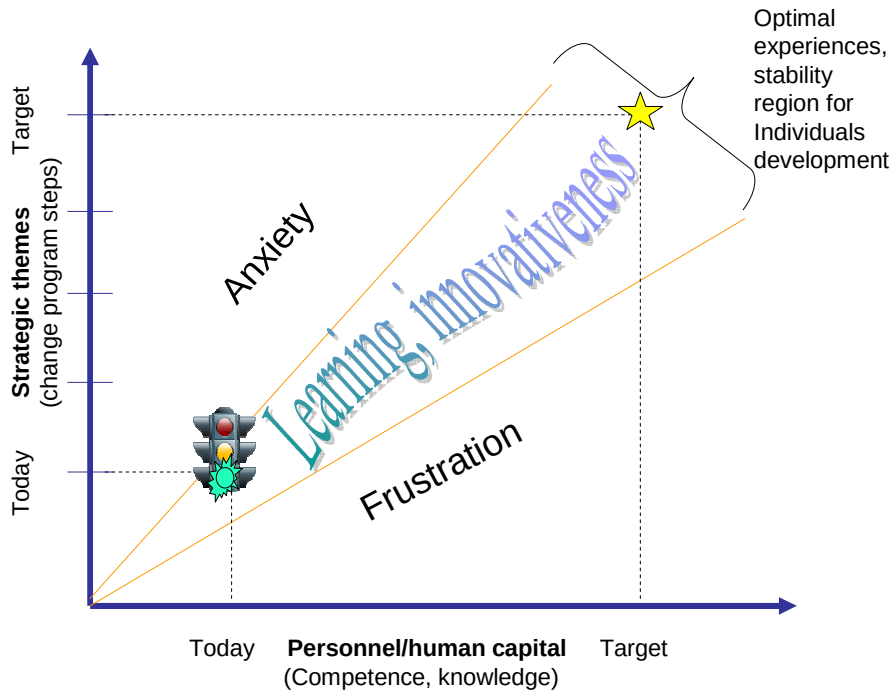

FIGURE 5 Individuals and groups optimal behavioural development towards the strategic goals. The author's modified version from Csikszentmihalyi's (1990, 117) and Kesti's (2007, 47) illustrations.

Human behavioural issues, motivation, commitment, learning and creativity are handled in later chapters. The business models on, how to organize and support the innovativeness development of individuals is also handled also later.

2.2.1. Entrepreneurship

Often big companies are using hierarchical structures throughout all operations, such as in line management and project management. These structures cause different kinds of problems e.g. lack of flexibility and slow changes in dynamics especially in cross organizational activities, which are typically essential for innovations. The company internal entrepreneurship is seen as an alternative in many places to gain dynamics, and it can be regarded as a rule-breaking solution for stagnated collaboration, slow acceptance and negotiations for seeking the approval for actions. The entrepreneurial company has informal and centralized managerial structures (Handy 1993, 257).

Entrepreneurs are primarily motivated by a personal need to achieve something. This is usually achieved by creating new products and services, which are important for the markets. The risk of chaos is seen as a potential consequence due to looser control given to innovators. This full scale control is decreasing the sense of ownership and accountability to the innovations. (Cahan & Vogel 2003, 176; Hamel 2007; Pinchot 1986; Heikkilä 2006, 40.)

Hierarchical organizations are encountering difficulties partly due to productivity reasons, which are caused due to the following aspects (Koiranen & Pohjansaari 1994, 16; Drucker 1993):

- Resistance of the intrapreneurship
- Assumptions that the technology development is linear
- Budget calculations are punishing the improvements and development work
- Professional managers are too cautious
- Rewards are based on the status quo instead of risk taking i.e. entrepreneurial behaviour
- The risk management is miss-understood.

Intrapreneurship (internal entrepreneurship) contains several strategic aspects: work motivation, flexibility, improvements, creativity and innovativeness. (Koiranen & Pohjansaari 1994, 8; Sachau 2007; Herzberg 1982, 286.)

The key challenge in modern company management is to guide and motivate the personnel to intrapreneurship (Koiranen & Pohjansaari 1994, 9). The entrepreneurs are shifting the resources from lower to higher productivity opportunities (Drucker 1993). The reward mechanism should take into account the goals, responsibility and results. The management should support and tolerate risk taking in order to run innovative projects and operations.

Drucker (1993, 140) says: “Successful innovators are conservative. They have to be. They are not “risk-focused”; they are “opportunity-focused.”

Motives for entrepreneurship are therefore (Koiranen & Pohjansaari 1994, 46):

- Expressive i.e. emotional motives – feed emotions, entertain idea creators and gain respect
- Instrumental motives – earnings related
- Mental motives i.e. personal development motives – competence increase, growing as a human

The deployment of internal entrepreneurship is a necessary decision required for driving subsequent steps in innovation. This requires agreement and tolerance throughout the business organisation. In the literature, there are multiple “undercover movements” examples on how they are rising and developing in big organizations and gaining a competitive edge through radical innovations. These factors regarding intrapreneurship are illustrated in FIGURE 6.

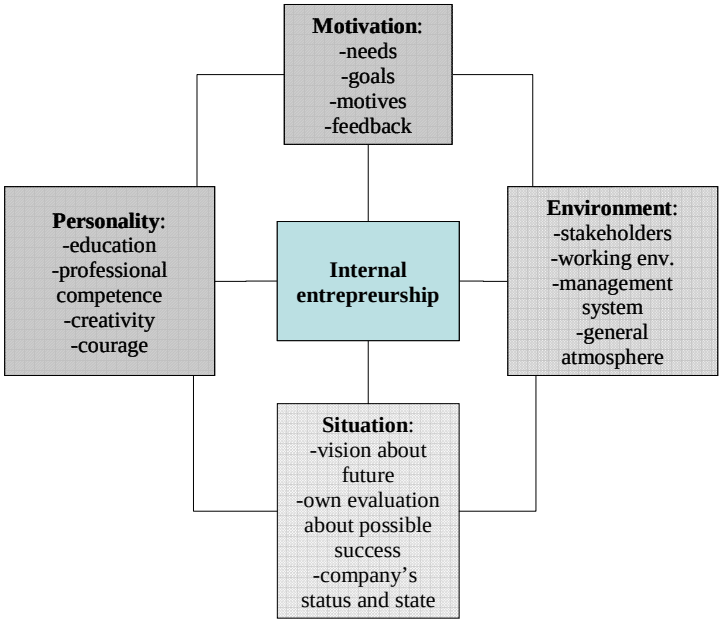

FIGURE 6 Personal factors impacting entrepreneurship (Koiranen & Pohjansaari 1994, 41).

All in all, companies may have problems dealing with uncertainties with innovative and improvement trials, and in offering flexibility and freedom during turbulent times, when cost efficiency programs are aimed at supervising and controlling investments and personnel activity. Also the fear for own employability may impact negatively to the change driver person so, that the commitment to the "non-core business", i.e. innovation related operations, are shelved until more profitable times. (Amabile 1993.)

2.2.1.1. Company model for supporting innovativeness

Each company has its own ways of handling the three major areas, practicalities, power and people, as well as the relationships between those (Handy 1993). Even though innovativeness is mostly a personal behavioural issue, there are certain company characteristics, which support personnel creativity, education and innovativeness. Additionally, wikinomics is "a hierarchies drilling communication model", flat and open mechanism for sharing insights and perspectives, as well as general information among work communities. It is also often associated to the innovative companies' business model. Open innovation, with its relations and collaborations internally and externally, are essential for successful innovation activities. These are handled in further detail later in the text.

Innovation management aspects are handled in Davila's (2004) concept as follows:

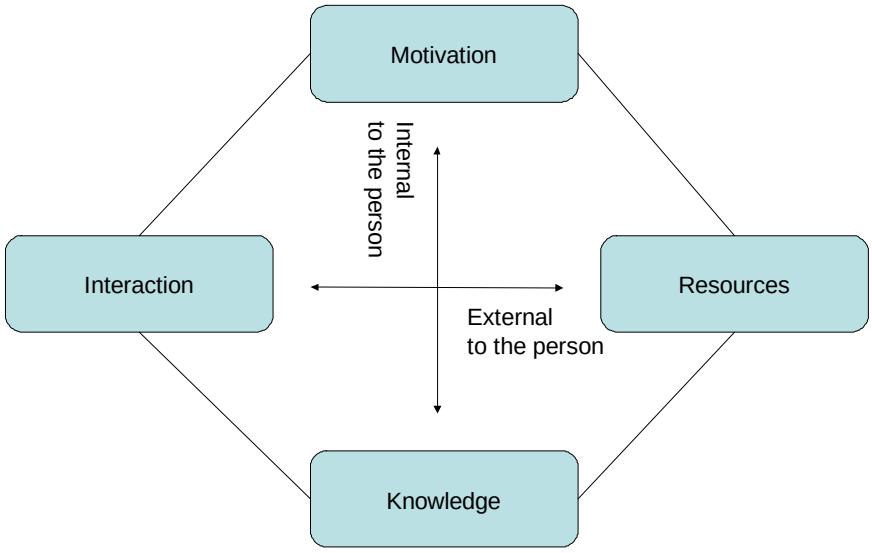

FIGURE 7 Levers of innovation are either internal (motivation and knowledge) or external to the person (interaction and resources). (Davila 2004.)

The levers of innovations (FIGURE 7) are as follows (Davila 2004):

- Resource lever: consists of complementary assets (other resources and networking), freedom, information and management support.
- Knowledge lever: consists of dept of expertise, flexibility, guidance (leadership aspect – coherence to the whole structure, change manager e.g. in business model changes) and breadth of expertise (the innovating team shall contain wide enough competence for the task).
- Interaction lever: also has four angles, which are: internal exposure (common interest between people is the steering force); challenge (conflicting goals); collaboration and external exposure.
- Motivation lever: contains following sub areas, which are recognition, passion, vision (importance of task motivation - "saving lives vs. making profits to stakeholders") and economic incentives. Passion is more effective than economic incentives!

One of the management's and leaders' key duties is to provide guidance to others. Target setting is one important factor to emphasize the importance of the subject. There must be plans or strategies, which steers towards the wanted direction. The strategy shall be specific and should explain how the target could be reached. On the other hand there should be enough space and flexibility for personnel to adapt the business model a.k.a. way-of-working. The visualization and publishing of the strategy and targets makes the deployment or commitment easier. (Jaakkola & Liukkonen & Kataja 2006, 217-218.) Often higher management does not risk setting too ambitious goals and targets for the development units and therefore does not utilize the full capacity of the personnel (Hamel & Phahalad 1994, 2006). The innovation portfolio, the innovation candidates and improvement activities require guidance, which can be steered through vectors of innovation architecture towards the competitive solutions. (Gibson & Skarzynski 2008, 142; Kim & Renee 2004.) Portfolio management plays a big role in the innovations business. This could also include innovation gap analysis to create an entrepreneurial plan containing innovations and deadlines. (Drucker 1993, 152-153.)

Hamel (2007) & Pinchot (1986, 166-167) state three challenges for companies regarding the enabling the management innovations:

- Acceleration of pace for strategic renewal
- Making innovation everybody's job, every day
- Making the work environment inspiring for innovations
- There is no development time buffer or enough discretionary capital (e.g. "Google plex" (Himanen 2007, 134) or "FedEx day" (Pink 2009)); people are neglecting innovation tasks and they start feeling ignored, alienated and bitter

Lack of time –answer could bury lots of deeper problems underneath. That is, in addition to risk of overload and burn out situations, there could be inconsistent feelings or values, own role's ambiguity or conflict, lack of support from co-workers or supervisor, or the lack of fairness in operations. (Barbera & Macey & Schneider & Young 2009.)

At the beginning, the budgets do not necessary need to be huge for performing pilot projects and attempts. The most important factors are the emotional and intellectual commitment to the subject – it must be perfect for sustaining the interest and bearing the vision forward. (Hamel & Prahalad 1994, 2006, 68; Koiranen & Pohjansaari 1994, 66.)

The emotional impact or effectivity on performance is dependent on the emotional content (anxiety, anger etc.) and the intensity of emotion (Hanin 2007).

Open innovation – joint innovative activities across organizational borders is the contemporary topic in innovation discussions. Joint development and marketing resources with partners and external financing organizations are the main issues behind this initiative.

