

From Data to Dividends: What Makes Some Firms Better than Others at Turning Information into Value?

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1. Executive Summary

Few companies today would define themselves as anything other than knowledge-based. For knowledge-based marketers, the critical issue is how knowledge leads to market insight, drives offer development and creates value.

Previous work at Cranfield has defined CRM practice as the use of individual customer data to drive value. This previous work has also defined the necessary preconditions for effective CRM and the way successful firms adapt CRM to fit their situation. Like all good research, however, this raised further questions, especially about the detail of how firms use data to create value. As a result, the members of the Cranfield Customer Management Forum asked that this topic be studied further to provide recommendations for best practice in this field.

This task was addressed in two phases, starting with a comprehensive review of previously published research. This review suggested 12 recommendations for good practice in the transformation of data to value:

- Firms should strive to collect data that reflects unmet customer needs rather than rely on readily available but relatively less useful transactional data that mostly reflects met needs.
- Firms should strive to find, aggregate and synthesise multiple forms of data rather than rely too heavily on one source of data.
- Firms should deliberately formulate hypotheses concerning their business and use their data and information to test and revise these. This is likely to be more effective than using data in the absence of an explicit hypothesis.
- Firms should collect and use both tacit and explicit data rather than rely too heavily on one or other form of knowledge.
- Firms should seek to design and use explicit rather than implicit processes to acquire, store, interpret, disseminate and apply knowledge
- Firms should seek to develop or make explicit a clear strategy within which their data and knowledge management processes should be contextualised, rather than separating strategy development and data management.
- Firms should seek to use their knowledge to refine well-defined, needs-based segments rather than the data-based but heterogeneous customer classifications that pass for segments in many companies.
- Firms should ensure that their segment targeting criteria make due allowance for the segments' perception of tailoring value, rather than target only on more obvious criteria such as size or growth.
- Firms should seek to adapt their value proposition to the needs that define and drive segment behaviour rather than merely adapt those parts of the offer which are easy to adapt
- Firms should seek to carry out the adaptation of their offer in a timescale that reflects the level of market turbulence, rather than at a pace that allows those changes to be overtaken by market change or competitor action.
- Firms should make deliberate efforts to identify and change those aspects of their organisational culture that hinder the data-to-value process, rather than ignore or neglect the influence of that culture.

- Firms should take deliberate steps to enhance intra-organisational knowledge flow rather than allow hierarchical and vertical structures to hinder that flow.

The second phase of the work built on the previous work by testing these twelve recommendations and probing those areas where the previous work was lacking or unclear. It did so by means of 13 in-depth interviews with firms who were heavily involved in the data-to-value process.

The findings of this second phase supported, for the most part, the 12 recommendations of previous research. Some were only partly supported, but this was due to limitations in the scope of the work rather than weaknesses in the original recommendations from the literature. They also provided a much better understanding of four areas where that previous research was weak, as follows:

- a) The way in which firm and market context influences the data-to-value process significantly

This work revealed that the data-to-value process is strongly influenced by five aspects of the context:

- Industry regulation, either legal or by industry bodies, which constrained both the use of data and the way in which the offer might be adapted.
- Industry culture, in the sense that some industries share information between competitors more than others do, which influences the way they create market insight.
- Availability of secondary market research, in that some industries have ready access to a lot of market research whilst in other industries there is very little secondary research available, which obviously influences the way firms create insight.
- Availability of internal data, in that the nature, amount and type of transactions varies greatly between industries. This greatly influences the contribution of internal data to the data-to-value process.
- Firm strategy and objectives, in that whether a firm is focused on customer retention and yield management or on customer acquisition and market penetration clearly influences the data firms have, their insight needs and the use they can make of that data.

- b) The practice of data-driven value creation is limited, partly by practical limitations but mostly by organisational culture.

In reality, the extent to which firms use data to drive their offer to the market place is quite limited. Three stereotypes emerge, which represent a spectrum of data-to-value activity:

- Those firms that use data only to focus and improve their marketing communications. Such approaches are the most common use of data in marketing.
- Those that use data to focus and improve their marketing communications but also to improve “outer” aspects of the offer, such as process, service and packaging. Such approaches are less common, but not rare.

- Those firms that use data to tailor the entire offer and customer experience, within very broad limitations implied by fixed assets and infrastructure. Such approaches are rare.

The reasons that firms make such limited use of data-driven insight are partly physical, based on what the product can technically do or what the service can in reality deliver. However, the major reason firms do not use insight fully seems to be company culture, which prevents radical or rapid change in the way the firm behaves or allocates its resources.

- c) Of all the factors that influence value creation, leadership commitment and synthesis of multiple sources of data are critical

Although numerous factors have an influence on the ability of a firm to create and use insight, two appear to be critical success factors:

- Leadership commitment. Only firms in which the top leadership is committed, visibly and strongly, to the use of data are likely to create significant insights and to act upon them. Where such commitment is absent, lack of resources prevents both the creation and use of insight.
- Synthesis of multiple sources of data. In all cases where significant insight and was observed, firms gathered numerous sources of data and synthesised them effectively. Even firms with large amounts of data from limited sources failed to create valuable insight, as did firms who emphasised analysis over synthesis.

- d) Soft skills differentiate excellent value creators from the merely effective.

Although not necessarily critical to success, three factors were observed to be important in the data-to-value process and can be said to be the things that differentiate excellent firms from merely adequate firms.

- Human resource management. It is important to emphasise the recruitment, retention and absorption into the company culture of people who combine both analytical thinking and the ability to synthesise intuitively multiple sources of information.
- Organisational learning. It is important to form theories of how the market works and to use knowledge to continually test and revise those models.
- Strategy-making. It is important to use insight in the context of well-defined strategies. In particular, value creation is greatly enhanced when needs-based segmentation is used and when clear prioritisation processes are employed.

In short then, this study reveals that creating value from data has all the difficulty of “traditional”, less data-dependent strategy making and some additional challenges. Far from being made easier by information technology, it is made more difficult by the need to find, aggregate and synthesise sources of data that are more numerous and more diverse than in traditional value-creating processes. It is, however, that greater difficulty that promises both greater and more sustainable competitive advantage and hence value.

2. What is Already Known?

In developed economies, most firms regard themselves as knowledge based. Consequently, information management systems are seen by such firms as important to their competitive advantage. It is unsurprising therefore that the process for transforming data into value has been researched extensively by previous workers.

However, as is common with any practical problem, the relevant research is fragmented and scattered across numerous academic areas. Alone, these offer only partial understanding of the value creation process in a marketing context. Taken together, though, these different perspectives and approaches provide a reasonably complete and practically useful description of how data leads to value. Such a synthesis is the purpose of this section and is perhaps best structured in terms of three adjoining processes:

- Turning data into information
- Turning information into insight and,
- Turning insight into value

These three processes form the structure for the following discussion of what is already known about how firms turn data into value.

2.1. About Turning Data into Information

What is already known about how data becomes information in a marketing context can be grouped into three bodies of work:

- Differentiating between data, information and knowledge.
- The process of translating data into information and knowledge
- The use of information and knowledge in market understanding

These three bodies of work form the structure of this section.

2.1.1. Differentiating Between Data, Information and Knowledge

Our understanding of the transformation of data into information and knowledge is clouded by the way these terms are often used interchangeably, thus masking the processes by which they are made valuable to firm. Clearly, it is important to elucidate the differences between these three entities and, fortunately, previous researchers have done a lot of this work. Although, as is often the case, there exists no single agreed definition of each term, workers in this field see these three things as a progression. Data are seen as the quantification or codification of transactions, interactions or other phenomena, which does not represent information until it is structured. Information (i.e. structured data) does not become knowledge until it is placed into a relevant context. For instance:

“In practice, the terms data, information, and knowledge are often used interchangeably. However, the three terms should be differentiated clearly. Data consist of signs and are the raw material to be processed. Data need to be codified in numbers, language, or pictures. Only when data are embedded in a context of relevance for a certain system, do they result in information” (1)

Consistent with this is the view that:

“...knowledge is neither data nor information. Data are transaction oriented while information is drawn into patterns to reduce uncertainty. Information only becomes knowledge when someone applies his or her intellect to transform it.” (2)

None of the other writers in this field hold significantly differing views. Some elaborate on the transformation of information into knowledge, for instance:

“Knowledge is the tangible creation of human intellect which includes technical expertise, problem-solving capability, creativity and managerial skills which embodied in the employees of the organisation.” (3)

Similarly:

“Knowledge is information combined with experience, context, interpretation and reflection” (4)

Whilst the literature in this area is extensive and fragmented, it is consistent. From it emerges the consensus of a chronological process in which data (record of events) is ordered into information which, when interpreted and contextualised is said to be knowledge. Whilst avoiding semantic arguments, it is important that we work with these meanings to understand better the data-to-value process.

2.1.2. Translating Data into Information and Knowledge

Given that data, information and knowledge represent different stages in the information processing chain, we can turn our consideration to that research which has looked at the first step, turning data into information. The majority of published work in this area comes from practitioners, rather than academics, who prescribe various techniques of processing data. At the broadest level, these data-analytical approaches have been classed as descriptive, predictive and statistical (5). At a slightly more detailed level, at least six approaches to data mining have been cited: classification, regression, time series, clustering, association and sequential analysis (6). From the point of view of this project, two criticisms may be made of this literature.

