

# What is the Value of Knowledge Management Practices?

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**Abstract:** What are the appropriate sources from which to draw evidence about Knowledge Management (KM) and its added value to organisations? This paper attempts to answer this question, first examining the literature for approaches to measuring KM from the perspective of Intellectual Capital (IC) theory. However, findings indicated that many measurement methods or frameworks have limitations. Following the literature review, the researchers then approached KM practitioners, within the UK car manufacturing industry, and undertook in-depth interviews in an attempt to understand how these organisations value their KM practices. The UK car manufacturing industry was selected because little previous research has been undertaken in this context, most previous studies having concentrated mainly on service industries. It was discovered that, in most of the organisations studied, the link between KM, business benefits and bottom line is almost axiomatic, especially amongst those who are enthusiastic advocates of KM. Drawing on the evidence from the in-depth interviews, the paper concludes that there is an absence of linking mechanisms between value and measurement. This is due to the differences between the concept of a value and measurement approach and the importance of these two concepts to justify the outcome of KM practices. Recommendations are made through the development of a theoretical framework that includes both objective and subjective dimensions of KM measurement strategy.

**Keywords:** knowledge management, intellectual capital, uk car manufacturing industry, theoretical framework, value, measurement

## 1. Introduction

Over the past decade, KM has come into the limelight and received considerable attention from academics and practitioners. This is evidenced from a recent bibliometric analysis of global KM research which shows that 2727 authors have contributed 1407 KM publications since 1975 (Gu, 2004). In addition, a significant number of organisations and practitioners are involved on various KM programmes. A KPMG survey of 423 leading European and American companies found that 70% of respondents were undertaking some kind of KM initiative (KPMG, 2000). Another recent UK survey of top 1,000 British companies found that 64% of responding firms had introduced KM while 24% of them were at the introduction stage (Moffett et al., 2003). This highlights the immense and rapidly increasing interest in KM. In relation to this phenomenon, Grant (2001:p.27) suggests that 'among the innovations that have swept through the world of management during the past two decades.....KM has probably aroused the greatest interest and made the biggest impact'. However, some critics suggest that this is probably because of an explosion interest in the term of 'Knowledge Management' and all that it may or may not imply (Despres and Chauvel, 2000).

The most significant factor of this phenomenon is the recognition of the importance of knowledge as a critical resource for organisations (Drucker, 1998; Nonaka, 1991; Davenport and Prusak, 1998; Prusak, 1997; Leonard-Barton, 1995). Thus, knowledge is claimed as the main distinguishing factor of business success and competitive advantage (Carlucci and Schiuma, 2006; Pan and Scarborough, 1999). If the knowledge is deemed to be the most important resource of organisations, then clearly the need to secure that resource must be of primary concern and demands good management. Consequently, it is becoming accepted that 'the only true competitive advantage for organisations, over the long term, is knowledge that is, how organisations create or acquire knowledge, how organisations retain and store knowledge, how organisations disseminate and use knowledge, and how organisations protect and manage the knowledge they have' (Gallupe, 2001:p.61).

However, despite growing interest from academics and practitioners, KM is not a commonly shared concept and definition. This is because KM field is relatively young (Serenko and Bontis, 2005) and in its infancy (Jarar, 2002; Gallupe, 2001) and still requiring further extensive development (Metaxiotis et al., 2005). The purpose of this research is to address the gap through informing the theory into practice and *vice versa*. The main focus of this paper is on the development of a conceptual framework to provide a profound and comprehensive understanding of the role of KM, its added value and measurement mechanisms. This is important because researchers and practitioners need to understand the theoretical underpinning which embedded in KM applications and how KM adds value to the organisation through the KM measurement approach.

The literature review highlights a number of success stories with regard to added value resulting from KM practices in companies such as Hewlett Packard, Xerox, Dow Chemicals and Texas Instruments among others. These companies benefited from KM practices to gain competitive advantage. However, there is a dearth of literature on the subject in the context of the car manufacturing industry. Therefore, this paper aims to contribute to close this gap by exploring the experience of UK car manufacturing companies in KM practices. This paper is organised into five sections beginning with introduction, through the literature review, methodology and major findings and discussions where the proposed framework is developed and discussed. The final section closes the paper with some concluding comments of the research.

