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# IT Outsourcing: An Assessment of Relative Failure Factor Complexity

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The paper deals with the factors affecting the failure of IT outsourcing and introduces new concept referred to as relative failure factor complexity (RFFC). The RFFC takes into consideration the gap in perception of both outsourcing partners; customer organisations and IT providers. The paper considers responses from seven organisations (customers) facing problems with their IT outsourcing and five IT providers. Structured interviews with senior managers in these firms have been conducted. Results show that there are discrepancies between the customers and providers on their perception of critical failure factors affecting the IT outsourcing. The paper concludes that there are mainly three critical failure factors with high RFFC that play a crucial role on IT outsourcing failure. These factors are incompatible cost/benefit trade off, high hidden costs, and low response rate.

## INTRODUCTION

In the current market environment, it is imperative for organisations to enhance their competitiveness through the use of new information technology (IT). However, literature studying the progress of information technology (IT) projects suggests that there has been unacceptable number of failure and disappointment (Goulielmos, 2003; Whyte and Bytheway, 1996). Literature also suggests that the implementation, operation and maintenance of IT systems are costly and time consuming (Holohan, 2000) and accordingly, outsourcing IT becomes a viable option (Chen and Soliman, 2002). The purpose of this study is to investigate factors affecting the IT outsourcing failure.

Outsourcing has been viewed as a form of predetermined external provision with another enterprise for the delivery of goods and/or services that would previously have been offered in-house (Kakabadse, N., and Kakabadse, A., 2000). Outsourcing can be defined also as a contractual agreement between the customer and one or more suppliers to provide services or processes that the customer is currently providing internally. The fundamental difference between outsourcing and any other purchasing agreement is that the customer contracts out a part of its existing internal activities (Fan, 2000). Three major developments in global markets and technologies have forced organizations to focus on their core processes and brought the outsourcing of other processes to the forefront of management's attention:

1. The explosion of the Internet and other telecommunication technologies has made real-time, on-line communication throughout the entire supply chain a reality. The information technologies facilitate considerably the flow of transactions and information required for outsourcing;
2. Increasing customer demands in areas of product and service cost, quality, delivery, technology, and cycle time. Customer demands make it difficult for organisations to deal with all aspects of manufacturing and services without outsourcing some of processes to other organisations specialised in providing or producing these processes. Increasingly, companies use outsourcing to gain access to competitive skills, improve service levels and increase their ability to respond to changing business needs (Lee, 2000).
3. The emergence of supply chain management. Lambert and Cooper (2000) point out that one of the most significant paradigm shifts of modern business management has been that individual businesses

no longer compete as autonomous entities, but rather as supply chains. Managing the supply chain has become a means of improving competitiveness (Lee, 2000). Supply chain management makes it possible for organisations to outsource processes that would be too expensive for them to produce internally. Carter and Narasimhan (1996) suggest that outsourcing will be one of the eight most important factors in the supply chain management.

Recent years shows that the number of outsourcing deals – and their value – have ballooned. According to one study, world-wide spending on outsourcing services in 2000 reached US\$1 trillion (Linder, Cole, and Jacobson, 2002). Outsourcing offers several advantages including enabling firms to concentrate on core activities, focus on key strategic objectives, lower or stabilise overhead costs, and to provide flexibility in responding to market changes (Kakabadse, N., and Kakabadse, A., 2000). However, the literature reports several disadvantages of outsourcing. These include becoming dependent on outside providers for services, losing control over critical functions and lowering the moral of employees (Kliem, 1999). Further, outsourcing may generate new risks including losing of control over suppliers and the loss of critical skills or developing wrong skills (Quinn and Hilmer, 1994). It is suggested that the social impact of outsourcing on social structures is not yet fully appreciated (Kakabads, N., and Kakabadse, A., 2000).

This paper discusses the major failure factors affecting the organisation's decisions for information technology (IT) outsourcing. It considers the perception of both customer organisations and IT providers.

## SYSTEM FAILURE

The term 'system failure' is not an objective concept (Beynon-Davies, Owns and Williams, 2004). It is an intersubjective concept and the meaning of the failure is widely depends on the perspective of the researcher. This research adapts the definition of Lyytinen and Hirschheim (1987) which is referred to as 'expectation failure'. Expectation failure signifies the inability of a system to meet a specific stakeholder group's expectations. Considering breaking down the expectations into specific factors, this definition implies a reference to the gap between the expectation from a factor - or more precisely a success factor- and a performance of the factor. That is, the wider gap between the expectation from a factor and the actual performance of the factor means the more potential for a system to fail. Usually the expectations of the organisation's senior management are considered. There are several difficulties with measuring the actual performance of a factor including the inability to employ an adequate performance measure and the cost and time required to implement such measurement.

