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Managing Customer Knowledge in Retail Environment

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Abstract

Customer knowledge can be a critical source of competitive advantage in retail business. In this theoretical paper, three sources of customer knowledge are identified in the retail environment, namely customer transactions, customer interactions and customer communities of practice. Lessons for managing these three types of knowledge are derived from knowledge management practices of knowledge intensive service industries such as management consulting and software development. Finally, a decision model premised on consumer behaviour and purchase characteristics is proposed that would enable retailers to focus their knowledge management efforts such that they can leverage the potential of customer knowledge for both productivity benefits and product innovation.

Customer Knowledge as Driver of Success in Retail Business

The retail industry in India is poised for explosive growth. Traditionally the 'kirana' or neighborhood mom and pop stores have dominated the Indian retail landscape. Such has been their dominance that popular press estimated India to have the largest number of per capita retail shops, earning India the sobriquet of 'nation of shopkeepers'. Of late large industrial houses such as Reliance Industries and ITC have started to make significant investment in the retail industry while professionally managed regional players like the Nilgiris or Shopper Stop have started to expand rapidly. Indian regulations do not allow foreign direct investment in retail, preventing participation of multinational enterprises. But experts believe that it is only a matter of time before such regulatory restrictions are removed. Therefore, Indian players who want to have a

serious stake in the retail business feel the need to create a stronghold on the market before it is made open to foreign competition. Moreover, some international players like Metro AG have already stared to operate from India by working around the regulatory framework that does not prevent foreign participation in 'wholesale operations', while Wal-Mart has announced an alliance with Bhatri Enterprises. Overall, it implies that in the immediate future the Indian retail industry is going to become intensely competitive with a significant change in the nature of competition. Instead of the erstwhile competition between local or regional players who had marginal scale, the competition in future will be between big national and international players who will seek value by relentlessly building up scale and driving down costs.

The customer is likely to gain significantly as a consequence of this changing business scenario. Competition and lower costs would translate into lower prices for the customer. Moreover, professionally managed retail organizations would adopt superior processes and best practices that would translate into a better shopping experience for the customers in terms of choice, availability and convenience. Given such conditions, what would be the drivers of success for individual retailers? On one hand the kirana shops would continue to offer convenience (such as proximity or home delivery) and customization (by knowing in great details the purchase habits of the neighborhood) while on the other hand national and international players would offer large variety and high quality at a low price. In order to succeed in such an environment, retailers, no doubt, will need to invest significantly to build scale. At the same time they would also need to attract and retain customers in large numbers such that there is adequate returns on investment. Given the wide choices that they would have, customers would

prefer retailers whom they perceive to be most suitable in terms of meeting their purchase expectations. Retailers therefore would need to have a superior and fine-grained understanding of the customer and 'customer knowledge' would emerge as a key driver for commercial success in the fiercely competitive environment that retail business in India is shaping up to be.

The importance of customer knowledge is well understood and emphasized in the world of business. It has been realized that customers can be sources for innovation (Thomke & von Hippel, 2002) and customers can provide perspectives and suggestions that might have been otherwise overlooked or unrealized by the organization. The challenge in the retail industry is to develop a superior understanding of the customer along with the creation of large scale of operations. It is easy to understand customer preferences and accordingly customize products or services when the scale of operations is small. The kirana or mom-and-pop stores epitomize such customization at small-scale. However, the retail industry, in order to attract and retain its customers, need to replicate customization at a large scale. This would only be possible by adopting a systematic and process oriented approach towards acquisition, storage, analysis and application of customer knowledge – an organization practice that can be broadly described as 'customer knowledge management'. This paper talks about the critical issues pertaining to customer knowledge management system that is relevant to the retail industry.

In the following sections, I discuss how retailers worldwide are leveraging data captured from customer transactions. However, there is a growing realization that such transactional data needs to be complemented with data captured from customer

interactions in order to develop insights that can translate into product and service innovations. Since capturing of interactive data is challenging, I look at the knowledge management practices of two knowledge intensive industries, management consulting and software development, to derive lesson that would enable retailers to deal with such challenges. I classify three sources of knowledge in the retail environment, namely transactional data, interactive data and customer communities that retailers can leverage to build a robust knowledge management system. In the final section, I propose a framework to determine the focus of retailers' knowledge management system depending upon the behaviour and purchase pattern of the consumers. The contribution of this paper is discussed in the concluding section.

Data Processing in Retail Environment

One of the biggest advantages of the retail industry in terms of developing customer knowledge management systems is the availability of data about customer purchase behaviour. Thanks to the advancement of information technology, organizations today have enormous capacity to store and process data and generate information. Specifically in the retail environment, because of extensive automation such as deployment of point of sales (POS) terminals, or radio frequency identification (RFID) transponders, today it is possible to capture data about consumer behaviour at multiple points. This has led to large retailers worldwide running sophisticated applications for processing the data that is captured, such as data-warehouse applications for decision-making or data-mining applications for obtaining hidden relationships among apparently unrelated variables.

