THE ROLE OF UNIVERSITY CENTRE FOR CONTINUING EDUCATION IN THE CREATION AND IMPLEMENTATION OF INNOVATION MANAGEMENT EDUCATION

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ABSTRACT

This paper presents the results and findings of an education program in innovation management which was developed according to the needs of companies. The paper describes the creation process of the education program from customer need analysis to the objectives and expectations of the company management. The content and realisation of the education program are also examined, and the factors leading to its successful implementation are outlined. The analysis of the benefits and values for companies and participants is based on follow-up and reflection results.

Keywords: Academic Education Program, Design Education, Enterprise Education, Innovation Management, Leading Innovations

1 INTRODUCTION

A company is faced with many alternatives when planning a strategy for improving human resources. Depending on the target group, the education may concentrate on financial, technical or leadership capabilities. Typically, such education is arranged through outsourced seminars or training programs, varying in duration from a few days to two-three weeks per year.

The needs in special customer tailored education programs for companies are elicited by close inter-action and discussion between companies and the university. Through close contact and regular discussions with companies about their educational requirements, needs can be defined at an early stage. When the same weak signals arise in several companies simultaneously the university centre has an excellent opportunity to address the issues quickly by bringing together representatives from different companies to start the discussion and creation process for customer tailored education programs.

In Finland the cooperation between academia and industry is excellent. One example of this cooperation is a quarterly Product Development meeting where R&D managers from leading global companies and researchers discuss important research issues and cooperative research and education projects. Innovation Management education was presented in such a meeting. The response was supportive. Some guidelines were also presented.

The program was created in a small task force consisting of Director and Competence Development Manager of the University Centre, main professors, as thought leaders from Universities of Technology, Business School of Economics, and through discussions with potential customers.

Innovation Management Training Program in Finland was initiated in autumn 2007 and the second implementation was in autumn 2008. The University Centre for Continuing Education was responsible for its elaboration and implementation. An educational body was formed from voluntary participants representing different companies, ranging from Technology, R&D, Business Unit

Directors, R&D, Product Group Managers, Product Line Managers and Technical Customer Service Managers, and was by no means homogeneous in terms of age, professional background or line of business.

2 THE OBJECTIVES AND VALUES OF THE PROGRAM

The creation of the education program started in 2006 on the basis of discussions with several globally acting Finnish companies, mainly in the business of machinery engineering. In the first discussions the companies were interested in Technology Management. As a result of discussion and meetings with companies, the objective of the education program was enlarged to include Innovation Management as a part of business development. There was also a need to understand the link between company strategy and technology strategy as well as the link between technology strategy and other strategies; for example product, process, and service strategies. It was considered important to learn the implementation of technology strategy. The first education program was organised in autumn 2007. The objectives of the first program was found out how more successful innovation projects could be created? [1]

The first program launched was a pilot, to test whether the structure and implementation including the learning process and different learning tools, could fulfill the customer needs. As a result of the encouraging experiences in this pilot study, further programs were considered a potential prospect for the future.

During the creation phase of the program, it was envisioned that foreign participants would also be encouraged to participate in the program.

2.1 The Visions and Values of the Company Management

In the discussion with the company management the need to understand the link between company strategy and technology strategy was highlighted. Also the link between technology strategy and other main strategies, as well as the links between different roadmaps like R&D, product, product portfolio, process, and service, were expected to be understood. It was also considered important to learn how to implement technology strategy. [1]

2.2 The Objectives and Expectations of the Participants

Potential participants, R&D managers, have created and implemented a stage-gate model for optimizing R&D project portfolio. Even though the principle of stage-gate method is simple, defining criteria is a demanding task. However, during implementation, R&D Managers realized that the stage-gate method was not suitable for innovation management. In PDMA tool book [2], the same conclusion is also presented.

3 THE FRAMEWORK OF THE EDUCATION PROGRAM

3.1 Learning Goals and Substance of the Education Program

The education program was generated through discussions with the company management. The duration of the program had to be short due to the relative lack of time company employees had to spend on education.

Learning goals of the training program:
The main goal is to understand the principles of organisational resilience and to explore both management issues in technology and innovation management in business. During the education program, the participants will increase their understanding of how to prospect the world for new technologies and emerging markets, launch new innovation initiatives that bring together and meld new and dispersed knowledge, scale up successful innovations into profitable products and services, build a sensing and innovative network. [3 - 5]

The substance of the education program is divided into four modules:

Module 1, Innovation opportunities across the globe:
The aim is to explore the evolution of socio- and macroeconomic systems – emerging markets, emerging and revolutionary technologies – as well as adoption of innovations in cross-national settings. The discussion will focus on how to benefit from these new opportunities.

