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# Advances in Global Sourcing

**Models, Governance, and Relationships**

**7th Global Sourcing Workshop 2013  
Val d'Isère, France, March 2013  
Revised Selected Papers**

 Springer

# Lecture Notes in Business Information Processing

163

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# Preface

This edited book is intended for use by students, academics and practitioners who take interest in outsourcing and offshoring of information technology and business services and processes. The book offers a review of the key topics in outsourcing and off shoring, populated with practical frameworks that serve as a tool kit for practitioners, academics and students. The range of topics covered in this book is wide and diverse, and represents both client and supplier perspectives on sourcing of global services. Various aspects related to the sourcing models such as efficiency of the global delivery model, hosting and innovation in cloud services are discussed in great depth. Aspects related to management of outsourcing relationships such as governance, coordination, knowledge transfer and organizational standards are examined in multiple empirical settings. Mutual dependency between the client and the outsourcing provider, and aspects, such as social corporate responsibility are discussed in detail. Furthermore, offshoring strategies are studied in detail. Last but not least, extensive literature review of vendor capabilities is included. Overall, topics discussed in this book combine theoretical and practical insights regarding challenges that both clients and vendors face, and accompanied by case studies from client and vendor organizations.

The book is based on a vast empirical base brought together through years of extensive research by leading researchers in information systems, strategic management and operations.

July 2013

Ilan Oshri  
Julia Kotlarsky  
Leslie Willcocks

# Organization

Global Sourcing Workshop is an annual gathering of academics and practitioners.

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# IT Global Delivery Model Efficiency: An Exploratory Case Study to Identify Input and Output Factors

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**Abstract.** During recent years, leading international service providers have implemented global delivery model (GDM) strategies in which multiple geographically dispersed resources are simultaneously integrated in a network of onshore, nearshore and farshore service and delivery centers. Although GDMs are well established within the IT service industry, little is known about how to assess their properties and performance. Drawing upon the resource-based view of the firm, this paper attempts to offer two contributions. First, we identify six input (resources) and six output (performance) variables that can be used to assess the relative efficiency of GDMs in IT. Second, we reveal an increasing importance of proactive managerial skills to orchestrate resources within such networks.

**Keywords:** efficiency assessment, global delivery models, resource-based view.

## 1 Introduction

Changing industry economics in combination with intensified competitive pressure have forced established information technology (IT) vendors to shift from traditional single-location outsourcing to a more evolved and sophisticated global sourcing model. Within just a few years, leading IT providers ramped up their delivery capabilities in multiple geographically dispersed countries, resulting in a business strategy referred to as global delivery model (GDM). Such a GDM can be seen as a combination of an IT onshore and offshore model. More specifically, onsite centers for service and support with direct contact to the customer cooperate with a network of globally dispersed development centers in executing client-oriented tasks [1].

Previous contributions on globally distributed work and development have focused on socio-cognitive aspects of communication [2], knowledge exchange processes between workforce [3], and the impact of process-based learning on performance [4]. Research in the area of IT outsourcing success has revealed how to design contracts and how to improve delivery performance [5, 6, 7, 8]. Furthermore, issues related to relationship management [9, 10, 11, 12, 13, 14, 15], and the impacts of cultural and country-specific aspects on outsourcing performance [16] have been studied.

However, despite the growing relevance of GDMs, only few studies have examined global delivery performance. Ang and Inkpen [17] examined the impact of cultural intelligence in GDM settings on success. Bose et al. [18] describe how an infrastructure service provider consciously monitors its service quality in order to improve delivery performance. Other studies are concerned with the transformation process and the required capabilities to shift from traditional service provisioning towards global delivery of services [19, 20].

