
# INFORMATION TECHNOLOGY STRATEGY

**Project Background and Progress Report**

**COMP60990 Research Methods and Professional Skills**

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**ABSTRACT**

The alignment between the Information Technology (IT) strategy and business strategy of organisations has been of major concern in the industry. The pervasive and dynamic nature of technology has further strengthened the importance of the alignment between the IT and business sides of an organisation. Organisations need to create an IT strategy that is aligned with their business strategy to help define how IT would support their businesses.

This project firstly seeks to establish whether IT strategies have been helpful for organisations. It accomplishes this by finding out what organisations are doing in terms of their IT strategy. It also tries to understand how they make IT decisions such as in deploying new technology. The dynamic nature of technology and the market implies that an IT strategy should be dynamic. This project would research the factors to be considered before an IT strategy is reviewed.

An investigation would be carried out among some organisations, including some Fortune 500 companies, to find out what components they are putting into their IT strategy. The result of this research would be used in developing and testing a standard IT strategy template. The aim of this template is to help organisations in creating an effective IT strategy with the necessary components for achieving IT and business alignment. In addition, a methodology for assessing the quality of an IT strategy would be developed to help evaluate its correctness.

A prototype of this template has already been developed. It is hoped that the templates that would be developed at the end of this project would be useful to organisations and start-ups in evaluating their IT strategy.

# 1. INTRODUCTION

The use of technology has become very important in the daily activities of lots of organisations. In some industries, it is a determining factor for sustaining competitive advantage. Organisations seem to be taking IT more seriously probably because of the benefits of its use. As a result, there is a need for adequate planning especially in the area of technology [39].

Technology is dynamic, so also are customers and organisations. As a result of their dynamic nature, management executives are concerned with how they can align the IT and business sides of their organisation [46]. To achieve this, they create an IT strategy that is aligned with their business strategy[22]. The IT strategy sets the direction on how technology would be used in their organisation. Henderson and Venkatraman defined an IT strategy as "involving choices that position the firm in the global information technology market" [26].

Previous research proposed some alignment models [25, 36] to help organisations in achieving alignment. However, there has remained concern in the industry about how organisations can effectively align their IT strategy with their business strategy. IT and business alignment has remained among the top three concerns of technology executives for decades [33].

Mack and Frey[39] listed some steps involved in creating an IT strategy. They stressed the importance of an IT strategy to a business. Goldsmith[22] attributed poor performance in organisations to the lack of a well defined IT strategy. Bergeron et al. [6] supported this claim and added that organisations with a well defined IT strategy have the ability to respond to changes in the market.

Furthermore, the IT strategy of some organisations are treated as confidential documents [8, 48]. Therefore, access to them might be difficult for other organisations to be used as a form of benchmark against the creation or evaluation of their IT strategy.

This project is concerned with the development of a standard IT strategy template from the evaluation of the IT strategies of different organisations. This template would contain the necessary components of an IT strategy. The purpose of this template is to help organisations to identify the missing components of their IT strategy. The aim is that the addition of these missing components would help organisations in achieving a better IT and business alignment through their IT strategy.

### 1.1 Project Aims and Objectives

The aim of this project is an investigation into the structure of an effective IT strategy. Issues such as why IT strategy's have failed and factors to considered before reviewing an IT strategy would be discussed.

To achieve its aim, this project was divided into some objectives. The objectives of this project include:

1. Finding out the existing practices of organisations in terms of their IT strategy.
2. Examining whether IT Strategies have been helpful.
3. Developing a standard IT Strategy template.
4. Identifying how IT organisations make IT decisions.
5. Researching the reasons why IT strategies have failed.
6. Investigating whether an IT strategy can be developed to effectively manage IT risks.
7. Determining whether there exists any difference between an IT Strategy and an Information and Communication Technology (ICT) Strategy.

### 1.2 Project Scope

This project would not go into details about the components of an organisation's business strategy or how a business strategy can be developed. The scope of this project does not include an elaborate discussion of how an IT strategy can be developed from scratch. It focuses on the development of a standard IT strategy template from the IT strategy of different organisations that would be evaluated.

This project would also cover how the IT strategy template can be filled by making use of a sample IT strategy.

### 1.3 Report Structure

The rest of this project would be structured in the following format:

- Chapter 2: Background.

  This sections starts with a review of relevant literature to help build a foundation for the understanding of this project. The topics discussed here try to show the importance and relevance of this project in a wider context. An introduction is given into the alignment issues that exist between the IT and business sides of an

organisation by first taking a look into the "origin" of the alignment issue. A brief discussion would be made on some of the models that have been developed to address the IT-business alignment issue. Also, it includes a summary of some methodologies for creating an IT strategy and some of the benefits of an IT strategy.

- Chapter 3: Research Methods and Project Plan.

  This section describes the methodology and reasons for the choice of methodology to be used in this project. The methods that would be used in the collection and analysis of data are described. Also, the procedures that would be used in testing and evaluating the deliverables of the project are discussed.

  Finally, the project plan is presented here in the form of a Gantt chart showing the milestones and deliverables at each stage of the project.

- Chapter 4: Progress Report.

  In this section, a brief description is made of the progress with the project. A prototype of an IT Strategy template is presented here with a brief description of each of the components. This section also includes a prototype of some of the factors to be considered before creating an IT strategy.

# 2. BACKGROUND

This chapter starts with an explanation of some basic terminologies used in this report such as the definition of a strategy, business strategy and what IT and business alignment is all about. It includes an overview of when awareness was drawn to the IT and business alignment issue and some reasons why it has remained an issue. A comparison is made between an IT strategy and ICT strategy and how they are used in different literature. Furthermore, a section discusses the increasing dependence on technology by organisations. It also includes a summary of some alignment models. This chapter concludes with a summary into how an IT strategy can be used as a possible solution to the productivity paradox

## 2.1 Basic Terminologies

### 2.1.1 Strategy

The word strategy is used in a variety of ways [10]. In order to define what a strategy is, Henry Mintzberg [42], proposed five P's of strategy which represent different approaches to what a strategy is all about. According to Mintzberg, the formulation of a strategy is not as easy as it seems. An understanding of the five P's of strategy is necessary for the development of an excellent IT strategy or business strategy. According to him, a strategy can be a:

1. Plan: Many people would describe a strategy as a plan – "some sort of consciously intended course of action" or guideline(s) to tackle a problem. This alone is not enough to develop a strategy. Strategy as plan deals with how leaders set their organisations on a path. From this definition, two important characteristics of a strategy are [42]:
    a. They are developed in advance of the intended action.
    b. They are developed "consciously and purposefully" [42].
2. Ploy: A strategy can be a ploy if it involves a strategic move to gain competitive advantage i.e. a plan to outsmart a competitor or an opponent. It can also be a plan to make use of technology to gain competitive advantage.
3. Pattern: Strategy as a pattern emphasizes on action. To define strategy as a plan or a ploy is not sufficient as it does not take the resulting behaviours into account. Taking the organisational pattern into consideration when defining a strategy allows there to

be a consistency of behaviour because the outcome of a strategy is as a result of the actions that are taken.

4. Position: A strategy as a position implies "a means of locating an organisation in its environment" [42]. It involves an organisation's methods to enter a market and remain competitive.
5. Perspective: Strategy as a perspective is similar to strategy as a position but strategy as a perspective looks inward into the internal environment of an organisation. It helps to raise interesting questions "about intention and behaviour in a collective context" [42].

Furthermore, three components of a strategy as identified by Mack and Frey[39] are:

1. "Statement of end point (that is, the vision, objective or goal)" [39].
2. "Statement bounding the range of options for getting there (the core strategy)" [39].
3. "The steps to take (that is, tactics and projects)" [39].

### 2.1.2 Business Strategy

Zahra and Covin defined a business strategy as "a long-term plan of action a company may pursue to achieve its goals" [58]. It serves as a guide for the business on how to achieve its goals. A business strategy helps in planning resource allocations across an organisation [1]. A business strategy is important for the success of an organisation especially in a competitive market [19].

According to Henderson and Venkatraman, three key choices made in the business strategy are [26]:

1. Business Scope – "Where an organisation would compete?" [26].
2. Distinctive Competencies – "How an organisation would compete?" [26].
3. Business Governance: "Will you enter a particular market as a single entity or via alliances or partnerships?" [26].

### 2.1.3 IT and Business Alignment

How can IT know what the business wants when it does not know what they need? IT-business alignment helps to answer this question.

Van Grembergen defined IT and Business Alignment as "applying IT in an appropriate and timely way, in harmony with business strategies, goals and needs" [55].

