Towards an Informed Evaluation of Information Systems Services' Quality: The Development and Application of the Template Process

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In this paper, we review literature on existing measures of service quality applicable to information systems services. We offer the Template Process as an alternative to more traditional methods, illustrating the process with findings from research into the quality of an IS service in a major UK Electronics company as perceived and expected by both service users and deliverers. We conclude with a discussion of the merits and shortcomings of the Template Process and suggestions for further research.

Keywords: Service Quality, Information Systems, Template Process

1. Introduction

Over the past decade the nature of work undertaken by Information Systems (IS) services has broadened to include not only systems development and maintenance but also aspects such as user support (Pitt et al, 1995). During the same period, the IT industry has continued to experience considerable skills shortages and high employee turnover. One response to this and the concomitant recruitment and retention problems for IS specialists, has been an increasing use of outsourced or contract staff to provide IS services (Harvey and Kanwal, 2000). These factors, combined with economic pressures, have focused attention upon the service provided by IS and in particular its quality.

Traditional data collection methods such as focus groups, questionnaire surveys and management-by-walking-about are used widely to evaluate and improve the quality and efficiency of IS services. However, the focus of such data collection and evaluation is likely to be constrained by the values, norms and assumptions of those commissioning and undertaking it. In this paper, we argue that for real improvement in service quality to occur, both service users' and deliverers' perspectives need to be determined. Although the incorporation of users' perspectives into assessments of IS service quality has been established for many years (for example, Conrath and Mignen, 1990), there is also a need to include service deliverers' perspectives in this process (Pitt et al. 1998). These potentially differing perspectives need to be understood and interpreted by managers if they are to go beyond addressing surface concerns relating to IS service quality based only upon their own values, norms and assumptions.

In this paper we outline and evaluate the development of an alternative approach through which IS managers can establish service users' and deliverers' perspectives and evaluate a service's quality. In so doing, we respond to Van Dyke et al.'s (1997) call for improved measures of service quality for IS services providers. Following an overview of traditional service quality measures and their shortcomings in relation to IS, Staughton and Williams' (1994) Service Template Process is evaluated as an alternative. Drawing upon this, developments are recommended. It is argued that this revised Template Process allows the views of IS service deliverers and users to be captured separately in their own words and enables them to be explored and understood by managers in relation to the values, norms and assumptions upon which each is based. Its application is illustrated using a case study of the IS department of a large UK electronics manufacturer. We conclude with a discussion of the merits and shortcomings of the Template Process. In this, the process is contrasted with more traditional measures of service quality. Particular attention is paid to the relative efficacy of these processes in allowing managers to gain an understanding of service quality that will enable informed evaluation.

2. Traditional measures of service quality and their shortcomings

As the role of the IS department in organisations broadens (Pitt et al., 1995), one significant change being experienced is a greater level of interaction between users and deliverers of information technology based

services. Under such circumstances, to regard IS departments purely as deliverers and maintainers of information technology systems ignores the often highly customised, personal service users have come to expect. Consequently, when assessing their effectiveness, it is no longer sufficient to focus purely upon technical measures. Rather, users' satisfaction with service quality must also be taken into account (Pitt et al., 1995) and improved ways of measuring developed (Van Dyke et al., 1997).

Research by Carmen (1990) highlights that the number and nature of dimensions that people use to characterise a service are likely to be a function of that particular service. This issue has been raised subsequently in the debates on service quality, emphasising that use of generic dimensions is unlikely to take account of a specific service's uniqueness (e.g. Cronin and Taylor, 1992; Van Dyke et al., 1997). Notwithstanding the SERVQUAL debates, research has also illustrated the utility of using a disconfirmation approach to highlight 'gaps' between perceptions and expectations of service quality and indicate possible areas for improvement (e.g. Durvasula et al., 1999; Parasuraman, 1995; Robinson, 1999, Staughton and Williams, 1994, Van Dyke et al., 1997). Dimensions, for which service users' perceptions do not meet expectations, suggest aspects to improve. In contrast dimensions where users' perceptions equal or exceed expectations, imply those aspects do not require improvement, or that more may be being done than necessary. However, much of this research contains an implicit assumption that data collected against generic dimensions can capture the characteristics that are important to a particular service.

