Case Study: The Implementation of a Radical Innovation Project

ND. Du Preez¹, BR. Katz²
¹ Global Competitiveness Centre (GCC), Department of Industrial Engineering, University of Stellenbosch, Stellenbosch, South Africa
² Indutech (Pty) Ltd, Stellenbosch, South Africa

Abstract
This paper presents research results, which investigated the integration of traditional project management techniques with a methodology to manage a radical innovation project. Traditional project management processes often fail to manage the complex and uncertain environment of most radical innovation projects. However, innovation projects also require a level of structure and control in order to meet the objectives of the project without exposing an organisation to unnecessary risks, especially during implementation and refinement phases of such a project. This paper focuses on a case study of a radical innovation project in the financial services sector. This project was executed using an innovation implementation methodology. This methodology was developed as part of the research. The way the methodology was applied and the integration of the innovation implementation methodology with project management processes are covered in this paper. The case study identifies the successes and shortcomings of the project and makes recommendations as to how the balance between project management and innovation management can be improved in future projects.

Keywords

1 INTRODUCTION
In today’s business environment innovation is key to improved economic performance of companies [1] thus achieving and sustaining a competitive advantage.

This paper presents a case study of a project in which project management processes were integrated with a methodology to manage a radical innovation project.

Project management processes often fail to manage the complex and uncertain environment of most radical innovation projects [2]. It is argued that the use of project management techniques may restrict the creativity and flexibility required for radical innovation as well as stifling the innovative culture. However, innovation projects, as with all major change projects, require a level of structure and control [3] in order to meet the objectives of the project without exposing a company to unnecessary risks.

The case study covers a radical innovation project in the financial services sector. The aim of the project was to develop and implement a radical, fundamentally new process in an insurance company. The new process is a first in the South African insurance market and provides the company with a true competitive advantage. The project was implemented using the innovation implementation methodology (IIM), integrated with selected project management processes. The results of the project are a good indication of the successes and shortcomings of the IIM and the integration with project management processes. These successes and shortcomings are presented along with lessons learnt from the case study.

2 THEORETICAL BACKGROUND
The theory, which supports the cases study, is described at a high level in this section of the paper.

2.1 Defining Innovation
Damanpour [4] defined innovation as “the generation, development, and adaption of novel ideas on the part of the firm”. The European Union, in the Commissions Green paper on Innovation [5] defines innovation as, “the successful production, assimilation and exploitation of novelty in the economic and social spheres”.

The following definition of an innovation summarises many of the definitions available in the literature:
Successful generation, development and implementation of new and novel ideas, which introduce new products, processes and/or strategies to a company or enhance current products, processes and/or strategies leading to commercial success and possible market leadership and creating value for stakeholders, driving economic growth and improving standards of living.

Furthermore the difference between radical innovation and incremental innovation is described as, “radical innovations are those that produce fundamental changes in the activities of an organization and large departures from existing practices, and incremental innovations are those that result in a lesser degree of departure from existing practices” [6].

A radical innovation project is defined: … as one with the potential to produce one or more of the following: An entirely new set of performance features, greater
than five-fold improvements in known performance features, a significant reduction in cost (>30%) [7].

2.2 Project Management and Radical Innovation Projects
Kotelnikov [8] explains that traditional project management approaches do not fit radical innovation projects due to the increased levels of uncertainty, the multiple levels of the uncertainty and the way in which the uncertainties interact with each other. Kotelnikov [8] goes on to explain that new competencies are required to manage radical innovation projects.

2.3 Innovation Implementation Methodology (IIM)
An Innovation Implementation Methodology (IIM) was developed as part of the research. It was developed with the specific aim of supporting the implementation of radical innovation projects, and combines a range of different components and concepts. The IIM combines concepts such as knowledge management, project and team integration, project principles, design objectives, prototypes and risk and change management into four main components. Each component provides a different view of the radical innovation project. This section briefly describes the different components of the IIM.

2.3.1 IIM Component 1: Four Layered Approach
The Four Layered Approach (figure 1) has the role of guiding the innovation teams through the different levels of detail as the radical innovation project evolves. Ideally, a golden thread, linking each of the different levels of detail should be identified and followed.