Similarly, Tallon and Kraemer, defined alignment as "the extent to which the IS strategy supports, and is supported by, the business strategy" [53]. IT and business alignment is about a two-way relationship between the IT and business sides of an organisation. Alignment allows "accurate" decisions to be made on investment in technology.

| **I. BUSINESS STRATEGY** |
|---|
| **1**. **Business Scope** – Includes the markets, products, services, groups of customers/clients, and locations where an enterprise competes as well as the competitors, suppliers and potential competitors that affect the competitive business environment. |
| **2. Distinctive Competencies** – The critical success factors and core competencies that provide a firm with a potential competitive edge. This includes brand, research, manufacturing and product development, cost and pricing structure, and sales and distribution channels. |
| **3. Business Governance** – How companies set the relationship between management stockholders and the board of directors. Also included are how the company is affected by government regulations, and how the firm manages its relationships and alliances with strategic partners. |
| **II. ORGANIZATION INFRASTRUCTURE & PROCESSES** |
| **4. Administrative Structure** – The way the firm organizes its businesses. Examples include central, decentral, matrix, horizontal, vertical, geographic, federal, and functional. |
| **5. Processes** - How the firm's business activities (the work performed by employees) operate or flow. Major issues include value added activities and process improvement. |
| **6. Skills** – H/R considerations such as how to hire/fire, motivate, train/educate, and culture. |
| **III. IT STRATEGY** |
| **7. Technology Scope** - The important information applications and technologies. |
| **8. Systemic Competencies** - Those capabilities (e.g., access to information that is important to the creation/achievement of a company's strategies) that distinguishes the IT services. |
| **9. IT Governance** - How the authority for resources, risk, and responsibility for IT is shared among business partners, IT management, and service providers. Project selection and prioritization issues are included here. |
| **IV. IT INFRASTRUCTURE AND PROCESSES** |
| **10. Architecture** -The technology priorities, policies, and choices that allow applications, software, networks, hardware, and data management to be integrated into a cohesive platform. |
| **11. Processes** - Those practices and activities carried out to develop and maintain applications and manage IT infrastructure. |
| **12. Skills** - IT human resource considerations such as how to hire/fire, motivate, train/educate, and culture. |

Figure 2.1: The Twelve Components of Alignment [35] as cited in [37].

According to Luftman[37], twelve components are important for there to be alignment. These components are shown in Figure 2.1.

Pereira and Sousa identified two examples of misalignment [46]:

1. When a new employee has to be registered on more than one information system.
2. When a client does not know some minor details about a regular customer.

## 2.2 Organisation's Increasing Dependence on Technology

Technology has changed from how it was used. In the past, IT was used primarily for automating paper based processes and increasing the speed of communication but it did not really change the way work was done [59].

However, as organisations started seeing its importance, many started taking technology more seriously. Research has proven the importance of the strategic use of technology in business [2, 7]. For example, the growing importance of social media for internet marketing cannot be overemphasized [30].

Since IT plays a very important role in business, the development of a plan is necessary for organisations who wish to employ the use of IT. Haki stated that "the strategic use of IT, or constructing and employing the competitive role of IT, first requires the development of an effective IS/IT strategic plan" [24].

The adoption of technology because "everyone" seems to be using it is not an effective or efficient way of using IT in business [12]. More so, research has shown that the adoption of technology without a plan increases the probability of failure for any business [16]. IT is evolving at an increasingly fast rate (Table 2.1) therefore there is the need for a flexible strategy for IT.

| | **1987-1999** | **1990-1995** | **1995-1999** |
|---|---|---|---|
| **Private Sector** | 2.0 | 1.2 | 3.1 |
| **Durable Manufacturing** | 4.6 | 3.4 | 6.7 |
| **Non-durable Manufacturing** | 1.2 | 1.4 | 0.9 |
| **Non-manufacturing** | 1.7 | 0.9 | 2.7 |

Table 2.1: Estimated Growth in Technology (Percent per Year). Adapted from [5]

There is the likelihood of adopting the latest or "reigning" technology without thinking of how it would fit with the business strategy [35]. Cegielski et al. [12] stated that experience has shown that this strategy is inappropriate. An organisation's competitor is one of the

factors that can influence their adoption of a new technology [43]. Therefore, a plan is needed to avoid the unnecessary pressures that come from an increasing dependence on technology.

### 2.3 History of the IT and Business Alignment Issue

Attention was first drawn to the issue of IT and business alignment in the 1970s [3, 11, 36] indicating there has been awareness about this problem for over three decades now.

The Society for Information Management (SIM) ranked IT and business alignment as one of the top three concerns of top technology executives [33]. It has been among the top issues for decades [12, 14, 46]. The results of this survey were gathered from questionnaires that were sent to all SIM members. SIM members consist of leading IT executives from around the world. Other surveys show very similar results [14].

| Year | Ranking |
|---|---|
| 2012 | 2 |
| 2011 | 1 |
| 2010 | 3 |
| 2009 | 2 |
| 2008 | 1 |

Table 2.2: Ranking of the IT and Business alignment issue from among top IT Management Concerns 2008-2012 [33]

Luftman and Kempaiah identified three primary reasons why this has remained an issue [36]. The reasons they identified are:

1. When describing IT and business alignment, it is common for emphasis on alignment to be only on how IT can be aligned with the business or on how the business can be aligned with IT. Instead, he argued that the alignment should be in both ways i.e. on how IT and business can be aligned and on how the business and IT can be aligned [40, 53]. According to Luftman, IT can be both an "enabler and driver of change"[35].
2. Organisations have often looked for straightforward solutions to the IT-business alignment issue [57] and tried to apply them independently. For example, an assumption that governance without proper communication between the IT and business sides of an organisation is the solution to the alignment issue.

3. There has not been an effective tool to measure the maturity level of IT and business alignment.

### 2.3.1 Reasons for IT-business alignment issue

Some other important reasons why IT and business alignment has remained an issue are:

1. Different views about the contents and goals of an IT strategy [20].
2. Time, costs and difficulties associated with IT strategies [20].
3. Organisations do not plan for the integration and implementation of new technology when developing their IT strategy [12].
4. Organisations often fail to consider social factors in the development of their IT strategy [18]. For example, the importance of the users of IT.
5. Dynamic nature of business and technology [20].
6. Lack of support from senior business executives [35].
7. IT staff lack adequate knowledge of the business to enable them plan for the IT needs of the business [35].
8. Senior management lack adequate knowledge to make IT decisions[13].
9. IT is not seen as having the probability to drive business [35]. Hence the alignment is usually one-way connection instead of a two-way connection.
10. Some organisations do not have a clear business strategy while some have no business strategy[13].

After carrying out a survey among 500 companies from 15 different industries, Luftman[35] identified six major enablers and inhibitors of the alignment between IT and business sides of an organisation. These are shown in the Table 2.3:

| Enablers | Inhibitors |
|---|---|
| Senior executive support for IT | IT/Business lack close relationship |
| IT involved in strategy development | IT does not prioritize well |
| IT understands the business | IT fails to meet its commitments |
| Business/IT partnership | IT does not understand the business |
| Well prioritized IT projects | Senior executives do not support IT |
| IT demonstrates leadership | IT management lacks leadership |

Table 2.3: Enablers and Inhibitors of IT-business alignment [35]

## 2.4 Alignment Models

Henderson and Venkatraman proposed the Strategic Alignment Model [25]. It was one of the earliest works in IT-business alignment and is often used as a reference for related works [36] in IT-business alignment. The Strategic Alignment Model is divided into four domains each of which is linked together (Figure 2.2).

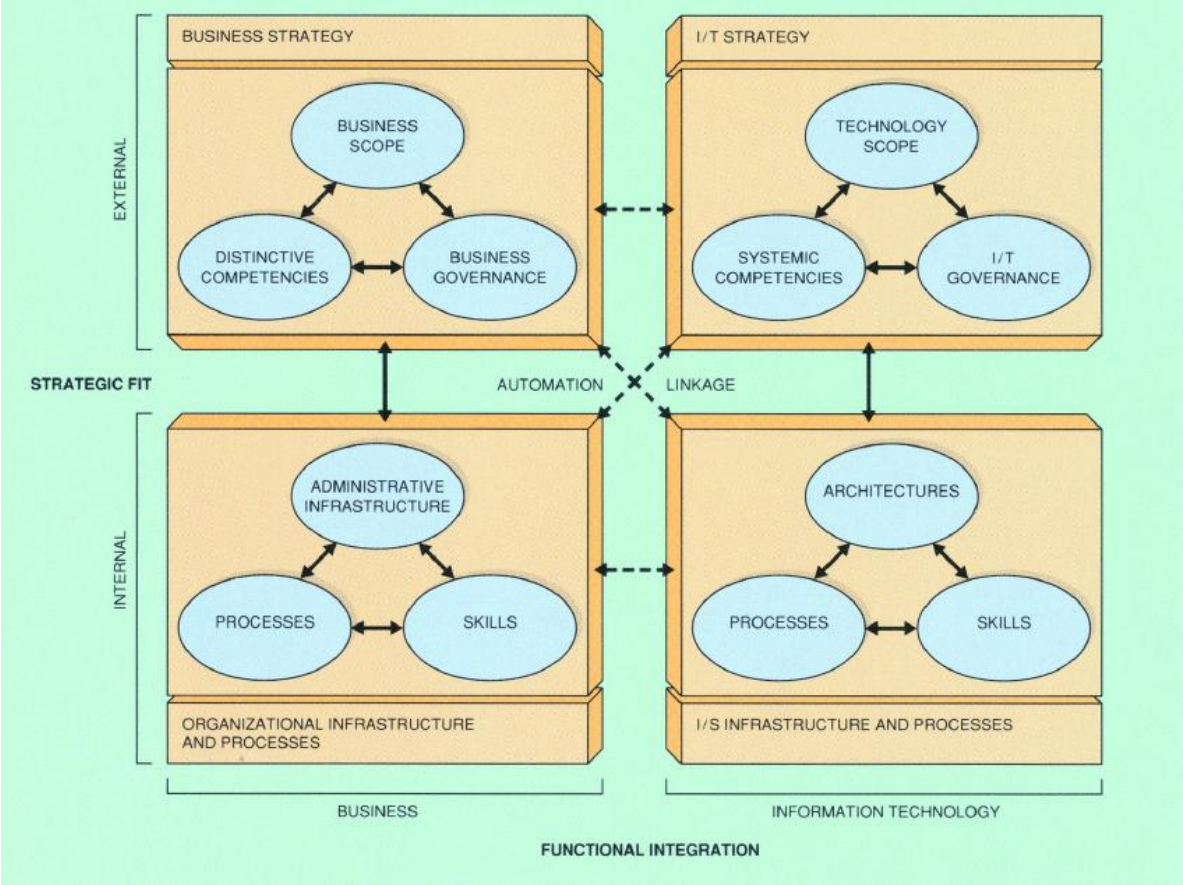


Figure 2.2: Strategic Alignment Model [25]

This model is built on two building blocks:

1. Strategic fit (i.e. the IT strategy must recognise the relationship between the external domain and the internal domain of a business. The external domain represents "how the firm is positioned in the IT marketplace [while its] internal domain [represents] how the IT infrastructure should be configured and managed" [17].
2. Functional integration (i.e. the relationship between the business and functional domains). The functional integration was further divided into two types:

a. Strategic integration: The strategic integration is the alignment between the "*business strategy*" and the "*IT strategy*" which represent the external domain. It emphasises on how IT can support the business strategy [17].
b. Operational integration: It emphasises on the balance between the business requirements and the ability of IT to support it [17].

