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Successful collaboration

BACKGROUND

The customer is the UK's largest provider of market leading bedside entertainment systems to the NHS.

With bedside terminals, patients can choose from a wide variety of services and it is imperative that, not only is the product fit for purpose for the patient, it must not interfere with day to day medical care.

Patients staying in hospital require entertainment to pass the time and take their minds off their condition or illness. As people's expectations grow with the advent of services like broadband and satellite TV, demands have grown.

In the mid 1990's the customer was still a small start-up company with an innovative technical solution for bedside entertainment. With such an innovative system they enjoyed success in a large number of hospitals.

By July 2002 A Government White paper called for all hospitals (with over 400 beds) to install patient bed side services, phone, multi channel TV, movies radio, talking books, games and internet access.

This whitepaper meant that the company had to ramp up its production, installation and support services, in addition to considering new designs and technologies to take advantage of the opportunity.



THE PARTNERSHIP

Extending any part of your product development or manufacture to include an outsourced partner may seem daunting. But with shrinking product development cycles, rising costs, rapid technology changes and increasing customer sophistication, companies recognize that they cannot "go it alone" if they want to innovate.

Partnering via strategic alliances have emerged as a critical competitive competency for any company that aims to drive sustainable growth through innovation and success hinges on the quality of their collaborative relationships. Relationships should be built on mutual trust, collaboration, shared responsibility and common goals.

Proactive inspired innovative thought reduces cost, improves repair time, quality and repeatability of services, whilst delivering real bottom line results.

The partnership with CHH, , started in 1998, where CHH were asked to develop bespoke connectivity solutions which met the requirements of quality and speed of delivery.

As the partnership grew, the customer discovered that CHH were truly customer focused, shared a similar culture, proactively looked for continuous improvements and had the vision to deliver a variety of ways to meet the needs of the market with a depth and breadth of experience and knowledge.

CHH worked as a virtual extension to the customer's team, working together to identify and satisfy needs from the very beginning of the project through development, implementation and delivery. We set goals for the project in line with theirs, ensuring that it always provided the required level of service and worked to achieve the agreed outcomes to maintain a strong working partnership.

At every opportunity CHH proactively looked to solve any issues and be constructively critical, whilst looking for opportunities for further innovation. The partnership objective was about shared goals with the aim of delivering winning solutions. Fundamental to that is CHH's 'can-do' mentality and a willingness to look at what is required to get a result.

INITIAL SYSTEMS

The initial system CHH worked on which comprised of a 7" monitor, mechanical arm and wall control unit secured to the wall behind the bed. The monitor reached the patient by attaching it to a scissor arm, was able to be manoeuvred. Whilst still in bed the patient can then easily move the screen and use the facilities. This delivered basic TV and telephony services and was connected to a network operated over coaxial cable.

14,000 of the initial product were installed.



CHH continued to work with the customer when the next generation analogue product was unveiled and now the CHH enhanced design incorporated a 12" screen and many more features.

TEETHING TROUBLES

Often, products are designed without a thorough understanding of the processes they need to go through to get to the end user, such as what are the best, most cost effective materials to use, which components have reasonable lead times, how easy will they be to manufacture, what equipment will be used to for manufacture and test, how environmentally friendly are they, do they conform to regulations and how the end user will actually use them.

That is not to say that designers are not aware of these issues, it's often simply that they have been around the products (and your competitors products) for so long that the need or desire to bring in a fresh set of eyes is simply overlooked.

Within 9 months it became apparent that the arm cable was not lasting the requisite number of cycles. In short the cable was experiencing excessive friction; each time the scissor arm moved which was leading to it wearing prematurely.

The customer came to CHH as they knew that they would work in close partnership to solve this initial problem.

CHH discussed the arm and cable construction with the original designers to understand their design and concept thinking. The product was then bought in house where test equipment was designed specifically to replicate the day to day use.

CHH constructed lifecycle test equipment to replicate the scissor type arm movement required. Once it was on the test bed it became apparent where the fault lay. CHH then redesigned the internal pivot fixings which relieved the friction on the cable and improved the cycles to the requisite 25,000, thus extending its life to 5 years (customer's calculations).

