

IDEA DEVELOPMENT AND ITS CONSTITUTING ELEMENTS - AN EMPIRICAL INVESTIGATION

Karlsson, Anna (1,2)

1: Luleå University of Technology, Sweden; 2: Sandvik Coromant, Sweden

Abstract

The aim of this paper was to explore approaches used by companies to support idea development. This is of interest because creative ideas meet more resistance and reluctance towards their implementation and idea development can improve the quality of an idea and thereby increase the ideas chance of adoption. Despite this, little research has focused on ways a company can go about supporting idea development. An exploratory approach was chosen in order to gather information about companies' ways of working. Respondents from seven companies were interviewed, and two different views of idea development were identified: either as a way to propel an idea forward, or as a prerequisite for good decision-making. Also three constituting elements of idea development were identified (i.e. conceptualization, contextualization and co-evolution) and supporting mechanisms used by companies to target each of them is listed. These constituting elements of idea development are believed to be valuable to both practice and theory as they provide a valuable framework and capture the challenge of idea development in practice.

Keywords: Innovation, Design management, Organisation of product development, idea development

Contact: Dr. Anna Karlsson Sandvik Coromant Department for metal cutting research Sweden anna.karlsson@sandvik.com

Please cite this paper as:

Surnames, Initials: *Title of paper*. In: Proceedings of the 20th International Conference on Engineering Design (ICED15), Vol. nn: Title of Volume, Milan, Italy, 27.-30.07.2015

1 INTRODUCTION

For companies today, innovation has become somewhat of a Holy Grail. The underlying reason is that intense global competition, considerable technological advances and the emergence of the knowledge economy has made innovation increasingly central to competitiveness (Lawson and Samson, 2001). At the same time, companies are reducing project lead times in order to allow faster time to market (Eppinger and Chitkara, 2006). This, in turn makes it more complicated for teams to find time for innovation as it require exploration, absorption, adoption and learning new things, all of which takes time (Chen et al., 2006). With this background it is possible to understand why creative ideas meet more resistance and reluctance for their implementation, compared to more incremental ideas, even if innovation is sought in the organisation (Baer, 2012). Nonetheless, it is exactly these ideas that need to be implemented in order to achieve an innovative offer.

According to Magadley and Birdi (2012) the majority of studies on innovation have focused on factors influencing idea generation. This is unfortunate since ideas require action to be valuable (Gaynor, 2012) and innovation is only achieved when ideas are implemented (see e.g. Van de Ven, 1986; Schilling, 2010). At the same time ideas are not fixed entities with inherent qualities just waiting to be harvested (Gish, 2011). In contrast, the quality of an idea and its chances of adoption are affected by idea development (Kijkuit and van den Ende, 2007) making the development of individual ideas essential for innovation.

That idea development is important is not contested in this paper. However, the challenge for companies is how to go about supporting idea development in their organizations. This is also an area which has been somewhat neglected by researchers. Idea development is often highlighted as important, but how idea development can be supported is seldom described in detail (e.g. Björk et al., 2010; Ritzén and Nilsson, 2013). For that reason the aim of this paper is to explore approaches used by companies to support idea development. The following research question has guided the study: *What support for idea development exists within companies*?

In this paper an idea is defined, in a broad sense, as a concrete suggestion which is believed will make a difference, not distinguishing between different types of ideas. Moreover, focus is on ideas emerging or ending up outside the normal routes in organizations, e.g. projects. The topic was explored through a literature review and interviews with respondents actively involved in idea or innovation management activities in seven large companies.

2 RELATED WORKS

Ideation can be seen as the generation and development of ideas that can be converted to innovations (Björk, 2011). There are at least two aspects of ideation that are important to bear in mind, those being what the idea is about, i.e. it's *content* and the *carrier* of the idea, i.e. the person with intention, insight, argumentation and a 'solution' (Hansen and Andreasen, 2006). Both the content and the carrier of ideas should therefore be considered when focusing on the idea development part of ideation.

Idea development can affect an ideas quality in a positive manner (Seidel, 2007), thereby increasing its chances of adoption (Kijkuit and van den Ende, 2007). Further development of an idea can also help to reduce the risk of a good idea being rejected due to a poor presentation (Nilsson et al., 2002). Idea development can however be seen in different ways. Some researchers depict idea development as activities (Florén and Frishammar, 2012), whereas others see idea development as a phase linking idea initiation and idea evaluation (Kijkuit and van den Ende, 2007), or a process of combining and integrating the various informal qualities of an organization (Hellström and Hellström, 2002). Regardless of idea development if seen as an activity, a phase or a process, it is essential to understand what is actually done and how it can be supported.