The company should concentrate on searching for the key success factor which provides the competitive edge. Chesbrough (2004, 119) states that the company itself does not need to invent the core technology it needs for the solutions, since partner companies may have capabilities to produce higher volumes faster than the other competing companies.

The term “not invented here, NIH” could be reformulated towards these open innovations principles. That is, the term “NIH” could now mean, that not all tasks need to be performed inside the company. The wheel does not require re-invention, but the added value inside the company is required to integrate and create new applications in addition to externally provided basic features. This would allow resources to work with innovation, instead of e.g. creating their own platforms. (Chesbrough 2004, 50.)

Chesbrough (2004, 186-187) states, that the hardest way to deploy innovation is within the sales structure. The sales organization has a similar disorder to the R&D organization. Instead of NIH (i.e. not invented here), the sales version is called “not sold here” (NSH). This is about utilizing distribution channels other than the traditional channels. The control of technology and direct customer relations are causing fear or doubts about how to bind external distribution channels to the company operations. There is also a perceived risk to lose partnership income if agreements and rules are not clear. Any external partners’ complementary value should be seen as an opportunity for both parties, since it adds value for the end customer. The riskiest customer and collaboration strategy is to have boring solutions and messages, unless it is the differentiator from competitors (Godin 2009, 61).

Innovative behaviour demands changes on all levels in the company. That is, the company culture may need changes from cost efficiency and/or quality oriented culture towards the more entrepreneurial culture.

The organizational culture defines an appropriate behaviour, creates relations and motivates individuals. It steers the company processes, its internal relations and values at all levels. Culture comes from individuals and it is used to reinforce ideas, feelings and knowledge which are in line with individual beliefs and norms. Culture also gives continuity and identity to the group. (Hampden-Turner 1994, 11-21.)

In order for an organization to innovate, the business has to be able to free its best resources for innovation challenges. The financing resources shall also be secured (Drucker 1993). Drucker (1993, 149) writes about resource management, that normally companies are allocating productive people to handle daily crisis and to get a little more out what is reached otherwise. This typical approach is keeping existing business and yesterdays innovations alive and future opportunities are neglected. This is a fatal attitude. Such enterprises are aging and declining.

Tapscott and Williams (2006, 7-30) have defined the term “wikinomics” as an art and science of peer production and collaboration style. This crowd collaboration is changing the way goods and services are invented, produced, marketed and distributed in the global environment. The “Wikinomics” way of collaborating is changing companies’ and societies’ methods to manage knowledge, and it improves the communities’ capability to innovate and create new value for customers.

A summary of authoritative ideas and aspects supporting innovativeness in business are discussed next (Tapscott & Williams 2006; Orre 1987, 155; Ranta 2005, 30; Gibson & Skarzynski 2008, 202-208; Sydänmaalakka 2001):

- Open mindedness: networking, sharing, self-organized teams, encouraged people
- Peering and networking: networked development, open source type of government
- Information sharing: Balanced intellectual property management, partially open and partially protected

- Acting globally: peer production communities provisioning access to new markets, ideas and technologies
- Knowledge management: Knowledge, competence and utilization of different talent, training how to become extraordinary innovators, emphasis on continuous learning
- Responsibilities: Individual's responsibilities of his/her duties
- Equal treatment of individuals: Perception of equality despite of the positions in the organization
- Autonomy and degree of freedom: Allowance of creativity on direction towards the strategic goals
- Values and norms: Trust, respect, loose membership norms, good team spirit
- Intrinsic willingness to innovate: Creative individual is willing to abandon the routines and current behavioural models. This type of person aspires to reach out to new challenges and tries out alternatives.
- Technology infrastructure: "online suggestion box" for democratization of innovation
- Coaching and mentoring: supporting others and nurturing ideas, a role of innovation champion
- Rewards and recognition: "For most of the people, the biggest reward from innovation has nothing to do with the money", but "creating something new from their own head, and which is takes them beyond the bounds of the usual daily routine"
- Communication: Rich, informal and abundant communication
- Tolerance and risk taking: Allowing for mistakes

As an example, a tool manufacturer company BAHCO had the following rules and principles regarding provision of feedback in their innovation strategies according to Hampden-Turner (1994, 166):

1. All ideas must be responded to within one week
2. During that time, the originator of the idea will get a reply plus a lottery ticket, regardless of the quality of the idea
3. Within three weeks the company must announce a plan for the idea. If the idea is used, the originator will receive an amount commensurate with its value, sometimes a month's salary or even a whole year's salary or more
4. From then on, the idea originator is in competition with originators of all other rewarded ideas

5. There will be a semi-final stage
6. Semi-final winners will go on to a final stage

BAHCO's virtuous circle a.k.a. positive spin was therefore as follows:
A steadily increasing confidence in the future;
a new willingness to go out and meet customers;...
a huge increase in the number of encouraged and rewarded ideas;
...turned losses into profits,
won back customers and found new ones,
and greatly enhanced people's willingness to take risks.

Collaboration should not only be based on virtual and e-business models, but on the individuals who are seeking the same goal. They should be physically located as near as possible to each other (Hamel & Prahalad 1994, 2006, 207-208). This is the how different people are complementing each other even though they are working in different departments.

The innovative company is therefore creative, uses plentiful collaboration channels with networking talents working together. Such companies are using centralized information systems for knowledge sharing. Those are enlarging the communities' knowledge by mentoring. One key characteristic is that, such companies are capable of binding relationships across the organization boundaries. One key challenge in the company's knowledge management strategy could be the balancing between internal talents and overall personnel in the innovative trials. The ideas, which are regarded as innovation candidates, are opening up different opportunities, learning possibilities and achieving job enrichment, but for whom? Are therefore the organizational structures, including IT-systems, working in a supportive manner for knowledge sharing, and are those optimal for building networks and co-operation around the opportunities and challenges? The company mission in making innovation part of every employee's job is highly coupled with the success of information sharing and networking capability.

2.2.1.2. Intrapreneur

There are multiple terms available in the literature about the change agent's naming as well. At least the following names have been used in the referred books about the person who has a spirit to and willingness to lead the change. These equivalent terms are: change

agent; tribal chief/leader; intrapreneur (equals to internal entrepreneur); internal consultant; pioneer; heretic; epidemic spreader; paradigm shifter; visionary person; innovation coach; innovator; artist; innovation prophet; innovation champion; facilitator; sneezer (epidemic injector); connectors (social clue); maven (accumulator and spreader of knowledge); sender (emotionally contagious person) or even commando leader.

Intrapreneurs need skills for forming teams and networking people, and they need to have a good grip about business and market realities. They have to be more professional managers, leaders who can reach rapid decisions without the full information scope being available on they way forward (Pinchot 1986, 24) – the decisions are therefore made by the person, who acts. They don't plan forever, but start acting towards the vision and goals defined by them. That person shall be in such a position, where the intrapreneur him-/herself and the ideas could be supported and protected appropriately. (Pinchot 1986, 109.)

Godin (2008) declares “tribe” as a group of people plus leader interconnected with a common idea or interest for making their mission or task meaningful and successful. A group needs two things to become a tribe, which are a common interest and a means to communicate. Tribes are seeking fresh, stylish, remarkable and new things, which are innovative (Godin 2008; Grönfors 1996, 30). The tribe must have a leader. The differences between crowd and tribe are that the crowd doesn’t have a leader or proper communication. According to Godin (2008, 30), most organizations are spending efforts on crowds, not tribes. Himanen (2007) uses the term “network node” regarding the brokers, who are in the central roles for distributing proper information across social networks. If the change agents are influencing people who in turn have influencing power in the organization, many persons will be following such an authority’s example. (Hämäläinen & Heiskala 2004.)

One view to the leadership is shown in Godin’s (2008, 70&80&92) statements about change management and innovation are as follows:

- Nobody is going to listen to your idea for change
- No one anoints you as leader
- Nobody is going to see your PowerPoint presentations and hand you a check
- Change is not made by asking permission. Change is made by asking forgiveness, later.

- Faith is critical to all innovation. Without faith or believe in the innovation, it's suicidal to be a leader, to act like a heretic. Successful heretics create their own religion, new group of friends and supporters and rituals.

A tribe contains heretics who challenge the status quo and who are passionately driving towards that change. Those heretics are the new leaders and are those who create movements and are tightening the communication around the shared idea towards that vision, and the leaders can be everybody in the organization. The skills and attitude are important, not the authority. The decision to lead, not manage, is the critical choice, as Godin (2008) says it.

Perseverance is one of the key characteristics of an intrapreneur i.e. the failures are regarded as temporary setbacks and as learning opportunities. They also see that they're responsible for their own destiny (Pinchot 1986, 41). Intrapreneurs are not typically interested in having plenty of subordinates or admirable rewards. They are also not satisfied by promotions or by gaining the respect of colleagues.

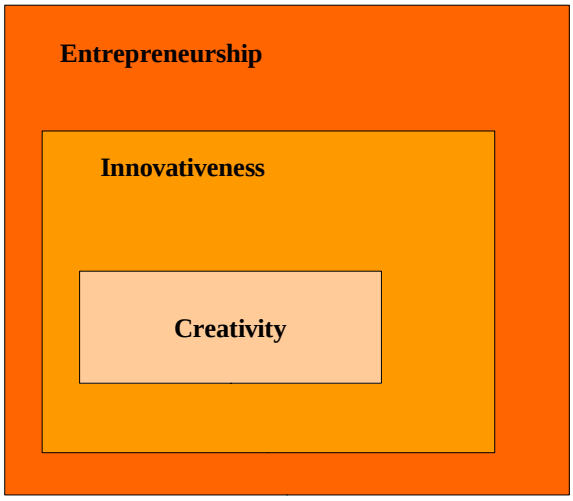

FIGURE 8 The relationships between creativity, innovativeness and entrepreneurship (Koiranen & Pohjansaari 1994).

Does everyone have the characteristics of an entrepreneur? Are there dedicated and appointed persons who are expected to act like a heretic of the movement, who are creating new norms and networks around a common interest? The challenge of creating innovations in everyone's "normal job" is a multidimensional issue, since it is a challenging issue to act like a salesman or to gather supportive persons to assist him-/her. The desire and inspiration for activities to drive issues further starts internally in our own head. One key point, service-minded and assistive behaviour, can be learned over a longer period. This is mostly required in cross-organizational innovative duties. These innovative triggers are handled in more detailed manner in later chapters.

2.2.1.3. Driving forces

Why there are people in the organization, who act as an intrapreneur or heretic, and who drive "crazy things" further regardless the resistance encountered? The reasoning and behavioural background is clarified as follows.

"People must first feel the subject significant and meaningful before he or she can become inspired and motivated about it" (Himanen 2007).

The psychological ownership reveals the internal entrepreneurship. The person feels the subject and duty belongs to him/her. Good results increase the psychological ownership sentiment and this brings with it, joy and pleasure. The internal ownership can also be among the society, such as a work group. (Juuti 2005, 56; Leffingwell 2007, 313-316; Cahan & Vogel 2003, 176; Ceserani 2003, 100; Gibson & Skarzynski 2008, 202-208; Drucker & Maciariello 2006, 49.)

It's important for all people to gain respect despite their achieved level of success. It is also important to gauge his/her own success and get a clear feedback on that (Heikkilä 2006, 73-75). According to many research studies, the worst punishment people can receive is sensing they're left out of the community i.e. ignoring of the individual, which leads to loss of status. The reason is that without external inspiration the psychic entropy, the mental disorder, takes over and internal focus starts to wander (Csikszentmihalyi 1990; Handy

1993). Therefore it is necessary to get positive feedback through successful experiences. People who have strong self-confidence put their emotions into the “game” and therefore the internal commitment is strengthened. There is a model defined by Fredricson, where positive emotions lead to positive behaviour and positive up-spin upwards. (Juuti 2007, 119; Fredricson 2002; Saligman 2002.)

Positive thinking is impacting humans in many ways. The positive human attributes are such as well-being, optimism, forgiveness, self-esteem, fascination/flow, creativity, resilience, savouring, wisdom, and spirituality. (Sachau 2007, 378; Saligman 2002.)

On the other hand the pleasant emotions are not always beneficial for outcomes, since they sustain the focus and effort on the current situations. This excessive complacency and satisfaction has a de-motivational impact to people. This leads to insufficient alertness, lack of focus, carelessness and to too high risk taking. (Hanin 2007.)