The Strategic Alignment Model proposed by Henderson and Venkatraman had some limitations in that it lacked empirical evidence. Luftman [34] built upon the Strategic Alignment Model of Henderson and Venkatraman and proposed a model with six components (Figure 2.3) to measure the IT-business alignment maturity of an organisation.

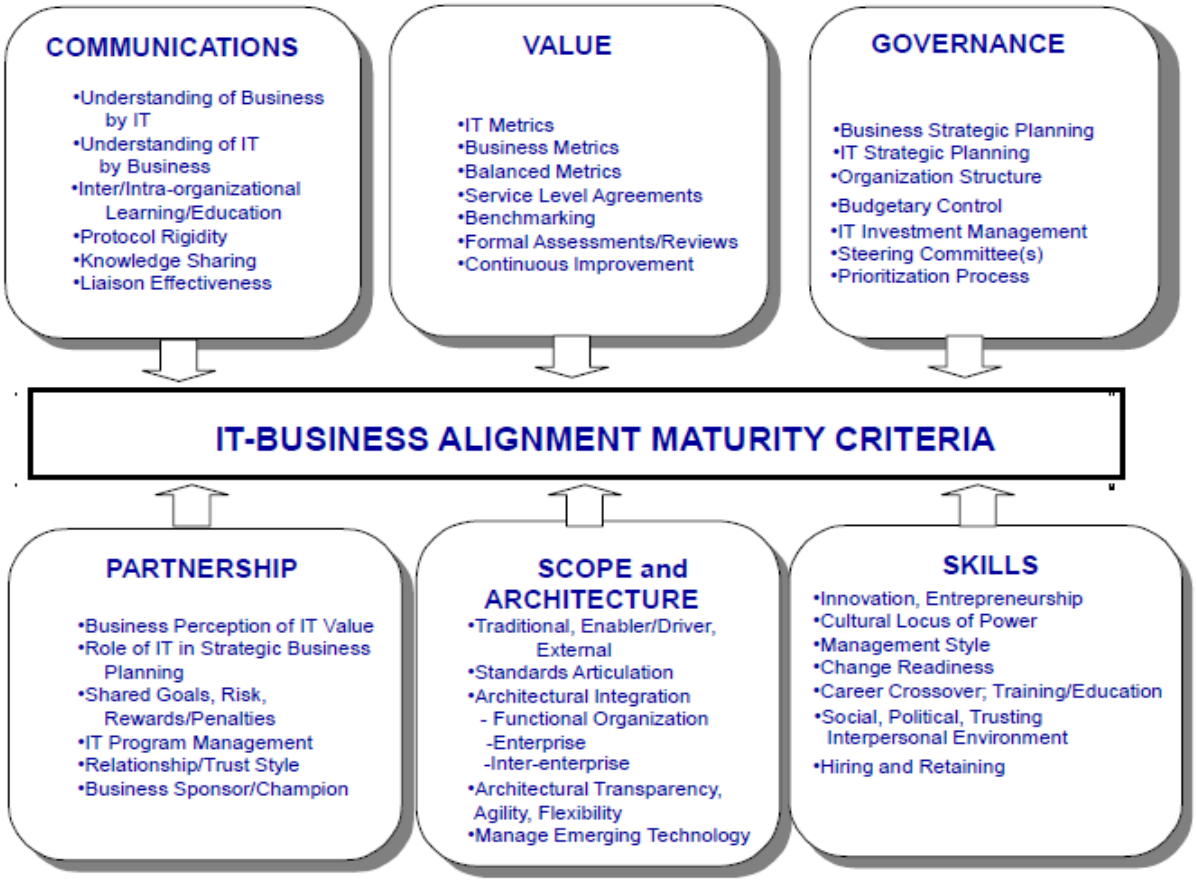


Figure 2.3: IT-Business Alignment Maturity Criteria[36]

An organisation's score for each component is measured using a five-level maturity model (Figure 2.4) to determine its maturity.

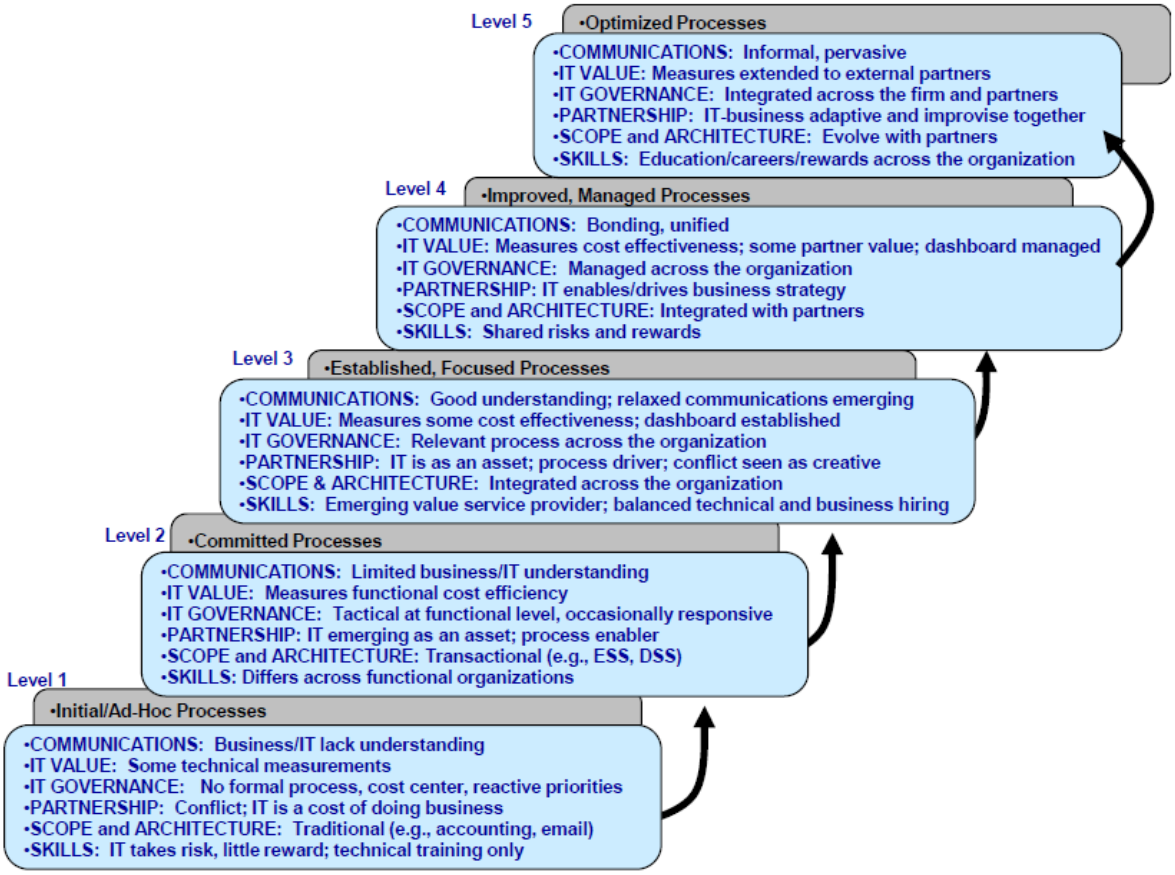


Figure 2.4: Strategic Alignment Maturity Summary [36]

Others [38, 45] have built on the Strategic Alignment Model proposed by Henderson and Venkatraman but the alignment issue has remained among the top concerns of IT management.

Research[34] has shown how to measure the IT-business alignment maturity of an organisation but nothing seems to have been done about measuring the "maturity" or quality of an IT strategy.

## 2.5 Balanced Scorecard

The Balanced Scorecard (BSC) was created to assist managers in leading their businesses into success in a competitive market. According to Kaplan and Norton, "the Balanced scorecard translates an organization's mission and strategy into a comprehensive set of performance measures that provides the framework for a strategic measurement and management system" [31].

There are four perspectives of the BSC which are used in measuring financial performance and organizational growth. These measures are [32]:

1. Customers
2. Financial
3. Internal Business processes
4. Learning and growth i.e. innovation

Furthermore, Van Grembergen demonstrated how the balanced scorecard can be used in measuring alignment. He stated that the BSC of the IT and business sides of an organization can be linked to support the business [54]. He proved this by showing the relationship that exists between the IT and business scorecards in Figure 2.5.