Firstly, the prescriptive approaches take no account of any contingent factors. That is, there is little in the literature that recognises that different analytical approaches may be more or less appropriate for different market and organisational contexts, for instance of data environment or marketing strategies. In short, this work takes a narrow, technical view of the data analysis process. Secondly, this technical and arguably simplistic view offers no answer to the criticism that analysis based purely on available data is unlikely to lead to useful information and consequently knowledge. Such criticism is quite widespread. Scase, for instance, points out that:

“Marketers are failing to make the connection between data and insightWhen most brands with databases talk about customers, they really mean is the data they have about transactions. Subsequent strategies are based on assumptions made about consumer behaviour based only on those transactions, hence revealing nothing about spending potential.” (7)

Empirical work by Bottomley provides support for these criticisms of the “blind” use of data analysis techniques:

“Cluster analysis has been successfully used in market segmentation for several decades. However, alongside evidence for the value of the technique, a number of studies have highlighted the importance of testing the reliability and validity of cluster solutions. Yet, in a time-poor, technologically sophisticated age when alluring output falls effortlessly from user-friendly statistical packages, managers may fail to appreciate the rigorous testing required to

ensure robust solutions. The authors designed an experiment to investigate whether managers could distinguish between cluster analysis outputs derived from real and random data. Given information on only cluster centroids and demographic profilers, random data devoid of meaningful structure were perceived as equally useful for purposes of market segmentation as real data.” (8)

A further criticism of any simplistic prescription for how firms might interpret data, from an organisational culture perspective, is made by Stoica, who implies that data analytics will be culturally influenced:

“Information search and processing represent important determinants of performance and may signify critical key success factors for SMEs in their growing process. Results from a random sample of 242 SMEs indicate that culture has a significant impact on various dimensions of information processing such as information search scope, formality, flexibility as well as organizational responsiveness.” (9)

Finally, the potential weaknesses of simplistic data analysis are further illuminated by complementary work comparing best practice and normal practice in this area. Tyagi notes that:

“The foundation of data analytics has always been a company's existing data resources, which typically reside in a number of discrete legacy databases or data warehouses.” (10)

By comparison, Nemati found that best practice integrated internal data resources with other sources of data:

“Organizations that integrate data from various customer touch-points have significantly higher benefits, user satisfaction and return on their investment (ROI) than those that do not.” (11)

Reinforcing these concerns with the use of existing data is the observation that such data is inevitably historical and may be of limited use in predicting customer needs when the market is turbulent. Scase observes:

“A second failing of relying too literally on transaction information is that customer needs and circumstances change. When companies are so focused on today's customer base and needs, there is no guidance as to what might need to happen in three years' or even months' time.” (Scase, Op Cit)

The picture that emerges from the literature regarding data analytics is of an unbalanced body of knowledge in which our ability to analyse data is far greater than our ability to synthesise it into information and knowledge. The data-analytical approaches, representing as they do the convergence of existing statistical methods and recent ICT developments, are robust and useful. They are not, however, sufficient on their own to allow firms to turn their data into valuable information because the transactional data they mostly use does not always correlate well with customers' needs now and even less so in a market changed by market turbulence.

What we can draw from the literature are two points of agreement. Firstly, that good analytics of transactional data will form only one component of the value creation process and that integration with other sources of data will be necessary to create significant value. Secondly, good analytics of transactional data will require more than suitable statistical techniques: it will require an understanding of the linkages between the data and customer behaviour.

This second point is that the literature is very poor in this area of data/behaviour linkages. We know from the earlier work of the Cranfield CRM Forum that such linkages are important.

To find substantive, rather than anecdotal, bases for informing our thinking in this area, we must look at other, earlier, research has examined the use of information to understand customers. That research is found in the market segmentation literature.

2.1.3. Information Use in Market Understanding

As discussed above, there is a lot in the existing literature about how data can be ordered and analysed into information. However, the analytics literature is simplistic and weak about the linkages between such data and knowledge about markets and customers. To fill this gap, we need to look at market segmentation.

To put this in context, Sheth (12) sees one-to-one marketing as progression of segmented marketing. He believes this new, customer-centric, phase of marketing's development as being driven by competitive pressure and enabled by technological capabilities:

“That just as the marketing function gradually shifted from mass marketing to segmented marketing in the twentieth century, it will increasingly move toward customer-centric marketing in the next century. In the practice of customer-centric marketing, the marketing function seeks to fulfill the needs and wants of each individual customer.” (12)

If this context is accepted, and the subsequent citations of this work are supportive rather than critical, then the problem of the linkage between data and individual customer behaviour can be seen as an extension of the difficulties faced in the practice market segmentation. As Hines et al point out, there remains a gap between the principles and practice of market segmentation:

“Market segmentation is a construct that has existed in the marketing literature for the past fifty years and perhaps longer in practice but without a label. During that time segmentation has received considerable interest from researchers in the marketing discipline and a number of different perspectives have contributed to its development as it is now understood. Nevertheless, from the earliest construction to its present position, fundamentally little has changed and the concerns raised in its practical application remain. Furthermore, at a base level it can be argued market segmentation is commonly understood. However, under different conditions with different dimensions the challenge to segmentation lies, paradoxically, in a broadening of the heterogeneity that the approach was designed to handle” (13)

In practice, innumerable approaches to market segmentation are cited in the literature. Badgett's survey of segmentation practice found that demographic and other data-driven approaches were most common and pointed out that:

“There are significant opportunities for companies to improve their approach to segmentation, in particular by adding the time dimension and by expanding the use of segmentation beyond traditional marketing uses” (14)

This persistence of data-driven approaches to segmentation exists despite a long an extensive literature that criticises the limitations of such approaches. As early as 1964, Yankelovich noted:

“Demography is not the only or the best way to segment markets. Even more crucial to marketing objectives are differences in buyer attitudes, motivations, values, patterns of usage aesthetic preferences and degree of susceptibility.” (15)

Later, this was echoed by Cunningham:

“Most segmentation studies deal with such variables as occupation, income, family life cycle, education of the head of the household, social class, and personality. Results have been

mixed; no simplistic bases for segmentation have been found. Further, segmentation criteria for one market may not work in another firms should augment variables such as income, social class, and geographic location with these other variables [motivational and attitudinal] in defining and analyzing their markets.” (16).

Whilst numerous other criticisms of segmentation implementation have been made (e.g. (17), (18), (19)) some resolution of this problem can be seen in the work of Piercy and Morgan who argue that:

“Market segmentation is a far broader and more pervasive concept than is commonly recognised and may serve diverse purposes in an organisation. Very little explicit concern has been shown for the difference between “strategic” and “operational” aspect of segmentation in spite of the significance of this difference to managers and its application to the successful implementation of strategic change in organisations.” (20)

Piercy and Morgan see segmentation as existing in different forms at strategic, managerial and operational levels in the firm. Similar concepts are reflected in the work of others, including Bonoma and Shapiro’s “nested” segmentation (21;22), echoed in Rangan (23) and in Webster’s concept of “microsegmentation” ((24) but also in (25)). Similarly, Hooley and Saunders’ concepts of 1st and 2nd order segmentation reinforces the idea that the practice of segmentation requires multiple levels of segmentation (26).

Hence, the application of market segmentation offers important parallels for the application of data analytics, which might, in a sense, be regarded as a form of extreme micro-segmentation. From this perspective, the flaws in data analytic approaches cited in the previous section stem from attempting tactical, operational, segmentation without the guiding context of a higher, strategic, segmentation. In short, modern data analysts, crunching transactional data are falling into the same trap as did early proponents of segmentation who relied on demographic and other descriptor data.

This market-segmentation analogy for the failings of data analytics to provide valuable information explains the weaknesses of data analytics. It also suggests that the place to look for a solution to these weaknesses might be that work which considers higher, strategic, segmentation.

The calls for motivationally or needs-based segmentation first heard in the work of Yankelovich and Cunningham, above, have more recently been reinforced by work in the consumer behaviour domain. Pincus, in a recent review of the consumer behaviour literature as it pertains to segmentation, proposes that:

“.....dominant theories of human motivation rest on the notion of salient unmet needs. Motivational theories, represented by biological instinct theories (thesis) and social cognitive theories (antithesis), are now showing signs of synthesis within the domain of consumer research. Consumer and marketing research techniques can be made more insightful and actionable by introducing measures of the behavioural and emotional meaning of unmet needs through integration of the key elements of motivation research within a quantitative measurement system.”

And, more directly pertinent to this work:

“The idea that only unmet needs are motivating is a common thread extending throughout higher- and lower-order psychological theories of motivation, an insight that has been incorporated into contemporary segmentation approaches.” (27)

Pincus builds on the earlier conclusions of others such as Myers who see needs-based segmentation as fundamental to strategic insight. For instance:

“needs-based segmentation has become the segmentation method of choice in contemporary marketing research” (28)

And also Freytag who stresses:

“the importance of having a deep understanding of the customers' characteristics, needs, future directions, as well as identification of what kind of overall relationship is required by the customer” (29)

This same needs-based concept is also supported in observations of good practice. For instance Greengrove:

“Needs-based segments provide a fundamental understanding of what product portfolio opportunities exist” (30)

To summarise, the conversion of data into information is the necessary antecedent to creating customer knowledge and hence value. Current approaches to data analytics, at least as reported in the literature, which may therefore lag leading edge practice, perform this task of data-to-knowledge conversion inadequately. In many ways, this failing of analytics mirrors that seen in early attempts at segmentation. More advanced segmentation practice involves differentiating between strategic and operational segmentation and uses needs-based segmentation to gain insight and operational segmentation to enable implementation.

By extension, this implies that more valuable and insightful data analytics are possible by strategic analytics. These would differ from operational analytics in that they would use data which was associated with unmet needs (e.g. as inferred by purchasing of other products or other behaviour) rather than data associated with met needs (e.g. product/service transactional data). Strategic analytics would then require an understanding of the linkages between the data and customers' unmet needs and motivations. Such strategic, needs-based, analytics this would contribute more to knowledge and insight than current transaction-based analytics.

2.1.4. A Synthesis of the Data to Knowledge Process

From the above sections considering the definition of data, information and knowledge, we can draw useful understanding of what is already known. Data records events and becomes useful only when it is organised into information, a process of which data analytics is but one example. Such information can then be transformed into knowledge by placing it in context and combining it with information from other sources. In the context of marketing, the central issue is the correlation, or lack of it, between information and customer behaviour. It is largely this issue that limits the effectiveness of data analytics. It is the resolution of this issue that characterises effective use of data. Typically, this resolution is brought about by augmenting data with market research or by uncovering information that is closely correlated to customer needs, motivations and thence behaviour

2.2. About Turning Information into Insight

The previous section considered the issue of how data is translated into its ordered, contextualised form known as information and how the usefulness of that information, in a

marketing context, was largely an issue of how the information correlated to customers' needs and motivations.

In this next section, now consider what is known about turning that information into knowledge and insight. The literature in this area is again fragmented across the academic domains of knowledge management, strategy and organisational learning. It is best considered in three parts:

- Definitions of insight as a form of knowledge
- How organisations create knowledge by learning
- The management of knowledge in order to create insight

2.2.1. Insight as a Form of Knowledge

There is no agreed definition in the literature concerning what insight, of any description, is. A typical practitioner use of the term is that used by Rhea in an online Business Week article:

“The disciplines within market research do many things -- important work like tracking, monitoring, evaluating -- but only a tiny fraction of the industry actually focuses on providing customer insights to drive innovation and design” Darrel Rhea, Business Week Online 15th August 2005

Insight is not a term that is used much in peer-reviewed papers. Few attempt to define insight and those that do so are imprecise. Wills for instance suggests that insight comes in general and specific varieties:

“Customer Insight has two forms. First, and perhaps most often what is requested, there are 'Insights' (plural). These are those flashes of inspiration or penetrating discoveries that can lead to specific opportunities. Market research can deliver these, and often does. But much bigger than this, and central to what companies need today, is the second form, namely Customer Insight (singular). The dictionary definition of this type of insight is 'the ability to perceive clearly or deeply. It is all about having a deep, embedded knowledge about the customers and the market around us that helps structure thinking and sound decision making. Everyone involved in marketing needs this form of Customer Insight.”