As illustrated in figure 1, a data-warehouse is a repository of data collected from multiple transaction processing systems. Such data might originate within the organization (e.g., from the POS terminal within a retail shop) or outside (e.g., data on consumer purchase and credit history obtained from a credit card agency). Data-warehouses are intentionally kept separate from transaction processing systems because they are designed specifically for query processing. For example, while transaction intensive systems would typically avoid any redundancy of data, a data-warehouse intentionally builds in certain data redundancy to ensure faster response to queries. Some organizations also run sophisticated query and analysis tools on the data stored in the data-warehouse. Such tools often deploy algorithms based on artificial intelligence and neural network principles to find out hidden relations among variables (such as the fabled correlation between sales of beer bottles and diapers) and are known as data-mining tools. Collectively, data-warehouses and data-mining tools form part of the repository that organizations, especially retailers, are deploying extensively for creating sophisticated decision support systems.

While such decision support systems are extremely useful in retail environment, they suffer from two limitations. First, data-warehouses have minimum efficient scale, i.e., they become useful only when an organization is able to digitally capture very large quantities of data, often running into terabytes. While several organizations have experimented with smaller volumes (often naming them as data-marts instead of data-warehouses), generating statistically significant relationships between variables have remained quite challenging. This leads to the second limitation of data-warehouses, i.e., while information technology driven decision support systems are efficient in capturing

and processing transactional data, they do not necessarily generate rich insights that can be used by organizations for decision making (Davenport, Harris & Kohli, 2001). Transaction processing systems can efficiently capture data about customer behaviour, but they are not adequate to capture knowledge that the customer possesses (Gibbert, Leibold & Probst, 2002). Thus, a robust information technology infrastructure is a necessary but not sufficient condition for aiding decision-making, a limitation that can be generalized to most enterprise wide knowledge management initiatives (McDermott, 1999).

From Data Processing to Knowledge Management

It is therefore necessary for retailers to understand the important levers beyond information technology that would enable them to derive maximum benefit from customer data. They need to understand what are the best possible ways to collect, store, analyze and deploy knowledge from and knowledge of customers so that such knowledge can provide them with sustainable competitive advantage. One of the ways in which this can be achieved in a relatively short period of time is by learning about knowledge management practices of other industries – especially those which, because of their nature of work, have been experimenting with and evolving their knowledge management systems and processes. In this paper, I analyze knowledge management practices of software service and strategy consulting firms in order to derive lessons for customer knowledge management initiatives in retailing industry. It is important to look into the practices of these two industries because for both the consulting and software industry, knowledge is the most critical resource for their business value proposition and successful knowledge management initiatives form the basis of their competitive

strategies. As a result they, possibly more than any other industry, have been at the forefront of knowledge management.

Among the practitioners, strategy-consulting firms like McKinsey & Company were probably the first to realize that information technology focused knowledge management systems have limited ability to capture certain kinds of knowledge (Bartlett, 1996). More often than not, knowledge that provides competitive edge to individuals or organizations is complex and embedded in a specific context. Such knowledge is difficult to articulate and therefore difficult to be captured in documents or databases. While scholars like Polyani (1966) had explained the difference between two kinds of knowledge – tacit and explicit, consulting organizations have put into practice two kinds of knowledge management systems to leverage the tacit and explicit dimensions of knowledge. While explicit knowledge, which by definition can be easily articulated and captured in documents, can be managed using information technology (e.g., computers, relational databases, communication network), tacit knowledge cannot be documented. Organizations can only create facilitative conditions such that tacit knowledge can be shared through personal connections, by means of direct communication between experts who posses such knowledge. In their celebrated paper, Hansen, Noharia & Tierney (1999) distinguished between the value proposition of two kinds of consulting organizations – those like Anderson Consulting that were driven by 're-use economics' and those like McKinsey & Company that were driven by 'experts economics'.

Consulting organizations whose value proposition was based on 're-use economics' delivered standardized solutions to customers. They benefited significantly from the

'people to document' approach of knowledge management, which involves articulation and codification of explicit knowledge and disseminating the same across the organization as 'best practice'. Such organizations discourage their employees from 'reinventing the wheel' because the strength of their practice lies in identifying the best way of doing activities and replicating the same everywhere. They build large data and document repositories and develop sophisticated classification and search algorithms to ensure ease of use, data currency and relevance. However, strategy-consulting firms like McKinsey or Bain do not base their practices on delivering standardized solutions. Their value proposition, instead, comprises providing unique solutions to problems faced by their clients. Therefore, the purpose of their knowledge management system is not replication or dissemination, but synthesis of knowledge from experts and in the process, development of new knowledge (Ofek & Sarvary, 2001). Their knowledge management systems facilitate people to people connections and subsequent collaborations and as a consequence, these organizations do not focus significantly on building large document repositories. Instead, their knowledge management systems create directories of expertise and project 'snapshots' where employees, individually or collectively, declare their areas of expertise or write in brief about the problem that their team had solved for the cleint. The organization, by means of incentives and other cultural interventions, ensures that consultants in need of knowledge or confronting a problem on behalf on their clients can identify the expert or project team members who can provide them with some insights or help them solve their problems in a collaborative manner.

