

<b>Institution: London Metropolitan University</b>		
<b>Unit of Assessment: Computer Science and Informatics</b>		
<b>Title of case study: Productivity Gains in the Consumer Electronics Retail Industry through KTP</b>		
<b>Period when the underpinning research was undertaken: 2011 – 2017</b>		
<b>Details of staff conducting the underpinning research from the submitting unit:</b>		
<b>Name(s):</b>	<b>Role(s) (e.g. job title):</b>	<b>Period(s) employed by submitting HEI:</b>
Professor Karim Ouazzane	Director of Research & Enterprise	2001-present
Dr Preeti Patel	Lead Academic	1990-present
Dr Samson Habte	KTP Associate	2013 - 2020
Dr David Ward	Senior Lecturer	2008 -2009
Dr Sajid Afzal	KTP Associate	2009 - 2020
<b>Period when the claimed impact occurred: 2014-2020</b>		
<b>Is this case study continued from a case study submitted in 2014? N</b>		

### 1. Summary of the impact (indicative maximum 100 words)

The specific impacts of this tripartite research project, involving a Company Partner (Ask Outlets Ltd.), the University and Innovate UK, are twofold:

1. the design and development of innovative enhanced web technology and data warehousing and forecasting solutions has enabled the Company to achieve productivity efficiency, sales growth and consumer behaviour insight, and
2. this successful Partnership demonstrates the significance of HEIs responding effectively to the UK Government's economic growth agenda to deliver private-sector led innovation, economic benefit and sustainability.

The aim of the Partnership is to maximise the strengths of each partner to achieve technology solutions to meet the economic challenges facing resource-constrained SMEs in the aggressive online retail industry. The Partnership was sustained over a number of years and through two KTPs, which resulted in a strong knowledge and requirements exchange underpinned by two research strands that have led to (a) the development of an e-business platform and (b) the development of an integrated business-forecasting tool. This Project was given an Outstanding award by independent assessors at Innovate UK in 2017, and short-listed for inclusion in its bank of case studies.

### 2. Underpinning research (indicative maximum 500 words)

The intelligent web (5.0), the mobile web (4.0) and the semantic web (3.0) enable internet services and platforms to be extremely productive. However, a typical SME may not have a business need for users to submit content or to be able to interact with each other. Instead, there may be a more simplified requirement for a bespoke solution using enhanced Web 2.0 technology. The starting point for this research was to develop a robust, reliable, efficient and novel framework using

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enhanced Web 2.0 technology that would serve as a front and middleware collaboration model between data persistence logic and operational requests. This framework was to serve as a mediation platform for request brokers. It would provide a high level of abstraction by encapsulating low-level details of the system, such as request handling, request mediation, response handling and service handling.

The London Met team, led by Professor Karim Ouazzane, set about constructing an efficient framework for utilizing Web 2.0 component technology, which would facilitate the transformation of small retailers' businesses into e-businesses [R1]. The model framework developed by the London Met team is an extension of the well-known Service-Oriented Architecture SOAW2 framework which provides users with an option to adapt their e-businesses according to their individual needs using additional profiling and customization. This is achieved by introducing an extra layer in the architecture that supports the brokering of both the user requests for services and the service responses generated in return.

In order to deploy the e-business framework and to continue this work to provide retailers with a solution which is of scientific relevance and commercial significance, London Metropolitan University partnered with Ask Outlets Ltd. (Ask), a multi-channel consumer electronics retailer based in London, under the auspices of Innovate UK's Knowledge Transfer Partnership (KTP) scheme and received a grant of GBP95,000 in 2012. The KTP Associate, Sajid Afzal with academics Prof. Ouazzane and Dr David Ward used the KTP to develop a bespoke CRM system capable of identifying consumer purchasing behaviours and providing greater customer base interactions, which could lead directly to improved online sales [R1].

Once the CRM had been embedded within Ask in 2013, we embarked on the next stage of maximising productivity. This time we turned our attention to research that could identify trends that facilitate effective sales operations, inventory planning, purchasing process, budget planning and market insight.

The London Met team understood from our ongoing relationship with Ask that off the shelf software packages available to retailers created more challenges than they solved when used by SMEs without dedicated IT support. To address these challenges, a generic data warehousing solution was developed which meets the needs of retailers who favour a hybrid multi-channel business model in which agility of decision-making is crucial for survival and growth.

