Why do IT projects fail?

A Report

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ABSTRACT

Information Technology is critically used within our daily lives at present, finding its way to a wide range of business organisations.   Their efficiency, used to contribute to simplification of processes.   The deep integration bares impact when they either fail or succeed. Despite the complexity and scope that many IT programs provide, there are some project that are doomed to failure, from the offset, or from within the development cycle.

To identify causes of failure, we have focussed our project on two areas; size, and sector. Research conducted reveals that IT projects are more likely to fail compared to other genre of projects, due to a myriad of reasons. Our report takes this as a problem statement and we have made an effort to deduce the causes of IT project failure. Our secondary research contributes to our report in light of the present and past findings conducted.

In doing so, we have identified key reasons within each sector.   Although there are numerous factors likely to contribute to the under-performance of IT projects, we have recorded these in our literature review, to lead to analysis of specific cases and organisations.

The paper investigates approximately 60 journals, reports and E-articles. Furthermore, we also analyse some practical IT projects in order to ascertain the relationship between failure rates based on size and sectors.

From an IT perspective, there remains existing similarity between IT project size and project failure. With respect to research conducted between private and public sectors, it can be concluded comparatively that public projects have a higher probability of failure.

INTRODUCTION

Chapman (2010) highlighted that projects are a temporary effort to create a unique product or service and thus require effective management of resources. Projects generally involve groups of people who work in collaboration towards a common goal, where the objective is to meet those set goals within a timely and cost effective manner. Activities performed by these people are often interrelated.

All projects hold a degree of uncertainty and it is common for problems to be encountered throughout the lifecycle of a project. These problems can develop and ultimately lead to project failure. The definition of failure varies with size, complexity and type of project, and is often dependent upon variables such as time, money and requirements.

Significance/Context

Research conducted by The Standish Group in 1995 indicated that 31.1% of projects evaluated were cancelled before they were completed, some 50% challenged, whilst the remaining succeeded (The Standish Group, 1995).

Market research group (Gartner, 2000) complemented these findings stating the 30% of Information Technology (IT) projects will not meet their desired end goal via project completion.

Comparisons of these percentage figures show project failure to be consistently high across many industries. Thus, this report shall focus on the reasons of failure of projects, in particular those of an IT nature.

IT projects are increasingly being implemented each year due to the need to simplify, whilst making use of the expanding IT usage and consumerisation. Therefore, the need to identify critical success and failure factors has become highly sought after.

Problem Statement

The IT industry faces many challenges within its ever-expanding marketplace, the foremost of which are the high levels of IT project failure when introducing new technological innovations via project form. However, the definition of IT project failure remains vague, with no clear accepted explanation available (Hillam and Edwards, 2001). Projects can be of varying scope and shape, and appear in different working sectors. At present, key reasons of such failures have yet to be determined.

There is an ongoing need within industry to minimise failure rates and outline problem areas.

Consequently, this report will interpret the current findings on project failure relating to size and sector and derive reasons for failure surrounding these two aspects. This report will conduct analysis by performing cross-referencing on existing research between the two areas, later comparing and contrasting to more recent findings.

Research Questions

This report will analyse if there are any differences between the causes of project failure between public and private sector companies. It will also report on the reasons of failure on large IT projects. Following this, it will look to contrast both aspects, and propose a standard definition on why IT projects fail.

Below is a list of primary research questions that this report shall look to answer, relating to specific examples.

- Does size impact the success of a project?
- Do IT projects fail for different reasons between Public and Private sectors?
- Do IT projects fail with regards to size and sector?

LITERATURE REVIEW

Whereas numerous reasons for IT project failure have been identified in previous studies, there has been little effort devoted to the effect of size and sector on IT project performance.

Recent work by (Pinto, 1990) has illustrated that failure can occur at any stage of the IT project development lifecycle. He has highlighted a list of causes of failure to each lifecycle stage, either via Strategy or Tactical. The strategic stage concerns the overall aim of the project. This is generally carried out in the opening stages of an IT lifecycle, such as in requirements analysis. The tactical stage refers to how the objective is met, involving the tasks and activities to be executed to meet the overall strategy.

Using this method, IT failure factors have been identified, and include:

Figure 1.