Hansen et al (1999) advised organizations to choose one of the two knowledge management strategies – codification or personalization, over the other because they felt that the two approaches do not mix well with one another. However, this is not what has been observed in the software development industry where organizations create knowledge management systems that can accommodate multiple modes of knowledge sharing and generation activities. For example, two of the largest Indian software services organizations, Infosys and Wipro have built up knowledge management systems that not only have a large data repository but also support applications equivalent to expertis' directory intended to bring about collaboration among experts. Such organizations do not intend to choose between one kind of knowledge over other. They believe that for competitive advantage, both explicit and tacit knowledge needs to be managed simultaneously. Given the knowledge intensity of software development activities and the rapid change of technology, the shelf lives of standardized knowledge and best practices is limited. Therefore, part of the knowledge management initiative focuses on synthesis and generation of new knowledge and insights while the rest focuses on building codified knowledge and libraries of reusable components that can increase the efficiency of software development and project delivery (Mukherji, 2005).

Therefore, in its steady state, a knowledge management system in knowledge intensive service industry is likely to have at least three critical components. These are depicted in table 1 as "document repository", "experts' directory" and "collaborative platforms". The document repository and its associated management system focus on collection, storage and access of data and information. Organizations intend to gain efficiency from such

management of explicit knowledge, and the purpose of such knowledge management systems is reduction of costs by locating previously generated solutions and adapting these to solve clients' problems. The second component, an experts' directory, intends to make connections between employees. The associated repository, instead of maintaining documents, contains contact information of experts, their profiles and brief descriptions of their expertise in specific contexts. Employees, when confronted with a problem, can post their queries that are either directed towards certain experts, or open to the entire community of experts. While the experts' directory is not as scaleable as the document repository, its value lies in communication of tacit and complex knowledge that would have been very expensive or impossible to codify.

Service organizations have also started building and experimenting with a third component of knowledge management, namely 'collaborative platforms'. This is intended to serve the function of synthesis and generation of new knowledge, rather than dissemination of knowledge and is focused on innovation and creativity instead of efficiency through reuse. By leveraging the power of information technology and communication networks, organizations are creating virtual platforms where employee groups with specific interests discuss and collaborate on a topic of their interest while a coordinator tries to provide some direction to the discussions. Since the entire discussion is done over an information technology network, it is possible to track, categorize and collate such discussions that sometimes lead to generation of collective insights. Collaborative platforms intend to create technology-mediated 'communities of practice' (Lave & Wenger, 1991) that are deemed essential for innovation in knowledge intensive industries. In their research on knowledge management systems in professional services

firms, Ofek and Sarvary (2001) found that in a competitive market, organizations derived greater leverage from their knowledge management systems if such systems were geared to towards synthesis of knowledge and services innovation, rather than towards reduction of costs and increase in efficiency.

Managing Customer Knowledge

Unlike the services industries just described, where the focus of knowledge management has largely been on employees' knowledge, the retail industry needs to focus on customer knowledge for creating competitive advantage. However, like the software services and consulting industry, the retail industry needs to evolve multiple sub-systems of knowledge management in order to derive maximum benefit from customer knowledge. While explicit data generated out of transactions, such as those collected from the POS terminals, can be managed through databases and applications running on top of such data repositories, organizations worldwide are realizing the importance of data that cannot be collected through impersonal means. Over and above transactional data, retail environment has a large potential for generating data through customer interactions. Data generated out of customer interactions is likely to be rich in its tacit content and as a result, might provide organizations with greater insights than those generated from analysis of transactional data (Garcia – Murillo & Annabi, 2002).

Lets first understand what kinds of information can be generated from transactional data. Such data can inform the retailer about a typical customer's purchase basket – what are the quantities of products purchased and what are the prices the consumer have paid for them. This could enable retailers to arrive at some measures of price

elasticity. Analysis of transaction data can also reveal complementarities between products – which are the products that are purchased together, which would help the retailer in deciding location of products. If transactional data is linked to information about advertisements or trade promotions, it is possible to identify the impact of such initiatives on purchase behaviour of consumers. Time series analysis of transaction data can also indicate seasonality and cyclicality of consumer purchases and help retailers make decisions about inventory management. As was mentioned earlier, large retailers use various decision support systems for conducting these kinds of analysis. And just as service organizations have made significant investment in data codification, retailers need to make significant investments for capture and analysis of transactional data in order to improve operational efficiencies.

