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Emerging Issues in IT Service Management

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Abstract
The management of corporate information technology (IT) is taking on a new service-oriented focus. Many IT functions and IT service providers now offer IT services that potentially provide reduced costs, greater agility, and improved quality of service that is better aligned to the dynamic needs of internal or external customers. However, there is a concern that by offering IT services in this way, diverse socio-technical issues will interfere with and limit the anticipated advantages. This paper reports some of the findings from a case study of IT service management in a large multinational IT organisation and focuses on the planned provision of an internal intranet publication service using a Web-based Service Desk application. Implications for theory and practice are discussed. This paper highlights that IT service management theory and practice should carefully consider the socio-technical issues involved as otherwise the new paradigm of service-oriented IT management is likely to be plagued by mistakes and failures, as occurred in previous IT eras.

Keywords
IT service management, IT services, web services, socio-technical

1. Introduction
In the new networked Information Technology (IT) services environment, IT- and Web-enabled services and applications can be leveraged in order to provide flexible, well-defined, on-demand higher quality IT services that offer economic advantages to diverse stakeholders [27]. IT governance in organisations is increasingly adopting a service-oriented approach based on the concept of an IT service which can be defined as “a set of related functions provided by IT systems to support one or more business areas” [23, p. 44]. To govern new forms of technology-mediated IT service provision, we have seen the emergence of the discipline of IT services management [33] and best practice IT service management frameworks such as the Information Technology Infrastructure Library (ITIL). However, issues arising in IT services management are only now appearing in practice and so far have rarely been addressed by information systems scholars.

In an internal IT service environment, one of the planks of ITIL is a Service Desk process enabled by a Web-based self-service system. Service Desk applications are increasingly used to deliver and support IT services for internal and external customers. In large companies, IT service provision by such applications often involves interaction with a service provider team. Questions may arise for team members in the planning, implementation and delivery of internal IT services regarding a range of issues such as service performance measurement where responsibilities are ill-defined, and the adaptability of services occasioning sensitive customer-provider contact where asymmetric knowledge between provider and customer can lead to difficulties in knowledge transfer [31]. This paper empirically explores key issues arising in IT service management by investigating the planning of a Service Desk application to serve internal customers in a large multinational IT services organisation. The study adopts a socio-technical approach by considering the nexus of humans and the technologies used in IT service provision.

An outline of the paper follows. First, we provide a contemporary review of relevant published theory, followed by an overview of the research approach adopted. Related findings from a case study of the Australian headquarters of a large multinational IT services organisation are discussed, implications for theory and practice considered, and conclusions drawn. We offer some final remarks to highlight potential avenues for future research.

2. Theoretical synthesis
This section reviews contemporary theory in IT service management and synthesises concepts as a set of themes found in the IT service management literature (Table 1).

IT service management addresses the control and monitoring of IT services [10]. According to Emmett [5], there are three stages in IT service management: reactive, proactive and strategic. In Stage One of a bygone era, IT departments provided infrastructure to tactically support organisational business processes and acted as cost centres. In Stage Two, still represented in many corporations, IT departments provide potentially valuable corporate services and operate as profit centres where services are charged to the customers. In Stage Three with which this paper is concerned, the IT function is managed as a service provider and its processes and outputs are managed as services [27]. IT operates as a business partner and enables a strategic advantage. IT not only satisfies customer requirements but also generates customer opportunities. This is an “internal vendor of services” model in which there is an increased reliance on service level agreements (SLA) for negotiating specific service requirements and associated budgets. The significance of SLAs is far reaching as they are used to monitor service performance [29].
Scholars and consultants have developed and assessed various approaches and guidelines to develop and manage IT services (e.g. [7, 13, 24, 28, 34, 36]). ITIL comprises a de facto standard reference model for IT service management and is aimed at providing concepts, processes and methods that reduce costs and risks [10]. According to Hochstein and colleagues [10], ITIL has been incorporated into the BSI 15000 standard which will soon be integrated with ISO 9000, thereby serving as an official IT service management standard. Microsoft Operations Framework MOF [24] is an alternative that extends ITIL by three additional components comprising a team model, process model and risk management process. Service-Oriented Architecture SOA, see for example [3, 12] is a related new technical computing approach that treats software applications as loosely coupled and standards-based services. Service Oriented Enterprise SOE is a high level approach to supporting corporate business processes through setting up and coordinating interactions between software applications [12]. Garschhammer et al [7] describe service implementation and management in a Service Life Cycle and suggest a service-oriented model to represent hierarchical relationships between different service components and aspects including service implementation and management, sub-service, service logic, resources and different roles of provider and client. The authors also point out the need for further research to address mapping between service agreements and the need for approaches to managing interactions and information exchanged between customers and providers. Gartner offers a set of frameworks based around ISCo [28, 36] and suggest a six step evolutionary process: functional silos, cross-functional processes that may adopt frameworks such as ITIL, attainment of ISCo service model, development of common services providing multi-unit value, and profit centre [28]. Weill and Ross [34] focus on the importance of appropriate decision rights allocation in all aspects of IT planning design and use.