Traditional measures of service quality such as focus groups, questionnaires and management-by-walking-about could be used to address shortcomings associated with generic dimensions and explore gaps between perceptions and expectations for a specific service's characteristics. In particular, the incorporation of users' perspectives into such assessments of IS service quality is already well established (Pitt et al., 1995), their perceptions offering valuable interpretations of the realities of the service experienced. However, such approaches typically assess quality from only the service users' perspective. Consequently, they fail to acknowledge that service encounters are dyadic (Rosen and Supernant, 1998) and that the service deliverer's perspective is of value (Pitt et al., 1998). The logic of Parasuraman et al's.(1985) 'gaps' model provides further support for such an approach, as there may well be differences in dimensions considered important by services' users and deliverers as well as their perceptions and expectations.

Constructs used to measure IS service quality therefore need to capture the realities of each specific service encounter separately for both users and providers. In addition, if these constructs are to be of real benefit in evaluating and improving IS quality, they must be understood and interpreted by service managers in relation to the norms, and values of those who generated them. Therefore, to enable informed evaluation of IS services' quality, there is a need for a process that meets three preconditions. Namely, it enables:

1. Service users and deliverers to make explicit independently their own ideas of those characteristics of the IS service that are important.
2. Service users and deliverers to highlight, define and record independently any gaps between their perceptions and expectations of that IS service.
3. Service managers to gain a critical understanding of both users' and deliverers' perceptions and expectations of that IS service's characteristics which are important and any gaps between them.

3. The development of the template process

Research on the nature of service quality reviewed earlier, emphasises the uniqueness of each specific service and the utility of assessing gaps between perceptions and expectations. These observations underpinned Staughton and Williams (1994) development of the Service Template. This tool was developed to illustrate the 'fit' between the capabilities of an operation and the needs of the market(s) it served. It allows those characteristics that users believe are important to be defined and any gap between perceptions and expectations to be highlighted and recorded in a visual form, thereby aiding interpretation (Henry, 1995). Each characteristic is defined using terminology specific to the service. As part of this, users specify positive and negative descriptors for the extremes of a continuum for each characteristic. For example, the characteristic 'staff appearance' within a sales service has been defined through the extremes of 'smart' and 'scruffy.' Subsequently, these users' perceptions and expectations for each characteristic are located upon its continuum.

Gaps between perceptions and expectations highlight where action may be needed.

The Service Template therefore addresses partially our first and second preconditions. It allows service users to make explicit their ideas of those characteristics that are important and highlight, define and record any gaps between their perceptions and expectations. However, the process is silent on issues of sample selection and involvement of managers, raising issues of data validity and enabling action to be taken. Furthermore, by focusing on service users, the Service Template excludes service deliverers' perceptions and expectations. Consequently, it is not possible for managers to develop a clear understanding of both users' and deliverers' perceptions and expectations or discrepancies between them (precondition three).

Subsequent development of the Service Template Process (Williams et al., 1999) began to address these shortcomings, reflecting the dyadic nature of service encounters. Users and deliverers were selected using purposive samples based upon cases that were critical to the service. Subsequently their perceptions and expectations of service quality were captured separately. As part of this, they identified separately those characteristics they considered important. Consequently, each resulting Service Template reflected the language, terminology and priorities specific to either service users or deliverers. Within this research, the Service Template tended to be used as a consultancy tool, managers being treated as clients rather than fully involved within the research process. There was still therefore a need to develop the process to enable managers to develop an informed understanding of both users' and deliverers' perceptions and expectations and take ownership of the evaluation.

Our recent research has focused upon developing the Service Template Process so that managers are involved in data collection and analysis as a precursor to action to improve service quality. Development has focused upon ensuring that the process satisfies the three preconditions outlined earlier. The resultant Template Process focuses upon defining problems. Within this, there is a need to minimise problem-defining errors such as biasing effects of professions and work groups that mean their members are likely to only see problems in a particular way (Kilmann, 1986). Development has been undertaken during work with seven UK based organisations, drawn from public, private and not for profit sectors. This has focused upon helping these organisations learn about and improve service quality. It has encompassed a range of service quality issues including those between a manufacturer and distributors, the partners and business introducers in a solicitor's firm and the three parties involved in the provision of social housing. The research has been underpinned by two concerns. Firstly, to investigate and develop a process that meets the preconditions outlined earlier and secondly, to ensure that the process has real practical value for managers in defining problems. Consequently, much of the work has been iterative.

