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Emerging Issues in After-sales Enterprise Information Technology Support Using Web-based Self-service Systems

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Abstract

This paper reports key findings from a workshop conducted as part of a critical success factors (CSF) study of after-sales transfer of support-oriented knowledge from a large multinational information technology (IT) services firm to enterprise customers, when a Web-based self-service system (WSS) is employed. The paper provides a relational model of stakeholder-based, Web-based enterprise customer service and a descriptive staged framework for the transfer of IT support-oriented knowledge from an IT service provider firm to an enterprise customer. A set of CSFs for such knowledge transfer is summarised. The paper identifies key managerial issues for IT service providers and highlights a need for managers to resolve associated tensions. The findings suggest that researchers and practitioners should consider WSS within a complex network of service providers, business partners and customer firms, and that corporate entities and end-users may perceive WSS issues differently. The findings further indicate that a WSS is increasingly viewed as a commodity, suggesting a need to identify new differentiating elements for WSS.

Keywords:

Web-based Self-service Systems; Customer Service; Customer Support; Knowledge Transfer, Information Technology Support

INTRODUCTION

In a highly competitive global arena where products are increasingly similar and the provision of superior supplementary customer services (“customer support”) by a vendor or service provider (“support organisation”) can be a key differentiator, strategic investment and revenue source (Anderson & Narus 1995), an important emerging customer support strategy is underpinned by a *Web-based self-service system* (WSS) (Negash et al. 2003). A WSS is a type of “network-based customer service system” (NCSS), the latter having been defined as “a network-based computerised information system that delivers service to a customer either directly (e.g. via a browser, PDA, or cell phone) or indirectly (via a service representative or agent accessing the system)” (Piccoli et al. 2004, p. 424). Accessed through a Web interface, a WSS is integrated with a closed-loop multi-channel customer support system and has been classified as an operational customer relationship management (CRM) application (Geib et al. 2005). A WSS can reduce burgeoning customer support expenses and enable customers to initiate, monitor and manage their support transactions (van Riel et al. 2004). Performance metrics for such systems include reduced calls and case submissions, new sales opportunities and enhanced customer satisfaction. Looking to the future, Gartner Group forecast a five-fold growth of WSS between 2002 and 2007 (Kolsky 2002).

Despite the potential advantages to support organisations from implementing WSS, recent reports reveal greater interactions and higher costs, diminished relationships and reduced customer satisfaction (cf. Barnes et al. 2000). We suggest that without adequate guidance, support organisations may experience such challenges when planning, implementing and operating WSS initiatives. However, we observed that to date, in the information systems, services and organisational studies literatures, there is very little published research into WSS or the key factors likely to lead to a successful outcome for the support organisation and other key stakeholders (Piccoli et al. 2004).

In this paper, we adopt an interpretive approach in order to explore WSS in the complex business-to-business (B2B) setting of the after-sales information technology (IT) services outsourcing environment. In this setting, after-sales support-oriented knowledge is transferred to enterprise customers by large multinational IT service providers which partner with other IT services vendors to provide multi-vendor support services to customer

firms (Kay 2004). In an earlier (first) phase of a large project investigating critical success factors (CSF) (Rockart 1979) for the support organisation for the transfer of IT support-oriented knowledge via WSS to enterprise customers, an initial set of CSFs was identified (Cooper et al. 2005; Cooper et al. forthcoming). In this paper, we report findings from the second phase of the project involving a focusing workshop (Rockart 1979) that explored the CSFs and thus identified key issues for management attention.

The remainder of the paper proceeds as follows. In the next section, a theoretical foundation is developed by integrating representative literature in WSS, IT support services and inter-organisational knowledge transfer. As theoretical contributions, we propose several conceptual frameworks that frame the later empirical work. After describing the research design for the project, we briefly review findings from the earlier first phase, and discuss the empirical findings and implications arising from the second phase involving the focusing workshop. Finally, we draw conclusions, identify limitations and outline future research.

THEORETICAL BACKGROUND

Following, we present the theoretical foundations upon which the empirical research is based, in four parts. First, we review extant published research on the operation of WSS in an after-sales enterprise IT support context. Second, we provide a stakeholder-based relational framework for Web-based enterprise customer service. Third, we summarise nine stakeholder-based categories of enabling factors in WSS success. Fourth, we articulate a descriptive staged framework for understanding the transfer of support-oriented IT knowledge to enterprise customers, using WSS.

Web-based self-service systems for after-sales enterprise IT support

In non-IT companies, the convergence of greater IT support expectations from end-users, deployment of an ever-expanding array of complex multi-platform technologies, and shrinking IT support budgets, is forcing companies to improve the level of IT support provided to employees, but with fewer resources (Drury 2002; Kay 2004). Consequently, part or all of the IT support function for non-IT companies is increasingly outsourced to managed service providers (Lacity & Willcocks 2001), hereafter termed “IT support organisations”.

