2.1.2 History of ISD image

The literature abounds with references of ISD failures and difficulties from the beginning of modern information technology. Success stories quoted are often recently... these include American Airlines and American Hospital Supplies (Ritchell, Wiseman and [illegible], 1988). The exception to the image of Information Technology and its [illegible] the ISD executed during the phase of Automate described under section 3.2 in this document.

Since the beginning of the 80s, the question around the role and image of the ISD came under scrutiny. In 1980, William R. Miller wrote:

> *"[illegible] the question of the role of the ISD function [illegible] [illegible] [illegible]"*

The questioning of the role of the ISD illustrates the dilemma in which many companies find themselves to this day. It signals the beginning of a decline in the perception of the ISD.

In the 80s there was also a realisation that Information Technology is complex. Hult & Mason (1988) found that IT is a multi-disciplinary problem and cannot be ascribed to the failure of the ISD alone. No single individual could keep up to date on all major developments in technology and applications (Celmen, 1981). This is further underlined by McFarlan, McKenney and Pyburn (1983) who said that IT is expensive, technically complex and that systems development is very slow. According to them, the competitiveness in the supply side of technology leads to rapid technological improvements. This requires a continuous investment to finance continuous upgrading. IS managers are therefore burdened by continuous shortage of technical staff and financial resources ([illegible], 1988). There is clearly a general consensus that IT has got a perception problem and therefore an image problem.

CHAPTER 2 - LITERATURE REVIEW

2.1 Definition, history and current state of the ISD image

2.1.1 The Elements of Image

As stated in chapter 1, the Collins dictionary (1993) defines Image as a "general impression". A general impression is an abstract concept and is therefore not directly measurable. The characteristics must therefore be determined and measured by an acceptable instrument which measures these characteristics. For the purpose of this research, the parallel in marketing of quality service, specifically as researched by Zeithaml, Parasuraman and Berry since the early 80s, was used. Their book "Delivering Quality Service - Balancing Customer Perceptions and Expectations" represents phase 3 of a study which started in 1983 under the auspices of the American Marketing Science Institute (MSI). This book contains an instrument to measure service quality and instructions to adapt the instrument for various uses. Specific mention is made to internal customers and the example of the ISD is used in the suggested adaptations. The elements contained in these research works are "*Quality of Service*" as expressed in terms of the gap between "*Expectations of Customers*" and "*Perceptions of Customers*".

An ISD's customers are internal and as stated in chapter 1, the ISD is normally involved in supplying services to all other sections within a business. The customers therefore consist of senior general managers, middle managers and users. The purpose of the measurement of the gap between expectations and perceptions is to quantify the degree to which expectations are matched by perceptions. When expectations are matched or exceeded by perceptions, then the quality is high. An appropriate definition of ISD image could therefore read as follows:

The quality of the ISD is delivered in services which meet and exceed its expectations

[illegible] [1]

1.4 SUMMARY

It is clear that there is a problem with the image of IT and the ISD is a consequential victim of this poor image. Since the pressures on the ISD are varied, coming from all other disciplines within the business, the size and volume of demands on the ISD function seem to warrant a mechanism to control these demands. The most natural mechanism to control demand in an economy has always been value exchange. The possibility must therefore be investigated whether there is a relationship between the image of the ISD and its funding method. To establish whether a relationship does exist, the determinants of image and funding method must be clearly established while an instrument must be used which measures the relationships between image and funding method. The next chapter establishes the elements of image and funding as well as the history and background leading up to the empirical generalisation.

1.3 THE PROBLEM

It may be said that the ISD is under siege. This is as a result of the fast pace at which IT is developing and increasing pressure from business management on the potential of IT to support strategic business objectives. Hackett, Wesemann and Hardin (1988) states that "[illegible]". Business management wants to get a return on the ISD to ensure the survival of their businesses in many instances. The demands from management are therefore increasing in addition to the traditional demand from users of IS. Many ISDs are also still founded around the notion that costs must be minimised and that the ISD is a necessary evil. The dilemma of the ISD therefore evolves around the following elements:

- Performance depends on technology employed (Davis, 1974). The industry is constantly developing new technologies rendering previous ones obsolete. A constant money supply is necessary if the business is to remain competitive through the use of technology. This situation is obviously not acceptable to many business managements.

- The traditional focus of the ISD on user requirements is difficult to redirect or prioritise to satisfy the increasing management requirements for the attainment of strategic business objectives. The ISD operates much closer to the users than management on its day to day activities. In this regard Norman (1993) wrote that traditional methodologies evolved around "[illegible]".

- Increasing pressures on the ISD may lead to reduced quality in services output or collapse of projects as the quality is sacrificed in favour of quantity. Yourdon (1992) provides the following statistics:

  - [illegible]
  - [illegible]
  - [illegible]

phase of 'Transformate'. We are now currently in this phase and an extensive base of theory is being developed around subjects such as Business Process Reengineering (BPR), Strategic Information Systems (SIS) and the alignment of Information and Business Strategies. There are currently both success stories and failures. The image of the ISD remains generally negative, however. The following findings are of relevance:

- IT is not linked to general productivity increases ([illegible], 1988)
- 20% of users declared that their systems were not achieving their companies' [illegible] (Romtech, 1989)
- IT overhead costs are consistently larger than anticipated (A.T. Kearney, 1987)
- Only 50% of companies report that their introduction of IT has been very successful (Andahl, 1988)
- Only 24% of firms claim an above average return on capital from their IT ([illegible] and [illegible], 1990)
- 20% of IT spend is wasted and 30-40% of IS projects realise no net benefit whatsoever however measured (Willcocks, 1991)

Although the above findings are generally negative, some measure of success exists. In this regard, business management are looking at ways to measure ISD performance effectively in an attempt to establish the value obtained for investments. Cost Benefit Analysis (CBA) and User Satisfaction Evaluation are two popular methods for justifying IT projects and measuring performance. Few companies actually perform follow-up investigations to determine whether benefits promised are actually delivered. All the measuring techniques are flawed or subject to bias in some way or another. Lay (1985) warns that the CBA "*[illegible] strategy of the organisation*". The impression in the literature is that the measuring of IT benefits is often regarded as impossible or a waste of time as too many intangible benefits or effects are involved in the deployment of IT. The selective employment of measuring techniques does not contribute to improve the general image of the ISD. A solution must be found.

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- IT is not linked to general productivity increases (OECD, 1988)
- 70% of users declared that their systems were not returning their company's investment (Romtech, 1989)
- IT overhead costs are consistently higher than anticipated (A.T. Kearney, 1987)
- Only 51% of companies report that the introduction of IT has been very successful (Amdahl, 1988)
- Only 24% of firms claim an above average return on capital from their IT (Hochstrasser and Griffiths, 1990)
- 20% of IT spend is wasted and 30-40% of IS projects realise no net benefit whatsoever, however measured (Willcocks, 1994)

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swallowed money" during the last ten years. The implication is further that ISDs are generally funded as cost centres where no charges are levied on the services provided by the ISD. Although some measuring and or justification procedures are followed before IS investments are authorised, the bad image still seems to persist. The question arise whether the ISD is a resource which faces huge demands with an inadequate mechanism to control those demands.