Critical failure factors by Project Lifecycle stage

Failure factors	Mission Client Acceptable	Troubleshooting Personnel Technical Tasks Schedule/Plans Client Acceptance

Source: IEEE TRANSACTIONS ON ENGINEERING MANAGEMENT, 1990.

However, there are limitations in posing general IT failure factors. The above table has been noted to only account for 40% of the causes of IT project failure. It is important to identify the remainder of project failure reasons, given the impact has a failure has on business operations. The remainder is likely to be attributable to each individual project.

This existing contemporary research does not focus on specifics, such as size of IT project and sector in which the project is taking place. Material available currently does not meet this requirement, and so this report will provide a comprehensive analysis of the impact of both areas.

2.1. Size

According to Standish Group (1999, cited by Taimour, 2005), failure rates of large IT

projects appear to be higher than small IT projects. Evidence also suggests that large projects have a high risk of failure since complexity increases when the scale of project becomes larger (Charette, 2005).

An IT project with a long lifecycle is subject to objective changes, regarded as a crucial factor of project failure (Taimour, 2005; Henderson, 2006).

Moreover, a recent survey conducted by Ambler (2010), a Chief Methodologist for Agile and Lean within IBM Rational, reveals that there is negative relationship between success rates and IT project size, irrespective of paradigm (Figure 2).

Figure 2.

Project Success Rates by Team Size
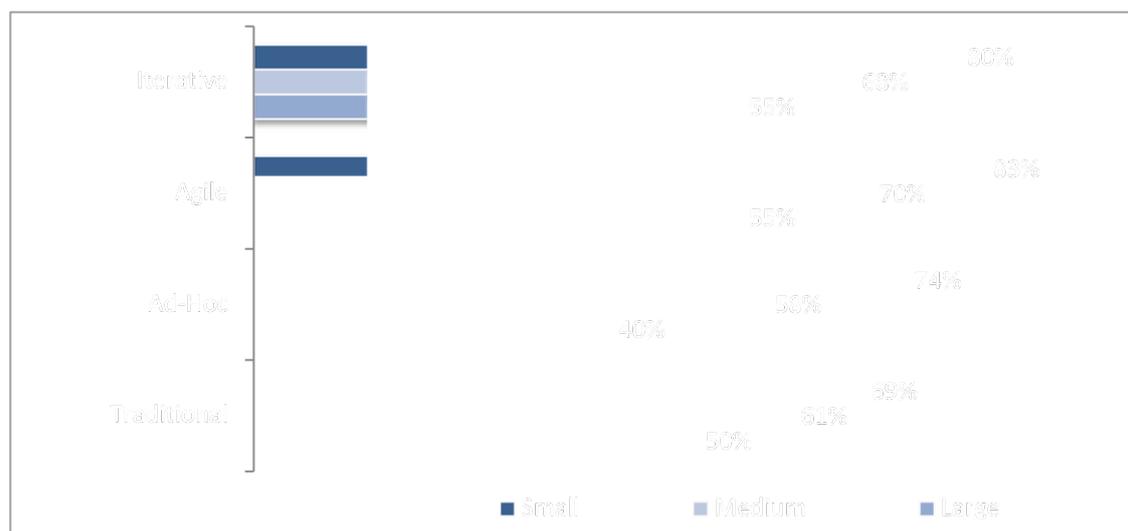
Note: Accurate to within +/- 6.5%

Source: July 2010 State of the IT Union Survey, 2010.

In addition, the risk of underperformance gradually increases when more effort (measured in person-months) has been input within IT projects (Sauer et al, 2007), highlighted by Figure 3 below.

Nonetheless, the same study further indicates that since 25 percent of small projects miscarry, restricting the scope of an IT project or narrowing each task into several segments may not help increase success rates.

Figure 3.

