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A Study of the Perceptions of IT Professionals on IT Outsourcing

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ABSTRACT

Outsourcing Information Technology (IT) functions are becoming common IT strategies. The impact on IT professionals' careers is not yet known. The purpose of this research is to reveal what perceptions exist within in-house IT professionals. This research report provides the results of a survey completed by 120 in-house IT professionals. The majority of the respondents (94.1%) came from Government; Banking/Financial Services; Retail and Travel industries. Respondents were asked about their perceptions on IT outsourcing in terms of the benefits to the organization and to the IT professionals. A strong correlation between the employee's perceptions on IT outsourcing and the level of outsourced IT functions within their company was identified. Furthermore, the findings of this study will help IT managers be aware of the perceptions of IT professionals and the recommendations will also provide guidance to them in dealing with staff perceptions more effectively during the outsourcing processes.

Keywords

Outsourcing, Human Factors, Perceptions

INTRODUCTION

Outsourcing has become one of the fastest growing IT trends in recent years. According to a report from the US Forrester Research Corporation, outsourcing of data center will be a billion dollar business with an annual growth rate of 10 percent (Currie [1995:130]). Furthermore, Input Corporation estimates the outsourcing of IT operations have an annual growth rate of 17 percent (Lacity and Hirschheim [1993a:18]). Client Server outsourcing, on the other hand is growing at a rapid rate of 40-50 percent per annum (Currie [1995:130]). These statistics indicate that outsourcing has a very strong growth trend.

IT outsourcing is the process of assigning part or all of IT activities to one or more external vendors. Outsourcing is a new term for an old concept (Minoli [1995:1]). During the sixties and seventies, a majority of companies had contracted outside service bureaus to perform their payrolls. This was one of the earliest signs of the outsourcing activity. However, strategic decisions to outsource large sections of IT were not popular until Eastman Kodak Co. made their decision to outsource their systems in 1989. Their data center operations were outsourced to IBM, telecommunication services to Digital Equipment Corporation, and PC support to Business Land. This began a dramatic restructuring of organizational information systems (Applegate [1993]).

In the past, outsourcing was done mostly by small organizations that could not afford to invest large amounts of money in IT. Early forms of IT outsourcing typically dealt with single-system contracts comprising of a small portion of the IT budget (Lacity and Hirschheim [1993a:18]). However, IT outsourcing has recently grown to span multiple-systems and has represented a significant transfer of assets and staff to outsourcing vendors. Today, many large and medium-sized organizations are actively pursuing outsourcing as a means to sharpen their strategic business focus and to achieve competitive advantages. Ferguson [1996] reported that the State Government of Victoria is preparing to outsource the development of a strategy to manage its \$125 million per year telecommunications purchasing requirement as of April 1998. In addition, Hilvert [1997] reported that the Department of Veterans Affairs has made a decision to outsource its Mainframe facilities to ISSC. The five year deal is worth \$65 million. Even information intensive industries such as banking, which are traditionally known for keeping information processing and management in-house, are actively engaged in outsourcing. Recently, the Commonwealth Bank of Australia (CBA) had completed a \$5 billion venture with outsourcing vendor, Electronic Data Systems (EDS). The largest outsourcing deal ever signed in Australia (MIS [1997]). The agreement allows all of the Commonwealth Bank IT operations to be operated by EDS at a cost of \$500 million a year (Flint[1997]).

Many benefits of IT outsourcing are cited in the literature (Benko [1992]; Lacity and Hirschheim [1993a & 1993b]; Currie [1995]; Minoli [1995] and Fried [1995]). They are summarised into the following four main categories:-

1. **Financial** - Benefits include cost savings through economies of scale achieved by consolidation; infusion of cash through liquidation of computers and restructuring of the IT budget.
2. **Business** - Benefits include assistance in downsizing efforts and/or re-engineering; focusing the internal staff on core competencies/business and enabling companies to perform consolidation quicker when two companies merge.
3. **Technical** - Benefits include minimising the company's investment and reducing financial risk; improving technical services; accessing hard to find technical talent; accessing new technologies and reducing the responsibility for on-going management of the complex and evolving network.
4. **Political** - Benefits include providing the efficiency of IT, acquiring or justifying additional resources; eliminating burdensome functionality and enhancing IT credibility.