1.2 BACKGROUND

The Collins English Dictionary (1992) defines image as a "general impression". The Information Systems function did not always have a bad image. Remenyi, Money and Twite (1993) discuss the phases of Automate, Informate and Transformate in the development of Information Systems. The Automate phase was generally considered to be a success by business observers and businessmen. In the words of Remenyi, Money and Twite (1993) "*[illegible] the apparent lack of any real or measurable [illegible] there were surprisingly positive attitudes towards computing during the automate phase with most businessmen and business observers believing computers had a beneficial effect.*" The systems developed during this phase were referred to as transaction processing systems and comprised the reduction of manual processes involved in clerical work. Despite the difficulty in demonstrating cost benefits to businesses in employing these systems, the image was generally positive. This phase lasted to the early 70's.

The second phase of Informate produced systems known as Management Information Systems (MIS) where the main feature was extensive management reports. The IT industry did not succeed in improving management effectiveness (Remenyi, Money and Twite, 1993). According to them a decline in the image of the ISD started during this phase although some measure of success was obtained in the area of management reports which focused on efficiency. This phase lasted till the early 80's. The concepts of Decision Support Systems (DSS) and Executive Information Systems (EIS) also evolved during this phase. Early attempts did not provide any real measurable financial benefit although business efficiency continued to improve.

An awareness developed that IT can be applied to radically change the way in which a business operates. The further realisation that IT can even change the nature of its business led to the

CHAPTER 1 - INTRODUCTION

1.1. INTRODUCTION

The profit motive is the main driver of business and in order to maximise profit, all functions within the business must deliver the maximum benefits output with the least funding input. Information is required by everyone in a business to execute their duties effectively to the greatest advantage of the business (Davis, 1974). The task of the Information Systems Department (ISD) in delivering relevant and accurate information when required, is therefore of vital importance for a business to function properly.

Although information can take many forms and is not always available from a computer system, we are entering what has become known as the 'Information Age'. As businesses strive to survive in an increasingly competitive world, the hunger for information increases. Business management realises that they need to get to grips with a technology which they largely do not understand (McFarlan, 1990).

IS management in turn has to learn to become better communicators with general management. They traditionally focused communication efforts at users which led to the belief amongst senior business management that IS management does not understand strategic business requirements (Norman, 1991).

The literature on Information Systems Management abounds with findings that the image of the ISD is generally dismal within the organisation. Lim & Ashcraft's (1990) comment that "*MIS researchers and practitioners have been aware of problems of user resistance to new CBISs (Computer Based Information Systems) since the early 1980s.*" shows that this phenomenon has been there since the beginnings of Information Technology in business. Many reasons are provided and initiatives suggested to improve the situation as it is also generally recognised that businesses with weak IS functions will be at risk on the long term (McFarlan, 1990). The perception of the ISD is well described by Remenyi (1991) who states that "*ISD's have some*

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Department of Information Systems
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The relationship between the image of the Information Systems Department and its funding method.

APPLICANT Daniel J Biesler
SUPERVISOR Louise Whittaker
DATE November 1995
DEGREE M Com

Research dissertation submitted in partial fulfilment of the requirements for the degree of Master of Commerce (Course work)

Therefore, in an unweighted scenario, cost centre ISDs are perceived to have modern looking equipment, adequate facilities, are generally professional in their appearance and conduct as well as being able to produce good documentation.

They also come close to giving users the expected amount of attention and operate on hours which is convenient to those who need the service. Furthermore ISDs of this category also come close to instill confidence in users with knowledge. A deduction that knowledge seem to be adequate could therefore be made.

The greatest failure is that cost centre ISDs seem to make promises which they cannot keep. This means they suffer generally from delays on all projects. There is also evidence that their service is not always right the first time.

4.2 Non Weighted Expectation - Perception gap for Profit Centres

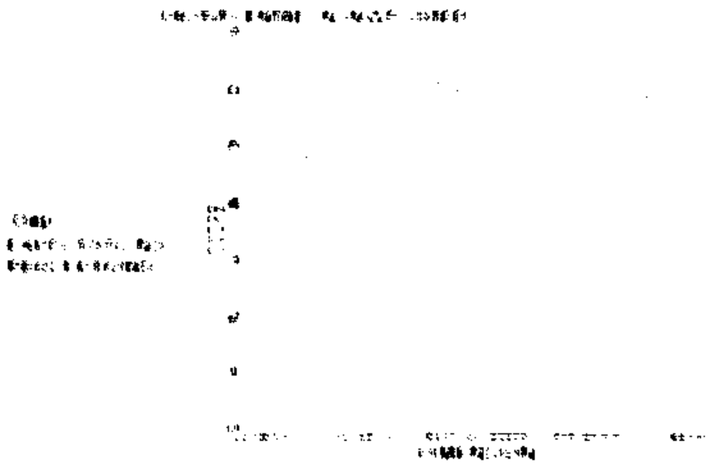

FIGURE 4 - NON WEIGHTED PROFIT CENTRE GAP

The gaps for profit centre ISDs generally follow the same pattern with somewhat larger gaps than those for cost centre ISDs. Again Reliability and Responsiveness is the major downfall of

The figures represented in the table shown in figure 1 measures overall SERVQUAL scores both weighted and unweighted. Other comparisons include the comparison of gaps along the various dimensions. Graphs illustrated later in this research indicate the relative importance of the dimensions.

During the analysis the impact of the group (service) will be continually evaluated

4.1 Non Weighted Expectation - Perception Gap for Cost Centres

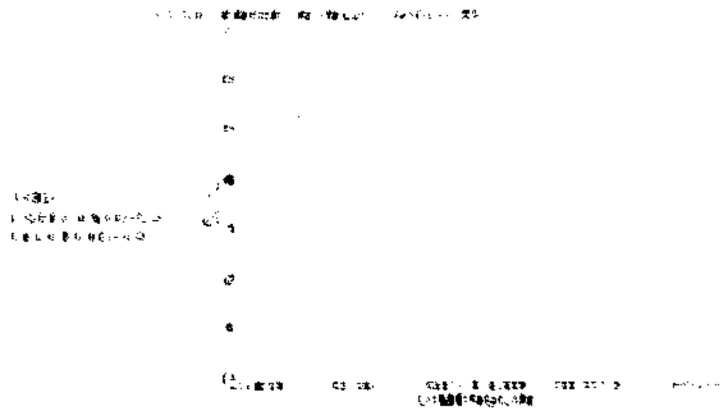

FIGURE 2 - COST CENTRE - NON WEIGHTED GAP

The following facts are clear from the diagram in figure 2

- Tangibles exceed expectations
- The largest gap exists in reliability
- The second largest gap is in Responsiveness
- There are relatively small gaps in the dimensions ... Assurance and Empathy