From Transactions to Interactions

However, data captured from transactional systems would not able to answer questions such as why customers did not purchase certain products even if they had intended to, or why did they choose one product over another. It would be important for a retailer to know what did a customer know about a particular product before s/he stepped into the shop and how was such knowledge modified based on the shopping experience. Transactional systems would not be able to identify what are the compromises that customers are making during their purchase or what are the levels of satisfaction associated with their purchase decisions. While such information about consumer behaviour is invaluable, they can only be captured through a process of interaction or socialization with the customer. Therefore, customer knowledge management in the retail industry would need to develop systems and processes that would be tuned to

facilitate generation and capture of interactive knowledge. Interactive data adds the 'human element' (Davenport et al, 2001) to the transaction data and the knowledge thus captured can be effectively utilized for customization or even for product innovations. It must be noted that qualitative market research techniques such as in-depth interviews or focus groups were intended to capture interactive knowledge from the customers. However, these are often sporadic events extraneous to the regular business activities. What is being discussed here are organizational routines that capture interactive data and utilize knowledge thus generated for decision-making. And just as service organizations have been able to scale up their knowledge management processes for capturing tacit knowledge, retailers need to scale their systems to capture interactive knowledge in a systematic manner.

This is however easier said than done. Organizational hierarchies have been found to be more efficient in solving agency problems than markets (Barney & Hesterley, 1996). Therefore, it is easier to capture tacit and complex knowledge within organizational boundaries by mandating or motivating employees. The challenge for the retailers is to ensure the same beyond the organizational boundary, because in their case, rich data needs to be captured from customers whose relationship with the organization is not conducive to sharing or collaborating. Traditionally, customers have been perceived as a source of revenue rather than as a source of knowledge. As a consequence, organizations need to device suitable incentive mechanisms – financial, social or moral, to induce or motivate customers to share their knowledge. On the supply side, organizations need to understand why customers would spend time to provide information to the retailer and whether customers would deem solicitation of such

information as invasion of privacy. On the demand side, organizations need to train their employees such that they can elicit information from customers through meaningful interaction. Socialization — the predominant vehicle for sharing tacit and complex knowledge is premised on depth of relationships between individuals (Nonaka & Konno, 1998). The challenge in the retail environment would be to develop such relationships with the customers within a time period that is long enough to create meaningful interaction, yet not so long as one that would make a customer uncomfortable. Organizations also need to act on the information collected and show visible impact of such interactions to the customers in order to motivate the customers to share information multiple times. Davenport et al (2001) have also warned that not all information provided by the customer is valid. Therefore, organizations need to have powerful analytical and triangulation processes to ensure the validity of the information that they collect from the customers before they can act on such information.

In effect, capturing interactive data from customers would be both difficult and expensive and organizations need to be conscious of the returns that they get from such investments. Given its potential, it might be tempting for every retailer to start making investments for capturing interactive data. But because it is difficult to collect such data on a continuous basis, managing interactive data might not be cost effective for every kind of retail business. Just as service organizations need to choose when and where to deploy a people-to-document based knowledge management system and where to utilize a people-to-people based system, retailers need to develop some understanding regarding the utility of transactional and interactive data as contingent on specific kinds of business. This is discussed in the next section.

Contingent Theory for Knowledge Management in Retail Environment

Research in consumer behaviour indicates that customers do not spend equal amount of time or attention on every purchase decisions and involvement of consumers with purchase decisions varies across a continuum. Degree of customer involvement is a function of the product, the context and the attitudes and values of the customer (Bloch & Richins, 1983). Overall, researchers concur that customers' involvement with purchase decisions is a function of the value that they attach to the product (Zaichkowsky, 1985). Customer involvement can be a discriminatory variable for knowledge management systems because degree of customer involvement would determine to a large extent the ease with which data or information can be collected from the customer. The greater the customer involvement with a purchase decision, the easier it would be to generate and collect interactive data from the customer. Whereas when customers are not involved significantly with purchase decisions they are unlikely to get into a meaningful engagement with the retailer to provide interactive data.

Collection of transactional data is facilitated by greater frequency of purchase. More number of times a consumer makes purchases, greater is the possibility for transactional systems to capture data related consumer purchase process. Therefore, frequency of purchase forms the second discriminator for customer knowledge management in retail industry. Combining these two variables, i.e., frequency of purchase and customer involvement in purchase, a two-by –two matrix is developed that can act as a decision framework for customer knowledge management initiatives. This matrix is depicted in

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figure 2. In an ideal scenario, the two dimensions of such a matrix needs to be orthogonal, which is not the case here. In other words, it is possible that frequency of purchase and involvement in purchase might be correlated to one another. For example, purchase of an item like soap, which is likely to be high on frequency, is a low involvement purchase for the consumer because it is a routine purchase. But purchasing a watch, a relatively infrequent purchase, is likely to get the consumer involved significantly. However, there are frequently purchased items such as food for the calorie conscious or even soap for the beauty conscious that can be a high involvement purchase even though these items are purchased frequently. Therein lies the power of this matrix, where at least three out of four quadrants are relevant for differentiating customer knowledge management initiatives in the retail environment.

