Attracting customers and nurturing their loyalty has become a huge issue for retailers. Increasing competitive pressures to maintain profitability while delivering superior value makes every customer transaction increasingly precious. Improvements in the supply chain have made positive contributions but are unlikely to sustain competitive advantage. In very practical terms, few retailers can squeeze the ‘efficiency orange’ as hard as the top handful of retailers in the world have done to-date and will do in the near future. Competitive differentiation must be achieved through alternative means, for example, by adopting a customer-centric approach to business activities. This requires an effective interface between marketing and the other key operational functions, especially merchandising.

The retailer ought to be able to identify and quantify various possible strategic objectives in terms of growing, enriching and retaining customers. To achieve such objectives the retailer should allow customer insight to drive the internal functional operations (trading, merchandising, store formatting, space management, pricing, promotions, etc.) in such a way that the distributed effort across categories and spanning distinct activities can join up and integrate in order to contribute to the retailer’s overall strategic aims. This means closing the gap between customer-centred information traditionally used for marketing and operational activities (see Figure 1).

Many retailers are starting to pay more than lip service to the basic premise that the ‘Customer is King’ and place building loyalty and the customer experience as a high priority. Lawson Software commissioned research in April of 2003 to validate the business objectives of greatest significance and concern to 100 CEOs, CFOs and IT directors working for the top UK retailers. As illustrated in Figure 2, growth through enhanced loyalty and improved consumer experience is a serious topic for UK retail boardroom discussion this year.

Many retailers collect customer transaction data, often in support of direct marketing and customer relationship management programmes but are
completely unsure how to analyse this data for best commercial use and also whether commercially available software exists that can provide sustainable value and justify significant investment. When asked if they had set ROI objectives in relation to their expenditure on customer data collection systems such as CRM and loyalty schemes, most UK retailers responded negatively, suggesting many remain to be convinced of the hidden value. Figure 3 also hints at the difficulties retailers have so far had in establishing meaningful business metrics and levels of performance improvement to link directly to these traditionally marketing-led initiatives.

The survey also suggested that finance and marketing functions were most likely to take the raw customer and transaction data and analyse these (Figure 4). This supports the rather concerning notion that the people who are responsible for making the majority of day-to-day, value-driving decisions for retail companies (i.e. category managers, retail operators, format managers, etc.) are still quite remote from the information which is arguably their greatest internal asset.

As competition increases, the future success and even survival of retailers depends on their ability to harness the value hidden in customer data.

**Importance of the Customer**

Q1. I will read out a list of objectives. Please score each one for how much of a priority it is for your business.

<table>
<thead>
<tr>
<th>Objective</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capturing margin points, increasing the topline and improving the bottom line</td>
<td>9.3</td>
</tr>
<tr>
<td>Meeting consumer expectations, delivering on the shopping experience</td>
<td>9.1</td>
</tr>
<tr>
<td>Increasing market share and strengthening consumer loyalty</td>
<td>8.7</td>
</tr>
<tr>
<td>Acquiring, training and retaining key personnel, increasing productivity and performance</td>
<td>8.2</td>
</tr>
<tr>
<td>Reducing operational costs - inventory markdowns, reduce shrinkage</td>
<td>8.1</td>
</tr>
<tr>
<td>Maximising margin returns on private label branding and improve brand relationships</td>
<td>7.5</td>
</tr>
<tr>
<td>Expanding regionally, globally and across the product portfolio</td>
<td>6.4</td>
</tr>
<tr>
<td>Boosting short-term revenues across a multiple range of categories and speed of getting to market</td>
<td>6.3</td>
</tr>
</tbody>
</table>
transaction data. There are many channels to the customer and all need to be understood to recognise the real value of customers. Therefore, retailers performing innovative analysis, utilising all levels of ‘point of sale’ data (i.e. customer loyalty, market basket, panel and aggregated sales) will be well positioned, ahead of their competition, for next-generation loyalty development.

What are the key customer-centric questions?
The customer is much more sophisticated than either ‘demand-price’ specialists or traditional category management practitioners suggest. Customers expect to exchange money for quantity (value), quality (choice at different price points), convenience (saving time in the store or at home), ease of shopping (availability, product formats), ease of consumption (preparation), esteem (being valued and rewarded as customers), experience (environment and activity) and excitement (suggested extra purchases). They have an understanding of these ‘equations’ and the constraints under which they can buy.