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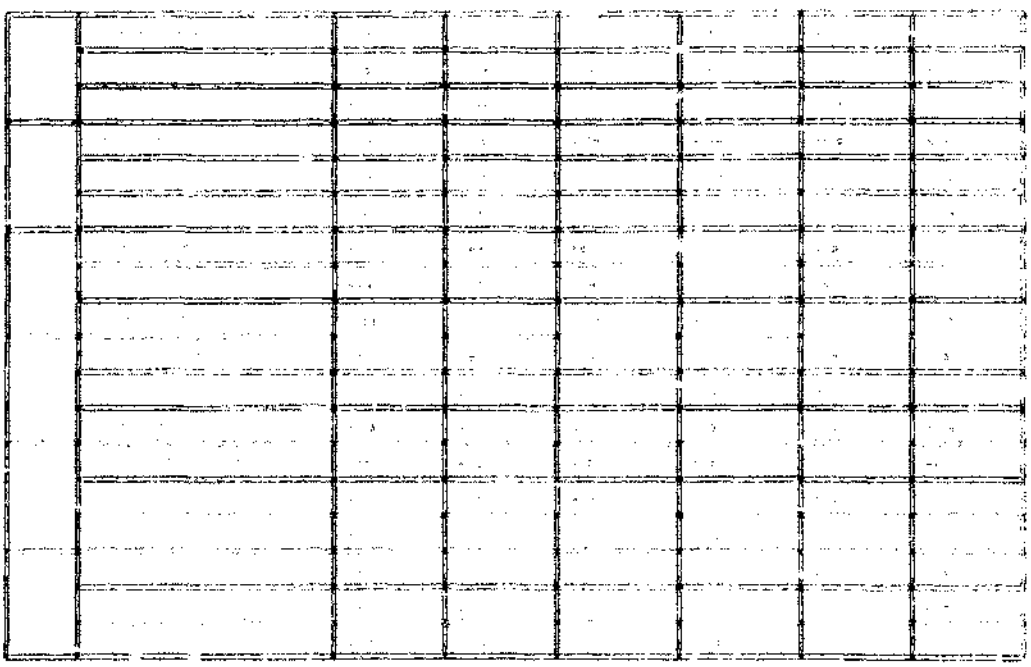


CHAPTER 4 - ANALYSING THE RESULTS

4.0 TABLE OF CALCULATIONS & OVERALL SCORES

It is necessary to explain more about the SERVQUAL instrument (as detailed in the table in figure 1). As mentioned earlier, the SERVQUAL instrument (see appendix A) is divided into five dimensions comprising a number of statements per dimension. These statements are scored by the respondents on a seven point scale where (1) indicates 'Strongly Disagree' and (7) 'Strongly Agree'. The meaning of the dimensions was discussed earlier and the dimension breakdown of questions are as follows:

Tangibles	Statements 1-4
Reliability	Statements 5-9
Responsiveness	Statements 10-13
Assurance	Statements 14-17
Empathy	Statements 18-22

The instrument is designed to measure the gap (difference) between the perceptions and expectations of respondents. It also makes provision for weighting of the importance of each dimension. To enable the researcher to make decisions on relative importance where equal weighting has been assigned to dimensions, a section is included which requests the respondent to specifically indicate which dimension is the most important, second most important and least important.

The SERVQUAL SCORE is calculated by the equation:

SERVQUAL SCORE = Perception Score - Expectation Score

Finally the questionnaire must be [illegible] and [illegible] loading categories depending on the answer given in section [illegible] of the instrument.

"[illegible] ISD [illegible] cost centre [illegible] profit centre?"

It must be clear that the instrument is appropriate in measuring whether the conjecture is valid or not. It will answer the research question which underlies this conjecture and the surrounding issue.

3.4 ANALYSIS STRATEGY

Since there are two angles to this research namely, image and funding method, it was possible to separate questionnaires into the cost and profit funding categories. Comparison using gap analysis and comparing overall SERVQUAL scores could be done between funding methods. It was also possible to determine which dimension or image is affected by funding method to a larger or greater extent. The effect of weighting could be measured and differences established between the funding categories. The answer to the research question is therefore reduced to tangible measured figures.

3.5 SUMMARY

Limitations and assumptions have been stated where relevant. The results must be seen in the South African context. The only other assumption not mentioned was in the case of a respondent making use of outsourcing exclusively. When this occurred the ISD was categorised as a profit centre as an argument can be made that this is an extreme form of profit centre for the purposes of this research.

This chapter has shown that the image of the ISD consists of the dimensions of Tangibles, Reliability, Responsiveness, Assurance and Empathy. This can be measured by the SERVQUAL instrument. If the responses to the questionnaires can be separated into cost centre and profit centre categories, the research question of *"Does the funding method affect the image of the ISD?"* can be answered. This is possible across all dimensions as well as overall, weighted and unweighted. [illegible]

funds its IS department. This added section contains a question on whether the ISD is funded as a cost centre or a profit centre. A third alternative of "Other (Please specify)" was also included. This option was included to assist with the categorisation of cost and profit centre ISDs as a deduction could be made from the answers as to which of the two categories are the most prevalent in the organisation. The question added to the instrument was tested with 2 academics and 5 current IS managers. The question was therefore accepted as valid and added to the standard SERVQUAL IS instrument.

The standard SERVQUAL IS instrument consists of three sections. The first section determines how the perfect ISD should measure across the five dimensions mentioned earlier. This section consists of a questionnaire of 22 questions and measures the expectations component of image.

The second section comprises a weighting by the respondent of the relevant importance of the five dimensions of image as represented in the SERVQUAL IS instrument. The total of all five dimensions should add up to 100. The respondent is also asked to rank the dimensions in case equal weighting has been assigned to all dimensions by the respondent. In this way each ranking can be still be calculated.

The third section establishes how the respondent perceive their own ISD's performance across the five dimensions of the SERVQUAL IS instrument. This section consists of a questionnaire of 22 questions which matches those of the first section and measures the perceptions aspect of image.

The total instrument therefore consists of four sections which comprise the added question to determine funding method and the standard SERVQUAL IS instrument to determine the expectations, perceptions and weighting aspects of image. In this way responses could be separated into Cost Centre ISDs and Profit Centre ISDs. The standard analysis for the SERVQUAL IS instrument could therefore be applied and the gap compared between Cost Centre ISDs and Profit Centre ISDs.

When the theoretical construct is considered, [illegible]

document to represent the findings.

3.3 DATA COLLECTION

This section discusses sample selection and the SERVQUAL instrument which was based on the research of Zeithaml, Parasuraman and Berry (1990) as reviewed in chapter 2.