Recently, Nöhren and Heinzl [21] presented a study where the relative efficiencies of leading international GDM providers have been evaluated from a macro perspective. Drawing upon the resource-based view of the firm, they defined a set of physical, human, and organizational GDM resources that a provider deploys (input variables) and its performance outcomes expressed by customer satisfaction (output variable). In order to establish a relationship between providers' inputs and outputs, data envelopment analysis, a non-parametric efficiency measurement technique, has been applied [22]. Based on this approach, the relative efficiency scores of the 18 ITO providers were calculated and the impact of providers' deployment strategies, their business familiarities, and their global delivery headcount on vendor performance were discussed [21]. One major limitation of this study was that the selections of input and output variables were not empirically established. It was rather a consideration of available data from an own market research. The presented paper aims at closing this gap. In order to develop a conceptual framework of how to evaluate relative efficiencies in global delivery from a micro-level standpoint, we aim at answering the following research question:

*What are appropriate input and output variables to assess the relative efficiency of IT global delivery models from a vendor's perspective?*

To answer this research question, we conducted an in-depth case study with a leading international software and service vendor. The data set consisted of seven expert interviews with interviewees of the provider's GDM management team. The findings reveal a set of physical, organizational, and human resources that act as input factors when establishing GDMs. Moreover, the findings show that client-specific and project-specific output factors exist that collectively influences the vendor's economic success. Our findings contribute to previous work on the assessment of GDM efficiency by empirically establishing these input and output factors. Furthermore, we contribute to the general literature on IT outsourcing performance assessment and identify potentials for future research in the area of GDMs.

The paper proceeds as follows. In the next section, we present the theoretical foundations of our work and provide a brief overview of relative efficiency measurement procedures. Subsequently, we describe our exploratory case study design. In the fourth section, we present the findings from our field analysis and derive input and output variables from a vendor's perspective. Based on these findings, we present our conceptual framework and illustrate implications for future research in the

fifth chapter. We conclude with the theoretical and practical implications of our findings as well as by discussing the limitations of our study.

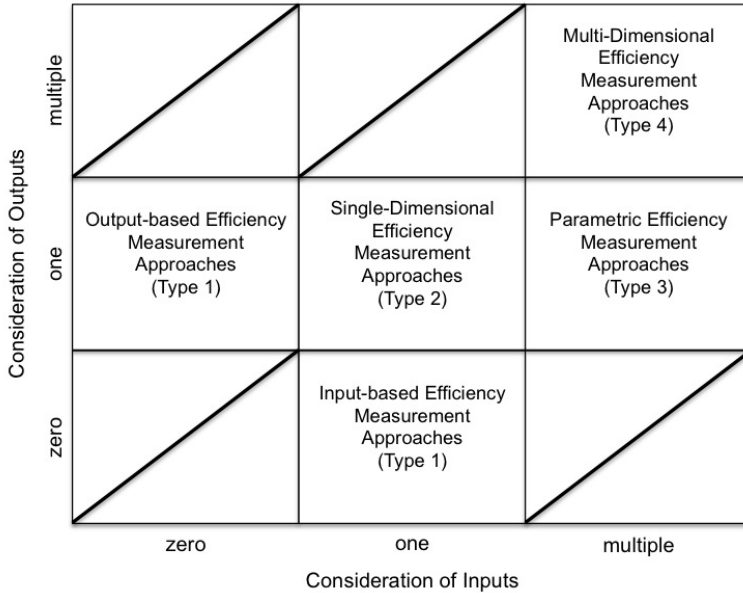
## 2 Theoretical and Methodological Foundation

Drawing Efficiency measurement is a vital issue and tremendous challenge for any company. It allows corporations to compare their performance with their competitors as well as to quantify the magnitude of poor performance in its value-creating activities. From a managerial perspective, the objective of efficiency measurement is to discover the weak parts of organizations, organizational subunits and business processes in order to assign an appropriate effort to improve performance [23].

In answering our research question, we first need to define the term relative efficiency. Generally, efficiency is the ratio of outputs and inputs [24]. However, such an understanding of the term is not comparative in nature and, therefore, limited in explanatory power. Thus, we describe the term relative efficiency in line with the definition of Pareto-Koopmans efficiency. An observed unit is called efficient if and only if it is not possible to reduce any input of this unit without increasing at least one other input or reducing any output, or if it is not possible to increase any output of this unit without reducing at least one other output or increasing any input [25].