Risk of Underperformance regarding Effort
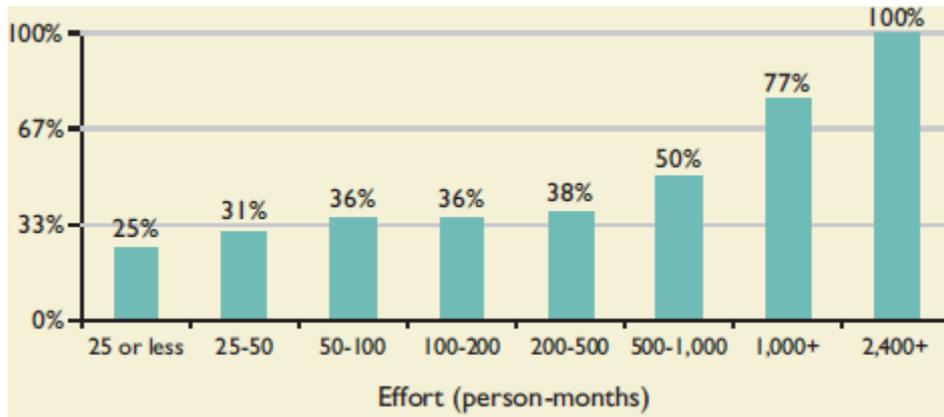
Source: The impact of size and volatility on IT project performance, 2007.

2.2. Public and Private Sector

Statistical evidence presented by the European Services Strategy Unit (2007) indicated that 33% of IT projects had suffered major delays and 30% of these contracts had been terminated prior to completion.

Figure 4.

Success of a project in comparison with cost

We used a non-hierarchical clustering method to combine similar projects based on the three performance variances: schedule, budget and scope. Variances were measured as a percentage of targets as originally planned. A schedule variance of +34% therefore indicates the project was 34% later than originally planned. The results suggested separating the 412 IT projects into 5 basic types described below.

Performance Variance	Type 1: Abandoned Projects n=38	Type 2: Budget Challenged n=21	Type 3: Schedule Challenged n=74	Type 4: Good Performers n=249	Type 5: Star Performers n=30
Performance Variances (Actual as % of Originally Planned) – 100%					
Schedule	N/A	+34%	+82%	+2%	+2%
Budget	N/A	+127%	+16%	+7%	-24%
Scope	N/A	-12%	-16%	-7%	+15%

Source: Communications of the ACM, 2007.

As seen by Figure 4, there are large variances between the planned estimates to the actual results. The table demonstrates these variances in terms of Schedule, Budget

and Scope.

The figure also indicates that the budget is the most challenging aspect of an IT project, having analysed 412 IT projects. The research conducted studied both public and private sector companies. In addition, a study conducted by KPMG Canada (1997) surveyed near to 1,500 companies within both sectors. Their findings showed a preference to public sector companies, albeit not the key focus of their report, supplemented by Virgo (2007).

These existing areas of research will be analysed in greater depth in the analysis section below.

METHODOLOGY

This report has been produced to present and discuss a balanced view of the influence of size and sectors on IT project outcomes.
The research yielded has been derived and undertaken by working professionals, and will act as secondary research. Data and theoretical information has been primarily collected from academic journals, statistics, and prior reports.

The final conclusions are compiled based on two indicators, both weighted equally.

Size

This report will investigate several practical examples to ascertain how size affects IT projects in the commercial world. This will account for 50% of the findings for final conclusions.

Public and Private

Examples of public and private sectors IT projects will be analysed in order to establish if the sector influences the likelihood of project failure. This again will account for 50% of the findings for final conclusions.

ANALYSIS AND FINDINGS

3.1. Size

To understand the fundamental reasons for large IT project failure, practical examples will be examined in detail. As projects which have been conducted by government departments would be relatively well documented, this section will primarily examine two large underperformed IT projects including National Health Service's (NHS) National Programme for IT (NPfIT) in the United Kingdom and the Federal Bureau of Investigation's (FBI) Virtual Case File (VCF) in the United States.

3.1.1. National Programme for IT

A.   Background Information

Organisation: National Health Service's (NHS)

The National Programme for IT, which intended to enable the NHS to provide qualified services in an effective way, was believed to soon become the largest healthcare IT project in the world (Coiera, 2007). This programme primarily included electronic prescription services, clinical information transformation, and a web-based booking system (Brennan, 2005). It was later expected that the NHS would invest a total of £12.4 billion on this programme over ten years (House of Commons, 2007).

Nevertheless, due to cost overruns, delays and underperformance, the UK government decided to scale back NPfIT in 2009, despite of the expenditure of around £12 billion (Charette, 2009; BBC News, 2009).

B.   Analysis of National Programme for IT

As regards size-related factors, this sector will examine NPfIT from both technological and human resource perspectives.

