SME-Oriented Collaborative Customer Insight Platform for User-driven RdM (SOC-UDRdM)

RECODE Network

Executive Summary

SME-ORIENTATED COLLABORATIVE CUSTOMER INSIGHT PLATFORM FOR USER-DRIVEN RdM

YING LIU + ANTHONY SOROKA

50/50

SME's

WE EXPECT THERE TO BE MORE FOCUS ON SME's POST BREXIT

NEW POLICIES

AIM TO CREATE A PROTOTYPE PLATFORM

LACK OF AWARENESS/ USE OF CRM

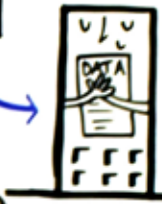
THEY NEED TO KNOW WHAT THEY CAN DO.

HOW TO ANALYSE THE DATA

SME SURVEY

WHAT IS THEIR AWARENESS AROUND BIG DATA

50% STORING DATA ON CLOUD



THEY'RE ALL HOLDING DATA BUT NOT USING IT FOR CUSTOMISATION

WHAT ABOUT 'LITTLE DATA'

STILL HAS VALUE

WHAT DO I DO WITH IT...?

SOMETIMES CUSTOMERS DON'T KNOW WHAT THEY NEED

SUBSCRIPTION TOOLS ARE ATTRACTIVE TO SME's AS THEY REDUCE RISK

BUT THEY DON'T KNOW WHAT TOOLS EXIST!

WE ARE WORKING ON A TOOL THAT IS ACCESSIBLE WITH A FRIENDLY INTERFACE

HIYA

OUR TOOL ENABLES

- VISUALISATION
- ANALYSIS

PREDICTS WHAT PEOPLE WANT FROM THEIR REVIEW

WHERE TO BEGIN WITH BIG DATA

+ GIVES A MORE REALISTIC IDEA

CASE STUDY

UK BASED SME PRODUCING HORSE RIDING HELMETS

FACING COMPETITION FROM AMAZON.

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Ying Liu
Cardiff University

Liangxiu Han
Manchester Metropolitan University

Executive Summary

Background, aim and objectives

Micro enterprises and small and medium-sized enterprises (for the purposes of this exploratory study these will be referred to as SMEs) have an important role to play in the continuing success and growth of national economies. Studies have suggested that the contribution of SMEs in realising the demands and improving the profitability of their supply chain partners (including large organizations) should not be understated, as such play a critical role in modern economies.

A study conducted for the British government's Department of Business Innovation and Skills reported that in 2015 99.9% of the total number of enterprises in the UK could be classified as SMEs. These companies contributed more than 2/3rds of private sector workforce as well as 47% of the annual turnover in the UK.

According to an extensive study of companies conducted by The Data Warehousing Institute (TDWI) in 2009, 38% of organizations surveyed reported that they utilise advanced analytics, whereas 85% said they would be practicing it within three years. In the study the respondents were spread evenly across a wide spectrum of company sizes. However, only 23% of respondents were from companies whose revenue was less than $100million, within the EU this is above the turnover threshold for a medium enterprise. Additionally, only 4% of respondents to this study were from non-computer manufacturing companies. As such this and other industry studies may not accurately reflect the opinions of manufacturing SMEs.

This feasibility study specifically focuses upon SMEs in the UK and their potential motivations for using and knowledge of big data based customer analytics. The overall objectives of the study are to:

- Find out what SMEs are doing with regards to their product and customer data
- Examine if they can potentially make use of big data analytics
- Develop a demonstration system for big data driven customer analytics