The Template Process, its ability to meet the preconditions outlined earlier and its practical value, are now illustrated using examples drawn from a recent research project with the Information Systems Department of "Electrico", a large multi-site electronic components manufacturer in the UK. Within Electrico, the IS Department was responsible for activities such as equipment procurement, user support and maintaining the Internet. As part of the Department's strategy to improve service to users, the IS Manager for one site in South West England had been tasked, by senior management, to assess internal service user perceptions. Use of questionnaire based surveys to collect such data was common practice within Electrico. However, there was also a perception of no real action resulting from such exercises. Consequently, the IS Manager sought an approach that would overcome issues resulting from such views and enable him to explore and understand those characteristics important for a quality service.

Discussion with the IS Manager suggested that the Template Process could meet these needs. The process was used by the manager to establish and record those characteristics that were important to service deliverers (IS staff) and users. For both groups, perceptions and expectations of the IS Department's service were established separately and recorded visually as Templates, the manager adopting the role of practitioner-researcher. Through this, the manager began to understand and reconcile the range of views of the quality of the service in question, prior to defining problems associated with service quality. Subsequent discussion is structured around the two phases of the Template

Process, exploring both the process and how the preconditions outlined earlier are met.

3.1 Phase I: Sample selection

Our first precondition emphasises the need for independent data from service users and deliverers. Whereas in some cases it may be possible to collect data from all those involved, in most instances samples will be needed. The Template Process therefore commences by selecting separate purposive samples from both service users and deliverers. Within this, the focus is on obtaining critical cases from which logical, rather than statistical, generalisations may be made regarding key themes of the service (Patton, 1990). In this case, a sample of six internal service users was drawn from the eight Personal Computer (PC) Co-ordinators located in Electrico's client departments. Whilst this sample is not statistically representative, the PC Co-ordinators were drawn from those departments that made the greatest use of the IS Department's services. The sample of IS Department staff consisted of seven user support technicians of similar status, who had been with Electrico for over a year and between them covered the full range of services. Together it was felt that these samples could explain the extent of the diversity and the key dimensions within the service (Neuman, 1997) from both user and provider perspectives.

3.2 Phase II: Template generation and validation

Independent meetings, lasting between two and three and a half hours, are held with each sample selected. Their purpose is twofold: firstly to help each sample independently to make explicit and record their ideas of those characteristics that are important to the service under consideration and, secondly, to enable each characteristic of the service and the gap (if any) between perceptions and expectations to be defined in the sample's own words (precondition two).

To help ensure valid data are collected, feelings of cynicism and helplessness with regard to improving the service need to be overcome (Argyris and Schön, 1996). In addition, issues such as dominance by certain individuals and lack of trust need to be managed (Yin, 1994). The first two of these were addressed by the skills of the IS Manager, who emphasised as facilitator that he would ensure personally that action would be taken based upon the research. Trust issues were addressed in part by this manager's credibility within the organisation and by him stressing the confidentiality of the process. In addition, his facilitation skills helped allow open and non-judgmental discussion to take place within each sample as they developed their Template. Perception of status differentials, although not a problem in this case due to the samples selected, may also need to be managed.

The meetings followed a process derived from the four stages of generating a Service Template (Williams et al.1999):

3.2.1 Stage 1: Preparation

At the start of each meeting, the purpose of the event and nature of the Template Process are explained by the manager who takes the role of facilitator. A key task is creating a safe and open environment in which defensive behaviour is minimised (Morgan, 1986). The role is to help each group's members to perceive, understand and capture the characteristics and their perceptions and expectations. Meanings of terms outside participants' normal experience such as "characteristic" and "service" are explored and clarified using a neutral, easily understood, example such as a supermarket visit. The service to be considered and that party's relationship with the other parties is then defined; in this case the "Quality of Services provided by the IS Department". This is displayed prominently throughout all meetings and referred to regularly to help maintain focus.

3.2.2 Stage 2: Explore service characteristics

The characteristics of the service are then elicited from participants and recorded in their words in the order they emerge, using a brainstorming type process. This usually results in between 20 and 30 characteristics. By focusing on the characteristics of the service rather than problems, the tendency of participants to state immediately what they believe to be the problem with the service, and thus the likelihood of defining errors, is reduced. Within this, it is important that the issues associated with groups outlined earlier are managed and the manager enables each group member to participate fully. However, unlike a focus group moderator, the manager does not introduce new topics. Rather, a breadth of characteristics is obtained through the heterogeneity of the sample's experience (Phase I). Because characteristics are recorded separately for each sample, they are likely to differ, both in terminology used and

topics covered. In this case, some of the characteristics mentioned in the service users' meeting included "Support", "Service (range)" and "Procurement process" (Figure 1), were not mentioned in the service deliverers' meetings (Figure 2). Clarification of meaning for each characteristic is sought as part of this process, thereby helping ensure everyone in a sample is using a similar frame of reference (Oppenheim, 2000), which the manager understands.

