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THAT'S THE TICKET!
REDESIGNING AN ONLINE CUSTOMER SUPPORT SYSTEM
IN AN INTERNET COMPANY

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Abstract

In this evaluation of a pilot project to design and build an online customer support system, we present our initial findings in the form of a micro case study. We describe the historical system and the problems it presented, we then detail the proposed prototype and red-flag possible areas of concern. We close with our recommendations for the successful implementation of a 'real' solution. The Irish company in question has requested anonymity as it has been bought over by a multinational and is in the process of a total review of its information systems deployment, including its eCCRM procedures.

Keywords: eCCRM, B2B, workflow, online support systems

Background

Comhlacht (Gaelige for 'company') was originally a small, indigenous, Internet services company founded in 1990. It has recently been taken over by a multinational that intends to use it as their base in Ireland. It offers a range of services from standard Internet access to high-level consultancy, mainly business-to-business (B2B). Its client base would include individual consumers to multinational and state clients. The company's services are in high demand and it is still expanding its range of services and products.

The Original Customer Support Process

Customers present problems using two media channels to Comhlacht – telephone or email. Both are handled in slightly different ways at the outset. We shall describe how a telephone call is handled first. Call handlers work together in the same, open office and are equipped with telephone headsets and are seated at computer terminals. However, telephone calls do not initiate an immediate response to interact with the computer. Indeed, if the person who takes the call can handle it immediately there and then, then the solution is given. No record of the call is kept, the nature of the problem is not logged and neither problem type nor solution is shared with other call handlers for collaborative learning. Occasionally, because no records are kept, a customer may find themselves re-explaining situations. There was an attempt to get call handlers to email responses to telephone calls, but this proved flawed as email addresses could be incorrectly noted and solutions to customers' queries were bounced back.

In the case of an email from a customer, the problem is pushed into an electronic queue where it is automatically assigned a 'ticket' number and then distributed to all support personnel. They, in turn, open tickets initiating a flag alerting all other call handlers to the status of the call, in effect locking off the call. The problem is turned around and signed off. The emails are archived but no analysis of the problem type, frequency, or adequacy of solution occurs, either electronically or humanly. Only the number of emails taken by each handler is recorded. The ticketing system is an off the shelf open source package called Req and is a Unix command line system. It was upgraded in 1998.

This current work practice has highlighted several features of interest. First and foremost, the nature of Comhlacht's customer support service is quite different from, say, that of a company selling just a product – their 'product' is much more diverse and potentially more complex and customisable eg protecting customers' businesses from targeted spamming. As a result, they have let their support people work in their own way, feeling that good support people are instinctive. They do not follow a prescribed format when handling calls, believing such methods can actually escalate problems. The system is a 'pull' rather than 'push' and these concepts tend to be supply led rather than demand driven – a crucial difference. Furthermore, there was no intra-learning happening. Although call handlers would ask another for advice, literally shouting solutions across the room, it transpired that the rest did not eavesdrop on the exchange.

The Design Process

We wanted to avoid as far as feasible some of the common mistakes found in customer support in call centres, as outlined by Aspect (1999).[1] These typically can include:

- Upgrading for the sake of it
- Accepting the limitations of proprietary products
- Not implementing automation where possible
- Underestimating the potential of the Web and eCommerce
- Implementing non-scalable or short term solutions
- Believing all customers are equal
- Not training users in technical skills and communication skills

The project team first analysed the current workflow of a typical call and the ticket it generated. This would be very familiar to anyone with manufacturing experience in that it is predominantly sequential (moving 'downstream' with few, fixed iterations) and object or document centric (the ticket).[2] The original workflow diagram contained fewer steps but more iterations, whereas the revised diagram had more steps (as previously omitted steps were formally recorded) but fewer iterations. Next, the project team further enhanced the workflow analysis by diagramming the entity relationships therein. This allowed them to map attributes to objects and define the unique identifiers required for effective querying of the final database.