IT executives find the benefits associated with outsourcing to be very appealing. It appears that outsourcing is perceived by many as a panacea to cure organisational ills of low profits & productivity, skill shortages and obsolete technologies. In addition to the cost savings that are frequently cited as a primary benefit, outsourcing can assist them to upgrade their systems and to re-engineer their business to meet their changing business demands.

However, outsourcing has its critics (Due [1992]; Lacity and Hirschheim [1995]; Kelly [1990]; Buck-lew [1992] and Frenzel [1992]) as well. Opponents see savings evaporating through extra charges unforeseen in the contract, savings being raised as a short-term measure that will eventually imperil the company and focusing on the core businesses as an abdication of management responsibility. Currie [1995:135] describes the major problems of IT outsourcing are: cost escalation; maintaining quality; over-dependence on suppliers; lack of supplier flexibility and lack of management skills to manage the supplier.

Like many other management functions and practices, outsourcing is not an easy option to choose and to maintain once it has been selected as a viable practice (Khosrowpour et al [1995]). Lacity and Hirschheim [1995] state that the published literature often presented an excessively optimistic view of outsourcing and the public reports under-represented outsourcing failures because few companies wish to publicize their mistakes.

Despite the pitfalls of outsourcing, IT outsourcing is now being adopted as an effective and appropriate business approach to managing IT. As many companies and government departments choose outsourcing as a viable IT strategy, this strategy also raises a number of critical and complex issues for management. The issues involved are concerned with the evaluation and performance measurement of outsourcing vendors, the development of service level agreements; the complexity of contract negotiation; the lack of controls over quality and the impact on IT personnel.

In order for companies to move towards successful outsourcing, the need for managing the human resource issues effectively in outsourcing projects has become critical. It is important for managers to understand what their staff's perceptions and issues are so they can effectively deal with the issues.

WHAT ARE THE ISSUES WITH OUTSOURCING?

Outsourcing IT functions is becoming a common IT strategy. The impact on in-house IT professionals is not yet known. The aim of this research is to explore in-house staff's attitudes towards IT outsourcing. While many researchers have studied business related issues on IT outsourcing, there is no current research available in Australia that provides an understanding of the key human resource aspects of outsourcing. Therefore, this research is an exploratory study to investigate in-house IT staff's attitudes towards IT outsourcing and their career path trends which we have little knowledge of in the areas.

Several research questions are raised in relation to the question of what perceptions in-house IT professionals' have of IT outsourcing. These questions are listed below:-

- How strongly do in-house IT professionals agree that IT outsourcing is a good strategy?
- How strongly do in-house IT professionals believe that IT outsourcing can generate benefits for their organization?
- How strongly do in-house IT professionals believe that staff impact had been seriously considered in the outsourcing decision process?
- How strongly do in-house IT professionals believe that they are being affected by IT outsourcing?

Many academics and consultants have offered contributions on business considerations such as outsourcing rationale, cost savings, selection of the right vendor, negotiation of contracts, avoiding mistakes and identification of good candidates for outsourcing. However, there are very few studies on staff impact of IT outsourcing. It is expected that this research will add to the body of IT outsourcing research and contribute towards the management of staff issues. The purpose of the descriptive analysis is to expose how IT outsourcing is currently perceived by staff.

DATA COLLECTION AND ANALYSIS

This research is concerned with the IT in-house staff who may be affected by IT outsourcing. Therefore, the selected subjects must satisfy the following criteria:

- Subjects must be in-house staff;
- Subjects must be working for outsourced companies
- Subjects must be working in IT departments and

The aim of this study is to obtain fair and unbiased results. IT professionals from different organizations and position levels are surveyed. Questionnaires with a cover page and self-addressed postage prepaid return envelope were mailed to each student who is enrolled in the Masters of Business in IT at the University of Technology, Sydney. Though these subjects were students, it should be highlighted that all subjects were experienced I.T. professionals with many years of work experience. Completed questionnaires were returned directly to the researcher. The reasons for selecting this group of subjects are listed below:

- The majority of the subjects are managers and team leaders.
- The subjects work across a wide range of organizations.

