The problem with Value

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Economic and firm theory as described by Schumpeter (1943), Penrose (1959) and many others, informs managers about factors involved in achieving company profitability. Exploiting resources and controlling costs in order to maximise profitability feature in the descriptions. However, merely focusing on current profitability can give a misleading picture of the company's ability to operate over a long term (i.e. its ability to sustain operations) and a balance needs to be struck between profits reported and the way resources are exploited. For example, investments made in new skills are generally accounted for as a cost[1] which reduce current profitability.

The hope is that future revenues will more than compensate for the initial cost. Barker (2001) proposes that such revenues, i.e. those arising from advantages gained over the long-term, should be accounted for in the present as they enhance a company's future prospects. However, a problem arises if anticipated revenues do not match expectation. When and how to exploit resources through investment is a well-known issue for R&D managers but one that can be considered through the question of value. "What value will this activity generate for the company, its products and services?"

What is 'value'?

To begin answering that question an understanding of what is meant by value and how value can be measured is required. Cross (2008) explains that whereas the cost of getting a product to the point of sale can be calculated, ascertaining the value of a product is difficult. Simply, an explicit asset, something that can be transferred between a buyer and a seller, will achieve a financial value dependent on what a purchaser thinks it is worth, i.e. the price they are willing to pay.

But there are many other factors involved. The ability of the seller to conclude a good deal is one factor (Razgaitis, 1999), as is the process for delivery (Pike, 2000). These factors have an impact on the price and the value that can be achieved. Customer satisfaction and quality of service are further examples of factors that impact value.

An asset is defined as something from which future economic benefit can be accrued (The Statement of Principles for Financial Reporting (Accounting Standards Board, 1999)) and therefore these factors can also be viewed as assets. Companies often choose to think of such factors as part of corporate competency and knowledge as without competencies and knowledge, quality and service can diminish. Such assets are not explicit as they are not for sale. The term implicit asset is therefore used.

A question then arises as to the value of implicit assets and how can their value be calculated. Brand value[2] is a term often used to explain price differentiation between competing organisations. In this instance, the price differentiation can be thought of as the summation of implicit assets aligned to a particular explicit asset.

[1] Investment in plant may be accounted for as a capital asset as well as a cost, whereas investment in skills may be accounted for as an expense and therefore will appear only as a cost.

[2] Brand value is often included under the goodwill assets heading within company accounts .

Two consequences then become clear. Firstly, the value of implicit assets becomes subsumed within the value of the related explicit asset, and secondly, the implicit assets involved are invisible. This situation is not the case, however, for many digitally based companies who typically have very little in the way of tangible explicit assets, and for start-ups with a limited Brand. For such companies implicit assets form the majority of their asset base. Competency and knowledge may be the major asset.

The preceding paragraphs serve to identify and describe two different types of assets, explicit and implicit, that are important for understanding value. The focus now turns to value.

The value of assets is not static. Price erosion, for example from oversupply, and price hike due to, for example, scarcity, can emerge. Similarly, a brand may go out of fashion and lose value or may achieve good reviews, leading to increased business. To accommodate these changes in value, Razgaitis (1999) makes a distinction between valuation, an estimate of a figure which may be achievable, and value, which is the price agreed between seller and buyer at any one given moment. Timing, market forces and methods used to exploit assets, both explicit and implicit, all influence the value achieved.

SAVE International (2007) provide a more general definition of value: 'a fair return or equivalent in goods, services or money for something exchanged'. This definition takes into account both seller and purchaser perspectives, widens the concept of value to include non-financial returns and incorporates exploitation. SAVE international[3] promote the use of value engineering to maximise values that can be achieved. Value engineering includes undertaking a value analysis which seeks to identify the functions that purchasers perceive as valuable, including the benefits accruing from their purchase.

Reducing cost or providing additional valuable functions (adding-value) is the goal in this example, but added-value from implicit values such as environmental or social benefit could be treated similarly. What emerges from the above is that the meaning of value and how it is calculated is dependent on the context, the operations involved, the functions provided, the cost, the benefits, the business context, the market in which the business operates. This is discussed further below.

