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Early challenges of implementing an e-commerce system in a medical supply company: A case experience from a knowledge transfer partnership (KTP)

Abstract

Peacocks Medical Group Limited is a leading supplier in the orthotics market in the UK. Until recently the company relied on a well-established part electronic and part paper-based supply chain system, but the increasingly competitive nature of the market has made the company look into further electronically enabling its processes, in order to maintain its competitive advantages and also reduce operational costs and lead times. The case study presents the early experience of their transition to the new system, with a particular focus on the analysis and pilot stages, and the impact it has had so far on the stakeholders and the company itself. The case highlights many of the typical problems that such projects may have at their initiation that often hinder progression and lead to failure. Suggestions of possible ways to address these issues in the context of Peacock's commercial environment are also considered.

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1. Introduction

Peacocks Medical Group Limited has been in operation for over 100 years, operating across three separate medical business sectors: the provision of orthotic services (i.e. the designing, constructing and supplying devices to support, assist or correct limb and spinal structures), the manufacturing of bespoke and stock orthotic products and the resale of other general medical products through the company's catalogue mail order service. The Group's headquarters and manufacturing operations are in Newcastle upon Tyne, with a branch sales office in Southampton. In addition, the company has a retail unit in Newcastle upon Tyne which supplies both off-the-shelf and bespoke products to patients in the North East of England. The company, which is registered as a limited liability, employs 114 full-time and 6 part-time members of staff. The company has adopted a rather flat hierarchy management structure, consisting of 6 Directors and 14 Team Leaders contributing to 13 departments within the company. The company's annual turnover in 2005 exceeded £6m with the net profit exceeding £45,000.

The company is a leading player in the design and manufacture of orthotics and has a strong reputation for the quality and fit of its products. Peacocks retain the lead production time in their market, with competitors often placing orders with Peacocks' factory to ensure prompt deliveries. The company is always looking at ways to expand and improve the quality of its products, services and care to its customers and patients. Peacocks staff often contribute to research into orthotic productions and related new inventions and improved methods. Many of them, mainly from the orthotics team and the sales and accounting departments, read for Masters and PhD degrees aiming to extend not only their own knowledge, but contribute to their respective fields too. In doing so, they also help the company develop further and maintain a 'fresh' vision for the future. Their studies are supported by the company both financially and in terms of time needed for personal study and research, as Peacocks view these advancements as imperative not only to the organisation, but to the world of orthotics too.

Peacocks have managed to retain a leading position and a strong brand name associated with a challenging contender for orthotic products and services, albeit with a limited application of technologies when it comes to managing their processes. This does not mean the company does not appreciate the value and potential gains that information technologies can bring. Recently, due to the company's expansion, advances in information and communication technologies, and the ever-growing popularity of computing in general, attitudes within Peacocks have changed significantly. Staff appreciates the need for process re-engineering using IT, in order to become more efficient and effective in their daily tasks. In contrast to a previous attempt to re-engineer the organisation's processes, this time staff have been more

enthusiastic, helpful and open to the idea of change, which increases the chances of success of any project involving change within the organisation (see for example, Nah *et al.*, 2003). In fact, their knowledge and understanding of existing systems and processes has been valuable when considering which processes can be improved, proposing their own ideas of how information technologies could help them in their own working practice.

Information Technology (IT) is now seen as an 'aid', rather than being feared by staff. This positive attitude towards IT was facilitated by the introduction of a CAD CAM machine and bar-coding system in 2005, which showed in practice the effects IT can have on the company. It also helped illustrate how further technological advancement and improvements in other areas could help the organisation become more efficient and effective, helping Peacocks maintain its competitive advantages and establish new ones.

2. Case Study Background

In this section we present the context within this project took place. We start by discussing the Knowledge Transfer Partnership framework, we then continue with a stakeholder analysis and a discussion of the current IT infrastructure available. Finally a section discussing the implications of re-engineering key business processes highlight the emerging challenges.

2.1 Knowledge Transfer Partnerships

As Peacocks have limited in-house expertise they outsource most of their IT operations. For the re-engineering they decided to look into establishing a Knowledge Transfer Partnership and bring external skills and expertise through it. A decision to do so was based on previous experience of one of the Directors of the company who had joined Peacocks through a similar scheme and ended up staying with the company.