The provision of such enterprise-level after-sales support by IT support organisations is increasingly enabled by complex WSS supported by the expertise of multi-tiered support agents, an IT solutions knowledge base, customer contributions and enterprise partner expertise (Kapella 2003). An IT solution in the after-sales context has been defined as “the content developed and shared between the customer and the organisation: it describes all the facets of the problem situation and how it can be resolved” (CSI 2002, p. 22). Simplifying, front line agents consult a solutions knowledge base as needed and escalate difficult problems to experienced second and third tier agents, while downstream are product specialists who ultimately resolve the most difficult problems (Kapella 2003). When supporting a customer’s multi-vendor IT environment, support agents may consult partner firms that possess vendor-product expertise. Support agents also interact with IT professionals in the customer firm, employing multiple channels that include the Web.

Customer contacts (typically IT professionals supporting IT in their firms) consult the support organisation’s Web site in order to access informational, transactional, and proactive types of support (Conneighton 2004, Kay 2004, Piccoli et al. 2004). Informational support includes: unassisted support such as answers to Frequently Asked Questions (FAQ) and White Papers describing best practices; and assisted support such as peer-to-peer fora, e-mail and chat. Transactional support includes downloads of software patches and case tracking. Proactive support includes the embedding of problem detection support software on customer end-user computers, and personalised messages directing the customer to potential product or service purchases.

Web-based enterprise customer service

In order to identify enabling factors for successful after-sales enterprise IT support, a framework is first needed by which to understand Web-based enterprise customer service. A seminal contribution to the services literature is Kotler and Armstrong’s (1991) stakeholder-based triangle of services marketing (Figure 1(a)), highlighting the need for a balance of internal marketing by the support organisation to its employees (for example, providing customer service training for employees), external marketing to customers, and interactive marketing between the support organisation’s employees and customers. Parasuraman (1996) extended the triangle model to a pyramid, demonstrating the impact of technological mediation on interactions between the three key stakeholder groups (Figure 1(b)). However, it has become increasingly evident that in Internet-enabled enterprise customer service provision, interactions with business partners play a key role in successful enterprise support – notably, in terms of partner capacity to conduct electronic business with consumers and firms (Barua et al. 2004) and partner contribution (by participation) to service industry networks (Kurnia & Johnston 2002). In Figure 1(c), therefore, we propose an expanded pyramid model that includes the business partner corporate entity, and

provides a relational, stakeholder-based framework by which to understand Web-based enterprise customer service. The four stakeholder groups are the support organisation (O), employees in the support organisation (E), customers (C), and business partners (BP).

The extended framework in Figure 1(c) depicts key stakeholder relationships for successful Web-based mediation of enterprise customer service and underpins the present research. This framework is also consistent with an inter-relational approach to inter-organisational innovation adoption, as proposed by Kurnia and Johnston (2002) who highlight the need for an inter-relational dynamic view of inter-organisational systems. They suggest that such innovations are adopted over time as the interactions between key stakeholders in an inter-organisational setting converge to a state of system-satisfied equilibrium. Moreover, relational approaches best account for system success or failure in Web-based enterprise customer service (Mollstedt & Fredrikson 2004).

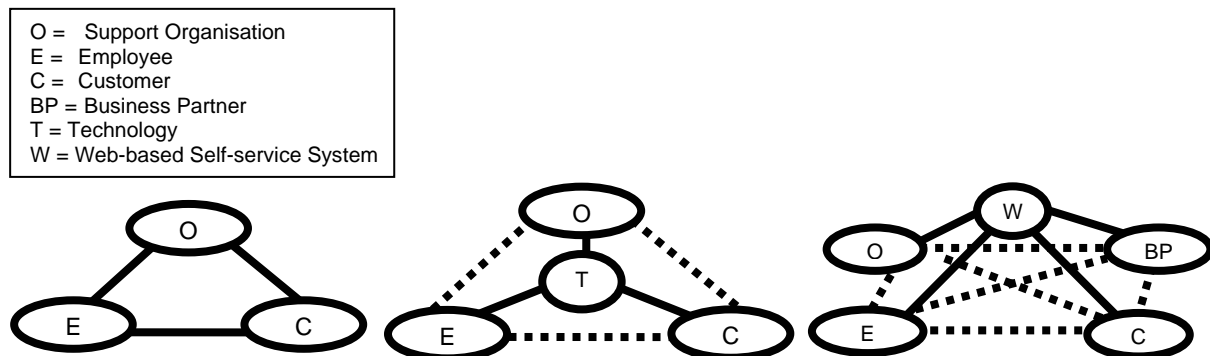


Figure 1: Services marketing model for (a) Customer Service (Kotler & Armstrong 1991), (b) Technology-mediated Customer Service (Parasuraman 1996), (c) Web-based enterprise customer service (developed by the present authors).

Categories of enabling factors for successful after-sales enterprise support using WSS

Identifying stakeholder-based categories of enabling factors may be helpful for classifying CSFs and understanding provider-perceived tensions between the needs of different types of stakeholders. We here identify and summarise nine categories of factors – relating to the four key stakeholder groups identified in Figure 1(c) – that may underpin the provision of successful after-sales enterprise support by WSS. The categorisation scheme was developed from a synthesis of existing theory as described in detail in (Cooper et al. 2005; Cooper et al. forthcoming). Due to paper size constraints, only a brief introduction to each category is provided here.