CHARACTERISTIC	WT	+VE EXTREME	10	9	8	7	6	5	4	3	2	1	-VE EXTREME
Communication	26	open		e			p						closed
Support (general)	19	full		e		p							counter productive
Service (range)	19	comprehensive		e		p							inadequate
Quality	13	reliable		e			p						unreliable
Procurement process	12	seamless		e					p				fragmented
Value for money	11	value added		e			p						wasteful

Key: expectations e overlap p perceptions WT = weight

Figure 1: Extract from Template reflecting service users' perspectives on the quality of service provided by the IS department

CHARACTERISTIC	WT	+VE EXTREME	10	9	8	7	6	5	4	3	2	1	-VE EXTREME
Clarity of purpose of the IS department	23	unambiguous		e				p					vague
Experience / skills	18	lots of				ep							novice / none
IT management	18	strong			e		p						weak / ineffective
Problem identification	15	instant			e	p							never
Staff IT training	14	proactive		e		p							not important
Internal communications	12	loads of…		e							p		never

Key: expectations e overlap p perceptions WT = weight

Figure 2: Extract from Template reflecting service deliverers' perspectives on the quality of service provided by the IS department

Subsequently, the manager asks each sample to refine their list of characteristics and generate positive and negative descriptors for the extremes. In so doing, participants discuss and make explicit their own values and assumptions regarding the precise context for the service. For each characteristic's positive extreme, participants are asked to describe the "ideal" and for the negative extreme, the "worst" situation. Participants are not asked to provide intermediate descriptors, as research has highlighted the difficulties of labelling intermediate categories in an even-handed way (Foddy, 1994). In addition, poor labelling of intermediate categories has been shown to reduce data quality compared to just labelling extreme categories clearly (Andrews, 1984). Each of the resultant bi-polar rating scales defines the extremes of a characteristic of the service. For example, the positive extreme descriptor for the service deliverers' characteristic "support (general)" was, "full" whilst the negative extreme descriptor was "counter productive" (Figure 1).

3.2.3 Stage 3: Plot perceptions and expectations against identified characteristics

Each sample subsequently plots the visual representation (Template) of their perceptions and expectations using the characteristics of the service they have identified. Prior to plotting, the manager explains the key features of this stage using the neutral example. Each characteristic is plotted by first recording the range of participants' perceptions of the current service and then the expectations, relative to the extreme descriptors (Figures 1 and 2). The characteristic and both extremes are stated to help prevent participants defining the characteristic against the extreme on the left (Oppenheim, 1992). Participants' perceptions of each characteristic are defined through their answers to the question "What do you perceive to be the position today?" Expectations are defined using answers to the question "What could reasonably be expected?", equating to Miller's (1977) deserved level of expectation. During this stage, it has been observed that individuals consistently convert the scale into ten points. Consequently, not withstanding Osgood et al.'s (1957) original development work indicating that scales of five to eight points are optimal, both perceptions and expectations are recorded against a ten point scale, ten being the positive extreme and one the negative. Inevitably, this raises an issue of consistency of interpretation between individuals. These

are explored by the manager as perceptions and expectations for each characteristic are plotted, helping ensure a common understanding. Differences between participants' responses regarding both perceptions and expectations are also recorded. For each characteristic, the length of the perception and expectation performance bars represents the range of responses. For example, there was more variation in service users' perceptions of the "Procurement process" than in their expectations (Figure 1).

3.2.4 Stage 4: Interpret and validate issues

The manager then reviews each completed Template with the people who have generated it. This helps confirm the internal validity of the Template and in particular, that participants' perceptions and expectations of those characteristics important in determining the quality of the service have been captured. It also provides a measure of face validity of the Template and allows the manager to check her/his critical understanding (precondition three). Finally, participants are asked to identify and weight those characteristics they consider most important by allocating 100 points between the characteristics, giving those they feel are most important most points, the least important receiving no points. Gaps between perceptions and expectations are confirmed. For example, service deliverers expected "Internal communications" to be close to "loads of…", but perceived that it was far closer to the negative descriptor "never" (Figure 1). These characteristics represent the symptoms of sensed problems and, because those that are important are identified, the likelihood of defining errors is reduced.