Knowledge Transfer Partnerships (KTP) are government-supported schemes that have been in place for over 10 years. A KTP facilitates the interactions between a Company Base and an Academic Base, enabling businesses to use the research skills and qualities of academic institutions in order to address important business problems. A partnership may last between 1 and 4 years, although typically they are spread over 2 to 3 years. A partnership is established between the company and the academic institution, by agreeing what the challenges are that the company faces and a roadmap on how to address these.

In Peacocks' case the partnership was established with the Business School of the University of Newcastle upon Tyne, in order to map and re-engineer the company's key business processes in orthotics and put in place the supporting IT and e-business systems. The project started in October 2005 and will last for two years. Then, a KTP associate, usually a recent graduate, is recruited. In this case the associate had an IT and business background, with a degree in Information Systems. The associate is assigned a company supervisor and an academic supervisor whose responsibility is to guide the associate through their project. During the project, the associate will

enhance their skills in the areas of interest by carrying out a postgraduate degree, usually at Masters level, in the discipline most appropriate to their project area.

There are different drivers set behind a Knowledge Transfer Partnership for all parties involved. The company will benefit from the expertise brought in-house in order to tackle their business problem. The company gains the skills of the associate (who may end up staying in the company as happened with one of the current Peacocks Directors) and of the academic supervisors involved in the project. The academic base benefits by working closely with a company in the real business environment, which provides a number of action research and publication opportunities. Finally, the associates gain working experience in a field of interest to their future working life. They have the opportunity to read for a research degree, funded by the scheme, as well as a national vocational qualification in management, in order to underpin the managerial experiences they will gain throughout the project.

2.2 Stakeholders Analysis

There were clearly some significant implications and potential impacts that the project had on all the key stakeholders.

- **Peacocks staff - Customer Services:** This is the main department that will use the new system. Improvements in information capturing, for example due to increased legibility and properly completed order forms, and processing, for example when preparing reports, will have a significant effect on the way customer services work, rendering the group more effective and efficient in their daily tasks.
- **Peacocks staff – Technicians:** Currently the biggest problem for the technicians is the mistakes in paperwork with incomplete, incorrect and illegible information, making it impossible for the factory sometimes to meet deadlines. Through electronic means such issues can be avoided, allowing the technicians to complete the work without delays.
- **Peacocks staff - Production and Financial Directors:** Steve Cook is the primary supervisor for the company base, and as such he has significant input and influence on the project direction, content, and size throughout. Steve's agenda is for the project to impact positively on production, especially when it comes to lead times and unnecessary transactions costs. Alan Hansell, the Financial Director, is the second supervisor for the company base and as such is also greatly involved in the KTP project. Alan is responsible for budgeting and reporting and would like to see these functions better served by the new system. The involvement of two key company Directors illustrated the importance the project has for the company and also the support it has received.
- **Orthotists:** The orthotists are one of two main users groups of the system, along with the customer services team. The orthotists will benefit from an updated and more advanced method of data capture and storage which could facilitate better interaction with the company. Also, more patients will be able to be seen with a reduction in the amount of time the orthotist will need to see each patient for fits and measurements.

- **Patients:** Patient care and the quality of service they receive is a core goal of this project. For example, minimising the time required to deliver a product or ensuring the product complies with the patient's needs can enhance the experience of the patients.
- **Customers:** The vast majority of Peacocks customers are health Trusts. Being able to invoice and report automatically, on-demand and in real time can ensure that Peacocks' customers stay constantly informed about the status of their account. At the same time Peacocks' transactions costs are minimised and the company can avoid potential cash flow issue by avoiding delays in invoicing and tracing payments. In the future, being able to interact electronically with the Trusts may be a requirement and by being proactive Peacocks can ensure that they comply with the new policies.

2.3 Current IT Infrastructure

Peacocks' current IT infrastructure does not have a computing department and only one of the directors is involved in the procurement and maintenance of the IT systems in place. Instead, Peacocks outsource the computing responsibilities to a local company. Peacocks currently operates with a system initially designed as a hospital ordering system, and has since been amended with new features useful for a company such as Peacocks for providing orthotic provisions. This, however, is not an efficient setup, and causes much frustration through the length of time it takes to process tasks, locate information, and use its reporting facilities. The rest of the company's software platform comes from off-the-shelf solutions such as Microsoft Office and Sage accounting software. All client and server computers run on various versions of Windows, many of which are out of date and require reviewing. The computers are networked in order to have access to centrally managed software and share other resources like printers and Internet connection.

