A FRAMEWORK TOWARDS AN OPEN INNOVATION APPROACH FOR SMES

WILLIE KRAUSE
Stellenbosch University, Department of Industrial Engineering, South Africa
16909526@sun.ac.za (Corresponding)

CORNE SCHUTTE
Stellenbosch University, Department of Industrial Engineering, South Africa
corne@sun.ac.za

Copyright © 2015 by Stellenbosch University. Permission granted to IAMOT to publish and use.

ABSTRACT

The literature indicates that implementing Open Innovation as a formal management practice in organisations remains a challenge. Open Innovation (OI) is receiving increased focus in academia and industry, but practical implementation and application guidance for users are still limited. This is even more relevant for the application of Open Innovation in small and medium sized enterprises (SME). Open Innovation is still largely an emerging field of research in academia, with larger organisations receiving most of the focus.

In this paper the authors introduce a framework for the development of an Open Innovation approach for SMEs, based on models and frameworks from the literature.

Following a design sciences method, the authors review various models and frameworks on innovation and general implementation best practices, and deduct core elements that can be applied in an Open Innovation Framework. The framework is based on a continuous improvement cycle that aims to mature the Open Innovation capability within the organisation through various iterations. The framework comprises of four main components, six sub-components and twenty three core elements.

The four main components of the framework are: Plan and Prepare for OI, Perform OI, Measure and Evaluate OI, and Improve and Mature OI.

The framework suggested in this paper can be used towards the development of an Open Innovation approach for SMEs. Such an approach should include descriptive elements for the implementation and application of Open Innovation within the context of SMEs.

Key words: Open Innovation, SMEs, Innovation Management.

INTRODUCTION

The focus on Open Innovation practices has increased in the last 10 years, yet research has shown that companies still grapple with how to best implement Open Innovation as a management practice, both in large corporations and SMEs (Chesbrough and Brunswicker, 2013; Krause, Schutte, Du Preez, 2012). A survey conducted by Prof. Henry Chesbrough and Dr. Sabine Brunswicker (2013) under large firms suggests that “it is not easy to implement Open Innovation. Open Innovation is a systemic shift that requires re-thinking many aspects of one’s business to utilise it effectively”. Open Innovation success requires more than just the implementation of an innovation process. Multiple business elements come into play.
Research shows that almost 70 per cent of working South Africans are employed by SMEs with fewer than fifty employees (Adcorp, 2012). SMEs are therefore critical to the country’s economic success. Open Innovation is receiving increased focus in academia as an option for SMEs to exploit for improved innovation capability and growth (Chesbrough, 2010; Bianchi et al., 2010). From a survey conducted under South African SMEs, it was clear that there is a need for an approach to be developed that can be used by SMEs to implement Open Innovation in their organisations (Krause, Schutte, Du Preez, 2012 (b)). This paper therefore sets out to propose a framework to be used by SMEs for the implementation and execution of Open Innovation. The framework is constructed by following a Design Sciences approach and drawing from various models and frameworks on innovation and general implementation best practices in the literature.

“Design Science refers to an explicitly organised, rational and wholly systematic approach to design” (Cross, 2001). “Design Science Research in management aims both to develop knowledge to design interventions to solve improvement problems and to design systems (coherent structures and processes) to solve construction problems” (Denyer et al., 2008). It follows the “process of abstracting: generalising from the inputs from the prior research work” (Tan, 2010). For this paper, the authors reviewed literature on innovation and general implementation best practice models and frameworks. Core elements arising from the literature were then used as input into the construction of an Open Innovation Framework.

RESEARCH METHODOLOGY

Deriving the Open Innovation Framework is achieved through a partial systems engineering approach. The objective is stated as the development of a framework for the implementation and execution of Open Innovation for SMEs. Design requirements for the framework were defined in another paper by the authors (Krause and Schutte, 2014) and include user requirements, functional requirements, design restrictions, attention points and boundary conditions (expanding on the requirements is not the focus of this paper).

Following the requirements, two literature review focus areas are then examined in line with the stated objective. These two areas are innovation frameworks (addressing how to perform innovation) and implementation frameworks (addressing how to implement innovation).

Framework elements are then abstracted from these literature focus areas and used to construct an Open Innovation Framework. Elements for the framework are derived based on the identification of commonly occurring elements in the reviewed frameworks and models, suggesting a requirement for inclusion. It also assesses references to best practice within the domains of innovation and implementation frameworks.