▪ Integration of Information Technology Systems

There are numerous reports discussing the reasons for NPfIT's failure. In addition to the key problem of procurement, Coiera (2007) illustrates that the character of a large-scale project is likely to mean that the project   will be encountered by certain challenges.

Furthermore, it is stated that instead of establishing an individual system, integrating

several IT systems could be another reason for NPfIT's underperformance (IEEE, 2009). In other words, a high level of complexity within a project as a result of large scope could increase the risk of failure.

Similarly, the Financial Information System for California (FI$Cal), which was expected to integrate purchasing, accounting, budgeting, and cash management systems, has also faced a schedule delay, over-budgeting and underperformance (California Legislative Analyst's Office, 2009). The broad nature of the proposed solution failed to comprehend the need to integrate due to scope creep, a direct consequence of a project becoming over-exposed to new requirements.

▪ Capacity shortages of Workforce

In addition to technological issues, the capacity of workforce is considered to be another significant factor which contributed to the failure of National Programme for IT.

According to (Woodhouse, 2003), one of main weaknesses of NPfIT is workers' insufficient skills and limited experience in the large IT project. Since implementing a comparatively large project requires professional expertise in human resource and risk management, lack of relevant knowledge and experiences can enhance the failure rate.

3.1.2.   *Virtual Case File*

A.   Background Information

Organisation: Federal Bureau of Investigation's (FBI)

According to National Research Council (2004), the purpose of Virtual Case File was to improve the case-management software. Nonetheless, this large IT modernization programme failed, after five-years of development and $US 170 million spent (Frieden, 2005).

The main factors which influenced VCF's outcome have been perceived to include:

1) Unclear objectives
2) Mistakes of time and resources estimate
3) Poor planning for hardware purchases
4) Communication problems
5) Lack of IT management and technical expertise

6)   Objective changes

(Taimour, 2005; Goldstein, 2005).

B.   Analysis of Vertical Case File

In relation to the size factor, it is worth discussing *Mistakes of time and resources estimate*, *Communication problems,* and *Objective changes* in more depth to begin to understand its impact.

▪   <u>Mistakes of time and resources estimate</u>

Taimour (2005) states that the time needed to complete a particular task refers to the time on task, while duration represents the time spent on it. Since the time on task seldom equals to duration in reality, Fichter (2003) further claims that estimating schedule based on the time on task is a common mistake in project management.

Hence, the risk of underperformance is believed to increase when the Work Breakdown Structure is of a less practical size range. Work Breakdown Structure is a concept commonly used project management to define and organise work elements of a project. Moreover, due to the features of high complexity and less flexibility within a sizeable project, the destructive influence of an unrealistic timeframe could be amplified in a large project.

▪   <u>Communication problems</u>

Although monitoring and checking the work progress regularly is believed to be a crucial element for project success (Padgett, 2009), many IT project managers fail to meet this requirement (Glaser, 2005). In addition, regular meetings and effective communication may not be possible since large IT projects tend to involve a large amount of people and last for a long period of time. A potential breakdown in communication can result in poor requirements understanding for all parties, leading to a abstract project evolution.

It is also worth noting that turnover of the management and staff, which is often seen in large IT projects, would not only increase volatility but also result in severe communication problems (Sauer et al, 2007; Taimour, 2005).

▪   <u>Objective changes</u>

Objective change has been regarded as a natural phenomenon in IT projects by many

IT managers (Taimour, 2005). For instance, the requirements of VCF altered several times in response to external environment change (Gross, 2005). Without awareness of the differences between initial objectives and new requirements, an IT project can be led in a wrong direction.

It is suggested that large IT projects may experience more objective changes during its extensive lifetime. Consequently, the potential of failure would rise when project size becomes larger.

3.1.3.   Comparison of NPfIT and VCF

Figure 5 demonstrates reasons for failures of NPfIT and VCF by different management fields. It can be seen that both these two large-scale IT projects have experienced certain problems with respect to human resource management, project management, technological issues and procurement management.

Figure 5.