For a support organisation, *managing for the delivery of strategic and operational benefits* – such as customer loyalty, return on investment and greater efficiency – is considered important to CRM application success (Wilson et al. 2002) and, as a WSS is a type of CRM application, to WSS. A support company must also be very well prepared to offer electronic services – *organisational readiness* – with an adequate IT infrastructure and a customer-oriented, employee-empowered, knowledge-sharing culture (Zeithaml et al. 2000). *Top management support* is essential for the support organisation to guarantee adequate resources and incentives for internet-based after sales enterprise service (Mollstedt & Fredrikson 2004). *Knowledge management capability and processes* are key enablers for CRM application (and by extension, WSS) success (Bose & Sugumaran 2003, Gebert et al. 2003, Geib et al. 2005). High quality *content* in the solutions knowledge base is important (Brohman et al. 2005; Gebert et al. 2003). The support organisation must recognise that *employee experience management* can promote successful customer service of all types by addressing key issues surrounding job satisfaction, self-efficacy and adaptability (Hartline & Ferrell 1996) and thus influencing service quality and, in turn, customer satisfaction (Heskett et al. 1997). In improving the service provider’s relationship with the customer firm, *customer experience management* focuses on managing electronic service quality to enhance customer satisfaction and influence customer behavioural intentions (Parasuraman et al. 2005, Froehle & Roth 2004). Electronic quality-of-service issues include customer perceptions of system efficiency, service fulfillment, system availability and privacy (Parasuraman et al. 2005). For doing successful electronic business with customer firms, Barua and colleagues (2004) suggest that customer firms have *customer electronic business readiness* – for example, by maintaining a knowledge base capable of assimilating support knowledge (Gebert et al. 2003). To provide successful Internet-based customer service in alliance with a business partner, *partner electronic business readiness* – in terms of resources, IT infrastructure, strategies and incentives – will be important (Barua et al. 2004).

Knowledge transfer of after-sales IT solutions to enterprise customers by WSS

The transfer of break/fix solutions, best practices and resolutions from an IT services organisation (frequently interacting with partners) to customer firms can significantly benefit the support organisation by improving support agent productivity and reducing future support costs (Chmaj 2004, Ciccolini & Sorkin 2003). Such knowledge transfer may also help the enterprise customer accept, over the longer term, the product or service being supported. When an enterprise customer quickly gains support and adapts and assimilates new processes and skills, the customer firm will be more efficient, productive and loyal (Kay 2004). Extant research into customer support that considers knowledge transfer, however, mainly focuses on *intra*-organisational knowledge transfer (e.g. Bose & Sugumaran 2003) and rarely addresses the important *inter*-organisational transfer of knowledge from its original source in the support organisation to the enterprise customer.

To assist in analysing the factors and issues involved in transferring after-sales IT support knowledge to enterprise customers when a WSS is used, we adapted and enhanced Szulanski's four stage processual model of intra-organisational knowledge transfer (Szulanski 2003). A proposed descriptive framework for the transfer of after-sales solution-oriented knowledge from an IT services organisation to an enterprise customer when using WSS – comprising four stages of initiation, implementation, ramp-up and integration – is described, below.

The *initiation* stage comprises all events leading to a decision to transfer knowledge. At the IT services organisation, knowledge is captured from support agents and customers into the knowledge base whenever there is a related change such as the release of a new product, or in the course of performing support work (Kapella, 2003). Issues affecting knowledge capture centre on difficulties in codification, motivating contributions, and enabling sufficient access. Front-line agents should be empowered with knowledge to troubleshoot customer problems and incidents during assisted support. Therefore, front-line agents must gain access to the tacit knowledge of higher tier agents by training or other mechanisms (Davenport & Klahr, 1998). Customer contacts access the WSS and through the agency of intelligent software access optimal potential resolutions in the knowledge base. Alternatively, community forums support customer solution contributions, while e-mail and chat enable agents to provide assisted support. Difficult problems are escalated to higher tier agents who may perform root cause analysis resulting in workarounds that also update the knowledge base (Kapella, 2003).

During the *implementation* stage, knowledge flows between the support organisation and the customer contact (typically an IT professional) who must be motivated and able to understand, learn and assimilate received knowledge (Simonin 2004, Szulanski 2003). In assisted support (e.g. chat or e-mail), social ties are established between the support agent and the customer contact and the transfer process is customised to the customer (Szulanski 2003). Power, cognitive capacity and relationship issues may constrain successful knowledge transfer (Szulanski 2003).

In the *ramp-up* stage, a customer company commences using the resolution, perhaps inefficiently at first, but gradually identifying and resolving unexpected problems (Szulanski 2003). Customers should spend some time applying the acquired knowledge in order to acquire the tacit and contextual aspects (Simonin 2004). If transmitted knowledge is not well understood by customers, it is most likely to be replicated (Szulanski 2003), however well understood knowledge is typically adapted to the customer firm's context (Williams 2003). According to Szulanski (2003), access to the original knowledge source is pivotal during ramp-up when problems may be experienced. Even in a WSS environment, the support organisation must still have supporting processes in place for this stage (Pujari 2003).