However, there are pitfalls of this approach. These are listed below:

- Subjects may be working for outsourcing vendor companies
- Subjects may be non IT professionals
- Subjects may be contractors

In total 258 questionnaires were distributed. Out of the 258 distributed questionnaires, 128 responses were received. Among the received questionnaires, 8 were eliminated because they were incomplete. Thus the actual sample size is 120. The response rate is 46.5%.

After questionnaires were received, the editing procedure began with writing an ID number on each returned questionnaire. This was followed by the elimination of any incomplete questionnaires. The data matrix was then developed to analyze data collected from all of the questions.

RESULTS

The research sample contains 120 respondents. The majority of respondents came from the Retail sector (41.7%), followed by Government (22.5%) and Banking (21.6%). The rest of respondents came from Travel (8.3%) and other organization types (5.9%). A large percentage of the respondents were males (71.6%), with the majority of respondents (60%) over 35 years old, 36.7% of the respondents in the 26 to 35 years old age group and a small percentage of the respondents (3.3%) being 25 years old or under. More than half of the respondents had more than 10 years work experience in IT (65.8%). 25.9% of the respondents had 6 to 10 years work experience in IT and a small percentage of the respondents (8.3%) had 5 years or under work experience in IT.

Nearly half of the respondents (49.2%) of the respondents were managers or team leaders and 50.8% of the respondents were holding non-managerial positions. Amongst the respondents who were holding the non-managerial positions, the majority of them were in applications support (15%) and applications development (13.3%), followed by the respondents who were in networks/communications (9.2%). 5% of the respondents were in operations. A small percentage of the respondents (8.3%) were in other positions. The greatest proportion of respondents had Mainframe skills (62.5%). 38.3% of the respondents had PC skills and 25.8% of the respondents had other skills. A small percentage (22.5%) of the respondents had the network/communications skills.

To ascertain in-house IT staff's attitude to IT outsourcing, the respondents were asked to estimate the proportion of all IT functions which were outsourced in their company. The respondents were asked about their views by indicating how strongly they agree or disagree with the following statements:

- IT outsourcing is a good strategy
- IT outsourcing generates benefits for your organization
- Staff impact has been seriously considered in the outsourcing decision process
- You are being affected by outsourcing

A five point likert scale was used. 55% of the respondents estimated that the proportion of outsourced IT functions in their company were 30% or less. 45% of the respondents estimated that the proportion of outsourced IT functions in their company were over 30%.

IT Outsourcing is a good strategy

Respondents were asked whether IT outsourcing is a good strategy. As can be seen in Table 1, when respondents estimated that the proportion of outsourced IT functions were over 30% in their company, a large percent of the respondents (38.9%) disagreed or strongly disagreed that IT outsourcing is a good strategy. However, when respondents estimated that the proportion of outsourced IT functions were 30% or less in their company, a small percent of the respondents (21.2%) described their feelings as negative.

	30% or under IT Functions Outsourced		Over 30% IT Functions Outsourced	
IT Outsourcing Is A Good Strategy	Number of Respondents	Percentage	Number of Respondents	Percentage
Strongly Agree	3	4.5%	2	3.7%
Agree	26	39.5%	12	22.2%
Neither Agree Nor Disagree	23	34.8%	19	35.2%
Disagree	12	18.2%	18	33.3%
Strongly Disagree	2	3.0%	3	5.6%
Total	66	100%	54	100%

Table 1- IT Outsourcing Is A Good Strategy, Overall Results

In the "less than 30% group", 44% responded with "agree and strongly agree", whilst in the "over 30% group", 25.9% responded with "agree or strongly agree".

The results also show that male in-house staff members are more likely to believe that IT outsourcing was a good strategy than the female staff, and that respondents in the age group (26 to 35 years old) are more likely to believe that IT outsourcing is a good strategy, whilst respondents in the age group (25 years or under) are less likely to believe that IT outsourcing is a good strategy. The results also showed that respondents having 6 to 10 years work experience in IT are more likely to believe that IT outsourcing is a good strategy, whereas respondents having less than 6 years work experience in IT are less inclined to believe that IT outsourcing is a good strategy.

These results were further tested with a Chi-Square test to determine if "IT Outsourcing is a Good Strategy" is related to "30% or under IT Functions Outsourced" and "Over 30% IT Functions Outsourced". The results gave $p=0.007$, so the relationship is significant. The number of degrees of freedom $X^2(4) = 12.04$.