The problem for the retailer is that every customer can show a wide variety of different kinds of behaviours depending on his or her current priorities. Sometimes shoppers have plenty of time to take in the shopping experience and browse, or be enticed to buy as it is sometimes all about convenience - a ‘smash and grab raid’. Neither of these behaviours is price-led. Sometimes shoppers have to have quality when the occasion demands it, whereas at other times shoppers are happy just to get great deals. It is a, largely unknown, fact that the most price-sensitive buying patterns are seen in the wealthiest districts as these people have the means to maximise their opportunistic response to promotions and value propositions (they can afford to avail themselves of promotions).

However, how much value do they need to be satisfied? Elsewhere the customer’s budget may be limited so that, whilst value hunting is essential, their total spending will always be capped (a zero sum game within and between retailers).

So the one-dimensional customer, exchanging his or her demand for price, suggests an overly simplistic model and is very far from actuality. Moreover, customers are sophisticated rather than naive, and are willing participants in the more
complex trade-offs between effort/convenience, value/price, quantity/quality, etc. However, this alternative to one-dimensional thinking appears complicated. The retailer has to manage and present an offering competing for, and satisfying, each mode the customer can be in, or at least for each mode in which the retailer wants to ‘win’. To do this means first discovering and prioritising the different modes of behaviour and the consequent opportunities each represents. Rather than trying to guess what customers are doing, and what they want, this is most efficiently and effectively done by using the data to indicate what is happening and where true opportunities exist to increase competitiveness and build customer loyalty. This way, opportunities are not missed and the retailer’s response is directed at specific customer behaviour, customer wants and customer needs.

Retailers should ask:

- Why do customers shop in my store?
- What type of shopping do they do (i.e. type of shopping mission)?
- When is price a lever, when is it less relevant?
- Which promotions influence specific customers efficiently?
- Who are my valuable customers? How does their value change?
- Do all my actions build on my overall customer strategy/plan?
- Do I have the right product in the right place at the right time in the right stores?
- Do I have all the information to maximise customer value (i.e. basket size, purchase frequency)?

Few retailers will be able to answer all these questions although they may be collecting customer or transaction specific data. So why is this the case? Many have invested heavily in IT in order to improve efficiencies and drive cost savings. Others have embarked on pricing and space planning initiatives, but the customer does not appear to be the driving force.

The retailer needs to take a step back and identify the key customer-centric issues, the information required to assess these issues and the data and analysis tools which together deliver this information to the retailer, in a form ready to use.

Putting the customer first - the analysis of customer transactions

It is easy to talk about some of these issues but often collecting, storing and analysing the data is not so straightforward. For example, what data is required and how much? If a retailer does collect disaggregated (basket) data, very soon this can become a non-trivial exercise. A medium-sized retailer (30k transactions/week x 500 stores) will soon accumulate a billion transactions per year. Adding product description tables, customer account tables, segmentation flags, promotion flags, etc. leads to the formation of a very large data warehouse. However, technology is now available to store such data volumes and, perhaps more importantly, provide a retailer dynamic access to these data sources.

On the basis that data can be effectively collected, stored and made accessible, the next challenge is to establish what types of analyses are appropriate. There are numerous potential ways of exploring the data, for example analysis:

- at basket or household level;
- of cross-purchasing by volume, value or instance;
- at numerous levels in the hierarchy (i.e. SKU, brand, category (etc));
- of all X,000 SKUs or subsets (filtered by category boundary or revenue);
- for subsets of stores / baskets etc.

The retailer must be careful not to develop a process whereby one kilo of data is analysed to deliver ten kilos of information to its decision-makers. To avoid such problems, tools must be intelligent in distilling and analysing the data and build a structured process around each specific ('to do') issue. Data mining tools are useful to test hypotheses but a data-driven approach to analysis, sympathetic to the retailer’s goals, is required to ensure that the strongest product roles and relationships are uncovered.

In essence, retailers need to deploy concepts and tools that can efficiently produce basic measures with an associated high level of confidence that measures are robust and based on rigorous algorithms. Then they need to deliver advanced or proprietary measures and graphics that inform or support real retailer business decisions.
Analysis: Distilling actionable insight from data
Consider an analysis of a large number of baskets/transactions, ranging from departmental/category levels down to individual products. The first step is to determine a number of first order metrics (see Table below).