2.3.2 IIM Component 2: Ramp-up and Ramp-down
The Ramp-up and Ramp-down component in the IIM provides a view of the extent of involvement of the various role-players and their roles and responsibilities throughout the radical innovation project. Figure 2 graphically illustrates the Ramp-up and Ramp-down component of the IIM. The time axis represents the life of the radical innovation project and the responsibility axis represents the amount of responsibility or relative involvement of the various role-players. The two main categories of role-players are the innovation team and the operational team. The ramp-up and ramp-down component guides these two teams through the radical innovation project and explains when and to what extent they should be involved. This component also supports the very important knowledge transfer between the innovation and operational teams.

2.3.3 IIM Component 3: Project Structure
The Project Structure component of the IIM provides a view of the different project teams involved in the innovation and illustrates how these project teams interact in order to achieve the overall radical innovation project objectives. The Project Structure component is presented in Figure 3.

2.3.4 IIM Component 4: Verification and Optimisation
The verification and optimisation component of the IIM provides a scientific and experimental view of the radical innovation project. Due to the high-levels of uncertainty in a radical innovation project the IIM uses a range of tools and techniques such as simulation and applied statistics to quantify and reduce the uncertainty from the beginning of the project to well into the execution. Verification involves identifying an issue in the radical innovation project about which there is high uncertainty and then reducing the uncertainty through a formal scientific or experimental approach.

The optimisation component usually appears late in the radical innovation project, once the implementation is well underway. The optimisation component is vital to ensure that the full benefits, specified in the business case are realised.

2.4 Integrating IIM with Project Management Processes
A framework has been developed to integrate the components and concepts of the IIM with the processes of PMBoK, a well known project management body of knowledge.
The level and type of integration between the two methodologies is determined by the level and type of innovation required in a specific project. A project filter has been developed to assist companies in categorising projects based on the required level of innovation. Therefore a radical innovation project will require more IIM components during a specific phase compared to a replication type project which would require more PMBoK processes during the same project phase.

Figure 4 illustrates how the phases of the IIM can be mapped to the project phases in PMBoK [9].

The following section describes a case study that was used to evaluate the developed framework. Valuable lessons were learned from the case study and applied in the framework.

3 CASE STUDY

In August 2003 the management of a large South African insurance company identified a need and an opportunity to improve their business. The need and opportunity was focused on the New Business department. This department is responsible for capturing the client and policy details of new clients as well as policy underwriting. The aim of the project, described in this case study, was to develop and implement the business improvement. The project became known as the Retail Enhancement Initiative (REI).

3.1 Project Description

The aim of the project was to develop an innovative New Business process. The old process was based on a traditional insurance model where the intermediary and the client filled in a paper application form. This form was then captured and checked for quality at a regional office before being couriered to head-office. The application would be checked again at head-office and often sent back to the regions in order to correct errors or add missing information. Manual underwriting of the policy would take place at head-office and be based on the medical information on the application form.

The old process was time consuming; this was aggravated by the errors in data collection and capturing, and expensive due to the number of quality checks required and the large amount of paper which had to be couriered. The levels of legal compliance were also very low.

In the new process, which was developed and implemented through the REI project, the intermediary performs the same sales process as before. However, instead of filling in a paper application form the intermediary phones a purpose built call centre, which captures the client and policy information directly into the head office system. The client confirms the information, over the phone, and this confirmation is used as the client’s voice signature. The intermediary is still obligated to fax in any other outstanding documents but once this is done the policy can be issued.

The new process also introduced the concept of tele-underwriting to the company. Medical information is captured from the client over the phone and well over 50% of cases are rated automatically and an offer given without human intervention. The new process aims to:

- Drastically reduce the time to issue policies
- Reduce the admin burden on the intermediary
- Cut down on courier and administration costs
- Increase the efficiency of data collection
- Reduce the need for as many quality checks
- Improve the speed and cost of underwriting
- Reduce the number of policies Not taken Up
- Increase compliance control

3.2 Project Filter for REI Project

A filter to assess the level of innovation of different projects was developed and applied to the REI project. The filter contains a set of internal and external innovation criteria and a set of complexity criteria on which a project can be rated.

The final filter score for the REI project was 8.55 out of 10. This places the REI project firmly in the radical innovation project category.

The following sections describe the IIM and traditional project management activities that took place during each phase of the project.

3.3 REI Project Initiation

As illustrated in Figure 4, the project initiation consists of the problem definition phase and an initial section of the critical analysis phase of the IIM. The following innovation implementation and project management activities took place during the initiation phase.

3.3.1 IIM Activities

- Mapping project objectives to company’s strategic objectives
- Basing high-level project scope on company value chain
- Documenting problem statement
- Selecting innovation team
3.3.2 Project Management Activities
- Developing high-level project charter
- Developing high-level scope statement

3.3.3 Project Initiation: Successes and Shortcomings

The initiation of the REI project was on the most part successful, but looking with hindsight there are several important lessons to be learnt.