Overall, The above findings show that the respondents with the following characteristics were more likely to believe that IT outsourcing is a good strategy:

Males

- In age group (26 to 35 years old)

- With 6 to 10 years work experience in IT

IT Outsourcing Generates Benefits

Respondents were asked whether IT outsourcing generates benefits for their organization. As can be seen in Table 2, when respondents estimated that the proportion of outsourced IT functions were over 30% in their company, a large percent of the respondents (37.1%) disagreed or strongly disagreed that IT outsourcing generates benefits. However, when respondents estimated that the proportion of outsourced IT functions were 30% or less in their company, a small percent of the respondents (21%) described their feelings as negative.

IT Outsourcing Generates Benefits	30% or under IT Functions Outsourced		Over 30% IT Functions Outsourced	
	Number of Respondents	Percentage	Number of Respondents	Percentage
Strongly Agree	2	3.0%	2	3.7%
Agree	32	49.0%	16	29.6%
Neither Agree Nor Disagree	18	27.0%	16	29.6%
Disagree	12	18.0%	18	33.4%
Strongly Disagree	2	3.0%	2	3.7%
Total	66	100%	54	100%

Table 2- IT Outsourcing Generates Benefits, Overall Results

In the “less than 30% group”, 52% responded with “agree and strongly agree”, whilst in the “over 30% group”, 33.3% responded with “agree or strongly agree”.

The results also show that that males are more likely to believe that IT outsourcing generates benefits for their organization than females, and that respondents in the age group (26 years old to 35 years old) are more likely to believe that IT outsourcing generates benefits for their organization. The respondents in the age group (25 years or under) are less inclined to believe that IT outsourcing generates benefits for their organization. The results also show that respondents having 6 to 10 years work experience in IT are more likely to believe that IT outsourcing generates benefits for their organization. Whereas respondents having more than 10 years work experience in IT are less inclined to believe that IT outsourcing generated benefits for their organization.

These results were further tested with a Chi-Square test to determine if “IT Outsourcing Generates Benefits” is related to “30% or under IT Functions Outsourced” and “Over 30% IT Functions Outsourced”. The results gave $p=0.009$, so the relationship is significant. The number of degrees of freedom $X^2(3) = 13.5$.

Overall, the above findings show that the respondents with the following characteristics were more likely to believe that IT outsourcing generates benefits:-

Males

- In age group (26 to 35 years old)
- With 6 to 10 years work experience in IT

Staff Impact Has Been Seriously Considered

Respondents were asked whether staff impacts have been seriously considered in the outsourcing decision process. As can be seen in Table 3, when respondents estimated that the proportion of outsourced IT functions were over 30% in their company, a large percent of the respondents (51.9%) disagreed or strongly disagreed that staff impact has been seriously considered in the outsourcing decision process. However, when respondents estimated that the proportion of outsourced IT functions were 30% or less in their company, only 48.4% of the respondents described their feelings as negative.

Staff Impact Has Been Seriously Considered	30% or under IT Functions Outsourced		Over 30% IT Functions Outsourced	
	Number of Respondents	Percentage	Number of Respondents	Percentage
Strongly Agree	3	4.5%	2	3.7%
Agree	18	27.3%	7	12.9%
Neither Agree Nor Disagree	13	19.8%	17	31.5%
Disagree	28	42.4%	15	27.9%
Strongly Disagree	4	6.0%	13	24.0%
Total	66	100%	54	100%

Table 3- Staff Impact Has Been Seriously Considered, Overall Results

Over 30% of the “less than 30% group” responded with “agree or strongly agree”, whilst in the “over the 30% group”, only 16% “agreed or strongly agreed”.

The results also show that males are more likely to believe that staff impact has been seriously considered in the outsourcing decision process than females and that respondents in the age group (36 years old or over) are more likely to believe that staff impact has been seriously considered in the outsourcing process. The respondents in the age group (26 years old to 35 years old) are less inclined to believe that staff impact has been seriously considered in the outsourcing process. The results also shows that the respondents having less than 6 years work experience in IT are more likely to believe that staff impact has been seriously considered in the outsourcing process. The respondents having more than 10 years work experience in IT are less inclined to believe that staff impact has been seriously considered in the outsourcing process.

