



GS1

£1 billion savings opportunity for UK grocery industry with analytics and retail expertise from IBM

Overview

The Need

To investigate reputed inconsistent data in the UK grocery industry and build smarter processes for improved business operations.

The Solution

Over a million records quickly profiled, matched and flexibly analysed using IBM InfoSphere™. IBM retail consultants partnered to interpret results, assess financial and operational impacts, and present an industry improvement roadmap.

What Makes it Smarter

For the first time, the UK grocery industry was able to correlate large data volumes used at multiple points in the supply chain and prove significant incidences of inconsistent data. Extensive industry expertise and analytical skills provided a penetrating interpretation of the business impact and produced smarter processes and improved decision-making in the UK grocery market.

The Result

GS1 has been able to engage with the UK grocery industry to introduce global data synchronisation, providing significant opportunities for efficiency savings and increased sales.

GS1 UK has worked towards developing innovation in the supply chain for over 30 years, most notably through the development of the global barcode system used to scan over 5 billion products every day. The not-for-profit organisation works on behalf of over 1 million retail industry member organisations worldwide, and has over 21,000 member organisations in the UK.

Working with member retailers and suppliers, GS1 UK became aware of anecdotal evidence that suggested high incidences of poor quality product data in the UK grocery industry supply chain.

To assess the validity and scale of the 'inconsistent data' problem, GS1 UK engaged on a six-month project to compare grocery product data held by four of the nation's largest supermarket retailers, and match this with product files held by four leading manufacturers. IBM provided advanced data analytics solutions to help process the huge volumes of data and retail industry expertise to assist in interpreting the impact of inconsistent data on retailers, suppliers and consumers.

The resulting Data Crunch Report revealed over 80% of inaccurate product data in the supply chain which contributes towards profit damage and adversely impacts upon consumer satisfaction. When the impact on customers, retailers and suppliers was assessed, it became apparent that the UK grocery industry and its customers could benefit from potential savings in excess of £1 billion over the next five years by developing smarter supply chain processes. Over-stocking, lost sales from shelf stock-outs, product 'shrinkage' and manual workarounds are some of the costly impacts being experienced by retailers and suppliers as a result of missing or inaccurate product data.

This was the first time an investigation of this scope and depth had been undertaken in the UK grocery industry. "We could not have undertaken a project of this scale and complexity in such a short time without the automated IBM Information Server analytical tools, retail industry experience and technical expertise of IBM," says Gary Lynch, Chief Executive Officer at GS1 UK. "In addition, IBM retail consultants provided valuable industry insights to help us extrapolate the impact of inconsistent data and assess how future legislative, consumer and operational pressures will exacerbate the situation. They engaged proactively in the presentation of the study conclusions, adding substance and professionalism to the formal report and the workshops with participating retailers and manufacturers."



Benefits

- The Data Crunch report demonstrated that over 80% of data in the UK grocery supply chain was inaccurate.
 - The study has enabled GS1 UK to engage with the UK grocery industry to introduce global data synchronisation designed to reduce the risk of over-stocking, lost sales from shelf stock-outs, product 'shrinkage' and manual workarounds.
 - Improved industry-wide data synchronisation provides a £1 billion opportunity for efficiency savings and increased sales over five years.
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Practical solution

GS1 UK undertook a thorough evaluation of solution providers before selecting IBM to support the Data Crunch project. It checked out the leading suppliers of analytics solutions with an independent industry watcher and assessed the retail industry expertise of potential partners. Malcolm Bowden, GS1 UK Business Development Director, explains: "IBM was a clear leader in both areas. It has an excellent track record working with major global retailers, a dedicated team of retail industry consultants and a suite of leading data analytical tools. We have formed a close partnership during this project and have been very impressed with the retail knowledge and commitment of IBM's consultants."

The first stage demonstrated the enormity of the data challenge. Product files at GTIN (Global Trade Item Number) level were sourced from four of the UK's leading supermarket chains. These contained some 24 attributes – including physical dimensions, weights and unit capacities – for each product, case and pallet.

Each retailer had created its own systems for storing product data. The large and disparate files containing over a million records were extracted, transformed and loaded automatically using the IBM InfoSphere DataStage® ETL tool. Once imported, a sophisticated data-profiling tool, IBM InfoSphere Information Analyzer, was used to evaluate the structure, content and quality of the data sources.

IBM specialists worked alongside GS1 UK staff providing guidance and knowledge transfer in the use of these automated tools. In a short period of time, GS1 UK became self-sufficient in running the data analyses and looked to IBM for only light touch technical support.

Initial results revealed more than 60% duplicate GTIN entries were being created by manual workarounds in stores, warehouses and other islands of information in the supply chain to address local needs. The IBM software used in the study had been designed to quickly identify and isolate these duplicate entries.