Context

Having a clear understanding of the business context and drivers is necessary for sound analysis of company performance (Penrose 1959, Hahn & Figge 2011) and these should be reflected in a model based on measurable indicators (Porter 2000). The model can then be used to evaluate different situations. One model proposed by Hahn & Figge (2011) utilises measures that reflect the motivations of the company. A company with a 'green' agenda could, for example, use any decrease in CO_2 emissions (an environmental factor) as an indicator, whereas a company with an R&D agenda may wish to use the level of staff competency (an organisational factor), or for a company with a social agenda the impact on a community could be the indicator of choice.

[3] SAVE international is an organisation set up to promote value engineering www.value-eng.org last accessed 02/02/2013

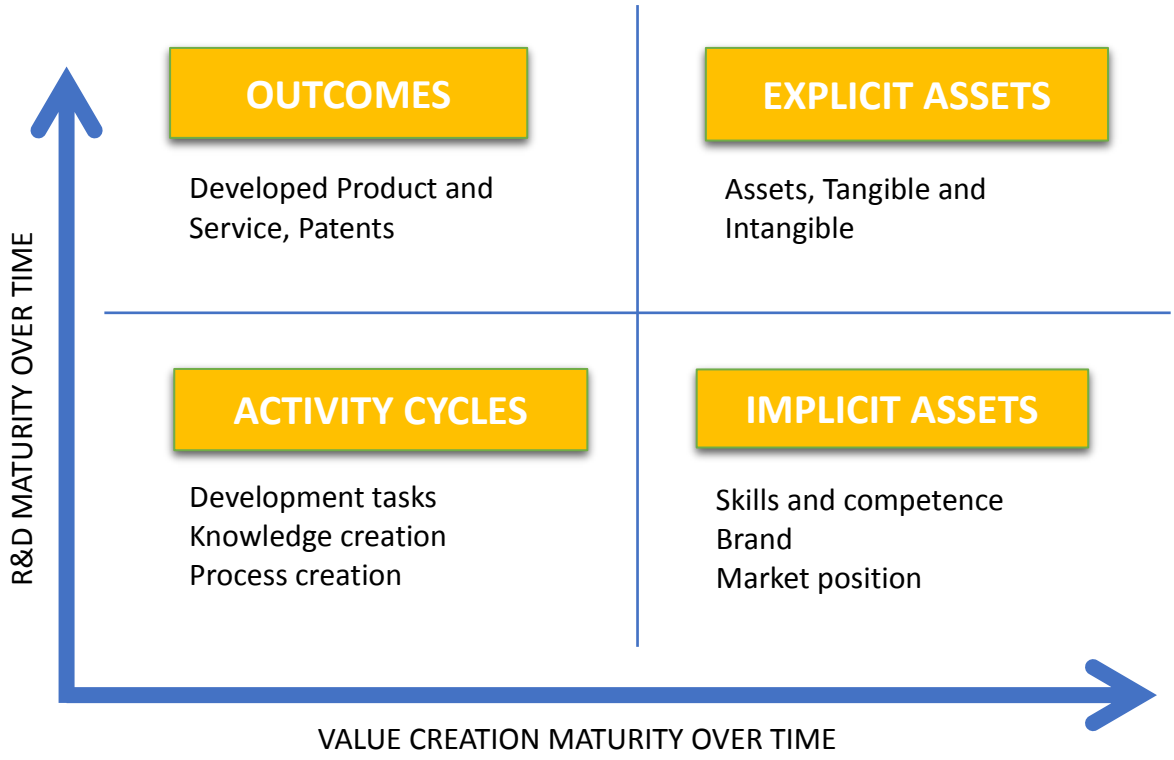
Hahn and Figge analysed models used in practice and found that in general R&D development costs and revenues generated from sales were the main factors. Environmental and social factors were not identified. Hahn and Figge therefore constructed a model which they named 'inclusive'. Indicators emanating from organisational and environmental factors were defined as independent parameters, and values were assigned to each, based on an estimated contribution to profits. Predictions of value generated by the company, using both the original and the 'inclusive' models, were then obtained.