In the same work, these authors make three points about customer insight:

“Customer Insight is built from multiple sources. Customer Insight is a strategic asset, Customer Insight must therefore be managed like a strategic asset.” (31)

This and similar writing therefore uses insight as a synonym for, or perhaps a subset of, knowledge and imply that it can be managed. This leads us to the extensive knowledge management literature, which provides rather more rigour than the marketing literature in this area.

Slater and Narver see shared interpretation as characteristic to the effective use of knowledge within the firm (32), whilst Hult defines knowledge as:

“Credible information that is of potential value to the organisation” (33)

The identification of insight as a valuable knowledge that is an asset suggests that the Resource Based Value Theory (RBV) of the firm is a useful lens through which to consider the idea of insight. In which case, insight might be usefully differentiated from other knowledge in having properties of value, rarity, inimitability and organisational fit (34), as dictated by RBV theory.

This definition of insight as a form of knowledge is augmented by classifications of knowledge. For instance, Zack (35) identifies three types of knowledge:

- Declarative knowledge (Knowing what something is),
- Process or procedural knowledge (Knowing how something is done) and
- Causal knowledge (Knowing why something happens)

Shaw (36), taking a rather narrow view, thinks that marketing knowledge derives from three different sources:

- The retailer (customer knowledge),
- Market research (consumer knowledge) and
- Third party data providers (market knowledge).

Similar points are made by other authors ((37) and (38))

Finally, writers such as Nonaka point out that marketing knowledge is not always tangible and explicit (39) and Schlegelmilch points out that:

“In general, marketing knowledge is characterised by a high degree of tacitness rooted in the socially complex nature of marketing” (1)

Hence, although there is no accepted definition in the existing literature, we can synthesise that literature to create the following definition:

“Market insight is knowledge about the market which is an organisational strength. By market we mean either the near environment (suppliers, customers, channels, competitors) or the far environment (e.g. SLEPT factors). By knowledge, we mean tacit or explicit information which has been contextualised within the organisation and upon which a shared interpretation, either specific or general, has been reached. By strength we mean that knowledge which is valuable, rare and difficult to imitate and which the organisation is capable of using.”

Given this working definition of market insight, we can move on to consider what is known about how firms manage knowledge to create such market insight.

2.2.2. How Organisations Create Knowledge by Learning

This area seems well informed by the organisational learning literature. Most of this work shares the common theme of generating knowledge by using new information to test and modify extant ideas. For instance, Huber (40) points out that the value of knowledge is most valuable when it contradicts existing rules. This is very close to the idea at the base of Argyris and Schon’s “Double Loop” learning concept, that organisational learning occurs by comparison to and revision of the extant “theory in use”. (41) The same underlying concepts are seen in Kolb’s learning cycle (42). However, the consensus in this work refers to organisational learning generally and not specifically to the creation of market insights.

Sinkula was one of the first to apply the ideas of organisational learning proposed a hierarchy of sense-making activity in the processing of market information (43), later developed into a framework of organisational learning beginning with organisational values, moving through market information processing behaviour and ending with organisational activity to change the marketing programme (44).

In a more specific piece of work, Gibbert focussed just on that part of management that concerns knowledge held by customers, rather than about them and identified 5 modes of this behaviour:

“We suggest that the 5 styles of Customer Knowledge Management (CKM) can be prosumerism, group learning, mutual innovation, communities of creativity and joint intellectual capital. Any company, depending on the nature of its consumers, can apply several of these five styles of CKM simultaneously.” (45)

Looking more broadly, Slater suggested that there were four ways in which insight (which he called market intelligence) were generated in practice: market focus, collaboratively, by experimentation or repetitive experience (32).

Achrol noted that these knowledge-generating activities were facilitated by communication within the firm:

“By establishing interactions between individuals and organisations and by creating lateral connections among functional units, the transformation of information into knowledge can be facilitated” (46)

However, whilst each of these pieces of work shed some light by describing aspects of organisational learning in a marketing context, none of them can really be said to provide a model for market insight creation specifically.

In addition to work that describes or prescribes learning behaviours that are relevant to the process of market insight creation, there is significant and relevant prior research about the factors that help or hinder the process. Wright, for instance noted that:

“One of the most obvious problems with the mainstream approach is that it has consistently understated the importance of informal information sources.” (47)

Others have centred on the idea of how organisational contexts influence organisational learning. Madhavan believed that:

“Trust in team orientation, technical competence, information redundancy and rich personal interaction are important to creating new knowledge” (48)

This seems consistent with the views of Heesok who sees knowledge creation as influenced by:

“Collaboration, trust, learning, centralization, formalization, T-shaped skills, and information technology support.” (49)

And also with the views of Morgan: who noted:

“When organizations exhibit more favourable learning values (three value-based constructs), their market information processing behaviours and analytical capabilities improve (three knowledge-based constructs), which thereby directly impacts upon market-based outcomes” (50)

Hence, we can summarise how firms create knowledge, some of which may meet the criteria of market insight, as an organisational learning process that, when effective, has three salient characteristics:

- It involves using new information to test and revise existing knowledge
- It involves various different sub-processes for extracting information from different parts of the market environment (e.g. data analytics is one of these), which are probably contingent on the internal and external context of each particular case.
- It is enabled by an organisational environment that includes supportive cultures and necessary infrastructure.

This and the previous section tell us that market insight is a form of knowledge and that knowledge is created by organisational learning processes. Our next consideration therefore concerns how firms manage knowledge in order to create insight.

2.2.3. The Management of Knowledge in Order to Create Insight

Prior research in this area is recorded in knowledge management literature. As with some of the previously discussed literature, definitional problems hinder our understanding of knowledge management. As Shaw stated in 2001, and still seems to be true:

“a universally accepted definition of KM [knowledge management] does not exist yet” (36)

Notwithstanding this lack of definition, knowledge management has been extensively described:

“KM capabilities in three clusters: acquisition & creation, capture and storage, diffusion and transfer” (2)

“KM is process of generating and disseminating information and selecting, distilling and deploying explicit and tacit knowledge to create unique value.” (33)

and

“KM processes enable a company to capture, store, transfer and apply knowledge within and throughout the organization” (51)

The different perspectives on knowledge management do not differ in their fundamental approach to what it is and how it is done, as shown by these examples, taken from Schlegelmilch (Op cit):

- Mertins (2001) Knowledge management describes all methods, instruments and tools that, in a holistic approach, contribute to the promotion of the core knowledge processes – to generate knowledge, to store knowledge, to distribute knowledge and to apply knowledge supported by the definition of knowledge goals and the identification of knowledge – in all areas and levels of the organisation.
- Beckman (1999) Knowledge management is getting the right knowledge to the right people at the right time so they can make the best decision.
- Cross (1998) Knowledge management is the discipline of creating a thriving work and learning environment that fosters the continuous creation, aggregation, use and re-use of both organisational and personal knowledge in the pursuit of new business value.
- Gurteen (1998): Knowledge management is an emerging set of organisational design and operational principles, processes, organisational structures, applications and technologies that helps knowledge workers dramatically leverage their creativity and ability to deliver business value.
- Blake (1998) Knowledge management is the process of capturing a company’s collective expertise wherever it resides – in databases, on paper, or in people’s heads, and distributing it to wherever it can help produce the biggest payoff.
- Malhotra (1998) Essentially, it [KM] embodies organisational processes that seek synergistic combination of data and information processing capacity of information technologies, and the creative and innovative capacity of human beings.

- Quintas (1997) Knowledge management is the process of continually managing knowledge of all kinds to meet existing and emerging needs, to identify and exploit existing and acquired knowledge assets and to develop new opportunities.

Detailed consideration of the knowledge management literature, whilst revealing little fundamental differences between perspectives, reveal useful observations about the operation of knowledge management and hence, presumably of insight creation. Bennett, for example, points to the importance of using all relevant sources of knowledge, which he categories as groupware, brainware and document ware. (37). Similarly, Demarest points to the importance of identifying the various “containers” of knowledge in the organisation (38).

Some of those most interesting ideas in this field, however, refer to how an organisation’s culture influences the way it manages knowledge. As Huber points out:

“What an organisation knows at its birth will determines what it searches for, what it experiences and how it interprets what it encounters” (40).

In the case of larger organisations, the failing of knowledge to flow easily between subunits is also noted by several researchers:

“Motivational disposition concerning knowledge influences flows between subs” (52)

and

“Learning substitution and in-group-out-group dynamics contribute to the isolation of some subsidiaries from the knowledge transfer activities within an MNC” (53)

and

“Transfer of knowledge emerges as one of the most important and widespread practical managerial issues” (54)

Hence, we can draw a number of key lessons from the knowledge management literature:

- KM is a linked series of processes involving not only the creation of knowledge but also its dissemination and application.
- KM Is critically dependent on identifying and integrating different sources of information and knowledge
- KM Is influenced by organisational culture, especially with respect to knowledge management across intra-organisational boundaries.

It seems very likely, given our characterisation of market insight as a form of knowledge that these lessons would also apply to the creation of market insight.

2.2.4. A Synthesis of the Information to Insight Process

From the above sections considering the definition of insight, organisational learning and knowledge management, we can draw useful understanding of what is already known about the transformation of information into insight. Market insight is a form of knowledge that meets the criteria of a valuable resource and can exist in various forms about all parts of the market environment. It is likely to be created by organisational learning processes that reflect against existing beliefs and synthesise multiple sources of information. The process by market insight is managed is likely to be extend beyond information processing and knowledge creation and into dissemination and application. It is likely to be strongly influenced by the culture of the organisation.

2.3. About Turning Insight into Value

The literature concerning the creation of value from insight is much less extensive than that relating to the earlier two stages in the data-to-insight process. As with the previous areas, there are definitional and semantic issues regarding the definition of value. However if we accept value broadly as anything that contributes to the firm's objectives, we can consider the literature in this area to fall into two broad themes:

- How firms adapt their actions on the basis of insight
- Factors that influence firms' ability to act on insight

2.3.1. How Firms Adapt their Actions on the Basis of Insight

Menon (55) defined three ways that firms use knowledge in three ways: to take actions, to enhance knowledge or to increase satisfaction with current actions. Only the first of these is examined in the literature, where it is discussed in the market orientation literature as organisational actions as a result of knowledge (56). Sinkula is a little more specific and sees responsiveness in terms of marketing program dynamism:

"In a marketing context, marketing program dynamism (i.e. the frequency with which program adaptations are made) may be the most appropriate short term measure of organisational learning" (44).

The value of knowledge-based adaptation is confirmed by Slater, who associates superior customer value with well developed intelligence (i.e. insight) generation capabilities (32). The same idea is expressed Grant (57) who sees knowledge value as arising only when turned into competitive-advantage yielding capability and by Demarest, who sees the value added to the product or service (as a result of knowledge management) as the basis for the value proposition (38). Finally, but in a supportive thread of thought, Jenkins identified that high performing companies seem to locate customers as a central element linking various strategic actions (58).