In the *integration* stage, transferred knowledge becomes institutionalised at the customer site (Szulanski 2003). The customer company experiences similar issues as the support organisation in transferring resolutions and best practices within its support team and product/service end-users. According to Goodman and Dean (1982), institutionalisation is complete when old practices are replaced. Goodman and Dean argue that socialisation, commitment, reward allocation, diffusion, sensing and recalibration determine the level of integration.

RESEARCH DESIGN

This section describes the research design for the first two phases of the research project. As it appears that best-in-class companies are ahead of the academic work published on WSS, an exploratory critical success factor (CSF) research method (Rockart 1979) was selected in order to enable the researchers to tap into best-in-class practice and identify key managerial issues with which support companies must grapple.

As the environment in which a WSS is planned, developed, implemented and used is a human activity system, involving a range of diverse stakeholders, we adopted an interpretive research approach (Walsham 1995) that accounts for the subjectivity and social construction of their perceptions. An interpretive paradigm acknowledges both social context and processes. The success or failure of a WSS is to a large extent dependent on the

managers, developers, content providers and other users inside the providing organisation. We thus sought to understand *the support organisation's perspective* of the facilitators for successful WSS.

The organisation investigated is a best-in-class multinational IT services organisation 'SERVIT' (a pseudonym) chosen for its progressive approach to IT support, award-winning support Web site, extended enterprise status, and mature, successful WSS strategy integrated with multi-channel, multi-vendor support. The choice of such a company also enabled issues of high service volume, complexity, dispersion and electronic business to surface. The Australian headquarters of SERVIT comprised the unit of analysis.

In Phase One (reported in detail in Cooper et al. 2005; Cooper et al. forthcoming), following Rockart (1979), a literature review was initially conducted to obtain a theoretical understanding of the area, without attempting to identify CSFs from the literature, as it was felt that such identification (from limited published work at the time of commencement of this project) might limit the range of factors that stakeholders in the support organisation may identify from experience. An introductory workshop with two SERVIT senior managers was conducted in order to secure senior management commitment for the project. Background documents and a perusal of the Web-based support forum provided additional data.

Next, again following Rockart (1979), individual sets of CSFs were obtained by mail from twelve key informants from SERVIT, followed by twelve in-depth semi-structured one hour single interviews with the informants (henceforth termed participants) seeking to elicit an initial set of CSFs. Participants interviewed worked in a range of hierarchical positions – predominantly managerial, but also operational roles ranging across knowledge management, customer service and support, and technology areas. This spread enabled greater insights to emerge. Transcripts were coded and analysed by two researchers working independently seeking to identify CSFs, using inductive qualitative content analysis (adapted from Glaser 1992; Mayring 2000), and the similar independently determined results integrated into a final set of CSFs for overall knowledge transfer of IT support knowledge to enterprise customers when WSS are used. Similarly, four additional sets of CSFs for each stage of knowledge transfer were identified from transcripts. Thus, five sets of CSFs were identified, in total. Using the literature, nine higher order categories that grouped the factors were developed to best represent the spread of factors identified.

Phase Two (reported in this paper) involved a *focusing workshop* (as specified by Rockart 1979), conducted as two successive ninety minute sessions, and audio-taped for later transcription. The twelve participants from Phase One were invited by mail to attend, and sent background documents. Participants were also sent a summary of the five sets of CSFs resulting from Phase One, together with a summary of their own individually nominated CSFs stemming from their interview in Phase One in order to remind them of their own contributions to those five sets. Of the twelve participants, three e-mailed comments concerning the five sets of CSFs, four attended the workshop in person and one participated by conference phone. In the first ninety minute session of the workshop, the CSFs in the overall set was systematically considered and discussed for confirmation and completeness by participants under the direction of an experienced moderator. The nine categories of factors presented earlier were discussed as a possible way to group CSFs. In the second ninety minute session, the moderator guided participants in an examination of each of the four sets of CSFs representing the stages of knowledge transfer and participants considered them for the purposes of confirmation and completeness.

Working from transcriptions from the workshop audiotapes, two researchers independently tagged each participant statement as supporting, revising, disputing or proposing a CSF from the five sets of CSFs from Phase One – namely, the overall set of CSFs for knowledge transfer and the four sets of CSFs for the four stages of knowledge transfer. By merging the two researchers' independent results, five revised sets of CSFs were obtained. The transcript was then recoded and re-analysed by the two researchers independently, seeking to identify key emerging managerial issues for successful knowledge transfer of IT support knowledge to enterprise customers using WSS, with the results later merged. *The reader is reminded here that while the revised CSFs are briefly reported in this paper, it is these managerial issues which form the primary reported research outcomes in this paper.*

FINDINGS

In this section, we first present a brief background to WSS at SERVIT, followed by a review of the main findings from the interviews in Phase One (reported in detail in Cooper et al. 2005; Cooper et al. forthcoming). The findings from the workshop conducted in Phase Two are then presented, focussing upon the set of key emerging managerial issues identified, and their implications for managers in IT support organisations.