2.1 Idea development and its content

Once an idea is identified many different creativity techniques can be applied to bring forth and expand the idea (Koen et al., 2002). This is one way to gain access to knowledge held by people (Simon and Tellier, 2011), also called response generation (Kijkuit and van den Ende, 2007). By this, individuals rationally validate their idea relative to the desired output (Flynn, et al., 2003). In fact, a mutual peer-review way of promoting or demoting one's own or other's ideas is a central aspect

(Hellström and Hellström, 2002). If deviations are identified it is possible to rework the process based on the new knowledge (Flynn, et al., 2003). Another way forward with an idea is to gain access to knowledge not through people but through objects (Simon and Tellier, 2011), e.g. by physical engagement with material artefacts like mock-ups or prototypes (Smulders and Bakker, 2012; Stigliani and Ravasi, 2012). These artefacts can then be used to evaluate the proof of concept, solicit feedback on a design or a design concept (Poltrock, 2003) or as boundary objects to facilitate the synchronising of existing mental models (Smulders and Bakker, 2012).

So far, all mentioned activities have focused on further refinement of the actual idea, i.e. looking at ideas from an 'inside-out' perspective. However, also other things will affect idea development in organizations, this because ideas get their meaning in the social context (Bakker et al., 2006). For example, as previously mentioned, an idea always has a carrier. The reputation or image of this carrier has been found to influence the choice to co-operate or get involved in the development of an idea (Smulders and Bakker, 2012). Also educational background, experience and trustworthiness of the carrier were identified as important (ibid.). Hence, characteristics of the idea carrier will influence idea development. Also other individuals in the context will influence the development of an idea. Hellström and Hellström (2002) have for example identifies the influence of 'gate-controller'. The gate-controller can take either an enabling or disabling role in relation to the person with the idea or the idea itself. In turn, this highlights that people in the organizational context, whether it is the person with the idea or someone else, will exercise their influence and carry out political activities to influence idea development activities (Bakker et al, 2006; Simon and Tellier, 2011). Hence, it is important to seek credibility and legitimacy for an idea in the organization to facilitate idea development (Nilsson, 2002; Simon & Tellier, 2011). One way to accomplish this is to package an idea in an appropriate form, for example using business model logic in a presentation to management (Dutton et al., 2001). Ideas can also be bundled with ongoing initiatives or goals (ibid.). Another important thing to consider, in an organizational context, is how the idea is introduced to the organization. Hellström and Hellström (2002) argue that successful idea development has to do with the transfer mechanisms in the organization, i.e. the channels or paths for communicating ideas. These organizational 'roads' are sometimes easy to distinguish for individuals in the organization, in other cases they are fuzzy and difficult to recognize. In essence, the path an idea travels will matter. Moreover, as ideas sometimes can be perceived as threatening to the organization, they can benefit from a gradual introduction (Börjesson and Elmquist, 2011) emphasizing that also the speed of introduction will influence idea development.

Finally, it would be a bit too simplistic to just consider idea development in organizations from only inside-out and outside-in perspectives. The reason for this is that a problem (situated in the context) and a solution (starting out as an idea) will both transform and develop through *co-evolution* (Dorst & Cross, 2001; Wiltschning et al., 2013). For example, an idea becomes more valuable every time it is re-considered or put back into a person's brain (Boeddrich, 2004). This 'creative loop' is valuable as it evokes iterations of ideas and also provides input that supports generation of new knowledge to designers. Because such iterations can increase the company fit of an idea (Kijkuit and Van den Ende, 2007), or even bring about possibilities for alternative arrangements or seeing the world through different lenses, i.e. reframing (Bessant, 2010) they affect the development of an idea.