The literature is much less clear on exactly how the value proposition is adapted in the light of insight to create value. Glazer noted that in some cases:

"Information about customers is collected initially to do a better job selling the firm's primary products, subsequently packaged and included as part of the overall 'bundle' offered, and is ultimately deemed to have significant market value of its own and sold as independent product" (59)

Oliver approaches this from the perspective of creating customer delight, which he sees as a function of not only performance, but also arousal and positive effects. (60).

Looking at the idea of value creation via mass customisation, Jiang notes that this is based on segmentation but that value is not always realised by higher prices but by increased happiness with purchase choices (61 ;62). Supporting this, Zahay notes that customisation and personalisation is associated with the collection of sales force information, overall data quality and the dissemination of data through the firm (63). On a moderating note, however, mass customisation is limited in competitive markets by economics:

"Competition leads to surprising results. Manufacturers customise only one of the product's two attributes and each manufacturer chooses the same attribute. Customisation of both attributes cannot persist in an equilibrium where firms first choose customisation then choose price,

because effort to capture market with customisation makes a rival desperate, putting downward pressure on prices.” (64)

Therefore, a common theme emerges here that value is created by using insight to enable adaptation or customisation of the value proposition around either individuals or segments.

The literature about how firms create value also contains another common theme, that value creation is strategy-contingent. That is, firms following different strategies find it appropriate to create value in different ways. This seems to have two aspects.

Firstly, creating value by tailoring based on insight is not always consistent with the firm's strategy. In other words, creating customers is only appropriate when those customers are a target of the company's strategy (65). In the context of knowledge or insight based value creation, this is illustrated by Zahay who found that the contribution of customer learning processes to performance depends on generic strategy employed by the firm (66). A similar conclusion was reached by Cuthbertson, who found that CRM plays a different role within an organisation depending on the marketing strategy adopted (67). This idea that firms might not always choose to adapt to their customers' needs is consistent with this is the observation by Coviello that firms' marketing practices are pluralistic and managerial practice has not shifted from transactional to relationship approaches per se (68).

Secondly, even if value is to be created by knowledge-led customisation, the details of how this is achieved are context specific. Dias, for instance, notes that customers are not homogenous and different parts of the marketing mix impact differentially on different segments (69)

When considering how firms actually create value from insight, the literature confirms the obvious that the insight is used to direct changes in the product, service or offer made to the customer. However, it further suggests that firms create value from insight by adhering to three nested ideas:

- Firstly, considering value creation only for those segments that are the targets of the strategy.
- Secondly, using insight based value creation only on those segments where this is relevant (e.g. those for whom tailoring is valuable).
- Thirdly, by adapting the value proposition in a manner that reflects the needs of that segment (or perhaps individuals) and the insight we now have into them.

2.3.2. Factors that Influence Firms' Ability to Act on Insight.

A significant part of the literature about value-creation (whether based on insight or not) discussed what it is that prevents firms from doing this effectively. This work seems to identify some external but mostly internal factors, the latter mostly coming under the umbrella of organisational culture artefacts.

Garcia for instance sees that:

“The value of innovative knowledge to the organisation is influenced by resource availability, exogenous competition, ageing of knowledge bases, and adaptive capacity” (70)

And similarly, Moenaert:

“Information utility is a function of credibility and relevance, comprehensibility, source and channel” (71)

Maltz identifies numerous internal factors that influence how well firms use knowledge:

“Both dissemination frequency and formality have nonlinear effects on perceived intelligence quality. In addition, they find evidence of a mere formality effect; that is, intelligence received through formal channels appears to be used more than that obtained through informal channels. The authors also find that the frequency with which market intelligence is disseminated is related to interfunctional distance, joint customer visits, senders' positional power, a receiver's organizational commitment, and trust in a sender. Additionally they find the formality of the dissemination process is shaped by interfunctional distance, receivers' trust in senders, and structural flux. Interestingly, the effects of internal environmental volatility (i.e. structural flux) appear to be different from those of external environmental volatility (i.e., market dynamism)” (72)

Similarly De Long, who sees four cultural mechanisms that impact on knowledge use:

“First, culture--and particularly subcultures--shape assumptions about what knowledge is and which knowledge is worth managing. Second, culture defines the relationships between individual and organizational knowledge, determining who is expected to control specific knowledge, as well as who must share it and who can hoard it. Third, culture creates the context for social interaction that determines how knowledge will be used in particular situations. Fourth, culture shapes the processes by which new knowledge--with its accompanying uncertainties--is created, legitimated and distributed in organizations.” (73)

More specifically, O'Malley sees underlying assumptions about relationship management to be significant:

“Ethos of RM is a precursor and without this it (CRM) is just advanced database marketing” (74)

With the exception of Maltz, the prescriptions for overcoming these internal moderators of insight use are not very specific. Janz for instance suggests:

“Knowledge creation and dissemination can be facilitated by allowing knowledge workers to have the freedom to exercise authority with their knowledge and by elevation of a supportive work climate beyond buzzword status” (75)

Maltz focuses on internal turbulence as a key source of poor application of knowledge and suggest six integrative methods for getting around this: multifunctional training, cross functional team use, compensation variety, formalization, social orientation and spatial proximity (76).

Paradoxically, Grant links the problem of knowledge utilisation to organisational design, suggesting that firms are attempting solutions that Maltz would see as part of the problem:

“Many current trends in organisational design can be interpreted as attempts to access and integrate the tacit knowledge of organisational members while recognizing the barriers to the transfer of such knowledge” (57)

Apart from Garcia's reference to exogenous competition (above), the only notable reference to external moderators of insight-driven value creation is that of Stata, who noted that, to be valuable, learning had to be at least as fast as environmental change (77), suggesting that market turbulence is a moderator. This echoes into Eisenhardt's work on high-velocity environments (78;79) and Smith's work into the limitations of structured and politicised decision making processes in turbulent markets (19)

2.3.3. A Synthesis of the Insight to Value Process

From the literature that considers how firms translate knowledge and insight into value, we can synthesise a reasonable description of this process and what influences it. Broadly speaking, insight leads to value when it directs changes in the offer made to some customers. Decisions about such changes are set in the context of the firms' marketing strategy and are specific to the firm's context. Insight-based value creation is hindered by external factors (such as market turbulence and competition) but especially by internal, cultural based factors that impede flow of information and use of insight. Insight-based value creation is enabled by measures to reduce these internal moderators, such as cross training, cross-functional working and proximity. However, organisational reorganisation to facilitate this is counter-productive or at best double-edged.

2.4. Summary of Existing Knowledge and Questions to be Answered

The literature reviewed in the above sections comes represents a broad and varied body of previous research. Although fragmented and representing a number of disparate academic domains, the sense of this body of work can be condensed into a number of conclusions. According to this peer-reviewed work, the creation of value from data is dependent upon the degree to which:

- The data used reflects unmet customer needs
- Multiple sources of data are aggregated and synthesised
- The use of new information is deliberately used to test current theories of action
- Appropriate processes are used to analyse both tacit and explicit data
- Explicit processes are used to acquire, store, interpret, disseminate and act apply knowledge
- Knowledge is applied in the context of a strategy which targets needs-based segments
- Segmented that perceive tailoring as valuable are targeted
- The overall offer or value proposition is adapted in the light of insight
- The adaptation of the offer reflects the target segments needs
- The adaptation of the offer is executed faster than market turbulence or competitive action
- Organisational culture supports intra-organ isational knowledge flows
- The organisation takes measures to enhance intra-organisational knowledge flow.

Hence, the above list represents managerial factors that might influence the efficacy of value creation in knowledge-based organisations.

Despite this far-reaching list of moderating factors, the existing literature contains a number of significant gaps. These can be expressed in terms of the following four questions:

- What aspects of the specific situation are important to consider? The literature is not, to any significant extent, cognisant of any firm or market related contextual factors that might influence the data-to-value process.
- What are the extent and limits of data-driven value creation? The literature is notably sparse in examples of data-driven value creation, leaving unexplored the limits of the process.

- What are the critical factors in data-driven value creation? Although the literature raises several factors that influence the effectiveness of the process, it fails to identify those that are critical to the process.
- What are the differentiating factors in data-driven value creation? The literature fails to identify those factors that whilst not critical, represent points of differentiation between firms of differing level of effectiveness.

It was these four questions that the empirical research in this project set out to answer, in addition to considering the validity of the 12 recommendations suggested by the literature review.

3. Research Methodology

Table 1: Anonymised List of Research Respondent Companies.

Anonymised Name of firm	Outline Description
Building Society	A B2C provider of financial services with 4000 employees, operating in the UK only.
Components	A B2B supplier of components to manufacturing industry with a turnover of about £800m and about 5000 employees globally
Construction Materials	A B2B supplier of materials to the UK construction industry with about £800m turnover and 3,500 employees
Mobile Telephony	A European supplier of mobile telephony to mostly B2C markets with about 55 million customers in 19 countries.
Broadcaster	A European broadcaster with 12,000 employees and £4bn turnover.
Web Hosting	The EMEA subsidiary of a US web-hosting company with 100 employees and £20m turnover.
Membership Services	A mainly UK provider of financial and other membership services with 15m members
Parcel Distribution	A UK based but globally operating parcel distribution company with £300m turnover and 4,500 employees
Business Telecoms	A European subsidiary of a US B2B telecoms provider with £1.3Bn turnover and 4000 employees
Advertising Media	A UK B2B provider of advertising media with £1 .6Bn turnover and 700 employees
Credit Rating	The European subsidiary of a US credit rating company with a turnover about £250m and about 600 employees.
House Builder	A UK house builder with 5000 employees and £2Bn turnover
Credit Cards	A global provider of credit card services to 25,000 banks.

Although there are numerous options for research methodology, the final choice of methodology in any study is often heavily circumscribed by the context of the study. In this case, the key contextual issues influencing the choice of methodology were:

- The constructs (i.e. the things the research sought to examine) were poorly defined. That is, although the extant literature gave some guidance as to what to look for, the study was not attempting to measure agreed and well-defined constructs such as

turnover and company size. This implied that a quantitative survey would lack internal validity.

- The study was exploratory. That is it sought to examine not only factors previously identified by earlier research but also to uncover factors not reported in earlier studies. This implied that any inductive methodology might not capture important findings.
- The study was limited. The time available to the study was limited and the data not publicly accessible, two factors that together implied in-depth but small-scale studies.

For these reasons, a small-scale programme of in-depth interviews was chosen as the method. A non-deliberate sample of large firms was made and approached for interview, the request being targeted at a senior person with responsibility for customer data management. From that group, sampling was opportunistic and 13 companies who agreed to take part were interviewed.