Background: WSS at SERVIT

Several divisions at SERVIT are responsible for delivering a wide range of IT-based business solutions to customers, including individual consumers and enterprise sized clients. This study focused on *after-sales* enterprise customer support provided by SERVIT's support arm which aims for operational excellence, reduced costs, increased customer satisfaction and loyalty, customer time savings and personalised support. Support services include break/fix troubleshooting and more advanced IT support delivered by multiple integrated channels including the Web, and centred on a multi-vendor solutions knowledge base. Partner firms are usually co-involved in support provision although the study did not focus on their involvement. Facilities available via the Web site include access to frequently asked questions (FAQ), customer initiation and tracking of support transactions and cases; proactive remote alert service technology; and downloading of software patches. Customers can also search for solution documents, engage in online forum-based discussions with other customers and support agents, contribute solutions at the forum, and register for training. Savings from Web-based self-service have been estimated at over \$18 M per annum, and over seventy-five percent of support calls are planned to be migrated to the Web channel.

Summary of Findings from Phase One

As reported in detail in Cooper et al. (2005; forthcoming) the transfer of knowledge between tiers of support agents, and between the support organisation and the customer, was adjudged by interview participants as essential to WSS success. Twenty-six CSFs for such knowledge transfer were identified, many of which were clearly customer-oriented and showed an understanding of the need to satisfy and retain customers through the support service and the relationships developed through integrated channels. While well-recognised customer service quality antecedents - such as usability - were among the most commonly cited CSFs, in contrast, very few participants believed that support agent experiences were critical to the success of such systems, suggesting that, for many of the participants, customer rather than support agent needs were considered more important. In addition, little attention was given by participants to issues of knowledge transfer once knowledge had entered the customer firm. For example, while participants were aware that customers would need technical access and good service in the initiation and implementation stages of knowledge transfer, they had not given deep consideration to the importance of customer capacity and competence for assimilating and later institutionalising received resolutions.

Summary of CSF Findings from Phase Two

In the workshop conducted as part of Phase Two, the twenty-six CSFs identified in Phase One were reviewed by participants, as described earlier. Their relevance and completeness was significantly supported by participants, with six revisions¹. The earlier breakdown of CSFs into stages of knowledge transfer was also confirmed. *As the CSFs themselves are not the focus of this paper, and for reasons of paper size, we simply list the overall CSFs in Table 1.* Further details of the five sets of CSFs, including summary descriptions, can be found in (Cooper et al. 2005; Cooper et al. forthcoming). The categorisation scheme of nine categories was debated, as will be discussed in the next section.

No.	Critical Success Factor	No.	Critical Success Factor
1	Cost Effectiveness	15	Provision of Additional Support: Education and Training
2	Additional Value and Cross Selling	16	Employee Focus
3	Critical Mass: Knowledge Content and Knowledge Contributors	17	Culture
4	Usefulness: Meets User Requirements	18	Awareness and Marketing of WSS
5	Efficiency	19	Knowledge Capture and Re-Use
6	Access, Connectivity and Performance	20	Knowledge Validation
7	Effective Search Engine	21	Knowledge Storage/Retrieval
8	Security, Privacy and Assurance	22	Presentation of Knowledge
9	Ease-of-Use/Usability	23	Measurement and Feedback re Web-based Self-Service
10	Early Positive Experience	24	Alignment with IT/Business Processes
11	Positive Experience	25	Web-based Self-Service Recovery/Over-ride
12	Confidence in Solution	26	Ease of Re-initiation
13	Customer Focus: Understand Needs of Recipient	27	Top Management Support
14	Positive Relationship Between all Parties using WSS		

Table 1. Summary of Critical Success Factors for Knowledge Transfer in Enterprise IT Support using WSS (Workshop findings)

¹ CSF 5 was renamed "Efficiency"; CSF 8 was renamed *Security, Privacy and Assurance*; CSF-10 "Early Positive Experience", and CSF-17 "Culture" were revised to include additional detail; and CSF 13 "Customer Focus" was rephrased to clarify the definition. An additional CSF (also a category) was proposed – CSF-27 "Top Management Support".

Emerging WSS Management Issues

Table 2 summarises key WSS managerial issues that emerged in the course of the workshop discussions. Each issue is discussed below, highlighting relevant stakeholder involvement as per the model in Figure 1(c) and issues related to the descriptive knowledge transfer framework outlined earlier.

Top Management Support and Ongoing Investment

Concerning the earlier omission of top management support as a CSF in Phase One, one participant explained he had earlier made the assumption that in the context of a multi-national corporation it was taken for granted that when any technical innovation is to be undertaken, management support must be in place. Having established the requirement of top management support as a critical success factor for WSS, participants went on to discuss the investment costs of WSS. Participants noted that continuous investment was required for ongoing WSS, and must be seen as a key responsibility of top management. While top management support for such systems, and for CRM applications in general, have recently been highlighted in the literature (Croteau & Li 2003, Mollstedt & Fredriksson 2004), the link between ongoing investment, continuous improvement and WSS success has not previously been explicitly drawn, while having been oft-advocated for systems, products and services in general. (For example, the renowned W. Edwards Deming advised, “Create constancy of purpose toward improvement of product and service, with the aim to become competitive and to stay in business, and to provide jobs.”)