2.2 Constituting elements of idea development

From the literature review, at least three constituting elements of idea development in organizations can be discerned. First, there is giving the idea its key technical contents, energy and direction, i.e. *conceptualization*. Conceptualization stems from the idea itself ('inside-out') and how it can be improved or optimized. The second constituting element is, in contrast, 'outside-in' oriented and is here denoted *contextualization*, inspired by Backman et al. (2007). Contextualization included things in the context that affect idea development and also when an idea is dressed or packaged in such a way that it better suits the context. This constituting element highlights that idea development as a task is not only technical, but also socio-technical (Gish and Hansen, 2013). Finally, idea development can also come from the interplay between for example a problem and a solution (e.g. Wiltschning et al., 2013). The constituting element encapsulating this interplay is hereafter referred to as *co-evolution*. See Table 1 for a summary of the content of the constituted elements of idea development, as identified in the literature review.

	Conceptualization	Contextualization	Co-evolution
	<i>'inside-out'</i>	'outside-in'	<i>'interplay'</i>
•	Involving other people to get information, response generation & validation Physical engagement with material artefacts (prototyping)	 Characteristics of carrier Political activities, i.e. exercising influence, gate- controllers Credibility and Legitimacy seeking, i.e. packaging and bundling of ideas Paths and speed of introduction 	 The 'creative loop', i.e. iteration processes Increase company fit and context reframing

Table 1: Constituting elements of idea development

The content and constituting elements of idea development form a valuable basis when further investigating how companies practically go about supporting this part of the innovation process. This is of interest because methods, ways of working and advice for how to support idea development in organizations is an under-researched area, although the topic is of great value for companies. This study has therefore been guided by the following research question: *What support for idea development exists within companies*?

3 METHOD

An explorative approach was chosen in order to gather information about supporting mechanisms for idea development. In order to prevent bias towards any specific sector or industry care was taken to include business to business and business to consumer companies, companies with varying complexity in their products, and companies from more than one country. Moreover, purposeful sampling of respondents was conducted to identify individuals actively involved in idea management activities at each company. See Table 2 for an overview of companies, respondents and the length of interviews.

			Length of
	Company	Respondent	interview
A:	Swedish company developing industrial	Manager for concept development	
	products. The company focuses on	department, responsible for ideation	
	hardware and not software.	within the company	74'
B:	A German automotive company in	From 1999 up to now the respondent has	
	which idea management is a part of the	been responsible for the idea management	
	continuous improvement program.	program at group level.	63'
C:	A large company with headquarters in	The company has its own internal	
	the Netherlands developing consumer	consultancy in which the respondent is a	
	electronics.	consultant within innovation management.	67'
D:	A business area within a large Swedish	The respondent is responsible for ideation	
	multinational company. The business	within the business area.	
	area develops hygienic products.		74'
E:	A forestry company investing in R&D.	The respondent is closely connected to the	
	The company has headquarters in	company's innovation activities,	
	Sweden.	functioning as a link between R&D and	
		the markets.	44'
F:	A large Swedish automotive company	One of two full-time employees working	
	with a separate innovation portfolio.	within the area of innovation.	82'
G:	Wholly-owned subsidiary, offering IT	The respondent is responsible for the	
	solutions, belonging to a group	technology watch and business innovation	
	providing commercial transport	department.	
	solutions.		64'

Table 2: Descriptive information of companies, respondents and interviews

Interviews provide in-depth information of participants' experiences and viewpoints (Turner, 2010), making the interview one of the most important data collection methods in qualitative research (Myers and Newman, 2007). Semi-structured interviews were chosen for its ability to allow a greater breath than other type of interviews (Fontana and Frey, 2000). Consequently, a standard list of questions was used as a guide and leads provided by the respondents were followed up through additional questions (Williamson, 2002). The standard list of questions included open-ended questions like: *How do you define innovation?*, *Tell me about your initiatives to foster innovation?* and *What support for improving ideas exists?*. All interviews were recorded and transcribed to facilitate later analysis.

3.1 Data analysis

The interview transcripts where analysed in the following way. First, each transcript was read through and excerpts relating to idea development were highlighted and compiled in a separate spreadsheet. Effort was made not to extract too narrow excerpts, as there is a risk that the context in which the statement was made gets lost in the process. In the spreadsheet all excerpts were labelled with the name of the respondent and with coding labels that reflected the meaning of the associated text (Kwortnik, 2003). In a second step the coding labels were used to create a list of categories that incorporate the meaning of several respondents' quotes (Miles and Huberman, 1994). In the third and final analysis stage, synthesis was achieved through comparing and cross-checking the identified categories with the constituting elements of idea development that was identified in the literature review. Through this last step, it was possible to discern differences between theory and practice and also to identify gaps between the two.

