

# SERVICE-ORIENTED IT MANAGEMENT: BENEFIT, COST AND SUCCESS FACTORS

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## Abstract

*Due to an enhanced customer focus in the planning, development and delivery of IT services, service-oriented IT management has become increasingly important. This paper investigates to what effect service-oriented IT management has already been put into place in European companies. Benefit and cost categories of integrating service-oriented principles into IT management processes are analyzed. Additionally success factors for implementing service-oriented IT management are investigated. For this purpose, six case studies were conducted. The situation of IT management before and after implementation was analyzed and comments are made on the corresponding transformation projects. Based on the case studies, this paper shows three typical benefit categories of service-oriented IT management. Eight cost categories for implementing and operating service-oriented IT management processes are discussed and six success factors of pertinent re-organization projects are identified. Findings can serve as guidelines for other IT organizations and can be used as enabler for getting informed decisions regarding the initiation of service-oriented IT management. Finally, the article highlights four current trends for service-oriented IT management and further research is outlined.*

*Keywords: Service Oriented IT Management, IT Infrastructure Library, IT Organization, Best Practices.*

# 1 INTRODUCTION

Within the framework of strategic IT management customer focus forms a central component as one of the most important strategic thrusts (Bernhard 2000, Holst & Holst 1998, Zarnekow & Brenner 2003). Especially after the e-business bubble has burst, the agenda of chief information officers focus on topics such as consolidation, reduction of complexity, IT alignment and performance measurement rather than innovation, new technologies and new business models (Luftman & McLean 2004). IT resources are primarily to be committed to the efficient and effective satisfaction of IT customer's needs.

The transformation from a technology-oriented IT department to a client-focused IT service provider with a methodological structuring of internal IT processes can only be guaranteed by service-oriented IT management (Zarnekow & Brenner 2004, Böhmann & Krcmar 2004). In contrast to concepts such as service-oriented computing (Papazoglou & Georgakopoulos 2003) the service-oriented IT management concept concentrates especially on the management of IT services.

During the last four years, increasing interest in initiatives for the implementation and attainment of a service-oriented IT management has become evident (Hochstein & Hunziker 2003). Accordingly a large number of models, methods and concepts were developed, intended to help guarantee service-oriented IT management (Van Bon 2002). Especially the best practice framework ITIL (IT Infrastructure Library) was noticed by IT management (Kemper, Hadjicharalambous & Paschke 2003). Originally developed by the IT department of the British Government "OGC" (Office of Government Commerce 2000), the ITIL framework has been enhanced continuously and has become a de facto standard under the influence of the internationally active IT Service Management Forum (IT Service Management Forum 2004). Frequently misunderstood as such, the ITIL is not a process model but a description of activities, documents, roles, success factors, key performance indicators et cetera, which should be taken into account for an ideal IT management. According to the 2.000 organizations that are part of the IT Management Forum, the term "ideal" is meant to represent the best solution for a service-oriented IT management. Further information on the ITIL can be found in Doughty (2003), Hendriks and Carr (2002), Hochstein and Hunziker (2004), Hochstein, Zarnekow and Brenner (2004a), Staudt (2003), van Bon (2002), van Bon, Pondman and Kemmerling (2002) and Vogt (2002). In the following ITIL is understood as the concretization of service-oriented IT management, since analyzed organizations implemented service-oriented IT management by adapting ITIL to their organization.

In spite of its relevance, wide distribution and the large number of publications, a scientific discussion of the ITIL reference model is still lacking. Existing literature is either content to describe the management areas documented in the ITIL (Hendriks et al. 2002, Van Bon et al. 2002, Staudt 2003, Vogt 2002) or make assumptions about general benefits of the ITIL in practice (Doughty 2003, Röwekamp 2003). The authors know of only a few articles about ITIL published in scientific journals (Hochstein et al. 2004b; Staudt 2003). Hochstein et al. (2004b) analyze the ITIL reference model from a formal point of view according to the principles for orderly modeling (Schütte 1998). However, they fail to discuss benefit and cost categories of service-oriented IT management according to ITIL. Additionally, analyses of factors that can influence the success of transformation projects for implementing service-oriented IT management are missing. On the basis of identified benefit categories that go hand in hand with a clarification of relevant categories of cost, companies are able to improve the basis for their decision for or against the implementation of service-oriented IT management. Factors influencing success for pertinent transformation projects help in solving challenges and problems more efficiently.