Using a standard data warehousing life cycle approach, we applied a method that includes three stages to design and develop a generic data warehousing solution that is applicable to a wide range of consumer electronics retailers [R2]. The three stages are: analysis of business processes, dimensional data modelling, and implementation of data warehousing. An advantage of this novel solution is that it does not require IT expertise for use and maintenance, and is therefore readily implementable by SMEs who may not have a dedicated IT services team. In addition, the generic and platform-independent nature of the technology solution makes it a viable option for immediate adoption by a wide range of consumer electronics retailers.

In 2015, we embarked on a second KTP with Ask Outlets Ltd., with a grant of GBP105,000. The KTP Associate, Samson Habte, along with academics Prof. Ouazzane and Dr Preeti Patel engaged with the Company to apply integration technologies to a bespoke data warehouse solution for business forecasting.

This Project was given the award of Outstanding by independent assessors at Innovate UK [R3] in 2017, and short-listed for inclusion in its bank of case studies.

### 3. References to the research (indicative maximum of six references)

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- [R1] Karim Ouazzane, Sajid Afzal, Vassil Vassilev, Kaushik C. Patel, Althaff Irfan (2015), E-business Framework Using an Enhanced Web 2.0 Component Model, International Journal of E-business Development, Volume 5 Issue 1, pp 1-11, ISSN 2226-7336 (<http://wapbowen.oss-cn-hongkong.aliyuncs.com/PubFiles/IJED10149-20150612-095152-377446907.pdf?Expires=1600348254&OSSAccessKeyId=UVhDXw2HqaJ5Mj2n&Signature=xPFQFu3ebUfmQ3kudxS4MLLea0%3D>)
- [R2] S Habte, K Ouazzane, P Patel, S Patel (2017), “Generic Data Warehousing for Consumer Electronics Retail Industry”, International Journal of Computer, Electrical, Automation, Control and Information Engineering Vol:11, No:7, pp779-782, ISSN 1000-7397 (<https://core.ac.uk/download/pdf/96599431.pdf>)
- [R3] Final grading and award confirmation, (2017), Innovate UK, KTP009769

### 4. Details of the impact (indicative maximum 750 words)

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The knowledge exchange opportunities that arose from a strong and sustained Partnership during the course of two successive KTPs [S1, S2] have had far-reaching benefits to all stakeholders. However, it is the particular benefits to the SME that are focussed on here.

Firstly, it is important to state the context and nature of the business. As multi-channel consumer electronics retailers operate in dynamic and highly competitive market conditions, they are under constant pressure to invest in new communication and information technologies that automate or support retail activities to increase productivity and gain competitive advantage. SMEs are particularly vulnerable to fluctuations in the marketplace, and as many do not have adequate resources to develop bespoke technological solutions, they are continually in danger of losing market share.

The two research strands that have led to (a) the development of an e-business platform and (b) the development of an integrated business forecasting tool have come about as a result of knowledge and requirements exchange between Ask Outlets Ltd. (the Company) and London Metropolitan University (the University).

#### 1<sup>st</sup> KTP – business strategy realignment and new revenue channels

In the first of the two KTPs, the KTP Associate Sajid Afzal, under the direction of Prof. Ouazzane and Dr David Ward applied the research to the development of a bespoke CRM system that has enabled the Company to have more productive interaction with their consumer base. The CRM has resulted in a measurable improvement of sales revenue - but most importantly, has been instrumental by the end of the two-year KTP (2014) in a material shift in the Company’s overall strategy, through new revenue generating channels that have been created.

As a “*direct result of the introduction of the CRM software*” Ask have introduced new internal systems which “*maximise [their] stock ordering processes*” ensuring that they only order products to meet customers’ needs and which have resulted in an average “*annual saving of £200k per*

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*annum for the financial years 2015 – 2020” [S3].*

In the KTP final report submitted to Innovate UK [S1], the Company was asked to assess the nature and significance of the impact on their activities as achieved through the partnership. The Company confirmed that the following impacts have been **highly** achieved: increased breadth of information or extent of dissemination, improved customer or stakeholder satisfaction and improved efficiency or productivity. The KTP final report summarizes the main benefits to the Company as being (a) enhanced revenue generation through the ability to identify new trends through consumer profiling and (b) enhanced agility through the ability to monitor and react to dynamic competitor pricing. In 2014, the Company reported a GBP350,000 increase in the annual sales turnover directly attributable to the KTP [S1].