Emotions and strategy deployment are highly coupled to each other. The success of strategy or organization culture change is dependent on the emotions and unpredictable feelings arising from the culture and everyday work. Emotions can either accelerate or slow down the change. A positive emotional cycle emphasizes pride in the success of the organization, which is based on the collaborating relationships safety and joyful emotions and experiences in the community. This enables the organization to be learning and creative. (Juuti 2007, 24-25; Huy 2006.) The joy of work is therefore gained from the positive emotions and successful experiences as shown in FIGURE 9. (Posner 2003, 35-37; Thomas 2002, 98.)

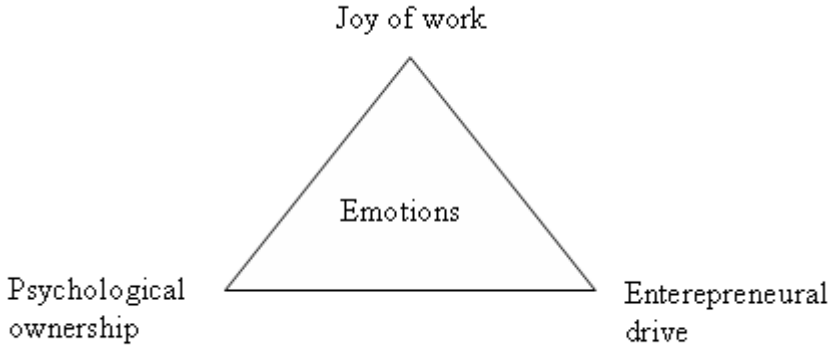

FIGURE 9 Emotions as an activity starter force –model, by Matti Koiranen (Juuti 2007, 48).

The most rewarding moments in life often happen when one's body and soul have been extremely stretched trying to achieve a difficult goal (Csikszentmihalyi 1990, 18).

Emotions are used to evaluate the subjects and activities. Emotions are steering the decision making process as much as the rational thinking. The sensitivity of emotions does not limit the capacity of rational thinking nor lead to poor rational thinking, according to Pirkko Vesterinen (Juuti 2007, 105).

Leadership support, listening to needs, patience, and an atmosphere of freedom is required by an intrapreneur. Also the intrapreneur him-/herself should have leadership capabilities. There is an inspiring and encouraging person needed for such a steering role. The analogy of the role of movie maker/-director is associated to this role definition. (Davila 2004; Hämäläinen & Saarinen 2006; Thomas 2002; Goffee & Jones 2006; Kamensky 2002.)

Transformational leadership values and characteristics are motivating and changing the priorities of followers to exceed their expectations (Kark & Dijk 2007). The transformational leadership term is introduced by James McGregor Burns (1978; Sydänmaalakka 2004, 42-47). The main idea is that this methodology creates a bind or relationship between people, which improves the leader's and subordinates motivation and morale. The transformational leadership is a process which changes both the leader and the subordinates. The following 4 factors provide better than average performance level: idealistic influencing (high ethics), caring of individuals (caring and encouragement), inspirational motivation (inspiring vision, emotional arguments) and intellectual stimulus

(increasing awareness, new perspectives). This methodology is deployed further by Nissinen (Deep Lead 2009). There has been research performed on transformational and transactional leadership, where the data was evaluated on solutions and leadership styles and on the leadership's impacts on group creativity. The result was that the transformational style in the nominal groups generated the most creative solutions (Watson 2007, 432).

Leadership slogans e.g. like integrity (common values and beliefs) and affirmation (letting people know they're respected and their work is important) are laying the foundation for trust and respect (Blanchard & Muchnick 2003).

There are also hard leadership styles, which are based more on rational thinking, calculating and quantitative manners. These are not preferred and compatible styles for the innovative company culture. These monitoring leadership styles are used in the efficiency-focused culture, as well as quality driven cultures. (Kark & Dijk 2007.)

As a summary from above, the successful stereotyped entrepreneur must have an important mission where to aim, and the followers of the mission are led by transformational leadership styles. Also important is the joy of success which is the most inspiring force to continue. The key challenge in modern company management is to release and motivate the personnel to intrapreneurship. (Koiranen & Pohjansaari 1994, 9.) One of the biggest issues in this is the courage, the desire to lead and drive the activity, as follows.

> "I want to get to a point where people challenge their bosses every day. Why do you require me to do these wasteful things?" by Jack Welch (Thomas 2002).

There is a need to challenge management decisions on a daily basis, but this introduces a risk by going beyond the limits. Then the fear of losing one's job or losing "innovation capital" can limit the speed of change, or stall and delay the intrapreneurs and introduce too much caution. Since this entrepreneurial role is typically a secondary role anyway for those who dare to take the decision to lead, this is certainly a matter for balancing between operative and strategic duties.

2.2.2. Creativity process

Innovativeness is often referred to as visionary thinking or insights. Beyond that, there could be plenty of hard and persistent work, including trials and testing of markets. These trials are providing learning possibilities through feedback from stakeholders. Creativity and innovativeness are highly coupled with each other. Creativity without innovativeness is target less work or play, and the innovativeness without creativity is useless copying, according to Juuti (2005). (Sternberg 2003.)

Sometimes expertise level can be a limiting factor of being creative, if the expert is stuck working on common solutions and if management control is evident throughout. He or she cannot think "out-of-the-box" and break the barriers of the standard routines in such cases. (Anttila & Halonen & Kalakoski & Kreivi & Paavilainen 2007.).

The pathways to creativity are defined in the following FIGURE 10:

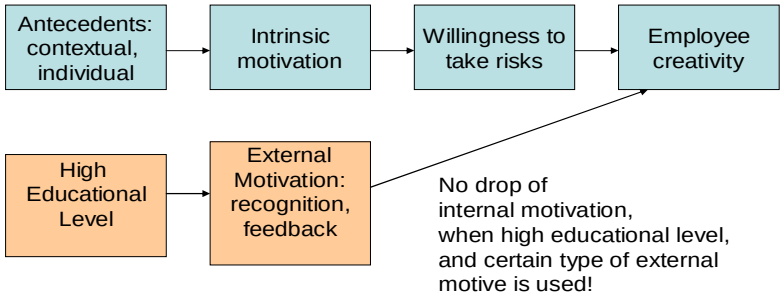

FIGURE 10 The paths to employee creativity. The intrinsic motivation is on high level in both paths (Dewett 2007; Amabile 1993).

2.2.2.1. Human behavioural and development models

There are different behavioural models generally available. One of the most famous models is the "hierarchy of needs". It is a basic model, which could be regarded as an introduction to the motivational trigger subject.

Psychologist, Abraham Maslow, created a model of a working human, who performs and works by needs of himself/herself and gets satisfaction in their work. As time proceeds, the work is changing and developing and therefore new needs are created (Orre 1987).

Maslow's hierarchy of needs has six consecutive steps, which need to be fulfilled in this order to reach the following hierarchy level (Orre 1987).
The steps are:

1. Physiological needs like food and drink etc.
2. Needs for safety like solid work contract, proper income, secure environment
3. Sense of solidarity and fellowship; work society
4. Perceiving respect and the power to influence
5. Needs for self creation; Enjoyable work duties, sensing progress and freedom
6. Self-development needs; studying and the need to develop further

There are many theories about the humans' characteristics, motivation for work and assumptions around it. One classification by Schein (Handy 1993) follows:

1. Rational-economic: "Passive animals" to be motivated and controlled by organization
2. Social: "Social animals" getting identities from relationships
3. Self-actualization: Primarily self-motivated and –controlled, external control reduces the motivation
4. Complex: Variable and many motives based on the situation and own needs
5. Psychological: Psychological development towards the ego-ideal, utilizing opportunities provided from the work. The gap between ego ideal and perception about us and reality drives the development.

On the other hand, the people who can transform the stress into joy for generating new opportunities and personal challenges, they are spending less effort on thinking about themselves. The mutual interest is of higher importance and an open-minded approach is an enabler for being objective regarding different alternatives. In that sense the extension to the list of needs could contain the integration to communities and societies and common, universal values (Csikszentmihalyi 1990, 292-299&317.)

2.2.2.2. Trigger for creative thinking

The initialization of the creative process requires dissatisfaction as a background. This is an internal emotion or need to perform tasks in another way, better than before. This dissatisfaction of individual matter or concern or on the other hand contextual/external issue is a trigger, which loads a potential or internal pressure for changes. The second basic trigger is a “hunch” on an alternative method which could be a candidate for solving the problem. This “hunch” or perceived potential for success is providing a direction to the change. (Helin 1990, 23; Dewett 2007; Anttila & Halonen & Kalakoski & Kreivi & Paavilainen 2007; Hanin 2007.)

There are definitions in the literature for common antecedents or the triggers for the creative thinking. Those are the supervisory encouragement (contextual antecedent), the self-efficacy as a belief in the capability to perform a specific task (individual difference) and the openness to experience and the receptiveness towards feedback (individual difference) (Dewett 2007).

The functional effect is dependent on individuals’ capabilities to mobilize their energies to the duties. For instance, in sports science, there are findings that high anxious athletes are getting more energy in stressful and emergency situations in order to gain the focus to the tasks. Low anxious people are more capable of focusing into the duties and gaining from positive experiences. (Hanin 2007.)

Besides functional expertise, the other prerequisite for being creative is the ability to look at things from different angles and perspectives, and for being able to create associations and analogy between them. This is called divergent thinking. (Anttila & Halonen & Kalakoski & Kreivi & Paavilainen 2007, 167; Grönfors 1996, 102.)

The third necessity for being creative is that people are internally motivated to perform. Nobody can force an individual to be creative. The goals shall be clear, relevant and emotionally inspiring in order to attain satisfaction from the activities. Goal setting is an important tool for steering the attention in the relevant direction, towards new and challenging duties which can lead to the flow, i.e. the optimal experiences. (Csikszentmihalyi 1990, 78&322; Anttila & Halonen & Kalakoski & Kreivi & Paavilainen 2007, 168; Csikszentmihalyi 2004.)

Orre (1987, 128) states that the only prerequisite for creativity is that the individual shall leave his/her own sense of personality, as children do not have highly developed sense of personality they can easily act without its limiting factor. Typically human activities are funnelled through the sense of personality, which narrows down the sense of reality. This limits the utilization of the imagination in problem solving duties.

Divergent thinking (Anttila & Halonen & Kalakoski & Kreivi & Paavilainen 2007, 167) is associated to transformative learning process, where divergent views are used to resolve conflicts by argumenting, not compromising or voting by majority rule (London & Sessa 2009, 358).

In case of a stable business and work environment where roles remain constant and duties are repetitive, there seems to be potential problems to implement these types of changes. That is, there are not enough conflicting issues, which are disturbing individuals in a positive way. These inconveniences are needed to get started and actively work for the better future.

2.2.2.3. Motivation factors

There are multiple inspirational sources which are motivating people to strive and struggle through challenges. E.g. Changes in the organizational operations or systemic changes in the way of working should also be introduced and deployed as inspiring opportunities for individuals. The motives and background to these inspirational sources are discussed from different perspectives in the next paragraphs.

Motives are psychological enablers for activities. These are directing the human activities towards the goals. The motives are also impacting the amount of efforts used for the activities, that is, how enthusiastically individuals are aiming towards the goals. (Anttila & Halonen & Kalakoski & Kreivi & Paavilainen 2007, 15.)

The motivation can be divided into internal (a.k.a. intrinsic) and external (a.k.a. extrinsic) types, which are also discussed in the next chapters.

2.2.2.3.1. Intrinsic motivation

Herzberg used the term motivators or "motivator factors", which are related to the intrinsic motives. These involve high levels of self-direction and productivity (Sachau 2007).