## **2. Literature review**

The fundamental idea of KM, as originally proposed, is dealing with the management of knowledge in related activities (Wiig, 1997). This includes organising, sharing and using knowledge in order to create value and achieve competitive advantage for an organisation. Whilst knowledge has been a central topic of debate in philosophy and epistemology since the time of Plato and Socrates, it is claimed to be among the newest ideas in management, the idea of capturing knowledge gained by individuals and spreading it to others in the organisation (Takeuchi, 2001:p.315). One view of the development of KM, is to distinguish this into two generations (McElroy, 2003). First generation KM is known as 'supply side' (objectivist perspective) and includes capturing, codifying and sharing knowledge. For instance, Dow Chemicals share and protect their IC by codifying the knowledge in the form of patents (Davenport, 1998). In contrast, second generation KM is known as 'demand side' (practice-based perspective) and is concerned with knowledge creation and knowledge sharing through people utilisation. For example, at Chaparral Steel, the company has unique apprenticeships for all production workers that include both classroom and on-job-training (Leonard-Barton, 1995). While the former focuses on an IT approach, the latter emphasis is on 'people' with initiatives such as collaboration and team working. Both generations highlight the managerial facet and emphasise ways to manage organisational knowledge. This reflects the view of KM as a set of processes concerned with the usage, development, renewal and application of knowledge (Wiig, 1997).

However, another development arises as an extension of the KM concept which is concerned with value creation (Carlucci and Schiuma, 2006). On this subject, it has been primarily concerned with assessing, evaluating or 'measuring' KM practices. An increasing number of contributions have been produced and some new concepts have been introduced in the literature. In particular, IC has emerged among the key concepts to analyse and evaluate KM practices. Several models have been developed to assess KM practices, including the balanced scorecard (Kaplan and Norton, 1992), Skandia Navigator, (Roos et al., 1997), Intellectual Capital Index (Edvinsson and Malone, 1997) and the Intangible Asset Monitor (Sveiby, 1997). The common feature of these models is that they are often described as non-financial models. In contrast, traditional measurement models, such as those presented in financial statements and balance sheets, still have a heavy reliance on financial value. This is partly due to the fact that it is often very difficult for accountants and economists to allocate an orthodox valuation to intangibles, such as knowledge, as they rarely have an exchange value (Bontis, 1999) and do not have direct representation of firm value (Mouritsen, 2004). In relation to this issue, Johnson and Kaplan (1987:p. 202) state that:

*"A company's economic value is not merely the sum of values of its tangible assets, whether measured at historic cost, replacement cost, or current market prices. It also includes the value of intangible assets: the stock of innovative products, the knowledge of flexible and high quality-production processes, employee talent and morale, customer loyalty and product awareness, reliable suppliers, efficient distribution network, and the like.....reported earnings cannot show the company's decline in value when it depletes its stock of intangible assets"*

Nevertheless, it is questionable whether such measurement models are really grasping the ultimate value of knowledge, resulting from KM practices. Moreover, there is additional complexity due to the nature of knowledge characteristics in different types of knowledge, which subsequently understates the value resulting from the measurement process. Arguably, organisations struggle to understand the adding value or the impacts of KM initiatives, which make them difficult to justify (Chong et al., 2000; Skyrme and Amidon, 1998). Likewise, there are no straightforward links between KM and business performance but, instead, a complex relationship (Carlucci and Schiuma, 2006). This is further complicated by the existence of various forms of KM initiatives ranging from those focusing purely on technological perspectives to those focusing on mainly human perspectives which results in

multidimensional implications. Therefore, understanding the linkage between KM practices and their implications can help explain what is the adding value to organisations. An important question that arises in relation to this matter is: how can KM add value to organisations? The following section will discuss the research methodology of this study.

### 3. Methodology

This qualitative research study which conceived as theory-building approach was performed through in-depth interviews by questioning six senior managers from different companies in the UK car manufacturing industry. In the course of the in-depth interviews, the general interview guide approach was used to make sure all relevant topics were covered, combined with standardised open-ended questions in pre-determined fashion in order to guide the flow of the interview. The opportunity for narratives or 'story telling' and expressions of opinion was considered more important than strictly addressing each question in order to gain insight into context and meaning and secure richness of data. It can be claimed that the interviews were conducted in a 'non-judgemental form of listening' (Zuboff, 1988:p. 428), with questions asked to probe emergent issues and seek explanations.