It is proposed that for items that are high on frequency and low on involvement, customer knowledge management systems should be focused on collecting transactional data. High frequency of purchase will generate significant quantities of data, but because such purchases are of low involvement, it is unlikely that customers would be in a position to provide rich data even if it was possible to interact with them during the purchase process. This is because low involvement purchases do not involve extensive search, neither do they involve comprehensive evaluation of choice alternatives (Olshavsky & Granbois, 1979). On the other hand, for purchases that are of high involvement but of low frequency, customer knowledge management systems would be focused on collecting interactive data. High involvement purchases are likely to be the consequence of active information processing by the customer and the products thus purchased would have significant relevance for the customer (Greenwald & Leavitt,

1984). It is also conceivable that the customer would devote a lot more time to the purchase process, which would provide the retailer with enough opportunities to extract rich data from the customer by means of interpersonal interactions.

The decision quadrant for purchases that are both high on frequency and high on involvement poses a unique challenge. Because such purchases involve active information processing by the customer, they have the potential to generate interactive data. However, given the high frequency of purchase, it is possible that it might be difficult to extract such data from the customer because the customer might not be devoting a lot of time to the purchase process within the retail environment. For example, purchase of breakfast cereals for consumers who are conscious of their weight would be high involvement purchases, because consumers would prefer to make informed choices about the cereals that they purchase in terms of calorie and nutrition content. However, given that breakfast cereals are purchased frequently, such information acquisition and integration might not be made every time the consumer comes to the retail outlet. Rather than discrete information processing during the occasion of purchase, purchases that are made repeatedly and frequently involve continuous information processing (Hogarth, 1981) very often over a series of purchases or at locations away from the retail space (Hoyer, 1984).

As a consequence, retailers must device a knowledge management system that can pervade beyond the physical retail space in order to capture determinants of consumer behaviour. Such a knowledge management system would be similar to employees' collaborative platforms, the third component of knowledge management systems in

service industry. Like many of the Internet or 'click and mortar' companies, retailers dealing with high involvement high frequency products need to create virtual meeting and discussion places for their consumers. Such customer 'communities of practice' would discuss product attributes that are present or those that are desirable because the existing products do not fulfill their needs. They can be rich sources for generating new product ideas as well as identifying new usages of existing products. For example, restaurant owners in some of the northern states of India use their washing machines to clean vegetables such as potatoes, or to blend edible liquids such as milk or curd on a large scale. While this was a common knowledge among the restaurant owners, the manufacturers of the washing machine came to know about this only when a large number of washing machines were returned for repair with 'strange' defects. Once the retailers realized the novel usage of their product, they communicated the information to the manufacturers, who then modified the washing machines so that the machines can act as industrial blenders or vegetable- cleaners. If the retailers of washing machines were connected to the social networks of restaurant owners, they would have identified the novel usage much earlier than it was done in this case.

Retailers can use customer communities of practice to identify emergent consumer profiles such as 'lead users' (von Hippel, 1986), 'opinion leaders' or 'market mavens' (Feick & Price, 1987) and can target certain marketing efforts towards them. Retailers can also use such virtual platforms for trials of prototypes or experimental products and tap into the customer knowledge and experience to develop their product or estimate the market potential. Overall, such collaborative platform provides the retailer with a useful tool for generating data on consumer behaviour, attitudes and desires beyond the

traditional boundary of the retail organization. However, such a virtual space needs to be carefully managed even though participation by the customer would be voluntary (Gibbert et al, 2002). First of all, customers need to be motivated enough to participate and contribute to the discussions without feeling constrained because their discussions are being observed or monitored by the retailer. Second, retailers need to selectively mediate the discussions in order to make them valuable for the organization. In this regard, some of the best practices from Internet based organizations or those from the service industry who have instituted collaborative platforms for employees need to be considered and modified according to the need of the retail industry.

Figure 2 depicts the matrix classifying consumer purchases in the retail environment along with the suitable customer knowledge management system. Table 2 summarizes the functions of the three components in similar lines as the observed in the knowledge intensive service industries. While organizations worldwide seem to understand the need for collecting, analyzing and disseminating knowledge for creating competitive advantage, several organizations fail to get significant mileage out of such initiatives. One of the reasons for such unmet expectation is the inability, on part of the organizations, to link knowledge management initiatives to specific business objectives. The classification presented in this paper is intended to address this issue in the retail environment. Segmenting different kinds of customer purchase behaviour and identifying definite features of knowledge management systems suitable for each kind of purchase is a necessary first step towards linking customer knowledge management with commercial objectives of any retail business. Because the retail environment has large potential to generate data, knowledge management efforts, unless properly

focused, might get lost in information overload. The proposed framework would help retail organizations to understand what data to collect, how to prioritize and how to measure the effectiveness of various knowledge management initiatives.