This diagram shows that the IT Development BSC and the IT Operational BSC both support the IT Strategic BSC. The IT Strategic BSC further supports the Business BSC. The relationship between these scorecards enables the creation of measures that would be useful in linking the IT and business sides of an organisation. These measures can also be used as performance metrics [45] on an IT strategy.

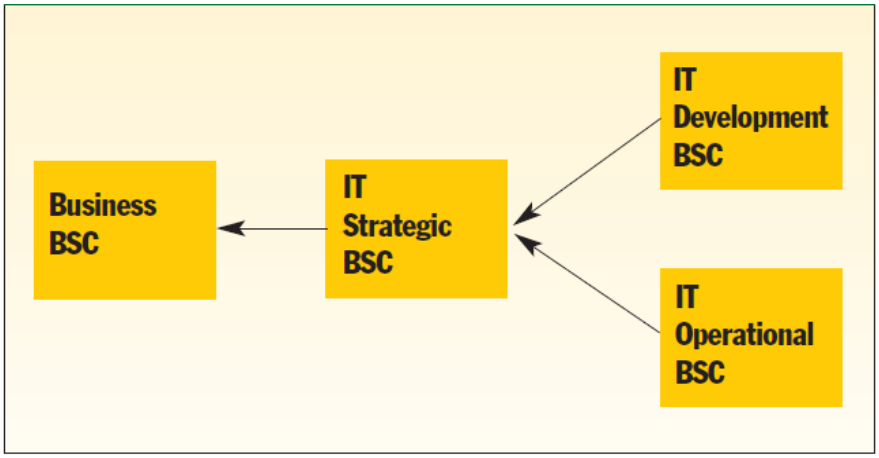


Figure 2.5: Balanced Scorecard Cascade [54]

## 2.6 IT Strategy

An IT Strategy is a plan for the direction of IT in an organisation. Henderson and Venkatraman defined an IT strategy as "involving choices that position the firm in the global information technology market" [26]. These choices were broken into three types:

1. Technology Scope i.e. "what are the range and types of IT that are critical to the organization (for example, image processing or expert systems)" [26].
2. Systemic Competencies i.e. "what are the key characteristics of the technology system that will be critical to the creation or extension of business strategies, such as connectivity, reliability and speed" [26].
3. IT Governance i.e. "choices that determine the extent of ownership of this technology, that is, the possibility of technology alliances" [26].

An IT strategy is a written document [23] that is developed to align with the business strategy [12, 36, 46]. It is best created and implemented with the business strategy[52]. It contains details of how IT would be used to support the business. For some organisations, their IT strategy is confidential, especially if it has helped them in achieving a competitive edge [8, 48].

The process for the development and maintenance of an IT strategy is iterative and continuous since the process of achieving alignment is continuous [40, 53]. An IT strategy must ensure that maximum value is derived from investment in technology. It should contain elements of people, processes and technology.

Furthermore, Mack and Frey identified six main components of an IT strategy [39]:

1. Business strategy
2. Applications
3. Operations
4. Architecture
5. Financial tools
6. People

They emphasized the importance of people for the successful implementation of an IT strategy. These components are illustrated in Figure 2.6.

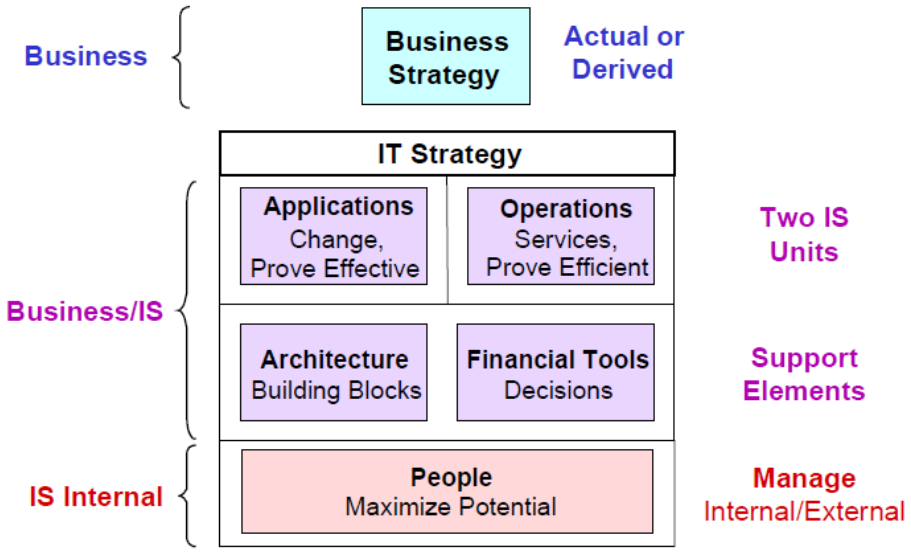


Figure 2.6: IT Strategy Model: Six Building Blocks [39]

Gottschalk [23] shared this perspective on the importance of people to an IT strategy. He further proposed ten characteristics of the contents of an IT strategy. "[They should contain] descriptions of:

1. Resources needed for the implementation;
2. User involvement during the implementation;
3. Analyses of the organization;
4. Anticipated changes in the environment;
5. Solutions to potential resistance during the implementation;
6. Information technology to be implemented;
7. Projects' relevance to the business plan;
8. Responsibility for the implementation;
9. Management support for the implementation;
10. Clarity of the documentation" [23].

### 2.6.1 IT Strategy and ICT Strategy

Different literatures use the terms IT strategy [12, 25, 46] and ICT strategy [15, 18, 50] to refer to a strategy that is aligned with the business strategy in order to achieve alignment in an organisation. Similarly, some organisations use an IT strategy [29] while others use an ICT strategy [28] to refer to the same thing.

The question that arose as a result of carrying out background research was whether there exists any difference between these two terms.
This research would try to find out what participants of this project think about these two terms.

### 2.6.2 Benefits of an IT Strategy

Some of the benefits of a properly aligned IT Strategy are:

1. It helps in making right investment choices in technology [18]. This helps in avoiding wastage especially through the right allocation of resources to IT projects.
2. It helps in improving productivity and performance of the business [45].
3. It helps in assisting the business to be proactive to changes in the business or marketplace [6].
4. It provides the ability for the measurement of the contribution of IT to business [45].
5. Helps in acquiring the necessary skills that are needed for the business as a whole.
6. It helps the organisation in achieving competitive advantage.
7. It helps in securing stakeholder confidence.

## 2.7 Methodologies for creating an IT Strategy

Managers are aware of the need of having strategies. According to Watkins, a strategy is all about the decision making and resource allocation processes of an organization [56]. He argued that a strategy is not just a "fancy" mission or vision statement. The vision and mission must work with other components like the overall strategy and the network of stakeholders.

According to Mack and Frey, nine steps should be followed in creating an IT strategy [39]:

1. Understand the Business Strategy
2. Establish a Governance Process and Financial Toolset
3. Define What the Enterprise Architecture Must Look Like
4. Understand the Boundaries Implied by the Current Infrastructure
5. Define the Application Change Strategy
6. Define the IT Operations Strategy
7. Define the People Strategy
8. Document the IT Strategy in Written Form

9. Use a Management Framework to Keep Your Strategies Alive

Research conducted by Goldsmith concluded that an IT strategy must be created at the same time with the business strategy for it to be properly aligned [22]. He stressed the importance of the use of Information Engineering principles (Figure 2.7) and Porter's Five Forces (Figure 2.8) in the development an IT strategy.