These results were further tested with a Chi-Square test to determine if “Staff Impact has been seriously considered” is related to “30% or under IT Functions Outsourced” and “Over 30% IT Functions Outsourced”. The results gave $p=0.079$, so the relationship is significant. The number of degrees of freedom $X^2(4) = 12.65$.

Overall, the above findings show the respondents with the following characteristics were more likely to believe that staff impact has been seriously considered in the outsourcing decision process:

Males

- In age group (over 35 years old)
- With less than 6 years work experience in IT

Being Affected By Outsourcing

Respondents were asked whether they are being affected by outsourcing. The following sections present their views. As can be seen in Table 4, when respondents estimated that the proportion of outsourced IT functions were over 30% in their company, a large percent of the respondents (55.7%) agreed or strongly agreed that they were being affected by outsourcing. However, when respondents estimated that the proportion of outsourced IT functions were 30% or less in their company, only 47% of the respondents agreed or strongly agreed that they were being affected by outsourcing.

Being Affected By Outsourcing	30% or under IT Functions Outsourced		Over 30% IT Functions Outsourced	
	Number of Respondents	Percentage	Number of Respondents	Percentage
Strongly Agree	9	13.6%	3	5.7%
Agree	22	33.4%	27	50.0%
Neither Agree Nor Disagree	19	28.8%	11	20.3%
Disagree	12	18.2%	11	20.3%
Strongly Disagree	4	6.0%	2	3.7%
Total	66	100%	54	100%

Table 4- Being Affected By Outsourcing, Overall Results

The results also show that males are more likely to believe that they were being affected by IT outsourcing than females and that respondents in the age group (25 years or under) are more likely to believe that they were being affected by IT outsourcing. The respondents in the age group (36 years old or over) are less likely to believe that they were being affected by IT outsourcing. The results also shows that the respondents having less than 6 years work experience in IT are more likely to believe that they were being affected by outsourcing. Staff that have 6 to 10 years work experience in IT are less likely to believe that they were being affected by outsourcing.

These results were further tested with a Chi-Square test to determine if “Staff Impact has been seriously considered” is related to “30% or under IT Functions Outsourced” and “Being Affected by Outsourcing”. The results gave $p=0.06$, so the relationship is significant. The number of degrees of freedom $X^2(2) = 10.43$.

Overall, the above findings show that the respondents with the following characteristics were more likely to believe that they were being affected by IT outsourcing:

Males

In age group (25 years old or under)

With 5 years or less work experience in IT

CONCLUSION

This research study provides preliminary findings on the perceptions of IT professionals on the following statements:

- IT outsourcing is a good strategy
- IT outsourcing generates benefits for your organization
- Staff impact has been seriously considered in the outsourcing decision process
- You are being affected by outsourcing

The results show that:

- In-house staff are more likely to believe that IT outsourcing is a good strategy if their companies outsourced LESS than 30% of their IT functions to contractors or software vendor companies.
- In-house staff are more likely to believe that IT outsourcing generates benefits if LESS than 30% of their company's IT functions was outsourced to contractors or software vendor companies.
- In-house staff are more likely to believe that staff impact had been seriously considered in the outsourcing decision processes if their company outsourced LESS than 30% of their IT functions to contractors or software vendor companies.
- In-house staff are more likely to believe that they are affected by IT outsourcing if their company outsourced MORE than 30% of their IT functions to contractors or software vendor companies.

The results also show the possibility that “Staff impact has been seriously considered in the outsourcing decision process” is correlated to “IT outsourcing generates benefits for your organization” and “IT outsourcing is a good strategy”. As this study is a pilot study, future studies may be conducted to test this.

This study shows clearly that IT professionals' perceptions on IT outsourcing are correlated with the level of outsourced IT functions within their company, supporting similar assertions found in literature (Gupta [1992]; Due [1992] and Computer Technology Research Corporation Report [1994]). One of the largest costs of running an IT department is to retain qualified information systems professionals. Because a major portion of the IT budget is the professionals' salary, whenever cost reductions are planned, some of the reductions are usually achieved by lowering the payroll (Khosrowpour et al, [1996]). This direct link between outsourcing and employee numbers is the major reason why it is such a sensitive topic within the information technology community. These results support the view that employees are more negative about IT outsourcing if their companies have a high proportion of outsourced IT functions. The study found that the majority of respondents had neutral or negative attitudes towards IT outsourcing when the proportion of outsourced IT functions in their company were more than 30%. They perceived that IT outsourcing is not a good strategy; that IT outsourcing does not generate benefits; that staff impact has not been seriously considered in the outsourcing decision process and that no consideration for how