Against this background the article's aims are twofold: to identify typical benefit and cost categories and to look at factors crucial for successful ITIL transformation projects. Therefore, the research question is the affirmation or denial of the existence of general benefit and cost categories for service-oriented IT management as well as factors for successful ITIL transformation projects. Six case studies on the implementation of service-oriented IT management projects in European companies form the basis for the investigation.

The article is structured as follows: In chapter two the method employed in the case studies is explained briefly and key data of the six case studies are presented. Chapter three forms the core of the article. Findings deduced from the case studies are summarized in this chapter. Issues of benefit and cost categories as well as

the success factors of ITIL transformation projects are addressed specifically. Finally, in chapter four the results are summarized and four selected trends are described.

## 2 CASE STUDY METHOD AND INTRODUCTION OF THE CASE STUDIES

The basis for the identification of benefit and cost categories as well as factors influencing the success of ITIL transformation projects are the insights gained from six case studies undertaken for this purpose. The case studies were conducted according to the PROMET BECS method (Senger & Österle 2002), which is especially suited to the investigation of transformation projects. The ITIL transformation projects of the six companies, T-Mobile, DaimlerChrysler, KfW Bankengruppe, BASF IT Services, 3M Germany as well as the City of Cologne, were studied from July 2003 to July 2004. To initiate the case studies, structured interviews were conducted with the project leaders of the ITIL transformation projects. Subsequent extended telephone conversations took place. Company-specific documents, relating to the projects were made available to the authors and were taken into consideration in the deduction of insights.

The organizations were selected on the basis of the following criteria: The companies had to have concluded their ITIL transformation projects and had to already have gained experience with the new solution. Different branches of business and different IT management areas had to be covered. The deduction of valid statements was not in the foreground of the survey due to the small sample. The goal was rather to identify insights, which – while taking into account company-specific features – can be logically followed and transferred to other organizations.

Table 1 gives an overview of key data of the case studies. Besides, general data about the companies is given and information on projected areas and the projects' time span are stated.

Company	Branch of business	Turnover (in €m)	Number of employees	Number of PCs	ITIL area investigated in case study	Start of transformation project***	End of transformation project ***
T-Mobile	Mobile communication	7.800	9.000	undisclosed	Incident management	January 2003	September 2003
Daimler Chrysler	Motor car industry	149.600	365.600	200.000	Change management	January 2003	December 2003
KfW Bankengruppe	Banking	261.000*	2.264	4.150	Service support	July 2001	June 2002
BASF IT Services	IT service provider	442	2.349	undisclosed (main client: BASF Group)	Service level management	Spring 2002	continuous improvements in progress
3M Deutschland	Multi Technology	1.100	2.745	3.064	Service support	December 2000	June 2002
City of Cologne	Public sector	3.186,1**	19.387	8.200	Service support and delivery (modular introduction)	January 1999	December 2003

Table 1: Key data of case studies (\*balance sheet total, \*\*budget, \*\*\*real duration of project, excluding preparation and subsequent work)

Table 2 gives an overview of the initial situation and the new solution on the three levels of business engineering (Österle 1995)