The latest addition to the company's IT infrastructure has been a CAD/CAM device, which is used to create orthotic insoles for shoes. The device uses a sponge foot compression to scan in the specifications for the insole, and produces the correct design for each particular insole. On average, 80 orders are insole purchases per week. Previous procedures included taking the design, drawing the shape, cutting the mould out by hand, and sanding the insole down smoothly. With the introduction of the CAD/CAM machine, patient details are entered into the machine, and a foot impression is scanned into the machine. The image is brought up on screen, altered to add padding, and then sent to the milling machine to be cut. The improved process of taking measurements becomes apparent when a repeat order is made, as the operator can search for the patient details and based on the existing record submit the insole design to the milling machine immediately. Repeat orders used to be treated in the same way as new orders, requiring redesigning and cutting the insole from scratch. With the introduction of the CAM/CAM device proving a success, Peacocks have become more interested in supporting other processes with technologies that could automate tasks and increase effectiveness and efficiency.

2.4 Re-engineering

It is clear that the company will be required to undergo a major operational transformation of its IT systems, processes and operations, as a result of applying the Business Process Engineering (BPR) technique. BPR was introduced in the 1990s and soon emerged as a key management concept (Daverport and Short, 1990; Hammer, 1990). In principle, BPR aims to improve the performance and competitiveness of firms on key measures such as quality and cost. The starting point is the complete rethinking and redesigning of the fundamental, cross-functional and cross-organisational operational aspects involved by reassessing all aspects of process, technology and people. In turn, BPR can transform an organisation and provide a range of distinctive advantages and benefits. Despite the above, it has been criticised for not considering the fact that firms are far more than a series of processes that transform inputs to outputs and other dimensions and aspects such as, inter alia, the vision, strategy, culture, technology that must be integrated to any re-engineering application.

BPR also advocates the immediate implementation of radical changes as a response to the changing business environment notwithstanding the need to maintain continuity with the past processes and systems. Addressing the above concerns, Hammer (2004) coined the phrase 'operational innovation', which is not about obtaining high performance levels via current operations but instead, is about coming up with new and original ways of doing things by breaking up radical changes into smaller and less radical phases and implementing them gradually. This will enable some continuity to be maintained and it will give people time to become familiar with the new processes.

In the case of Peacocks, the key interdependent operations involved are IT and the supply chain. The examination of the operational interfaces between IT, supply chain and other functional operations such as the finance, accounting and marketing ones is critical; another examination should include the chain architecture, i.e. Peacocks' operational interfaces with the operations of other firms in that chain. It has been well-documented that BPR can support a firm's architecture by improving relationships within the firm or, in our case, between the firm and its suppliers and customers and most importantly, it provides the capability for disseminating key information within the firm's chain.

This implies the need for transforming Peacocks' operations and moving from a traditional supply chain management system to an e-supply chain management system. An e-supply chain management system denotes the continuous, parallel and full integration of IT and SCM operations and the creation of a system that will make the most of the information systems and capabilities implemented and will provide a range of benefits (Papagiannidis *et al.*, 2008). Some of these are related to the reduction of the associated transaction costs (Malone *et al.*, 1987) by allowing more information to be disseminated, a better operational alignment and integration, a stronger electronic linkage between the firms involved in a chain and a reduction in a chain's complexity (see evidence provided for multiple retail firms and retail cooperatives in Bourlakis and Bourlakis, 2004 & 2006 respectively). It could also allow for the creation of better relationships between firms, the thorough identification of joint chain synergies and business ventures, the exploitation of market efficiencies and quick, responsive and real-time decision making, not only for

the individual firm per se, but for the whole supply chain (see for example Bourlakis and Bourlakis, 2003).

An e-supply chain system will provide more efficiency, extra control, extra process transparency and visibility, better customer service and improved customer satisfaction. The latter will result in enhanced relationships between suppliers-customers and will ultimately create an e-supply chain platform that will provide a sustainable and superior competitive advantage for the firms involved.

3. Methodology

The KTP project's objective was to facilitate the transformation and change of Peacocks' traditional supply chain towards using internet and other electronic-related technologies and, therefore, to become an e-supply chain. The paper's research objective closely followed that and the project lent itself to the use of an action research methodology that according to Coughlan and Coghlan (2002, p.222) is: "research in action, rather than research about action, participative, concurrent with action [and] a sequence of events and an approach to problem solving".