Various efficiency measurement instruments, such as conventional statistical approaches and non-parametric linear programming techniques, have been developed in extant literature [26]. Against this background, the first step in efficiency measurement is the selection of an appropriate estimation technique. Different typologies exist to categorize relative efficiency measurement techniques (e.g. [27]). Figure 1 classifies efficiency measurement techniques based on their consideration of inputs and outputs.

Type 1 approaches are pure evaluation techniques that compare only one output or one input of a value-creating unit against an a priori defined performance goal. These procedures giving the opportunity to rank-order units under observation, but do not consider the transformation process from inputs into outputs. Therefore, the individual causes for inefficiencies cannot be detected. Type 2 approaches are one-dimensional evaluation techniques that consider one input and one output measure simultaneously. The information value of these procedures is limited, since complex transformation processes cannot be evaluated. Type 3 approaches are primarily parametric efficiency measurement approaches such as regression analysis and stochastic frontier analysis. These procedures observe the transformation of multiple inputs into one comprehensive performance goal, and, thus, have a higher explanatory power than type 1 and 2. However it is assumed that all input resources are utilized for one single performance outcome. Type 4 procedures such as non-parametric data envelopment analysis and free disposal hull consider multiple input and output variables in performance evaluation. Due to their high information value, data envelopment analysis is one of the most widely discussed and utilized approaches [26].



**Fig. 1.** Classification of Efficiency Measurement Approaches

The second step of efficiency measurement is concerned with the definition of inputs and outputs. Drawing upon the resource-based view of the firm (RBV), inputs are resources a provider deploys and combines to achieve a positive level of performance outcomes (outputs). Such resources are necessary to fulfill a firm's task and can lead to sustained competitive advantage if they are valuable, rare, imperfectly imitable, and non-substitutable [28, 29]. We will discuss the implications of the RBV for efficiency measurement in the fifth chapter.

The definition of inputs and outputs is a critical but challenging step. Due to missing selection criteria the choice of input and output variables is typically subjective in nature [30]. Either, the selection is grounded on researchers previous knowledge (e.g. [31]), derived from literature reviews (e.g. [32]), or based on expert interviews (e.g. [21, 33]).

### 3 Exploratory Case Study

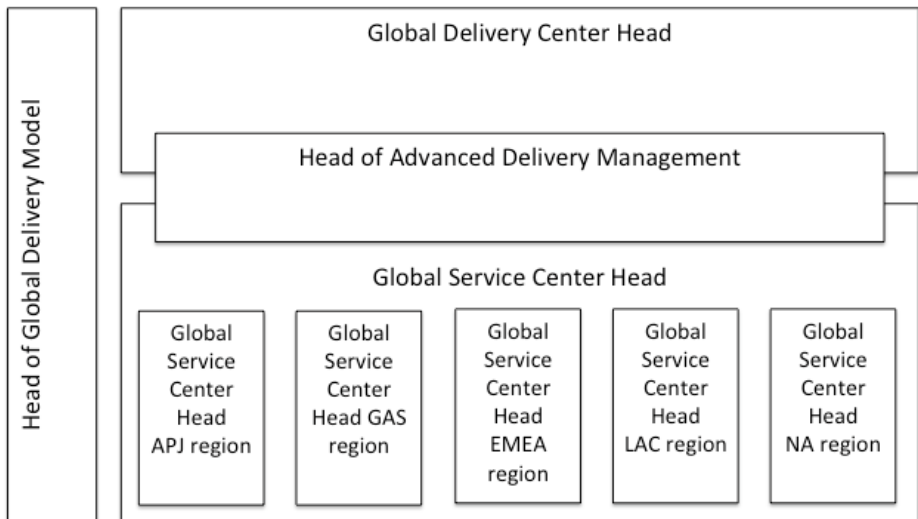
In order to identify inputs and outputs for measuring efficiency of IT GDMs, we conducted an exploratory single-case study [34]. The unique access to the case study site gave us the opportunity of an in-depth investigation of input and output factors. The case study was conducted at GLOBDELCON, a large provider of business software and services. The observed global delivery unit GLOBAL is responsible for customization and implementation of GLOBDELCON's software products as well as software and business consulting.