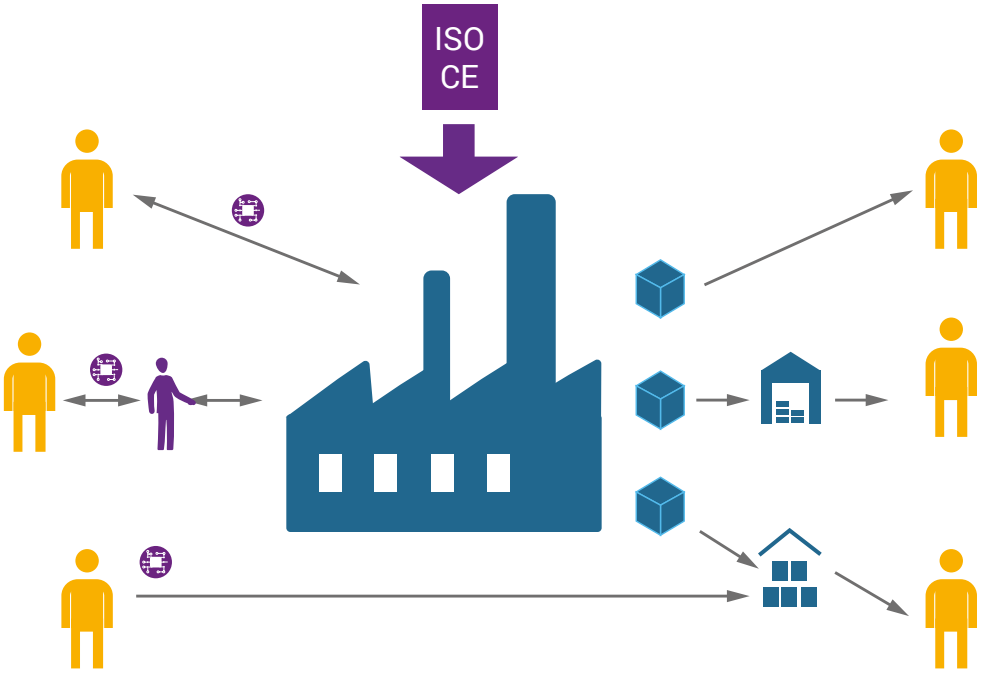

Figure 1 Captured SME-customer interactions in Re-distributed Manufacturing

Contribution to Re-distributed Manufacturing

This feasibility study took a snapshot of how SME engage with their customers, the data they have available to them, how they use it and what benefits they feel they can obtain from big data analytics. The following sections examine different elements of a company's interaction with its data and RdM. The outcomes are examined from both a general perspective and from the perspective of the companies and the use of big data analytics.

What did the study reveal about what companies are doing with regards to their product and customer data?
The study showed that although companies are storing data, not all companies are actively using customer data. The survey also showed that only a few companies are actively using Customer Relationship Management (CRM) systems, which could provide answers to some of the queries they have, without the need to resort to big data.

What did the study reveal about SME's and the position are they in to potentially make use of big data analytics?
Most respondents had not heard of big data analytics; of those who did there were some ideas regarding what they hope to achieve. However, as mentioned above, a small proportion of companies actively used some form of CRM which may provide some of the insights they wish to obtain. The small number of respondents who plan to get involved in RdM is a concern, as it suggests that there is a lack of awareness of what it is and how SMEs stand to benefit. Discussions with companies revealed that "little data" might be a more appropriate term for the application of big data analysis techniques to SME data. Importantly, big data is context sensitive, in that an SME that, for example, uses computational modelling and CAD tools will have considerably more data than one that doesn't – yet relatively speaking they both have big amounts of data. Cost is a concern; SMEs are not always in the position to be able to spend large amounts of money on big data tools and even if they did they would not necessarily have the human resources to configure, run and maintain such a system; as such even large SMEs struggle with "little data", let alone with big data.
The results of this exploratory study suggest that although there may be some demand for big data analysis it is possible that the current solutions may not be viable for SMEs and that SMEs appear to be ill-prepared and ill-equipped to make the most of what big data analytics can offer them.

SOC-UDRdM customer insights platform

The demonstration system needed to be able to provide, in a user-friendly manner, the capability for a user to search for products, select them and view several charts that highlight the customers' affections to various features of the product. Useful information that can be gleaned includes, but is not limited to, overall satisfaction with the product, a list of features specifically chosen for comment by customers and their related sentiment, the ability to compare categories for a given polarity to see the distribution of sentiment, the distribution of sentiment for any given category and the comparison of these charts for different products. The system should also be able to show the potential for geographical maps if the data is available, highlighting the countries with the most liked or disliked products, or areas with the largest number or reviewers or sentiments. Finally, these can be linked directly to the text of the review allowing the user to select any section of the charts and read the filtered reviews that are specifically relevant. This allows the user to understand the reason for a negative sentiment regarding price, or why exactly people are satisfied about the way it fits. All this information can be used to better improve products or services by detecting trouble areas or showing what works well.

Because of its wide scale acceptance, the Amazon website was chosen for the purposes of this demonstrator. However, such a system could be adapted to other websites for sentiment analysis of text data. There are several components of the system including 1) data acquisition; 2) sentiment analysis; 3) data visualisation; 4) graphical user interface. Companies who saw the system gave it positive feedback in that it seemed easy to use and most importantly didn't require the companies to maintain a large database of user reviews.