### 2<sup>nd</sup> KTP – growth and sustainability

In the second of the two KTPs, the KTP Associate Samson Habte, under the direction of Prof. Ouazzane and Dr Preeti Patel applied the research to the development of an integrated business-forecasting tool. The aim of this research was to support the Company’s decision-making processes in order to make increases in productivity across all sales channels, thereby ensuring growth and sustainability. Mr Sandip Patel, Managing Director, identified changes in consumer activity as a result of economic changes, including Brexit, which made the introduction of a forecasting tool an essential part of forward planning. The Company’s valuable data and information assets are now (from 2017 onwards) used to gain forecasting insights, leading to competitive advantage. Amongst the many benefits the Company has gained are (cited by the Company in their input to the KTP final report [S2]):

- the minimising of risk to both under-stocks and over-stocks as replenishment can be predicted which leads to a direct reduction in inventory costs,
- a reduced staff workload has resulted from inventory optimisation leading to productivity being increased by approximately 40%,
- the ability to monitor competitor pricing and react promptly to fluctuations,
- the relationship with the Company’s suppliers has also benefited by the prioritisation of stock allocations on a weekly basis,
- overall benefit of enhanced communication with suppliers for fulfilling stock orders,
- the empowerment of the Company’s team of buyers whose purchasing decisions are more accurately informed, resulting in profitable bulk purchasing,
- the ability to identify new trends through forecasting leading to the identification and introduction of new product lines.

Resulting directly from the KTP, these benefits have led to changes in the Company’s competitive position in terms of an increase in annual (financial year 2018-19) sales turnover of GBP600,000 with a growth of GBP1,000,000 anticipated for financial year 2019. Mr Patel also reports that this growth is against a backdrop of “*several smaller competitors [falling] into administration*” resulting in a less competitive market where Ask’s major competition is now “*the bigger players such as John Lewis and PC World Currys.*” [S3].

### Continued and long-lasting significance and reach

Participating in the KTPs has enabled the Company to be sustainable and resilient in the

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marketplace. These improvements were felt soon after the projects completed, and Mr Patel has also been able to report on the continued benefits. The most impactful of these developments include expansion of the business into new localities within the UK, job creation and development, knock-on benefits to supplier sales teams and the ability to perform strongly in the online arena during the coronavirus pandemic (2020).

Improvements in internal systems, staff realignment and focus on multichannel business have taken place in the intervening period. Specifically, improved business performance measures include: by only ordering those products required by customers and bulk buying of specific products has allowed Ask to manage their *“overall stock holding and free up [their] cash flow especially when [their] have been growing”* and allowing Ask to focus on *“online and through multi-channel marketplaces”* where their growth has been *“approximately 31%”* year-on-year [S3].

The company’s 2020 testimonial [S3] gives explicit details of continued expansion opportunities (in the form of newly launched store locations across the UK) which are attributable to the KTP inventory planning and forecasting solutions. The new Sony Centre in Birmingham *“...is currently generating sales of approximately £600k pa and we have recruited an additional 8 staff”*. The new Audio-Visual outlet located in the royal-warranted Daniel Department Store in Windsor is similarly performing well, *“Here we have recruited an additional six staff and this outlet is currently generating approximately £800k pa”*.

The CRM tool, together with the forecasting solution has enabled the Company to explore potential new product branding opportunities beyond their traditional Sony Centre brand. Their new store in Windsor is multi-branded incorporating additional brands such as Roberts Radio, LG and Samsung by the showcasing of *“...the complete range on play tables for customers to touch and try”*, with the result that *“one particular brand has grown almost 300% compared to previous year”* with additional benefits of increased support from the branded supplier such as local advertising and promotions. This multi-brand store has also allowed Ask to showcase the new brands both in store and online [S3].

In addition to the jobs created at the locations, the existing workforce experienced positive change as a result of the introduction of the software. A reduced need for staff in the product buying team allowed those staff to be retrained to research new products. New staff are *“delivering advertising through online platforms”* Ask’s staff have reported that *“the additional training and changes to their roles has enhanced their personal esteem and has given them improved career options”* [S3].

Positive feedback received from Ask’s suppliers relates to the seamless analysis of the Company’s sales data, via the forecasting tool, which allows the suppliers’ sales teams to identify growth of particular items and adjusting their own supply to match. Mr Patel summarises this domino-effect as *“...So, this has not only benefited us, but the suppliers are also benefiting with our sales data”* [S3].

The Managing Director concludes with *“The changes and benefits to our business that resulted from both the CRM and forecasting solutions have enabled the business to, hopefully, weather the current coronavirus crisis.”* [S3]

### 5. Sources to corroborate the impact (indicative maximum of 10 references)

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- [S1] References to KTP final report submitted to Innovate UK (KTP007283)
- [S2] References to KTP final report submitted to Innovate UK (KTP009769)
- [S3] Company testimonial (Mr Sandip Patel, Managing Director, Ask Outlets Ltd. June 2020)