Traditionally, implementation projects were offered on a time and material basis. Customers requested consultants who created a detailed blueprint of how to adopt

GLOBDELCON's software to their individual business processes. Three major weaknesses of this approach can be identified. First, implementation projects were very time-consuming. For instance, the average implementation time of GLOBDELCON's major software products was between eight to twelve months. Second, the implementation projects used to be very expensive due to the onsite consultants high daily rates. Therefore, only large international clients could afford the services provided by GLOBDELCON. Third, the utilization of economies of scale was limited. Local consultants had their own onsite delivery teams to provide customer-specific services.

Against this background, GLOBDELCON aimed to reduce time, effort, and costs of their implementation projects, to provide a high and consistent service quality in a repeatable way, as well as to scale around the globe. In order to achieve these goals, the company adopted a GDM strategy and ramped-up their offsite remote capabilities. Today GLOBAL consists of local, nearshore and offshore resources. The local service centers are grouped into five regions: Asia Pacific and Japan (APJ), Europe, Middle East and Africa (EMEA), Latin America and Caribbean (LAC), North America (NA) as well as Germany, Austria and Switzerland (GAS). These centers closely cooperate with a network of nearshore and offshore global delivery centers. In order to constantly improve the cooperation between service and delivery centers, GLOBAL implemented an advanced delivery management unit, responsible for monitoring the interaction between onsite and offsite resources and to increase the remote share in service delivery. Figure 2 illustrates a simplified organizational structure.

Within the case study, we conducted seven interviews with GLOBAL's management staff. Particularly, we inquired the head of the global delivery model, the global delivery center head, the head of GLOBAL's advanced delivery management, the global service center head, as well as the three service delivery center heads in EMEA, LAC, and NA region.



**Fig. 2.** GLOBDELCON's Global Delivery Model

## 4 Case Study Findings

In the following, we first present the case study findings with respect to provider's resources in global delivery. According to Barney [28], corporate resources can be grouped into human, physical, and organizational capital. We use this classification to categorize the GDM inputs in our study. Subsequently, we take a closer look at the outcomes in global delivery. Based on the experience and expectations of the case study participants, we define six outcome variables.

### 4.1 Human Global Delivery Resources

Human resources are the people that staff and operate an organization or an organizational unit by providing skills and capabilities. These skills include expertise, interpersonal relationships, and business insights of employees [28, 35]. Decent human resources are a key success factor for companies and form a vital part of a GDM.

*“One major input factor is a strong supply of talents with a certain amount of capabilities.”* (Head of Global Delivery Model)

With respect to the human resources, our study provided three major findings. First of all, providers need a certain amount of talents. GDMs are networks of onsite service and offsite delivery centers in which customer-related services are provided. A primary benefit of globally dispersed delivery centers is their possibility to realize economies of scale. Due to the fact that scalability of projects grows with the number of employees, previous research found that companies with large delivery headcount received a remarkably higher customer satisfaction [21]. This finding is in line with results of our case study. Thus, one vital human global delivery resource is a provider's global delivery center headcount.

*“Each delivery center needs a critical mass of employees, which is essential to grow within a market and to support our clients with broad service offerings.”* (Global Delivery Center Head)

Second, besides a strong pool of talents, people need to provide particular hard skills with respect to expertise and product-related knowledge. Adapting the GDM strategy at GLOBDELCON involved to move from an onsite-centric model to an offsite model with a greater share of remote work. On the one hand, this shift implies employees in service and delivery centers to get familiar with delivering services within a global delivery model. Against this background, we define employee's hard skill level as a second human global delivery resource.

*“Our key input factors are the knowledge of the employees, their high product-related skills, and especially their remote skills.”* (Global Service Center Head)

On the other hand, particular soft skills are needed. Previous studies found that skills such as employees' cultural intelligence, their loyalty, as well as their language skills are important success factors in globally distributed work (e.g. [36, 37]). These skills play a major role in the daily work between onsite service centers and offsite delivery units. Furthermore, with the shift towards a greater share of remote work, employees in delivery centers come into closer contact with the clients' needs. We conclude that the third human global delivery resource is the employees' soft skill level.