Factors for failure of NPfIT and VCF by various management discipline

	National Programme for IT	Vertical Case File
Country	UK	US
Institution	NHS	FBI
Duration	2002-2009	2000-2005
Human Resource Factors	▪ Skill and Capacity Shortages	▪ Lack of IT management and technical expertise ▪ Communication problems
Project Management Factors	▪ Leadership management	▪ Unrealistic schedule estimate ▪ Objective changes ▪ Unclear Objectives
Technological Factors	▪ Integration of several IT systems ▪ Wrong patient consent system ▪ Lack of system safety concern	▪ Poor planning for software development
Procurement Factors	▪ Inappropriate procurement module	▪ Poor planning for hardware purchases

Source: Lessons from the NHS National Programme for IT, 2007; Who killed the Virtual Case File?, 2005 and Why IT projects fail, 2005.

Regarding the size-related factor, the weaknesses of NPfIT were workers' limited experiences in implementing large IT projects and the difficulties of integrating several IT systems. In contrast, VCF's failure was resulted from communication problems, objective changes and unrealistic resource estimate. Hence, it can be

understood that NPfIT was encountered with human resource and technological issues, whilst VCF had been facing human resource and project management problems. VCF has shown that people have a greater influence on IT project failure over technology (Tilmann and Weinberger, 2004), although an overly extensive use of IT may induce further complications.

Despite the differences, there a lot of underlying similarities between larger and smaller projects. Thereby, we can evaluate that the success of each project is independent of one another, although size differences may contribute.

3.2. Public and Private Sector

IT projects are undertaken within various industries such as the public and private sector. Statistics presented by (Asay, 2008) suggested that 62% of these projects fail before completion. Public sector IT projects are instigated and primarily funded by the government or local authorities. Private sector IT projects would primarily be funded by private individuals.

A significant IT project undertaken in the public sector which failed was the National Project for IT (NPfIT), as described above. In the private sector, Hershey's Food Corporation attempted to devise a new ERP system to improve efficiency. Similarly, this did not meet expectations, costing Hershey's $150.5 million in lost revenue (ICFAI Centre for Management Research, 2008).

The cost of IT projects which overrun in the UK alone currently stands at £9 billion (European Services Strategy Unit, 2007). Therefore it is important to identify whether the causes of IT project failure are the same for both the public and private sector or whether the failures occur due to other diverse reasons.

3.2.1.   National Programme for IT

A. Background Information

Organisation: National Health Service's (NHS)

The UK Government approved plans to update the existing technology within the NHS. Introducing the technology would speed up daily tasks for all NHS staff, for those who rely on the existing support system. The proposed new system was aimed at improving all current tasks such as appointment bookings, cancellations, re-scheduling, implement diary systems, and provide a platform for communication

between doctors.

The failure to meet all expectations initially led to a frequent change in requirements, causing abandonment of the entire project, as described above. Below, the numerous requirements of the project have been detailed.

Figure 6.

Aims of the National Programme for IT

Aims of the project	
▪Choose and book system	▪Live electronic prescription service
▪Access, Re-scheduling and cancelling of appointments	▪Communication between staff
▪Integration with the current health services	▪Electronic records
•Centralised patient record system	▪Speed of hardware and software
▪Security	▪Improve co-ordination amongst all departments
▪Improve efficiency	

Source: Government scraps £12.7bn NHS National Programme for IT, 2010.

B. Analysis of NPfIT

The NPfIT was expected to be the largest IT project ever undertaken within the UK. This scale of project had not been implemented in the public sector ever before, thus the degree of risk had not yet been estimated.

▪ Management

Poor leadership had been apparent during the development of the NPfIT. This is because the Director of IT at NHS, Richard Granger had departed whilst the project was still under development. As Granger had been responsible for overlooking the entire project, his departure meant that there was none other to mentor the project.

The slow allocation of a new director of IT resulted in a change of culture and the way in which the team was coordinated. Adequate levels of knowledge transfer did not take place between the old and new director. Knowledge transfer would have provided a less disruptive transition to the new director. This aspect is something long associated with public sector organisations, in which a change in senior hierarchy suffers from slow changeover, which almost always likely to be transmitted

to all parties in the project.

This can be seen in the development of NPfIT, where NHS staff complained that they were not involved in the design phase of the IT project. The staff had expressed concerns about the complexity and usability of the proposed system. Once again, the sector and the scale of the sector will prevent user input on the design stage, due to set regulations.

