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# ADDRESSING KNOWLEDGE MANAGEMENT AND PROVIDING OPEN INNOVATION FOR SME'S AND LARGER COMPANIES IN THE SCOPE OF THE INNOKICK ACADEMIC PROGRAM

L. Balmelli<sup>1</sup>, N. Nyffeler<sup>2</sup>, L. Bergeron<sup>3</sup>, F. Degoumois<sup>4</sup>

<sup>1</sup> Graduate School for System Design and Management, Keio University, Tokyo, Japan

<sup>2</sup> University of Applied Sciences and Arts Western Switzerland; School of Engineering and Management Vaud, Yverdon, Switzerland

<sup>3</sup> University of Applied Sciences and Arts Western Switzerland; ECAL, Renens, Switzerland

<sup>4</sup> University of Applied Sciences and Arts Western Switzerland, Lausanne, Switzerland

## 1. Introduction

In this article we explain the innovation management process around the new Master of Science in Integrated Innovation for product and business development (Master Innokick) launched in September 2015 by the University of Applied Science and Arts Western Switzerland (HES SO).

The aim of our academic program is dual-faceted: First it provides a multi-disciplinary education program in product and service innovation for students holding a bachelor degree either in Engineering, Business Administration or Design. Second, it offers the opportunity to a selected set of SME's, start-ups or larger organizations (a total of five per year) to garner fresh perspectives for their business by taking part to a one-year project supported by students (typically groups of 8 to 10) and their coaches, both from academia and industry.

During this first year of the program the students are divided into five interdisciplinary groups. To achieve that goal, we mix in each group at least two engineers, two economists and two members with a background in design or visual arts.

The interdisciplinary setting lays the foundation for having the necessary skills for the development of innovative products or services. Cross-disciplinary collaboration is central in the program, as is the close cooperation with external companies. During the program, students develop prototypes and mockups of applications, products, and business model. [1]

During the projects, students work in groups and adopt an approach concentrating on technology (technology push) and business opportunities (market pull). They have the opportunity to carry out development work in collaboration with research laboratories at leading universities or to undertake consulting projects for outside businesses. Projects are divided into four stages:

- An idea generation (brainstorming) stage designed to help students with an aim to put together a portfolio of potential new applications of the technology or business idea they have chosen;

- A concept -selection and validation- stage where students identify the most commercially viable ideas and develop the communication tools – drawings, models, videos – they need to be able to ‘sell’ their most promising ideas to future users;

A strategic (development) stage which involves conducting ethnographic market research and describing a business opportunity consistent with the strategy of the partner laboratory or business;

- Finally, an implementation stage which involves testing the technological feasibility of the project, deploying the marketing and production plan for the product and/or service and including it in the portfolio of existing products and new product development.

As shown in the following figure, theoretical courses (blue bubbles) are provided in support for each of the development stages (as listed above) of the project



Figure 1 Master Innokick Program Study Plan [2]

Although the entire process is actually iterative, the contribution presented in this article focuses in particular on the first phase of development, i.e. on the "Ideation" part of it. Once they have become acquainted with their project topic, student groups go through several brainstorming sessions to generate as many ideas as possible. Brainstorming sessions use different types of tools to stimulate participants' creativity. During this creative phase, participants tend not to discard ideas too quickly, because some might be of interest later (e.g. once the team gets a better grasp of their topic). In effect, generated ideas are subsequently selected (with various criteria) in order to select the most promising ones.

Our approach aims at managing innovation starting from project inception stage by leveraging a tool-supported set of knowledge management processes spanning idea generation to idea selection. As a result, we put an emphasis on long-term knowledge management and reuse with an aim at capitalizing on the acquired information across subsequent iterations of the program.

We manage all ideas issued from brainstorming using an idea management tool. The tool helps us manage the lifecycle of the ideas during the projects. Typically, the lifecycle of ideas is grounded into an iterative selection process with a goal to sort out potential solutions based on criteria. Criteria differ according to the selection stage (see Figure 2). At early stages, quick, "lightweight" selection methods are preferred because they allow us to sort through a large number of ideas. During this process, the tool provides us with a means to carry out selection and the advantage of leaving discarded ideas available for later "discovery", for example in a different project. Hence it is critical to capture ideas in a form that make them easily retrievable.

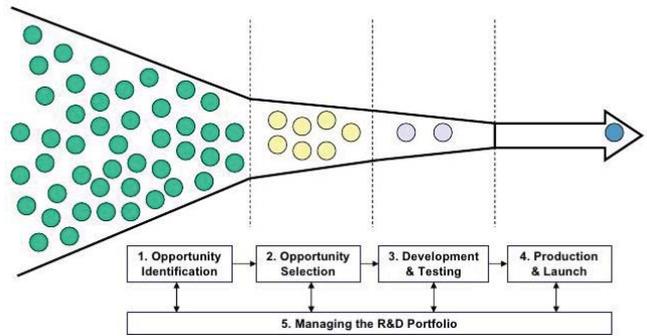


Figure 2 Illustration of the process of sorting ideas

## 2. Results

Our main contribution is thus to setting up a tool-supported framework such that we continuously leverage and benefit from previous creative efforts and palliate to the expected yearly reset due to the short span of the academic year. In particular, all ideas (typically hundreds per project),

Idea categories, research and analysis work are systematically stored and rendered fully searchable in order to be leveraged in future efforts. In addition, we aim at continuously defining and refining metrics, as well as methods such that we can assess key performance indicators around project efficiency and idea maturity. Indeed, the large number of ideas and attached artifacts enables us to perform qualitative research (e.g. using classification) to draw conclusions between the creative process and project success.



Figure 3 Screenshot of the open innovation platform

### 3. Conclusion

Our approach allows us to monitor the development of our five yearly innovation projects, the contributions of over 50 participants and foster reuse of findings and methods across teams and during subsequent years. In addition, from the perspective of our industrial partners, we provide an open innovation process that participating companies need to integrate in their operations. Hence an additional contribution in this work is an examination, in tandem with these participants, of the strategies and workings they typically put in place to benefit from our program (e.g. technology transfer and product roadmap integration). In our study, we include a range of Swiss SME's, including some with an international presence to larger companies with worldwide recognizable brands.

### *Abbreviations*

HES SO University of Applied Science and Arts Western Switzerland

### References

- 1 Christian Koch, Nathalie Nyffeler; Let the grunts do it! – studying the embedding of a multidisciplinary master education in an educational institution ;2nd International Conference on Higher Education Advances, HEAd'16, 21-23 June 2016, València, Spain
- 2 Master HES-SO in integrated innovation for product and business development – Innokick; hes-so; flyers 2015