The Open Innovation Framework is therefore a combination of the above mentioned elements relating to implementation and execution. The approach can be depicted as seen in Figure 1.
**Figure 1: Framework Design Approach**

**REVIEW OF INNOVATION FRAMEWORKS AND MODELS IN THE LITERATURE**

Firstly, a review is performed regarding the execution and enabling environments required for innovation in organisations.

The A.T. Kearney House of Innovation (IMP³rove Acadamy, 2012) provides an integrated approach to innovation management, linking innovation strategy, organisation and culture, innovation process and enabling factors. These elements interlink to produce innovation results.

The House of Innovation is reminiscent of a business architecture model in its design. The model starts off with an innovation strategy, which should be aligned to the organisational strategy. Within the innovation strategy, the company sets the strategic focus for innovation and decides how the strategy will be implemented.

The innovation strategy informs the innovation organisation and culture. The organisational roles and responsibilities (such as innovation team structures and mandates) are defined together with the planned culture to be established. This will include decisions on risk appetite and employee motivation and incentives.
Innovation life cycle management will include the processes for managing innovation in the organisation. It will include an organisation-wide process from the time an idea is generated through to innovation selection and development, up to launching and maintaining the new innovation.

Supporting the innovation process are enabling factors such as human resource management, IT, project and portfolio management and the management of knowledge and IP.

The Fugle innovation model from Du Preez and Louw (2008) provides another view on the different elements required for innovation. The Fugle model is a synthesis from various process innovation models in literature. The model aims to “help businesses to identify, evaluate, develop, implement and exploit new products and services more efficiently and effectively” (Du Preez and Louw, 2008).

At the core of the Fugle model is an innovation process that facilitates an innovation lifecycle from idea generation through to commercialisation and exploitation. Ideas pass through “filters”, which sort innovation opportunities into a portfolio of innovation projects. These projects are then deployed into the market and further optimised to gain most value from the innovation. This is not a pure linear process, but includes iterations within the process. The Fugle model allows for participation from internal and external sources during the innovation process, supporting the notion of Open Innovation.

As with the A.T. Kearney House of Innovation, the Fugle model also incorporates strategy, people and culture, information and knowledge and organisational structures and processes into the innovation model.

Figure 2: A.T. Kearney House Of Innovation, Source: A.T. Kearney
In an empirical research study on the Performance Impact of Open and Collaborative Innovation Strategies (Brunswicker, 2011), the Integrated Causal Framework (Figure 4) was used to demonstrate “relevant components and constructs in an integrated manner and details multivariate relationships among independent and dependent variables in order to explain innovation performance and value growth”. The research examined Open and Collaborative Innovation based on a large set of firm-level data of SMEs. The model takes in consideration open innovation strategies, external influences and internal organisational practices for innovation that leads to value creation.

The Integrated Causal Framework recognises the impact of controlling factors on the SME’s innovation capability in the form of the type of industry the organisation is involved in, the size and age of the organisation (alluding to maturity) and so forth.

The framework includes (Open and Collaborative) innovation strategies that lead to innovation-based value creation. These are comparative to the ‘innovation results’ from the A.T. Kearney innovation model. Innovation based value creation is separately measured in terms of innovation success, income from innovation, income from major innovation and income growth.

Environmental factors such as the efficiency of IP protection and how dynamic the innovation environment is (degree of uncertainty and turbulences in market and industry conditions) are also taken into consideration.

Internal innovation practices in the framework are represented by the following (Brunswicker, 2011).

i. Innovation planning (organisational innovation strategy and plan)

ii. Culture for innovation (is innovation embedded into the organisation’s culture?)
iii. Innovation development process (the organisation’s innovation process, such as stage gate)
iv. Innovation controlling (innovation measurements and controlling mechanisms)
v. Investment into knowledge base (resources invested into innovation)

Figure 4: Integrated Causal Framework, Source: Brunswicker, 2011

In a report on Open Innovation titled: How to implement Open Innovation: Lessons from studying large multinational companies (Mortara et al., 2009), the authors provide four enablers and obstacles to Open Innovation that should be considered when implementing Open Innovation. The report is based on two years’ research within the Cambridge Open Innovation Network. The four areas mentioned are:

i. Open Innovation Culture (a shift of culture, whereby working with other companies became accepted and endorsed throughout the organisation)
ii. Open Innovation Procedures (team structures and internal networks, enabling infrastructure and tools)
iii. Open Innovation Skills (training for Open Innovation: introspective, extrospective, interactive and technical skills)
iv. Open Innovation Motivation (incentivising and rewarding for Open Innovation)