The interviews were carried out using a semi-structured questionnaire (see Appendix 1) and each lasted approximately one hour. The interviews were taped and transcribed for analysis. There were then manually content-analysed using a collection form based on the research questions but augmented as new findings emerged.

The firms interviewed, disguised to protect confidentiality, are summarised in Table 1.

4. Research Findings

4.1. Outlines of the Respondent Companies

The salient features of each of the respondent firms are summarised in the following outlines.

Building Society

As a building society, this case had a number of unusual factors. It had access to unusually large amounts of data about its mortgage customers and large amounts of market data from its industry body and an informal network of competitor connections. It also had a large amount of tacit information from its retail network. However, it had relatively little transactional data due to the infrequent nature of its interactions with existing customers.

Little insight creation was apparent and such as there was occurred only at a product level. This appeared only partly due to the lack of a sophisticated IT system. More important appeared to be the lack of a well-defined strategy and, historically, little senior management commitment to the use of data to create value. To its credit, this firm had appeared to recognise this and was at the start of a project to correct its failings.

Components

This firm was characterised by a very large product catalogue (400,000 lines) and a large number of customers. Hence it had access to a large amount of transactional data. Notably, its use of data was placed in a well-developed strategic context with well-thought through segmentation. Further, it had developed a supporting IT and marketing infrastructure with support at board level. The market situation of the firm was remarkable in that it traded with almost all its possible customers and its growth strategy was based not on customer acquisition but increasing share of purchases.

This firm was observed to create not only operational but also strategic insight. However, it failed to make full use of its strategic insight. The reason for this appeared to be an inability to prioritise, a condition they described as “initiative-itis”.

Construction Materials

This firm was characterised by the low margin and geographically-based nature of its market, which was notably unsophisticated. The use of data in this firm was the most primitive of all the firms in this study. The firm was further characterised by cultural resistance to the sharing of tacit information by the sales team. Finally, they appeared to have a relatively poor understanding of market segmentation, having tried, failed and discounted this approach to marketing. Instead, their strategy was dominated by a simple Key Account Management approach.

As a result, little insight, either operational or strategic, was exhibited by this firm. Again, this firm had recently recognised this and was initiating a CRM process.

Mobile Telephony

This firm was one of the most advanced in the study. It demonstrated high-level commitment to the use of multiple sources of market information. These included, due to the business nature, large amounts of transactional information. However, this was strongly augmented

by various forms of market research information and was placed in the context of a well-defined marketing strategy.

The firm demonstrated sophisticated insight at both operational and strategic levels and had a well-resourced process for using this insight to drive development of the overall customer experience. Notable was its use of insight to de-prioritise projects deemed non-profitable.

Broadcaster

This firm was an exceptional example of the use of data that, although supported by market research, was characterised by the use of customer data on a huge scale. They had integrated data from a large number of sources both internally (from marketing communications responses) and externally from purchased databases. This was analysed in a very sophisticated manner. The other notable characteristic of this firm was its very high-level commitment of resource and political support for the process.

The insights created by this process appeared to be largely operational and directed mostly at driving the effectiveness and efficiency of the customer acquisition and retention process.

However, the process had not been in place for very long and was beginning to reveal strategic insights that were challenging basic tenets of the firm's growth strategy.

Web Hosting

This firm was the smallest business unit in our study, although it was a subsidiary of a much larger firm and was growing very rapidly. This firm was characterised by almost obsessive use of satisfaction data from surveys of its existing customers. Some data about potential customers was also used, but primarily this organisation was driven by customer recommendation. This was manifested in sophisticated surveying, analysis and metric processes and under-pinned by a very strong and pervasive culture. Further, the strategy of the company was tightly defined as targeting only those firms with web-critical applications.

This firm demonstrated the ability to create market insight, but mostly of an operational nature and used to optimise customer satisfaction and recommendation. There was little or no evidence of strategic insight into the market as a whole.

Membership Services

This firm was a strong example of sophisticated use of data analysis supported by market research and other sources of information. It was characterised by great attention to professionalism in the process, which was deemed important to the firm's operation.

This firm demonstrated both operational and strategic insight. However, it seemed to fail to make use of the strategic insight for cultural reasons. Turnover in key positions and issues of corporate strategy seem to have undermined the political support for making the actions necessary to create value from the strategic insight.

Parcel Distribution

This firm demonstrated good use of its large amounts of transactional data which it augmented with some simple but very effective research into needs-based segmentation. However, the process seemed to be restricted to the marketing communications function with relatively little senior level support for the use of data to create value. As with the components firm, this firm was remarkable in that its growth strategy was based not customer acquisition but on increasing share of purchases.

As a result, this firm was able to create useful but limited operational insight that it used only to inform its marketing communications. This limitation may also have been partly due to the relative inflexibility of its core proposition.

Business Telecoms

This firm showed many similar characteristics to the web hosting company. It demonstrated extensive and sophisticated use of customer satisfaction data but with relatively limited use of non-data information and non-customer information. There was demonstrable senior level to the use of data in this way but the strategic context was unclear with little evidence of well-defined segments and targeting. There was some evidence of regulatory constraints on its activity also.

This firm demonstrated effective use of operational insight to improve services to existing customers and also to target marketing communications activity. Beyond that there was relatively little evidence of strategic insight that was used to challenge existing strategy.

Advertising Media

This firm was characterised by an especially turbulent competitive environment and a relatively small number of very high value customers. It was also unusual in having limited capacity and so operated a yield management strategy analogous to airlines and hotels. They made extensive use of a very broad range of information of which transactional data was a relatively small part. Their process was consequently relatively unstructured.

The insight observed in this case was mostly operational, in the sense it was case specific, but verged on the operational in view of the highly concentrated nature of the customer base. It was used to manage these key accounts, which involved extensive tailoring of an extend offering around a relatively fixed core offer. However, some strategic insight had arisen from their informal process, which had resulted in fundamental shifts in their customer management process.

Credit Rating

This firm was characterised by a strong market position in a tightly defined market with only 3 major players and high barriers to entry. It demonstrated no coherent process to leverage data and little senior level commitment to such a process. This was despite IT systems and a rudimentary operational segmentation. Much of the transactional and tacit data available to it was hindered by functional silos and its strategy development process.

Whilst this process provided some operational insight, its use was limited to key account development. Failure to develop strategic insights were particularly noticeable in the difficulties this implied for new product development outside of its core products.

House Builder

This case was in some ways comparable to the construction materials company with strong industry cultural artefacts including a heavily geographical structure. Although more sophisticated than the construction materials company, it demonstrated only an unsophisticated strategy. However, this may have been appropriate as it was built around getting customer hygiene factors right, which may be appropriate in a market such as this.

The insight observed in this case was only of an operational nature but was used effectively to support the hygiene based strategy. Also notable about this firm were deliberate and extensive attempts at cultural management and heavy regulatory constraints.

Credit Cards

This was an anomalous case. Although the firm used huge amounts of transactional data in a sophisticated manner, augmented with numerous other sources, it did not use this to modify propositions. Its structure and mission meant that it was obliged to provide the same offer to all of its customers. Instead, the sophisticated data analysis it used supported fraud management, an essential component of its overall offer.

4.2. What Aspects of the Specific Situation are Important to Consider?

The wide variation of cases examined meant that disparate contexts could be compared. From this, it could be observed that both market and company specific factors had a large influence on the way that firms attempted to use data to create insight and value.

Four factors that could be said to be specific to the market influenced the data-to-value process:

Industry regulation

In many markets, regulation by either governments or self-regulation by industry bodies placed limitations either on data usage or on adaptation of the offer.

“The building society association gives us rules, so we’ve got to make sure that we work within those.” – Building Society

“There are regulatory factors that stop us doing things that would provide benefits to the consumer and allow us to be more successful.” – Business Telecoms

“In any other market, you’d say this is the customer feedback about what they want as a product and research and development would work on that. We’re hugely driven by the planning process. So planners will dictate what houses will go on (the site), what external features you do, what the design is. And you build what you can where you are allowed to. So some customers will say they want a four bed roomed detached with a double garage but the planners say there has to be a mixture of house types and a maximum of 1.5 parking spaces. That’s a real challenge in this market.”- House Builder

“There are issues around firewalls, areas where you could not and should not share sensitive information. In the financial industry, this can be a bigger barrier than it needs to be when it makes people cautious. That’s a definite issue.” – Credit Rating

Industry information sharing

In some markets, informal sharing of information between competitors was a potential source of insight.

“You can ring each other up and ask about what’s going on” – Building Society

External data availability.

The availability of external generated information either general (such as omnibus market research reports) or specific (such as customer databases) varies widely between sectors.

“Because of our shortness of (non-transactional) data, much of which cannot be bought and has to come from using sales team time, we had many staccato attempts at differentiating customers” – Components

“We are pretty poor (in data). What we have to work with is based on the fact that the customer has an invoicing address, we know what enquiries he makes and what we sent him. That is the crux of the data that we have to manage our customer base” – Construction Materials

“We have a prospect database. We have a profile of 25 million households in the UK. This comes from bought in data from about 127 (sic) sources. Some of it is based around the census backbone, then unusually we overlay 4 other backbones. All the different data sets, we overlay where we believe there’s value for us. For instance, there’s an aggregator of mail order data. Pretty much you’ve bought on mail order, we’ll have on our database. We categorise the data as socio-demographics - a descriptor of you – then we have behavioural data, then we have attitudinal data, which is the holy grail for us. We are driving to get there and we will get there” –Broadcaster

“The short answer is masses. From the perspective of day-to-day dealing with them, there are a number of industry wide sources we tap into which help us to understand what our customers are doing. That could be for instance Nielsen media research, who monitor on a monthly basis how much advertising spend in which media. We would also access web sites, which give us more contextual data about what our clients are up to. So if we know we’re going of to see Mars in two weeks time, we would collect data from a number of sources in order to be as intelligent and informed at that meeting as we can be. It could be FT.com, there are some subscription services that we use via the internet, we have our own in house data about what they’ve been spending. They are a wide variety of data bases we would mine in order to help us.” – Advertising Media

Internal data availability

The nature of the business, the number and nature of products and transactions, means that there is huge variability in the amount of internal data that is available in different markets.

“The most direct and obvious bucket is transactional data, of which we have tons. Because of the breadth of the product range, because of the number of customers, it is a monster matrix of information and data we have. We know who bought what and when through what channel at what price, with what cost aligned to it”. – Components

“We know a lot (for existing borrowers) about disposable income, salaries, assets etc.....There’s not so much transactional data” - Building Society

From a company specific perspective, the strategy of firms in the study varied greatly between customer acquisition, retention and increasing share of wallet.