A failure factor concept is opposite to that of success factor concept. The main benefit of using a failure factor concept is that, in the era of customer satisfaction and customer relationship management, factors affecting the IT outsourcing failure from the perspective of the customer play a major role and there is no actual need to verify the actual performance. However, some of the failure factors perceived by customer as critical failure factors could be rectified by IT service provider via negotiation. Rectifiable factors may be critical but do not play a

crucial role in IT outsourcing failure. Other perceived factors may be complex and cannot be resolved via negotiation. These factors represent the real IT outsourcing factors.

### FAILURE FACTOR COMPLEXITY

In IT outsourcing, there are two distinctive stakeholder groups that are directly involved in dealing with the IT outsourcing projects; organisation requesting the IT outsourcing (customers) and the IT service providers. These two stakeholder groups may have different expectations from the IT system and may look to the performance of the IT systems from different perspectives. The gap between the customer's expectation of failure and the IT service provider expectation of the factor is referred to as expectation gap (EG) and is calculated as follows:

$$\text{Expectation Gap (EG)} = (\text{Customer Expectation} - \text{Service Provider Expectation})$$

A failure factor perceived by both customer and IT service provider as highly affected the IT outsourcing failure may be considered as a critical failure factor. However, this factor is known to both outsourcing partners and may be rectified or cured by both through negotiation or other methods and actions. The actual concern when the expectation of a factor considered differently by both outsourcing parties. A failure factor considered as critical by customer and rated low or non-critical by the system provider may be difficult to be rectified or resolved. This type of factors are more complex than these factors which rated likewise by both outsourcing parties. The complexity of a factor directly related to the customer perception and the size of the gap in factor expectation. The complexity of failure factor can be determined as follow:

$$\text{Failure Factor Complexity (FFC)} = (\text{EG}) \times (\text{Customer expectation})$$

For better FFC measurement, it is preferable to determine the relative failure factor complexity (RFFC) by dividing the values of FFC by the maximum FFC value. This calculation provides a uniform measure and allows the benchmarking the complexity of each failure factor relative to the highest complexity factor:

$$\text{RFFC} = \text{FFC} / (\text{Max. FFC})$$

### IT OUTSOURCING

It is imperative for organisations to stay competitive through the use of new information technology, tools and innovations (Chen and Soliman, 2002). When IT is not a core process for an organisation, outsourcing IT services is a possible route to cope continuously with the growing technological transitions (Akomode, 1998).

Literature suggests that the key strategic factors that influence decisions to outsource are centred on cost reduction (Akomode, 1998; Willcocks, Fitzgerald, and Feeny, 1995). Quinn (1999) finds that a firm could outsource to the best-in-class providers with a lower costs. Despite this, Costa (2001) emphasises that cost is not the rationale behind all IT outsourcing. The need to focus on the core activities and technical considerations are other driving forces for IT outsourcing.

The meaning of IT outsourcing has evolved over time. Traditionally, IT outsourcing often focuses on the area of software development and IT operational activities while the concentration in modern IT outsourcing are on the e-commerce, CRM and ERP. Further, there is a shift from using in-house servers towards dedicated communication network and Internet. This reduces considerably the costs of IT services and at the same time increases its performance.

It is estimated that 20 percent of Fortune 500 companies in the USA have outsourced their IT functions by 1994. In 1991 outsourcing

vendors had revenues of US\$35 billion which is forecast to yearly increase by a minimum of 15 percent (Fink, 1994). It is expected that the application service providers (ASP) alone will reach US\$25 billion by 2004 compared with \$3.5 billion in the year 2000 (Chen and Soliman, 2002). On the other hand, a considerable number of empirical studies express dissatisfaction with outsourcing. A survey conducted in 1995 also shows that nearly 70% of companies who have outsourced information technology are unhappy with the service providers and only about half of the outsourcing contracts deliver the promised savings (Lacity, Willcocks, and Feeny, 1995). In some cases, outsourcing contracts had been negotiated with other vendors after the completion of the current contracts. In other cases, firms were pulling IT functions back and hiring new staff to maintain "in-house" when outsourcing contracts expire. Many customers stress that the disadvantages of outsourcing outweigh the advantages after outsourcing agreements have been endorsed (Kliem, 1999).