Company	Area of review	Before	After
T-Mobile	Strategy	decentralization	centralization
	Processes	- "best-can-do" principle for service support - historic growth - not uniform, not standardized - system-oriented, sectional	- pre-defined service support processes - conformity to ITIL - uniform, standardized - process-oriented, trans-sectional
	Systems	Tivoli Service Desk	- ARS suite by Remedy - Peregrine Service Centre
Daimler Chrysler	Strategy	regional strategies	comprehensive strategy embracing local sites and organizations
	Processes	locally optimized change-management-processes	- change-management-processes embracing local sites and organizations - global optimum
	Systems	diversity of systems, diversity of technologies	- uniform, strategy embracing local sites and organizations
KfW Bankengruppe	Strategy	system- and platform-oriented strategies	service-oriented strategies
	Processes	- processes arranged by technical functions - no consistency - missing interfaces - not uniform	- consistent, integrated service-support processes - conformity to ITIL - uniform, standardized
	Systems	- self-developed isolated applications - administration of configurations via Word documents	- HP Open View Service desk - HP Open View Operations
BASF IT Services	Strategy	individual strategies within departments (different IT departments within company)	- comprehensive IT service strategy (professional IT service organization) - service orientation and professionalism
	Processes	- no definition of service levels - locally optimized processes - historic growth - not uniform, not standardized	- incident-, problem-, change- and service-level management conform to ITIL - uniform, standardized
	Systems	individual systems and technologies within departments	Computer Associates Unicenter Service Desk
3M Deutschland	Strategy	- no IT service and support strategies in place - no IT service culture established	establishment of service culture
	Processes	- no model of prioritizing - no reporting - not uniform, not standardized - no single point of contact	- service support conforming to ITIL - pre-defined workflows - single point of contact, model for prioritizing and reporting in place
	Systems	several different tools for incident and problem management	- Remedy ARS Help Desk and ARS Change Management - Lotus Notes Knowledge Databank
City of Cologne	Strategy	decentralized in the different departments	central IT service provider
	Processes	- ad hoc processes - no process interface - individual processes in the different departments	- pre-defined processes in the area of service support - conform to ITIL - uniform, standardized - process-oriented, trans-sectional
	Systems	- heterogeneous group of systems - unsystematic solutions	- HP Open View Service Desk - Helpline for incident management

Table 2: Initial situation and new solutions of the organizations studied according to the three levels of business engineering: strategies, processes and systems.

### **3 ASSESSMENT OF SERVICE-ORIENTED IT MANAGEMENT**

The following section contains a summary of the benefit and cost categories of the implementation of service-oriented IT management as observed in the case studies. In addition, the crucial factors influencing a successful ITIL implementation are summarized.

In none of the organizations analyzed, a business case for the implementation of ITIL was produced. Important reasons for forgoing this were the lengthy time projected for ITIL initiatives, the parallel implementation of other, IT-relevant projects and the concurrent difficulty of determining the net benefit. Additionally, the pressing demand of improving IT management processes and the wide distribution of ITIL rendered unnecessary a justifying reason for the introduction of ITIL. Calculation of the net benefit of aligning with a state-of-the-art would in most cases be uneconomic. The reason for this is the expense of ascertaining a cost-benefit ratio that should not be underestimated. Management is therefore content with a qualitative view of the advantages and disadvantages of implementing a service-oriented IT management along ITIL lines.

#### **3.1 Benefit categories of implementation of service-oriented IT management**

In the following section, the most important benefit categories according to the project leaders and the project team are summarized at the outset. The five most important advantages of introducing ITIL were to be named by interviewed project leaders and project team. The three advantages mentioned most often in connection with the alignment to ITIL are the following:

- client/service orientation and the quality of IT services respectively (6 mentions)
- efficiency due to standardization, optimizing of processes and process automation (6 mentions)
- transparency and comparability through process documentation and process monitoring (5 mentions)

Unanimous tenor in the case studies is an increase of client or service orientation as a consequence of the introduction of ITIL. On the one hand, disruptions, faults and problems as well as service requests, e.g. the setting up of a new password or the setting up of a new workstation, can be solved and can be dealt with faster with service support processes conforming to ITIL. On the other hand disruptions, faults and problems can be avoided by proactive processes institutionalized along with ITIL principles. More reliable IT services and accompanying client or user satisfaction are the results. By introducing service level agreements and a corresponding client-oriented supervision and reporting structure the subjectivity of the client-provider interface can be all but eliminated and negotiations can take place on the basis of objective quality and service parameters. The frequently experienced emotionalism of IT users caused by IT failures is put in perspective by the definition and the measure of objective and comparable criteria for delivery. The perceived quality of the IT services supplied increases through this effect.