<table>
<thead>
<tr>
<th>BASIC MEASURES</th>
<th>PROPRIETARY MEASURES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenue ($, % of total, % of cat)</td>
<td>Footprint ($, %)</td>
</tr>
<tr>
<td>Items (vol, %)</td>
<td>Sole Purchase ($, %)</td>
</tr>
<tr>
<td>Number Baskets</td>
<td>Commitment</td>
</tr>
<tr>
<td>Penetration %</td>
<td>Pivotal Measure</td>
</tr>
<tr>
<td>Av.Value Basket In ($)</td>
<td>Trigger Measure</td>
</tr>
<tr>
<td>Av.Value Basket Out ($)</td>
<td>Data Robustness Measure</td>
</tr>
<tr>
<td>Sole Purchase ($, %)</td>
<td></td>
</tr>
<tr>
<td>Conditional Purchasing Affinities</td>
<td></td>
</tr>
</tbody>
</table>

These measures should be used across the whole business and support more consistent decision-making. Such a common currency across categories is important for internal communication and also provides an opportunity to improve collaboration and negotiation with suppliers. For example, the ‘footprint’ of a product (or group of products) is the percentage of the retailer’s total revenues derived from baskets/transactions containing at least one such item. It represents the exposure of the retailer as a whole to the individual product (or group). The ‘pivotal’ measure indicates how ubiquitous a product (or product group) is within certain types of purchasing behaviour. High footprint, high pivotal (and other types of product: high trigger, or high sole purchase) should be managed and promoted in quite different ways, for quite different reasons, in order to achieve contrasting objectives. Hence, even a first-pass analysis, identifying metrics each describing distinct roles played by products within specific basket types, provides a common currency across all categories - with the customer at its heart.

Having generated first-order metrics, the next step for a retailer is to understand cross-purchasing behaviour, illustrating how products are cross-sold. Calculating how much of everything is sold with everything else is a large task. However, results can be presented to the business in an intuitive way. Consider the clustering concept illustrated in Figure 5 below.

Here we want to understand the cross-purchasing relationships between 12 products. This data-driven approach starts by finding the strongest relationship in the data (i.e. the two products of which sales are most conditional on one another, in this case SKU 2 and SKU 6). These are combined, leaving 11 distinct products. The process can continue successively until all products are members of the same cluster. So, in Figure 5, the strongest relationship is between SKU 2 and SKU 6, then SKU 9 and SKU 11 etc.

When the clustering process is complete, the market structure emerges. Since a data-driven approach like this is founded on the strength of all possible product relationships, we can be confident about final product positioning. Ultimately this is how customers buy products in the stores. Products within the same sub-cluster play different roles. Some products are central and ubiquitous (every other product in the sub-cluster is exposed to them), others are fringe or in the halo, and others are bought by people who also buy across the sub-cluster. We will explain how to define and exploit these concepts below.

The clustering also helps identify how baskets split across categories, representing the choices made by distinct types of consumers. For example within soft drinks, the decision (represented by split of baskets) between regular and diet products is more fundamental than that between product
packaging formats (multipack or singles). If done at department level across the whole store range, there are opportunities to relocate categories/departments to improve the shopper experience - to suggest cross-category secondary displays, etc. Having determined the overall purchasing structure, the next step is to examine the clusters in more detail, namely the relationships between constituent members.

Now we have clustered the products, how important is the cluster to the product? This is identified by the ‘commitment’ measure, which reflects the proportion of the individual product revenue that is sold to customers who buy other products from the cluster. In the example below (Figure 6) we can see ‘shampoos’ is 39.9 per cent committed to the cluster. Next, we wish to understand the roles played within the cluster.

Within data-driven clusters of cross-sold products, a conditional purchasing ‘wheel’ graphic shows the strength of cross-purchasing between the products. What is noticeable is that arrows are directed into ‘shampoo’ and ‘skin care’. These are the ‘pivotal’ products. Hence, if you buy any products from around the cluster you are most likely to buy also the pivots. Pivots are large sellers but large sellers are not necessarily pivotal. Pivots are special products that can be used to support a number of business issues. For example, they tend to be destination products that can be used for:

• Controlling shopper traffic externally (facilitating store-to-store competition) and internally (direction and navigation in-store);
• Signposting to support the customer shopping experience.

Promoting pivotal products is an important ‘store-to-store’ competency. This type of customer will recognise (implicitly) the pivotal products as being ubiquitous within their portfolio of purchasing (for that is exactly what the data has told us). By putting value and effort into these products the retailer is saying:

• To his existing customers: “We are rewarding your behaviour by creating promotions on things you buy.”
• To his competitor’s customers: “Come and do that kind of shopping in our stores. We’ve got great deals on products that people like you are always buying.”