The analysis of the interviews followed the thematic analysis technique, as suggested by Ritchie and Spencer (2002). The main themes of the research were identified through the process of spelling out the meanings and concepts of each statement in the transcripts. It should be noted that the list of themes underwent iterative revisions and refinements until *saturation point* was achieved (Glasser and Strauss, 1967; Lincoln and Guba, 1985). The themes were then clustered into main components and the conceptual framework developed. The researcher presents this as a 'logical chain of evidence' (Miles and Huberman, 1994:p.260).

### 4. Findings and discussions

There has been widespread acknowledgement in the literature that KM is critical for organisations to create or add value in sustaining competitive advantage through the impact of, and benefit from its practices. Although some authors, such as Skyrme and Amidon (1998:p.20) and Scarborough (1999:p.360), recognise the capability of KM in adding value, it is argued that the link between KM and the business benefit or bottom line was almost 'axiomatic'. Following this, the added value or the business benefits were identified based on rigorous research and empirical investigations, as indicated by Robinson et al. (2005) and Breu et al. (2000). Nevertheless, it is still unclear how KM adds value or even impacts on business performance in view of the controversy surrounding the concepts.

For confidentiality purposes the organisations' names were coded accordingly. They were coded as Company A, Company B, and Company C etc. It was reported from the findings that added value is gained in the practice of KM. Basically, added value is determined and described through the implication and benefits of the KM initiatives. Given that manufacturing is the organisations' nature of business, there is a link between KM practices and *operational benefits* which suggests that the main reason is because the role of KM is aimed at improving manufacturing processes which are embedded in the organisation's business strategy. From the findings, it was indicated that KM practices improved their organisations' operational activity in variety of ways, such as reducing the design cycle time, lead time, cost, reducing time product-to-market, and improving the quality of product. For example, for Company A, the design cycle time was massively reduced from 120 hours to 8 hours through the utilisation of knowledge-based tools. This is illustrated as knowledge-based tools enabled engineers to design products according to specifications. 'Codified knowledge' embedded in knowledge-based tools is used in the process. Moreover, tacit knowledge of the engineers is codified throughout the process where the design is stored in a database of knowledge-based tools for them to reuse and review the design. In consequence, this reduces the cost of designing cars since less time is required to produce such designs. This is because the engineers don't have to design from scratch as the same design is reused. In contrast, the participant of Company B claimed that sharing best practices allows the organisation to improve the quality, and reduce lead time and cost, because they have found new ways and techniques of process improvement through knowledge creation and sharing processes. As a result, they are able to produce cars quicker to customers than their competitors. Competitive advantage, it is claimed can be achieved with 'extra knowledge' than competitors of efficient manufacturing processes resulting in delivering products on time to customers.

Besides the operational benefits, it was found that KM initiatives had improved the *business processes*. For Company A, knowledge of design that is codified will be used as 'standard' for the same process in the company Group. This can establish synergies across the brand with the best standard of design. Further, as indicated by the interviewee from Company C, the organisation can reduce time for business processes by not having to 'reinvent the wheel', since they can share best practices and apply those in different geographical areas. With other mechanisms, as highlighted by the interviewee from Company B, business processes were improved through conversations and discussions that can generate invaluable knowledge for forecast saving and cost reduction. In addition, with the available information and knowledge about processes and product, business processes were improved by providing rapid response and solutions to customer complaints. Also KM practices had improved the business process with the quality of cars produced, where this can further retain the existing customers, as indicated by the interviewee from Company C.

With regard to *financial value*, the literature review highlighted a few KM case studies (Robinson et al., 2005). From the findings, the interviewees described how process improvement and KM benefits were translated into financial value. Interestingly, the financial value was described through the result of operational and process improvement activities. As stated by the interviewee from Company B, the financial value was gained through less repairs and maintenance due to improvements in the quality of the product. Consequently, this would reduce customer complaints. This is important because poor quality products, in turn, will lead to customer dissatisfaction and, further, could reduce sales turnover. Moreover, financial value was defined through the reliability of machinery and equipment. This means the production volume will be affected by low quality machines which require high maintenance costs that may cause losing potential sales turnover. Hence, with less breakdowns and repairs, the company can achieve production targets that are worthwhile in terms of financial value. Nevertheless, financial value is not always described explicitly and straightforwardly, but rather in metaphorical terms, as highlighted by both interviewees from Company F. This may imply the difficulties of measuring the value and impact of an abstract concept, such as knowledge (Elliot and O'Dell, 1999). Further, the findings can confirm the results undertaken by Chong et al. (2000:p.374), suggesting that relatively few organisations can monitor the costs and benefits of KM initiatives.