4 RESULTS

In the following section the empirical results are discussed in relation to the three constituting elements of idea development, i.e. conceptualization, contextualization and co-evolution. Prior to that, different perspectives of idea development, as identified in the interviews, are provided. Quotes from the interviews are used throughout this section to highlight the results. Case company affiliation of the respondent is provided in brackets after each quote.

All of the studied companies had some sort of system for managing ideas – the level of complexity differed from using the company intranet together with manual distribution of ideas, to newly implemented state-of-the-art idea management systems. However, when analysing the data it became apparent that different perspectives of idea development existed. Some of the respondents viewed idea development as a way forward to get ideas implemented in order to achieve innovations: "*it is about creating ideas but also, above all, to implement the ideas so that they deliver value*" (A). Others highlighted the connection between idea development and the evaluation or selection of ideas: "*I think that the whole purpose of ideation is to bring it* [the idea] *to the next higher maturity level in order to be able to judge the idea*" (C). Thus, respondents either considered idea development as a way of adding to an idea, or as a prerequisite for good decision-making.

4.1 Conceptualization

Looking at idea development from an 'inside-out' perspective, i.e. how to further refine or evolve an idea a number of supporting mechanisms appeared in the data. First, increased collaboration connected to ideas was seen as enabling, and for that IT systems were often used: "We want to increase cooperation across the company, as we strongly believe that several minds think better than one, and the more diverse backgrounds involved the better ideas become. That is why we have a system that is open for all" (D). Feed-back on ideas was given either from other employees, or from experts that were specially invited to contribute. The idea submitter then had the opportunity to review comments and input from invited experts: "They can read all the expert comments that the idea received. Sometimes they also have discussions with the manager or the experts; it becomes a network around it [the idea]" (B). In the same company it was always the manager of the person with the idea that had the responsibility for the idea. Therefore, the manager was also the one that invited experts to comment on the idea. In turn, this resulted in involvement and acceptance from the manager.

Another way to support the development of ideas was to support the person with the idea with resources in the form of trainings, time or funds. One example was to provide entrepreneurial training in-house: "*It is a 3-day course addressed to employees who want to strengthen their role or drive their*

ideas forward in the organization" (F). The person with an idea also got support in the discussion with the closest manager to allocate time for working with the idea, for example 10-20% of his or hers working time. If this was not achievable, or if the person with an idea did not want to be involved, it was also possible to try to find someone else that could take the role of a driver: "we have very openly stated that '*if you as an idea submitter want to be part of the team working with the idea, we strongly support it. You can even be the driver because it is your idea. But if you do not want to, we will try to find other ways to drive the idea forward' But most people want to be involved, and maybe half of them want to be the driver themselves*" (F). Also resources in the form of funds for testing or bringing an idea forward were available: "After that testing or validation phase, the idea was at least enriched *to such a level that it was possible to communicate with maybe a potential business*" (C).

Also supporting mechanisms aiming to validate ideas in other ways existed. Examples of this were forums or ways to get a second opinion of an idea. In company F it was not uncommon that people who had had their idea rejected at the own department, went to this small constellation working with innovation management at the company. Although, the focus of the group was on ideas that was radical, cross-functional or concerns the business side, they could help to validate the idea through an 'external' assessment. In another company a forum with the sole purpose to provide input and recommendations for ideas considered non-patentable (therefore often dropped) was established: "We have selected a bunch of them [ideas] and invite them [idea submitters] to come and present the idea to a group of people that are not decision-makers. [...] to listen to the idea and say [...] this is an idea for production, talk with this particular person there, but be aware that he will ask for this..." (A). In turn, these types of recommendations provide validity for the idea and the idea submitter going forward.

4.2 Contextualization

Having people to turn to, people dedicated to the area of idea management or innovation, when having an idea is another type of support structure that was identified in several organizations. By this channel it was possible to get help to find an appropriate place in the organization for an idea, something that is particularly important if the idea is outside their area of expertise: "[otherwise] *they have to spend a lot of time to sell in the idea where it really does not belong, and that is time they do not have*" (G). In this company they had recently created a role as "innovation coaches" which could help with this, in other companies it was specific departments which took this role. The whole idea was to connect people and transfer ideas, and for this a system, coordination by individuals or networks was utilized.