Functional Requirements

The company is still very small and this allowed the project team in the time available to conduct in-depth interviews with current users of the ticketing system and others with a vested interest in the project outcome; the sales department and senior management. From these interviews, the following functionalities were required from the new system:

- Easier to use (not Unix)
- Web enabled
- Ticket status – history, nature of problem, resolution
- Customer status – history, service level agreement, option to prioritise
- Different access levels, rights and privileges depending on user
- Reporting mechanisms – status of tickets, nature of problem, personnel involved and time spent on calls
- If email generated – automatic assigning of ticket number and automatic reply to customer
- If telephone generated – user enters customer details and again automatic assigning of ticket number
- 'Flagging' function – notifying handlers of status of outstanding tickets upon entry into the system

The next step was to decide whether to select an existing helpdesk package and 'tweak' it or develop a totally new system from scratch. Both options were investigated with the following considerations:
- Operating systems independent
- Ease of use – for both end-user and developer
- Scalability – the organisation is set to grow
- Integration – with existing and future customer databases
- Reputation – procure from companies that have proved their worth
- Costs – as always the bottom line

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[1]"The Ten Biggest Call Center Mistakes", Aspect Communications, www.aspect.com, 1999 – no author given.

[2]"Workflow White Paper", *Computer Aided Business Solutions*, www.cabs.com, 1998 – no author given.

The Prototype Solution

The final decision was to build a new system from scratch using PHP and MySQL. PHP is a server-side scripting language, processed by a Web server, translating PHP code to HTML and returning it as such to the browser. PHP can also be run as a stand-alone script interpreter, and embedded Apache module or an external CGI process. It supports most databases including Oracle and Informix. MySQL is a small, compact database capable of robust scalability. It will support standard SQL, compile on a number of platforms and has multithreading capability for Unix servers. It can be run as a service under Windows NT and as a normal process on Windows 95/98 machines. Both products are free (although MySQL has licensing restrictions). Plenty of support for both products is available on the Web. This combination has won the database of the year award at Webcon98.

The prototype proffers a web-based solution. For the prototype, 3 simple screen interfaces were demonstrated that sought to open a ticket or modify it, search for a ticket and finally generate a report on a ticket. This will immediately mean a user-friendlier interface compared to a command line screen. The design of the screens was simplified by using Cascading Style Sheets language that allows developers to style documents that have been written in HTML or XML. Support personnel are now very browser familiar and prefer mouse to keyboard. In a full scaled up version, multi-form based screens will elicit, trigger and store much more information than has been gathered in the past. Screens will contain many links to sites and tools that will help the call handler and therefore speed up the process.

The technology available to the prototype designers does not permit telephone initiation of the computer system, but they will be reinforcing the prompt to acknowledge and log the call through screen design and a change in the external culture of the company. For email calls, the system will pipe the call to a particular handler as it will now have details of handler availability. The calls will be colour coded to describe priority and urgency. A note of caution here: the whole area of electronic customer prioritisation must be handled with care in the light of the libel case lost by Norwich Union against Western Provident in 1997. In this case, Western Provident obtained a court order to seize hard copies of all emails in Norwich whereupon it was decided that the emails were defamatory and likely to damage Western Provident in the marketplace. This has had repercussions throughout Europe as to what information can he held and circulated electronically about customers. With this in mind the design team will incorporate flags regarding the importance and status of the customer calling, not the technical competence (or lack thereof).

Findings and Recommendations

The users tested the prototype and returned a favourable response. The displays were logical and pleasing. The system was easy to update and as ticket status was quick to find, this helped placate difficult customers. Reporting facilities, however, were limited and could be improved and the search capabilities were a still little crude. There was an initial glitch with screen resolutions, but this was resolved by writing a program that would check the client PC's resolution on login and run the code required to show the screens at optimum resolution. Although a desired requirement of the system would be to run under any browser, Internet Explorer 5 proved to be bug free and this was recommended in the installation.

The final technical specification was:

Server
• Web server application (Apache recommended but not mandatory)
• PHP
• MySQL
Client
• Web browser (IE5 recommended)

Conclusions

Comhlacht is typical of many small Irish high tech companies suckled by the Celtic Tiger. Its birth and development had been driven by a technological imperative, it had grown quickly and in a seemingly unplanned fashion. Other research conducted by the principal author has found that workflow often mirrors the organisational culture already existing and often compounds the technological error of 'paving the cow path'.[3] Although a high tech company, technology was not being used effectively in management of customer relations. Although a young company with a young workforce, it displays many of the characteristics of old forms of work organisation. In its early days, these workers preferred to do the 'cool, sexy, stuff' and spent time tinkering