Evidence suggests that existing IT service management best practice frameworks such as ITIL suffer from a number of weaknesses. Such frameworks are not based on issues experienced in practice and are prescriptive rather than addressing the actual challenges experienced. In the current version of ITIL, principles of project management are noticeably absent [30] while the softer issues such as organisational culture (McBride in [30]) and customer involvement have largely been overlooked. Hochstein et al [10] have criticised ITIL as lacking in adequacy of construction and language, lacking economy for context specific management modelling, and proving unsuitable for comparing with alternative IT service management models.

Given the comparatively recent emergence of such frameworks, we chose to develop IT service management themes by synthesising representative literature rather than simply adopting ITIL’s (or another best practice framework’s) concepts. In Table 1, we summarise key emerging themes in IT service management literature and briefly review the themes below.

<table>
<thead>
<tr>
<th>Theme</th>
<th>Summary description</th>
<th>Sources</th>
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<tbody>
<tr>
<td>Business-IT alignment</td>
<td>IT must align with business areas.</td>
<td>[9, 3, 22, 32, 33]</td>
</tr>
<tr>
<td>Performance</td>
<td>Performance measurement enables service to be monitored by various measures.</td>
<td>[8, 9, 22, 32]</td>
</tr>
<tr>
<td>Quality-of-service</td>
<td>Service quality, non-electronic and electronic, should be enhanced.</td>
<td>[32, 19]</td>
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<tr>
<td>Cost</td>
<td>Operational costs will be reduced by efficiencies of economies of scale.</td>
<td>[32, 19, 10]</td>
</tr>
<tr>
<td>Flexibility</td>
<td>Services must be designed for adaptation and reuse.</td>
<td>[32, 3]</td>
</tr>
<tr>
<td>Change agent</td>
<td>IT function will be a change agent for business/service improvement instead of a custodian of applications.</td>
<td>[22, 25, 8, 3]</td>
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<tr>
<td>Interoperability</td>
<td>Manage IT heterogeneity via Web services and open XML-based standards</td>
<td>[32]</td>
</tr>
<tr>
<td>Boutique teams</td>
<td>Small flat team-based structures focus on specific aspects of IT services rather than a traditional structured team.</td>
<td>[4, 20, 22, 32, 8, 28]</td>
</tr>
<tr>
<td>Portfolio Management</td>
<td>Portfolio management/Weekly progress/planning meetings are conducted.</td>
<td>[4, 18]</td>
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### Theme: Change management and process improvement

<table>
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<th>Summary description</th>
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<tr>
<td>Change management implements process improvement by identifying, analysing and resolving incidents.</td>
<td>[8]</td>
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### Theme: Service development

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<th>Summary description</th>
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<tr>
<td>Service development will be similar to systems development with service requirements specification, service design, deployment and performance monitoring. New skills are required to tune and manage applications based on SOA.</td>
<td>[4, 22, 32, 2]</td>
</tr>
</tbody>
</table>

### Business/IT alignment:
A service-oriented information systems strategy aims to increase alignment between business goals and IT [36]. Bloomberg [3] views services as a layer supporting business processes and underpinned by technology. Hildebrand [9] adds that IT services should be well linked to business processes and goals, with associated performance metrics.