*“Our employees need to deal with different cultures, possess linguistics capabilities, and be mobile and flexible.”* (Head of Global Delivery)

Our third finding is concerned with a mind-shift in service delivery. As already mentioned, GLOBAL's onsite consultants were used to deliver mainly customized services for large international clients. With the adaptation of the GDM strategy, the primary tasks of the onsite service teams have changed. Beside acquiring new customers, consultants are now responsible to provide modularized standard services delivered by remote teams.

*“I think the biggest input factor for us is a reskilled workforce. We currently have a workforce that is mostly skilled on delivering an end-to-end project. We need to reskill that workforce into delivering two things. One is to move far more of the local workforce into architecture and secondly to move the bulk of the workforce into delivering services from a remote point of view.”* (Global Service Center Head EMEA Region)

This mind-shift is primarily impacted by two factors. The first one is the training of employees. Especially onsite consultants need to get used to move from highly customized services towards the delivery of modularized and standardized ones. The second factor is a continuous management support. Therefore, GLOBAL established the advanced delivery management unit, responsible to orchestrate onsite and offsite resources.

*“Training clearly, having the services defined that they can be delivered in different ways, and a high and continuous management support.”* (Global Service Center Head NA Region)

More details for the third finding are provided in chapter five.

## 4.2 Physical Global Delivery Resources

Barney [28] defines physical resources as assets such as a company's technology and its geographical position. In many cases, valuable resources are only available at certain locations and are not transferrable to other countries [38, 39]. With the recent shift towards a GDM strategy, GLOBDELCON ramped-up centers at multiple

locations to access geographically dispersed resources. In order to increase the remote share, the company enlarged standardization and modularization of software-related tasks. Highly standardized services such as implementation of standard software products are primarily done offsite. The main role of the onshore service units is to acquire new customers and to support clients in the decision-making and implementation phase. The primary goal of this approach is to reduce costs for clients and to tap into new market segments by becoming attractive to small and medium-sized customers. On the other hand, GLOBAL still offer clients with a higher willingness-to-pay the opportunity to customize their applications and to assist them in redesigning existing business processes. This approach involves a higher share of onsite service and support centers. In order to achieve this goal, GLOBAL set-up a network of globally dispersed service and delivery centers at multiple locations. Thus, we define the global reach of the service and delivery centers as vital physical global delivery resource.

*“The whole idea is that we would like to have much more work done remotely, so therefore we will see a move from onsite consulting to remote consulting. To give some example if we have a highly modularized task such as software implementation we see a split between 70% percent will be done remotely and 30% will be done onsite. If we have a design-based task where you also have to restructure clients’ processes, then 50% will be done onsite and 50% will be done remotely.”* (Head of Advanced Delivery Management)

One major issue in adapting a GDM strategy is to ramp-up delivery centers in multiple geographically dispersed countries. The choice of the right locations is a challenging task. Previous findings suggest that providers with a strong focus on offshore delivery centers in countries such as India achieved a higher efficiency and higher customer satisfaction [21]. This approach is also adapted by GLOBAL who concentrate their global delivery centers offshore.

*“A huge amount of the work really comes from offshore delivery centers. Therefore we need to scale-up in those areas.”* (Head of Advanced Delivery Management)

A sufficient IT infrastructure, which comprises computer and communication technologies, databases, and shared technologies across an enterprise, is a key factor for sustained competitive advantages [35, 40]. The requirements towards IT infrastructure within a global delivery network are very high. Companies with a GDM strategy need to develop IT infrastructures that enable efficient communication and collaboration between globally dispersed teams in different time zones [19]. Therefore, we describe IT infrastructure as the second physical global delivery resource.

*“We needed strong remote tools with the infrastructure to be able to communicate efficiently between the back office and the front office as well as with the clients”* (Global Service Center Head)



### 4.3 Organizational Global Delivery Resources

Organizational resources comprise advanced processes to satisfy customers' needs as well as assets such as a company's internal planning, controlling, and coordinating systems [28]. With the implementation of a GDM strategy, the organizational culture needs to be aligned on globally distributed work and service delivery. As mentioned in section 4.1, this implies extensive training of employees but also the development of sophisticated processes [2, 4] in order to overcome negative issues in globally distributed work such as social boundaries [41], knowledge exchange difficulties [3], as well as cultural [16] and work practice variances [15].