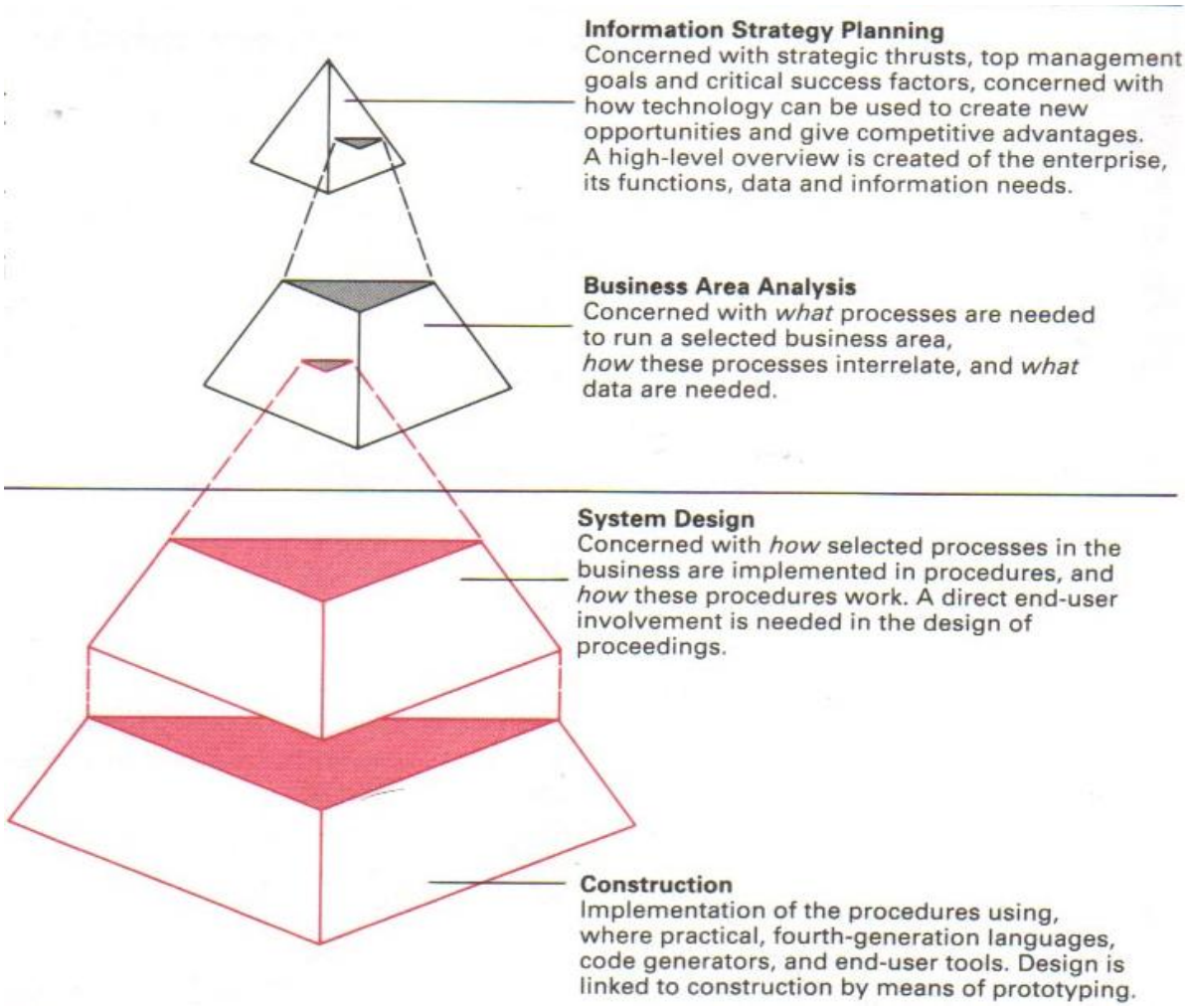


Figure 2.7: The Four Stages of Information Engineering [41]

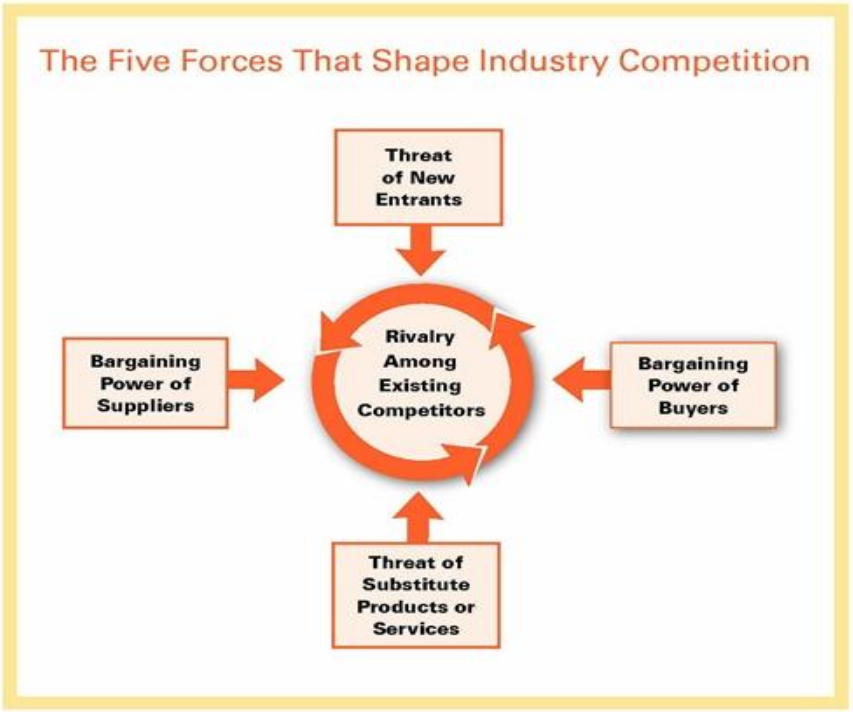


Figure 2.8: The Five Forces that Shape Industry Competition. Adapted from [47]

Martin and Finkelstein defined Information Engineering as "an interlocking set of formal techniques in which enterprise models, data models, and process models are built up in a comprehensive knowledge base and are used to create and maintain data processing systems"[41].

According to Galliers[20], the focus of IT strategy is moving towards competitiveness (Figure 2.9) which makes Porter's Five Forces an important consideration in the creation of an IT strategy. These five forces "define an industry's structure and shape the nature of competitive interaction within an industry" [47].

Furthermore, Galliers argues that competitive advantage or business process redesign should not be the only focus in the development an IT strategy [20]. They are all parts of the equation. For example, evidence suggests that there exists a relationship between a plan and its implementation [4, 5]. Therefore, the execution of an IT strategy should be considered during its creation.

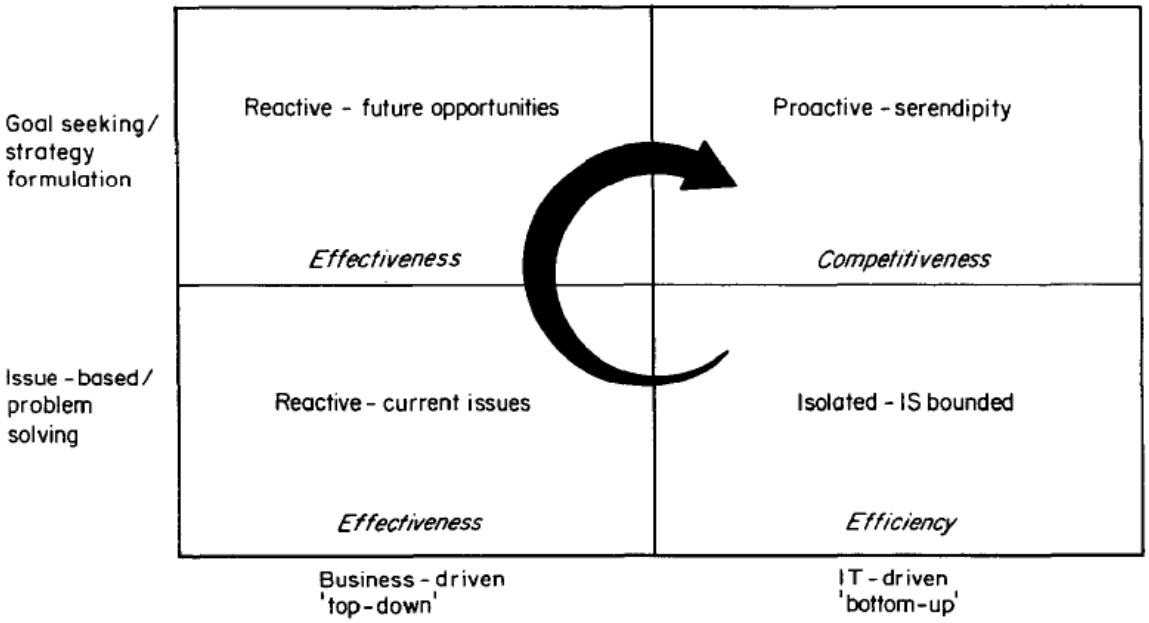


Figure 2.9: The shifting focus of IT strategy: from technological efficiency to business competitiveness. Adapted from [20].

## 2.8 An IT Strategy as a possible solution to the Productivity Paradox.

The productivity paradox is about the relationship between investment in technology and productivity. It explains the "lack of increased output resulting from investments in information technology" [51].

Erik Brynjolfsson stated that investment in technology in the United States seems to have increased by a magnitude of two since 1970 while productivity appears to be stagnant [9].

He identified four reasons for the paradox [9]:

1. Measurement problems: There is a possibility of large gains in IT investment but there are problems in measuring them.
2. Mismanagement: Management of IT is complicated.
3. Lags: IT benefits could take some years to be realised due to delays in learning.
4. Redistribution: There might be diverging returns when different firms invest in technology.

Management would want a positive return on all their investment including investment in technology. They want to be able to measure the advantages or disadvantages of their investment. Technology executives in organisations are tasked with the responsibility of

justifying investment. Management would want to be able to assess the contributions of investment in technology. Inability to prove its business value can send the "wrong signals". Measurement of returns on investment in technology is difficult [4, 9, 45]. Organisations need an effective IT strategy to help them in solving this problem. Rai et al. [49] suggests that the quality of the links between an organisation's business processes and IT strategy has a way of affecting the productivity and performance of a business [49]. A similar research on over 300 strategically aligned firms showed the importance of IT-business alignment in improving the productivity from the use IT [45].

Therefore, an IT strategy that is well aligned with the business strategy should be able to help management in making technology investments that would increase business productivity. To achieve this, an IT strategy should have the means of justifying and measuring the performance of each investment in technology especially in terms that management would understand [45].

### 2.9 Summary

Research has shown the importance of the IT-business alignment issue and the need for alignment between the IT strategy and the business strategy of an organisation. The increasing reliance on technology and the evolving nature of technology makes the issue of alignment a continuous process. Therefore an IT strategy should be agile in its response to internal and external changes.

Major investigations into IT and business alignment issue seem to have left some unanswered questions like:

1. What should an effective IT strategy look like?
2. How do we measure the quality or maturity of an IT strategy?

This project aims to provide a solution to these two questions.