The data indicated that these products were pivots for these baskets. If an alternative strategy of promoting ‘large’-selling items was adopted, there is the danger of provoking binge sole

Figure 6
purchasing and stockpiling without attracting a specific basket purchasing behaviour. For example, the promotion of a large-selling bottled beer may result in a heavy number of sole purchases without any beneficial uplift elsewhere across the store. In other categories, pivotal products are less obvious. For example, hair colorants are not really associated with shampoos or conditioners but are pivotal for buyers of a range of personal makeover products (cosmetics, perfumes, and accessories).

So, targeting a certain type of customer, purchasing a certain type of basket, involves selecting and timing offers across categories within those products that the customers know they will buy. The detail of the ‘value’ offer may be much less important than the fact that it exists and is right for the target group. For example, by building customer acquisition strategies around offers of pivots (for the ‘right’ kind of baskets), Lawson has helped retailers increase specific category revenues over a year by tens of percentage points. The controlled identification of these products is key to support a number of key business functions, discussed in more detail in the next section. Moreover, there are clear implications for setting pricing strategies.

Having put the building blocks in place, the retailer is in a more knowledgeable and in a better position to build processes to support specific business functions and address specific business issues. For example, retailers with access to transaction data and the types of analysis outlined above can support key activities such as:

- Identification of promotional candidates to efficiently target and reward certain types of shopping behaviour. This will reward and build loyalty with current customers and compete with rival retailers.
- Identification of theme-based sets of cross-category products to respond to business opportunities associated with specific customer needs (for example, autumn Guy Fawkes parties, pampering yourself, premium makeovers for Mums, kids’ activities in holiday time, autumn in home and garden, bath time luxury, a big night in!). This type of activity creates excitement for the shopper, is differentiating for the retailer, and maximises the customer’s response to their identified need.
- Prioritisation and management of private label products, recognising which categories are priorities for private label growth, and supporting private label product development with purchasing insight and price positioning information.
- Identification of product for range deletion, using cross-purchasing analysis to highlight products that should be retained because of their special associations with certain types of customer, rather than delisted merely based on relatively low sales performance.
- Provision of both store-wide and category-specific analytics for cooperative analysis with suppliers, creating a common insight for growing categories and aligning suppliers with the retailer’s own strategic objectives (rather than those of rivals).

For example, consider a retailer who has witnessed a significant decline in ‘family main shopping baskets’ (i.e. the value and number of these shopping occasions has been waning over time). The retailer wishes to take some action to arrest the decline and stimulate existing and new customers to do more of these types of shopping, but which categories and products are most relevant here?

Software exists to automatically identify a set of categories that are relevant to this task and then drive further down to suggest the most relevant products to re-merchandise or promote within each category. The software searches through qualifying baskets, clusters all product groups bought and automatically selects those clusters that are of greatest relevance. A proprietary algorithm identifies the ‘key’ clusters, automatically ensuring that they penetrate as many baskets as possible and are skewed towards those of greatest value. Next, a detailed SKU-level analysis is used to identify the most important products within each key cluster that can drive this type of behaviour. The relevant category managers can be engaged in supporting this cross-category activity. When price and promotional activities across categories are coordinated, these are integrated and provide a highly targeted and competitive offering for the desired shopping behaviour. In this way, distributed activity is organised towards a strategic end.
What does the future look like?
Market basket analysis is certainly topical but few retailers have harnessed the power of their customer transactions data. The volumes of data are huge and tools available to extract the value have to date been somewhat patchy and experimental. Now, we are seeing the emergence of point solutions, stand-alone applications, capable of running over standard databases and addressing specific retail topics. Adopting a customer-centric approach will become more than just a consultant’s buzz phrase. It will drive a pragmatic evolution from the category management practices of today to a more integrated cross-category management practice of tomorrow. Customers are sophisticated in how, why and where they transact, and retailers need to be able to respond.
Ultimately, a holistic view of the customer will be required and the retailer needs to incorporate local factors to strengthen his proposition and create differentiation and competitive advantage. Greater collaboration with suppliers will be based on shared insight, insight about the customer, and consumer, and the modes in which products are purchased (rather than based on just a sharing of total sales figures). Competing within retail sectors means accepting the dynamic nature and sometimes ‘schizophrenic’ behaviour of customers and accepting that their modes of shopping and desire or needs-based purchasing behaviour are changing. Data analysis can suggest action and activity by putting the customer at the head of promotional and pricing strategies, of formatting and ranging decisions of NPD, private label and range development. The key to this is employing efficient and tactical analytics to rigorously prioritise and exploit opportunities.