Not only the quality of IT services supplied but also the efficiency of supply increased as a result of ITIL transformation projects, as was experienced by the companies introduced here. This is achieved by aiming at standardization and optimizing of processes. Standardization of site- and location-inclusive IT processes permits a broad-based alignment to best practices. For instance, the processes in support centers in China are identical to those in the USA. This guarantees a comparability by which inefficiency can quickly be identified in specific locations. Furthermore, optimization of processes can be obtained inter alia by centralizing de-centralized service locations. As an example, the cost of coordinating disruptions in several locations can be drastically reduced in this way. In addition, support of ITIL procedures by means of tools and the process automation achieved thereby increase the efficiency of processes and workflows.

By aligning IT areas according to ITIL, additional transparency of IT processes and IT delivery was achieved in the companies introduced here. By concrete definition and supervision of the IT service to be delivered, inclusive of the relevant quality parameters, there prevails clarity between client and IT service provider about the concrete, service-specific organization of their service relationship. Emotional, subjective impressions are taken care of in this way. In addition, the transparency of IT service production via introduction of process documentation is increased for the IT service provider. Regular reports provide information about relevant key performance indicators, process cycle times, qualitative deficiencies, quota

for first level incident solution et cetera as needed. By comparing these time- and location-specific key information weaknesses and inefficiencies become transparent.

By the introduction of a service-oriented IT management in six out of the six cases investigated, the client and service orientation as well as the efficiency of service supply were increased. In five cases the transparency of IT processes and IT delivery were increased.

### **3.2 Cost for implementation of service-oriented IT management**

Cost arise within the framework of implementation of service-oriented IT management both for the execution of the transformation project as well as for the running of the new procedures. In what follows, the different categories of cost that were identified in the companies studied are listed. No reference is made to quantitative cost because the expense accruing in different categories varies greatly in the different companies. Data in percentages are avoided, as these data also vary significantly in the companies.

The following types of cost for the implementation of ITIL principle were mentioned (random listing):

- cost for project planning and project coordination
- cost for system development and tool customizing
- cost for contracting and training of personnel
- cost for project marketing
- cost for quality control and consultation

The cost for project planning and coordination should not be underestimated. Usually several areas and/or localities are restructured and their processes (e.g. within the framework of an ITIL compliant change management) need to fit in with one another. Cost drivers are the number of locations and the corresponding number of interfaces between locations and processes.

The analyzed cases show that the cost for system development and customizing of tools, accompanied with the implementation of service-oriented IT management processes, are high.

Due to a culture shift that was carried out and the fact that the acceptance as well as the understanding of the new, service-oriented IT management processes was lacking, the cost for contracting and training of personnel were high. Before as well as during the accomplishment of the transformation project, intensive, broad training had to be carried out and/or new personnel had to be employed.

As in the organizations studied, the cost for project marketing should not be underestimated either, The requirements for communication on both managerial level and among staff were considerable. Apart from training, costly and extensive marketing campaigns were conducted, which were aimed at generating acceptance of a service-oriented IT management.

The cost of quality control and consultation results mainly from action aimed at ensuring the quality of the new process documentation (e.g. for the processes of an ITIL compliant incident management or capacity management).

As typical kinds of running cost for a service-oriented IT management the following were mentioned in the case studies discussed:

- additional cost of process execution
- cost of process monitoring and performance measurement
- cost of running additional infrastructure

Additional cost arise partially from the execution of the new processes. Within the framework of an ITIL compliant change management, for example, certain instructions have to be given (e.g. about the user affected, affected IT components et cetera) without which the change can, by default, not be initiated. Such instructions increase the efficiency and quality of the subsequent process but they bring about an additional investment of time when the change is being initiated.

Additional cost also has to be taken into consideration for continuous monitoring of key performance indicators, service level agreements, operative level agreements et cetera.