# 3. RESEARCH METHODOLOGY

## 3.1 Project Plan

In order to achieve the aim of this project, I divided my project into four phases:

### Phase 1-Background Research

The first phase of this project involved some background research and survey of relevant literature. I spent a lot of time going through different literature and collaborating with my supervisor for a proper understanding of my project.

The knowledge gotten from my background research helped me in developing a prototype of what I expect should be the structure of an IT strategy. I decided to test my prototypes and gather more data using two methods:

1. Interviews
2. Online questionnaires

These two methods were chosen because:

- Interviews allow me gather personal experiences of technology executives [21].
- It would help in getting information about the current state of IT strategy in different organisations.
- The online questionnaires would help me in reducing errors and omissions from respondents [44].
- The online questionnaire would allow me to break boundaries in geographical locations of firms.
- Interviews allow me to get clarifications on responses.

Online questionnaires and request for interviews has already been sent to over 300 senior IT executives (i.e. Chief Information Officers, IT Managers, Chief Technology Officers, IT Directors etc.) consisting majorly of Fortune[1] 500 companies. Whilst some of them have already responded, others have declined as a result of security and company policy issues. In order to convince these executives to participate in this research, an agreement was made to send them a copy of the final report with the templates. No specific kind of industry was

[1] CNNMoney.com, "Fortune 500 Companies, 2012", [Online] Available at: http://money.cnn.com/magazines/fortune/fortune500/2012/full_list/

chosen for this project so as to enable the development of templates that are not restricted to an industry. A copy of the questionnaire is included in APPENDIX B: Survey / Interview Questions.

In this phase, a prototype of a standard IT strategy template would be developed. This prototype would be tested in the third phase of this project. Outcomes from the testing of the prototype would be used in the development of the final templates.

**Phase 2-Development phase**

Phase two of this project would commence after the second semester exams. It would involve analysis of the data gathered from online questionnaires and interviews. Analysis would also be carried out on samples of IT strategy that would be obtained from different organisations. Some more interviews might be conducted in this phase depending on the response from the invitations that have already been sent out. A report would be compiled on the current state of an IT strategy and the factors to consider before an IT strategy is reviewed.

More changes would be made to the IT strategy prototype from the analysis of some sample IT strategies of different organisations. This would be carried out in preparation for the testing phase. In addition, a methodology to test the quality of an IT strategy would be created.

**Phase 3-Testing phase**

The third phase of this project is called the testing phase, testing would be carried out on the IT strategy template. Likewise, testing would be carried out on the methodology to assess the quality of an IT Strategy. The tests would be carried out with sample IT strategies of different organisations.

After a level of satisfaction has been achieved from the preliminary tests, they would be sent to technology executives that volunteered for further testing. Already, some of these executives have indicated interest in testing these templates. Some technology executives that I have interviewed, including those of some Fortune 500 companies, have indicated interest in testing these templates. Those in charge of planning the direction of IT for their organisations were chosen because these templates would be used by them in “real world” scenarios. The aim is to develop practical templates that have been tested by those in field of IT strategy planning.

Feedback gotten from these preliminary industry tests would be used to improve and "certify" the practicality of these templates.

**Phase 4-Final Review and Submission**

This phase would begin after a satisfactory evaluation of the templates that have been developed. A report would be prepared showing how the templates can be used and how it can be used to identify the missing components of an IT strategy. This report aims to be comprehensive enough for easy understanding. The next task in this phase is the finalisation and submission of the dissertation. The dissertation is expected to contain all the deliverables of this project.

This project is divided into five milestones to provide guidance on the progress with the project. The milestones for this project are:

- Milestone 1: Initial Report
- Milestone 2: Progress Report
- Milestone 3: IT Strategy Template
- Milestone 4: Demonstrating process for populating IT Strategy Template
- Milestone 5: Dissertation Submission

The first milestone was completed in March after successful submission of my initial report. The second milestone is due by May after the submission of my progress report. The third milestone is due on the last week of June after the semester 2 examinations. The fourth milestone is expected to be completed by the last week of July. The final milestone is the submission of the dissertation by the first week of September.

A Gantt chart showing the deadlines, tasks, milestones and time estimates to be used in the course of this project is included in APPENDIX A: Project Gantt Chart.

### 3.2 Project Deliverables

The project deliverables for this project are as follows:

1. A report containing the state of the IT strategy. This report should answer the following questions:
    a. Are they used?
    b. Do they help?

c. How stable are they?
d. How often are they reviewed?

2. Factors to be considered before an IT strategy is reviewed – This would contain details of things to consider before the review of an IT strategy. This section would contain input from the analysis of the factors considered by organisations participating in this project.
3. A methodology to assess the quality of an IT strategy – This is a form of "framework" to determine the correctness or maturity level of the structure or contents of an IT strategy.
4. A standard IT strategy template created from the IT strategies that would be evaluated. This would contain:
    i. A standard IT strategy template including important elements.
    ii. Weighted ranking for evaluating the correctness or quality of an IT strategy.
    iii. Elements of People, Process and Technology.

### 3.3 Project evaluation plan

This project would be evaluated with the use of a sample IT strategy of an organisation. The sample IT strategy would be used in filling and testing the IT strategy template. This simulation would identify the defects in the tested IT strategy. It would highlight the missing components in the IT strategy. Also, it would show how the addition of the new components from the IT strategy template would help the organisation in achieving a better IT and business alignment.

### 3.4 Project Tools

#### 3.4.1 Chatham House Rule

The confidentiality of the information provided by respondents during this research is very important and respondents had to be guaranteed of the confidentiality of their identities and that of their organisation.

Initial requests sent out to some respondents were declined as a result of confidentiality and security issues. To try to solve this problem, further requests sent out guaranteed the confidentially of their information according to the guidelines provided by the Chatham

House[2] Rule. Chatham House is another name for the Royal Institute of International Affairs in the United Kingdom.

The Chatham House Rule states that "when a meeting, or part thereof, is held under the Chatham House Rule, participants are free to use the information received, but neither the identity nor the affiliation of the speaker(s), nor that of any other participant, may be revealed" [27].

This rule got its origin from the Chatham House. The aim of the rule is to provide secrecy during the sharing of information and to encourage openness. The Chatham House Rule is used around the world. The rule can be used by anyone during interviews and the interviews do not need to hold at Chatham House.

When meetings are conducted at Chatham House, disciplinary actions are taken against members that break the rule. When the rule is used by other individuals who are not members of Chatham House, for its success, participants must see the rule as morally binding.

This rule has already been used during some interviews that have been conducted and its guidelines would be followed for all other interviews. This implies that, no information that can be attributed to any participant of this research would be provided in this report.

[2] Chatham House © [Online]. Available: http://www.chathamhouse.org/.

# 4. PROGRESS REPORT

This chapter summarises the progress that has been made on this project. It provides a brief summary of prototypes that have been developed and the progress with the surveys.

## 4.1 IT Strategy Samples

Sample IT Strategy's of some organisations have been acquired. The identities of these organisations would remain confidential due to the terms surrounding the release of these documents. The templates would be used to improve and test the prototypes.

## 4.2 Interviews and Questionnaires

So far, interviews have been conducted with three technology executives two of which belong to organisations that are among the top 100 companies of the Fortune Global 500 companies. The third interview was conducted with the IT Director of a major University in the United Kingdom. They have all agreed to help in the testing of the templates that would be produced from this project.

Also, a total of twelve responses have been received from the online questionnaires that were sent to technology executives of different organisations. Eight of these respondents have agreed to help in the testing of the templates.

Some technology executives have declined in participating in this research but replies are still expected from others.

## 4.3 IT Strategy Concept

Earlier in this report (Section 2.1.1), Henry Mintzberg [42] defined what a strategy should be all about. He defined the 5 P's of strategy. This approach was used in proposing what I expect an IT strategy should be all about. This can be seen in Table 4.1. For proper alignment, an IT strategy is expected to satisfy all the concepts of this table.

| Mintzberg's 5 P's of Strategy | | | IT Strategy Concepts |
|---|---|---|---|
| | Plan | ▪ An IT strategy is created with and aligned with the business strategy. | |
| | | ▪ An IT strategy clearly outlines how IT would support the business and vice versa. | |
| | | ▪ An IT strategy has plans to respond to issues especially those that are related to IT. | |
| | Ploy | ▪ An IT strategy contains plans to constantly help the business in gaining competitive advantage. | |
| | Pattern | ▪ An IT strategy clearly states the roles and responsibilities of each stakeholder. | |
| | | ▪ An IT strategy considers how management decisions are made | |
| | Position | ▪ An IT strategy helps the business in securing its place in the marketplace(external). | |
| | | ▪ An IT strategy has the ability to respond quickly to changes in the market. | |
| | | ▪ An IT strategy is agile and flexible. | |
| | Perspective | ▪ An IT strategy takes into account the organisational culture of the business(internal). | |
| | | ▪ An IT strategy considers the importance of people in its implementation i.e. the human behaviour factor. | |

Table 4.1: The IT Strategy Concepts

### 4.4 "Ingredients" of an IT Strategy

In other to create an IT Strategy, certain things are expected to be considered. A good knowledge of them is required before embarking on the development of an IT strategy. They are like the "ingredients" that are needed for the development of an IT strategy. They are:

1. Business Strategy: The IT strategy would be better if it is created with the business strategy. It can still be created if the business strategy already exists. Every business process has to be well documented and understood. The business strategy should include all other strategies such as the marketing strategy, human resource strategy etc.
2. Visions & Goals: An understanding of the organizational goals is required to create the IT Strategy. This includes the visions and goals of departments, business units, teams etc.