4. Interpreting the templates

Interpretation by service managers tends to focus on the major differences and similarities between service users' and deliverers' most highly weighted (important) characteristics and the gaps between perceptions and expectations (Figures 1 and 2). Where the characteristics against which perceptions and expectations have been recorded are similar, these norms and values for the service are reinforced. Where the process highlights any discrepancies, norms and values upon which users' and deliverers' ideas about the service's quality are based are challenged. The recording of these data as Templates and the full involvement of the manager reduce problems of second-order interpretation. In addition, it fosters ownership and commitment for agreed action.

Figure 1 and 2 show extracts from the Templates produced by the IS service users and deliverers. Although each included approximately 35 characteristics, these extracts focus only on those weighted as important. At first sight there appeared to be little consistency between the characteristics identified. The users' Template (Figure 1) focuses upon the service itself, with characteristics such as the "Service (range)" and the "Service (general)" reflecting the nature of the offering. In contrast the deliverers' Template (Figure 2), is predominantly inward looking, with characteristics such as "Clarity of purpose" and "IT management" reflecting their concern with the maintenance of the IT based systems. "Communication", although common to both Templates, reflects differing aspects of the characteristic. Discussion during Template construction had revealed that service deliverers were referring to internal communication within the IS Department whilst service users were referring to communication between themselves and the IS Department.

The service users' Template indicates a fairly close match between perceptions and expectations for most of the characteristics, although the service fails to meet expectations in all cases. For the most part, users' perceptions and expectations are tightly focused, indicating a convergence of participants' views. The weightings for both "Communication" and the "Procurement process", together with the relatively large 'gap' suggested that these areas required attention. The service deliverers' Template emphasised their perception that "Experience/skills" within the IS Department matched what could reasonably be expected. However, gaps between perceptions and expectations highlighted a lack of "Clarity of purpose" and that "Internal communications" were perceived as virtually "never" occurring. Based upon the Templates and information gleaned during their construction, the IS Manager was able to highlight actual problems in areas users felt needed improvement. Further discussion with service deliverers suggested possible causes were a lack of clarity regarding the IS Department's role and only limited appreciation of the importance and need for good communication with customers.

5. Discussion

This research has shown the Template Process as an effective alternative means of collecting data concerning IS service users' and deliverers' views independently. It allows

them to make explicit their own ideas of those dimensions or characteristics that are important and for these to be recorded visually along with any gaps between their perceptions and expectations. Through facilitation of this process, service managers are able to gain a more detailed understanding of both users' and deliverers' perceptions and expectations than is the case with questionnaires.

Initially, when compared with focus groups, the advantages of the Template Process appear to be less pronounced. As with focus groups, the role of the facilitator in ensuring that the data are valid and reliable is paramount. In this case, the manager had sufficient credibility to be trusted by employees both within and outside the IS Department, something a focus group facilitator would also need. However, the structure of the Template Process also provided high face validity for the data collected from participants, something not always apparent with focus groups (Krueger and Casey, 2000). As in other service situations where this approach has been used, both service users and deliverers understood and liked the visual representation of service quality in their Templates. They argued these strengthened their ownership of the data provided and helped highlight differences in the way service quality was characterised. Full involvement of the manager in the data gathering phase aids subsequent exploration of these Templates and, in particular the development of a clear understanding of both service users' and service deliverers' perceptions and expectations. By adopting this approach, it is argued that errors are more likely to be avoided during problem definition. Subsequent use of these Templates in the IS Manager's report helped emphasise that the integrity of their data had been maintained through the evaluation.

Service user and provider involvement in the Template Process was confined to capturing and recording data, the reconciliation and interpretation of perceptions and expectations being undertaken by the manager. Thus, while this development of the process allowed both IS service users' and deliverers' views to be reflected, there still exists a need to develop a means for those involved in generating the Templates to explore, understand and reconcile these differing perspectives. Although time consuming, enabling all participants to jointly explore the Templates and their meanings, could provide an opportunity for informed dialogue towards a jointly agreed agenda for improvements in service quality. We are currently undertaking research to develop the process to allow service users, deliverers and managers to evaluate their Templates jointly, define problems and work towards possible actions.

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