Another important supporting mechanism was to identify and make transparent the demand for ideas. One way to do this was to connect initiatives to strategically important areas: "*it is also linked to strategy. If we have five strategically important areas then we want ideas within them and not everywhere*" (E). Another thing is to make sure that there is someone that will take the responsibility for ideas after ideas have been generated in for example a workshop.

Anchoring was identified as another enabling mechanism for idea development. One thing was then to provide a structure or form for handling ideas: "we have created a model that we think suits us [...] this also makes this forum, this management group, feel safe. This because they know what to expect the next time the topic is on the agenda" (F). The respondent also describe how the support from this management group can provide credibility in the organization: "Where does this come from? Is this something that we should do? [...] with this type of questions it has been really valuable to have this management forum to back it up". Another aspect of anchoring is to know how to sell something in the organization. The respondent from Company G highlighted the importance of humility and not to take ownership of the outcome, whereas the respondent from Company F emphasized the importance of taking small steps. In one of the companies the importance of control functions, for example the possibility for a manager to block an idea (when secret or politically incorrect) or to "pool" ideas was brought up: "Sometimes we have very, very good ideas. They cannot be implemented for the next half a year or maybe a year. So we park these ideas besides the whole process and open it again a year later and ask the same questions again. Is it now implementable or not? It's a pool idea" (B). These control functions can also be a way to make management feel safe and secure going into this area.

Finally, an important part of contextualization was to evoke or contribute different perspectives of an idea. One way to achieve this was to consult or cooperate with customers in order to clearly understand the need for the idea: "sometimes we have talked to people that are responsible for an area [...] but when we actually visit, we see that practice differs from theory. It is very important to get that

understanding, otherwise we risk going in the wrong direction" (G). Other companies try to incorporate a business perspective early on when working with ideas: "*I mean at least you are better off in judging whether or not this will help your future business*" (C). Another way to encourage the incorporation of other perspectives is to ask the person with an idea to present the ideas as if they were standing in front of top management. By this it is necessary to focus not only on the technical side of an idea, but to also incorporate for example risk and customer value.

4.3 Co-evolution

Some things also appeared to co-evolve. One example was the problem and the solution (i.e. the idea). The transparency of IT systems enabled problems to find solutions and *vice versa*. Some of the systems also encouraged iterations of the idea, as it had a very low threshold from the start: "*The reason for that is to make it as easy as possible for the person submitting the idea* [...] *and then this new system is much more iterative, it is a loop – not a straight process* [...] *You will get the possibility to have a feed-back loop many times*" (D). Another way to encourage the co-evolution of problem and solution is to assign a sponsor or a champion: "When we actually start to spend money on an idea and seriously develop it, then one of them [in the management forum] will go in as some kind of champion. This is because it is here one encounter these daily problems" (F). This is also a way to not loose connection to the problem which one intends to solve.

Another thing that co-evolves is the idea and the network of employees surrounding an idea. One respondent told about an instance where two people that had not met before both became engaged in an idea: "as soon as we end the meeting, and I have seen this several times, they continue to discuss and book meetings to continue the discussions" (A). A similar functionality has also been incorporated in idea management systems. In those cases you receive suggestions of other individuals that have entered similar ideas or problems. That way the system becomes somewhat of a matchmaker service.

The third thing that was found to co-evolve was ideas and strategies. A concrete example was provided in Company F where the following was expressed: "When managers have killed an idea that is outside current strategies we have picked it up and said: 'well, we can actually question – if we succeed with this idea – whether the strategy we have today is the right one'. But we do not have to decide this right now, we can develop this idea first and then we can make that call'. Another way to challenge the existing is to pursue high risk in early prototypes, as was brought up in Company G.

Finally, coaching was identified as an enabling mechanism for idea development and in particular coevolution. Coaching gives the possibility to identify important things to consider. Another benefit that coaching has is that it lets the person with the idea influence the way to proceed: "It is kind of like a skeleton that they themselves should dress. [...] We do not do more than that. We take one step at a time, asking how one can proceed in this searching process. That is the way we see it, it is not too strict" (F).