From the literature review section, it is evident that common elements for an Open Innovation model exist. Delineating these elements further, based on the review, the following key elements are identified to assist in the development of an Open Innovation Framework.

i. Open Innovation Strategy
ii. Open Innovation Culture
iii. Open Innovation Information and Knowledge
iv. Intellectual Property Management
v. Organisational Structure
vi. Open Innovation Skills Development
vii. Open Innovation Process
viii. Open Innovation Measurement
ix. Enabling Factors

REVIEW OF IMPLEMENTATION FRAMEWORKS AND MODELS IN THE LITERATURE

The Open Innovation Framework is meant to be used by SMEs to implement in their organisations to establish or enhance Open Innovation capability. It was therefore decided to review known implementation models and frameworks to use as basis for the Open Innovation Framework from an implementation perspective.

A Guide to the Project Management Body of Knowledge (PMBOK) (Project Management Institute, 2008) defines project management as “the application of knowledge, skills, tools and techniques to project activities to meet project requirements”. It continues in stating that “this application of knowledge requires the effective management of appropriate processes”. The PMBOK further suggests the following points for achieving a successful project:

i. Select appropriate processes required to meet the project objectives
ii. Use a defined approach that can be adopted to meet requirements
iii. Comply with requirements to meet stakeholder needs and expectations
iv. Balance the competing demands of scope, time, cost, quality, resources and risk to produce the specified product, service or result

The PMBOK also claims that “there is general agreement that the application of project management processes has been shown to enhance the chances of success over a wide range of projects”.

Considering that the Open Innovation Framework would require initial implementation into the organisation and further implementation of innovation projects, it was decided to evaluate the PMBOK processes, as framework consideration for the Open Innovation Framework.

The project management processes are grouped into five categories known as Project Management Process Groups. They are described in the PMBOK (Project Management Institute, 2008) as:

i. Initiating Process Group: those processes performed to define a new project or a new phase of an existing project by obtaining authorisation to start the project or phase.
ii. Planning Process Group: those processes required to establish the scope of the project, refine the objectives and define the course of action required to attain the objectives that the project was undertaken to achieve.
iii. Executing Process Group: those processes performed to complete the work defined in the project management plan to satisfy the project specifications.
iv. Monitoring and Controlling Process Group: those processes required to track, review and regulate the progress and performance of the project; identify any areas in which change to the plan are required; and initiate the corresponding changes.

v. Closing Process Group: those processes performed to finalise all activities across all Process Groups to formally close the project phase.

Figure 5: Project Management Process Groups, Source: PMBOK Guide - Fourth Edition

The System Development Life Cycle (SDLC) is a commonly used framework for system or software development. Although variations of the model exist (Ragunath, 2010; Rhodes, 2012; Tutorialspoint, 2014), the common phases of the life cycle include the following:

Planning

This phase is where planning takes place for the system development project. It initiates the project and determines the project approach. Planning is not a once-of process, since planning at this stage is based on limited information. More detailed planning is performed when information becomes available to assist in this process to ensure a more accurate plan.

Requirements

The analysing and defining of requirements for the intended system are performed during this stage. Requirements are normally provided by the end user of the system. The requirements will describe what needs to be accomplished by the system (what the system will be used for), the functions the system must be able to perform, quality attributes required, together with performance and user requirements.

Design

After the requirements have been defined, a system design is created that describes how the requirements will be met. The design will be used as input during the development phase. The
design may include “functional hierarchy diagrams, screen layout diagrams, tables of business rules, business process diagrams” (Rhodes, 2012) or other artefacts describing the final system.

**Development and Testing**

The system is built in this phase and tested for conformity against the requirements. During software development, testing can include functional testing, integration testing and user acceptance testing. At the end of development and testing, the system should be ready for deployment.

**Deployment**

The system is deployed into the organisation for operational use or into the market as a product. During this stage maintenance and updates might also be provided. This will extend the lifetime of the system and improve it with feedback from users.

The Plan Do Study Act (PDSA) cycle provides a “method for structuring iterative development of change, either as a standalone method or as part of wider Quality Improvement (QI) approaches, such as the Model for Improvement (MFI), Total Quality Management, Continuous QI, Lean, Six Sigma or ‘Quality Improvement Collaboratives’” (Taylor et al., 2013).