Then, too, additional cost arise from the running of necessary infrastructure. ITIL compliant processes such as incident management, problem management or change management are supported by integrated tools which take up additional infrastructure capacities.

According to statements made by the project leaders and project team members in all the organizations studied, the benefit of service-oriented IT management outweighs the cost incurred. By considering success factors for implementing service-oriented IT management cost of project execution can be dropped and as a result net benefit can be increased. A summary of the most important factors for successful ITIL implementation, gleaned from the case studies, should thus prove helpful.

### **3.3 Factors for successful implementation of service-oriented IT management**

In the case studies introduced here, the greatest challenge in implementing and establishing a service-oriented IT management was the lack of acceptance and missing understanding of the necessity for introducing “new” processes. Employees were convinced that they were doing a good job and because of that misinterpreted new initiatives as a personal affront to their work. However, only with the support of employees and an understanding for service-oriented processes can such an initiative be successful. In final analysis that is why it was crucial for success to implement initiatives that promote acceptance and understanding in an effective way. In the companies studied the following initiatives were shown to be effective:

- showing of “quick wins” and thereby demonstrating the usefulness of service-oriented IT management (aiming at measurable project goals)
- striving for continuous improvement in order to guarantee the sustainability of success
- marketing campaigns (buy-in-phase, management of expectations, use of internal publication media, road shows, workshops, seminars et cetera) in order to create acceptance and understanding
- obtaining support of management in order to be able to exert pressure
- implementing broad-based training and enforcing personnel development
- formation of virtual project teams so that the “new” processes would not be developed separate from operational activities but simultaneously to achieve integration of service orientation into existing areas

Bureaucracy and the lack of individuality were frequently mentioned as a further general disadvantage of ITIL principles. For instance, in the course of IT process standardization, in many cases a single point of contact and a central service desk are implemented. As a result, personal relations between clients and support staff (“Hey-Joe” principle) are eliminated. Frequently, a temporary drop in client satisfaction is the consequence. Bureaucracy can always be associated with inefficiencies so that it can generally be said that with decreasing size of an IT division the benefit of a service-oriented IT management decreases. This fact can be explained in the example of change management. In smaller IT organizations with five to ten employees it is hardly reasonable to establish an ITIL compliant change management, including request for change forms, change advisory board and predefined escalation procedures. In this case a “just-do-it” approach would be more efficient and effective. Therefore ITIL principles should be adapted according to the requirements of the company and should be applied selectively.

## **4 CONCLUSION AND FURTHER RESEARCH**

The general advantages of using service-oriented IT management can be observed in business practice as the summary of insights obtained from the case studies has shown in the previous paragraph. A service-oriented IT management can increase client and service orientation as well as efficiency and transparency of IT processes. In the cases studied, typical cost categories that accompany the implementation of a service-oriented IT management were justified by the benefits generated. The crucial factors for success that were observed in the six companies are suitable for a more efficient and effective implementation of service-oriented IT management processes.

In business practice the standard ITIL is used for the implementation of a service-oriented IT management. In the ITIL framework two areas of service-oriented IT management, i.e. service delivery and service support are outlined. However, for the implementation of a service-oriented IT management a mere orientation to ITIL is not enough. Although the ITIL already supplies comprehensive concepts, methods and references for a service-oriented IT management, a need still exists for further development. As could be observed in the case studies, service-oriented IT management was only anchored in sub areas of the IT organization. Especially in the area of support, orientation towards service has been implemented to a large extent. However, a comprehensive implementation of a service-oriented management covering the entire IT organization has not been found. In what follows, four aspects are discussed that indicate potentials for improvements in the area of service-oriented IT management. These aspects postulate the enhancement of service-oriented IT management concepts both in theory and in practice:

- extension of service-oriented IT management to the strategic level
- exploring options for organizational anchoring
- company-specific scenarios
- exploring options for technical implementation