In another aspect, the findings disclosed that KM practices had an impact on *organisational culture*. The results were not surprising because the KM literature highlighted that previous surveys had consistently revealed that social and cultural issues were the main obstacles to the success of KM practices. However, as mentioned by the participant from Company B, the organisational culture had changed towards a knowledge sharing culture where employees were driven to generate and share knowledge for the purpose of organisational improvement. The employees are more motivated and willing to share their knowledge because they feel more valued for their intellectual capabilities and skills when they can see their contribution towards improvements in the organisation. This is related to Kim and Mauborgne's (1998:p.332) argument stating that ideas and making workers feel valued can impact on attitudes towards knowledge sharing; 'when they felt that their ideas and person get recognised through fair process, they were willing to share their knowledge and their all'. Moreover, as indicated by an interviewee of Company D, employees from all levels were actively involved in knowledge sharing as their contributions were recognised as team rather than individual achievements. The employees were becoming multiskilled and also more flexible and capable of performing various kinds of jobs. The ability to be flexible and being multiskilled are part of the working culture and they didn't view it as an extra burden to their workload.

Despite the perceptions or interpretations of added value described by the interviewees as discussed above, it is important to investigate what *measurement approach is used and how the value is justified*. From the findings, it was revealed that various unspecific measurement approaches were utilised by interviewees' organisation to assess or evaluate the outcome of KM initiatives. For example, Company A's KM initiatives were measured against operational objectives, i.e. time, quality and cost. Similarly, Company B and Company D linked their measurement approach to organisational targets. Although KM measurement models, such as the Skandia Navigator, IC Index and Intangible Asset Monitor, were not adopted by the organisations, the findings implied the importance placed on the ability to measure what they can manage. This is relevant as the KM literature indicates the concept of the relationship between measurement and management of KM initiatives (Roos et al., 1997; Liebowitz and Suen, 2000:p.54). The established KM measurement models are not utilised, which may suggest that the models are not applicable in a manufacturing context. For instance, Skandia Navigator was developed based on financial services which contrast with the car

manufacturing context. This is related to the argument made by Bontis et al. (1999:p.400), stating that the measurement tools are more or less appropriate to specific situations and companies. Similarly, it suggests that there is no generally accepted theoretical model for understanding, managing and measuring IC, as indicated in the literature review (Petty and Guthrie, 2000:p.165). Thus, the 'unspecific measurement approaches' might be appropriate to be utilised by the interviewee's organisation to justify the added value resulting from KM outcomes. The literature review seems to support this claim, as knowledge itself cannot be measured, but the activities or outcomes associated with applying knowledge can be measured (Davenport and Prusak, 1998). Further, Cohen (1998:p.33) noted that knowledge cannot be directly measured, but it is possible to measure the outcomes, such as changes in profitability, efficiency and rate of innovation resulting from KM initiatives.