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[3]Wilson D and Murray M, *Pushing Groupware, Pulling Teams,* Proceedings of BIT2000, Manchester Metropolitan University, edited by Dr Ray Hackney.

with code and writing software mainly based on the individual worker's need and interest (hence the choice of technically competent ticketing product, rather than a user-friendly one) – what Ginac (2000) describes delightfully as the 'shiny coin chasing syndrome'.[4] Supporting customers was not perceived to be cool nor sexy. It is felt that this initial disposition towards customer care has taken root and indeed some workers' attitudes were taken as role models. This attitude was at the expense and ignorance of customer care or indeed their own staff development. As Sukamar Rathman, VP of CRM product development, says, "You've got to use data to drive behaviour".[5] However, as the company has matured – along with the workers – this culture is being addressed and the importance and treatment of the customer acknowledged. As one worker observed, "As we have grown up, so has the company and we now see that we have to re-assess our attitude to the customer. Before, we just suited ourselves and if the customer was suited as well, that was a happy coincidence. Now the customer is paying thousands for a service and happy coincidences aren't good enough".

A drawback of the Celtic Tiger is its insatiable appetite for skilled IT personnel. To satisfy this, there has been an observable drop in the technical skill base and experience of IT workers as high tech employers are forced to recruit from all disciplines. In Comhlacht, the actual number of staff handling calls has not changed in some considerable time (they cannot get the staff), although the actual personnel have. It has been discovered that as the customer is becoming more computer literate, the technical expertise, in some areas, of the call handler has dropped. The old system – a 'sexy' one – was designed *and used* by those who were technically 'clued in'. The new system has become easier to use by staff more familiar with Web based interfaces. More training is required, both in hard, technical skills and also soft skills. We advocate a return to the idea of socio-technical systems, whereby both elements are granted equal importance.[6] To support this transformation, we would seek to incorporate more collaborative functionality to underpin true teamworking.

This was an interesting experiment carried out at a time of great change within the company. As stated at the beginning of this paper, Comhlacht has been bought out and during the lifetime of the project, no directives had yet come from Head Office as to which systems would be implemented to support customers. Two possible strategies were possible for the Irish base; the 'not invented here (at HQ)' syndrome or a 'copy exactly' tactic. Both can stifle innovation and creativity at a local level. On a positive note, the larger organisation will have more formal procedures with regard to staff development. The company is set to expand and shows signs of moving from, using Mintzberg's (1979) taxonomy,[7] an Adhocracy towards a Simple Structure.

At the time of writing, the new owners of Comhlacht have decided to transfer the call-centre functions of the Irish base to another country. Its purpose for Ireland seems to be more research and development focussed (one of the recommendations made by Professor Michael Porter on a recent visit[8]). While the work carried out by the team may now not be implemented company-wide, it has not been a waste of time or effort. It has served to raise the profile of eCCRM amongst the staff in the Irish base and made them realise its importance at all levels within the company. For a truly effective eCCRM system to be implemented within Comhlacht, a more integrated solution is desired; one that feeds into enterprise wide systems and with decision supporting information washing back into local systems, enhancing the knowledge base and the organisational learning potential of the corporation.[9]

Sandoe, Corbitt and Boykin (2001)[10] advocate, and we would agree, that organisations move towards process orientation rather than function orientation and learn to extend backwards, forwards and upwards. They say,

> *"...a focus on processes automatically encourages a greater focus on customers...processes are highly measurable in terms that directly relate to organisational goals, such as usefulness, consistency, variability and quality. Ultimately, a process orientation provides a dynamic view of how an organisation delivers value that can become a basis for improving how work is done."*

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[4]Ginac F P, *Creating High Performance Software Development Teams*, New Jersey, Prentice Hall, 2000.

[5]"Enterprise-wide Customer Management", *Computers and Finance*, November, 1997 – no author given.

[6]Neuman J E, Holti R and Standing H, *Change Everything at Once,* London, Tavistock, 1995.

[7]Mintzberg H, *The Structuring of Organisations*, Eaglewood Cliffs, Prentice Hall, 1979.

[8]Michael Porter, *The Irish Times*, 27th October 2000.

[9]Senge P M, *The Fifth Discipline,* London, Century Business, 1997.

[10]Sandoe K, Corbitt G, Boykin R, *Enterprise Integration,* New York, John Wiley and Sons, 2001, p. 56.