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The process of making the business case for technology: A sales and marketing perspective for technologists

D. Probert, M. Dissel, C. Farrukh *, L. Mortara, V. Thorn, R. Phaal

Centre for Technology Management, Institute for Manufacturing, University of Cambridge, 17 Charles Babbage Road, Cambridge, CB3 0FS, UK

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ABSTRACT

Technological investment is a key driver of innovation and the evaluation of technology potential is becoming increasingly important in this context. There is a range of approaches and tools for developing an understanding of the value of technology. However the process of communicating this potential to possible customers is not well documented in terms of theory and practice and falls outside the skill set of many technologists. This paper seeks to integrate the concepts of marketing and consultative selling into making business cases for new technologies. It describes an exploratory study which results in an outline process activity model for technologists wishing to build an effective business case for securing investment internally or when selling a technology externally. Following a review of literature, we suggest that there is potential to learn from market research and consultative sales techniques, and propose a five step process. The work has been industrially validated and forms a novel foundation for further development.

1. Introduction

New technologies are often characterised by high levels of both market and technological uncertainty [1,2]. This complicates the task of obtaining internal funding, for example from business units, or to selling them externally, for example as licenses.

This paper focuses on understanding how a marketing and sales perspective can support investment decisions for new technologies either inside the firm or selling technology to external customers. In both cases it is often the research and development departments that have the task of securing financial support for the new technology, be it from internal sources such as product or service oriented business units, or from external customers such as those who wish to buy for example licenses to be able to use the technology in their products or to improve their processes. The sales and marketing expertise within a company is usually focused on selling products or services that form the main income stream of the business and so is not generally available to support these activities.

A typical definition of 'building the business case' in a technology based company can be taken from Cooper [3], who suggests that technical, marketing and business feasibility are assessed and result in a business case with three main components: product and project definition; project justification; and a project plan. However as Cooper [4] himself recognises "….in a technology development project, the commercial prospects for the new technology are often unclear, especially near the beginning of the project when these commitment decisions are required" (p.24). Thus building the business case for technology can be seen as an entrepreneurial activity. Hindle and Mainprize [5] discuss the literature on entrepreneurial business planning and emphasise the crucial importance of *communication* in making a business case. They define an entrepreneurial business plan as "the formal argument used to secure, from prospective investors, resources for a proposed entrepreneurial process" [6].

* Corresponding author. Tel.: +44 1223339812; fax: +44 1223464217.
E-mail addresses: Drp1001@cam.ac.uk (D. Probert), marcel@dissel.co.uk (M. Dissel), cjp22@cam.ac.uk (C. Farrukh), lm367@cam.ac.uk (L. Mortara), vbt21@cam.ac.uk (V. Thorn), rp108@cam.ac.uk (R. Phaal).

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For technologists faced with the situation of promoting a technology that they have been heavily involved in developing, it can be hard to stand back and view it through the eyes of a buyer or customer. However, Freeman [7] states that "Innovation is essentially a two-sided or coupling activity....on one hand, it involves the recognition of a *need* or more precisely, in economic terms, a *potential market* for a new product or process. On the other hand, it involves *technical knowledge*, which may be generally available, but may also often include new scientific and technological information, the result of original research activity. Experimental development and design, trial production and marketing involve a process of '*matching*' the technical possibilities and the market (p.109)". This concept suggests that in order to sell a new technology it is necessary to demonstrate sufficient understanding of potential market opportunities rather than rely on the buyer to make the connection. Hence it can be suggested that technologists would benefit from an insight into the two-way communication process embedded within a sales and marketing approach, in order to develop a 'pitch' or business case for their technology.

The context for this work is a capabilities based framework for technology management activities [8]. The building of the business case itself and the evaluation activities that precede it, support both the acquisition and exploitation of technology as framed by the strategy, innovation and operations processes of the firm. A further objective is to link the commercial and technological perspectives held within the firm that drive resource allocation in creating and responding to new organisational and environmental opportunities.

Following the literature review an initial process activity model is proposed. Six case studies of technology valuation covering both internal and external sales are then reported. This allows literature and practice to be combined in a revised process activity model for making the business case for technology. The paper concludes with a discussion on the implications of the research and identifies future work to build on this novel approach, combining technology management and sales perspectives.

2. Literature review

In this paper we have identified a number of streams of literature that address the problem at hand. We seek to show how these can be combined to identify key gaps and provide elements of a process activity model for building the business case for technology.

2.1. The marketing and selling of technologies

Technology marketing is recognized as a core competence for technology enterprises [9]. However there does not appear to be consensus on the precise definition. A distinction that can be found is marketing of technology itself (intangible), and marketing of technology related products and services (tangible) [10–12]. Technology marketing that relates to technology product and services focuses on tangible aspects of technology induced products and services [1]. In these cases the marketing effort can be focused on a commonly accepted application and documented processes exist. For example, Easingwood and Kousteles [13] describe a four step marketing process: market preparation, targeting, positioning, execution. Conversely technology marketing of intangible technology or know-how elaborates on the issues of the intangibility [14].

In this paper we will focus on marketing related to intangible technology or know how [10] as this is less established than for tangible technology and relevant to both the buyer and the seller of that technology. Ford and Ryan [14] identified five differences between selling know-how versus selling a product for external sales, with some relevance to internal 'sales' where the customer may be a separate business unit. The first issue is to deal with the intangibility. They argue that companies often do not realize they actually have saleable technologies in their portfolio and thus require scanning processes to deal with the lack of awareness of their potentially marketable technologies. Secondly, the buying element of technologies often rests with engineering staff which could have a conflict of interest as they themselves have not been able to develop the technology. They ascertain that any approach to sell technology must allow for the potential unwillingness of these individuals. Hence the sellers must make sure they understand the buying centre of the buying firm (or internal business unit) and ensure they sell at the appropriate level. Thirdly, distribution of know how is fundamentally different from distribution of tangible products and often involves the help of a middleman. Unlike a product, know-how can be built up but is also highly perishable. Hence the delivery is difficult to define and carries legal implications as well. Some mechanisms they identified to deliver know-how are licensing and franchising. Fourthly, the market identification is different as the sale tends to be a one-off and the sales environment is associated with highly confidential situations. Again middlemen might be required to mediate between buyer and seller. Finally, pricing presents additional complexities. This links to technology valuation matters discussed in the following section.

The five areas mentioned above give a good overview of key aspects of marketing and selling intangible technologies. However, the authors [14] fail to address how the sales process actually functions. What are the necessary communication processes between the buyer and the potential seller and how are the sellers identified? Our research shows that these fundamental sales questions are often not well understood.

2.2. How are technologies adopted?

Technology adoption is relevant to distinguish the various characteristics of potential buyers of technology over time. Seminal work on technology adoption can support the identification of the challenges in the technology sales process [15,16].

The adoption process has been defined as "the process through which an individual or other decision making unit passes from first knowledge of an innovation, to forming an attitude towards the innovation, to a decision to adopt or reject, to