“Other people will have bigger and more sophisticated databases, but they are based on customers, not prospects. What we’re about is understanding those customers we’re yet to win” – Broadcaster

“It’s the overall business objectives.....because last year we had such an issue with retention, we had to look at that, so our current programme is about looking at customers likely to be at risk.” – Parcel Distribution

“One of the things about our business is that the number of customers isn’t the issue, it’s getting the share of wallet from that customer. To take the UK as an example, we have an overlap of 90% of our customers with (major competitor). The reason they (the competitor) are bigger is that more of the customers spend more money with them than they do with us. So in most of our more mature markets, the issue isn’t around finding more customers, but getting a bigger share of the ones we already have. So, without diminishing the importance of getting information on the market as a whole but through our (existing) customers we have quite a good handle on the market as a whole” - Components

Hence, the market and firm context, and these four factors in particular, constrain and direct the manner in which firms use data to create insight and value.

4.3. What are the Extent and Limits of Data-Driven Value Creation?

The insights cited by firms in this study varied greatly. The majority were operational in nature, being specific to certain products, customers and situations:

“One example: a very large number of our customers are IT professionals and when we delve further into them we found that they were referring a lot of business to us. When we found that out, we started a referral programme to them. It was a bit like pub talk, a marketing exercise to facilitate referral.”- Web Hosting

“I think some of the things about disruptive pricing opportunities. For example flat rate voice, we were the first to come to market with a pan-European flat rate voice offering, which addressed a specific need that came out of our customer advisory board.” – Business Telecoms

“We also look for customers that are uptrading or downtrading. So, although the top line figures might be stable, within it there’s a group that might be going up and another that’s going down. If you can get at it at a customer level, you can focus in more.”- Parcel Distributor

“The insights are about where we spend our media money, we’re always fine tuning in that area. Our contact strategy, based upon what we know what we say to them and how often. For instance, a young family might send something on value for money, then something on entertaining the kids, then something on parental control. If that hasn’t worked, we might leave it for six months.”- Broadcaster

In a minority of cases, the insights cited were of a more general nature, extending beyond specific customer, products and promising larger opportunities for growth or for avoiding strategic errors:

“One of the great revelations we came across was the discovery that there was a switch point, a threshold, in ordering volume. If customers went beyond that, suddenly their average order value went up, their average spend per year went up, their profitability went up. Huge change. A non-linear relationship their ordering volume and their profitability. It was quite dramatic. So moving customers through that barrier was critical. Simplistically, we could say that down here was the habitual buyer, up here is another sort of buyer”. – Components

“We’ve had to re-orientate our strategy around non-families. When you look at the headroom – those prospects in target segments, after removing undesirable customers – there’s not enough left to satisfy our growth targets. So we’ve had to re-orientate around empty-nesters and that’s led to a major revision of our media strategy.” - Broadcaster

“What we also found out is the added complexity of delivering all the stuff you can deliver and assume people do want can actually become a reason not to be using the phone in the first place. And that’s a big lesson for us. In trying to play safe and making sure it does everything, you can’t do anything” – Mobile Telephony

The firms in this study also demonstrated a spectrum of activity in using their insight. At the most modest end of this spectrum, operational insight was used only to drive marketing communications activity:

“We now have different vehicles, different marketing vehicles which are trying to communicate a different message to the (different segments). These are now mostly electronic rather than paper. We now have the capability to draw up lists and tailor the message. (For instance) we know that if they are an automation engineer we know that they might buy a certain class of products. Of course, if you separate customers and still send them the same message, you’re

not segmenting at all. We changed technology around websites and publishing, which enabled us to have much faster and more differentiated other channels to market (paper and web). You can therefore have different versions.” – Components

“The core services probably don’t change, just the way we present them changes. The marketing and the packaging... The language we use is the primary change. The benefits are dressed up in slightly different ways. So we might still talk about our web site for example, but with the control segment, we stress ‘control at your fingertips’, with the relationship people it’s an extension of their team”. – Parcel Distribution

Further along the spectrum, firms used the insight to change the extended product and process rather than the core of the offer:

“It’s influenced our “go to market” around advertising PR, channel selection. It’s certainly influenced our pricing, it’s influenced our product and process. Recognising that we used to have very fixed processes. Even the people to a certain extent, the people we need.” – Business Telecoms

“We’ll sit down for an hour or two and go through a presentation about exactly what the house is going to be like, so you manage the customer’s expectations. (Otherwise) the show home could be different plot and you’ve spent thousands doing it up with interior designers.”- House Builder

Further along the spectrum still, insight revealed the structure of the market and so informed product development in a strategic rather than operational manner:

“Our biggest insight was into attitudinal segmentation. We’d previously done product segmentation, we tried transactional data then we tried attitudinal. We did market research interviews with customers and non-customers. We built a segmentation based on that research data. We then tried to bridge that segmentation into our transactional data. So because of the way you answered these questions, I put you in segment 5, then try to find attributes from our transactional data that fit you. What it highlighted was that some segments wanted to buy other products that we didn’t provide. One was a savings product for instance.” – Membership Services

Only at the very extreme of the spectrum was insight used to change the overall offer to the customer:

“We talk about the whole customer experience across the whole customer journey. Which means that we use the whole value chain and try to identify- and this is where segmentation has hugely helped us – what’s a level of hygiene, to keep up with the competition – and what’s a level of differentiation We design the communication campaign, your retail transaction, your underlying technology, your billing systems, your interactions” – Mobile Telephony

This range of adaptation of the offer in the light of insight was attributed to numerous causes that fell into two broad classes, the tangible and the cultural.

Tangible reasons reflected physical and practical difficulties in changing the offer:

“In a perfect world we aspire to change the whole mix. In practice, it’s easier to change some things more than others. It’s very easy for us to create a communication message. It’s very difficult for us to modify our underlying technical structure. It’s difficult to persuade handset manufacturers to change things because we want to supply something to a certain segment. So it’s easy to define a certain customer journey but the peaks of difficulty in doing that, and therefore the amount you can actually change, is quite different.” –Mobile Telephony

“Where we need to get to, but we’re not there yet, is to dictate what content to put on the platform. We’re starting to inform the content we buy but we’re 12-18 months from that. It’s a huge challenge.” - Broadcaster

“There’s only so much you can do with a parcel service. There’s some added value, based around collecting, tracking, delivering on time, which some customers might want, some customers might pay for that. Others won’t be interested at all”- Parcel Distribution

However, by far the largest class of restrictions and limitations on adaptive capacity were cultural, reflecting intangible conditions within the organisation. Many of these reflect a lack of marketing orientation in the company:

“That touches on the cultural aspects. As a sales person, I’ve never had that sort of information before, so what do I do with it? Do I understand what I can do with it? Can I now use that to make a better impact at my meeting with my customer? We got mixed results there. Some of the sales reps thought it was fantastic, couldn’t wait to get hold of the information, we can make hay out of this. Others kind of looked at the spreadsheet thinking “don’t really know what to do”. – Components

“It is broadly true to say we are not a market/customer oriented culture. A lot of the time we come from a product perspective.....Where people are trying to create a new revenue stream, their intention is to go out and talk to people, but I think it’s fair to say that they start from a preconception about what can we do based on our own (product) competencies” – Credit Rating

Other points reflected structural artefacts of the company’s culture; such as the way it was structured:

“A lot of what we’ve got here is the barrier between aggregates and building products (the two business divisions) which have been set up to manage the business internally and not necessarily how the customer wants to see things.” – Building Materials

“It was a hell of a lot easier when we were smaller. Divisionalisation or departmentalisation tends to make things harder” – Web Hosting

“It is the fact that we have 27 different business units. We’re having a big cultural change but it’s hard to get consistency.”- House Builder

“The vertical structure of the company makes it virtually impossible. The traditional organisation of a company is completely against customer orientation.”- Mobile Telecoms

In addition to these relatively visible artefacts, many references were made to fundamental cultural traits of the organisation that could hinder or help the use of data to create value:

“You will only have success if you make it clear what their accountability is and to add to that, specific measures around ‘if this is your job, we expect you to provide the info’. Where we have succeeded we have done that, where we have failed, we haven’t” – Credit Rating

“Companies either believe in research or they don’t...We like to say we’re not a technology company. We’re a service company. Our concentration is on being customer-centric”- Web Hosting

“It’s changing the culture of the company, from being a builder to having a retailer approach.”– House Builder

The firms in this study therefore exhibit great variation in both the sort of insight they created and the extent to which they used that insight to change their activity in the market place. In some cases, these differences in adaptive capacity could be attributed to tangible

constraints. However, on the evidence of this limited study, the largest limiting factor on value creation from any given insight would appear to be cultural rather than tangible.

4.4. What are the Important Factors in the Data to Value Creation Process?

Despite the small sample size, the variation in the firms studied meant that it was possible to discern patterns and differences between those firms that seemed to use data effectively to create insight and value and those that were less competent in this respect. Two groups of factors seemed to be critical, in that they were observed in all cases of successful value creation and not in cases of weak value creation. A further three groups of factors appeared to be differentiating factors, in that their absence was not critical, but their presence improved the effectiveness of the value creation process.

Critical Factor 1: Leadership Commitment

The first of these critical factors can be classed as leadership and commitment. In all of the most effective companies, commitment to the process was observed at the highest level. By contrast, less effective companies restricted their data-to-value process to less senior managers.

“I think it’s a question of commitment from the corporate leadership, and I think that might be the hardest thing.”- Web Hosting

“I think one of the biggest assistances is having a CEO who is very much for things which challenge the status quo. He is always pushing the organisation to be innovative, to adapt, to simplify to reduce complexity to try for lowest cost and to ask everybody to do more than we actually can, recognising that if we try hard we’ll achieve more than if we didn’t”. – Business Telecoms

“The CEO has brought in a culture of challenging set assumptions, be entrepreneurial, take risks and make mistakes. Make the same mistakes twice or make more mistakes than successes and we’ll fire you. You’ve got to be pushing the boundaries. Old school us was more about power barons and CYA.”- Broadcaster

“(Head office) are pointing out the big opportunities associated with convergence. They are signposting new roads that no one has thought about before. At an operational level, business plans are still needed, but this leadership provides some freeing up.”- Mobile Telephony

Even in cases where a board member was not driving the data strategy, effective companies appointed specialists who carried authority of the board and gave the project their highly visible backing:

“It’s a formal process. I lead a team, which is the executive team, the European managing director, the marketing director, finance director and technical support director. From the list of issues raised by customers in the continuous monitoring, we address each customer’s problem. These issues are classed as technical, finance, marketing, whatever A member of the executive team will phone everyone who has made a comment. This is hard but I drive them to do it and I have their permission to do it.”- Web Hosting

“It probably all joins together at the strategy level. So we have a strategy that we kicked off in 2004 which has 6 strands. I’m the custodian of strategy for our CEO. ”- Business Telecoms

That level of commitment is in stark contrast to firms in which leadership was either absent, unsupportive or vacillating:

“We’ve been working on (an integrated customer data system) all year. It’s a difficult thing to do, especially when you get 90% of the way there and you get told the budget has disappeared.”- Advertising Media

“There are some other issues about the barriers to new product development process and whether it really has the whether there is really the strategic intention is to develop them and the resources and senior level championing of NPD. And maybe the final point is that traditionally most of the senior management were traditionally analysts, that’s what their knowledge base is, and so they tend to be risk averse. More recently, there’s been an intention to put more business managers into new positions”. – Credit Rating

Leadership commitment to the data to value process appears to be a critical factor. This overlaps of course with the earlier observation about culture as the dominant determinant of adaptive capacity. Since leadership is the dominant factor in cultural change and management, lack of appropriate leadership has a “double whammy” effect on a firm’s ability to create value from data.