### BENEFITS AND RISKS

The outsourcing of IT functions has been the most popular form of outsourcing (Frost, 2000). Many organisations are constrained by the high costs associated with the implementation of IT systems and other computer operations (Frost, 2000; Preston and Brohman, 2002). This reduces the uncertainty associated with the high investment in IT functions and replaces capital outlays with periodic payments (Preston and Brohman, 2002). Organisations are also constrained by the availability specific IT skills that cannot be readily developed within the organisations (Frost, 2000; Preston and Brohman, 2002; Simchi-Levi, D., Kaminsky, and Simchi-Levi, 2003). Outsourcing the IT functions allows organisations (customers) to use IT provider's technical knowledge and to gain access to new technologies and innovation. Hence, the incentive for organisations to outsource IT functions exists.

IT outsourcing raises a number of critical risk-related issues and conflicting objectives between the customers and IT providers. Increased flexibility is a key objective when an organisation outsources its IT functions (Simchi-Levi, D., Kaminsky, and Simchi-Levi, 2003). This implies the adaptation of IT functions to suit the organisation needs and requirements. It also implies the expectation that the outsourcing provider has the ability to solve IT problems as fast as possible. IT providers typically focus on cost reduction. They are reluctant to adapt systems and attempt to implement systems with as little changes as possible. IT providers may be slow in their responses to IT problems.

Outsourcing also brings about uncertainty. It may be based on 'untested agreement', requires changes in the organisation's culture and new relationship with outside providers. It is difficult to know a priori whether the IT functions will be run more efficiently as when the organisation was managed in-house (Frost, 2000).

### RESEARCH METHODOLOGY

This research employs a multiple case study approach using semi-structured interviews (Yin 1994) rather than a large quantitative survey. The reasons are as follow:

- Since the focus of this research is on the IT outsourcing failure, there is a concern that there will be a small number of companies willing to participate in a large survey;
- The identification of failure factors can be a complex process. It is more applicable to use a case study approach to amend and justify the factor selection;
- A case study approach requires face-to-face interviews with respondents. Such approach provides understanding and information on several qualitative areas, such as reasons for emphasising certain failure factors and gives feedback on the questionnaire used during the interviews (Soin, 2004);
- Outsourcing includes two groups of partners; customers and service providers. A multiple-case study can provide a robust insight and thus achieve a higher level of external validity and reliability. And;

- Cases can be viewed and studied alone and across cases to provide comparison and contrast and richer details and insights regarding the research issues (Stake, 1994; Yin, 1994).

The multiple case study approach requires interviewing executives from both customer organisations and service provider organisations. This also allows to determine the complexity of failure factors. The interview questionnaire includes 25 failure factors which are classified into three categories of failure factors: partnership factors, strategic factors and organisational factors. The failure factors are rated using Lickert Scale. Prior to interviews, the questionnaire will be sent to senior managers of the case organisations and the IT providers for their perusal. This allows interviewees to comprehend the type and style of questions before the interviews and also facilitate the possibility of conducting some interviews via telephones.

**CASE STUDIES**

This research considers organisations facing some difficulties in achieving the perceived performance from outsourcing their IT functions. To have a comprehensive picture about the failure factors, we include within the case studies the IT service provider partners to the selected organisations. We considered seven Australian case organizations and five service providers. The case organisations are an educational institution, two financial organisations and four manufacturing companies. Data were collected on three groups of failure factors: partnership factors, strategic factors and organisational factors as mentioned above. The respondents are requested to rate the rating factors using a seven-point Likert scale being ‘1’ for a factor with extremely low influence on the IT outsourcing failure and ‘7’ for a factor that extremely affecting the failure of the IT outsourcing. The expectation gao (EG) of factors affecting the IT outsourcing factors, failure factor complexity (FFC) and relative failure factor complexity (RFFC) are determined. Table 1 demonstrates the results of the interviews and data analysis.

**DATA ANALYSIS**

In general, both the case organisations (customers) and the IT providers agreed that the IT provider capability does not play a critical factor in the Failure of IT outsourcing. They also agreed that there is no major confusion over the terms of partnership contracts and the problems resulting from IT outsourcing have no major effect on core competencies as can be established from Table 1.

