Intellectual capital and separability of technological assets

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Abstract

In the modern economy knowledge is the key to profits; thus knowledge assets are now being included in corporate reporting. According to international standards (IFRS) the only knowledge asset recognized is internally generated intangibles. The standards set an additional requirement for the recognition of these assets: they have to be separable. The purpose of this article is to discuss the meaning and implications of the separability criterion from the perspective of knowledge management and technology transfer. It is shown that although anything can (potentially) be sold, transfer of knowledge is a difficult task, dependent on tacit knowledge.

Key words: intangible assets, intellectual capital, technology transfer

1. Introduction

International Accounting Standard Board has so far supported a conservative approach to the recognition of internally generated intangible assets. Standard IAS 38 stipulates that unless an asset is acquired in a contract, it has to meet the separability criterion: it can be separated from the company and sold, transferred, licensed, rented or exchanged. The standard allows recognition of internally generated assets also if they are separable in conjunction with other assets. Notably, there is no requirement for the reporting entity to actually intend to sell or otherwise separate the asset. Similar provisions are put on reporting intangible assets as separate from goodwill in business combinations (IFRS 3).

The requirements of IAS 38 is often criticised for being too restrictive (European Commission 2006). It is true, that the standard does limit the possibility of reporting intangible assets and intellectual capital. First of all, the standard explicitly prohibits recognition of assets resulting from internal research, training and certain other activities as separate from goodwill. It is argued that research, defined as an activity aimed at building knowledge and not products, cannot be reliably linked with a future stream of benefits to the company. The argument against recognising training costs given in paragraph 15 of the standard is insufficient control over such assets. Curiously, according to illustrative example IE37, IFRS 3 does allow recognition of assets resulting from beneficial employment contracts when the contract is acquired in a business combination.

Secondly, all internally generated intangible assets have to meet the separability criterion. Only intangible assets have to fulfil that requirement, on top of all other criteria for recognising assets. Thus, it is not enough to show that an intangible asset is under control of a company, that it is a result of past events, and that there are expected benefits associated with it.

This paper is devoted to the discussion of the separability criterion for the recognition of intangible assets. The definition of separability is analysed and applied in the context of internally generated technology. The discussion then proceeds to the analysis of the act of separating technological assets – technology transfer. It is shown, that technology transfer is difficult due to problems in transferring tacit knowledge and intellectual capital of the employees of the transferring entity. Conclusions are drawn for the accounting treatment of internally generated technologies.

2. Separability

Internally generated technological assets are classified as intangible assets under the IFRS framework. If the asset is not backed by a legal right (i.e. patent) it can be identified only if it fulfils

the separability criterion, which according to paragraph 12 of IAS 38 requires that the assets be *capable of being separated or divided form the entity and sold, transferred, licensed, rented or exchanged, either individually or together with a related contract, identifiable asset or liability, regardless of whether the entity intends to do so*.

It can be argued that the separability criterion implies two requirements for an asset. First, the asset has to be named, or otherwise identified, so that it is at all possible to sell or rent the asset. This requirement is fulfilled by documenting the technology – which should be standard practice for reasons of protecting intellectual property. Second, for an asset to be sold or rented it is necessary for it to have positive value for the buyer. This means, that the technology in question can be transferred in one form or another so that it will bring benefit to the buyer (Contractor 2000). However, as it will be shown in the next section, efficient adoption of a technology is dependent not only on acquiring the necessary technical documentation but also on tacit knowledge embodied in the company and its employees.

The separability criterion allows significant freedom of managerial judgement in recognising internal intangibles. Extant research suggests that proprietary technology is reported in response to economic incentives: for example managers are more willing to report such technology if it is complex and science-linked, which makes it difficult for competitors to copy (Wyatt 2005). Since the recognition of such assets is aligned with the underlying economic factors, identifiable intangible assets are value relevant and they increase future earnings (Ritter and Wells 2006). On the other hand, companies with high levels of intangible assets tend to exhibit more uncertainty about future earnings, reflected in variance of analysts forecasts (Barron et al. 2002).

3. Technology transfer

A separable technology can be transferred to another entity: the employees of the other entity should be able to acquire the knowledge embodied in the technology by studying blueprints and possibly learning from employees of the seller company. Eventually, the new technology should start functioning in a new social and organisational setting. The process of technology transfer has recently been subject of special interest for academic and policy makers who aim to facilitate diffusion of new technologies (European Commission 2000).