### Performance management:
From more than 600 UK companies deploying IT services, only 38 per cent had established performance metric requirements or a timeframe for future performance evaluation [1]. According to Gurney [8], IT service performance can be measured by benchmarking, maturity models, key performance indicators, managerial reports, and staff education. Importantly, IT service performance should be linked to business goals [9].

### Quality of service:
Quality of IT service must be high in terms of contractual compliance which is typically measured by business process metrics such as end-to-end response time, IT faults, and performance degradation. According to marketing literature, customers perceive service quality through access, communication, competence, courtesy, credibility, reliability, responsiveness, security, tangibles, and understanding/knowing the customer [26]. IT service quality may be monitored, documented, and managed by service level management exercises [19].

### Cost:
Operational costs may be reduced by efficiencies of economies of scale. Reporting the findings from six case studies, Hochstein et al [10] list eight types of service implementation and management costs including costs for: project planning and coordination, system development and tool customizing, contracting and training, project marketing, quality control and consultation, execution of new processes due to changes, process monitoring and performance measurement, and operating additional infrastructure associated with the adopted IT service approach (e.g., ITIL tools). Although Mason [19] stresses that the connection between business benefits and IT service costs should be accurately evaluated, it is not clear how the above types of costs may be estimated.

### Flexibility:
Adaptation and reuse of services are important to support the inevitable dynamics of business processes and various demands of multiple stakeholders who provide or use the services. Authors suggest different approaches for promoting flexibility. For example, Bloomberg, [3, p.3] looks ahead to true flexibility through use of standards-based software components that can be accessed independently of technology platforms to enable service customers to invoke such services and “bind” them. Aligned with this concept, Hildebrand [9] suggests that catalogues of IT services be established thereby enabling reuse but he also notes that standard services may be customised.

### Change agent:
Bloomberg [3, p.3] argues that IT services should be able to respond quickly to business agility in order to leverage change for competitive advantage. Viewing business dynamics as the fundamental requirement for a service-oriented approach, Bloomberg argues that “a successful SOA is always in flux” and provides a model-driven agile approach to IT service development.

### Interoperability:
New architectures composed of heterogeneous devices and multiple platforms will prevail in the future [32]. Standardisation of hardware, software, and platforms stifle progress and will become outmoded [4].

### Boutique teams:
Small flat team-based structures focus on specific aspects of IT services and replace the traditional cumbersome IT function [4]. Skills specialisation will lose relevance as team members will simply contribute what they ‘know’ to service development. The goals of specialised contract workers will include the transfer of specialised skills and other types of contractor knowledge. In addition, roles in IT service teams should include business and IT experts to better enable liaison with the business at the customer interface [8]. Generally, team members will be multi-skilled.
Portfolios management:
Continuous portfolio management [18] will replace formal long-term scheduled IT planning processes. Instead of projects, ‘programmes’ that have functionality modified over time will become the norm. Ongoing portfolio management includes asset management [18]. Timely delivery to the customer is a key consideration. Portfolio/programme management is needed rather than a single project leader for each programme.

Change management and process improvement:
Change management processes can resolve problems identified by incident analysis. Change management is needed in order to implement process improvement. According to a recent regional meeting in the UK of businesses involved in implementing IT services, process improvement must be cyclical with ongoing measurement of the effectiveness of processes against a backdrop of organisational change [8].

Service development:
‘Systems’ development will resemble processes of new service development, with multi-disciplined, multi-skilled teams replacing teams of specialists. Based on two case studies in two European banks, experts found that IT service development shares similar principles with information systems development [2]. The researchers add, however, that new skills are required to tune and manage applications based on SOA. Short term parallel programmes to improve services and processes will replace traditional linear systems development. Co-location of team members will be needed to implement and adapt to continuous change. Phases of ‘storming, forming and norming’ are suggested for development [4]. In ‘storming’, initial concepts and ideation are contributed by multiple stakeholders iteratively. In “forming”, evolutionary design occurs. In “norming”, building and testing occur. Systems will not have long life spans (eighteen months to two years at most) so documentation will be bypassed as uneconomical. Service teams will decide when to retire a service [22].