Critical Factor 2: Synthesis of Multiple Sources

In addition to leadership commitment, the second critical factor in appeared to be the ability of the firm to access and synthesise multiple sources of data and information. This was a notable point of emphasis in successful companies, although the precise forms of data gathering were context specific:

“I recommend strongly touch points at key events in the customer lifecycle. How you touch them is up to your culture and your organisation. Our customers are all techies, but if we were Tesco it would be different.” Web Hosting

“So therefore within (our company) there is a big market research programme and it tracks the typical things that companies track; brand tracking, customer satisfaction, customer services and mostly it is measuring peoples’ awareness of the brand, satisfaction of the experience, including customer service call centres, retail and web. Retail is important because our strategy is to have a direct retail channel rather than just through... (for example) Carphone Warehouse, where we’d have no control of the experience whatsoever”. – Mobile Telephony

“We do other surveys, such as a twice a year customer satisfaction survey which is quite long but which gets about 5000 replies in Europe and is good, we get good results from it. It covers a whole range of different parts of our proposition, and how they view it relative to our competition and compared to us in previous times, so we’ve got lot of data there and...On top of that, we do a whole lot of surveys as required. (For example) there is a big piece of (environmental) legislation coming through and we’re doing surveys about readiness for that. Some of these are internally driven, some are externally sourced. We don’t spend a lot of money (on external market research) but we do do it. And we do it very specifically.” - Components

“When customers interact with us, we collect operational data – names, addresses, everything needed to operate the contract. As analysts, we sit downstream from that operational view. We get extracts of data from various operational systems within the company... including transactional data.....into the data mine and that’s the only place where there is a holistic view (of the customer) We also buy in demographic segmentation data which is particularly important We also have data on lapsed customers which erodes in value over time We do (qualitative) market research but are bound by MRS rules and generally don’t put that into the data warehouse We do over a million pounds worth of research every year We do focus groups, softer insight, “why did you really leave”. Type stuff “We link it together on an ad hoc project. A good example of that is panel shoppers data about overall purchasing, viewing, reading. What we’ve done is joined our own customer data to that panel. Because that panel

has 75000 people, you get a reasonable match. It's done at an individual level by the agency and we then get back a data set. We do similar projects like that through the year We joined that (customer satisfaction data) with other data about member retention.” – Membership Services

This compares with those firms who synthesised data only in an informal manner:

“A lot does go on (only) in our heads but also in talking to customers and the various parts of the business that are involved”- Building Society

“It's an informal process, I'll be frank with you” - Advertising Media

A notable observation in the firms that used multiple sources and extensive synthesis was this process led to a hierarchy of data relevance. That is, the process of analysing and synthesising lots of data led to the discovery that relatively few types of data and the correlations between them were critical to customer insight. This winnowing process was however seen as a necessary learning process:

“A lot of data is collected in an organisation like ours, increasingly so in the last few years, but it's not necessarily much use to me and I usually find I have to go and collect different data Most of this research is what I call “after the event”, it measures what has happened.” Mobile Telephony

So along with leadership commitment, the use and synthesis of multiple complimentary sources of information appeared to be critical to the process of market insight creation.

Differentiating Factor 1: Human Resource Issues

In a number of cases, in-depth probing of what was important to the effectiveness of each firms' process yielded reference to the effectiveness of the individuals involved

“There's a lot in trade press about delivering customer insight but for the killer me it's about the people you've got doing that. You can have hard core statisticians with white coats and beards and they are great But I have to have people who are good statisticians and who have also got to deliver some insight and be able to explain the model and what to do with it. Having that skills base, and maintaining it is probably the hardest thing.” – Membership Services

“In some countries, the marketing person's capabilities are sufficient to influence the local sales team but in for example Germany the local marketer perhaps drag the sales force off the road too much. So it varies greatly with the capabilities of the guy who's there Also, it is usually influenced by the background of the regional director. Those that come from sales and operational backgrounds have a different view from those with a marketing background.” – Components

Reinforcing that were observations that very deliberate human resource policies were important:

“We have a whole series of things. When someone joins this company, our European managing director takes the new joiners out to lunch. We have a buddy system whereby people will buddy for the first month. Our recruitment process recruits for attitude not for skills. It's the whole process for making the culture. We have a “dress up day” and a “free food day”. When someone has been here for 12 months, we take them to America (HQ), whether they need to go there or not. We have people's individual flags above their desks. We have Gallup organisation surveys so we can tell you everybody's top five strengths.” – Web Hosting

Although it is unsurprising that effective recruitment, retention and training policies were mentioned, it was remarkable that these comments had far more unprompted salience than, for instance, IT systems or strategy.

Differentiating Factor 2: Organisational Learning Issues

In the part of the interviews that dealt with the process by which firms uncovered insight, there was noticeable support for the idea of organisational learning and especially the use of new knowledge to challenge existing thinking or to test theories and hypotheses:

“Every now and again, we find something that changes the way we think. Some while ago we had a whole range of customers that were unprofitable and our research said that we can’t give them the level of service they want and still make money.”- Web Hosting

“Our hypothesis was that we would see a relationship such that dissatisfied customers didn’t actually renew. What we actually found was that a lot of people who had experience of (our service), almost regardless of their satisfaction, would generally renew. There was a high correlation between usage and renewal (rather than satisfaction and renewal). Our satisfaction index is very very high and it challenges us because getting high satisfaction is very expensive.”- Membership Services

“We work with a specific new product development research team but we generate new design “theories” (about what is needed in the market) ... What happens next is a learning loop. You do the research, it triggers something, you do a different kind of research to find a solution to that problem, then test it in real life. (testing) That’s the thing that most companies forget, because their much more interested in moving on the next idea. – Mobile Telephony

This compares with a less sophisticated company:

“Not me personally, I can’t think of any examples of where the analysis has changed our thinking”. – Building Society

So, just as the organisational learning literature would predict, the capability to use outputs of analysis and synthesis to test and revise current thinking, as opposed to reinforce and direct current approaches, would appear to be a differentiating factor in the effectiveness of the data-to-value process.

Differentiating Factor 3: Strategy Content and Process Issues

Just as the literature predicts the importance of organisational learning, the interviews also confirmed the literature indication that data-to-value processes were more effective when used in the context of clear and well thought out segmentation. Note, however, that this only applied when needs-based segmentation, such as attitudinal segmentation was applied and not when “false” segmentation based only on data classification:

“We think of three key types of parcel sender:

- The controllers (the control freaks!) who want all of the technology, want to be able to use the web-site a lot so they can see when the parcel is picked up, track it so they feel better about it.
- The relationship people, who just want us to be their best friend. They cost us more because they want lots of contact, more personal contact, and we talk to them about us being an extension of their team.
- The just do it. They’re the ones who say “I’m giving you that job to do, do it. Get it wrong and (laughs)

That came out of the research into the decision making process. There are about 27 (sic) things that are considered in choosing a carrier. It includes things like how smart and tidy the driver is when he comes to collect, when the parcel goes missing how is it handled.” – Parcel Distribution

“In our approach to segmentation, one of our key differentiators is the role of the person in the company; whether for example they are a designer, a purchasing manager, maintenance people or perhaps production people. What (those different people) require from us outside of the product is very very different. We have therefore acquired some information about their job role and their responsibility is as far as the buying process itself is concerned. (For instance) many designers will decide what (product) they want to buy but not where they want to buy it from. It’s the purchasing manager or agent who actually says I’ll buy this from (a supplier). Because of that it is important to gather information not only about role but their influence in the buying process” – Components

“The process we went through was to do a huge amount of research and from that research segments were extrapolated. The important thing about them is that they are across Europe, they represent a varying proportion, some are very large, some are very small. They were created because they were significant in terms of either numbers or outputs The segmentation is a way of getting people past the fear that one size has to fit all. The fact is that we have a huge number of customers who are not all the same. Segmentation allows us to have a high degree of freedom rather than having marketing people obsessed with how we communicate. It frees up the conversation.” - Mobile Telephony

Compared to less sophisticated types of segmentation:

“We have two classifications of customers – small businesses and what we call enterprise customers, which are the larger customers We look at customer needs by business type, by retail, information technology, publishing.” – Web Hosting

Some firms were clearly embarked on the journey towards needs based segmentation:

“We have a finance segment, a professional services segment and a media segment. We’ve got a lot more work to do there. At the moment it’s mostly about emphasising the benefits of the product to that segment rather than tailoring a product to the specific needs of the segment. I wouldn’t say we used needs based segmentation, but the proposition ends up meeting a set of needs that are pretty much homogeneous within the group. But that (needs based segmentation) is very much where we are heading towards”- Business Telecoms

Whilst others had given up on the idea as unworkable:

“It’s interesting. I’ve been in this industry for 20 years or so and over those years we’ve had consultants come in, we’ve spent a fortune, people who can come in and analyse our customer base, add a bit of science to it, and invariably they haven’t been able to come up with any real thing that’s added that much value to it. – Building Materials

In addition to the importance of a robust segmentation approach, the second aspect of strategic context that appeared to be important was the ability of firms to use insight to de-prioritise and avoid doing the wrong thing:

“We (use the data-driven insight) to target on life stage events such as house moves, births and others. We have different creative messages for different targets, but it’s less about targeting the people you’re going after and more about avoiding the unattractive ones. We use it to avoid... that segment or that individual will not make money... according to a combination of attractiveness and (winnability).” – Broadcaster

“With a technology-based industry like this, if you can do something, you assume people want it. And a number of projects recently, when we’ve gone and done some much more detailed

research, we've gone beyond just asking them. We've said "here's something you might like" across a wide range of contacts. What we get there is the ability to spot things that we thought they might want, but actually they don't. You have to be quite brave to do that. –Mobile Telephony

Compare that to the firm whose failure to implement insight was apparently due to a lack of this prioritisation process:

"We did it but we didn't follow it (the insight about threshold customers) through. We did some, then something else came along I think the truth is that we are a pretty lean marketing organisation and we had too many other priorities and something else came up. I can't remember what it was, but it would have been something else that was to be the answer to everything we ever thought of and we just didn't have the rigour to follow through."- Components

So the strategic context of the data-to-value process appears to be a significant differentiator between more and less effective firms. This applies both to strategy content (i.e. the nature of its segmentation) and strategy process (i.e. the nature of its resource allocation process).

