

FORESIGHT FOR INNOVATORS

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BACKGROUND

Innovation is currently a hot topic in the public Danish debate. It seems to be the common consensus that knowledge and innovation are the only way Denmark may maintain the current standard of living.

The majority of Western countries are in the same situation, so innovation is going to be a keyword for decades to come. In a special 1999 issue dedicated to the topic of innovation, The Economist proclaimed, "Innovation has become the industrial religion of the late 20th century" [Valery 1999]. First and foremost because globalization and free trade will radically change the conditions for all companies. Those who do not innovate will quickly be knocked over.

There are several ways to stimulate innovation, but in the following we will be looking at innovation from a very practical point of view and look into how developers can unleash their potential and contribute to innovation like never before.

THE PROBLEM

I have personally worked as developer in an international toy company and a high-tech start-up company based in the UK. During my time in these companies I was made aware of a range of inappropriate circumstances, which have led to the definition of this PhD study. I was especially troubled by the following observations:

- 1) Top management decisions contradict developers' knowledge. Mission statements are abstract and too general to be of any use, and in some case documents from management directly contradict the knowledge and experiences that the developer has from his daily work.
- 2) Spin-off ideas from developers seldom are taken seriously. Either the developer lack faith in the idea because she has no understanding of the overall strategy of the company or the organizational structure is not prepared to incorporate spin-off ideas.
- 3) Blue-sky projects never get anywhere. The intention is all fine, and blue-sky projects are usually given positive feedback, - but soon forgotten. The projects either fail to communicate an overall strategy or are not taken seriously by management.

In the 3 situations the company is either loosing out on new business opportunities or wasting internal knowledge resources. A luxury no company on the free market can afford in the 21st century.

The problem is that general management has monopolized their top-down approach to innovation. The rigid company structure dictates that market and company strategy are defined behind closed doors at general management level. Dialog across levels in the company is not encouraged because it is feared, that staff form their own opinions and counteract the top management of the company.

However, innovation is a holistic discipline that equally well can be approached by managers with a top-down approach or a bottom-up approach by hands-on people like developers. As in other problem-solving situation the best result is usually obtained by performing both exercises before reaching a conclusion.

As long as general management do not engage developers in a dialog about innovation of key business areas, the company will not reach its full potential of innovation, cause is not taking advantage of the developers who [Kelly 1999];

- employ an inductive approach to innovation.
- already know the content of innovation; they need only learn the language.
- have the power to visualize and persuade by making the future come alive.
- are expert in using the power of observation.

Not only will the companies overall innovation strategy be better off by involving developers. Developers will also have a thorough understanding of overall strategy and make better decisions throughout the development process [Horton 1999].

VERTICAL INTEGRATION

Historically the drive for innovation has always crumpled rigid organization structures. Concurrent Engineering revolutionized the development process in the 1980s & 1990s by expanding the developers' interest sphere horizontally, so it included marketing and production.

Today we see the first signs of an evolution which aims to fully explore the innovative skills of developers. Globally recognized design consultancies are already using both the management top-down approach and developers' bottom-up approach for strategic innovation. Blue-chip welcome their service as it delivers the service they need and saves them trouble of redefining their own developers' role in the company. This is a quick short-term solution but surely companies will look to implement the methodology once the value has been verified and it has matured.

Compared to the "Concurrent Engineering" revolution, this is a vertical expansion of the developer's interest sphere because floor-level developers are integrated in the process of strategic analysis which is run by top management.

To begin with managers may fear loss of authority, but they will also be attracted by some obvious benefits. The most powerful selling point will probably be that the developers offer visualization services to the management. The visualization skills are sure to be welcomed because much of the information in innovation is perceptual, emotional, cognitive or social and thus difficult to verbalize [Stappers 2004].

Another advantage is that the developers are accustomed to work across functional lines and by knitting together multiple strategies and objective they

can quickly generate a greater window of ready-to-use strategic solutions and arm managers with powerful decision-making tools [Fluharty 2004].

If developers are invited to meetings they become keepers of strategic information, as they help to document product and strategy roadmaps [Fluharty 2004], which is the first step on the way to active participation in a dialog.

The revolution will not necessarily take place on its own initiative. A methodology and set of tools may be the catalyst that will make it flourish and spread among companies.

Scandinavia is particularly disposed for adapting the principles of vertical integration. The concentration of knowledge and ability to collaborate in a flat structured organization in highly autonomic groups are ideal conditions for implementation of a methodology that demand dialog and respect between developers and managers. The result may be that with a minimal effort Scandinavian companies can gain an important advancement in innovation.

OBJECTIVE

The objective is to develop methods and techniques, which will enable innovators to gain foresight into volatile markets.

The foresight aims first and foremost to be used for spotting and exploring new business opportunities. Secondly it may enable innovators to enter a proactive role in promoting business ideas within larger corporations and serve as a project guiding tool throughout the product development process.

The methods should be practical and versatile enough to be used in a variety of situations and innovation projects. Furthermore it should recognize and draw benefit from the special skills of innovators.

RESEARCH METHOD

The research method includes:

Analysis

Research of existing knowledge by means of literature studies, interviews, case studies and field studies.

Synthesis

Formulation of hypothesis on the nature of foresight and innovation. Synthesize of design methods and tools.

Elaboration

Experimentation of hypothesis, methods and techniques in experimental development processes in collaboration with industry and research centers.

Evaluation

Presentation of papers. Confrontation of the research results with innovators and researchers.

The process will be repeated 2-4 times allowing each consecutive cycle to build on the findings of the previous cycle.

THEORETICAL FRAMEWORK

This PhD Study is cross-paradigmatic in nature and is related to a broad range of research areas. With the aim of providing oversight, I have divided the theoretical foundation in 5 areas:

Innovation

Discussion of the term "innovation" to understand which factors are important to an innovator and what makes the innovator different to a developer.

Process

The innovation process is fundamentally just another problem-solving process just like the general design process. However, the special circumstances that surround innovation ask for the creation of a specific process.

Methods

A few selected methods that deal with factors identified as important to an innovator.

Foresight

Introduction of methods and tools which can be used to extrapolate the current situation into the future or create alternative futures. Derived from a broad range of research areas.

Organization

Discussion of the organizational and personal requirements to implement the methodology for innovators to gain foresight.