In 1993 Edwards Deming modified the Shewhart cycle and called it the Shewhart Cycle for Learning and Improvement or in its more known format, the PDSA cycle (Moen and Norman, 2010). “Deming described it as a flow diagram for learning and improvement of a product or a process” (Moen and Norman, 2010). The PDSA cycle contained the following steps:

i. Plan—Plan a change or test aimed at improvement.

ii. Do—Carry out the change or test (preferably on a small scale).

iii. Study—Examine the results. What did we learn? What went wrong?

iv. Act—Adopt the change, abandon it or run through the cycle again.

The PDSA cycle is an accumulation of changes to the original Shewhart cycle introduced in 1950 that contained the three steps Specification, Production, and Inspection (Moen and Norman, 2006). The cycle subsequently evolved into the Deming Wheel with the following steps (Moen and Norman, 2010):

i. Design the product (with appropriate tests).

ii. Make the product and test in the production line and in the laboratory.

iii. Sell the product.

iv. Test the product in service and through market research. Find out what users think about it and why non-users have not bought it.

v. Re-design the product, in the light of consumer reactions to quality and price. Continue around and around the cycle.

The Deming Wheel was reframed by the Japanese into the Plan Do Check Act (PDCA) cycle to include the following steps (Moen and Norman, 2010):

i. Plan: Define a problem and hypothesise possible causes and solutions.
ii. Do: Implement a solution.

iii. Check: Evaluate the results.

iv. Act: Return to the plan step if the results are unsatisfactory, or standardise the solution if the results are satisfactory.

Gerald Langley, Kevin Nolan and Thomas Nolan added three basic questions to supplement the PDSA cycle constituting the Model for Improvement. “This new approach provides a basic framework for developing, testing and implementing changes to the way things are done that will lead to improvement” (Moen and Norman, 2010).

![Diagram](Figure 6: Model For Improvement, Source: Moen and Norman, 2010)

Companies implementing Open Innovation will require cycles of continuous improvement to increase their Open Innovation capability, thereby also increasing their Open Innovation maturity (Enkel et al., 2011). Enkel et al. (2011) describes a maturity framework for Open Innovation in companies ranging from immature to medium-mature to mature based on the ability of the organisation’s innovation processes to be defined as initial/ arbitrary, repeatable, defined, managed and optimised. The Open Innovation maturity framework assesses the maturity of a company’s Open Innovation in the context of three overarching categories. These are:

i. Climate for innovation
   a. Leadership
   b. Incentives
c. Mind set

ii. Partnership capacity
   a. Reputation
   b. Partner selection
   c. Training and education

iii. Internal Processes
   a. Central coordination
   b. Resources
   c. Knowledge management processes
   d. Legal and intellectual property systems

The Open Innovation maturity framework therefore provides support to the notion that an Open Innovation approach would require continuous improvement to mature the Open Innovation capability within an organisation. It also emphasises the improvement across the various components of Open Innovation as described earlier in this article.

DERIVING AN OPEN INNOVATION STRUCTURE

From the models described in the implementation review section above, the following is derived to serve as structure for the Open Innovation Framework, within to build the Open Innovation execution elements, from the innovation models and frameworks review section. It provides an implementation and improvement lifecycle for Open Innovation.

Plan and Prepare for OI

All of the implementation models reviewed have a planning phase that prepares and sets up the organisation for change. This happens on a micro level (that of the project) and on a macro level (that of the organisation). Implementation is also covered in the Preparation phase, as all changes required to execute Open Innovation is effected at this stage.

Perform OI

Once the organisation is set up for Open Innovation, it needs to operate in this manner. Open innovation is performed to develop new products, services or other types of innovation. These innovations are then implemented into the organisation or into the market.

Measure and Evaluate OI

The success of the Open Innovation implementation needs to be measured. Key performance indicators of innovation metrics are assessed to establish the effectiveness of the innovations. Learnings are also obtained from the execution process that can be used to improve the process and grow the Open Innovation maturity in the organisation.
Improve and Mature OI

From the models reviewed earlier, it is clear that implementing and executing Open Innovation is not a once-off event. Organisations should continuously improve and mature their Open Innovation capability.

CONSTRUCTING THE OPEN INNOVATION FRAMEWORK COMPONENTS

The previous sections explored elements for an Open Innovation Framework and implementation and execution structures within which those elements could be applied. The following section develops those ideas further, combining the elements into an Open Innovation Framework. It combines both implementation and execution elements into an integrated framework.