CHH then undertook further development on the cable structure giving lifecycle test results in excess of 50,000 movements. Thus cementing the relationship further and ensuring the customer continued to provide a stable supply of product to their end users.

MITIGATING HEALTH AND SAFETY RISKS

In those early days' patients and NHS staff would handle the systems in ways that hadn't been anticipated which meant that on a number of occasions the screen became detached from the supporting arm, resulting in the possibility of patient injury. On reviewing the design and the mechanism for holding the screen onto the arm CHH highlighted that the screen to arm mechanical connection relied on a single 3mm pin. CHH developed a fall arrest mechanism, which meant that when the pin eventually snapped, the fall arrest mechanism prevented the screen becoming detached from the arm. This was capable of being retro fitted resulting in the customer not having to incur major costs redesigning either the mechanical arm or hinge assembly.

Subsequently, CHH undertook 60,000 repairs at the bedside over a 4 month period.

BESPOKE BACKSHELLS

Poor mechanical design meant that existing standard backshells could not be utilized. CHH designed and produced bespoke backshells, enabling the equipment to be installed against the roll out plan without further redesign, providing continued supply whilst saving valuable time and money.

FILTERED D

To improve the cost and efficiency of the product CHH suggested that a cable assembly be removed and replaced by a CHH designed filtered D connector. The resulting cost savings were £12 per unit across 30,000 units (£360,000).



RJ11

At the point of repair it became apparent that there were product obsolescence issues. With over 120,000 products in the field this could have proved extremely costly. CHH however mitigated this risk by designing a new connector with a unique contact design, which was manufactured by an offshore preferred partner, thus future proofing the product. During the process CHH were also able to improve the lifespan and reliability by modifying the contact.

Benefits summary

- Partnership strengthened through collaboration and proactive activity
- Overall costs significantly reduced
- Work is functionally efficient and repeatable
- Improved product life
- Reduced manufacturing/repair costs
- Reduced maintainability/serviceability and warranty costs
- Improved quality and reliability
- Improved patient service
- Reduction in health and safety risks

REPAIR, MAINTENANCE, INSTALLATION & LOGISTICS

Following many years of success the customer decided that they wanted to outsource further activities allowing them focus on their core competencies.

New units continued to be manufactured by an outsourced partner, however CHH through demonstrating their continued proactive approach to solving issues, value engineering, cost down and exceptional relationships with the customer and the NHS built up over a number of years CHH won the repair, maintenance, installation and logistics contracts from a £1bn turnover incumbent supplier.



Contract migration

The key to a successful project is in the planning. CHH undertook an initial feasibility study, setting goals and expectations, followed by the formal plan considering all the necessary resources, controls and measures.

The migration took 3 months and control of 75,000 units were successfully and seamlessly transferred from the incumbent supplier. Using a phased approach, each product line was moved in its entirety, processes implemented and staff trained prior to the movement of each of the subsequent product lines.

MEMORY UPGRADES

Product development resulted in 40,000 systems requiring a memory upgrade. A CHH managed installation team visited every bed throughout the UK to complete the work. CHH developed a forward plan which covered how the goods would be delivered to each hospital and how every installation would take place with minimum disruption to the wards. A unique installation tracker was designed by CHH which was new to the customer and provided full traceability against every upgrade. The tracking system provided an additional benefit.

FLAPPING MODEMS

One of the first problems that CHH tackled was flapping modems, which in turn caused other modems to flap and eventually the whole network went down leaving patients frustrated without their systems. CHH built a custom test bed to replicate the installation. The system monitored every modem to isolate those that flapped. Only after rigorous testing was a modem used in the repair cycle. Once again allowing continued supply of stable product and enabling the customer to continue to build confidence with its end users.

TEST SUITES

CHH worked closely with the customers design team to improve product throughput and reduce test times, investing £20,000 in a test suite and developing a set of core test procedures. This data fed into the repair system contributing to improved fault analysis and lower costs.

REPAIR CELLS

Having reviewed how the incumbent supplier was undertaking repairs CHH set about working out how to improve the current output of 50 repairs a week on first generation products.