This methodology has been recognised widely for supporting academic research within various scientific fields including supply chain and operations management research (see for example, Westbrook, 1995) and information systems research (see for example, Baskerville and Wood-Harper, 1996) which are both directly related to our current empirical work. Via the use of action research, the aim is to find a solution to a problem and, at the same time, to make a contribution to the academic field of study via the collaboration between the researchers and the firm's personnel who become co-researchers (Coughlan and Coghlan, 2002); the latter is the typical case of a KTP program. It is also noteworthy that action research involves the development and implementation of change in a firm that was the KTP's project objective as outlined earlier. That firm, Peacocks in our paper, becomes a "live" case for examination and subsequent implementation of changes.

The data gathered came from a number of different sources. The KTP associate worked closely with all stakeholders, often working within their own environment to familiarise herself with their work and the processes used to create them. This allowed obtaining a first-hand experience of the challenges at a micro-level and by interacting with those directly involved to identify potential ways of resolving them. The associate had also regular meetings with the company's management team and the academic supervisors. Any interim findings were reported during the Local Management Committee (LMC) meetings and actions agreed. In addition, company data and reports were used throughout the project providing valuable information; for example sales reports were used to identify which were the popular products that the system would have had to cope with first. Moreover industry reports were also used to identify best practices and ensure that the system was in-alignment with external bodies, such as health trusts.

4. Findings and outcomes

4.1 Information Management

There are a number of objectives stimulating the re-engineering operation within Peacocks to apply an electronic supply chain system within the company's orthotic processes. In this section we will focus on one important factor, that of information management, which is critical to the success of the new system. This is especially true if in the long term the system is to become an enterprise-wide system rather than a supply chain management one. Information management within Peacocks faces a number of challenges from the very beginning, i.e. the initial data capture stage by the orthotists, until the very end, when reports have to be prepared for both internal and external use.

Implementation of the electronic supply chain solution will focus on attaining complete and correct order forms from the orthotists by utilising a number of techniques such as requiring certain fields to be completed and data provided to be in a certain format. The main benefit of directly inputting data in predefined forms is the improved quality of the information that the manufacturing department will receive. As this will result in better specifications being sent, it is expected that there will be an increase in the number of 'first time fit' products being manufactured. This could address the issue of non-conformances within Peacocks. Non-conformances (i.e. orders that deviate from the required specification or a manufacturing error, e.g. the use of incorrect materials) are often the result of missing information or illegible information. In either case, the manufacturing floor will have to ask the orthotist for additional information, which can needlessly delay the order. This could have been avoided relatively easily, had the order form been completed properly in the first place. Non-conformances also cost Peacocks additional resources invested in the quality assurance meeting which monitors them and preparing necessary reports. An electronically enabled supply chain might not only avoid many of the non-conformances, but could also minimise the resources needed for the quality assurance processes (Martin *et al.*, 2006). With patient history more readily available and an increase in 'right first time' fits patient treatment could potentially be improved both in terms of the quality of the treatment provided and the speed at which treatment is possible.

Additionally, there will be a reduction in the time needed for the order to reach customer services and the manufacturing floor, and therefore a subsequent reduction in the time required for an order to be fulfilled. On average an order will take about two days to transfer from the clinic to the manufacturing floor. With the new system such delays could be removed completely as the information will be transferred virtually instantaneously. Moreover, capturing data electronically will allow Peacocks to generate quotes automatically with minimum effort. The existing method of pricing involves a member of customer services who enters 'codes' from a booklet into a form which then calculates the price for the product. As this does not take place at the clinic with the orthotist and the patient present, it can often be a source of problems (e.g. customer services may misinterpret orthotist notes and price incorrectly).

In contrast to existing methods, the pricing of a product will be completed as the order is being entered into the new system. The pricing system will be linked to a database, which will contain all materials and products, along with their orthotic codes and

details of price, in accordance with both England and Scotland figures. With prices being calculated upon the orthotist completing the order form, the associated work load will diminish and the number of mistakes caused by human error, customer services misinterpretation of orthotist notes, and the complicated pricing booklets currently worked through for each invoice statement could be avoided. Many mistakes are caught by staff examining all documentation before invoices are distributed, but this results in additional unnecessary costs and delays. Such additional monitoring could be rendered obsolete. It is also apparent that in the case of non-conformances there are many 'hidden' costs that the system can help reduce or even avoid completely. Managing orders and prices electronically could further enhance accountability for each order.