Smarter Grocery Retailing

Improved industry-wide data synchronisation provides £1 billion opportunity for efficiency savings and increased sales



Instrumented

Automated profiling and matching of large heterogeneous product files pinpointed over 80% incidences of inconsistent data impacting grocery industry efficiency and lost sales.



Interconnected

Intelligence gained from data synchronisation will facilitate operational improvements between supermarket chains and suppliers and enable efficient new industry-wide processes.



Intelligent

Evidence gained will enable retailers and suppliers to connect and collaborate better for improved profitability and customer service.

Solution Components

Software

- IBM Information Management
- IBM InfoSphere Information Analyzer
- IBM InfoSphere DataStage

Services

- IBM Global Business Services
 - Supply Chain Management
 - Business Analytics and Optimisation
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The resultant data files from the four retailers were transformed automatically into a consistent format and validated. Information Analyzer's rules-based engine was used to eliminate 'dummy' entries (e.g. fictitious 1x1x1 size dimensions entered to satisfy system requirements at data entry stage), and normalise data held in alternative dimension scaling (e.g. case weights in grams and kilograms were normalised to allow direct comparison).

"Once IBM had helped us achieve consistent data, we worked together to set up and complete the initial models within just 10 days. The data volumes were huge, complex and from incompatible sources. It would have been inconceivable to have undertaken such detailed cleansing, profiling and normalising of data without the IBM InfoSphere tools," explains Harshal Gore, Professional Services Manager at GS1 UK.

The speed and power of Information Analyzer helped GS1 UK to run a series of complex assessments, contrasting similar data from any two, three or four retailers. Master product files from four leading consumer products companies were also fed into the analysis and compared, individually and severally, with product data held by the grocery retailers.

In addition to discrepancies between the retailers' data, the analysis revealed less than 25% of product data matched with the suppliers' master data files.

Cost impact on retailers and suppliers

To help interpret the impact on customers, retailers and suppliers of this high incidence of inconsistent data in the grocery supply chain, GS1 UK called on retail industry consultants from IBM. IBM consultants partnered with GS1 UK to review the findings with the participating retailers and suppliers. They also supported GS1 UK with the production of the Data Crunch report and actively engaged in the presentation of findings to management of each of the grocery industry participants.

"IBM added experience working with retail and supplier customers worldwide to our own knowledge from GS1 UK members, and together we pulled in research from a number of previous studies and independent industry bodies," says Malcolm Bowden. "The breadth of knowledge of IBM retail consultants, and their objective interpretation of the study results, helped us develop an incisive report detailing the high cost impact areas of inconsistent data for our member retailers and suppliers."

A significant proportion of 'shrinkage', usually associated with theft or loss of product once it has been received into inventory, was considered to relate to failures in supply chain processes. The GS1 UK research project calculated that retailers and suppliers are experiencing shrinkage of up to £95 million per annum which could be attributed to inaccurate product data.

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- Gary Lynch, Chief Executive Officer, GS1.



With a distrust of central data, staff in buying, stores, warehouses, logistics and finance have created and maintain their own local repositories of product data. Inaccurate data on product units, cases and pallets was revealed as a significant reason for the mismatching of invoices. The cost of creating this multiplicity of duplicate product data, investigating discrepancies and handling workarounds was calculated to be £45 million per annum.

Data integrity issues can also contribute towards errors in re-supply by manufacturers, poor product display, inefficient product storage, shelf stock-outs, incorrect shelf-edge labelling and checkout delays. In addition to the cost of rectification, poor data could also result in product non-availability, poor service to the consumer and customer dissatisfaction. The Data Crunch report calculated that poor data quality is responsible for £60 million per annum in lost sales.

Future escalation of product data

Drawing on extensive industry expertise, IBM retail consultants worked with GS1 UK to evaluate the potential impact of emerging legislation, evolving consumer demands and commercial developments on the likely future demand for product data.

There is a rising demand for information on nutrition, allergies, carbon footprint, packaging, and global and local supply chains. The report identified that this escalation in demand for product information is likely to increase the volume of product data retailers need to hold by at least 400% – a further clear imperative for creating smarter and more efficient procedures for generating, disseminating and managing product data.

Following the study, GS1 UK is working with the UK retail industry to standardise on Global Data Synchronisation to allow product data to be entered once and maintained centrally by the supplier, and accessed directly by all parties in the supply chain.

“IBM consultants added substance and professionalism to the workshops that presented the study findings to the major retailers and suppliers,” concludes Lynch. “In every case, the retailers and suppliers were impressed with the depth and scale of the analysis and very interested in the impact assessment on their businesses. IBM contributed significantly to the success of the project and its ‘partnership’ approach in the way it worked with us was fundamental to this success.”

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