By setting up separate cells for each part (arms, cables, screens and electronics) CHH were able to more than double capacity to 120 units per week, improving lead times to guarantee delivery quantities and reducing overall cost by £50,000 annually.

REPAIR AND MAINTENANCE OF DATABASE AND SYSTEMS

When the contract was awarded there were 75,000 beds with either first or second generation product installed. The customer did not have an accurate record of where their equipment was located.

CHH created a database to capture all of the existing product serial numbers enabling CHH to track the location and movement of the assets through its repair cycle. In addition, as the arms were not bar-coded CHH undertook the mammoth task of creating barcodes and entering them onto the tracking system. This produced an audit trail of every item and its repair which enabled the customer to fully measure its costs.

In addition by creating a real time repair plan based on the components database, repair routes and the capacity for each hospital, CHH ensured accurate delivery / repair dates could be given, resulting in minimum disruption to wards and nursing staff and patients.

The data collected meant that CHH could spot trends, analyse them and offer solutions to mitigate risk, increasing uptime and lowering cost.

The final piece in the repair jigsaw was effectively and efficiently managing the warranties. This included shipping product back to OEMS worldwide to undertake out of warranty repairs down to PCB component level.



USING LOGISTICS TO DRIVE DOWN OVERALL COSTS

CHH's logistics partner despite being more expensive than the incumbent supplier improved the overall cost of deliveries by improving the processes, communications and the way in which goods were delivered. Further cost reductions were made when CHH developed a strategic alliance with a supplier who delivered to every NHS hospital on a daily basis. Deliveries were monitored to ensure that the same level of service was provided. The overall result was streamlined processes, great communications and continued on-time delivery.



Benefits summary

- Visibility of all products in the supply chain
- View of real costs
- Standardised, repetitive processes
- Assured availability of suitably skilled staff
- Risk reduction
- Cost improvements
- Minimum disruption to hospital routines
- Innovative solutions
- Due diligence ensured successful project migration
- No fault finds reduced to almost Zero
- Customer satisfaction for the customer and its end users
- Improved processes resulting in cost savings

THIRD GENERATION SYSTEMS

During 2008 CHH were asked to undertake the full design of the third generation system. With many years of working with the existing products CHH understood the challenges that had been faced and considered how standard off the shelf technology could introduce innovation, reduce cost and improve maintainability.

The solution designed was bespoke to the customer using standard products uniquely fixed to a flexible internal skeleton. This approach ensures a future cost effective migration plan.

The 17" multimedia touch screen systems were first shipped in 2009 are still manufactured and maintained by CHH.

SUMMARY

Those considering outsourcing are now thinking more about the 'total acquisition costs' (TAC). That includes an analysis of both production cost and of the value the contractor can add to the product, for example through innovation, design input or other services which benefit the customer and their customers.

The most challenging part of calculating TAC is what and how to include the value add costs into the analysis. Add to that the different emphasis that companies will put on what they really value. TAC is a complex subject that can mean different things to different people. The total acquisition

cost approach combines the value you want with understanding the true cost of what is being purchased.

For example, one OEM may be influenced by the desire to drive out all costs of production, whilst another OEM may value readily available capacity, quality and maximum flexibility. And if you are looking to reduce longer term costs you should be looking at longer term value where the cost impact occurs throughout the life of the project not just at the beginning.

One of our primary goals is to provide our customers with world class services, inspired thinking, and value engineering and to do that in a cost-effective manner. This involves using our experience of working with customers to deliver what they really need, not just what is in the specification.

It is critical to have a supplier that partners with you, someone who understands your business and objectives. Working together can also have a positive impact on design, product development, production, quality, yield, test and time to market.

ABOUT CHH

- CHH CoNex is a leading outsourced partner for bespoke cables, complete sub assembled units and logistic services
- Focused on creating value and minimising waste through design, supply chain, manufacture, distribution and other related services as a true extension to our customers business
- Achieving optimum overall cost of acquisition for technology based products, in the Telecoms, Transport, Medical, Industrial, Defence and Aerospace markets