Furthermore, reporting facilities will be improved as a result of the application of an electronic business system. Reporting diversity refers mainly to invoicing and producing monthly, quarterly and annual financial reports. Many ad hoc reports are also often requested from different hospitals and trusts to embrace their preference and needs. Reporting can be an extremely slow process, endured through interfacing with the existing DOS systems. There is also the reality of outdated information being manipulated for the reporting outcome, due to orders not being input into the system at the time of submission. Some reports also prove impossible, because of the data quantity needed to be processed and the timeframe within which this task is to be undertaken. For example, a report on all orders of made-to-measure shoes from all hospitals for the last financial year would take hours to run. Peacocks would benefit from a speed increase and a wider variety of reporting functionality, with respect to time and therefore financial resources spent on producing reports. Each hospital would also benefit from improved reporting functionality with respect to the ability to review a wider variety of reports promptly. In fact, reports could be sent automatically to external users at regular intervals or these users could be given access to run the reports on demand. In either case, this could free Peacock staff and reduce the resources needed for reporting.

Interacting with customers, especially Health Trusts, in an electronic manner is not simply a matter of efficiency, but it may soon be a requirement, following the example of other firms such as the major international retailers. Companies such as Wal-Mart and Tesco interact on a continuous basis with their suppliers through electronic interfaces (Institute of Grocery Distribution, 2005). In the past, retailers made use of traditional Electronic Data Interchange (EDI) systems for gathering information from suppliers (Dawson, 1994) whilst nowadays they rely largely on Internet-based EDI systems aiming for, *inter alia*, quicker transmission of that information (Institute of Grocery Distribution, 2005)

4.2 Tackling the challenges

Peacocks Medical Group, although satisfied with their growing customer base, have suffered from a major side effect of their success: the increasing demands for resources due to the ever increasing amount of paperwork being processed through the company on a daily basis. For example, significant financial resources are required for buying software and hardware equipment, for increasing system security making and for training the employees to use the new equipment (Pant *et al.* 2003).

Still, this led Peacocks to look into the potential benefits of adopting an electronically-enabled supply chain.

It was first necessary to analyse Peacocks' current procedures and methods for order completion. Business processes have so far been flexible, allowing employees to adopt their own preferred methods rather than following set ones. This could potentially change with the introduction of a new system, which could require well-defined processes in order to operate smoothly. As a result on the one hand the employees may feel they are losing freedom, power and flexibility when it comes to undertaking their roles, but on the other hand the company would have a firm structure, and more reliable and formal processes.

The analysis illustrates the opportunity to extend the KTP project in other areas of Peacocks and perhaps effectively introduce an enterprise-wide solution, instead of just looking at the information management and communication aspect of the ordering process. However, the time and budget requirements that such a shift from the original plan would have posed, effectively kept the KTP project within its originally intended scope. Still, the company has identified this as a project that could be undertaken in the future, once the first piece of the electronic supply chain jigsaw is in place. Irrespective of the scope of the project, Peacocks still faced a significant challenge as the company lacked the necessary IT expertise to undertake the business process re-engineering exercise. In fact, most IT support, maintenance and upgrades are outsourced. This also applied to the end users, who would have been faced with a set of new technologies. In order to address this challenge there have been substantial efforts to communicate the aims and goals of the project to all levels in the organisation so that everyone can appreciate its importance.

A great deal of time was spent with Peacocks employees, from all departments. Interviews and observations were conducted with employees in the factory, with the customer services staff, and with the orthotists themselves within the company and within their personal clinics. They were then allowed time to interpret the current system and the issues they have with their working procedures. As time passed, it was obvious that the employees had their own ideas and concerns about a new system. These were proposed to the project manager and have been accepted. Taking into consideration the opinions and views of the employees from the very beginning ensured that not only the system adopted would be of higher quality, but also that it would be accepted more easily as it was the end result of a wide consultation process. Significant effort has also been put into informing the employees of the project's progress throughout each stage even if their involvement may have not been significant at all times. This gradual introduction to the idea of a new system would ensure that the system is accepted when ready and that by that then the 'new' system is not perceived as something strange, alienating the employees, but as something everyone is familiar with. Overall, during the implementation of these systems, enhanced organisational resistance is anticipated and the senior management of Peacocks should evaluate whether they are acquainted with employees' commitment; they should also be ready for a major challenge as well: whether they have themselves the ability to steer the firm towards that change (Pant *et al.* 2003).