Earlier in the article, nine different Open Innovation elements were identified. These were:

i. Open Innovation Strategy
ii. Open Innovation Culture
iii. Open Innovation Information and Knowledge
iv. Intellectual Property Management
v. Organisational Structure
vi. Open Innovation Skills Development
vii. Open Innovation Process
viii. Open Innovation Measurement
ix. Enabling Factors

The Open Innovation structure for the framework was defined as:

i. Plan and Prepare for OI
ii. Perform OI
iii. Measure and Evaluate OI
iv. Improve and Mature OI

The next step towards obtaining an Open Innovation Framework is to set the elements into the framework structure.

Plan and Prepare for OI

Within ‘Plan and Prepare’, organisational enablement takes place, setting up the organisation for Open Innovation execution. Reviewing the Open Innovation elements identified, we can assign seven elements to the ‘Plan and Prepare’ component within the framework.

Plan and Prepare for OI

Organisational Enablement:

i. Open Innovation Strategy
ii. Open Innovation Culture
iii. Open Innovation Information and Knowledge
iv. Intellectual Property Management
v. Organisational Structure
vi. Open Innovation Development Process
vii. Enabling Factors

Perform OI

An Open Innovation process is required to execute Open Innovation in the organisation based on the Open Innovation Strategy developed during the ‘Plan and Prepare’ phase and within the structures set up for enablement. One of the elements previously identified for Open Innovation was the ‘Open Innovation Process’.

Following the same structure format as with ‘Plan and Prepare’, we can show the ‘Open Innovation Process’ under Perform OI as follows.

Perform OI

Open Innovation Process

This will form the high level structure for the ‘Perform Open Innovation’ phase, but requires further detailed sub-elements. The following process elements are mentioned in the two innovation process models described earlier.

A.T. Kearney innovation model:

i. Idea management
ii. Development
iii. Launch and Continuous Improvement

Fugle model:

i. Idea generation
ii. Concept definition
iii. Feasibility
iv. Portfolio
v. Development
vi. Refinement and Formalisation
vii. Exploitation

These elements are fairly consistent within innovation processes. Other examples are

The four-step approach (Wright, 2007):

i. Idea generation
ii. Formulation
iii. Pilot
iv. Roll-out

The “bow-tie” process (Gaule, 2011):

i. Research
ii. Development
iii. Commercialisation

Open Innovation funnel process (Loren, 2011):

i. Design
ii. Implementation
iii. Introduction and Adoption

Based on the above, the following expanded component structure for the ‘Perform Open Innovation’ phase is defined:

**Perform OI**

Open Innovation Process:

i. Opportunities Discovery and Ideation
ii. Conceptualisation and Selection
iii. Development and Portfolio Management
iv. Deployment and Protection
v. Improvement and Exploitation

**Measure and Evaluate OI**

To continuously improve the Open Innovation capability within the organisation, it is imperative to measure and evaluate performance and results. The Open Innovation element of ‘Open Innovation Measurement’ identified previously addresses this aspect. A set of Open Innovation metrics are required to determine how the innovation processes is performing (Erkens et al., 2014). These KPIs should measure performance across the innovation process, from ideation up to deployment and exploitation. These metrics should then be used in a formal review of the performance of the ‘Open Innovation Process’.

In the review of the PDSA cycle, there was an emphasis on learning that can be achieved from reviewing performance results and using the learning process to enhance future performance. Learning can be achieved from internal company feedback or through feedback from external innovation partners. Comparing company performance against industry benchmarks can also be used as a method for learning.

Combining all these elements then leads us to the following framework component:
Measure and Evaluate OI

Open Innovation Measurement:
   i. Innovation KPIs
   ii. Innovation Reviews

Open Innovation Learning:
   i. Innovation Lessons Learnt
   ii. Partner Feedback
   iii. Benchmarking

Improve and Mature OI

The final framework component is ‘Improve and Mature’. Results and learning from the ‘Measure and Evaluate’ component are used to inform changes for adoption into the organisation. This assists in continuously refining and improving the Open Innovation capability in the organisation.

Improvements can be applied to any of the three framework components of Organisation, Process and Measurement, thereby enhancing the Open Innovation maturity. A distinction should also be made between designing the change and adopting the change within the organisation.