Later we empirically examine a scenario where a Service Desk application that enables intranet publication requests from internal customers is planned to be implemented as a Web-based service. Findings will be drawn through the theoretical lens described by the above themes.

3. Research Methodology

Research Method: As part of an extensive project exploring the use of Web-based and other knowledge technologies to support knowledge sharing (earlier findings include: [11, 15, 17, 16]), we conducted a qualitative interpretive case study of the Australian headquarters of a large multinational IT services company – GloTech (a pseudonym). We selected a single case study as it can yield revelatory results [6] and has been shown to be useful for the exploration and identification of key issues that can be explored in a natural setting [37, 35]. Case studies also enable in-depth understanding of the topic [37].

Research design: The research focused on exploring issues in IT service management as they related to the use and development of a planned ITIL-based Service Desk initiative at GloTech. The Service Desk project was aimed at improving existing processes of internal customer publication to a corporate intranet – processes that at the time of study were enabled by e-mail and phone messages between internal customers and the Web Services team. GloTech lacked a formal approach to internal IT service management but was service-oriented in approach. The Web services team comprised information systems and IT university graduates.

Data collection: Data for the extended project was collected from ten semi-structured audio-taped one hour interviews with Web Services team members, the corporate systems administrator, and the Marketing intranet manager who was responsible for authoring and submitting Marketing-oriented content for the corporate intranet. Additional data comprised the transcript from an audio-taped two hour Web Services team meeting involving the development of draft requirements for the new Service Desk application. Interview questions probed issues of intranet use in accord with the larger project on knowledge sharing and technologies [11] and did not focus on asking about IT service management. However, many IT service management issues - as conceptualised in the previous section - were discovered in the data. To triangulate research results, the meeting and interview data were supported by extensive observations of the Web services team at work as well as salient document collection.

Data analysis: As already mentioned, a number of data analyses using different theoretical lenses were conducted and reported earlier [11, 15, 17, 16]. For this paper, one of the researchers conducted an additional qualitative content analysis [21] of the interview transcripts and meeting transcript guided by the theoretical lens of IT service management reviewed in the previous section. This analysis discovered issues relating to the themes in Table 1 concerning the management of IT services as it related to the proposed development of a new Service Desk application. New coded categories were iteratively developed and existing categories were clarified and expanded. Categories were later refined through summative reliability checking. Additional insights gained from observations and documents were used for final validation and enhancement of the categories (that is, issues) identified.
3. Interpretation of Research Findings
3.1 Background
Existing intranet publication service
At the time of study, an email-based intranet publication service was provided by a Web Services team responsible for meeting the Web-based service needs of internal customers. This service was coordinated by email messages, email attachments and phone calls exchanged between members of the Web Services team and customers (although a few technical groups published directly to intranets using publishing software).

Existing processes
The main processes performed by the intranet publication services comprised:
- initial customer email request to the intranet coordinator for content publication;
- assignment by the intranet coordinator of the entire publication task to one of the part-time contractor Web Services team members responsible for intranet publication duties;
- internal review of content request;
- preparation of publication proofs;
- review and approval of proofs by customer (content provider); and
- live publication/update of intranet content.

The planned IT service initiative had originated from a request by the Marketing intranet manager for an improved intranet publication service due to a range of concerns, discussed below.

3.2 Problem Setting: Marketing unit concerns with existing intranet publication service
The five main concerns of Marketing with the intranet publication service — leading to a request for improved service — comprised: poor turnaround performance; inability to track publication requests; need for a single point of contact; transitory nature of Web services team structure; and the need for a flexible SLA. These concerns were identified from an in-depth interview between the Marketing intranet manager and one of the researchers.

The first problem related to the poor turnaround performance in respect of elapsed time between initial request for content publication and content going live. The Marketing intranet manager noted that it was important to publish content in a timely manner as old news was unlikely to be read by employees, who tended to read only the most recent news. The SLA was not raised as a means of assuring service levels by the Marketing manager, suggesting that this document was not always used by internal customers as a means to assure service levels.