3.3.1 SAMPLE

The questionnaire was sent to 80 public companies in sequential order as listed in the Johannesburg telephone directory. The total number of questionnaires returned numbered twenty one. This represents a response rate of [illegible]%. The assumption was made that Johannesburg contains the majority of head offices of large organisations in the country. A further assumption was that taking a sequential selection to the extent of [illegible]% of the companies listed in the Johannesburg telephone directory would be both sufficiently random and the sample large enough for statistical analysis. The return rate of [illegible]% contributed to the acceptability for statistical analysis together with the virtually equal number of profit centre ISDs and cost centre ISDs that were represented.

A covering letter which is illustrated in appendix A accompanied the questionnaires.

3.3.2 RESEARCH INSTRUMENT

The following question will be researched as it will provide the answer to the validity of the theoretical conjecture.

[illegible]

The SERVQUAL instrument was utilised as part of the instrument used to determine the answer to the above question. The complete instrument is listed in appendix A. The instrument was split into 4 sections of which the first section searched to establish the nature whereby an organisation

image was defined in chapter 2 as the [illegible] The five dimensions of image are described in the table below

Tangibles	The physical appearance of facilities and documentations produced
Reliability	The ability to keep its promises through accurate billing and solving problems, getting it right the first time and keeping error-free records
Responsiveness	The ability to forecast completion dates Delivery of prompt service and customer willingness to assist users Someone must always be available to respond to user requests
Assurance	Behaviour that instill confidence and promotes safe dealings with users User confidence, behaviour and knowledge to answer questions of users
Empathy	The ability to provide individual and personal attention as well as convenient operating hours The user's best interest must be served and an understanding of their specific needs necessary

In summary, a positive image can be gained through on-time project and services delivery, high quality, good facilities, good communication & documentation as well as personalized attention. This is possible only when an INU operate as a profit centre according to the theoretical perspective derived in chapter 2. A question intended to separate responses into the two categories of profit centre INUs and cost centre INUs was formulated, tested and added to the SERVQUAL instrument. This would enable the comparison of results of the two funding method.

3.2 Methodology

The research was conducted in two steps: a literature review and derivation a theoretical perspective. This was followed by compiling a questionnaire, determining the representative sample of large companies and to capture and analyse the data as the questionnaires were returned. The final phase was the interpretation of the results and the compilation of the

CHAPTER 3 - RESEARCH METHODOLOGY

3.1 INTRODUCTION

In this chapter the research methodology will be discussed in detail explaining the foundation that leads to a research question. This will be followed by an explanation of the methodology used, data collection and analysis strategy. The key issues, limitations and assumptions will be summarised finally.

3.1.1 OBJECTIVE OF RESEARCH

The intention of this research is to contribute to applying IS more effectively in assisting general management in the decision making process regarding the effect of the funding method of the IND. This could lead to a beneficial education process of general management. The research is very focussed on this issue and the questionnaire could therefore be reduced in size. Gap analysis has been the main technique used to analyse the information.

3.1.2 THE UNDERLYING THEORY

The SERVQUAL instrument (Zeithaml, Parasuraman and Berry, 1990) addresses the "image" part of this research as it provides the researcher with a reliable method of determining how well the expectations of users and management are satisfied. This is done by measuring the satisfaction levels numerically across the dimensions of Tangibles, Reliability, Responsiveness, Assurance and Empathy. The difference (gap) between perception and expectations will represent the level of satisfaction of SERVQUAL score.

notorious. A statement in a paper such as the one by McCusker (1989)

> *"Many IS managers would [illegible] than be being asked to manage their work as if it were a profit centre."*

together with the evidence in the literature discussed so far suggests that there may be a relationship between the funding method and image of the ISD. This leads to the theoretical conjecture that

> *an ISD operating as a cost centre will have a more negative image than a profit centre*

From this conjecture the following empirical generalisations may be derived

1. An ISD operating as a cost centre will have a more negative image as there is no mechanism for controlling demand of its services or to justify additional resources.
2. An ISD operating as a profit centre will have a more positive image as a mechanism of value exchange exists to control demand of its services and to justify additional resources.

It was thought that the introduction of a financial mechanism (Profit Centre Funding) will stimulate the process of justification within business units before a resource is procured from the ISD. The ISD will in turn be able to determine how it will obtain the resources most effectively to deliver what is required. A basic principle of business decision making is therefore introduced into the ISD management process. The mode of obtaining resources, size of resources and prioritisation therefore become a business decision. The image of the ISD should be better in a profit centre funding environment as backlogs can be eliminated more quickly while more attention can be given to user requirements as the costs will be properly accounted for. It is obvious that sound business management practices must be adhered to and that ISD service rates must be pegged at a reasonable level to allow some flexibility in the procurement of resources. The issue of non-performing ISDs will change away from image to affordability.

3 Disproportions between supply and demand does sometimes occur

4 A difference between market price and exchange value can exist as a result of the above disproportions

As stated earlier, the method is therefore whether the money is obtained directly from the party receiving the services or some third party. A cost centre therefore receives its money from an indirect source such as a head office where the elements as established above does not apply, while a profit centre receives its money directly from the party requiring the service according to the elements established above. In this regard the terms 'Profit Centre' and 'Cost Centre' are generally used in business. Funding method related to the Information Systems department may therefore be defined as *the technique which is used to obtain money for Information Systems*.

This research will restrict itself to the 'technique' element and strive to obtain an answer on the issue whether the technique element influences image. Where a ratio takes into account the value of the service as well as disproportions that may exist in the market, the technique or funding method is described as a profit centre ISD. When the value of the services and disproportions are disregarded, the funding method will be described as a cost centre. The assumption in the latter case is that a fixed amount is allocated to the ISD to deliver services. The 'market' referred to above relates to the total demands placed on the ISD by the various sections of the business. The technique will be further restricted to what has been described as 'Cost Centre' or 'Profit Centre' funding above.

2.3 THEORETICAL CONJECTURE

The previous section discussed the funding method and it was established that the profit centre method of funding does take into account the value of services and disproportions in the 'market' while the cost centre method of funding does not. In section 2.1 the image was defined and it was demonstrated that there is a problem with the ISD image. It was also shown that there is considerable speculation on how to deal with problems for which the IT industry seems

by using some technique. Money is normally only legally obtained by giving something in exchange in a normal economy. A certain amount of money is therefore exchanged for a certain amount of goods or services by using some "technique". In the context of this research, money is to be applied towards delivering Information Technology services. Although the above definition does not mention exchange, Hausman (1981) describes this process as follows

> *"In exchanging commodities or performing services in exchange for commodities, people unintentionally establish orderly exchange ratios between commodities or between services and commodities."*

One can therefore say that an exchange of money for services takes place between the ISD and whoever uses it's services. In the real world this exchange of money is not always directly ...en people (or parties). A third party (often head office) will pay to the ISD for delivery of services to branches by the ISD. The exchange ratio referred to is the "cost" of the service and is defined as the "price" in the Collins Dictionary. The method is therefore whether the money is obtained directly from the party receiving the services or some third party. Where an expense is not directly related to an exchange of goods or services, it is regarded as costs whereas the direct exchange, between parties, of goods and services for money is regarded as carrying the potential of added value which connotates with the term "profit" or contributing (or is essential) to the making of profit.