Issue	Management implications
Top management support and ongoing investment	The importance of top management support must be recognised, not only in championing the initiation of a WSS development, but also in ensuring ongoing investment.
“Commodity” versus “competitive differentiator”	The support organisation must identify the extent to which it can offer differentiating Web-based self-service value to enterprise customers.
Competing support organisation goals	A support organisation must seek ways to develop and maintain a customer relationship while managing WSS costs.
Integration of multi-stakeholder needs	Individual stakeholder needs in WSS must be identified and balanced.
Customer co-contribution to service	For customers to contribute to service fulfilment and improvement, customer-oriented knowledge must be captured explicitly.
Knowledge-based issues	Issues concerning the ownership of Intellectual Property for service knowledge must be resolved. The possibility that end-user forums might propagate inaccurate solutions must be addressed. The value of a knowledge centred support (KCS) methodology to underpin WSS development initiatives should be recognised.
Motivating employees to share and contribute knowledge	Management must appreciate and deal with the perceived tension between a culture which rewards individual creativity and yet expects knowledge capture and reuse by its employees.
Web-based support process integration	The integration of a Web-based self-service system with other business processes, including, in particular, those that use traditional support channels such as telephone or face-to-face, is critical.
Focus on ramp-up and implementation stages of knowledge transfer	If support organisations, in addition to concentrating on the early stages of knowledge transfer, place additional emphasis on the latter stages of knowledge transfer, they may substantially increase the effectiveness of WSS strategies and indeed services levels provided to customers.
Customer adoption of WSS	Management should recognise that when supporting enterprise customers, it is important that the “Customer” should actually be viewed as both an economic purchaser and an end-user, and that these are not necessarily the same person, or even the same group of people. Different strategies are appropriate to encourage adoption by holders of these two roles.
Categorisation of CSFs for WSS	Important to management is the need to understand CSFs for WSS in different environments (B2C, B2E and B2B) and as they apply to building a business case for WSS or to the operation of support transactions.

Table 2. WSS Managerial Issues for IT Support Organisations

Commodity versus Competitive Differentiator

The issue arose regarding whether a Web-based self-service system is now simply a commodity. There is a cyclical nature to the competitive process, with other firms quickly imitating successful innovations (Dickson 1992). However, specific differentiating services for WSS should still be identified and enabled (Piccoli et al. 2004). Workshop participants also saw this as a way forward. It was suggested by one participant that WSS is now the new baseline in the provision of IT services, while another suggested that gaining a first mover advantage could provide a short term competitive advantage. A third participant mentioned the need to identify those benefits which will assist a firm in gaining additional market share.

Piccoli and colleagues point out that the visible aspects of a service – such as the Web site design and functionalities clearly available through its use – may be imitable (Piccoli et al. 2004). However, here we suggest that many aspects of WSS will not be immediately evident to competitor firms. Another workshop participant commented that his company and other major public companies held the precise nature of their competitive processes close to their chests, and thus their differentiators were not well exposed through publication (although

this study and future studies may partly change this). Clearly, the “commodity vs. competitive differentiator” issue should be monitored by strategic managers in practice and explored in future research.

Competing Provider Goals

It was acknowledged by workshop participants that there were different, possibly conflicting goals for WSS held by the different stakeholders. In the context of the workshop, which involved corporate provider representatives, it was acknowledged that they aimed to reduce costs through WSS yet build customer relationships. This was an issue when there had to be careful monitoring of costs. For example, additional features provided to customers incurred a cost, and thus the provider charged for these features. It was not clear from discussions how the issue of balancing the competing goals could be managed and it remains a challenge for organisations to determine the return on investment (ROI), in respect to WSS.

Integration of Multi-stakeholder Needs

Early in the workshop, it became evident that there were different stakeholders in WSS who had specific agendas and interests. The transformation of the support function from being a direct business to increasingly using other channels – that is, business partners – was noted:

“It would be uncommon for a service delivery value chain to be SERVIT, end-to-end. It is far more common that there are a number of partners engaged in the different steps of the process.”
[Customer Service Manager]

Indeed, it was noted that in B2B support there is considerable knowledge transfer between partnering organisations which jointly support customers. One participant noted that knowledge sharing is absolutely essential between the support organisation and its partners. This important finding highlights the value of the inclusion of the partner stakeholder in Figure 1(c) and also supports the findings of Barua et al. (2004) regarding the importance of partner electronic business readiness for internet-based business success. We note that this layer of complexity is currently not addressed by the descriptive framework for knowledge transfer offered earlier. As another example of difficulties integrating multi-stakeholder needs, there was a perceived clash between corporate provider goals and provider employee goals:

“To me, the tension exists about how we can get alignment between corporate goals - which are necessary to meet our shareholder’s requirements and also our customer’s requirements - and the individual employee’s goals” [Consulting manager]

Customer Co-contribution to Service

Various concerns relating to the contribution of customers to their own service fulfilment, optimisation and improvement, were raised. To improve the quality of a service or product, knowledge about and from the customer is needed on an ongoing basis (Dawson 2002; Kay 2004; Lengnick-Hall 1996). However, when customers interacted and shared knowledge in the online forum, such knowledge was not captured by the firm and was therefore wasted.