However, their measurement approaches involve using a vast array of metrics to evaluate and assess KM initiatives, which seem similar to the established KM measurement models, as disclosed in the findings. The usage of extensive metrics has limitations for measuring KM initiatives. These limitations lie in the concepts of metrics as codified knowledge that typically looks at knowledge as a static asset (Bontis et al., 1999). This is related to the findings, as the interviewees who adopt a metrics approach believe that KM initiatives are measurable and can be quantified. Nevertheless, the process of measuring KM is criticised because the real potential lies in tacit knowledge which remains elusive when it comes to measurement (Holtshouse, 1999). In other words, attempts to measure all aspects of knowledge would neglect the added value of tacit knowledge, which is not measurable. This is viewed as 'false recipe' syndrome (Johnson, 2002:p.419). Moreover, the issue is relevant to the response given by an interviewee of Company C, that 'the real value is to transform from being conceptual to being practical and delivering value.....how do you take it from words, concepts and theory to actually deliver cost reduction, efficiency, quality improvement.....'. The literature highlights this as criticisms and problems of measurement through philosophical lens as highlighted by Mouritsen (2004) and Andriessen (2004:p.239). Therefore, in light of the criticisms, it is not surprising that some of the responses argue that the added value is based on logical sense or assumptions, which are quite philosophical to some extent. This was related to the argument which indicated that value is based on people's perceptions – 'in the eye of the beholder' (Andriessen, 2004:p.237). Therefore, it seems that there is a missing link between value and measurement, as Andriessen (2004) argues that KM measurement frameworks (he uses the term 'intellectual capital') are a measurement method not a method for valuation, because they use a measurement scale that cannot represent the real value with such scaled numbers quantitatively. But Rescher (1969:p. 61) describes valuation (he uses the term evaluation) in the strictest sense as "e-value-tion" which is 'a comparative assessment or measurement of something with respect to its embodiment of a certain value'. Knowledge is not an object or thing but more an aspiration to be insightful, it is dynamic and grows in firms all the time and therefore, it makes little sense and is impossible to arrive at one finite 'value' that is presented in IC measurement frameworks (Mouritsen, 2004). But how can knowledge be managed if the value of knowledge is not predictable? KM value, as perceived through IC measurement, is not about the precise prediction of knowledge but about orienting the production of knowledge towards a purpose that involves being able to make a difference to somebody or being good at something (Mouritsen, 2004). In summary, the value through measurement frameworks is not easy to establish and the mechanisms do not have explanatory power to demonstrate the linkage.

Meanwhile the complexity concept of value makes it even more difficult to justify through measurement. The literature review frequently mentioned the complexity and multidimensional nature of the effects generated by implementing the KM initiatives, as indicated by Chong et al. (2000) and Kaplan and Norton (2004:p.29-30). In fact, the findings revealed that benefits and value of KM appeared to be direct and indirect to one another. For example, sharing best practices directly impacts on the operational activities, i.e. reduction of lead time, quality improvement, but at the same time, also impacts on the organisational culture through such issues, as team working and the motivation of employees. On the one hand, the added value it is claimed can be quantified through the metrics measurement, while, on the other hand, added value is also recognised from people-related and behavioural aspects such as employee's motivation that cannot be measured quantitatively. Inadvertently, this also refers to the issue surrounding the nature of knowledge, which is idiosyncratic and lies in the philosophical assumptions. In summary, this section revealed that the role of KM is largely based on how to transform knowledge from being conceptual to being practical, and delivering significant results to the organisation.

## 5. Development and description of the proposed KM conceptual framework

This section draws from the main findings of the research to develop a conceptual framework in order to provide a profound and comprehensive understanding of the KM role, its added value and interrelated mechanisms. The framework provides a sense of understanding the KM and its added value by showing the interrelationship mechanisms between KM perspectives, i.e. objectivist and practice-based, and KM measurement approaches leading to added value. Given that the framework shown in Figure 1 does not represent exact measurement of added value in 'objectivity sense' as a result of KM practices, the illustration is only conceptual based on the interpretations from the findings of the empirical work.

KM measurement is recognised as an important component to be included in the framework, as illustrated at Figure 1. Moreover, this includes important issues of measurement in KM highlighted in the literature and empirical evidence. Although the utilisation of a measurement model was criticised with regard to the capability of measuring tacit knowledge, the development of such a measurement model is important as a basis for the justification of the outcome of KM practices. Therefore, the mechanisms of a KM measurement approach should include both *subjectivity* and *objectivity* dimensions in order to negotiate the implications of the multidimensional nature of added value. The criticisms of measurement models are not seen as a barrier, rather, are congruent to justification of added value based on the logical sense and interpretations of the organisation. Nevertheless, the primary concern is the identification of added value resulting from KM practices in a particular organisation. This is important because while there is a problem in measuring KM initiatives, it all comes down to whether or not the organisations achieve the business objectives. From the findings, the conceptual framework consolidates the added value that can be categorised into: financial value, operational benefits, business process improvement and organisational culture. The illustration of Figure 1 is meaningful because it integrates the interrelated mechanisms; strategy, KM applications with a balanced view of KM perspectives, KM measurement approaches, and its added value into a single framework. This research was motivated by the gap between KM theory and practice identified in the past KM literature.