Conclusion

The changing competitive scenario in the Indian retail industry motivated this paper. Entry of established players and subsequent increase in competitive intensity would compel every retailer to develop deep competencies that would enable them to survive and win in the marketplace. If customer knowledge, as it is widely believed, is going to be an important determinant of success, retailers need to develop competencies and organizational processes to manage customer knowledge such that customer knowledge can translate into business insights that would enable retailers to attract, retain and capture maximum value from their customers. Retailers therefore need to develop an appreciation of both the challenges and advantages of customer knowledge management.

Most organizations in knowledge intensive industries such as management consulting or software development have deployed knowledge management systems to leverage the collective knowledge of their employees. In this paper, I analyzed at their knowledge management practices to understand how they overcome various tradeoffs such as management of tacit and explicit knowledge or focusing on knowledge exploration versus knowledge exploitation (March, 1991). I classify three sources of customer knowledge in the retail industry – transactions, customer interactions and customer communities. These three sources are likely to pose different tradeoffs before the

retailers because the nature of knowledge generated from these sources or their possible usage are going to be different from one another. It is here that lessons learnt from the management consulting or software service industry would enable retailers to institute different knowledge management practices that are best suited to the varied data sources.

However, the uniqueness of the retail environment and specifically the additional challenges involved in collecting customer data limits the generalizability of knowledge management practices of other industries to retail industry. Therefore, I develop a decision-making framework based on consumer behaviour and purchase characteristics that would provide the retailers in deciding the focus of their knowledge management initiatives. Herein, I believe, lies the key contribution of this paper. While researchers and practitioners have realized the benefit of differentiating knowledge management activities to get maximum returns, such differentiation has been based on the logic of value creation (Hansen et al, 1999) profitability earned from customers (Davenport et al, 2001) or industry best practice (Gibbert et al, 2002). This analysis complements such approaches by identifying the important dimension of consumer behaviour as a contingency variable. In the process, this becomes one of the early attempts that synthesize the field of consumer behaviour with that of knowledge management.

This paper is theoretical in nature and the proposed theoretical model needs to be tested and validated. This limitation is an opportunity for future research in the retail industry - first to develop testable propositions and then collect data to validate such propositions such as whether it is useful for collecting data from customer communities

of practice in case of high-involvement-high-frequency purchases as suggested by the model proposed here, and how can such data be leveraged to create competitive advantage. This paper is an important first step towards providing a structure to knowledge management initiatives in retail business that is firmly grounded on the most important variable of such business, namely the consumers and their purchase behaviour.

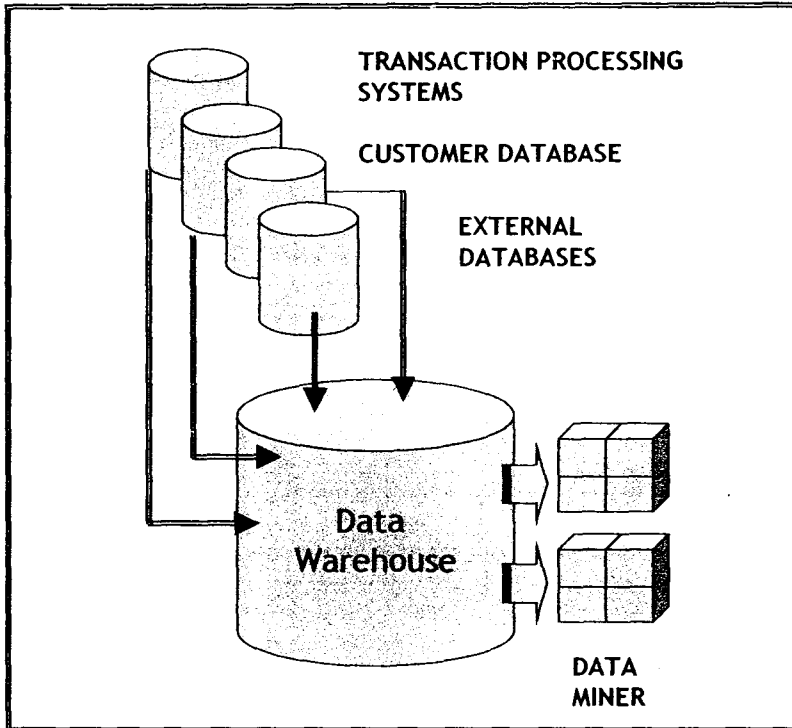Figure 1: Illustration of Decision Support Systems in Transaction Intensive Business