Knowledge-based Issues

Apart from the customer co-contribution concerns mentioned above, several other knowledge-based issues were raised. First, an intellectual property (IP) issue exists for customer-specific solution-oriented knowledge transferred to customers, in that the “know-how” of the solution might be considered the property of SERVIT and thus re-usable, however the contract may have specified that the IP for the solution belonged to the customer. Second, forums were open to a variety of end-users, including non-SERVIT people who may post inaccurate solutions which can cause problems if used. Third, the moderator pointed out to participants that the knowledge centred support (KCS) methodology had not been explicitly mentioned in the original set of CSFs derived in Phase One, yet SERVIT was known to employ the KCS methodology (CSI, 2002). The importance of a KCS methodology was duly noted by participants, although it was suggested that the combination of the knowledge capabilities and process CSFs (19, 20, 21 and 22), CSF-17 Culture and CSF-23 Measurement and Feedback capture the essence of such a methodology.

Motivating Employees to Share and Contribute Knowledge

In the initial CSF interviews in Phase One, CSF-16 *employee focus* was identified by only six of the twelve participants. It was noted by one workshop participant that this was a relatively low number and it was his belief that WSS would succeed or fail based on the extent to which the support organisation was able to motivate the employee. Participants discussed the complexities of motivating employees to share and contribute knowledge in an organisational context where on the one hand, the organisation promoted an image of “creativity”, yet WSS requires significant knowledge capture and re-use. One participant mentioned that there is generally a culture in

IT companies that “knowledge is power” and therefore releasing it can reduce an employee’s power base. The issue was further complicated because it exists within an industry environment where off-shoring of IT support services is common. As one participant explained:

“If you look at people in an environment where cost per unit of delivery reduction tends to be associated with off shoring, the more knowledge I share the more likely I am to have my knowledge value lowered as an individual and therefore there is a chance of my job going off shore.”
[Customer Process Manager]

Participants held a variety of views in respect to these complexities. There was some agreement that a culture of creativity and knowledge capture and re-use could co-exist: the company spends millions on R&D, with new products and solutions created every day. However, clearly management should appreciate the tensions inherent in these issues as perceived by employees and the resultant challenges they face if they expect to successfully motivate employees to fully embrace WSS.

WSS Process Integration

It was argued that:

“...(WSS) should be part of the process, not an adjunct, not an ‘over and above’. ... we actually need to align it very, very strongly with the other business processes.” [Consulting Manager]

While alignment is identified as a CSF (*CSF 24*), there was a strong consensus amongst the group that the integration of WSS with other support processes and channels was fundamental in accord with (Pujari 2003).

Focus on Ramp-up and Implementation Stages of Knowledge Transfer

The intention of identifying the stages of knowledge transfer for which a critical success factor was important using the descriptive model provided earlier, was to assist organisations in managing these important issues where they were most critical. While participants held a range of views regarding the stage(s) of knowledge transfer for which a given CSF was considered relevant, the related finding from Phase One still held true – namely, that there were more factors nominated for the early stages of initiation and implementation than for the later stages of ramp-up and integration (refer Cooper et al. 2005). In these latter stages, knowledge of difficulties experienced by the customer in using solutions is largely unavailable to the provider (unless proactive levels of support are applied) until such time as the customer signals that help is needed. Lacking an understanding of the internal workings of the customer firm, participants may be less aware of issues important to the customers after solution-oriented knowledge has first been transferred. This may indicate that if support organisations, in addition to concentrating on the early stages of knowledge transfer, place additional emphasis on the latter stages of knowledge transfer, they may increase the effectiveness of WSS strategies and, indeed, services levels provided to customers overall. This focus, of course, needs to be balanced with the ROI issues noted earlier.

Customer Adoption of WSS

It was important to SERVIT to migrate customers from more expensive service channels to WSS. Many issues that arose in discussions reflected this consideration. An important issue that emerges when supporting enterprise customers is that the “Customer” should be viewed as consisting of both an economic purchaser and end-users, who are not necessarily the same person, or even same group of people:

“There are individual users within enterprise customers... you need to separate within the enterprise, individual users from the economic purchasers of the business and the contract... because often we have happy end-user customers but the company does not renew the contract, and vice versa”
[Customer Process Manager]

The identification of the separate roles of economic purchaser and end user has two important implications for the migration of customers to WSS. First, it is essential to encourage the economic purchaser within the enterprise customer to migrate to WSS. Structuring support contracts in a way which encourages the use of WSS as opposed to more expensive channels is one strategy which may facilitate this. Second, to encourage individual end-user customers (typically the employee at the customer organisation) to migrate to online support, the provision of support in the actual use of the tool and in managing self-service is a promising approach.