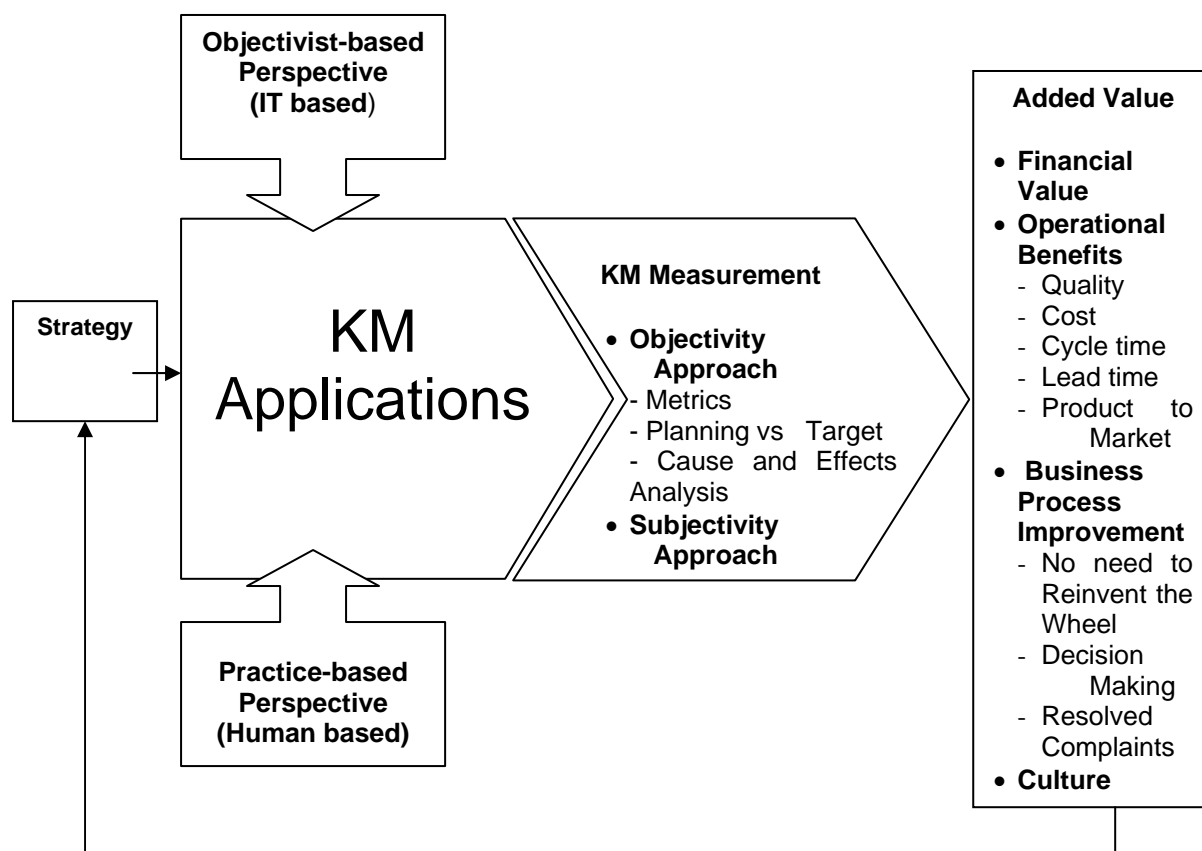


Figure 1: Conceptual framework

## 6. Conclusions

This research was motivated by the gap between KM theory and practice identified in the past KM literature. In order to gain deeper insights and bridge the gap, UK car manufacturing industry was approached to address the issue of KM role in adding value into organisation. Indeed, to conclude this research, it can be claimed that KM plays a significant role in adding value in UK car manufacturing industry. This study is able to make contribution through the development of conceptual framework in the understanding of the role of KM through its practical manifestations and nature of its implications. The new body of theory developed in this study has potential to provide a guideline for practitioners not only to succeed in KM but to secure the added value which was criticised as being elusive. Accordingly, the proposed framework is intended to be neither normative - as it describes how organisations ought to function and not necessarily how they actually do function - nor to be a rigid set of prescriptive rules that would guarantee KM success. However, the framework can serve as a useful guideline for drawing attention to theoretical underpinnings of the knowledge concept and the characteristics of KM implementation factors, understanding the interplay between these and measurement approaches and the nature of added value.

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