5 DISCUSSION

Viewing idea development as a way to propel an idea forward or as a prerequisite for making good decisions corresponds with the two activities that constitute opposing forces in idea development – as identified by Florén and Frishammar (2012) – i.e. idea refinement and idea screening. The view one chose to adopt in an organization will most likely affect the way ideas are dealt with in that organization.

To understand the difference between the two views a thought experiment is in its place. If the quality of ideas follows a normal distribution curve, companies are maybe interested in the top 5 percentile for their innovation activities. Now, to increase the number of high quality ideas, there is at least two options. First, it is possible to go for quantity, i.e. to increase the total number of ideas. When doing this the area under the graph, including the number of high-quality ideas, will increase. The second option is to enhance the capability to generate better ideas (use methods for idea generation) or to develop ideas further (actively work with idea development), thereby moving the entire curve to the right. A tool or system for managing ideas can be utilized in multiple ways. Some of the companies in this study have chosen to view such a system more as a collaboration platform supporting idea development, whereas others view it as a means for administrating ideas. Regardless of which, it is important to consider the pros and cons of each approach.

Focusing on the identified constituting elements of idea development a number of things can be discerned. Connecting people with each other or involving others in the organization seem to be very important to support all the constituting elements, i.e. conceptualization, contextualization and coevolution. Through increased connectedness and involvement of others it is possible to provide for example different perspectives, validation through second opinions and new network structures connected to ideas. Also other things have been found to support idea development in companies. A company that would like to support conceptualization can for example establish forums (in real life or virtual) where ideas can be discussed. Another thing that seem important is to enable resources, time and money, that can be used for conceptualization. Contextualization can in contrast be supported through establishing a structure in which advice and credibility can be given. It is also possible to establish new channels, or make existing channels more apparent in the organization. To actively work with creating a demand for ideas is also a way to guide not only idea generation but also idea development. Focusing on co-evolution it was shown that it is not only the problem and the solution that co-evolve (Wiltschning et al., 2013). Also the idea and its network as well as ideas and strategies co-evolve. It therefore seem beneficial to actively work with the problem (or need), the network and current strategies when working with idea development. Another way to actively support co-evolution was to use coaching. By this, it was possible to support reflection in action for the person developing the idea. Identified supporting mechanisms have been summarized in Table 3.

Conceptualization	Contextualization	Co-evolution	
'inside-out'	'outside-in'	'interplay'	
Feed-back/Involvement	Channels	Problem-Solution	
• Provide forums for feed-	• A place to go (i.e. part of	• Transparency of ideas	
back (e.g. IT system)	the organization)	Assigning a champion	
 Involving others 	• Connecting people (i.e.	• Support and encourage	
(managers/experts)	system, coordination or	iterations	
Enabling resources	networks)	Idea – Network	
Trainings	Manage idea demand	Meetings	
Negotiate time allocation	• Identify and make idea	• In systems	
(e.g. supporting or	demands transparent	Idea – Strategy	
finding a driver)	Clarify responsibilities	• Challenge the existing	
• Funds (e.g. conducting	Anchoring	Embrace risk	
tests)	Provide structure	Coaching	
Validation	• Establish credibility	• Things to consider	
• Providing second opinions	• Knowing how to sell	• Provide a framework	
	Control function		
	Provide perspectives		
	Collaboration with		
	customers		
	• Adding a business		
	perspective		
	• Fictional pitching to		
	management		

5.1 Implications for theory and practice

The identified supporting mechanisms (Table 3) are believed to provide input for practitioners about to embark on the quest to support idea development in their organization. These mechanisms highlight not only what is important for idea development, but also what activities or initiatives one can carry out to support idea development in practice, hereby also contributing to theory.

Viewing idea development not only as a propelling force forward (*conceptualization*) but also as *contextualization* and *co-evolution* is also believed to contribute to theoretical development. The reason for this is that neglecting to incorporate contextual issues in innovation research will limit our understanding of the phenomenon.

Finally, the way idea development is considered in organizations – as a way of adding and improving an idea or as a prerequisite for good decision making – will inevitably affect the way ideas are handled. It is therefore important to make a conscious decision for which view to adopt, or if they should be applied in tandem.

6 CONCLUSIONS

Idea development can affect the quality of an idea and thereby increase the ideas chance of adoption. Creative ideas also meet more resistance and reluctance for their implementation and would therefore benefit even more from idea development compared to more incremental ideas. Nonetheless, little research has focused on ways a company can go about supporting idea development. The aim of this paper was therefor to explore approaches used by companies to support idea development.