3. Organisational Culture: The organizational culture refers to the organisations beliefs, practices, norms etc. They all need to be considered. The organizational culture might not be documented but it needs to be considered.
4. People: People here refer to all stakeholders including staff, boards, management etc. An IT strategy that does not take into consideration the skills of the people that would implement it can result in a failure.
5. Business Requirements: Before formulating the strategic objectives or planning for the direction of IT for the organization, an understanding of the business requirements of each stakeholder is necessary.
6. Drivers & Trends: This includes both the business and technology drivers. It also deals with other factors that can influence the business like the changes in the market, competitors, emergence of new technology etc. The drivers and trends should be internal and external.
7. Existing IT Capabilities: An understanding of the current state of technology in the organisation is needed. This would help in planning appropriately. It helps in preventing the duplication of business processes etc.

Figure 4.1 shows the "ingredients" that should be considered when developing an IT strategy. The arrows between the blocks represent the relationship that exists between them. This is only a prototype. It would be evaluated in the testing phase of this project.

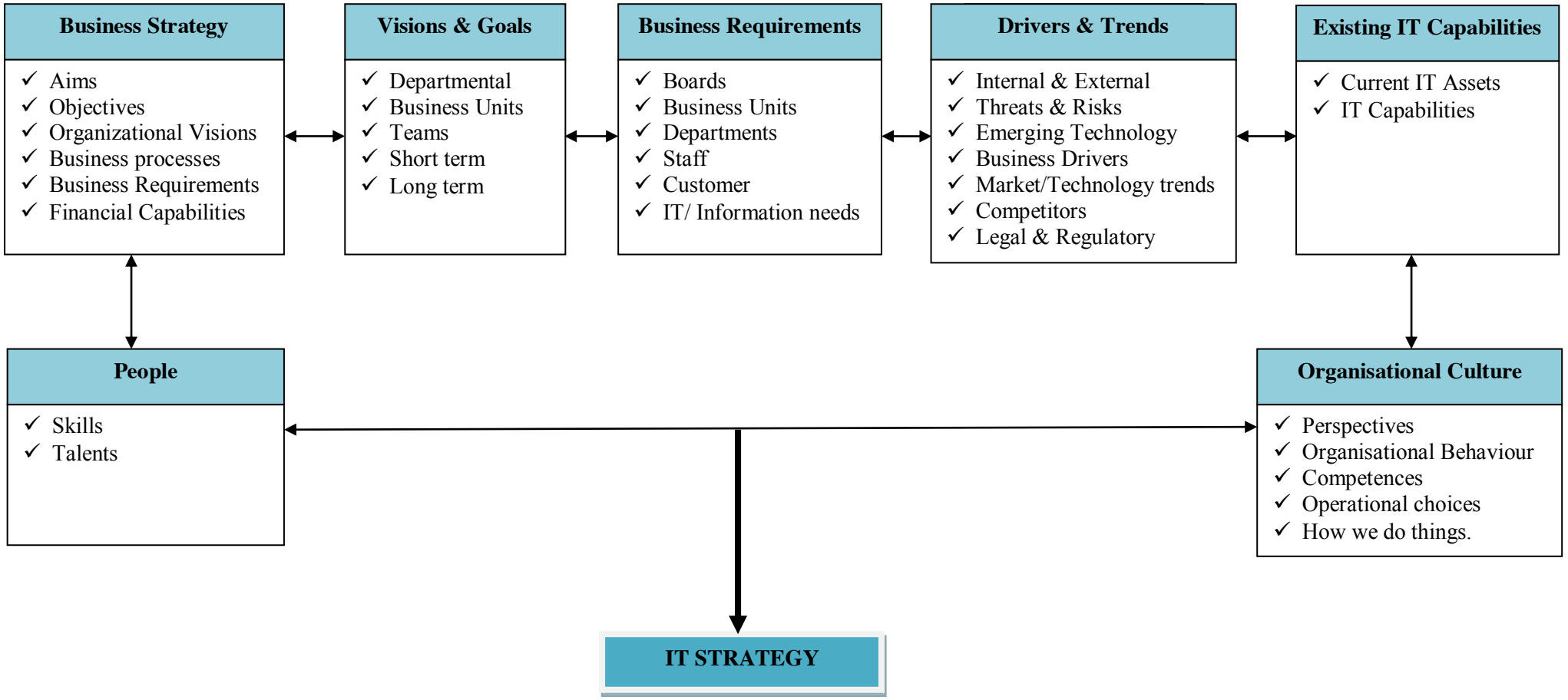


Figure 4.1: "Ingredients" of an IT Strategy

### 4.5 IT Strategy Template: Prototype

If the organisation does not have a business strategy, one has to be created along with the IT strategy. Below is a brief list of what I expect to be in an IT strategy. This prototype has been structured in a way that I believe would help in the understanding of the reasons for each component. For example, an IT strategy should be able to prove the reasons why certain projects need to be executed by showing management the evidence from the business requirements and information needs. The components of this prototype are:

- Executive Summary
- Introduction/Purpose of the Document
    - Scope
    - Benefits
- Business Requirements/Stakeholder requirements
- Drivers and trends (Technology, Business or Market)
    - Legal and regulatory issues
- Vision
- Aims and Strategic objectives
- Goals (Long term and short term)
- IT Contribution
    - Projects
        - ✓ Deliverables and Milestones
        - ✓ Dates
        - ✓ Costs
    - Outsourcing
    - Maintenance
- Actions / Strategy Implementation
    - Policies, principles and standards
    - Skills development
    - Risks, challenges and recommendations
- Stakeholder roles
    - Responsibility and Communication issues.
- Scorecard / Metrics
- References
- Appendices & Glossary

A brief description of each of these components is provided below:

- Executive Summary:

  This should be a one page summary of the whole IT strategy that can be read and easily understood by anyone. It should give a broad picture of the direction of IT in the organisation.

- Introduction / Purpose of the Document:

  This section gives the introduction and purpose of the IT strategy. It should contain details about the timeframe for the IT strategy.

- Business Requirements / Stakeholder requirements:

  A brief summary of data gathered about the business requirements of each stakeholder should be presented here. This should focus on their information and IT needs to help management understand the gaps that the IT would fill.

- Drivers and trends (Technology, Business or Market):

  An analysis of the market trends is needed to make adequate plans. Business and technology drivers should be considered. The drivers and trends are the external and internal factors that can affect the running of the business. These factors should be put into consideration while creating the IT Strategy. They should be prioritised in the order of their importance.

- Vision:

  The vision for IT for an organisation should be formulated only after it has fully understood the business and IT requirements of the organisation. It should build on the strategic objectives of the organisation and that of different sectors of the organisation. The strategy should clearly state how it was constructed. It should be created after consideration of the different "ingredients" of an IT strategy (Figure 4.1).

- Aims and Strategic objectives

  The strategic objectives should be formulated after a careful analysis of business needs, business processes etc.

- IT Contribution:

  After a summary of the needs of the business, a brief summary of how IT can contribute to the business should be explained. This can be in the form of projects that need to be implemented to satisfy those needs. These projects would include milestones, deliverables, dates and costs estimates etc. The projects should be ranked according to their importance. Issues related to outsourcing and maintenance should be discussed here.

- Actions/Strategy Implementation:

  This section contains details of how the plans and projects would be implemented. A brief summary of principles, policies and standards would be explained here. It should include challenges that might arise during implementation with brief recommendations for solutions. The strategy implementation section should state the main points of how the strategic objectives of the IT strategy would be fulfilled. According to [35], a steering committee should be set up to oversee its implementation.

- Stakeholder roles:

  Some IT governance issues are addressed here. Each stakeholder, including management, should have a good knowledge and understanding of their roles in the implementation of the strategy.

- Scorecard / Metrics:

  This should state how the returns on investment in IT would be measured. It should include how performance would be measured for each of the strategic objectives or how the outcome of projects would be measured.

# 5. **CONCLUSION**

In conclusion, since an organisation might find it difficult to acquire the IT strategy of another organisation to use as a form of benchmark in creating their own IT strategy, it is hoped that the templates that would be delivered at the end of this project would be useful to organisations (especially start-ups) in helping them in the development of their IT strategy. I also expect the templates to be used for the evaluation of the existing IT strategies o different organisations.