According to Hausman (1981) *"accidental disproportions between supply and demand which lead market price to differ from exchange value"* does occur in any market where goods and services are exchanged.

The elements from the above are therefore:

1. There is a 'nature of exchange' or 'technique' to exchange goods and services.

2. Exchange ratio is reflected by the price.

APPENDIX A - RESEARCH INSTRUMENT

COVERING LETTER

Dear Respondent

RESEARCH PROJECT THE INTERNAL INFORMATION SYSTEMS DEPARTMENT

I am currently busy with research into the image of the internal Information Systems Departments within companies and the underlying reasons affecting this image. This subject is of interest world wide as managements are continually trying to find ways of dealing with fast changing technology effectively within their businesses. Your time in completing the attached questionnaire will therefore not only be greatly appreciated, but will make a valuable and real contribution to the management theory in South Africa.

All your answers will be treated with complete confidence under the auspices of the University of the Witwatersrand.

Please return your reply in the enclosed pre-paid envelope or phone (011) 827-2551(Office Hours) or (011) 472-2314 (After Hours) to enable me to collect the answer in confidence.

Thanking you in anticipation

Yours Sincerely

D J Brester
(Candidate for M Comm - Information Systems Management)

5.5 LIMITATIONS OF RESEARCH

[illegible]

5.6 ISSUES FOR FURTHER RESEARCH

[illegible]

The solution must be to give IT management a place on senior management in order to facilitate proper Strategic Information Systems Planning. In this process other senior management members will be educated on IT issues. This in turn will address the problem of excessive expectations. The profit motive is in itself not an easy solution to a difficult problem.

5.4 MANAGEMENT GUIDELINES

There are some guidelines which the evidence in this research suggests:

- Less attention should be given to the issues that falls within the Tangibles dimension for both cost and profit centres.
- The Empathy dimension is relatively unimportant but care should be taken not to ignore it totally.
- Dimensions needing attention in the IT industry, in order of importance, are:
    1. Reliability (Twice as important as the other two dimensions below.)
    2. Responsiveness
    3. Assurance
- Use the profit centre ISD funding method only if excessive expectations from IT is a real business problem which cannot be dealt with otherwise.
- Use the cost centre funding method if a need exists by general management to control the ISD better.
- Care must be taken when a decision is made to use the profit centre funding method for an ISD, as the profit motive seems to drive them to extremes.

since it could hold true in certain instances as discussed above while be totally invalid in other cases. The additional concept of relative importance of a funding issue must be considered when formulating a revised conjecture. The concept of relative importance of a funding issue does not refer to the average weighting as per the SERVQUAL instrument since it measures the gap angle. The relative importance of a funding issue addresses the importance of a specific funding issue on the ISD in a particular business.

The answer to the research question, namely

[illegible]

is Yes, sometimes. That the Theoretical Conjecture is not valid. The conjecture stated in Chapter 2 was

[illegible]

and is therefore modified to read

The matching method will affect the quality of the ISD under certain circumstances.

Such circumstances include excessive expectations where a mechanism is needed to control supply, demand and disproportions as discussed in section 2.2.1.

5.3.0 UNEXPECTED FINDINGS

The finding that the Reliability dimension is a problem as well as very important indicates that proper Project Management Techniques and Software should be readily adhered to. This is very difficult in a Cost Centre ISD environment as politics and undue pressure from various sources could give rise to a situation of making any Project Management virtually unmanageable mainly due to constantly changing priorities from general management and users. The ISD is always trying to play a fine balancing act which the evidence shows is not achievable.

CHAPTER 5 - CONCLUSION

5.1 DISCUSSION ON ANALYSIS

[illegible]

5.2 VALIDITY OF THEORETICAL CONJECTURE

[illegible]

[illegible]

4.9 Weighted Expectation Comparison

This is an interesting comparison since it indicates that cost centre ISDs are expected to do better than profit centres in the Dimensions of Tangibles, Reliability and Empathy. Profit Centres are expected to be better at Responsiveness and Assurance.

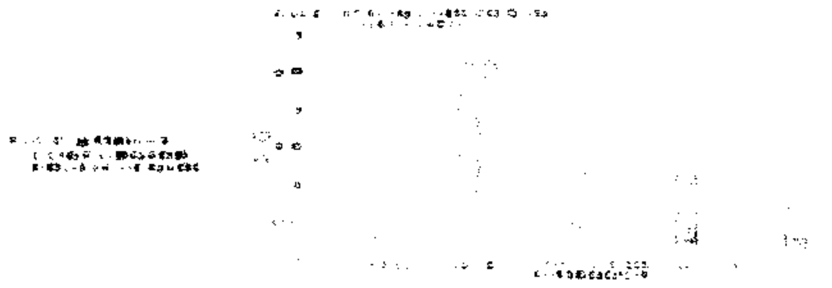


FIGURE 10 - WEIGHTED EXPECTATION COMPARISON

4.10 Weighted Perception Comparison

Contrary to the expectation that a profit centre would be better at assurance, the graph in figure 11 shows that cost centres does in fact have a small edge over profit centres. There is a convergence in the Tangibles and Responsiveness dimensions while it shows a divergence in favour of cost centre ISDs in the dimension of Reliability and Empathy.

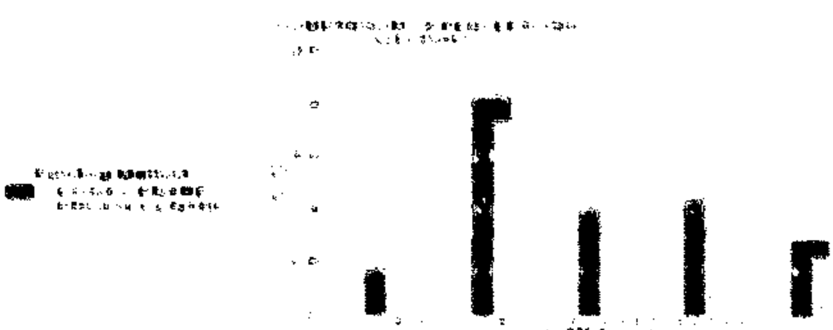
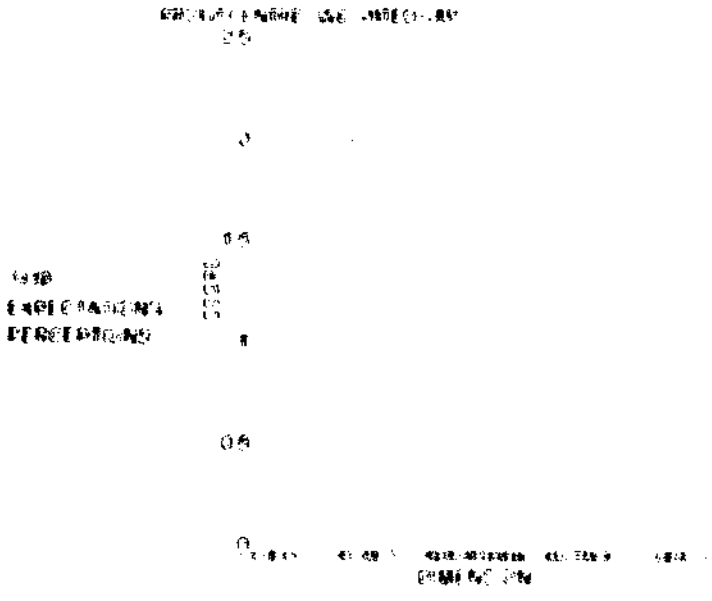