Internal motivation and self rewarding is based on the following three requirements (Anttila & Halonen & Kalakoski & Kreivi & Paavilainen 2007, 16):

- Willingness to be competent and expert in certain branches of life
- Need to be self-governing and self-guiding
- Getting satisfaction from collaborations with other individuals e.g. customers

Pink's (2009) list for internal motives are:

- Autonomy – self-direction possibility
- Mastery – desire to do better and improve what really matters
- Purpose – working with things which are larger than him-/herself

Sinnemäki (1998) adds following subjects to the internal motives:

- Relevant subject; autonomous selections of actions
- Uncertainty about information structures or expectations from new goal settings
- Ranking and valuation and therefore competition
- Curiosity and interest
- Challenging subject
- Imagination with emotions and learning

Grönfors (1996, 98) lists factors for motivation of humans:

- Achievements (more responsibility, problem solving, high goals, risk taking)
- Independence (minimum amount of rules and disciplines and maximum amount of self-government of job duties)
- Power (willingness to manage others, influence them and the environment)
- Group belonging (respecting friendship, interests and attitudes)

There is a need to have high enough motivation factor levels, in order to enter a high performing status. Those factors are, according to Vakkuri (1989, 20):

- Respect and recognition of the outperformed work effort
- Success in the work
- Promotion in work career
- Responsibility of tasks
- Work itself
- Development and learning possibilities

According to Thomas (2002, 13-23) sources for improving the emotional aspects of work are:

- Emotions are the core of motivation
- The intrinsic rewards
- The purpose of the activities which make the work meaningful
- A proper level of uncertainty to make the projects exciting and for making the difference

The social motives are satisfied by inter-human collaborations. Those are power, outperforming and social respect, continuous opportunities to learn, employees control over their own schedules, employees control over organizational resources, employees' ability/permission to communicate directly (instead of through hierarchical channels) with people in the organization, and employees with personal accountability for their own performance. The psychological and social factors are combined in almost all motives. (Anttila & Halonen & Kalakoski & Kreivi & Paavilainen 2007, 16; Sachau 2007; Herzberg 1974.) Sachau (2007) refers to Deci, Ryan, Csikszentmihalyi, Bandura, Kahn, Harter, Schmidt and Hayes as follows: Clear goals, immediate feedback, and moderate level of challenge make a task enjoyable. People are motivated to perform an activity to the extent that they feel a sense of efficacy, when performing the activity. In other words, employees will become more engaged when their jobs include these motivator factors though so called job enrichment. If a job is tedious and cannot be made interesting through job enrichment, it is reasonable to use bribes, bonuses, and strict reward contingencies to motivate (move) employees who perform the tedious job. (Sachau 2007; Herzberg 1982, 286; Barbera & Macey & Schneider & Young 2009; Seligman 2002.)

The internal motivation can decrease, if a person feels that others are trying to steer the activities e.g. by rewarding. The more concrete the rewarding is e.g. money or valuable reward, the more such an external motive will decrease the internal motivation in the long term. (Anttila & Halonen & Kalakoski & Kreivi & Paavilainen 2007, 30-31.) If the external motives are the most important drivers for activities, the consequence is that humans are not engaged on these duties, but their commitment is instead low. (Anttila & Halonen & Kalakoski & Kreivi & Paavilainen 2007, 47.)

Sometimes motivation can base on a so-called “flow experience”. In such a frame of mind, the individual simply enjoys activities for the activities sake and the flow sweeps them along without any extra effort. Then the concentration is so perfect that the sense of time and place vanishes and any fear of failure disappears. These experiences themselves are generating so much enjoyment that people are even willing to pay for the actions which cause the flow i.e. optimal experience. The prerequisites for such a sense of experience are a high competence level and challenging duties. The flow experience can happen, if people know the task(s) can be successfully completed, the conditions for total concentration are present without extraordinary efforts, the task/duty has clear goals, and there is an immediate feedback possibility. Sometimes e.g. in creative and artistic duties, such as improvising performances or concerts, the goals are set by the person him-/herself. (Csikszentmihalyi 1990; Anttila & Halonen & Kalakoski & Kreivi & Paavilainen 2007; Lakhani & Wolf 2005). Games provide strong problem solving, learning, success and development types of emotions and experiences, which is made stronger due to auto-feedback. One example about uncontrolled duties and utilization of imagination is the juvenile play, which is giving even more flexibility for trying out different alternatives without controlled by rules and logic of games. Both gaming and playing are having one important and common function i.e. creating social connections. (Sinnemäki 1998.) Sinnemäki (1998) adds, that the most optimum level for keeping the internal motivation in the flow experience area is, when there is no frustration and no anxiety. This thus requires the knowledge and challenges to be in balance and developing further as time progresses. Flow experiences contain both differentiation and integration processes. Differentiation is about making individuals unique, separated from others. Integration is about socializing, networking and aligning thoughts with others. These two processes together are creating even more complex self, the core of the person. The flow experience makes personnel self organized in a new, more organized manner. That is, the knowledge develops and organizes, while the person experiences positive emotions. On the other hand, there is always a risk for getting

addicted to the flow generating activity, which can have severe consequences. (Csikszentmihalyi 1990, 71-72&100; Barbera & Macey & Schneider & Young 2009; Seligman 2002.)

Curiosity has nothing to do with income, education or organized religion. Curiosity is the desire to understand, and to try out things and the desire to push whatever envelope is interesting (Godin 2008, 63). Curiosity is man's exploratory motive. This means, that the intellectual drive i.e. the aim to change the motivation state to another direction, could be performed by explaining the meaning of the activity, showing the association to the larger context and proving the meaningfulness. (Orre 1987, 109.)

Motivation is not a human characteristic but the outcome of a motivation process. There are number of factors, which are influencing the motivation process as follows (Niermayer & Seyffert 2004, 13-14):

- The intensity of the internal motive and specific motives (e.g. goals)
- Beliefs on own influencing possibilities
- Psychological time perspective – including the educational and cultural background
- Emotional intelligence

Parikh (1999) has an even broader definition of creative context: creative intelligence consists of intellectual-, intuitive- and emotional intelligence. This comprises educative intelligence, emotions and intuition and includes the individual's earlier background knowledge as a whole, when defining e.g. knowledge management strategies and networking needs.

According to Niermayer & Seyffert (2004) the decision making process for commitment goes through the motivation process, thus impacting the energy investments positively or negatively. The motivation processes and competence relations are illustrated in FIGURE 11 and FIGURE 12.

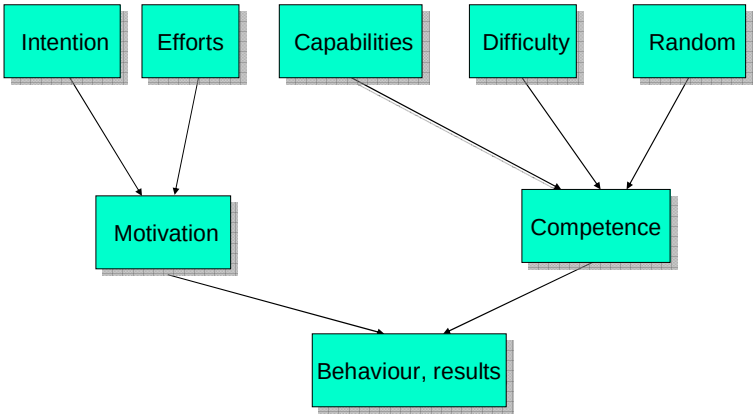

FIGURE 11 Heider's action-analysis about causalities of competence and motivation related activities and factors (Sinnemäki 1998, 51; Heckhausen 1980).

Thomas (2002, 28) describes the self-management process as follows:

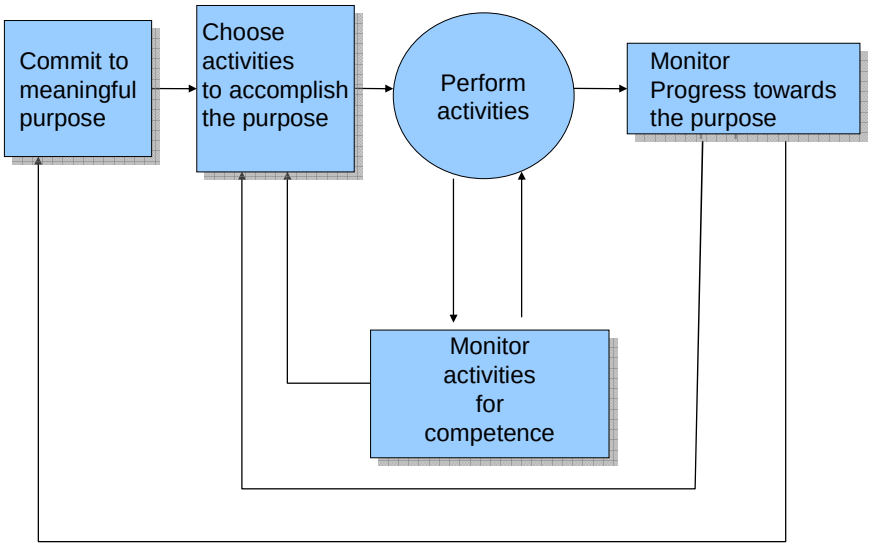

FIGURE 12 The self-management process (Thomas 2002). Monitoring of competence of performance and progress towards the purpose are both important aspects in the model.

Frederick Herzberg challenged the basic assumptions about what satisfies and motivates employees at work by claiming that pay contributes little to job satisfaction, and that all employees need to grow psychologically. The six stages of the psychological growth are a) knowing more b) understanding c) creativity d) effectiveness in ambiguity e) individuation and f) real growth. (Sachau 2007, 377, 380.)

The human internal driving force, the intrinsic motivation needs trigger to “sense the illumination”. The purposeful duties, sense of competence and learning possibilities, sense of progress and success and ownership of the duty are the core elements of the internal motivation and they are enriching the job. There needs to be enough competence, or at least a belief that the activity could be accomplished. That is, the challenge may be too overwhelming if aiming too high. (Sachau 2007; Amabile 1993; Dewett 2007.)

2.2.2.3.2. Extrinsic motivation

The external motivation (a.k.a. extrinsic) is derived externally from the tasks or job. Those include; reward, money, tangible assets, admiration, acknowledgment and fear of punishments.

Herzberg described the issues which are dissatisfying as “hygiene factors”, which are associated to the extrinsic motives. Herzberg and his colleagues noted that, similar to medical hygiene, fair pay, good interpersonal relations, fair policies, and pleasant working conditions do not appear to provide much long term satisfaction, but they do prevent dissatisfaction. Once a person has experienced a new higher level of a given hygiene factor, the new level becomes the minimal acceptable level. Many reasons for job dissatisfaction involve unfair company policies, incompetent or unfair supervisors, bad interpersonal relations, unpleasant working conditions, unfair salary, threats to status, and job insecurity. As hygiene needs escalate, employees will demand higher and higher amounts of money, perks, status, and so forth, to stay motivated. Managers who use hygiene to motivate employees may eventually find that employees only care about hygiene factors (a.k.a. hygiene seekers). Dissatisfaction with hygiene factors can produce fear, frustration, jealousy, anger and even rage. Therefore job enrichment cannot be enhanced by utilizing external motives, but through opportunities to be autonomous, responsibility of resources, utilizing creativity and

having moderate challenges, i.e. the intrinsic motivation elements. (Sachau 2007; Csikszentmihalyi 1990, 32&237; Csikszentmihalyi 2004.)

The co-existence of both internal and external motivation is possible in certain cases, as depicted in FIGURE 10. Also setting high expectations and goals profoundly impact the total motivation (both extrinsic and intrinsic parts). Since these situations belong more naturally to performance management, it is covered in those chapters later.

2.2.2.4. Individuals and motivational directions

"One for all" –solution cannot be utilized for motivating personnel. People get motivated due to multiple reasons and from different sources. Therefore it's vital to take into account individual (type) needs when introducing changes. The classification of the motivational directions and personalities are handled in later paragraphs.

Psychologist Carl Jung introduced a concept called introversion-extroversion of identifying "types". This is about how people are "energized" in life. The introverted person handles things preferably subjectively and internally and energy is derived from their own experiences. The extroversive person gets all important ideas and feelings from other people and material. (Borg 2007.)

Jung has also classified people's behaviour as follows:

Dimension in behaviour	Styles in the dimension
Paying attention	Senser / iNtuitive person
Making decision	Thinker / Feeler

TABLE 1 People's behaviour in how pay attention and make decisions (Borg 2007, 230-237).

People exhibit dominant styles of these combinations (ST, SF, NT or NF) and it is vital to observe and adapt own behaviour when dealing with different individuals (Borg 2007, 238-240).

Ranta (2005, 132-140) divides individuals into classes about how they are motivated, how to deal with changes, how the systems are understood and which is the most natural work model for different personalities:

Direction of motivation:

- *Goal seeking person*, aims towards the targets. Such people consider the goals and targets and results as important. Achievements are important for these people.
- *Problem solving people* take note of issues and problems to avoid. They get motivated on troubleshooting. They know intuitively, what is wrong in the project beforehand. The problem threat and approaching deadlines are motivations for these kinds of people.