Although it would seem that with enough effort any technology can be documented and successfully transferred, history provides many examples to the contrary. At the beginning of the industrial revolution France was attempting to acquire steel making technology from England. Despite considerable espionage effort on the part of France, it was not until France was able to

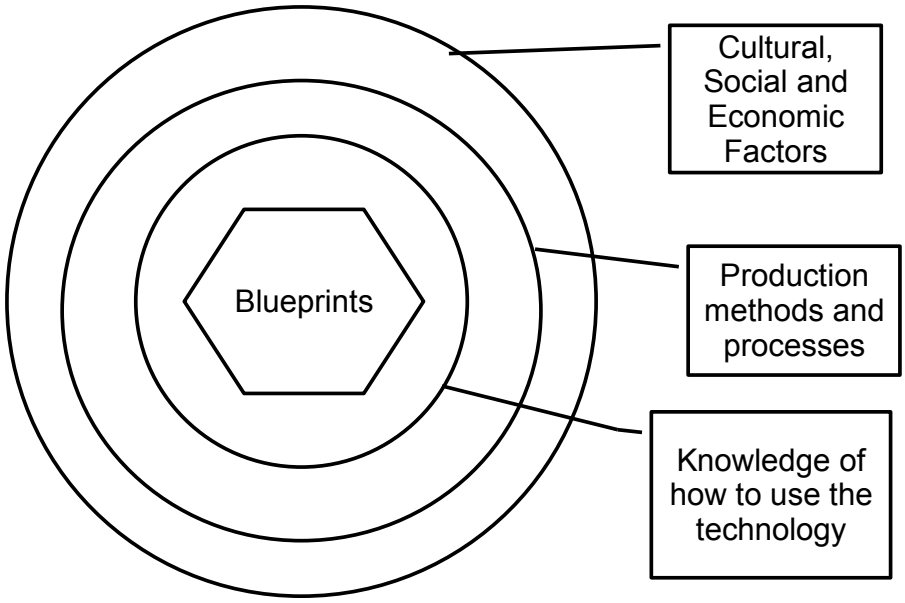
employ skilled English labour that the technology was transferred. Another example is provided by Lindqvist (1984) in his analysis of Marten Triewald's attempts to construct a steam engine in Sweden. Triewald was a student of British engineering and had had experience in building such engines. However, his attempts to transfer the technology to another country failed. The main reason were differences in cost of materials available in England and Sweden.

A modern example of a spectacular failure of technology transfer happened during World War two, when Boeing, Douglas and Vega became part of a consortium for the construction of B-17 and later B-29 bombers (Fergusson 2000). Boeing was the leader of the consortium and the bombers were based mostly on Boeing's design. To build the planes, the consortium needed not only to coordinate production, but also to transfer the necessary technology. All three members of the consortium cooperated; there is no evidence of Boeing trying to hide its technology. In fact employees of Douglas and Vega regularly visited Boeing's headquarters in Seatle. Still, planes produced in three different locations were essentially three different planes.

The example of Boeing-Douglas-Vega shows that the technical documentation of a technology is only the basic requirement for successful technology transfer. Blueprints rarely tell the whole story of how to produce a piece of equipment. Workers can have different ways of performing the same construction task and production processes may be organised in any of a number of ways.

The structure of a technology, which is subject to transfer between companies, is shown in figure 1. First, the documentation of the technology is located in the centre: this can be blueprints, code or other documentation prepared in technical language. Second, for the technology to be transferred, the buyer needs to be able to produce the final product on the basis of those blueprints. For example, even if one has the base code of a piece of software, deciphering what various pieces of the code do would be almost impossible without additional documentation. For that reason software developers use special tools for organising and documenting software (for example object programming and interfaces). Third, the new technology needs to be compatible with the production methods of the buyer. Finally, the new technology needs to be aligned with the cultural and economic environment of the buyer. If it upsets the status quo, it may trigger strong resistance. For that reason it is advisable to consider the adoption of technology on all levels of management, not only at the technical level (Bannert and Tschirky 2004).

Figure 1. Structure of technology transfer



4. Conclusions

Identification and reporting of internally developed technologies requires careful judgement. On the one hand, according to IAS 38 it is enough to document the technology well in order to show that it is separable, and that future benefits from the technology are probable. The technology can then be valued initially at cost. On the other hand, the fair value of such a technology may be much lower than its development costs. A prospective buyer would have to weigh potential problems of technology transfer against the gains. In particular, if the reporting entity does not intend to sell or otherwise transfer the piece of technology, it will not prepare additional documentation to facilitate the transfer. Thus, the separability criterion will be fulfilled only on paper, as no buyer would be willing to purchase the technology at a reasonable price.

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