FIGURE 11 - WEIGHTED PERCEPTION COMPARISON

18 Weighted Cap for Profit Centre ISPs



4.7 Weighted Gap for Cost Centre ISDs

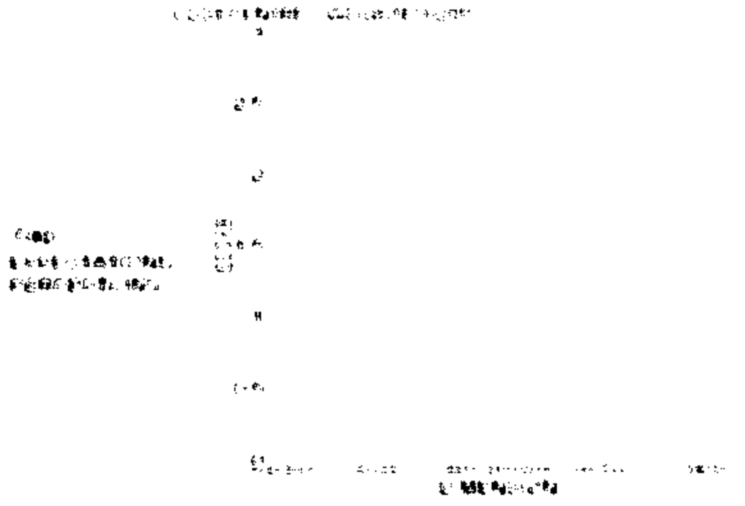


FIGURE 8: WEIGHTED GAP FOR COST CENTRES

This graph is the weighted equivalent of the one shown in figure 7. It is shown here for ease of comparison with the results of a profit centre which is in the following section. The weighted graph in figure 8 illustrates the relative importance of the various dimensions where an ISD operate as a cost centre. The Reliability dimension is in need of serious attention and will realise the most improvement in the overall weighted score. Responsiveness and Assurance are second most important while Empathy needs the least attention. There was a voluntary comment from a respondent to statements in the Empathy dimension which read that this dimension is "too expensive". Tangibles does not need any attention as the perception surpasses the expectation.

4.6 Weighted Expectation - Perception Gap Comparison for Costs and Profit Centres

The weighting simply amplifies the findings under 4.5(?) as illustrated by figure 7. Cost Centres spend adequate attention on the Tangible dimension. The benefit of introducing the weighting make the following more apparent. Cost Centre ISDs get quite close on Assurance and Empathy while failing the Reliability and Responsiveness Dimensions. Profit centre ISDs either overdo or grossly underdeliver on the various dimensions. This indicates a tendency to go to extremes when an ISD is funded as a profit centre.

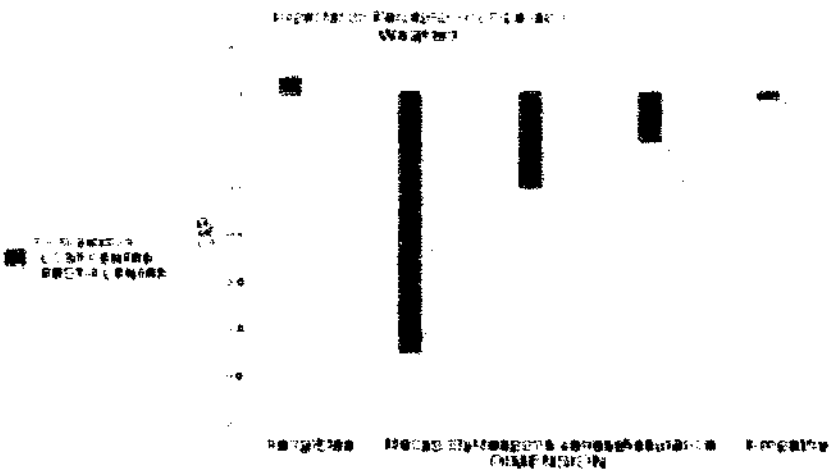


FIGURE 7 - WEIGHTED EXPECTATION - PERCEPTION GAP COMPARISON

The larger overperformance of profit centres on the tangibles dimension suggests that more emphasis is being placed on apparent professionalism by 'modern looking equipment' etc. The deduction may be that the equipment angle should impress customers and thereby creating a professional image.

In a profit centre IMD, the reason for responsiveness could well be that the profit motive is the driver in rapidly investigating the opportunity for making more money.

4.8 Non Weighted Expectation - Perception Gap comparison for Cost- and Profit Centres

Figure 6 illustrates that profit centre IMDs are overdelivering on the Tangible Dimension while faring extremely badly in the Empathy and Assurance dimensions.

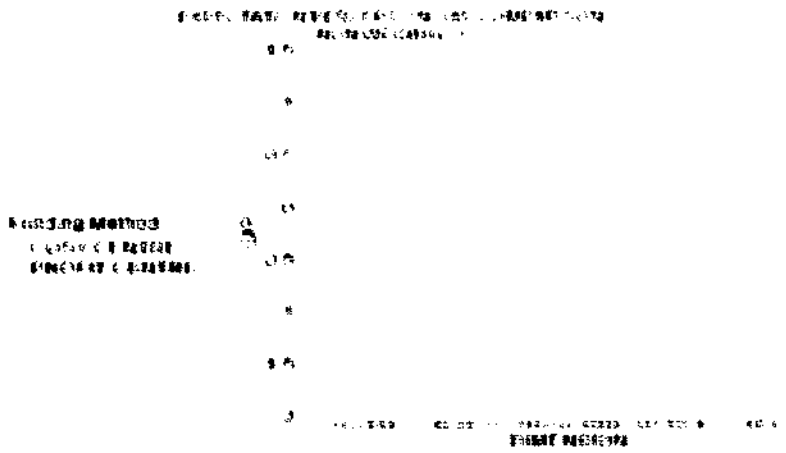


FIGURE 6 - NON WEIGHTED EXPECTATION - PERCEPTION GAP COMPARISON

Both profit and cost centre IMDs fail in the dimensions of reliability and responsiveness more or less in equal fashion. A generalisation in the broader sense would suggest that IT as a discipline does not deliver in general on these two dimensions.