Motivation source:

- *Internally motivated persons* discover and create their motives by themselves. They also decide how and where to act. They are difficult to manage.
- *Externally motivated persons* need others to lead the way. They need feedback and others' opinions to gauge how the work has succeeded. They advise others and give orders to them.

Responding to changes:

- *Similarities observing person* is conservatively thinking and needs a bigger change not more often than once per 10 years.
- *Differences observers* seek regular changes. They resist stable and static situations. The change itself is the motive.

System knowledge:

- *Elaborative personnel* are formulating the complete system structure from smaller details. They act and handle subjects systematically and linearly.
- *The generalists* are handling subjects in overall levels. They swap the subject of conversation from one thing to another. They envisage the complete structure of the project immediately. They prefer randomness and uncertainties.

Work model:

- *Process oriented people* regard rules and disciplines as being important. They obey them and act accordingly. They are motivated on how things are accomplished, not

why they are done. If the process oriented person does not find relevant information, they are stuck and feel lost.

- *Alternative and possibility driven personnel* get motivated, when they invent new methods and they have possibilities to make things differently. They are fully committed to the project until an even more interesting project comes along.

Holland's definition for different orientations (Handy 1993, 41) follows:

- *Realistic people* seek objectives, goals and tasks
- *Intellectual people* regard ideas, symbols and abstract and creative abilities as fascinating
- *The Social person* aims to utilize their interpersonal skills and are interested in other people
- *The Conventional person* adapts the rules and goals towards the society and customer
- *Enterprising people* are highly energetic and impulsive - aiming to act as leaders, politicians and explore entrepreneurial business
- *Artistic people* are utilizing feelings, intuition and imagination to create products, writing, painting or music

Kark & Dijk (2007) are referring e.g. to Higgins' (1997) studies about people's two basic self-regulation systems: the promotion goal or the prevention goal, which are regulating and modelling ones behaviour i.e. they are modelling and showing the motivational directions of the people. These are handled later in more detail in chapters 2.2.2.4.1 and 2.2.2.4.2. It is noticeable, that the leader's regulatory systems are mirrored by the followers, and therefore the cultural behaviour follows to the subordinates' behaviour. Therefore it is up to the leaders to behave and emphasize different regulatory styles in order to keep the organization effective, operating and creative.

2.2.2.4.1. Promotion goal focus

Promotion goals represent the "ideal self", including hopes and wishes.

Those, who operate mostly on a promotion goals manner, are concerned about the accomplishments, they are more sensitive to presence or absence of the rewards, they are

more goals oriented, they are more creative in problem solving processes, they are more willing to take risks, and they are more sensitive to both happiness and on dejection. They are motivated by positive feedback and openness, growth, development, and self-organization and –direction.

As promotion goal oriented individuals and more willingness to take risks, which is characterized by leading changes, giving visionary messages, questioning traditional ways of thinking, they have creative behaviour and they're eagerly seeking solutions.

Their leadership style matches the transformational leadership values, which is supporting the entrepreneurial and innovative company culture.

2.2.2.4.2. Prevention goal focus

Prevention goal focus represents the "ought self", mandatory type of behaviour. This characterizes with duties, obligations and responsibilities.

Those individuals who primarily operate on prevention goal focus are more concerned with duties and obligations, they are sensitive to presence or absence of punishment, they use avoidance goal strategy, and their emotions are ranging from anxiety to calmness. They are motivated by negative feedback, external social pressure, obligations, social responsibilities and necessities.

The people with prevention goal oriented behaviour have the motivational direction for stability, that is, conservation, safety, conformity and tradition are important values for such people. The task behaviour is non-creative and repetitive, risk averse and demands accuracy.

Leaders who are applying this motivational focus have normative characteristics. They are monitoring the followers' activities, and they use transactional leadership style, which matches to the quality oriented culture or efficiency oriented culture. Also the negative feedback motivates more than positive.

The mechanical (organizational) system, as in this preventive goal focus case, contains the traditional goal setting, rational organization of duties, effective and clear progress. All these activities are described per resource, planned and controlled and followed-up to the rule. In the mechanical organizational system, personnel are calculating and rational in own profitability. But, the organic and collaborative organization instead is dynamic, living organisms; human behaviour reflects interpretations, beliefs, impressions, expressions and other subjective variables. The personnel in the organic organizations are generous, co-operative and seeking for meaningful duties. (Hämäläinen & Saarinen 2006.)

2.2.2.5. Creativity

Creative, divergent and abnormal thinking is seen as a potential for innovative solutions.

“Creativity is a desire to think in a simple way by utilizing the imagination”. Juvenile play, joy and relaxation are parts of the creativity as well as questioning. (Vakkuri 1989, 15.)

Kamensky (2002) defines creativity as “The work is creative, if the result is a combination of earlier know known things, and which is new to the creator”.

The creation process consists of both logical thinking and freely moving imaginary thinking parts. Systematic thinking may lead to one and only conclusion, and therefore no other solutions can be devised. Too logical or too systematic thinking leads to compulsive, animal solutions. On the other hand, in order for humans to be creative, there must be a logical “harness” and -information provisioning in the subconscious. A creative person’s personality has lots of contrasts and his/her self-government and dependencies do not follow typical norm structures. (Orre 1987, 140-142.)

Researchers like Cummings have found that “employees, who wrote more patent disclosures and who were rated as creative, produced the most creative work when they had creativity-relevant characteristics, worked on complex, challenging jobs, and were supervised in a non-controlling, supportive way.” (Watson 2007, 431.)

Tips to improve creativeness by Vakkuri (1989):

- Believe in creativity, juvenile play and humour as a driver to get things forward.
- Think about new opportunities for your time and remove any prejudice.
- Actively resist repetitive and routine types of processes, which are boring, trivial and perhaps a waste of time (a.k.a. “small potatoes”).

There is a process defined by Kamensky (2002) about creative problem solving as follows:

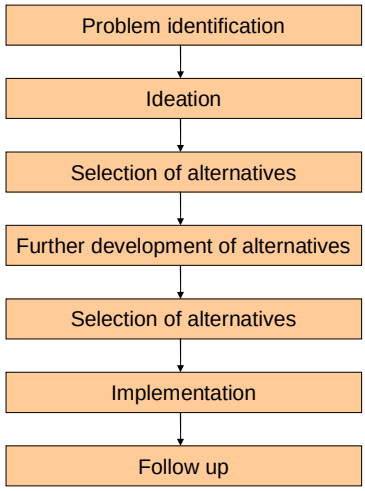

FIGURE 13 Creative problem solving process. (Kamensky 2002, 235.)

“Almost everybody can generate wild ideas, but often only experts can pick out the best and best-functioning ideas, which are feasible for further development” (Anttila & Halonen & Kalakoski & Kreivi & Paavilainen 2007, 167).

Kamensky (2002, 237) lists obstacles of creativity on individual level:

- Only one correct solution
- Self created obstacles that do not really exist
- Conservativeness
- Goals and visions are set too low
- Fear of embarrassment

Kamensky's (2002) list for obstacles of creativity on organizational level is following:

- NIH- (not invented here) phenomenon
- The atmosphere within the organization

Social interactions occur in networks, which improve the individual's knowledge and ability to generate feasible ideas. For a creative individual, being part of a social network is thus a source of information and stimulation. (Watson 2007, 432.) One example of such a type of networking intelligence is the trans-active memory. This means that there is knowledge available in the society who knows certain information, who can do what, and generally remembers different things. The trans-active memory is an extension to the individual memory, and it may give competitive edge by provisioning abilities to innovate and reach quickly (Gladwell 2002, 191). Networked idea generation via IT-tools is more effective if there is a critical mass of idea creators working uninterrupted and anonymously. (Anttila & Halonen & Kalakoski & Kreivi & Paavilainen 2007, 176; Gladwell .)

There are always plenty of dilemmas, when networking is realized, and social relations are command the success of team collaboration. The following picture, FIGURE 14, illustrates this matter.

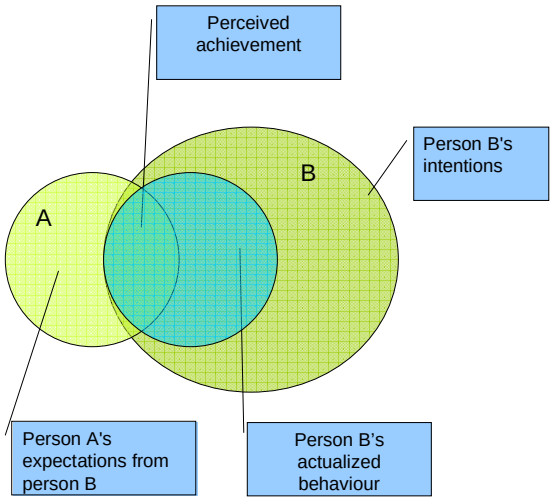

FIGURE 14 This intention-action-perception-reaction creates negative relationships (Parikh 1999).

Parikh (1999, 69) gives tips for improving relationships e.g. for social creativity purposes

- More balanced/realistic expectations from others
- Focused more on others' intentions that just their actions
- Less reactive, less biased or prejudiced in one's perceptions and judgments.

Creativity is therefore thinking abnormally which one could harness to new combinations of subjects or matters, and it is deployed by sharing this knowledge with others and improving it in socially creative environment. A fiercely competitive and benchmarking-oriented environment may provide triggers itself. Who are those who survive, win and receive admiration, prizes, incentives, and nominations in this? Mostly the preventive goal oriented persons are inspired by this kind of environment. On the other hand, personnel who are internally motivated may suffer from many kinds of externally driven activities which drastically limit the quality of the alternatives.

2.3. Learning in the organization

The development and learning is much more than reading another book, again. It is as much improvement of the work processes as learning to know people who are around you in the personnel network (Nordström & Ridderstråle 1999). Learning is the key for building corporate innovation, since prototyping in either the development phase or in the market requires a reflective approach. This means analysis and changes before next trial.

2.3.1. Personal learning and competitiveness

Today’s business climate requires continuous change in business models and in ways of working. This has a direct impact on the individuals and on the individual’s competitiveness and thirst for competence in order to keep their knowledge up-to-date. On the other hand, organisational changes impact the individual’s ways of working, and it requires de-construction of previous methods first. These issues are handled shortly.

In order to cope in this turbulent business environment, each of us must develop an own strategy, a survival kit, now (Nordström & Ridderstråle 1999, 217). Kotter (1996, 178) states, that lifelong learning is important in an increasingly changing business environ-

ment. The other main factor is the competitive drive. Both of these factors are giving people an edge by creating competitive capacity. Nordström & Ridderstråle (1999, 222) define the personal competitiveness as follows:

Personal competitiveness = What you know x Who you know

Heikkilä (2006, 68) is citing Maslow as follows: "Individuals develop further, when the joy of the self-development and fear of the security are greater than fear of the self-development and joy of the security."

The personal development and learning circle, according to Ranta (2005, 45) is according to the following steps:

1. New processes and subjects cause anxiety
2. Negative encounters are manipulated and positively transformed
3. Negative emotions are released and are processed
4. Clean up from the past
5. True positive attitude
6. Going back to step 1 to handle new subjects, changes and problems

The autonomy is even more important today, since personnel can not affort to postpone the personal development. People must make own decisions and allocate time and efforts to enhance own competitiveness instead. However, there are problems on how to create our own brand and how to sell ourselves to the stakeholders? How can I differentiate myself – perhaps by being a creative person, an abnormally-behaving, risk-taking, rules- and norms-breaking person? On the other hand how does the engineering society tolerate truly divergent thinking, feedback and questioning on the ways of working, ways of leadership, methods and so forth?

2.3.2. Learning work groups

Harmony in the team may not produce learning in business operations. Cross functional, cross cultural and multi-scientific teams is seen as the most creative and innovative

structures for building up teams and represent also an adaptive and learning organizational unit. (Leffingwell 2007; 360px; Agile manifesto; Agile SW development.) There will be background and research results about learning teams presented in the following chapters.

2.3.2.1. Divergence in the team

When forming a work group, individuals seek a role in this group. Three different roles to be covered in the teams are 1) Friend and helper 2) Strong fighter and 3) Logical thinker. Most groups need all those roles to be covered. (Handy 1993, 89-91.)