- Risk

The NPfIT was considered over-ambitious due to the nature and scale of the IT project. This is because no other country had been able to centralise all aspects of health care under a single system. Therefore the risk of failure was could not be accurately forecast. The risk became prominent when initial contractor Accenture withdrew from the IT project.

This form of cancellation proved entirely disruptive to the project, and may be considered as a key reason for its downfall. However, it must be noted that all projects pose uncertainty, where often an accurate risk measurement cannot be made.

- Communication

However, the ability to communicate effectively and relay information between users and designers through a common party must be discounted. This is expected in all projects regardless of sector, or any factor. This would allow staff to express any concerns that they may have and also allow them to contribute ideas, therefore enhancing the likelihood of developed system which would fit the purpose.

3.2.2.   Hershey's ERP System

A. Background Information

Organisation: Hershey's Food Corporation

Located in the United States of America, Hershey's Food Corporation is a manufacturer of chocolate and confectionery. Although sales orders continued to grow, the existing distribution and shipping capability was deemed not sufficient to meet the demand. Management highlighted this as an area of improvement. They announced plans to implement an ERP system to the estimated cost of $112 million (Keefe, 2000).

The implementation of the ERP had resulted in a 12% fall in sales in quarter, and sales fell $150.5 million compared with the year before (Keefe, 2000).

Figure 7.

Aims of the Hershey's ERP system

Aims of the project	
▪Implement an Enterprise Resource Planning (ERP) system	▪ Integration between all departments
▪Support efficiency with logistics and supply chain	▪Speed of hardware and software
▪Provide a distributed client/ server network	▪Move to TCP/IP network
▪Better co-ordination of deliveries	▪Hold and share delivery data

Source: The requirements of the Hershey's Food Corporation IT project as identified by Centre for Management Research, 2008

B. Analysis of Hershey's ERP System

▪   Lack of testing

In delivering projects, a common stipulation is that contractors perform adequate testing modules to been released. The lack of involvement from the contractors in later stages caused the ERP system to not perform to the required standard. The long term impact is sufficient to halt many operations due to a Just-In-Time process operated when ordering goods, and continuing each stage of the complex confectionery formation.

This insufficient testing and maintenance can be accounted for by different reasons. A likely outcome is the transfer of funds to the contracting party within the early stages, leading to a neglected project. A frequent ending in private IT projects, an obscure contractual agreement could form the said ending.

▪   Integration

Hershey's Food Corp. selected the services of three contractors; SAP, Manugistics Group Inc and Siebel Systems Inc. Each contractor had been responsible to develop different modules of the ERP system.

SAP had been responsible for earlier modules, delivered within the specified timeframe. However later modules had fallen behind schedule. Hershey's did not

have appropriate channels of communication in place with its contractors. If correct communication channels had been established, Hershey's would have recognised this problem in advance, allowing them to consider other temporary solutions, hence minimising the disruption. In addition, the use of multiple suppliers may induce conflicting goals, which can be detrimental to the outcome. The need to use the services of multiple vendors is one that cannot be revealed, but use without prior investigation of functionality does not bode well with future of projects, and ultimately entire organisations.

Note the privacy of private companies often limits the publication of the full scope of project failure, unless failure is catastrophic in which business operations are forced to stop.

3.2.3.   Comparison of NPfIT and Hershey's

Failure of the two IT projects undertaken by NHS and Hershey's in different sectors held similar characteristics. Within both IT projects, a fundamental component of establishing objectives and the use of a formal signing off procedure had not been considered.

This was evident within the Hershey's IT project. Had Hershey's considered a formal signing off procedures with the contractors; this would have allowed them to effectively monitor the progress of the IT project at every stage. Milestones of the IT project could have been established and any delays may have been identified much earlier. This would have allowed Hershey's to consider alternative solutions meet sufficient customer demand during the peak season.

The NPfIT also lacked the use of a formal signing off procedure with its contractors. The original estimated duration was two years. However the IT project had suffered major delays resulting in revised project delivery estimations at ten years.

There are various causes to IT project failure. Similarities between both the public and private sector IT project failure broadly reveal that they tend to be of similar nature. Nevertheless, the individuality of each project must not be discounted, upon which they can suffer endless outcomes.