Module 2, The quest for organizational resilience:
The aim is to examine the concepts of strategic renewal, resilience, innovation processes, innovation types, organizational renewal, innovation processes, innovation types, organizational renewal, individual renewal, innovative team, innovative organizations and innovation metrics. The challenge is for companies to be as efficient at renewal as they are at producing today´s products and services. [6 – 15]

Module 3, Technology, Product and Service Management:
This module provides tools for the creation of technology strategies and profitable product and service portfolios. The aim is to discuss technology management, technology strategy, platforms, roadmaps, product design management, fuzzy front ends, concepting and portfolio management issues. [16]

Module 4, Efficient Co-creation in Networks:
This module highlights international research and practices related to the innovation environment across the globe. The aim is to look at horizontal and vertical strategies in partnering, innovation environments, open innovation, interdependencies and balancing across and within networks, and asset creation and IPR.

3.2 Program Implementation
The program was accomplished in eight face-to-face education days. The teaching was carried out in four two-day modules (approximately one module a month) at the University Centre. In addition to the face-to-face education days, the education program consisted of pre-assignments which each participant could adapt to his or her own work and business area. Some relevant articles were also examined before the second module. After each module the participants were also asked to fill in a reflection form and to return it to the electronic learning platform.

Given the lack of time of company employees the pre-assignments were designed to be reasonable in size and assignments were formulated so that the real-life work challenges of participants could be exploited. The main work was done during face-to-face education days in the context of the specialists´ lectures. Special intention was paid to the learning process and learning tools, facilitating learning methods were used through the whole education program to quarantee the very best learning results.

During the first module participants were asked to formulate the most important question within innovation management for which they were seeking answer. They could then view all the lectures and education material with this question in mind. If a more important question arose during the program, they could of course change their focus. The participants identified, among others, the following issues: navigation of road blocks, legacy issues, how to start doing things differently (bandwidth, justify, motivate), taking new ideas to implementation (compatible), integrating the right knowledge and processes in innovation projects, how to get acceptance from end users, keeping the innovation process lean, balancing new/ old projects, how to get innovation commitment?

3.3 The Pedagogical Factors Contributing to a Positive Outcome
The positive outcome in this education program was achieved through several main factors. The teaching methods applied to adult learners were good and taken special care of. The amount of home work was kept in minimum. During lectures, the most essential content was concentrated on, thus optimising the teaching. The application of different learning methods: lectures, simulation exercises, and collaborative learning were also good. Special attention was paid to facilitated learning methods throughout the whole program. The lectures were interactive and small group work was done even during the lectures. The participants were provided time for reflection on each day and especially at the end of each module. During reflection, the participants reflected what they had just learnt to their

own work situations. This proved to be very important. When the participants leave for their offices and their regular work demands, it is very difficult to find the space and time to return to the subject learnt.

One way to concretize a taught subject was to use simulation with the use of Lego blocks. Fig. 1 and 2. Similar teaching methods are reported, Leifer & al at Stanford [17, 18], in Product Development teaching for university students.

Figure 1. Lego Model: Different processes which enable the success of innovation project and the links needed in between.
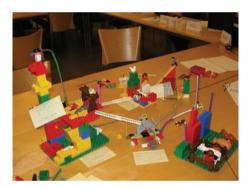

Figure 2: Lego Model: Different strategies which enable the success of innovation projects and the links needed in between.

In this simulation with Lego blocks the participants quickly visualized the strategies and processes needed to enable success in the innovation project. They felt, that by working with their hands (demos), the meaning became clearly understood. They also thought that this simulation broke their limits of thinking and broadened their minds.

3.4 The role of the University Centre
The role of the University Centre and the phases of the creation and implementation processes of Innovation Management education are shown in Table 1. The table also shows the different roles and responsibilities in the process. The main people involved were the Training Manager and Director of the University Centre, a steering group consisting of company management, a facilitator and the main lecturers as thought leaders.