Development of a new innovation environment requires a multi-scientific approach and border crossing R&D activities, according to Erkki Uusi-Rauva (Juuti 2005, 35). Iiris Aaltio states, that the social capital increases and develops in the collaborations between different work groups and personnel (Juuti 2005, 80). The innovations are said to be created as a result of a collective and social learning process, when there is not fear of receiving strong criticism or flak. (Juuti 2005, 140; Hämäläinen & Heiskanen 2004; Anttila & Halonen & Kalakoski & Kreivi & Paavilainen 2007, 177; Ceserani 2003, 100.) The presence of a threat which impacts an individual’s own targets and actions, diminishes effort and diverts attention. This disturbing information may produce a human internal disorder called psychic entropy, which can lead, that there is a drastic reduction in the individual’s capabilities and performance. On the other hand when the information is aligned with the target, optimal experiences i.e. the flow can be reached (Csikszentmihalyi 1990, 66; Csikszentmihalyi 2004.)

Hamel & Prahalad (1994, 2006, 213; Hamel & Pharalad 1994, 206, 216-217; Cahan & Vogel 2003, 167) state that one way to increase the diversity and widen the perspective is to assign group(s) of personnel to work with the external companies and partners. The company's ability to mix different types of personnel in a new way can greatly increase the value of their resources.

The reasoning on divergent thinking as a trigger for renewal is clarified next by London & Sessa (2009, 355). A group may have the right members and the right tools and resources to do its work but may have difficulty to coordinate members, tasks, and tools. Seemingly dysfunctional group processes (chaotic, conflict prone) may be unpleasant but they could produce learning, change, and positive task outcomes. Seemingly functional group processes (cooperation, mutual reinforcement of members' contributions) may produce negative outcomes. This group-thinking serves to preserve group harmony such that contradictory information or ideas do not get presented. Handy (1993, 154) states that "although satisfaction does not necessarily lead to productivity, productivity can often lead to satisfaction."

There is a definite balance between operative performance and learning, creativity and improvements. If there is not enough questioning and open argumentation, there is less gain in learning. In the short term the consensus may help the co-operation and "routines", but renewal requires the presence of change forces and triggers. The monitoring and reflective analyses of the operations are also vital for different learning process. (London & Sessa 2009; Handy 1993, 241-245.) Two noticeably different learning processes are described next.

2.3.2.2. Generative learning

The concept of generative learning applies, when groups are engaged in generative interaction processes, they seek and discover information proactively, acquire new knowledge and skills, and then apply the information, knowledge, and skills. The group gathers information, seeks alternatives, reflect on work processes, test assumptions, obtain different opinions, and adopt new routines. (London & Sessa 2009, 355.)

2.3.2.3. Transformational learning

The transformational learning occurs when people within groups critically examine core values, assumptions, beliefs changes these values, assumptions, and/or beliefs based on that critical analysis. Transformative learning is described as a process of the disorientation and the reorientation. Transformative learning may begin with a deep reflection, a critical

analysis, and a deconstruction before the rebuilding. It transforms the way the group members perceive their roles, responsibilities, and relationships. On the other hand there is always a risk for role incompatibility e.g. with the operative and innovative parts that could cause psychic entropy (Handy 1993 65&72; Csikszentmihalyi 1990). The transformative process is synthesizing divergent views and resolving conflicts through argumentations, not compromise or majority rule. The critical reflection influences group members' beliefs, attitudes, and emotional reactions for recreating group purpose and interactions. (London & Sessa 2009, 358.)

New innovations can therefore be created, if there is enough value difference in the society according to Aaltonen & Heiskanen & Innanen (2003). If the value container is solid and homogeneous, the development stops and the work environment will become colourless and joyless. The selection of values provides balance between the individual and community values and needs. (Aaltonen & Heiskanen & Innanen 2003, 88-95.)

2.3.2.4. Knowledge management

How are the organizational learning capabilities and knowledge built up and connected to operations? Organizational learning contains social knowledge sharing and enhancements in a supportive and complementary environment. Following chapters enlighten the subject in more detail.

One of the critical success factors for organizations is competence and learning process development. Individual learning and competence development is insufficient; there is a need to learn together and in parallel in the teams. (Sydänmaalakka 2001, 15.)

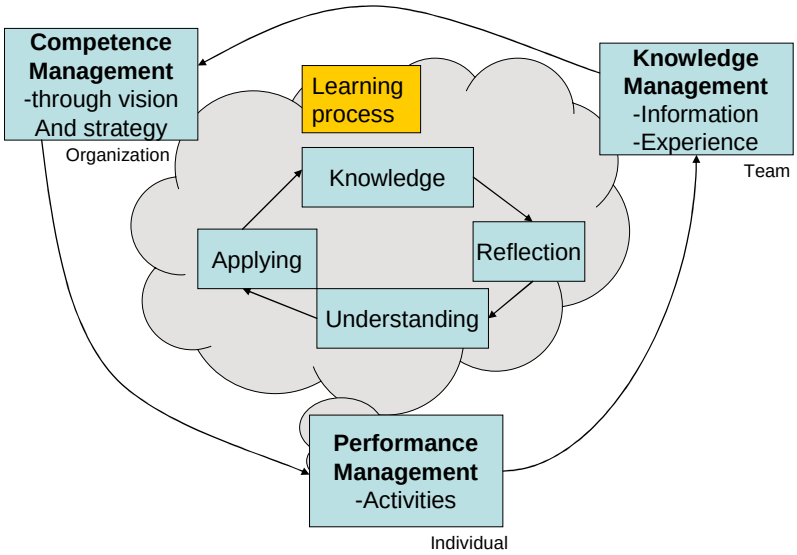

FIGURE 15 Performance-, Competence- and Knowledge management supporting learning of the organizations (Sydänmaalakka 2001).

Learning and intelligent organizations are defined in the literature as follows: tacit information and -routines are instilled in the personnel as are the work anecdotes recited between peer colleagues and customers. In that sense, the social knowledge is bound to the internal and external environment. (Juuti 2005, 23; Kesti 2007.)

Prerequisites for learning organization, according to Vesa Tervo (Juuti 2005, 157):

- It has vision and targets, which are familiar to all personnel in the organization.
- Common, shared values are leading the operations. Knowledge is respected and rewarded.
- The personnel are aware of their duty and are familiar with the assignment and know how it is connected to the whole context.
- The process and methods towards the targets are also familiar to all employees.
- Everybody can develop him or herself continuously and implement life-long-learning.

The intelligent and learning organization has the following characteristics (Juuti 2005, 130; Sydänmaalakka 2001, 51-54):

- It learns quicker than the competitors' organizations
- It can see the needs for change in very early phases
- It can practically deploy the changes quicker than the competition

The learning process can be strengthened in the following way Sydänmaalakka (2001, 37):

1 The learning motivation should be stimulated

2 There are inspirational experiences needed to feel the competence is increasing

3 The piloting and prototyping are progressing

4 The learned matters should be documented in order to do things differently next time when encountering similar issues

On the other hand, highly educated persons are good at working with new subjects, but the deeper changes can be hard to complete. Cultural changes, for instance, are such deeper changes. The values, sustaining thoughts and beliefs are impacting to the speed of these changes. Kinnunen states: “People who are always busy are not creative, since they don't have time to digest what they have learned.” (Juuti 2005, 133.)

2.3.3. Change management

Changes are typically desired to be sustainable, not being just temporary and artificially working e.g. on paper. The following change management principles and processes are deployed and used in many organizations.

Pitkänen summarizes (Hämäläinen & Saarinen 2006, 63): “The sustainability of the change is directly related to the way of thinking and the lessons learned through repetitive actions towards the new way of working”. That is, the activities may not get rooted in the first place, but this requires multiple iterations in order to be completed.

Personnel participation in the change process creates commitment towards the change. The solutions created in groups have typically less painful and quicker deployment procedures, compared to the management driven or single person dictated solutions. This is a best practice in the Japanese quality circles. (Helin 1990, 29.)

Author’s summary out of the change management principles from Godin (2008), Koiranen & Pohjansaari (1994, 72), Kotter's (1996) and Pitkänen (Hämäläinen & Saarinen 2006)

resembles the following:

1. The awareness of the business and company state must be analyzed.
2. The purpose and vision are defined and communicated.
3. The atmosphere of urgent changes is sensed
4. The strategic steps and iterations are defined.
5. Create social networking and ensure support
6. Freedom and other entrepreneurial behaviours are supported.
7. Ensure the transparency of actions is in place
8. Iterations and strategic themes are executed and reflected.
9. Inject seeds of the movement or activism to other groups
10. Intermediate results are measured and recognized, and lessons are learned.
11. Changes are adapted in operational processes.

The speed of the required change impacts the decision makers to select between change processes. For example the crisis time's methods and motivational direction are naturally different from more stable period's ones. The following statements and citations from literature are mostly handling communications and persuasion.

Borg (2007, 55) states: "If you can change your perception, you can change your emotional thinking which can lead to new ideas and insights. However, if you cannot persuade your team or audience to implement a policy that supports your tribe, it is your fault." The same principle applies to a boring presentation, selling processes, teaching and so forth. The leader needs to adapt the message for the audience (Godin 2008, 117). It is easier to start with passionate individuals than to gather the whole tribe for a momentous movement, Godin adds. Innovators and early adopters, the sneezers, are the ones whose interest should be awaken by solving their problems, since they're respected and listened in the organization (Godin 2009).

"Think win-win, seek first to understand, then to be understood; synergize", Stephen Covey (Thomas 2002, 101; Lennon 2009).

The attention could be improved e.g. by formulating the presentation so, that there are three steps as follows (Borg 2007, 48):

1. Say what you're going to say.
2. Say it.
3. Say what you said.

AIDA process (Lennon 2009; Bovée & Thill 2008) is utilized for persuasive and motivating messages. AIDA stands for *Attention, Interest, Desire* and *Action*.

Marketing math, according to Godin (2008, 45), follows:

- Ideas that spread, win.
- Boring ideas don't spread.
- Boring organizations don't grow.
- Working in an environment that's static is no fun.

Godin (2009) adds, that there are today far more choices, but less and less time to sort them out. That is, people don't have money, or time or interest to buy your idea or products. Therefore you're treated as you were invisible. The solution is to create so remarkable products, that right people seek them out.

Fundamentals of buyer behaviour is proposed by Lennon (2009, 7) as:

- People buy people
- People buy what they want
- The fear of loss is more powerful than pleasure of gain
- We buy things that best match the benefits we seek

Chaffey & Smith (2008, 328) and Vuori (Hämäläinen & Saarinen 2006, 188) are pointing out an effective method for spreading the message further, i.e. viral marketing. It harnesses the network effect of the internet and can be effective in reaching a large number of people rapidly. Viral marketing acts in the same way as a (computer) virus, that is, it spread with collaboration to others e.g. in peer-to-peer discussions, as does the tacit information exchange. The epidemics can rise or fall in one dramatic moment, which is called the tipping point (a.k.a. moment of critical mass, boiling point or threshold). This word of

mouth method is recently taken widely in use by marketers, since traditional broadcasting channel based influencing and marketing is fading (Godin 2009). (Gladwell 2002).

People rarely believe what management tell or show them. They often believe what friends or colleagues tell them. The leaders give people stories they can tell themselves. Those stories are about future and about mission of change (Godin 2008, 138). Elevator pitching, the 30 second commercial about own business, is seen a useful tool for marketing new ideas and getting in contact with new buyers and clients (Lennon 2009, 77). The "infectious agents" are bringing the contagious messages (i.e. remarkable and memorable messages) to the environment where they're working and are influencing other people, and similarly they're spreading the "epidemics" (Gladwell 2002, 18).

Even if there were changes performed within the organization, they may fail in many ways. One set of failure types follow - The typical reasons for failures in large corporations is to renew themselves, to learn out from the past or to invent its own future according to Hamel & Prahalad (1994, 2006, 159) are:

- Gained extraordinary high profits (results equal the expectations)
- Utilized large amount of resources (resources are replacing the creativity)
- Optimized business models (deeply rooted processes and rigid rules)
- Success confirmed the strategy (good speed interpreted as a lead)

Drucker (1993, 85) complements the case of complacency, that "Even though there is no true monopoly, these large, dominant producers and supplier, who have been successful and unchallenged for many years, tend to be arrogant. Even when the newcomer takes a larger and larger share of their business, they find it hard to mobilize themselves for counteraction." But, people may loose their courage and deterministic behaviour even after the first set of obstacles, if the atmosphere in the community is baseless, i.e. the sense of security disappears (Csikszentmihalyi 1990, 29; Csikszentmihalyi 2004).