This finding suggests that the conceptual model for stakeholder-based Web-based enterprise customer service depicted in Figure 1(c) should be revisited. Specifically, it is important to depict the separate roles of economic purchaser (or the “corporate entity”), and end-user, within the customer organisation. Additional insights offered by the participants supported also the importance of recognising these stakeholder groups within the support organisation and business partner organisation. Figure 2 depicts these six stakeholder groups – both the corporate

entity and end-users within the support organisation, customer organisation and business partner organisation. Future research will explore this extended model.

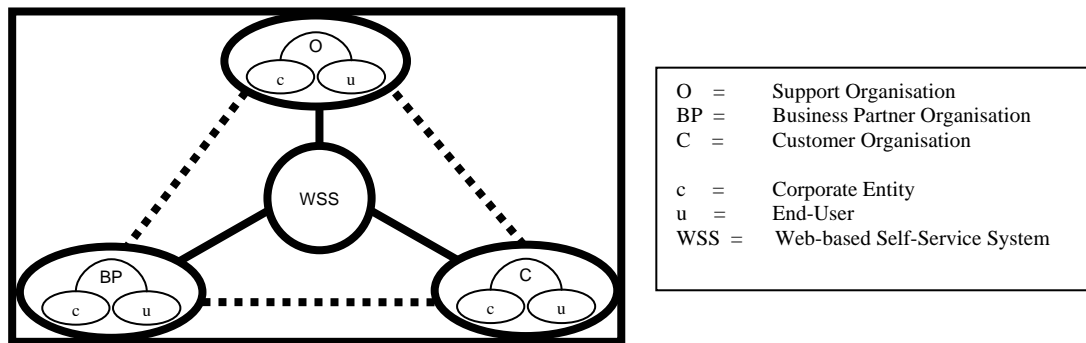


Figure 2: Stakeholder-based Enterprise Web-based Self-service

Categorisation of CSFs for WSS

Finally, there was some discussion of the grouping of the twenty-seven CSFs in a way that would be meaningful to management. While the nine categories of factors were not formally endorsed, they were acknowledged as important meta-factors: Managing for delivery of strategic and operational benefits; organisational readiness; knowledge management capability and processes; top management support; content; electronic business readiness of customers; customer experience management; employee experience management and business partner readiness. There were discussions of alternative taxonomies, including: sets of CSFs classified according to their relevance to B2C, B2E and B2B service environments. Participants felt strongly that there was a need for a classification that enabled factors to be attributed to more than one set of stakeholders. For example, with respect to “provision of additional support” (CSF-15), it was pointed out that this would be relevant not only to the end-user customer, but to the employee end-user in the provider firm. An additional insight was the suggestion that some factors were critical to make a business case for WSS, while others were support transaction-oriented factors. For example, there would need to be a business case to suggest that *CSF-1 Cost Effectiveness* would be met via WSS before implementing such a strategy. The CSF classification taxonomy will be explored further in future research.

CONCLUSION

WSS has emerged as an important strategy for enterprise customer support in the provision of IT services. By adopting a knowledge transfer lens, this research has highlighted the substantial complexity of the enterprise IT support environment when WSS are employed. The findings also shed new light on tensions that arise when attempting to integrate corporate, employee, customer and partner needs in inter-organisational support service provision using the Web and an enabling strategy of knowledge management.

The contributions to theory and practice stemming from this study, and resulting future research directions, include:

- We have adapted and enhanced Szulanski’s four stage model of intra-organisational knowledge transfer (Szulanski 2003), to the inter-organisational context of enterprise IT support using WSS. By applying the model, participants identified the transactional CSFs during a particular stage, leading to the discovery in both the interviews in Phase One and discussions in the workshop that the later stages of ramp-up and institutionalisation are less addressed by current support organisation efforts. It is suggested that future research explores the descriptive model in other comparable - as well as new - settings.
- We have extended Parasuraman’s (1996) pyramid model of technology-mediated services marketing to a relational stakeholder-based Web-based enterprise customer service conceptual model by incorporating an additional stakeholder - the business partner - and have highlighted the need to distinguish the individual end-users and corporate entity within the three stakeholders. This adds richness to the model in terms of enabling a range of new considerations in partner relationships and multiple interactions in managed IT service delivery. The model may also be useful for exploring inter-organisational services marketing theory and practice. Future research will seek to attribute the CSFs listed in Table 1 within relevant stakeholder categories, using the insights obtained from the CSF focusing workshop. The model in Figure 2 will also be explored for greater generalisability using a focus group of stakeholders from comparable organisations.

- Finally, the study has identified a set of key issues which managers in organisations offering WSS should consider (Table 2). The management implications arising from consideration of each issue have been highlighted and future research directions identified stemming from many of the issues.

As a research limitation, it should be noted that in this study the CSFs for knowledge transfer in only one multi-national IT Services organisation have been captured. We do not claim that these factors, having been qualitatively elicited in an interpretive study, are generalisable. However, future research including a cross-organisational workshop will investigate the extent to which these factors may to an extent be applicable across comparable organisations. To conclude, the findings suggest a need for researchers and practitioners to consider WSS within a complex network of service providers, business partners and customer firms, and highlight that corporate entities and end-users may perceive key WSS issues differently. The research study also issues a warning that a WSS is increasingly viewed as a commodity, suggesting the need for new differentiating elements.

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