The areas of service-oriented IT management taken into consideration in ITIL mainly concentrate on the tactical-operative activities of service planning, service development and service operation (Hochstein, Zarnekow & Brenner 2004). Companies that align themselves exclusively with ITIL in so doing neglect the strategic processes of IT management. For instance, strategic questions of portfolio management remain unresolved. How should IT service providers gear their offering portfolio to the needs of the market and how can such a portfolio be controlled? How do service, project and application landscape supplement each other and what is their relationship? Strategic questions of supply, development and production management are also neglected by the service-oriented IT management aligned to ITIL. This concerns for instance make-or-buy decisions or sourcing concepts. Questions of IT governance are not discussed in the ITIL. What are the results of contracting obligations, long-term arrangements et cetera on IT services and their qualitative perception by clients? Moreover questions of standardization and the architecture of infrastructure are left unanswered. What are the results of increasing standardization on flexibility and quality of the IT services on offer? The ITIL can supply valuable input for planning and controlling the areas of IT development, IT production, client management and supplier management. However, for the strategic supplier and portfolio management as well as the strategic areas of IT development, IT production and client management the ITIL only supplies a few very general directives.

The organizational anchoring of service-oriented IT management is proving to be problematic. How can the new tasks be anchored into the existing organizational structures? How can the principles of service-oriented IT management allocated to a traditional organizational structure within the realm of IT? For instance, is the responsibility for service delivery concentrated in one separate unit or do all IT divisions take charge of service delivery activities? No best practices or experiences are known in these areas. A frame of reference would be helpful for project managers who have been instructed to align with ITIL. Additionally, on the level of processes the relationships are not clear either. For instance, what does the concrete interface between service delivery and application management look like? In what way are insights from IT operations integrated into the process of IT development? What concrete information is delivered by change management within the framework of application development or the enhancement of an existing application? Such questions are mentioned in the ITIL. However, they are not sufficiently fleshed out. This leads to uncertainty and misunderstandings in the structuring of service-oriented IT management processes. The practical implementation of service-oriented IT management should be clarified in future.

So far best practices for service-oriented IT management lack the characteristics of recommendation for specific types of business. In the ITIL no reference is made to different size, or specific branches of business. Some methods and concepts described in the ITIL framework make sense only if the IT organization is of a certain size. Unfortunately, no guidelines are currently available to assist companies in selecting principles of service-oriented IT management relevant to them specifically. Branch-specific requirements of IT services are not known so far. A sophisticated availability management for IT service providers who support critical business client processes (e.g. in financial processes) possesses a different relative importance than for IT departments that simply maintain uncritical support processes of their clients (e.g. personnel and control processes in the steel industry or the like). Pertinent recommendations and guidelines would help

entrepreneurial practice to filter out the range of service-oriented IT management that is relevant to their specific needs.

Many concepts and methods relevant to service-oriented IT management can at this stage not be implemented economically because of a lack of technical options. For instance, a problem in the area of configuration management is the granularity of the configuration components that have to be administered. Should every work station be administered as an IT component or is it more sensible to administer the input devices as well as the output devices, processors et cetera as individual IT components? In complex IT landscapes one soon reaches dimensions too large to be administered. A further problem is the rightful allocation of resource used by IT services in the case of client server architectures. Problems of standardization are technical barriers for CPU services. So far, IT controlling within whose scope IT resources are allocated rightfully to IT services has only been workable in a mainframe environment. Therefore service-oriented IT management also needs technical innovation for its further development.

Although the principles of service-oriented IT management for a large part are not new (ITIL was developed as far back as the mid-eighties), both the idea of service-oriented IT management and its practical implementation is receiving an enormous amount of attention and relevance at present. The integration of ITIL principles into the ISO 9000 standards through the inclusion of the BS 15000 expected in 2006 will ensure that interest in this subject is sustained and will provide a new hotbed for service-oriented IT management. In addition regulatory requirements that are imposed by the Sarbanes-Oxley Act on companies listed on American stock exchanges assist in creating an awareness of IT quality. Hereby top management has become alerted to concepts such as service-oriented IT management and enforces it in their companies.

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