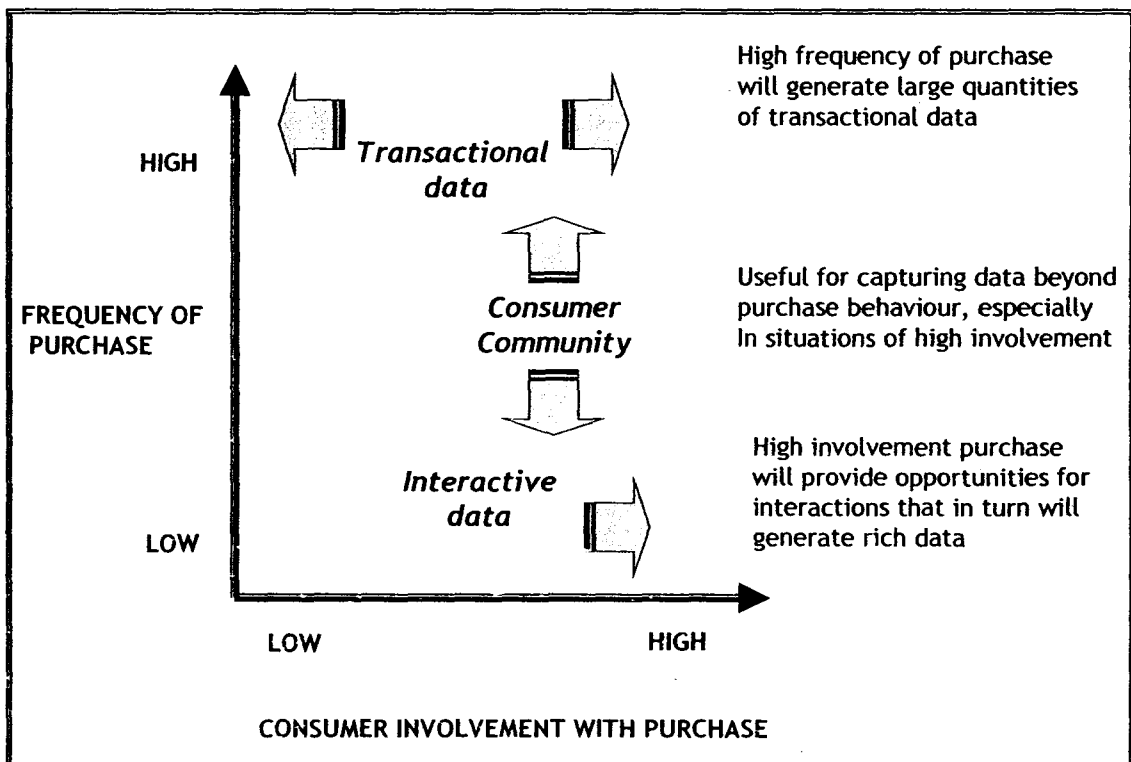Figure 2: Decision Framework of Knowledge Management in Retail Business