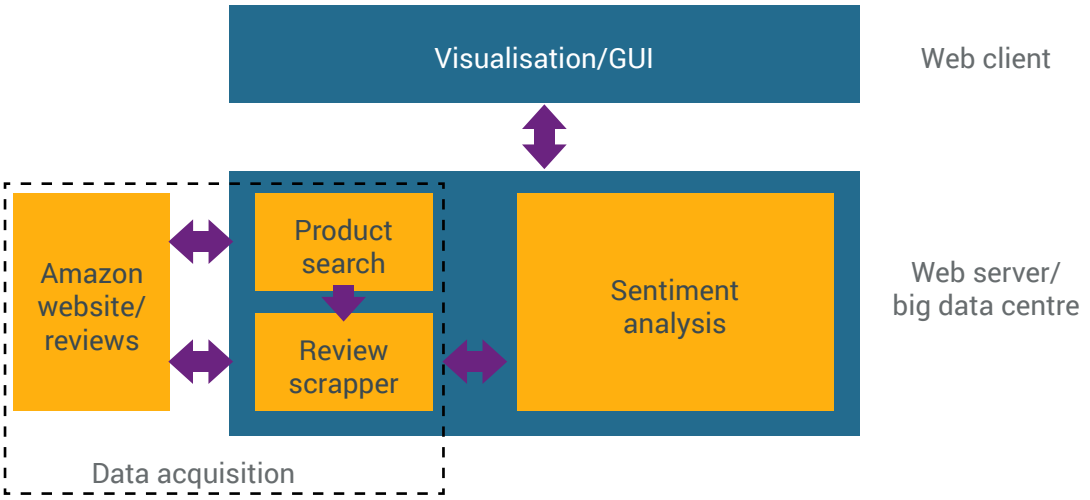

Figure 2 System overview

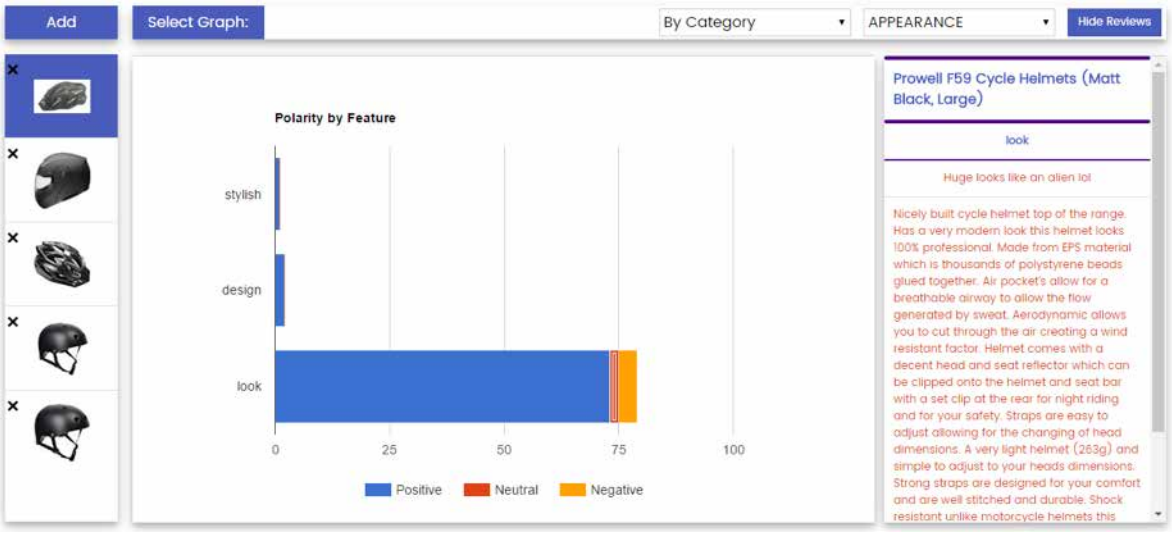

Figure 3 Screenshot of the software platform showing polarity of reviews

Impact and future research

This feasibility study has investigated the use of big data tools in product design and improvement from the perspective of SMEs. It has shown that although SMEs have product and customer data and that they are aware of big data, they don't know where to begin. They feel that the term big data is overwhelming and doesn't reflect the reality of SMEs, that "little data" might be a more appropriate term for SMEs, and that what is considered a large volume of data will vary from sector to sector. Therefore, in one sector 500Gb could be considered a very large volume of data, while in another only data above 10Tb could be considered very large.

SMEs are particularly concerned about choosing the wrong tools and techniques for analysing data because they do not have sufficient knowledge and do not necessarily have the time to invest in investigating different solutions. There is also the fear of selecting a solution that end up not being adopted as industry standard, such that they run the risk of substantial expenditure to change systems. Nevertheless, where presented with the prototype system they were very positive about the concept and could begin to see how big data could be of use for them.

Overall, the idea of big data analytics for gaining customer insights was well received, but SMEs will need both guidance and the suitable tools before they will be able to make the most of it. This will require more detailed study of their needs and capabilities as well as the design of an appropriate cloud-based big data system.


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