Objectives: The strategic mapping was an interesting exercise as it revealed several strategic objectives which were misaligned between the company and the specific business unit. It also revealed that the objectives of the proposed REI project were aligned with both the company’s and business unit’s strategic direction and that a successful implementation of the REI objectives would lead to the achievement of some of these strategic objectives. The alignment assisted in achieving project buy-in at a later stage and approval for the project from the company’s Board.

Scope: At the time, the defined scope provided a good platform on which to start the project. However, if the final scope of the project is compared with the initial scope it can be seen that large changes in the scope occurred during the project. This could have been expected due to the very nature of a radical innovation project and the associated uncertainties that existed during the project initiation. However, the change in the scope lead to uncertainty and knock-on disruption later in the project and this had an affect on the project timeline. The control of the scope and the updating of the scope statement should have been managed in a more formal manner.

Problem Statement: The problem statement section of the project initiation was successful. This success was mainly due to the fact that the project owner and champion were clear about what they believed the problems were and the objectives of the project could thus be clearly mapped.

3.4 REI Project Planning

As illustrated in figure 4 the project planning consists of the critical analysis phase, the solution development phase, the validation phase, the decision phase and the governance phase of the IIM. The following innovation implementation and project management activities took place during the planning phase.

3.4.1 IIM Activities
- Detailed modelling of current processes
- Development of several innovation scenarios
- Financial modelling for business case
- Simulation modelling of old and new processes
- Involvement of some operational personnel
- Validation of innovation scenarios
- Creation of management team and project board
- Prototype development and execution
- Approval presentations
- Governance workshops and development of innovation principles and sub-team mandates

3.4.2 Project Management Activities
- Developing high-level programme plan and integrated sub-project plans

3.4.3 Project Planning: Successes and Shortcomings

The project planning had both successes and shortcomings. The shortcomings have only become visible as the project has progressed.

High-level Process Modelling: The high-level process modelling proved highly successful in creating the initial innovation scenarios and allowing the validation team and the approval bodies to quickly understand the innovation scenarios. They were also useful in the development of the simulation models.

Validation: The validation team provided a great deal of credibility to the innovation scenarios and the approval process was significantly easier because of the validation team’s input. Several inaccuracies in the innovation scenarios were identified and rectified.

It was clear from the validation workshops that in general operational personnel found it extremely difficult to look at the operational environment from a different perspective. This challenged the innovation team in the sense that they had to convince operational members about the feasibility of the new processes.

Approval Process: The approval process had a few shortcomings. The fact that the innovation team had to go back and implement a prototype did take up valuable project time, but definitely helped in gaining approval from the company’s Board. Further more, although approval for the project was given, this did not guarantee full commitment and support from the executive management.

Governance Principles: The concept of governance principles to guide the project design and implementation was one of the key success concepts of the REI project. These principles are discussed and debated to this day throughout the different design teams and are used on an almost daily basis for decision making purposes.

Detailed Design Teams: The detailed design teams were provided team mandates and design objectives by the governance team. As the project progressed it was often unclear where certain responsibilities resided. As the details of the project became clearer, the mandates should have been updated regularly.

Simulation Models: The simulation models proved highly successful. They were used for detailed calculations of cost and process times as well as used to graphically present the processes to the company’s board. The initial simulation models were updated later in the project and used in the detailed design.
Financial Models: The financial models were important in developing and presenting the business case, for each of the innovation scenarios, to the validation team and the executive committee.

Prototypes: The main success of the prototype was that it was developed in a short period of time and at low cost. This meant that the concept could be proven to the company’s Board and the design teams had a starting point on which to test future ideas.

Activity Planning: The lack of formal activity planning was a shortcoming of the project. Having an overall high-level activity plan and then several sub-project activity plans was a good idea. The execution however was a problem. The main reason for this was that the team leaders of the sub-projects were selected for their knowledge of their discipline. Many of them had never managed a project. Each sub-project team should have had a dedicated project manager. The two teams that had a dedicated project manager were far more efficient in their execution of tasks compared with the other sub-project teams.

Risk Planning: Formal risk planning and identification is essential from early on in a radical innovation project. Without a formal framework, risks often go undetected until it is too late.

3.5 REI Project Execution

As can be seen in Figure 4 the project execution consists of the solution development phase, detailed design phase and implementation phase of the IIM.