Table 1: Three Components of Knowledge Management in Knowledge Intensive Service Industries
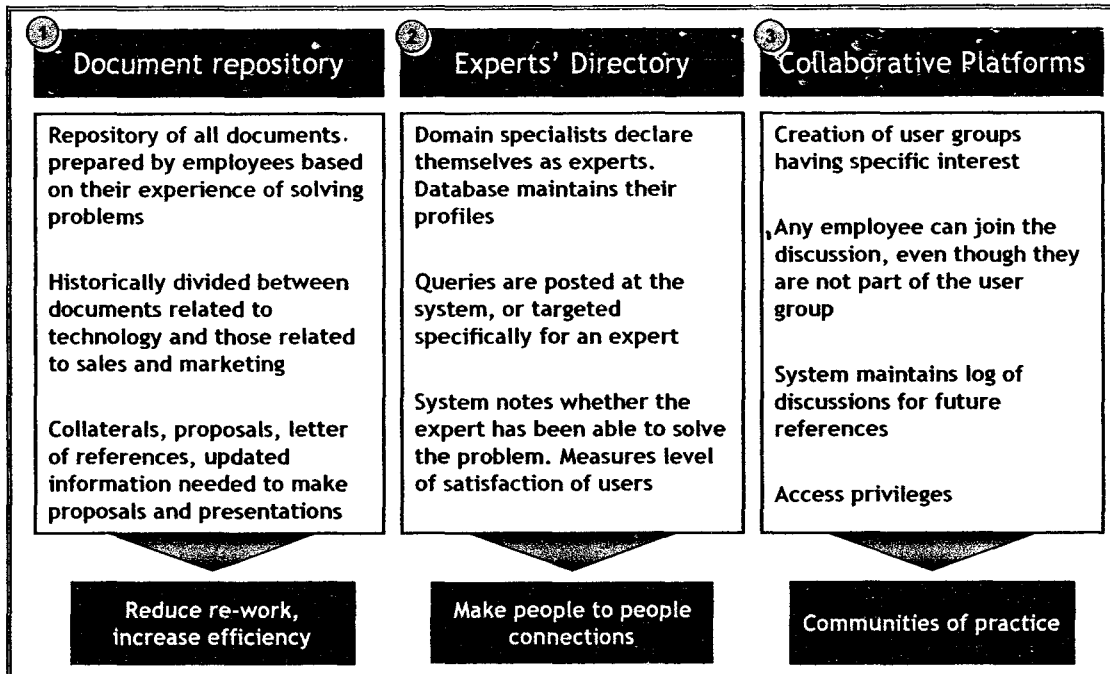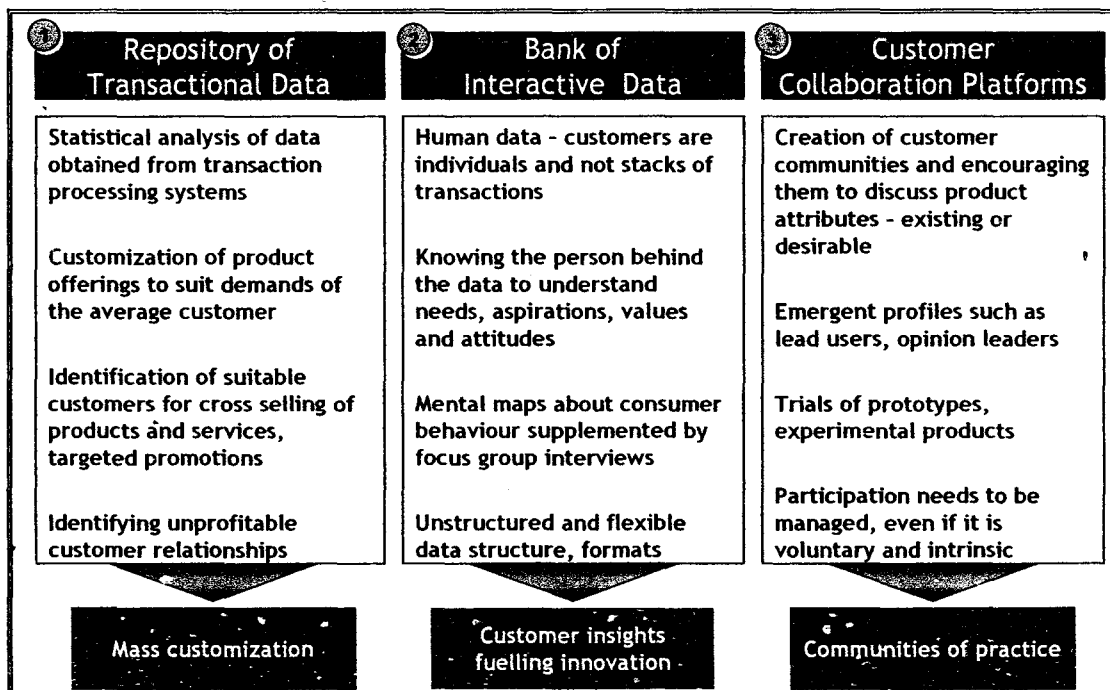
① Document repository	② Experts' Directory	③ Collaborative Platforms
Repository of all documents. prepared by employees based on their experience of solving problems Historically divided between documents related to technology and those related to sales and marketing Collaterals, proposals, letter of references, updated information needed to make proposals and presentations	Domain specialists declare themselves as experts. Database maintains their profiles Queries are posted at the system, or targeted specifically for an expert System notes whether the expert has been able to solve the problem. Measures level of satisfaction of users	Creation of user groups having specific interest Any employee can join the discussion, even though they are not part of the user group System maintains log of discussions for future references Access privileges
Reduce re-work, increase efficiency	Make people to people connections	Communities of practice

Table 2: Evolving Components of Knowledge Management in Retail Business

① Repository of Transactional Data	② Bank of Interactive Data	③ Customer Collaboration Platforms
Statistical analysis of data obtained from transaction processing systems Customization of product offerings to suit demands of the average customer Identification of suitable customers for cross selling of products and services, targeted promotions Identifying unprofitable customer relationships	Human data - customers are individuals and not stacks of transactions Knowing the person behind the data to understand needs, aspirations, values and attitudes Mental maps about consumer behaviour supplemented by focus group interviews Unstructured and flexible data structure, formats	Creation of customer communities and encouraging them to discuss product attributes - existing or desirable Emergent profiles such as lead users, opinion leaders Trials of prototypes, experimental products Participation needs to be managed, even if it is voluntary and intrinsic
Mass customization	Customer insights fuelling innovation	Communities of practice

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