The shift towards a GDM strategy determined three significant changes of GLOBAL's internal processes. The first one was an adoption of sophisticated and well-structured global communication and coordination processes. Due to an increasing utilization of offsite resources, GLOBAL redesigned existing practices and implemented novel standard processes valid throughout the entire global delivery network.

*“There are a lot of interdependencies and we learn every day where we need to make improvements regarding our collaboration model between local, nearshore and global delivery units. We defined the processes clearer. For example, we established a single point of contact for the entire remote delivery so that the colleague in a service center unit in Brazil, Venezuela or Italy has exactly just one contact person in the delivery center.”* (Global Delivery Center Head)

The second change was to ensure clear responsibilities. Prior to the implementation of GLOBDELCON's GDM strategy, consultants primarily offered customized services. Along with the modularization of the software implementation, tasks become vastly standardized. On the one hand, this required a definition of standard work-packages and each onsite and offsite unit's function in global service delivery. On the other hand, standard approaches of how services have to be executed by employees were essential.

*“It is totally another way of working. It is kind of like a cookbook that you need to follow. It is not how it used to be when a consultant go onsite and decided how they want to do it now. Now there is a global standard approach that no matter who you are you need to follow.”* (Head of Advanced Delivery Management)

The third change was the virtualization of tasks. This step was especially challenging for the onsite service center employees. Consultants who were used to deliver customized services with physical onsite teams had to get used to a delivery of modularized services within a virtual team. This implied a significant and challenging mind-shift in GLOBAL's organizational culture.

*“The other thing is that it needs a real cultural change for a consultant because our consultants have to get much more used to working in virtual teams versus physical teams and they have to get much better in the communication within a virtual team.”* (Global Service Center Head NA region)

These changes stress the importance of adopting advanced and sophisticated global delivery processes and work practices. We learned from the interviews, that existing processes had to be standardized and employees had to get used to work in a virtual environment. Moreover, we found that the development of such capabilities is positively influenced by an accumulation of experience over time. Thus, we define the maturity of a GDM as vital organizational global delivery resource.

#### 4.4 Performance Outcomes

The second goal of the conducted case study was to identify performance outcomes from a vendor's perspective. Therefore, we inquired the participants about key performance indicators within GLOBDELCON's GDM and how they measure global delivery performance. As mentioned above, the overall objective of GLOBAL's GDM strategy is to utilize economies of scale through a network of globally distributed delivery centers. Thereby, the provider aims at reducing costs in order to attract small and medium-sized clients. As a result of the increasing modularization of implementation tasks, GLOBAL seeks to enhance quality of services and reduce threats of single-location service provisioning such as country-specific risks and capacity bottlenecks.

*"The Output factors are cost, scale, risk and quality."* (Global Delivery Head)

Based on the case study interviews, we identified six primary key indicators for GLOBAL's GDM. The company aims at offering its services at a competitive price. Therefore, GLOBAL has to reduce the costs of its services. Consequently, the first performance indicator is the overall cost of an implementation project.

*"We have to look at pricing and the costs of our services in a manner that it fits with the market pricing so that we are competitive"* (Global Service Delivery Head EMEA Region)

Furthermore, GLOBDELCON's customers demand for a more precise and more transparent cost calculation for software system implementations. Against this background, one major goal was to improve the expenditure estimation of service offerings. Thus, the second performance indicator of the observed GDM is the percentage of completed projects where GLOBAL does not experience any cost overruns.

*"We need to be able to offer fix-priced contracts to our customers and to meet these commitments."* (Global Service Center Head)

In enabling fixed-price contracts, GLOBAL increased the modularization of its services. This implies that the onsite consultants need to be consistent in service offering and bundling of implementation tasks so that the service provisioning by the offside delivery center units can be standardized. If a client demands for

customization, consultants need to offer these services in a repeatable way by adding new components to the global module catalogue. Therefore, we define the third performance indicator as the percentage of completed project components that are transferable to other contexts and companies.