The second problem was the inability to track intranet publication requests. For example, the Marketing intranet manager did not know whom to contact to find out the status of her publication requests. A related third key issue was that a single point of contact was sought for all requests. This concern was exacerbated by the fourth key concern which was the transitory nature of the service provider team structure. Some of the Web Services team comprised contractors who only worked part-time, handing over intranet publication tasks to others on their weekly departure. This had led to the late completion of some requests and also to requests not being completed in priority order.

The fifth key concern was the need for flexible SLAs in publication service delivery, as some sections of the intranet required more frequent updating than did others. This arrangement would enable improved scheduling by the Web Services team members and allow them to focus on the sections requiring faster publication turnaround.

By analysing the problems of a key internal customer above, we discovered five significant service issues that should be accommodated in the planned Service Desk service. We now explore how the themes in Table 1 arose for the Web services team, focusing on insights stemming from a Web services team meeting where a new Service Desk application was planned and draft service requirements were identified and specified. (An analysis of issues arising at the meeting as viewed from a Requirements Development perspective can be found in [17]).

3.3 IT Service Management: Emerging Issues at GloTech
The following discussion of findings at GloTech is organised by the themes in Table 1.

Boutique Teams
The Web Services team comprised eight fairly young IT developers, three of whom were part-time contractors for strategic sourcing reasons. Thus the skills of the team were theoretically extended by the contractors' knowledge. However, the part-time nature of some members regularly led to missed opportunities for skills transfer. The team was headed by a full-time non-technical manager who reported to the Australian IT Operations manager. A senior team member organised meetings as needed - at minimum, weekly. The non-technical manager remained in touch with projects by engaging in weekly catch-up sessions with individuals from the team. The team's main role comprised developing, performing and maintaining web services as needed by the Australian subsidiary, including providing services for a range of intranets authored by different groups.

Portfolio Management and Business/IT Alignment
As mentioned, the Web Services team met at least weekly to report progress and make plans for new projects. However, there was no formal 'portfolio management' as indicated by Table 1. The tenor of the group culture — and therefore the meetings — was currently not conducive to such high levels of formality. Nevertheless, the planning revolved...
around efforts to align IT services with customer needs as Table 1 suggests.

Service Development
At one Web services team meeting, members – without the Marketing personnel or Web services team manager in attendance – briefly discussed the various intranet publication problems that had been reported to them earlier in phone calls by the Marketing customer. The team appeared aware of only some of the concerns mentioned in Section 3.2. The planned initiative to resolve customer (and team) concerns consisted of designing and piloting a new Service Desk service for the Marketing customer and later extending that service to other internal customers.

During the meeting, the team developed an initial set of requirements for an adapted Service Desk application by which the customer could submit content for intranet publication by a web form and attachments to be uploaded. A draft process model was drawn on a whiteboard (refer Table 1 – the "storming" aspect of service development), augmented by a set of publication request states and various notes. Elements of design were included (e.g. web form, and method of uploading attachments). The draft new intranet publication service model involved the following processes:
- customer submission of a publication request by web form and uploading of an attachment containing content for publication;
- opening of a ticket for the customer, and internal review of proposed content by corporate intranet reviewer;
- reviewer approval;
- return to customer for customer action if not approved;
- customer changes to content;
- customer approval of final version;
- live publication; and
- closing of ticket.

We observed some tension between the requirements identified by the Marketing customer and the Web Services team for the planned Service Desk, largely related to ‘quality of service’ and ‘service performance’ (Table 1) as discussed next.

Quality of Service and Service Performance
Elements of service quality were raised as concerns. First, the need for the Web services team to generate good service performance statistics regardless of customer performance was a constant theme. Second, the team showed a distinct lack of "communicating" with or "understanding/knowing" the customer. Throughout the meeting, there were numerous reinforcements to the decision to initially meet without the customer present in order to "get the story straight" before presenting draft service requirements to Marketing later. This lack of communication (and related skills) was also revealed when the team prepared and refined a set of "compelling business reasons" to present to the Marketing customers later to help "convince" them to accept the new service requirements. The reasons comprised:
- providing a formal process for tracking publication requests;
- efficiently improving provider processing of publication requests as one person would follow each request; and
- providing a backup system for publication requests to manage the risk of transaction loss.