Results show that three constituting elements of idea development exist: *conceptualization*, *contextualization* and *co-evolution*. Supporting mechanisms for all constituting elements, used in companies to support idea development have also been identified. Different views of idea development also existed in the companies: either viewing idea development as a way to propel an idea forward, or as a prerequisite for good decision-making. The view adopted will affect the way ideas are handled in the organization. Finally, co-evolution is not restricted to the problem and the solution, co-evolution also occurred in relation to an idea and its network or an idea and current strategies. One way to actively support this co-evolution in a company was to provide coaching.

REFERENCES

- Baer, M. (2012). Putting creativity to work: The implementation of creative ideas in organizations. Academy of Management Journal, Vol. 55, No. 5, pp. 1102-1119.
- Bakker, H., Boersma, K. and Oreel, S. (2006). Creativity (ideas) management in industrial R&D organizations: A crea-political process model and an empirical illustration of Corus RD&T. Creativity and Innovation Management, Vol. 15, No. 3, pp. 296-309.
- Bessant, J. R., Von Stamm, B., Moeslein, K. M. and Neyer, A. (2010). Backing outsiders: Selection strategies for discontinuous innovation. R&D Management, Vol. 40, No. 4, pp. 345-356.
- Björk, J. (2011). Analyzing and realizing collective ideation in firms. Doctoral thesis, Chalmers University of Technology, Innovation Engineering and Management.
- Björk, J., Boccardelli, P. and Magnusson, M. (2010). Ideation capabilities for continuous innovation. Creativity and Innovation Management, Vol. 19, No. 4, pp. 385-396.
- Boeddrich, H. (2004). Ideas in the workplace: A new approach towards organizing the fuzzy front end of the innovation process. Creativity and Innovation Management, Vol. 13, No. 4, pp. 274-285.
- Börjesson, S. and Elmquist, M. (2011). Developing Innovation Capabilities: A Longitudinal Study of a Project at Volvo Cars, Creativity and Innovation Management, Vol. 20, No. 3, pp. 171-184.
- Chen, J., Reilly, R. R. and Lynn, G. S. (2012). New product development speed: Too much of a good thing? Journal of Product Innovation Management, Vol. 29, No. 2, pp. 288-303.
- Dorst, K. and Cross, N. (2001). Creativity in the design process: Co-evolution of problem–solution. Design Studies, Vol. 22, No. 5, pp. 425-437.
- Dutton, J. E., Ashford, S. J., O'Neill, R. M. and Lawrence, K. A. (2001). Moves that matter: Issue selling and organizational change. Academy of Management Journal, Vol. 44, No. 4, pp. 716-736.
- Eppinger, S. D. and Chitkara, A. R. (2006). The new practice of global product development. MIT Sloan Management Review, Vol. 47, No. 4, pp. 22-30.
- Florén, H. and Frishammar, J. (2012). From preliminary ideas to corroborated product definitions: Managing the front end of new product development. California Management Review, Vol. 54, No. 4, pp. 20-43.
- Flynn, M., Dooley, L., O'Sullivan, D. and Cormican, K. (2003). Idea Management for Organisational Innovation, International Journal of Innovation Management, Vol. 7, No. 4.
- Fontana, A. and Frey, J. H. (2000). The interview from structured questions to negotiated text. In N. K. Denzin and Y. S. Lincoln (Eds.), Handbook of qualitative research (2nd ed.). Thousand Oaks, Calif.: Sage.

Gaynor, G. (2012). From idea to innovation, Engineering Management Review, IEEE, Vol. 40, No. 4, pp. 5-6.

- Gish, L. (2011). Socio-technical, organizational and political dimensions of idea work in a mature industrial R&D setting. Doctoral thesis, Technical University of Denmark, Management Engineering.
- Gish, L. and Hansen, C. T. (2013). A socio-technical analysis of work with ideas in NPD: An industrial case study. Research in Engineering Design, Vol. 24, No. 4, pp. 411-427.
- Hansen, C. T. and Andreasen, M. M. (2006). Conceiving product ideas in an initial and uncertain design situation. Paper presented at the NordDesign Conference, Reykjavik, Iceland. 32-41.