*“It is being able to be consistent in our delivery. With consistency in our delivery we get the repeatability of services that we need to achieve our goals.”* (Global Service Delivery Head LAC Region)

In addition to an improved estimation of costs and an increasing repeatability of services, GLOBAL aimed at reducing cycle times. The company describes the duration of a task as the time between contract agreement and project completion. We therefore define the fourth performance indicator as the implementation time with respect to project size and customization effort.

*“We need to see that the duration of the projects - we are selling the whole concept based on the duration right now - is going down with a remote share that is going up. We need to make sure that we can prove that and that this is what is really happening.”* (Head of Advanced Delivery Management)

With the adoption of the GDM strategy, GLOBAL seeks to improve the productivity of its services. Along with lower project duration, lower project costs and increased economies of scale, GLOBAL expects greater monetary benefits. Thus, we define the economic benefit as the fifth performance indicator.

*“I think a shorter implementation time, lower implementation costs, and a better utilized workforce - one that we can utilize wherever it is needed – should increase the profitability of this project.”* (Global Service Delivery Head EMEA Region)

Finally, GLOBAL aims to ensure delivery excellence and increase quality of services in order to improve customer loyalty and to benefit from positive word-of-mouth which supports the acquisition of new projects and clients. The quality of service delivery is captured by customer satisfaction, which we define as the sixth performance indicator.

*“Customer satisfaction is the most important quality criterion for our services.”* (Global Delivery Center Head)

## **5 Interpretation of Findings**

The primary goal of our exploratory case study was to identify variables for measuring relative efficiency of IT GDMs. Based on the conducted interviews, we identified six inputs and six outputs for our endeavor. With respect to the human input dimension, we found that employees’ soft skills such as their language abilities and

their cultural intelligence as well as the employees' hard skills in terms of knowledge and product-related expertise are important global delivery resources. Furthermore, we discovered that the global delivery headcount plays a vital role in achieving economies of scale. The global reach of service and delivery centers were identified as important physical global delivery resource. Service centers provide onsite support for customers. They are responsible for managing and harmonizing projects and for acquiring new clients. Therefore, it is fundamental to a vendor to have service centers at the clients' locations. Globally dispersed teams in a network of delivery centers perform services for customers. With such centers in different countries, a variety of valuable resource markets can simultaneously be accessed in order to get time and cost advantages and to minimize risks. Moreover, we found that due to an increased virtualization of work, a high-quality IT infrastructure is a key success factor for cooperation among globally dispersed teams. Finally, we learned that the implementation of a GDM strategy is a time-consuming challenge. Existing business processes need to be aligned to a global delivery of services. This requires appropriate experience and a continuous improvement of processes. Therefore, we defined the GDM maturity of a vendor as vital organizational global delivery resource. Table 1 summarizes the identified input and output variables.

In section 4.3, we identified six key performance indicators for global delivery success. Four of these outputs, the overall costs of a completed project, the accuracy of cost estimation, the implementation time, and the repeatability of services are project-specific performance outcomes. These factors reveal the success of the GDM from a vendor's perspective. Customer satisfaction has been discovered as a measure for the quality of global delivery services. We define this output as client-specific performance outcome. The final performance outcome derived from our case study is the overall profitability of the GDM. We define this output as business process performance outcome.

**Table 1.** Input and output variables

<b>Global Delivery Resources</b>	<b>Performance Outcomes</b>
Hard Skill Level of Employees	Costs of Completed Projects
Soft Skill Level of Employees	Accuracy of Cost Estimation
Headcount in Global Delivery Centers	Duration of Implementation Project
Global Reach of Service and Delivery Centers	Repeatability of Service
Quality of IT Infrastructure	Customer Satisfaction
Global Delivery Model Maturity	Economic Benefit

Based on these findings, we learned that efficiency measurement in global delivery is a complex task. We developed a conceptual framework as presented in Figure 3. We postulate that human, physical, and organizational global delivery resources directly impact project- and client-specific performance outcomes. These outcomes impact the overall profitability of the GDM. Against this background, we recommend measuring efficiency in a multi-stage process. For detailed information on how to