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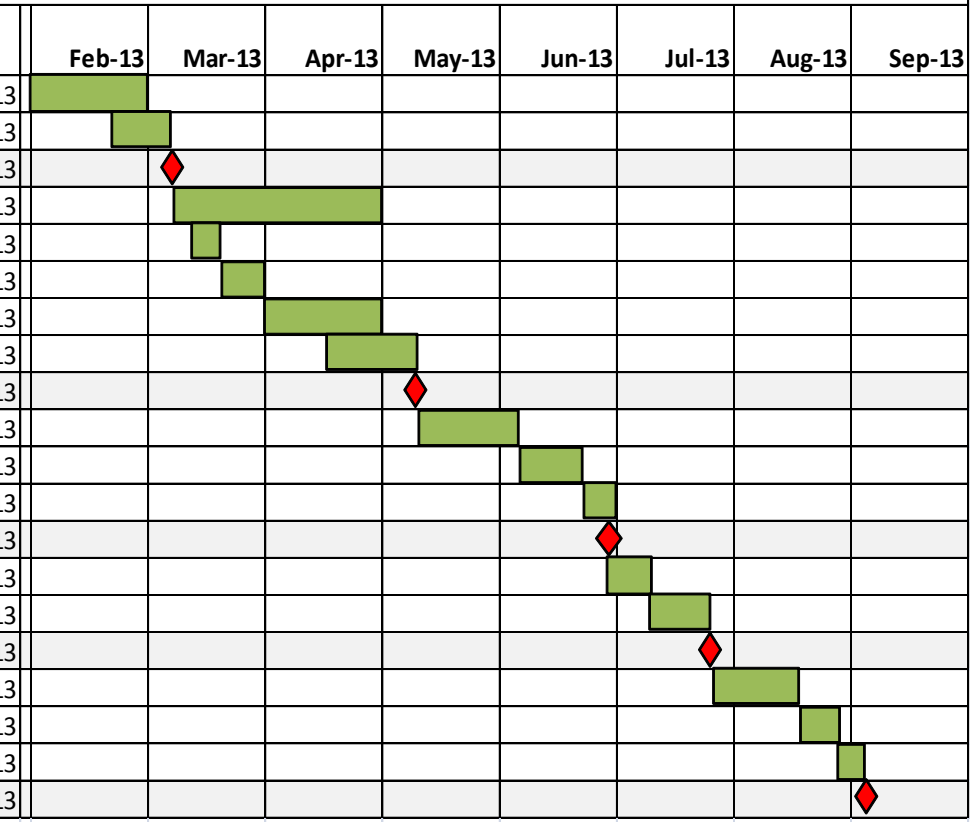
# APPENDIX A: Project Gantt Chart

**PROJECT GANTT CHART FOR "IT STRATEGY"**

| ID | Task Name | Weeks (Approx.) | Start Date | End Date |
|---|---|---|---|---|
| 1 | Background Research and Literature Review | 4 | 01/02/2013 | 28/02/2013 |
| 2 | Prepare Initial Report | 2 | 18/02/2013 | 06/03/2013 |
| | Milestone 1-Due March 7th,2013 | | | 07/03/2013 |
| 3 | Data Collection | 8 | 08/03/2013 | 30/04/2013 |
| 4 | Design Research Methodology | 1 | 11/03/2013 | 18/03/2013 |
| 5 | Requirements Identification | 2 | 18/03/2013 | 31/03/2013 |
| 6 | Data Analysis | 8 | 01/04/2013 | 30/05/2013 |
| 7 | Progress Report | 3 | 22/04/2013 | 10/05/2013 |
| | Milestone 2-Due May 10th,2013 | | | 10/05/2013 |
| 8 | Semester 2 Exams | 4 | 13/05/2013 | 07/06/2013 |
| 9 | Prepare report on state of IT Strategy | 2 | 07/06/2013 | 21/06/2013 |
| 10 | Design a standard IT Strategy template | 1 | 21/06/2013 | 28/06/2013 |
| | Milestone 3-Due June 28th, 2013 | | | 28/06/2013 |
| 11 | Prepare Methodology to assess the Quality of an IT Strategy | 2 | 28/06/2013 | 12/07/2013 |
| 12 | Show process for populating IT Strategy template | 2 | 12/07/2013 | 26/07/2013 |
| | Milestone 4-Due July 26th,2013 | | | 26/07/2013 |
| 13 | Dissertation Writeup | 4 | 26/07/2013 | 20/08/2013 |
| 14 | Submit to Supervisor for Review | 1 | 20/08/2013 | 24/08/2013 |
| 15 | Final Dissertation Review and Submission | 2 | 24/08/2013 | 06/09/2013 |
| | Milestone 5-Due September 6th,2013 | | | 06/09/2013 |




| MILESTONE LEGEND |
|---|
| MILESTONE 1: Initial Report |
| MILESTONE 2: Progress Report |
| MILESTONE 3: IT Strategy Template |
| MILESTONE 4: Show process for populating IT Strategy template |
| MILESTONE 5: Dissertation Submission |

**AUTHOR: AKINNUSI, OPEYEMI EMMANUEL (8211640)**

**SUPERVISOR: DR. DANIEL DRESNER**

## APPENDIX B: Survey / Interview Questions

1. What sector or industry does your organisation belong?(e.g. Engineering, Banking etc)
2. Which continent(s) is your organisation located?
3. In your own words, how would you describe an IT Strategy?
4. Do you have a documented IT Strategy?(Yes/No)
5. Do you have a documented Business Strategy?(Yes/No)
6. Do you think a Business Strategy is needed for the formation of an IT Strategy?(Yes/No)
7. Did you use your IT Strategy in creating your Business Strategy? (Yes/No)
8. Why do you think the Business Strategy is important to an IT Strategy?
9. How aligned would you say your IT strategy is to your Business Strategy? (In percentage)
10. (a) What do you think should be the components of an IT Strategy?

    (b) Which of the following would you include in your IT Strategy?

| No. | IT STRATEGY COMPONENTS | YES/NO |
|---|---|---|
| 1 | Mission statements | |
| 2 | Core values | |
| 3 | Vision and Objectives | |
| 4 | Clear procedures on how to achieve set objectives | |
| 5 | Defines limits for achieving the objectives (i.e. how far can we go) | |
| 6 | Prioritization of objectives using business strategy | |
| 7 | Clear direction of how each stakeholder should participate | |
| 8 | “Disciplinary actions” for stakeholders who go against the IT Strategy | |
| 9 | Clear statement of cost and complexity issues that might arise if stakeholders fail to support the IT Strategy | |
| 10 | Challenges that can hinder the implementation of IT Strategy and recommendations | |
| 11 | IT projects and methodology for execution | |
| 12 | Reasons for executing IT projects | |
| 13 | Addresses Communication issues | |
| 14 | Address Competitor issues (e.g. how to respond to competitors adaptation of new technology) | |
| 15 | Legal and regulatory conformance issues | |
| 16 | Maintenance issues | |
| 17 | Innovation issues(i.e. how to respond to new or changing technology) | |
| 18 | Shows how Return on Investment in technology would be measured | |
| 19 | Resources(e.g. funds, personnel, suppliers etc) | |
| 20 | Short term plans | |
| 21 | Long term plans | |
| 22 | Others | |

(c) Which of the following listed above is not included in your IT Strategy?(Just write the number of the IT Strategy component)

11. Do you think people or staff are very important to the success of an IT Strategy?(e.g. Strongly disagree, Disagree, Agree or Strongly Agree)
12. (a) Do you have a single/unified IT strategy for all your global operations?(Yes/No)

    (b) How does your IT Strategy handle the varying needs and uses of technology among your different locations?

    (c) How do you handle the varying needs and uses of technology among your different locations?
13. What do you think is the compliance level to your IT Strategy?(In percentage)
14. (a) Are there disciplinary actions for flouting the IT Strategy?(Yes/No)

    (b) Do you think this should be included in the IT Strategy? (Yes/No)
15. (a) Do you rotate staff either from business to IT or from IT to business even if it is temporary?(Yes/No)

    (b) Why do you do this?
16. (a) Who selects IT projects to implement?(e.g. CEO, CIO, Head of Business units etc)

    (b) Who makes the final decisions on the IT project to implement?(e.g. Board, CEO, CIO, Head of Business units etc)

    (c) Who monitors IT projects to ensure that they follow the guidelines in the IT Strategy?(e.g. CEO, CIO, Head of Business units etc)
17. Do you have plans to handle changes in technology or new technology (i.e. innovation) in your IT Strategy?
18. (a) When do you determine when to change or review your IT Strategy?

    (b) Who determines when to change or review your IT Strategy? (e.g. CEO, CIO, a committee etc)

    (c) Is there a set time frame for reviewing your IT Strategy?(e.g. every 2 years etc)

    (d) What factors do you think should be considered before an IT strategy is reviewed?
19. Do you think IT Strategies work or have they been helpful?
20. How do you measure the efficiency and effectiveness of your IT Strategy? (i.e. What kind of metrics do you collect).
21. Why do you think IT strategies have failed?
22. How would you rate yourself in the implementation of your IT strategy?(e.g. Extremely successful, Very successful, Successful, Almost Successful,Not successful)
23. Which of the following would you consider in your IT strategy:

a. Cloud services
b. Outsourcing

   What do you think about outsourcing components to satisfy your IT Strategy?
c. Disaster recovery
d. Bring Your Own Device
e. Virtualisation
f. Encryption
g. Data centres
h. Home working or telecommuting.

24. In making decisions about the adoption of new technology or areas listed in 22 above, do you focus on business alignment issues or the technical (i.e. IT) alignment issues?
25. (a) What technologies are you most interested in exploring/exploiting in the next 1-2 years?

    (b) Is there an optimum time for a new technology to be reviewed?
26. Do you think there is a difference between an IT Strategy and an ICT Strategy?
27. Do you think an organisation can get their IT Strategy right the first time?(Yes/No)
28. Was your current Chief Information Officer(CIO) or chief technology executive hired from outside your company?(Yes/No)
29. Who does the CIO or most senior IT executive report to? ( e.g. Chief Executive Officer, Chief Financial Officer, Chief Operating Officer, Business Unit etc)
30. Is your CIO or chief technology executive involved in top management meetings on strategy and projects?(Yes/No)
31. How do you ensure that your IT Strategy is communicated and understood across the organisation and among stakeholders?
32. In your words how would you assess the quality or correctness of an IT Strategy?