- Hellström, C. and Hellström, T. (2002). Highways, alleys and by-lanes: Charting the pathways for ideas and innovation in organizations. Creativity and Innovation Management, Vol. 11, No. 2, pp. 107-114.
- Kijkuit, B. and Van Den Ende, J. (2007). The organizational life of an idea: Integrating social network, creativity and Decision-Making perspectives*. Journal of Management Studies, Vol. 44, No. 6, pp. 863-882.
- Koen, P. A., Ajamian, G. M., Boyce, S., Clamen, A., Fisher, E., Fountoulakis, S., . . . Seibert, R. (2002). Fuzzy front end: Effective methods, tools, and techniques. In P. Belliveau, A. Griffin & S. Somermeyer (Eds.), The PDMA toolbook for new product development (1st ed.). New York: Wiley.
- Kwortnik, R. J. (2003). Clarifying "fuzzy" hospitality-management problems with depth interviews and qualitative analysis. Cornell Hotel and Restaurant Administrative Quarterly, Vol. 44, No. 2, pp. 117-129.
- Lawson, B. and Samson, D. (2001). Developing innovation capability in organisations: A dynamic capabilities approach. International Journal of Innovation Management, Vol. 5, No. 3, pp. 377-400.
- Magadley, W. and Birdi, K. (2012). Two sides of the innovation coin? An empirical investigation of the relative correlates of idea generation and idea implementation. International Journal of Innovation Management, Vol. 16, No. 1, pp. 1250002-1-1250002-28.
- Miles, M. B. and Huberman, A. M. (1994). Qualitative data analysis : An expanded sourcebook (2nd ed.). Thousand Oaks, CA: Sage.
- Myers, M. D. and Newman, M. (2007). The qualitative interview in IS research: Examining the craft. Information and Organization, Vol. 17, No. 1, pp. 2-26.
- Nilsson, L., Elg, M. and Bergman, B. (2002). Managing ideas for the development of new products. International Journal of Technology Management, Vol. 24, No. 5, pp. 498-513.
- Poltrock, S., Grudin, J., Dumais, S., Fidel, R., Bruce, H. and Pejtersen, A. M. (2003). Information seeking and sharing in design teams. Paper presented at the Proceedings of the 2003 International ACM SIGGROUP Conference on Supporting Group Work, pp. 239-247.
- Ritzén, S. and Nilsson, S. (2013). Designing and implementing a method to build innovation capability in product development teams, Proceedings of the 19th International Conference on Engineering Design (ICED13), Design for Harmonies, Seoul, Korea, 19-22 August. Vol 6: Design Information and Knowledge
- Schilling, M. A. (2010). Strategic management of technological innovation (3rd ed.). Boston: McGraw-Hill/Irwin.
- Seidel, V. P. (2007). Concept shifting and the radical product development process. Journal of Product Innovation Management, Vol. 24, No. 6, pp. 522-533.
- Simon, F. and Tellier, A. (2011). How do actors shape social networks during the process of new product development? European Management Journal, Vol. 29, No. 5, pp. 414-430.
- Smulders, F. E. and Bakker, H. J. (2012). Modelling the inter-subjective level of innovation. International Journal of Technology Management, Vol. 60, No. 3, pp. 221-241.
- Stigliani, I. and Ravasi, D. (2012). Organizing thoughts and connect brains: Material practices and the transition from individual to group-level prospective sensemaking, Academy of Management Journal, Vol. 55, No. 5, pp. 1232-1259.
- Turner, D. W. (2010). Qualitative interview design: A practical guide for novice investigators. The Qualitative Report, Vol. 15, No. 3, pp. 754-760.
- Van de Ven, A. H. (1986). Central problems in the management of innovation. Management Science, Vol. 32, No. 5, pp. 590-607.
- Williamson, K. (2002). Research methods for students, academics and professionals : Information management and systems (2nd ed.). Wagga wagga: NSW.
- Wiltschning, S., Christensen, B.T. and Ball, L.J. (2013). Collaborative problem solution co-evolution in creative design, Design Studies, Vol. 34, pp. 515-542.

ACKNOWLEDGMENTS

Financial support from VINNOVA, through PIEp (Product Innovation and Engineering Program), is greatly acknowledged. Also the respondents that kindly answered to questions and provided valuable perspectives and input deserve to be recognised.