Arrogance and complacence in the organization can be disrupted by the movements a.k.a. individuals own activism and viral marketing based practices, as the big changes are typically getting started. The behavioural changes on individual level can change a lot, when the ideology or movement is spread in the organization. One factor which is increasing the complacency is that the "propeller capped", dilettante behaviour for testing

and learning is not respected as much as even risk less achievements and quality performances (Csikszentmihalyi 1990, 206; Csikszentmihalyi 2004). On the other hand, the management innovations or change programs could be paced by committing the personnel even in the decision making processes as well as in planning and execution such, that passionate personnel and opinion leaders are involved from day one onwards. The drivers' efforts shall not be underestimated either as discussed earlier in this paper.

2.3.4. Performance management

According to Grönfors (1996, 47) "Human resource management has two goals: improving the employees' performance and increasing the efficiency of the organization". Methods for improving and increasing efficiency are expanded and analyzed further below (Mumford 2000).

The traditional performance management process is typically as follows:

1. Company strategy is defined and communicated
2. Key performance indicators (KPI) are defined
3. Goals are set for those KPIs and those are communicated
4. The performance is measured and followed up

This methodology could be adapted to incremental innovations (improvements) as Davila (2004) illustrates this in FIGURE 16.

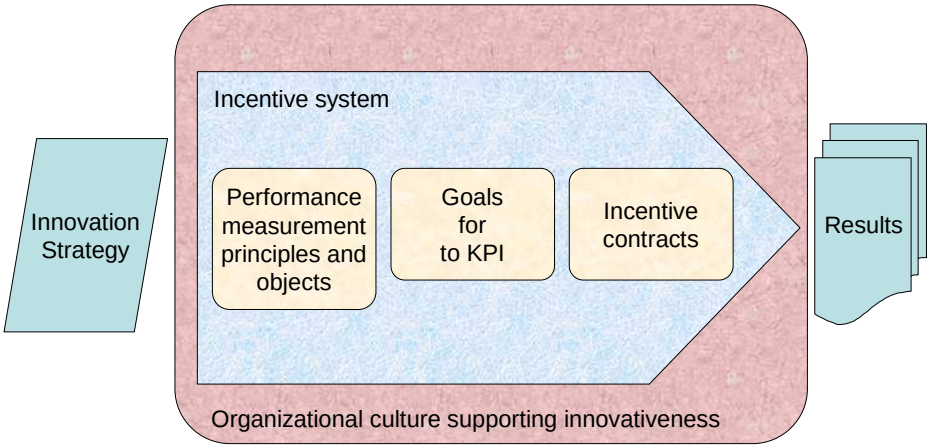

FIGURE 16 Incentive systems design model for incremental innovations (Davila 2004).

The incentive system above by Davila (2004) is based on a balanced scorecard by Kaplan & Norton. This BSC methodology is applicable for incremental type of innovations, as business process improvements. The basic rule is that 9 out of 10 ideas are no good. Therefore there shall be a possibility to terminate the bad ideas. A measurement system is required in order to determine, which ideas are good and which are bad. Subjective evaluation can be used in situations, when the activity's performance is disturbed by unexpected and uncontrollable events. Radical innovations additionally require subjective evaluations due to their nature. Otherwise the objective evaluation could be used in planned tasks and goals. (Davila 2004.)

Kaplan&Norton defined “Strategic maps” are developed from the balanced score card method by assigning the key performance indicators to causal chains. The causality in strategic map is defined as follows (Puolamäki 2007, 253; Kaplan & Norton; Csikszentmihalyi 1990):

- *Learning and growth perspective*: Motivated and prepared personnel - strategic knowledge ,teamwork and human capital
- *Internal perspective*: Operations and customer processes, innovation, regulatory and social processes
- *Customer perspective*: Product and service attributes, relationship and image
- *Financial perspective*: Long term shareholder value by increased cost structure and asset utilization, expanded revenue opportunities and enhanced customer value.

The innovation driven companies reward the learning, the trial attempts and the experiments. New duties, challenges and opportunities are regarded as rewards or compensation of the trials. The tolerance of errors, the emphasis on result expectations, as well as the rewarding the success are the inherent factors in the innovative companies’ policies and principles. (Koiranen & Pohjansaari 1994, 52.) “The reward is in performing well enough to win a free round in the game – to get the chance to play another one”, says Kanter (Koiranen & Pohjansaari 1994, 61; Pinchot 1986; Gibson & Skarzynski 2008, 24-25; Drucker & Maciariello 2006, 298; Sloman 2008, 239).

Quoting Thomas (2002, 8): “Workers have been forced to take more responsibility for their own careers, going where the work is more rewarding and where they can develop skills that will guarantee their employability”. People are seeking for a meaningful and worthwhile work which feels rewarding.

Pinchot (1986, 188&195) notes, that it's necessary provide intermittent rewards to people, who have started the innovation pioneering. Therefore it is not enough to reward only format the finalisation of the task. Support personnel (management) shall also be rewarded based on long term results (even after leaving their current management positions). The intrapreneurs should be rewarded when they break the organizational barriers and increase the co-operation needed for the innovativeness. That is, the supplier – customer types of

operations are emphasizing the best aspects of the personnel, whereas the hierarchical structures are leading to less efficient operations. (Pinchot 1986, 206.)

2.3.4.1. Goal setting and evaluation: results from research

Individuals' performance is greater, when setting difficult goals rather than easy goals (Shalley & Oldham 1985).

On one hand, if there is external evaluation connected to the difficult targets, this leads to dysfunctional consequences to the individuals. Namely, the intrinsic motivation for performing an interesting job (referring e.g. to innovation trials) is significantly lower than when goal setting is absent. Also, for personnel who expect their activities to be supervised and performance evaluated, the intrinsic motivation is lower than with those who do not expect any evaluation. These are based on a cognitive evaluation theory, which states that the negatively perceived feedback on incompetence undermines the internal motivation. The difficult goals are often perceived attractive and intrinsically motivating, and therefore all focus and efforts are put on accomplishing those goals – this explains the increase in performance. Individuals' self-administered feedback reduces internal motivation, if the incompetence or unaccomplished tasks associated to difficult goals is anticipated. (Shalley & Oldham 1985.)

The supervision and evaluation could thus decrease the quality of the final solution, since the intrinsic motivation is impacting positively to individuals' task creativity, risk taking interest and quality of work. (Shalley & Oldham 1985).

On the other hand, the evaluation substantially affects individuals, who are attaining goals. The total motivation is consisting of both extrinsic and intrinsic motivation shares. The total motivation is remarkably greater for personnel assigned with difficult goals than for those assigned easy goals (Shalley & Oldham 1985).

That is, the higher the goals, the higher the performance, but the riskier it is for losing internal motivation due to disappointments.

2.3.4.2. Research results on monetary rewards versus happiness

Sachau (2007) & Davila (2004) write that a large number of researchers have found that offering people a financial reward for performing an interesting activity will undermine interest in that activity. They have shows that tangible rewards offered for engaging in, completing, and/or performing well at an enjoyable activity will reduce interest in the activity.

Handolin and Saarinen summarize the counter-reasoning of reward systems (Hämäläinen & Saarinen 2006, 138-139) that:

- The salary is not a motive
- The denial of rewards is regarded as punishment
- Rewarding makes the relationships among personnel worse
- Rewarding motivates people to avoid risks
- Rewarding underestimates humans natural exploratory interest and diligence
- Rewarding systems are tedious and maybe unprofitable
- Rewarding systems as a tool for management does not work!

The reward organization culture is summarized by Hämäläinen & Saarinen (2006, 155) as follows:

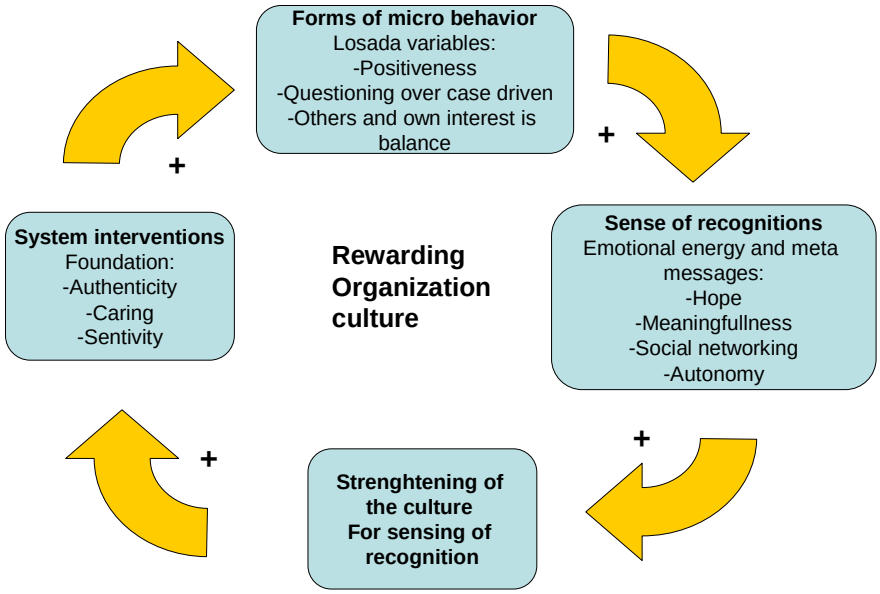

FIGURE 17 The development of the reward organization culture (Hämäläinen & Saarinen 2006).

Sachau (2007) summarizes that people who value financial success over psychological growth, autonomy, self-esteem, family, and community experience higher levels of depression, greater anxiety, fewer positive emotions, higher narcissism, greater drug use plus less all-round happiness than people who value growth more than financial success. In order to reduce the anxiety and depression personnel must distance themselves from the external rewarding and punishment culture so, that they are not the only factors influencing one's reactions (Csikszentmihalyi 1990, 37; Saligman 2002).

Conclusion, quoting Sachau (2007): "The motivation-hygiene theory is still the basis for sound managerial principles. Particularly, managers should not use money to motivate employees when managers want employees to be interested in their jobs. Most important, managers will increase employee intrinsic motivation and long-term job satisfaction by providing psychological growth opportunities. That is, long-term contentment can only be found when there are opportunities for psychological growth."

2.3.4.3. Recognition

Handolin and Saarinen (Hämäläinen & Saarinen 2006, 133) state that traditional reward and incentive methods declare the organizations as mechanical system, which are not tak-

ing to account its' human phenomenologist and emotion based reality. The emotional reality contains the understanding and experiencing of reward, and achievements recognition.. The reward system tends to mechanize human activities and see them as predictive and controllable objects. These researchers continue, that the sense of recognition is not necessary reached by rewarding activity.

People are frequently wondering and wanting to make sure they get credit for an idea, especially if they have a superior who may want to steal, kidnap or hijack the proposal. However, real leaders do not care about receiving credit, but they want people to take credit. It's the mission and movement of change which matters (Godin 2008, 136; Pulkkinen in (Hämäläinen & Saarinen 2006)). This recognition shall be given if there is a clear reason for it. (Posner 2003, 19-21.)

The recognition is rated high among the intrapreneurs especially, when the recognition is seen as legitimacy for actions (Pinchot 1986, 219). The need for legitimacy is typically increasing subsequently after each innovation project. Without the (intra)capital there is a need to request permission and approval (Pinchot 1986, 235). Naturally management needs to ensure the budget and freedom is not misused nor exceeded, but there shall be a minimum amount of control on the activities and tasks. (Pinchot 1986, 264.) In order for society to feel released or free, there should be some boundaries which ease the internal focus on duties and immediate feedback received from them (Csikszentmihalyi 1990, 258; Csikszentmihalyi 2004).

Recognition shall be personalized. This requires that leaders understand the subordinates in a more personal manner. Therefore it is possible to make the recognition special, meaningful and memorable, instead of monetary-based or 'gold watches'. One way to make the recognition memorable is to tell a story, which consists of a personal, appreciative tone and scope. (Posner 2003, 23-25.)

2.3.4.4. Modern principles in Performance Management

As shown earlier in FIGURE 14, the individual intentions and reactions from others don't necessary coincide. The performance others may be regarded as unsatisfactory even

though the intentions have been truly in line with meeting the targets. The following is taking into account the performance of the individual in a wider perspective.

Grönfors (1996) defines performance in the following equation:

Performance = f(ability, effort, opportunity)

Ability is knowledge, skills and technological conditions
Effort is a function of needs, goals, expectations, motivation and reward.
Opportunity means a situation and possibility to utilize individual capacity and effort in a meaningful manner.