Comparison between the predictions and figures reported in accounts led to the conclusion that the 'inclusive' model provides a better estimate of value achieved. Reports of the impact organisational, environmental and social factors have on values achieved can be found easily in the literature.

For example Rhamic (2006) examined staff competency, and higher competency was found to correlate to increased company value. What is highlighted above is that when implicit assets linked to the business context are identified independently of explicit assets a more robust indication of value achieved through exploitation can occur.

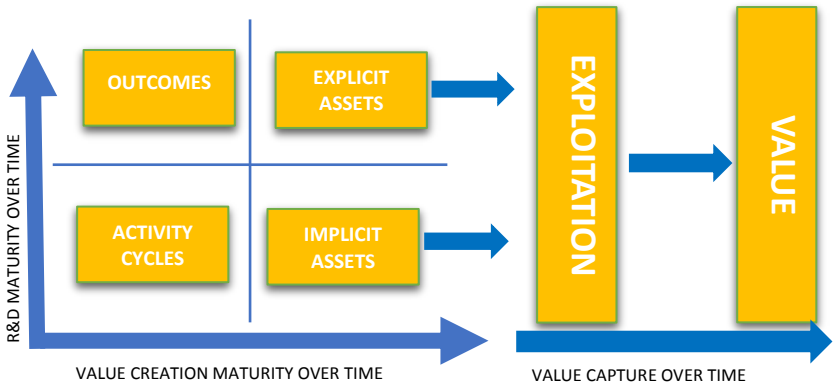
Whatever model is used however, the problem for the practitioner is that measures of implicit assets, such as competency, are not generally available (Barker 2001), and it is perhaps easy to see why. Companies assess their overall value through financial statements and these require them to specify value in terms of assets. Explicit intangible assets such as patents can be valued in a similar way to tangible assets but the same cannot be done for implicit assets such as competency and knowledge. Accounting measures do not exist. The value of implicit intangible assets can be included, as mentioned earlier, in terms of Brand or Goodwill, as long as the asset can be described in terms of future economic benefit that can be accrued (The Statement of Principles for Financial Reporting (Accounting Standards Board, 1999)).

Valuation of Goodwill is the domain of accounting experts using standard practice to substantiate the benefits that could potentially accrue, but to capture financial value, an exchange of assets must occur and therefore capturing value from the implicit asset is reliant on the exchange of an explicit asset. An example of how this is achieved was provided in a previous section; i.e. the ability to attain a higher price in the market for goods associated with a good brand. The value matrix below illustrates how value capture can be achieved.



The value matrix illustrates how activities undertaken during R&D cycles of activity mature over time into product and service outcomes in the vertical direction, and into knowledge and brand based implicit assets in the horizontal direction. R&D projects stages and Agile[4] sprints are examples of activity cycles. Outcomes are generated at the end of one stage or sprint and the next begins. Over time, and as more cycle are completed the maturity of outcomes increases, and as they become more marketable their potential value increases and they become exploitable.

The matrix also identifies the implicit assets involved in this evolution. Market knowledge and market readiness, gained through cycles of evaluation, trial and testing, mature in a complementary way to the explicit assets. Mature market knowledge, or, for example, a competency such as the ability to make a good deal, are key elements for exploitation. The link between the assets generated and value captured is shown an extended value matrix below.



[4] Agile is a process often adopted in R&D which embodies continual cycles of work or sprints

The extended value matrix illustrates that exploitation involves the uses both implicit and explicit assets in a journey taken over time to capture value. In answer to the question "What value will this activity generate for the company, its products and services?", the point to make is that if one wishes to gain an understanding of the value, identifying both the explicit and implicit assets involved is a good starting point. Ginoglou, et al., (2009) re-inforce this when they say that the limiting factor for valuation is not whether a value can be assigned to an asset, but whether or not the asset can be identified. Lynch (2019) describes how monitoring R&D activity both in the present and retrospectively, enables companies to identify assets but highlights the importance of identifying not only the asset itself but the context in which it becomes as asset. 'Value of What' and 'Value to Whom' are two important questions to be posed.