The Improve and Mature component can therefore be described as follows:

Improve and Mature OI

Open Innovation Improvement:
   i. Organisational Enablement Improvement
   ii. Innovation Process Improvement
   iii. Innovation Measurement Improvement

Open Innovation Adoption:
   i. Organisational Change Adoption
   ii. Innovation Process Adoption
   iii. Innovation Measurement Adoption

COMBINED OPEN INNOVATION FRAMEWORK COMPONENTS

The previous sections reviewed literature on innovation and implementation frameworks and models. From the literature, components were then defined for the Open Innovation Framework. Combining all of these components into a single framework structure provides the following:

Plan and Prepare for OI

Organisational Enablement:
   i. Open Innovation Strategy
ii. Open Innovation Culture

iii. Open Innovation Information and Knowledge

iv. Intellectual Property Management

v. Organisational Structure

vi. Open Innovation Development Process

vii. Enabling Factors

**Perform OI**

**Open Innovation Process:**

i. Opportunities Discovery and Ideation

ii. Conceptualisation and Selection

iii. Development and Portfolio Management

iv. Deployment and Protection

v. Improvement and Exploitation

**Measure and Evaluate OI**

**Open Innovation Measurement:**

i. Innovation KPIs

ii. Innovation Reviews

**Open Innovation Learning:**

i. Innovation Lessons Learnt

ii. Partner Feedback

iii. Benchmarking

**Improve and Mature OI**

**Open Innovation Improvement:**

i. Organisational Enablement Improvement

ii. Innovation Process Improvement

iii. Innovation Measurement Improvement

**Open Innovation Adoption:**

i. Organisational Change Adoption

ii. Innovation Process Adoption

iii. Innovation Measurement Adoption
These elements can be placed into a visual framework as can be seen in Figure 7, producing the Open Innovation Lifecycle Framework.

The Open Innovation Lifecycle (OIL) Framework comprises of four main components, six sub-components and twenty three core elements. Organisations implementing the framework will cycle through the four main components to continuously mature their Open Innovation capability over a period of time.

The Perform OI component will naturally have more “mini-cycles”, as Open Innovation projects are executed on a more frequent basis, than the review cycle of the Plan and Prepare for OI component for instance. Time should be allowed for changes to the organisation’s Open Innovation model to be embedded and stabilize. The frequency of completing a full cycle of the OIL Framework will therefore vary across organisations, being influenced by factors such as organisation size, maturity, change appetite, and innovation project turnaround times.

The twenty three core elements might also take on different forms within different organisations. The level of Intellectual Property protection, for instance, can vary in organisations from limited to no protection through patents, to high protection where all products have registered patents. The OIL Framework thus provides flexibility in the application of the framework within an organisation.

Each main component, although capable of standing on its own, should be performed within the lifecycle for an integrated and complete Open Innovation approach. It thereby does not only focus on the process of Open Innovation as with many other frameworks, but also the enablement and measurement thereof. The lifecycle approach also ensures continuous improvement of the overall Open Innovation capability.

The framework therefore satisfies both the implementation and execution requirements as expressed in the framework objective that was defined as: the development of a framework for the implementation and execution of Open Innovation for SMEs.
CONCLUSION

A framework is proposed for the implementation and execution of Open Innovation within SMEs. The framework follows an iterative cycle of continuous improvement, aiming to improve the capability and maturity of Open Innovation within the organisation implementing the framework.

The Open Innovation Lifecycle Framework can be adopted by SMEs looking for an Open Innovation approach to better perform innovation within their organisations - a need that was identified in the survey study under SMEs in South Africa. The framework covers four main areas within the lifecycle of innovation in an organisation, being:

i. Plan and Prepare

ii. Perform

iii. Measure and Evaluate

iv. Improve and Mature

The framework can be developed further in future research to include detailed descriptive elements for implementing Open Innovation within SMEs. This can provide expanded detail that will assist SMEs to practically apply Open Innovation within their organisations. The detailed approach could
include Design Propositions as per the Design Sciences Research method, taking the form of a detailed guide (Denyer et al., 2008), that should assist SMEs in their implementation. Further research is also required to validate the framework.

It should be noted that although the intention was that the framework be designed for SMEs, it appears generic enough to also be used by larger organisations. This could be due to the pragmatic approach followed to derive the framework and simplicity of the design to make it accessible to SMEs for implementation. Another reason for this might be due to the limited reference material available on SME specific Open Innovation frameworks and models, from which elements could be abstracted for inclusion into the framework. Reliance was therefore placed on innovation models that are more generic in nature or more commonly used within larger organisations, a much bigger research field than that of SMEs. It is believed that more SME specific detail can be provided when the framework is further developed into the detailed guide. Unique differences can then be more easily highlighted between large organisations and SMEs.

REFERENCES


Chesbrough, H., and Brunswicker, S., (2013), Managing Open Innovation in Large Firms. Fraunhofer Verlag.