During the analysis stage, important information about the company, its structure and its processes was captured and documented. This was mainly undertaken by the

associate with the guidance of the supervisors through regular meetings. More formal meetings of the Local Management Committee (LMC) were also held roughly every four months, during which the progress of the project was discussed and benchmarked against the set objectives and milestones. The LMC also monitored and approved any expenses, ensuring that the project stayed within budget. In addition the LMC set the agenda for the future based on the project's plans and took important decisions accordingly. For example, once the analysis stage was over, the associate presented a specification for the new system that was used as part of the tender for the new system that the company advertises.

Apart from the internal challenges, Peacocks faces a plethora of external supply chain challenges. Specifically, the implementation of a new system creates a 'snowball effect' on the rest of the Peacocks' chain, i.e. its suppliers and buyers. For example, are they ready to adopt the new system and is there a sufficient amount of inter-firm trust in place? Equally important, are they willing to pay for that infrastructure? Peacocks should be very careful when managing and integrating these interdependencies with its chain partners. Davenport (1998) stresses that firms should not hurry to apply new systems without having understood the full business repercussions or, in our case, the internal and external challenges. He also notes that a new system implementation can provide large rewards, but could expose the company to an equal amount of risks and stresses (Davenport, 1998): "If you are not careful, the dream of information integration can turn into a nightmare". Consequently, Peacocks would be well-advised to inform buyers and suppliers of its intentions, achieve their co-operation and illustrate to them the subsequent total chain and individual firm benefits stemming from the system implementation. By doing the above, Peacocks will be able to install a system that will be a platform for further success; this is neither utopia nor myopia (Premkumar, 2000).

This case demonstrates that although it has been possible to remain competitive without an IT system, internal and external pressures make this more difficult as time goes by. On the other hand, it also illustrates how technology by itself is not a panacea for business challenges and that IT projects have to consider the social aspects of a project, if they are to be successful. The company is currently about to outsource the IT side of the project to a local company. During the development phase close links will be maintained between the IT supplier and Peacocks through the associate. The associate would also act as a conduit between the two sides when it comes to transferring knowledge and expertise in the running and maintenance of the new system. This is deemed very important for Peacocks as they would like to have the necessary expertise to run the system in-house.

Managers would now need to revisit the entire project's goals and aims and re-evaluate them in the context of the emerging technological platform. The originally envisioned competitive advantages could now be better defined and quantified in order to allow for benchmarking once the new system is implemented. This also applies to the threats that the project and the company faces and the potential ways to address these. For example if the employees feel the lack of the necessary skills needed to operate the new system, then the company could proactively engage in a training program while the system is under development. Then once it is ready for launching, the employees will also be ready to operate it.

5. Conclusion

Peacocks required a system that could be used to record patient details, clinical records and prescriptions for patients. The system would also be used by customer services and the manufacturing unit to price and build the ordered items, effectively underpinning the company's entire supply chain. An important aspect of the specification was that many users accessing the system within the hospitals could not guarantee access to the Internet, but still required access to all information. In addition to the above, as patient records contain very sensitive personal information, the system would have to be secure. The solution chosen was to create an application within the Lotus Notes 8 environment, which enables database replication between client and server within a secure environment. The external users carry an encrypted copy of the database on their laptop which can be synchronised with the head office database whenever they have access to the Internet. Reports and documentation can then be produced by exporting information to Microsoft Word and Excel. The pilot version of the system evolved around the prescription forms, which were reproduced within the Lotus Notes application and then optimised in order to improve usability and information management. Once all forms are implemented for the hospital users, the pricing rules and necessary structures will also be implemented. The system will undergo a review by the users in the hospitals, customer services and production to ensure that it meets their differing requirements, before being trialled and rolled out to all the users.

Peacocks' believe that by re-engineering their current business processes they will not only maintain their competitive advantage, but will also be able to gain new business. Resources saved by automating many of the existing tasks could be used to cater for the additional orders, allowing Peacocks to increase revenues and profits without having to grow in size. New business may also become available by marketing new products and services that will be underpinned by better and more efficient and effective systems. Most importantly, better systems could lead to higher quality customer service and support, which is paramount for a company operating in such very sensitive markets as those related to health service provision.

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