3.5.1 IIM Activities

- Selected innovation scenario modelled in detail
- Governance team developed design objectives
- Each detailed design team developed and populated sub-project roadmaps

3.5.2 Project Execution: Successes and Shortcomings

Some of the shortcomings of the project execution were the consequence of the project planning; others, like the process models, were related to the company’s operational environment.

Process Models: Whereas the process models were a great success in the early part of the project, during the project execution it became problematic. The models had been originally developed to represent and communicate the new processes. Once the project entered the detailed design and implementation phases, no formal process model management was in place to manage changes to the TO-BE models. Therefore these models were soon out of date and of little use to the detailed design teams. The company lacked any formal methodology for managing the models and the REI project never put this methodology in place.

Governance Team: While the governance team successfully managed the adherence to the governance principles and updated the design objectives throughout the detailed design and implementation phases, the team failed to update the sub-project team mandates and therefore confusion arose about assigned responsibilities for specific tasks.

Design Team Roadmaps: Several of the teams developed and used their detailed design roadmaps successfully. However, some teams had to have their roadmaps developed for them and this prevented buy-in to the concept and understanding of the roadmaps.

Buy-in and Commitment: There was a lack of buy-in and commitment to the new process by a small percentage of users. This did however create a negative view of the new process, which in turn delayed the execution. At times, the lack of visible executive management commitment contributed to this problem.

4 OVERALL RESULTS

The success of the integration of IIM and project management in managing a radical innovation project should in this case be determined by the overall success of the REI project. The success of the REI project is determined by answering two questions:

Question 1: Is the developed solution innovative and will it give the company a competitive advantage?

Question 2: Was the project executed efficiently, on time and in budget and were all the project objectives achieved?

4.1 Question 1:

The processes and systems developed and implemented in the REI project are considered by the company, external consultants and the media to be highly innovative and a major change to the “New Business” model in the South African insurance industry.

Peter Maynard [10], of the UK based insurance consultancy, SelectX, wrote the following, “This company has done what very few other financial services companies anywhere in the world could have done: carried out such a thorough overhaul of a part of its business that it amounts to a reinvention.”

However, it may still be too early to determine the extent of the true competitive advantage the company will achieve through the REI project. Only once the competitive advantage is realised can the REI project be classified as a truly successful radical innovation project.

4.2 Question 2:

The detailed design and development of the process and systems ran on schedule for most of the project and were delivered in accordance with the high-level programme plan.

The roll-out of the new process to the entire sales force has experienced fairly lengthy delays. Therefore almost half the sales force has been using the
completed process and systems for almost ten months, but the other half are yet to convert from the old process to the new. This has meant that the REI project is running over schedule.

Despite the schedule overruns, the project champion has said that the approach taken in the REI project has meant the solution was developed in approximately 40% less time and with a far more innovative outcome than if traditional approaches had been used.

4.3 Conclusion
Based on the experience from the case study, the following valuable lessons were learned for the implementation of radical innovation projects:

- IIM can assist in achieving project buy-in.
- Initial high-level scope, objectives, mandates schedules and risk plans are sufficient, but formal processes are required to add detail to these as the project evolves and the uncertainty decreases.
- A formal process modelling management methodology is required to keep the process models updated through the design and implementation phases of the project and into the operational environment.
- Governance principles are an excellent way of ensuring the initial innovation concept is respected throughout the detailed design and achieved after implementation.
- Prototypes and mock-ups are a cost effective way of testing innovative concepts and gathering information in order to make important decisions.
- An overall programme plan can be rolled down into more detailed sub-project plans, but a project manager is required to manage the execution of the plans.
- Roadmaps are an excellent way of supporting innovation teams, but it is important for the team members to agree on the roadmap structure and to take ownership of the roadmap from the start.
- Management, executive and board commitment is a key factor in the successful completion of a radical innovation project.

4.4 Future Research
1. Detailed categorisation of projects into different levels of innovation for a variety of generic project types (eg. process improvements, system implementations, product development)
2. Integration of IIM components and PMBoK processes for each of the project types and levels of innovation.

5 REFERENCES

6 BIOGRAPHY
Niek du Preez is Professor in Enterprise Engineering at the University of Stellenbosch and founder of the Enterprise-wide Innovation Management Company, Indutech (Pty) Ltd.

Bernard Katz holds a B.Eng degree in Chemical Engineering from the University of Cape Town. He is currently working as the Business Engineering manager at Indutech.