The customers claim that high complaint rate, low response rate, incompatibility of cost/benefit trade off, high hidden costs resulting from the IT outsourcing, and poor user focus factors play a critical role

Table 1. Case Study Results

Group	Failure Factor	Customer	Provider	GE	FFC	RFFC
Partnership Factors	IT provider incapability	3.6	3.2	+0.4	1.44	0.05
	Lack of work understanding	4.1	6.2	-2.1	8.61	0.32
	Lack of communication	4.9	5.4	-0.5	2.45	0.09
	Poor terms of the contract	3.6	3.4	+0.2	0.72	0.03
	Poor customer-provider relationships	4	6.1	-2.1	8.4	0.31
	Low service quality	5.1	3.1	+2.0	10.2	0.38
	Low response rate	6.4	3.3	+3.1	19.84	0.74
	Lack of periodical review	5.3	5	+0.3	1.59	0.06
	Lack of skills	4.5	4.7	-0.2	0.9	0.03
Organisational Factors	Poor commitment of top management	3.2	5.9	-2.7	8.64	0.32
	Poor management style	3.4	6	-2.6	8.84	0.33
	Lack of training	5.6	5.9	-0.3	1.68	0.06
	Lack of team work environment	5.5	5.6	+0.1	0.55	0.02
	Lack of system understanding	4.4	6.2	-1.8	7.92	0.29
	Poor internal policies & standards	4.2	4.8	-0.6	2.52	0.09
	Poor user focus & friendly	6.2	4.7	+1.5	9.3	0.35
	High complaint rate	6.5	4.4	+2.2	14.3	0.53
	Lack of strategic vision	3	6.1	-3.1	9.3	0.35
Strategic Factors	Incompatible Cost/benefit trade off	6.4	2.2	+4.2	26.88	1
	High hidden costs	6.4	3.2	+3.2	20.48	0.76
	Lack of performance indicators	5.7	5.9	-0.2	1.14	0.04
	Adversely affect core competencies	3.2	3.3	-0.1	0.32	0.01
	Lack of flexibility	3.2	4.6	-1.4	4.48	0.17
	Poor selection process	3	4	-1.0	3	0.1
	Over-dependency on IT provider	3.2	6.4	-3.2	10.24	0.38

Table 2. Customers and IT Providers Factor’s Ranking

Failure Factor	Customer Ranking	Provider Ranking	RFFC
High complaint rate	1		0.53
Low response rate	2		0.74
Incompatible cost/benefit trade off	2		1
High hidden costs	2		0.76
Poor user focus & friendly	3		0.35
Over-dependency on IT provider		1	0.38
Lack of work understanding		2	0.32
Lack of system understanding		2	0.29
Poor customer-provider relationship		3	0.31
Lack of strategic vision		3	0.35

on the IT outsourcing failure. The IT providers, as shown in Table 2, play down the effects of these factors and emphasise that the over-dependency of customers on IT providers, lack of work understanding, lack of system understanding by the customers, poor customer-provider relationship, lack of customer’s strategic visions and poor customer’s management style are major factors for the IT outsourcing failure.

The relative failure factor complexity (RFFC) indicates that the failure factor ‘poor user focus’ could be rectified. With a more effort and negotiation, the complaint rate could also be reduced to an acceptable level. However, there is a wide discrepancy in the opinions of the parties in regards to cost/benefit factor. IT providers refuse to concede the importance and criticality of this factor. IT providers claim that the customers get benefits from IT outsourcing that most likely to be equivalent to the cost incurred by them. IT providers play down the hidden costs factor. They also claim that their response rates are reasonable. From the complexity viewpoint, the three failure factors with high complexity; ‘incompatible cost/benefit trade off’, ‘high hidden costs’, and ‘low response rate’ are difficult to rectify and form the real reasons for IT outsourcing failure.

**CONCLUSION**

Literature studying the progress of IT projects suggests that there has been unacceptable number of failure and disappointments. The two outsourcing partners; customers and IT providers may have different expectations from the IT systems and may look to the performance and critical factors affecting the IT outsourcing from different perspectives. This paper deals with the critical failure factors of IT outsourcing and introduces the concept of relative critical failure factor complexity (RFFC). The research considers responses from seven customers and five IT providers. Structured interviews with senior managers in these firms had been conducted. It is required from interviewees to respond to twenty five questions representing factors affecting the success of IT outsourcing. The customer’ organisations put a heavy role on the high complaint rate of their employees, cost/benefit trade off, high hidden costs resulting from the IT outsourcing, low response rate of IT providers, and poor users focus of the IT system. The IT provider organisations, from other hand, play down the effect of factors emphasised by customer organisations and draw attention to the over-dependency of customer organisations on IT providers, lack of system understanding, lack of customer strategic vision, lack of work understanding, poor customer-provider relationships, and the customer management style are the major factors behind the IT outsourcing failure. Data analysis shows that there are mainly three critical failure factors with high RFFC which play a crucial role on IT outsourcing failure. These factors are incompatible cost/benefit trade off, high hidden costs, and low response rate.