4.4 Comparison of Perceptions Between Cost Centres and Profit Centres

Figure 8 illustrates that on the perceptions comparison, cost centres has a higher overall unweighted score

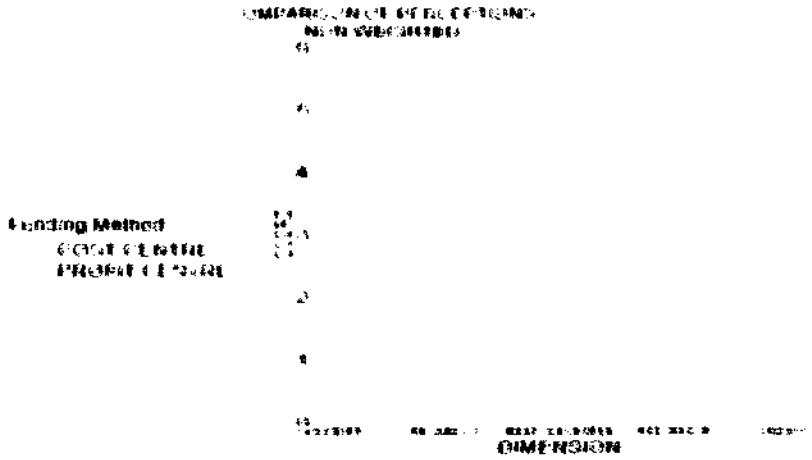


FIGURE 8 - NON WEIGHTED PERCEPTIONS COMPARISON

There is a convergence between cost and profit centre ISDs on the Tangibles and Responsiveness dimensions while cost centre ISDs really do a better job of Reliability, Assurance and Empathy

The common convergence between the expectations and perceptions graph is Responsiveness. This seem to indicate that both cost centre ISDs and profit centre ISDs are over optimistic on what they can deliver and that they are always willing to help. This may be the cause of their downfall if not managed properly since it would lead to the late or non-delivery of promised services. It would also tend to unstructure their modus operandi thereby making them reactive rather than efficient. The issue of discipline therefore seem to be an important factor

these ISDs. Figure 3 illustrates the similarities in tendencies.

As a result of the slightly larger gaps, the profit motive seem to exaggerate both the negative and positive tendencies in the various dimensions. Negative tendencies are regarded to be those where the perception fall short of expectation while positive tendencies are the opposite.

4.3 Comparison of Expectations Between Profit Centres and Cost Centres

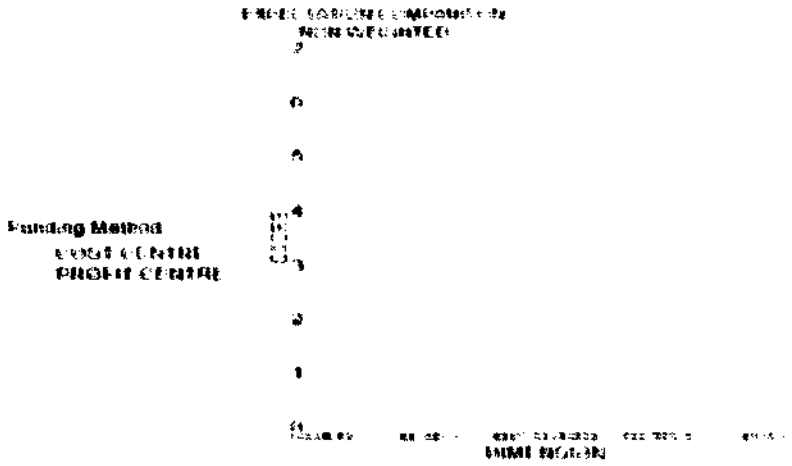


FIGURE 4 - SERVICE EXPECTATION COMPARISON

The graph in figure 4 illustrates that more is expected from a cost centre ISD than a profit centre ISD on all dimensions. This could mean that a profit centre ISD does have the effect of lowering expectations. The converse may be that cost centre ISDs tend to "spoil" their users and therefore more is expected from them. A convergence in Reliability, Responsiveness and Empathy is apparent in figure 4.

McFarlan, F. W., McKenney, J. L. & Pyburn, P., The information archipelago - plotting a course, Harvard Business Review, January-February 1983

Miller, J. & Doyle, B., MIS Quarterly, Measuring the Effectiveness of Computer-Based Information systems in the Financial Services Sector, March 1987

Money, A. & Tromp, D. & Wegner, T., MIS Quarterly, The Quantification of Decision Support Benefits within the Context of Value Analysis, June 1988

Norman, D., Why information strategies fail, Management Advantage Briefing Paper 1991, No 3

OECD, A Report on the management of Marketing Information, Paris, 1988, cited by Remenyi, Money & Twite, 1993

Rackoff, N. & Wiseman, C. & Ullrich, W. A., Information [illegible]ms for Competitive Advantage Implementation of a Planning Process, MIS Quarterly, D[illegible]er 1985

Rapoport, C., Fortune, Charles Handy Sees the Future, October 31, 1994

Remenyi, D., Introducing Strategic Information Systems Planning, NCC Blackwell Limited, 1991

Remenyi, D. S. J. & Money, A. & Twite, A., A Guide to Measuring and Managing IT Benefits, NCC Blackwell Limited, 1993

Remenyi, D., Information Management C[illegible] Studies, Pitman Publishing, 1990

Romtech Report, Computing Opinion Survey, Romtech, 1989, cited by Remenyi, Money & Twite, 1993

Huff, S. L. & Munro, M. C., Information Technology Assessment and Adoption: A Field Study, MIS Quarterly, December 1985.

Jarvenpaa, S. L., Information Technology and Corporate Strategy: A View from the Top, Information Systems Research, December 1990.

Johnston, H. R., MIS Quarterly, Developing Capabilities to Use Information Strategically, March 1988.

Johnston, H. R. & Carrico, S. R., Developing Capabilities to Use Information Strategically, MIS Quarterly, March 1988.

Kearney, A. T., Corporate Organisation and Overhead Effectiveness Survey, 1987, cited by Remenyi, Money & Twite, 1995.

Lacity, M. C. & Hirschheim, R., Information Systems Outsourcing: Myths, Metaphors and Realities, John Wiley & Sons, 1993.

Lay, P. M. W., Journal of Systems Management, Beware of the Cost/Benefit Model for IS Project Evaluation, June 1985.

Lin, E. & Ascheim, P., A Case of Systems development in A Hostile Environment, Journal of Systems management, April 1990.

McCusker, T., Datamation, Project Planning Made Easy, October 15, 1989.

McCusker, T., Datamation, Project planning made easy (distributing project management software to IS departments), January 15, 1991.

McFarlan, F. W., The 1990s: The Information Decade, Business Quarterly, Summer 1990.