Scale of the valuation exercise is also a consideration. Roadmapping is a technique often used by companies to visualise and plan the way ahead on a company level. Furthermore, Value Roadmapping which aligns value drivers to the company aims can for example, help companies identify strategies by which they can remain competitive. A third question therefore arises: 'Why is the value important?' Lynch (2019) specifies the 'Why' in terms of the need to take decisions on investment being made into R&D projects. The same 'Why' question can also be applied at scale for project portfolios and at company level. The following paragraphs report on two valuation tools, the contexts relevant in how they address the 'What', ' For Whom' and 'Why' questions.

Research examples

Research undertaken by Professor Xiaolan Fu and Dr Shaomeng Li into calculating the potential value of start-up companies (the 'What') identified an unmet need for early-stage technology investors (the 'Whom') to understand the investment opportunity and the risks involved (the 'Why').

Early-stage technology companies often have little in the way of explicit assets and valuation is often therefore weighted towards implicit assets. Knowledge and competency of the development teams are examples. Patents however are one type of explicit asset that are often accrued by technology start-ups. Fu and Li therefore selected patents as a parameter in the development of a model to determine future values of technology start-ups. The model uses AI and deep learning, and has been trialled on data from UK technology start-ups within the ICT industry (the context) created between 2006 and 2015[5]. The model was developed by matching patents to the companies. Results revealed good matches between prediction of value to actual values, in 85% of cases. The researchers note however that currently this model has only been verified for ICT companies. The context is therefore important.

The context for the Cambridge Valuation Tool[6] is business sustainability.

[5] https://www.ox.ac.uk/news/2017-08-10-calculating-value-technology-start-ups

[6] https://www.ifm.eng.cam.ac.uk/research/industrial-sustainability/sustainable-business-models/tools/cambridge-value-mapping-tool/

Research was undertaken initially as part of an EU FP7 SustainValue project in response to a recognition that companies could often fail before they had reached their full potential (the 'Why'). The project, led by Dr Steve Evans, resulted in the development of a tool which can be used to help companies understand how they create and capture value, and – importantly – how value can be lost.

The model doesn't suggest specific assets to be identified but assets (the 'What's) are uncovered during workshop sessions. The tool is very flexible allowing it to be used not only on a company level, but also at project level. Furthermore, the tool provides the capability for analysis of value created for the environment, the society, the shareholders as well as the company (the 'Whoms'). The need for a clear distinction between who gains value, and who potentially loses value is highlighted.

In summary

Firstly, the paper has highlighted that value is a problematic word. It has many meanings and can be used in many different way. This paper has presented different situations in which the word value is used and provided guidance and explanation as to how the word value can be interpreted in order to limit ambiguity.

Secondly, the paper has sought to describe and highlight the differences between explicit and implicit assets. How assets can contribute to the value of a product, service or company is also covered. The importance of the identification of both types of assets has been covered and a value matrix that can be used to help differentiate the assets has been presented.

Thirdly, the paper identified context as being important when attempting valuation of asset. Value of What, For Whom and Why are suggested as questions that can be asked whenever valuations are being attempted.

Finally, the paper has reported on two pieces of research, each of which resulted in the creation of a valuation tool. The contexts being addressed by the tools is reported on together with a review of how use of the tool maps to the What, Whom and Why questions. Asset identification is also reviewed

In conclusion, it would seem that answers to the question posed by this paper can be found, but significant effort may be required to identify assets and capture data. Tools are available to assist but data and effort is still required. Identifying assets and capturing data are therefore limiting factors. Perhaps most important is the context. Without context any valuations arrived at could be meaningless.