In contrast, government project that take more than three years to finish are more likely to fail, and those with more than 15% staff turnover among key staff are in trouble. Government projects tend to be generally long and studies have shown that few officials are in the post for more than 18 months. It is therefore essential that the

public sector breaks its programmes into sub-projects that can be delivered before the officials responsible have moved on (Virgo, 2007).

DISCUSSION

This report has analysed various literature material, examining the reasons for IT project failure. Literature material made available by various authors has made it allowed this report to come to a specific conclusion, allowing a qualitative review of why IT projects fail.

Sought objectives had been identified prior to initiating the report. The primary objective was to identify and discuss the reasons for IT project failure within a specific context. The objectives had been identified in the form of research questions, stated during the introduction of the report.

The research questions proposed were answered using concise analysis of various materials, and can be seen below.

Q1. Do IT projects fail for different reasons between Public and Private sectors?

Highly publicised case studies had been used to analyse and discuss the failures in the Public and Private sector.

Various authors had commented on the scale and complexity of this IT project. The NPfIT ultimately failed due to varied complications encountered during the development lifecycle.

Hershey's decision to implement a high specification ERP system to support distribution had been a publicised private sector IT failure.

Both sectors illustrate both similarities and differences, indicating the level of impact is not solely dependent on the sector.

Q2. Does size impact the success of a project?

In our study we have taken two large scale projects into consideration and discussed the reasons of their failure. Larger IT projects tend to fail as they are more complex in nature.

The NPfIT failed to integrate with its collaborative systems due to its large scope and limitations in the workforce capability.

The NPfIT was analysed in conjunction with the FBI's Virtual Case File Project, to identify the impact of size in IT project.

The Virtual Case File was a large IT project; its case study highlighted various factors which contributed to its failure. Timing and estimation problems had influenced the overall failure of the project.

Problems with communication during the development of the project had lead to the poor management of the IT project. Thereby the project objectives had changed various times contributed to failure.

Q3. Do IT projects fail with regards to size and sector?

We have seen many general reasons of failure in existing contemporary work, and highlighted many more through the specifics of size and sector.

To combine each reason, and contrast it amongst others, we have devised a weighted matrix, illustrating many of these reasons, ranking them against the areas of research. A ranking of one highlights that the particular characteristic of a well-known successful project has not been utilised well. Conversely, a higher ranking of five demonstrates that the component has been well implemented.

An overall higher ranking allows us to deduce that the Private sector is more likely to succeed, closely followed those of a larger size. However, the scoring methodology is not conclusive, where each ranking of the studied cases may be open to debate.

Figure 8.

Weighting Matrix

	Public	Private	Size
Time & Resource estimations	2	3	3
Communication Problems	1	3	2
Objective Change	1	4	2
Capacity shortage of workforce	2	4	2
Integration of IT systems	1	3	3
Identifying & Monitoring Requirements	2	3	3
Poor Testing	2	1	3
	11	21	18

Scale: 1-Poor/Low;   5-Excellent/High

Low Projects are more likely to fail

CONCLUSION

Information Technology project failure has occurred numerous times since the introduction of technology into global existence and use. We have considered two variables from a range of options in which project failure has been previously attributed.

The nature of this study proves few projects have been documented of varying size and sector. The success rate in each case study documented shows similarities between all analysed, yet none can be solely attributed to either their size or sector in which they operate within.

These two factors are not the only areas in which an impact on success is likely to be had. A key area of project success has been determined to be effective project management. This broad term is used to describe a stable hierarchy in which effective use of all resources available are continually evaluated and improved to meet changing needs. This process of continuous improvement is one that cannot be always applied, and is likely to present itself to those with greater levels of experience.

However, the foundation of this principle can be employed with soft skills such as good communication and strong leadership. These transferable skills alongside the environment in which the project is undertaken and its scope are all interlinked, and remain true to business form. Note these are not technological concepts that must be followed with all IT projects, given the broad nature of IT used at present worldwide, yet they relate to key business processes, something all projects should follow.

To conclude, we believe these are able to hold significance on their own, and may contribute somewhat large or small, but using this basic approach does not include many other factors that affect it. Thus, it would be very important to note that no-one project will fail for the exact same reason, and individuality will prevail in determining failure characteristics.

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