APPENDIX P - REFERENCE LIST

[illegible]

[illegible]

[illegible]

[illegible]

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[illegible]

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[illegible]

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17	Employees in the INU have the knowledge to answer your							
18	The INU gives you individual attention							
19	The INU has convenient hours for all its clients							
20	The INU has employees who give you personal attention							
21	Your INU has your best interest at heart							
22	Employees in your INU understand your specific needs							

		Strongly Disagree						Strongly Agree
7	Your ISP performs the service right first time	1	2	3	4	5	6	7
8	Your ISP provides its services at the time it promises to do so	1	2	3	4	5	6	7
9	Your ISP maintains error-free records	1	2	3	4	5	6	7
10	Employees on your ISP tell you exactly when services will be performed	1	2	3	4	5	6	7
11	Employees on your ISP give you prompt service	1	2	3	4	5	6	7
12	Employees on your ISP are always willing to help you	1	2	3	4	5	6	7
13	Employees on your ISP are never too busy to respond to your request	1	2	3	4	5	6	7
14	The behaviour of employees on your ISP instills confidence in you	1	2	3	4	5	6	7
15	You feel safe with your complaints sent on the Internet of your ISP	1	2	3	4	5	6	7
16	Employees on the ISP are consistently courteous with you	1	2	3	4	5	6	7

Section 4: Directions

The following set of statements relate to your feelings about your Information Systems Department (ISD). For each statement, please show the extent to which you believe your ISD has the feature described by the statement. Once again, circling a 1 means that you strongly disagree that your ISD has that feature, and circling a 7 means that you strongly agree. You may circle any of the numbers in the middle to show how strong your feelings are. There are no right or wrong answers—all we are interested in is a number that best shows your perceptions about your ISD.

		Strongly Disagree						Strongly Agree
1	Your ISD has modern-looking equipment	1	2	3	4	5	6	7
2	Your ISD's physical facilities are visually appealing	1	2	3	4	5	6	7
3	Your ISD's employees are neat-appearing	1	2	3	4	5	6	7
4	Materials associated with the service (such as manuals) are visually appealing from your ISD	1	2	3	4	5	6	7
5	When your ISD promises to do something by a certain time, it does so	1	2	3	4	5	6	7
6	When you have a problem, your ISD shows a sincere interest in solving it	1	2	3	4	5	6	7

Section 3: Directions

Listed below are five features pertaining to information systems departments (ISDs) and the services they offer. We would like to know how important each of these features is to you when you evaluate a ISD's quality of service. Please allocate a total of 100 points among the five features according to how important each feature is to you--the more important a feature is to you, the more points you should allocate to it. Please ensure that the points you allocate to the features add up to 100.

1 The appearance of the ISD's physical facilities, equipment, personnel. _____ points.

2 The ISD's ability to perform promised service dependably and accurately _____ points.

3 The ISD's willingness to help users and provide prompt service _____ points.

4 The knowledge and courtesy of the ISD's employees and their ability to convey trust and confidence _____ points.

5 The caring, individualized attention the ISD provides its users _____ points.

Total 100 points allocated

Which one feature among the above five is most important to you? (please enter the feature's number) _____

Which feature is second most important to you? _____

Which feature is least important to you? _____

		[illegible] Disagree						[illegible] Agree
20	Excellent ISPs will have employees who give their personal attention	1	2	3	4	5	6	7
21	Excellent ISPs will have the best interest at heart	1	2	3	4	5	6	7
22	The employees of excellent ISPs will understand the specific needs of their users	1	2	3	4	5	6	7

		Strongly Disagree						Strongly Agree
11	Employees in excellent ISDs will give prompt service to users	1	2	3	4	5	6	7
12	Employees in excellent ISDs will always be willing to help users	1	2	3	4	5	6	7
13	Employees in excellent ISDs will never be too busy to respond to users' requests	1	2	3	4	5	6	7
14	The behaviour of employees in excellent ISDs will instill confidence in users	1	2	3	4	5	6	7
15	Users of excellent ISDs will feel safe with what the ISD is doing	1	2	3	4	5	6	7
16	Employees in excellent ISDs will be consistently courteous with users	1	2	3	4	5	6	7
17	Employees in excellent ISDs will have the knowledge to answer user questions	1	2	3	4	5	6	7
18	Excellent ISDs will give users individual attention	1	2	3	4	5	6	7
19	Excellent ISDs will have operating hours convenient to all their users	1	2	3	4	5	6	7

		Strongly Disagree						Strongly Agree
4	Materials associated with the service (such as manuals) will be visually appealing in an excellent ISD	1	2	3	4	5	6	7
5	When excellent ISDs promise to do something by a certain time, they will do so	1	2	3	4	5	6	7
6	When a user has a problem, excellent ISDs will show a sincere interest in solving it	1	2	3	4	5	6	7
7	Excellent ISDs will perform the service right first time	1	2	3	4	5	6	7
8	Excellent ISDs will provide their service at the time they promise to do so	1	2	3	4	5	6	7
9	Excellent ISDs will insist on error-free records	1	2	3	4	5	6	7
10	Employees in excellent ISDs will tell users exactly when services will be performed	1	2	3	4	5	6	7

Section 2: Intentions

Based on your experience as a manager of a company which has an external Information Systems Department (ISD), please think about the ISD that would deliver excellent quality of service. Think about the kind of ISD which you would be proud to have as part of your company. Please show the extent to which you think such an ISD would possess the features described by each statement. If you feel a feature is not at all essential for excellent ISDs, such as the one you have in mind, circle the number 1. If you feel a feature is absolutely essential for excellent ISDs, circle 7. If your feelings are less strong, circle one of the numbers in the middle. There are no right or wrong answers—all we are interested in is a number that truly reflects your feelings regarding ISDs that would deliver excellent service.

		Strongly Disagree						Strongly Agree
1	Excellent ISDs will have modern-looking equipment	1	2	3	4	5	6	7
2	The physical facilities at excellent ISDs will be visually appealing	1	2	3	4	5	6	7
3	Employees at excellent ISDs will be well-groomed	1	2	3	4	5	6	7

QUESTIONNAIRE

Section I

This section seeks to establish the nature wherein your Information Systems Department's overheads are funded. Please answer the following question by circling the option which describes the method of funding the overheads the closest.

How is your Information Systems Department's overheads paid for?

A) More than half of the overhead costs is paid directly by Head Office.

B) More than half of the overhead costs is paid in the form of a service charge directly to the main branch department using the service and relates to the volume of services used.

C) Other. Please specify.

Yourdon, E., OOA - Object Oriented Analysis, Belgium, 1990 cited in Romano, D., S. J., 1991

Ward, J. M., Long Range Planning: Integrating Information Systems into Business Strategy, June 1987

Ware, R., Journal of Systems Management, Project management software: the silver bullet?, May 1991

Willcocks, L., Unpublished Chairman's Introduction to a Conference on Managing IT Investment, conducted by Business Intelligence, May 1991, cited in, Romano, Nancy A. Jnr., 1993

Williams, L., Measuring the Information Source, Sage Publications, 1988

Wiseman, C. & MacMillan, I. C., Creating Competitive Weapons from Information Systems, The Journal of Business Strategy, 1983

Zeithaml, V. A., Parasuraman A. & Berry L., Delivering Quality Service - Balancing Customer Perceptions & Expectations, The Free Press, 1990