outsourcing affects the in-house professionals. Whilst there are benefits for outsourcing, especially in small organizations that do not have any IT resources, too much outsourcing in organizations that have in-house IT professionals can be harmful. Staff can feel threatened, not supported by management and experience a lack of job security. The negativity of staff results in poor morale and can lead to poor quality of work and poor performance. The question to be asked here, is what is the optimal amount of outsourcing? This question is extremely important for practitioners, for managers and organizations that outsource and have internal I.T. staff. This study has not investigated this question, as such, further studies are required to investigate this. General perception is that IT outsourcing means planned cost reductions (Khosrowpour et al [1996]). Staff reduction will also be linked to cost reductions in IT. Whilst it may be the goal of organizations to reduce cost in IT, it should be noted that the loss of valuable staff can result in the loss of knowledge. Management need to be wise in how to implement IT outsourcing and how to reduce IT costs. Both appropriate outsourcing and the maintaining of good in-house staff morale are essential for a healthy IT environment.

REFERENCES

1. Anonymous, (1997) "Australia's Largest Outsourcing Bank", MIS, October, p26.
2. Applegate, L. M., (1993) "Eastman Kodak Co: Managing Information Systems Through Strategic Alliances", Harvard Business School Case, January.
3. Benko, Cathy, (1992) "If Information Outsourcing, Is The Solution, What Is The Problem", Journal of Systems Management, Vol.3, No. 11, p32-35.
4. Buck-Lew, Maylun, (1992) "To Outsource or Not?", International Journal of Information Management, p3-20.
5. Currie, W., (1995) Management Strategy for IT- an International Perspective, Pitman Publishing.
6. Due, Richard T., (1992) "The Real Costs of Outsourcing", Information Systems Management, Winter, p78-81.
7. Ferguson, Iain, (1996) "VIC To Outsource Telco Strategy", Computerworld, Nov 22, 1996, Vol. 19, No. 21.
8. Flint, Jeremy, (1997) "CBA to Outsource IT, Two On Short-List", The Sydney Morning Herald, Wednesday, February 26.
9. Frenzel, Carroll, W., (1992) Management Of Information Technology, Boyd & Fraser Publishing Company.
10. Fried, Louis, (1995) Managing Information Technology In Turbulent Times, John Wiley & Sons Ltd..
11. Gupta, Uma, G. and Gupta, Ashok (1992) "Outsourcing the IS Function: Is It Necessary for Your Organization?", Information Systems Management, Summer, p44-50.
12. Hilveret, John, (1997) "Outsourcing Coup For ISSC", The Australian, Tuesday February 18.
13. Kelly, Joseph, (1990) "Outsourcing: Who Pulls The Strings?", DATAMATION, 15th September, p103-106.
14. Khosrowpour, Mehdi, et al, (1995) Managing Information Technology Investments With Outsourcing, Edited book, Idea Group Publishing.
15. Khosrowpour, Mehdi, Subramanian, Girish H., Gunderman, John and Saber, Al, (1996) "Managing information technology with outsourcing: An assessment of employee perceptions", Journal of Applied Business Research, p.85-96, Summer.
16. Lacity, Mary and Hirschheim, Rudy (1993a) "Implementing Information Systems Outsourcing: Key Issues and Experiences of an Early Adopter", Journal of General Management, Vol. 19, No.1, Autumn.
17. Lacity, Mary and Hirschheim, Rudy, (1993b) Information Systems Outsourcing - Myths, Metaphors and Realities, John Wiley & Sons Ltd..
18. Lacity, Mary and Hirschheim, Rudy, (1995) Beyond The Information Systems Outsourcing Bandwagon, John Wiley & Sons Ltd..
19. Minoli, Daniel, (1995) Analyzing Outsourcing - Re-engineering Information and Communication Systems, McGraw-Hill Inc..
20. "Information Systems Strategic Planning", Fourth Printing, Computer Technology Research Corp., 1994.