5. Discussion

The research detailed in this report is directly relevant to those firms seeking to use their data and information to create knowledge, draw insight from that knowledge and to use that insight to create value.

From the secondary research, synthesising and condensing the work of almost 80 published papers and books, 12 recommendations for practice emerged. In the light of this work, these recommendations can be supported and augmented.

1. *Firms should strive to collect data that reflects unmet customer needs rather than rely on readily available but relatively less useful transactional data that mostly reflects met needs.*

This recommendation was strongly supported from this work. In all cases where either extensive specific, operational or general, strategic insight was created, the firms used data that in some way captured unmet needs. The most common use of this was the use of wide-ranging customer satisfaction surveys of existing customers. However, the use of qualitative market research techniques with both existing and potential customers was also very common. In both cases, this seemed the major contributor to insight. Transactional data was a minor contributor, mostly helping to operationalise insight rather than create it.

The important implication of this was that it seems necessary either to carry out such data gathering or enable the data to flow from customer contact personnel, both of which are significant practical difficulties in creating insight.

2. *Firms should strive to find, aggregate and synthesise multiple forms of data rather than rely too heavily on one source of data.*

This recommendation was strongly supported. All firms used contractual data (names, addresses etc) and transactional data (purchases, enquiries etc.). Many but not all firms used additional sources such as primary (i.e. especially commissioned) or secondary (i.e. purchased of the shelf) market research. Firms exhibited varying degrees of effectiveness at capturing tacit information from touch points. The most notable variation of all was that of

comprehensiveness of the data gathering and rigour of synthesis. There appeared to be a direct correlation between this and the number, generality and value of insights uncovered.

3. *Firms should deliberately formulate or explicate theories or hypotheses concerning their business and use their data and information to test and revise these. This is likely to be more effective than using data in the absence of explicit theories of action.*

This recommendation was supported, although the scarcity of firms that reported acting in this way means that the support can only be qualified. It seems likely that most firms have, in Argyris's words, theories of action but few were self-aware of them and fewer still professed a hypothesis/test/reformulate process akin to the normative scientific method. General, strategic insights did seem to be especially strongly related to such explicit theorising.

4. *Firms should collect and use both tacit and explicit data rather than rely too heavily on one or other form of knowledge.*

This recommendation was supported, although the respondents also confirmed that tacit data collection and use is much more problematic than the explicit equivalent. In particular, this is an area where information technology has limited impact and organisational culture is a dominant influence. The familiar, stereotypical problem of political husbanding of information and difficult to analyse mines of soft data remains a major challenge to insight creation.

5. *Firms should seek to design and use explicit rather implicit processes to acquire, store, interpret, disseminate and act apply knowledge*

This recommendation was supported, although with caveats. It seems clear that a deliberate process of knowledge management is helpful to value creation. However, there were instances in which too formal a process evoked cultural and political resistance. Similarly, there were instances where informal processes seemed the best way to make sense of contradictory, incomplete, unquantified or tacit information. Hence, combining deliberate process with a mixture of formal and informal processes seems to be associated with the most effective insight creation.

6. *Firms should seek to develop or make explicit a clear strategy within which their data and knowledge management processes should be contextualised, rather than separating strategy and data management.*

This recommendation was supported. Surprisingly, given the successful and established nature of the firms involved, not all respondents could be said to have well defined strategies. By that is meant a clear choice about which part of the market they targeted and on what basis they sought to compete. In some cases, strategy was as ill-defined as almost all the market and on every competitive basis conceivable. Firms with better-defined strategies seemed to be better at creating insight, although the direction of causality, or if both factors had a third common cause, was not clear. However, there was some indication that firms with clearly defined strategies were better placed to look for relevant insight and discard irrelevant information.

7. *Firms should seek to use their knowledge to refine well-defined needs based segments rather than mere data-based classifications of customers.*

This recommendation is supported and augmented. In all cases where strategic insight was created, needs-based segmentation was observed, even if only in a putative or imposed form. Interestingly, two cases of needs-based segmentation were observed that did not seem to lead to strategic insight. In both cases, these were associated with political isolation of the segmentation from the higher strategy process.

8. *Firms should ensure that their segment targeting criteria make due allowance for the segments' perception of tailoring value, rather than target only on size or growth criteria.*

This recommendation was neither supported nor refuted by the research. In the sample of firms examined, the various segments targeted all perceived tailoring to have some value. In other words, none of the firms studied targeted segments that were tailoring-apathetic, such as a price-sensitive segment. As a result, although value did seem to be

associated with targeting segments that valued tailoring, there were no examples of insights failing to create value because tailoring-apatetic segments. So no conclusion can be supported in this case, although the universal practice of targeting tailoring-sensitive segments does, on a balance of probability, suggest that such targeting is associated with value creation.

9. *Firms should seek to adapt their value proposition to the needs that define and drive segment behaviour rather than merely adapt those parts of the offer which are easy to adapt*

This recommendation was only partly supported. Certainly, among those firms that used insight to create or enhance their value propositions, the intention was to change those parts of the offer that were most important (i.e. behaviour driving) to the customer. In reality, the fact of limited adaptive capacity implied a compromise between the desired and the possible. A more accurate restatement of this recommendation therefore might be that, in adapting their value proposition, firms should seek to balance the competing demands of the customer and constraints of their adaptive capacity.

10. *Firms should seek to carry out the adaptation of their offer in a timescale that reflects the level of market turbulence, rather than at a pace which allows those changes to be obviated by market change or competitor action.*

This recommendation could not be supported or refuted by this study. Although, in all cases, acting on insight seemed to be a matter of urgency, the study did not find examples of it happening too slowly to create value. However, this is most likely to be an artefact of the limited scope and timescale of the study.

11. *Firms should consider deliberate efforts to identify and change aspects of their organisational culture in order to enable the data-to-value process, rather than ignore or neglect the influence of that culture.*

This recommendation was supported by this study. All of the successful examples of insight and value creation were accompanied by deliberate and usually significant attempts to manage the culture, always driven by very senior managers. By comparison, failures to create insight or value were associated with either lack of cultural change attempts or with failed attempts.

12. *Firms should take deliberate steps to enhance intra-organisational knowledge flow rather than allow structures hinder that flow.*

This recommendation is supported by this study. Successful insight and value creation was associated with breaking down functional silos, usually by facilitating information flow at board level. By contrast, functional silos were repeatedly reported as real and important barriers to insight creation.

From this new empirical research, the 12 recommendations discussed above can be added to with the following observations:

- a) *The data to value process must recognise specific firm and market context.*

It is clear from this study that the context heavily influences the approach to the data-to-value process and, to a degree limits its potential. In particular, design and expectations of the process should take into account:

- Industry regulation, which might constrain data availability, use and adaptive capacity.
- Industry information sharing, which seems to vary between sectors and will therefore differentially enable or restrict data gathering.
- External data availability, which seems to vary greatly between sectors and will therefore place some sector-specific limits on the data-to-value process.
- Internal data availability, which varies according to factors such as numbers and nature of transactions and will therefore differentially enable or restrict data gathering.
- Strategy, which varies across several parameters, such as degree of focus and fundamental objectives. These variations will inevitably mean that the optimal data-to-value process will vary, even between firms in the same sector.

b) The practice of data-driven value creation is limited.

It is clear from this study that the practice of data-driven value creation is a long way from the theoretical ideal, even in the best cases. There are many examples of limited data-driven value creation via marketing communications adaptation. There are many fewer examples of firms using data to adapt their extended offering, such as service and packaging. Examples of data-driven insight being used to revise extensively the overall customer experience are likely to be very rare. This finding of limited value-creation suggests that the adaptive capacity of firms is heavily constrained.

his study further suggests that whilst these constraints on adaptive capacity are partly the result of practical realities, such as physical infrastructure, the largest class of constraints is cultural. In short, even when insight is created, firms' can use it only within, or slightly beyond, the limits of their culture.

c) Leadership commitment and information synthesis are critical factors

Of all the things identified by the prior literature search as influencing factors on the effectiveness of the data-to-value process, this study points to two factors which are critical:

- Only firms in which the top leadership is committed to the process are likely to create extensive operational insights or strategic insights. Such commitment goes far beyond lip-service and delegation and is manifested in personal involvement and strategically significant levels of resource allocation. Without such commitment, the best any firm can hope for is limited operational insight.
- No one source of data will lead to insight and effective synthesis skills are critical and at a higher premium than advanced analytical skills. Whilst it was interesting to note that, in practice, a relatively small number of key parameters could be used to derive insight, the identification of these seems only possible as the output of very broad ranging information synthesis exercise. It is notable that in less effective firms, the emphasis is placed on analysis rather than synthesis, whilst the leading examples see excellent analysis as a necessary but insufficient condition to creating insight.

Whilst leadership commitment and information synthesis are critical factors, this study identified three further factors that differ between firms and influence the

effectiveness of their data-to value process. Interestingly, these were three traditionally soft-skills:

- Human-resource management; the ability to recruit, retain, develop and manage individuals capable of both analysis and synthesis across functional silos is an important determinant of value creation.
- Organisational learning; the capacity to formulate ideas, test and revise ideas in an iterative manner are important and contrasts with the task-oriented, inauthentic and politicised behaviour of many firms.
- Strategy-making; an understanding of strategy content and process, especially of segmentation, targeting and positioning underpins data-driven value creation as it does other forms of value creation. Such understanding is hard to discern in the tactically oriented, product-led approach of most firms.
- In short then, this study reveals that creating value from data, via information, knowledge, insight and adaptive capacity, has all the difficulty of “traditional”, less data-dependent strategy making. Far from being made easier by information technology, it is made more difficult by the need to find, aggregate and synthesise more sources of data than in traditional value-creating processes. It is, however, that greater difficulty that promises both greater and more sustainable competitive advantage.

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The Primary Objective of the Henley Centre for Customer Management is to promote Customer Focus and Service Excellence best practice through observing practice in leading companies and synthesising this into useful knowledge that helps members to improve their own Customer Management and Customer Service plans and implementations.

The Cranfield CRM Research Forum

The Cranfield CRM Research Forum was directed by Dr Moira Clark during the 2002 to 2005 period.

After her appointment to the chair of Strategic Marketing at Henley Management College, Moira created The Henley Centre for Customer Management to continue the work of the forum.

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