The commitment, trust, joint values amongst individuals and company, also resource availability, social connections and bindings are also factors, which are impacting to the performance (Grönfors 1996, 38-41). The process in FIGURE 18 is taking these into consideration.

Grönfors (1996) research demonstrates that the following issues are most important in human performance management:

- Goal setting
- Self-development
- Communication and discussion
- Feedback
- Co-operation
- Recognition and compensation
- Freedom and power to act

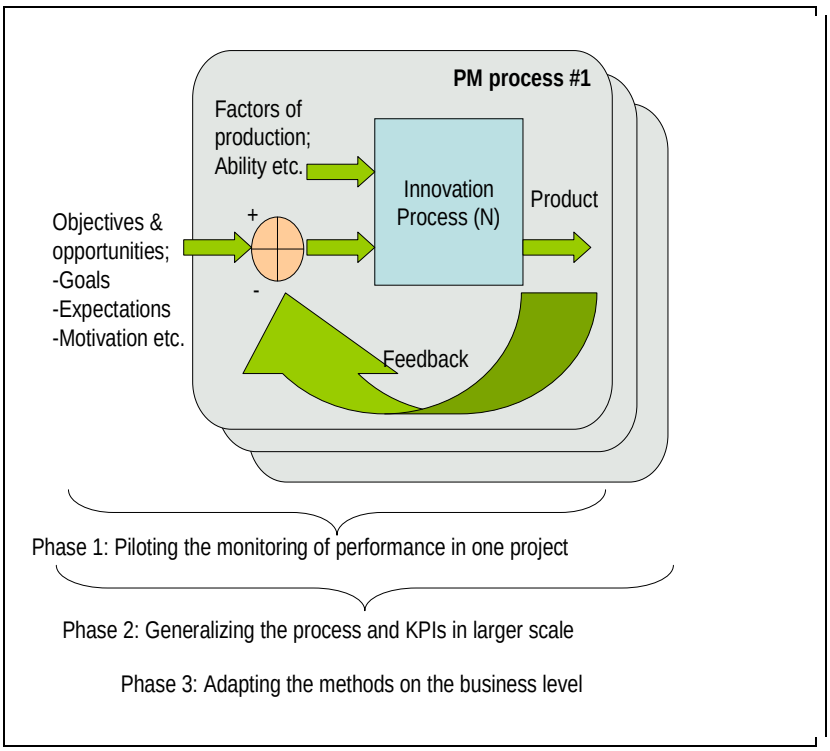

FIGURE 18 Phasing of the performance management (PM) in innovations. Illustration is action author's adaptation from Drucker's (1993, 159-161) principles.

2.3.4.5. Sensing of rewarding and intrinsic motivation

The self-esteem is improved by the provision of the feedback. It is also important to take into account the self-esteem of less successful personnel. It's important for all personnel to gain respect despite their level of success. It is also important to sense his/her own success factors and require clear feedback on those (Heikkilä 2006, 73-75; Sydänmaalakka 2001). Heikkilä adds that the positive self-image is a basis for self-esteem, and the self-confidence constructs of self-esteem. Therefore it is necessary to get positive emotions through successful experiments. Persons who have strong self-confidence throw their emotions into the "game" and therefore the internal commitment is strengthened. Heikkilä uses Borba's model in the circle of empowerment in FIGURE 19.

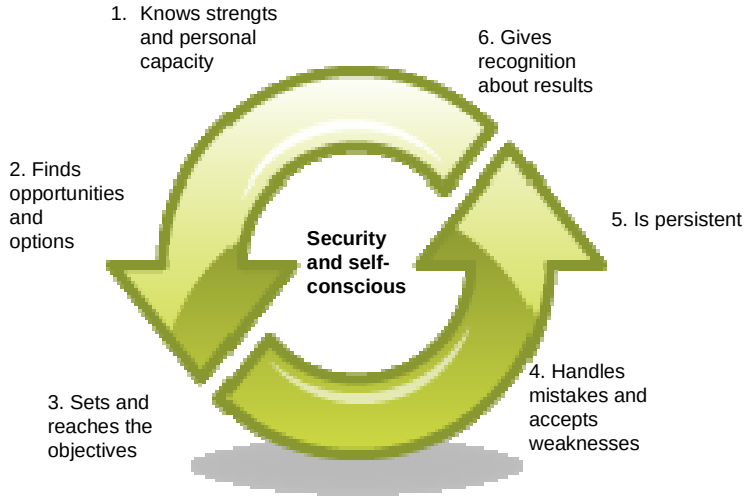

FIGURE 19 The circle of self-empowerment by Heikkilä (2006, 76) .

Thomas (2002) illustrates below the intrinsic motivation sources and how to gain and improve without disturbing the "internal sensing of drive."

	Opportunity rewards	Accomplishment rewards
From the task activities	Sense of choice	Sense of competence
From Task purpose	Sense of meaningfulness	Sense of progress

TABLE 2 The four intrinsic rewards by Thomas (2002, 43).

The work is so called "autotelic", i.e. when the activities themselves are sufficient for generating the optimal experiences, and it is therefore rewarding in itself (Csikszentmihalyi 1990, 107).

Leading for choice => *Handing off*: delegating authority, trust in workers, security, clear purpose and information	Sense of competence => *Coaching*: Knowledge, positive feedback, skill recognition, challenge, high standards
Sense of meaningfulness => *Inspiring*: Non-cynical atmosphere, clearly identified passions, exciting vision, relevant task purposes, whole tasks	Sense of progress => *Score keeping and cheering*: Collaborative climate, milestones, celebrations, access to customers, measurement of improvement

TABLE 3 The role of leadership regarding intrinsic reward by Thomas (2002, 47).

Both the self-empowerment circle and the intrinsic reward models contain competence and ability aspects as a single lever in order to accomplish duties. Those models also have the sensing of rewarding and recognitions connected to sensing of progress as another lever. The self-empowered person has got persistency and self-confidence, in spite of mistakes along the way. Support via a compensation culture is also seen as essential for super-productive and creative teams.

2.3.5. Measurement of innovativeness

The following structures are used for evaluating the innovativeness among personnel:

- Ideabox statistics
- Interviews
- Questionnaires
- Knowledge sharing sessions, like innovation board meetings

Proposals for metrics and KPIs for checking effectiveness of innovation process and innovativeness:

Issue to be measured	**KPI (s)**	**Method**	**Comment**
Idea activism in ideabox	# of entries per period	Accessing ideabox-database statistics	Changes in amount during a period
Feedback activism	# of comments per period	Accessing ideabox-database statistics	Changes in amount during a period
Decisive feedback speed	Answering time average per analysis stage	Delta timestamp values between entering and decision	Checking how quickly idea gets a decisive stamps e.g. need more input, feasibility analysis, scheduled for implementation, to-be rechecked in XX, and when they're closed.
Number of persons involved trialling	# of trial personnel/total # of personnel in unit	Calculating the number of people actively participating	All trial projects' persons available in information system. Learning and job rotation angle. Opportunities to utilize human capital.
Number of ideas	# of trial ideas	Publicly available	The open offerings

offered for implementation	offered/period	project reference in the intranet	for everybody in order to encourage for job rotations and learning.
Number of improvements/ideas implemented	# of ideas implemented/period	Ideabox statistics	All ideas/improvements to be taken to account. Learning aspect. Business process or methodological innovations and efficiency aspect.
Number of ideas implemented from the total number of suggested ideas	# of ideas implemented/total # of ideas	Ideabox statistics	The qualifying function from ideas to innovations
Value of the implemented ideas	Average value per idea, the ranges of values (max & min)	Evaluation of ideas' propagated value, ROI/5 years	Man hour savings, or earnings.
Employee satisfaction	Innovation satisfaction factors: learning, progress, feedback, recognition, motivation, technological tools and methods used, innovations opportunities offerings, freedom to act, resource availability, supportive management, fair compensation policy	Questionnaire, interview	2-4 times a year
Employee networking	Networking capability factor: new communications contacts, quality of collaboration, coaching	Questionnaire, interview	2-4 times a year
Self-empowerment	Self-empowerment factors: satisfactory level, ability to find opportunities and set own goals, perseverance on mistakes, sense of progress, compensation	Questionnaire	2-4 times a year

Stakeholder satisfaction	Stakeholder satisfaction factors: subjective image about the unit, development of innovativeness, quality of innovation communication, cost efficiency and innovations	Interviews and questionnaires	2 times a year

TABLE 4 KPIs for innovation processes and innovativeness

2.4. Cycle of innovativeness, the summary

The inputs to the innovativeness process are triggers and production capital. The main driver of the innovativeness is the internal motivation of the individual. Sometimes there is a need to trigger and realize the activities externally in order the steer the initial steps to the desired direction. There are number of issues, which can increase or decrease the innovativeness, since there are plenty of feedback loops illustrated in FIGURE 20. The performance can also naturally increase (temporarily), when correctly utilizing external motives. The drawback of those being, that personnel tend to get used to those, and therefore the activities are dependent on those extrinsic motives such as rewards. The impact of the external motives will decrease in time, i.e., in order for someone to encourage the employee to increase performance, there is similarly a need to constantly increase the external motives. Also the impact remains for a much shorter time than in case of intrinsic motives.

The literature references and background is summarized in the FIGURE 20:

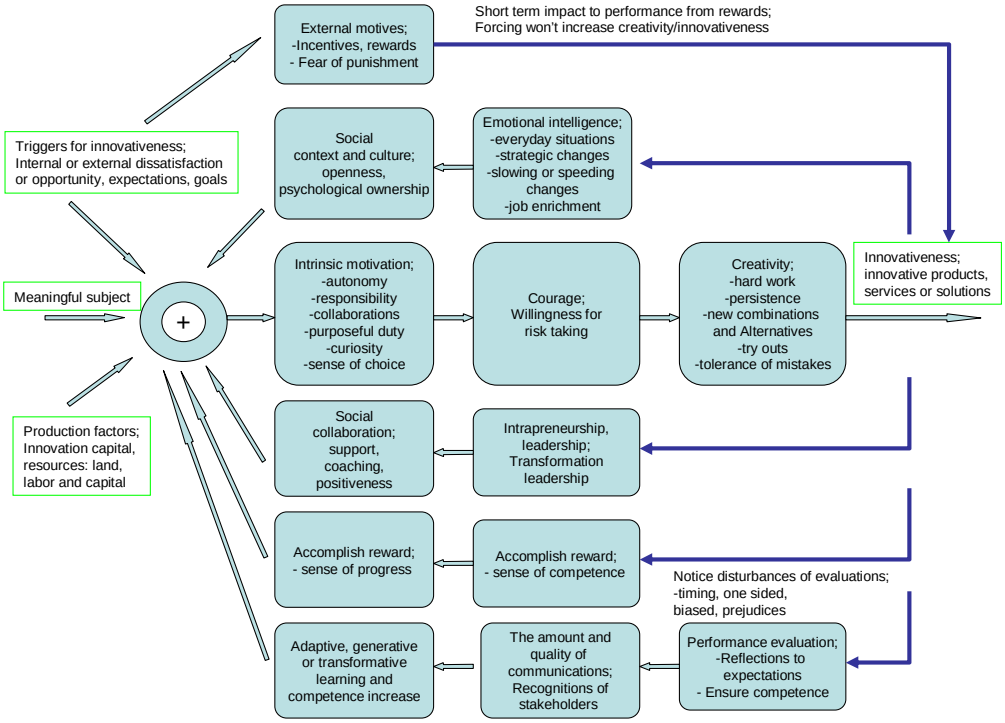

FIGURE 20 Author's illustration of the innovation process.

The social collaboration and networking is one of the cornerstones in the model. Most innovations require "accidental", but still constructive networks to be created in order to gain from diverse thoughts and backgrounds.

The singular problem of performance management is measurement on how to be sure the data to be used for decisions is valid. Therefore the quantitative evaluation methods should not only be used, but the qualitative evaluation methods should be used in addition, since performance analysis of innovative duties and persistent trials require plentiful communication and dialog amongst people.

Of important note is that if an individual senses someone is trying to control him or her, the intrinsic motivation decreases. In that sense, the process is fairly fragile from a management point of view. However on the other hand, there are possibilities to see job enrichment working when offering meaningful duties and jobs within innovation and idea development.