Table 1: The Role of university centre in the creation and implementation of Innovation Management education

	The framework of the education program	The responsibilities in creation and implementation				
		SG	A	D	F	TL
1	Needs analysis	C	R	R	C	I
2	Conceptualising	C	R	R	C	I
3	Space for needs capture	C	R	R	R	I
4	Creation of the education program	I	R	R	C	C
5	Creation of the learning goals	C	R	R	C	I
6	Creation of the substance	I	C	C	C	R
7	Creation the learning process and tools	I	R	R	C	I
8	Implementation the course	I	R	I	R	C
9	Facilitated Learning	I	C	I	R	I
10	Reflection	I	R	I	R	I
11	Follow-up and evaluation	I	R	I	C	I

The roles in creation and implementation of the education program: SG = Steering Group, A= Author, D = Director of the university centre, F = Facilitator, TL= Thought Leaders, R = Responsible, C = Contribution, I = to be informed

4 THE BENEFITS AND VALUE FOR THE COMPANY AND THE PARTICIPANTS

4.1 The Immediate Follow up

The immediate follow-up was made immediately after every module and after the whole education program. On the whole the feedback was positive and constructive. According to the feedback summaries, the content of the education program was good and previously learned and new things were in balance. The expectations of the participants were satisfied. The participants received new ideas of how to enhance innovation personally and within company. The education program succeeded especially in combining the exercises and the lectures. The progression from module 1 through to module 4 was carefully contemplated. The way of running the program was active and it also activated the participants. The role of the facilitator was important in enabling a well-designed completeness. The participants acknowledged the academic approach and good lecturers. The modules supplemented each other. The learning process and methods were meaningful and activating. The learning space, practical arrangements and self reflections helped the participants in learning and putting into practice what they learned.

The participants were asked if important things had arisen, which they had not considered important before. The following ideas came up: networking, homework has to be done well, communication throughout the whole organisation in all cases, understanding interdependencies between different strategies, an analytical approach and modelling, partnering, encouraging motivation, life cycle thinking, and product life cycle. [18]

4.2 The Reflection Results Contributing Learning

The reflection work which the participants had as homework after each module was very useful. They needed to work out the most important theories and lessons of the module. The most essential insight was elicited first, and next the feelings surrounding it. The next question was: What does all that I have learnt mean to my work and to my organisation and then what does the implementation require from me and my organisation. The final question was: How do I implement what I have learnt?

The following are some examples of the most essential insights of the participants after the first module: innovating belongs to everyone in the company, innovating requires changes in attitude and thinking, success in innovation means commercial success otherwise it is just messing around,

observing megatrends, signals in portfolio planning and implementing to the level of an individual product, the importance of innovating, the initial stage of a radical innovation can be in an inconsequential idea.

Some reflection examples after the second module: renewal capability is needed at all levels of human resources, for important projects there has to be enough support from company management.

The participants addressed how they would implement their own ideas in their own notes. The University Centre has no results of how well the participants have succeeded in implementing their ideas. This is one question which still needs to be examined.

4.3 The Suggestions for Improvement of the Education Program

The implementation of the education program was considered slightly theoretical. The participants anticipated more concretizing through case studies. The time schedule was considered time to time too tight. Conclusions for the presentations were also expected from the lecturers. More concrete exercises related to own work were also suggested to help deepen understanding. More business cases on investment commodities were also expected. The participants of the second group wanted to have company presentations from the participants. They also thought that an evolvement project related to their own work done during the program would help implementation of the new ideas and the learnt theories. This is a matter which the University Centre has to deliberate for the next program.

5 DISCUSSION

The theory basis of the education program was considered to have been covered well. The participants every now and then expressed a wish to have more practical and industrial cases to aid understanding of how the theories are put into practice. The participants felt that they had received more from this education program than what they had expected. To quote a comment of one participant "Innovations and their commercial utilization are nowadays central features of successful company management. The focus has shifted from R&D-based development of products and services to innovations in business models and processes across the whole organization, as well as the fast global utilization of new technologies." [2]

Even better learning results and benefits could be achieved if the education program could be carried out company tailored. In that case, alongside with the education program, an evolvement project could be carried out. There is also a place for a program for participants coming from different companies. This would give the opportunity of benchmarking each other. The education program is easy to tailor to different companies. Each module can also be given separately or combined with modules from other education programs.

Open innovation was known by the participants but it was not used or was used only internally. Social media and its different tools arose interest in the second education program.

It seems that there is never enough time for sharing experiences. When there is the time and the space participants are enthusiastic to share their thoughts and opinions.

Above it was mentioned that participants would like to see more real-life cases. However, many magazines report on cases and, based on understood theory, reading and interpreting cases would be fruitful activities. Also, to improve the course it is useful to compare Innovation Management programs delivered by other universities, but also other types of organization. This paper is the starting point for that.

5 CONCLUSIONS

Based on intensive cooperation between academia and industry it is possible to create successful continuous education programs. The industry needs theory-based education, even if reflections on the importance of concrete cases is emphasised.

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