**REFERENCES**

Akomode, O., Lees, B., & Irgens, C. “Constructing Customised Models and Providing Information to Support IT Outsourcing Decisions,” *Logistics Information Management* (11:2), 1998, pp. 14-127.

- Beynon-Davies, P., Owens, I., and Williams, M. (2004). "Information systems evaluation and the information systems development process", *The Journal of Enterprise Information Management*, 17(4), pp. 276-282.
- Lyytinen, K., and Hirschheim, R. (1987). "Information systems failures: a survey and classification of the empirical literature", *Oxford Surveys in Information Technology*, 4, pp. 257-309.
- Carter, J., & Narasimhan, R. "Purchasing and Supply Management: Future Directions and Trends," *International Journal of Purchasing and Materials Management* (32:4), 1996, pp. 2-12.
- Chen, L. & Soliman, K. "Managing IT Outsourcing: A Value-driven Approach to Outsourcing Using Application Service Providers," *Logistics Management* (15:3), 2002, pp. 180-191.
- Costa, C. "Information Technology Outsourcing in Australia: A Literature Review," *Information Management & Computer Security* (9:5), 2001, pp. 213-224.
- Fan, Y. "Strategic Outsourcing: Evidence From British Companies," *Marketing Intelligence & Planning* (18:4), 2000, pp. 213-219.
- Fink, D. "A Security Framework for Information Systems Outsourcing," *Information Management & Computer Security* (2:4), 1994, pp. 3-8.
- Frost, C. "Outsourcing or Increasing Risk?," *Balance Sheet* (8:2), 2000, pp. 34-37.
- Goulielmos, M. (2003). "Outlining organisational failure in information systems development", *Disaster Prevention and Management*, 12(4), pp. 319-327.
- Holohan, M. (2000). "Application service providers", *Computer World*, 34(37), pp. 70.
- Kakabadse, N., & Kakabadse, A. "Outsourcing: a Paradigm Shift," *Journal of Management Development* (19:8), 2000, pp. 670-728.
- Kliem, r. (1999). "Managing the Risks of Outsourcing Agreements," *Information Systems Management* (19:93), 1999, pp. 91-93.
- Lacity, M., Willcocks, L. & Feeny, D. "IT Outsourcing Maximises Flexibility and Control," *Harvard Business Review* (73:3), 1995, pp. 84-93.
- Lambert, D., & Cooper, M. "Issues in Supply Chain Management," *Industrial Marketing Management* (29), 2000, pp. 65-83.
- Lee, H. "Creating Value Through Supply Chain Integration," *Supply Chain Management Review* (14:4), 2000, pp. 30-37.
- Linder, J., Cole, M., & Jacobson, A. "Business Transforming Through Outsourcing," *Strategy and Leadership* (30:4), 2002, pp. 23-28.
- Preston, D., & Brohman, K. "Outsourcing Opportunities for Data Warehousing Business Usage," *Logistics Information Management* (15:3), 2002, pp. 204-211.
- Quinn, J. "Strategic Outsourcing: Leveraging Knowledge Capabilities," *Sloan Management Review* (40:4), Summer 1999, 40(4), pp. 9-22.
- Quinn, J., & Hilmer, F. "Strategic Outsourcing," *Sloan Management Review* (35:4), Summer 1994, pp. 9-21.
- Simchi-Levi, D., Kaminsky, P., & Simchi-Levi, E. *Designing and Managing the Supply Chain: Concepts, Strategies, and Case Studies*. McGraw Hill / Irwin Series in Operations and Decision Sciences, Singapore, 2003. pp. 180-183.
- Soin, S. (2004). "Critical Success Factors in Supply Chain Management at High Technology Companies", DBA Dissertation, University of Southern Queensland, Queensland, Australia.
- Stake, R. (1994). "Case Study", *Handbook of Qualitative Research*, Denzin, N., and Lincoln, Y. (eds), Sage, Thousand Oaks, pp. 236-247.
- Whyte, G., and Bytheway, A. (1996). "Factors affecting information systems' success", *International Journal of Service Industry Management*, 7(1), pp. 74-93.
- Willcocks, L., Fitzgerald, G., & Feeny, D. "Outsourcing IT: the Strategic Implications," *Long Range Planning* (28:5), 1995, pp. 59-70.
- Yin, R. (1994). "Case Study Research - Design and Methods", Sage, Thousand, Oaks.



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