Responsiveness was a key service quality concern, particularly in terms of meeting existing SLA end-to-end response times. The proposed SLAs for publication turnaround time were discussed frequently. One issue revolved around the protracted request turnaround which the Web Services team felt the Marketing team attributed to the Web Services team when in fact the seeking of customer feedback was the source of considerable delay. This issue was also discussed recently by members of the ITIL online forum who pointed out that "time to resolution" rather than "time to closure" should be in the SLA performance metrics [14]. Second, team members discussed current difficulties with 'losing' customer emails – losses that had often been hidden from the Marketing unit. Such issues had also led to degraded service reliability. As a result, team members were highly sensitive to the allocation of service roles and responsibilities in the planned new service, especially in respect of recognising likely ramifications for workload, accountability and performance measurement.

Change management and Process improvement
The Web services team members recognised the need for process (and thus performance) improvement from a combination of their own difficulties in providing desired responsiveness as well as the phoned complaints of customers such as the Marketing intranet manager. However, they also felt that some improvement was needed in the intranet content provision or review stages (where it was suggested that the Marketing team’s inactions were the source of delays), rather than in their own areas of responsibility. A further point of contention was the Marketing team’s demand for a single point of contact – a step that would place the entire burden of constant availability and responsiveness onto one person. Consequently, the service team faced a major challenge in trying to identify ways to influence the customer to accept their planned new service.

Costs, Flexibility and Change agent
Issues relating to costs, flexibility and "IT as change agent" arose. While there was little discussion of the costs involved in offering services, there was much discussion of efficiencies and plentiful references to inadequate time for task performance. Regarding flexibility, it was viewed as important for providers to provide services by multiple channels as there
would then be alternatives in case of difficulties with a given channel. Similarly, there was a need to enable flexible points of contact rather than the rigidity and burden incurred by having only one point of contact (as Marketing had requested). Regarding IT as change agent, IT was seen by the Marketing manager as a way to enable business process and service improvements. This is evident through the new service request highlighting five key concerns related to these objectives, discussed earlier.

Overall, findings from the case study support discussions in the literature with regard to flexibility and IT as change agent. It is interesting to note, however, that cost issues did not emerge. This could be due to the nature of internal agreements. Further case studies are planned to clarify cost-based issues.

4. Conclusion
This paper has proposed a number of key themes in IT service management as discovered in the literature and has empirically examined them via a single interpretive case study. While generalised findings are clearly impossible from only one case, this study indicates the potential importance of socio-technical issues associated with human involvement in IT service management and signals that these issues should be addressed. The following five issues emerged as critical:

• The IT team structure must possess a range of skills that are shared and integrated as needed. This concern is also noted in the lack of guidance available in most current IT service management frameworks, with the exception of Microsoft’s MOF.

• Formal ongoing portfolio management is required for effective alignment between business and technology in IT service management. It would be interesting to study how decision making occurs in service-oriented IT governance when IT service projects are selected.

• Service quality and service performance play important roles in interaction and communication between provider and customer. The relationship between the two dimensions of service warrants further investigation.

• Change management and process improvement initiatives can highlight cultural issues such as in the case study where accountability for performance appeared to be a critical value of the organisation and the IT function was by-default held responsible for IT failure.

• The IT service development process and IT service life cycle guidelines are still at an early stage of development and maturity and the resulting lack of reliable guidance had served to confuse the Web services team tasked with development in the case study. New techniques and methods are clearly needed to guide IT service development teams.

The paper has contributed to theoretical understandings in this emerging area and has highlighted key socio-technical issues for Chief Information Officers and other IT managers adopting a service-oriented approach to IT management. We are continuing to investigate the issues in a large research project involving multiple case studies of IT service management in a range of organisational settings. This paper highlights that IT service management theory and practice should carefully consider the socio-technical issues involved as otherwise the new paradigm of service-oriented IT management is likely to be plagued by mistakes and failures, as occurred in previous IT eras.

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