

A Model for Operationalizing the Information Technology Strategy Based on Structuration View

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ABSTRACT

Many organisations adopt and implement information technology (IT) but fail to operationalise it. As a result, the process of implementation is continually repeated without achieving the goals and objectives, which are often to gain competitive advantage and sustainability. This study employs structuration theory as lens to examine and understand the factors that influence operationalisation of IT strategy in an organisation. The case study approach was employed, and semi-structured interviews technique was used to collect data. The hermeneutics approach was used in the analysis, which was guided by the duality of structure from the perspective of structuration theory. From the analysis six factors were found to primarily influence the operationalisation of IT strategy in an organisation. Based on the factors, a model was developed, which is intended to guide both IT and business managers in the operationalisation of IT strategy.

1. Introduction

The pervasiveness of Information Technology (IT) has compelled organisations in different business spheres to adopt it. Thus, IT divisions are necessary to enable and support innovations in organisations. However, the deployment and use of IT in organisation has never been straightforward or as easy as sometimes proclaimed. Author [1] argues that developing technology is generally viewed as a variable and erratic undertaking. It is often complex to both individuals and organisations at large, with complexities attributable to both human and technology factors. Furthermore, [2] emphasise that interrelated factors, technical, social, and organisational make implementation of information technologies extremely complex.

Based on this some of the complexities on one hand, essentialities on another hand, the use of IT solutions clearly require strategy in fulfilling business needs and requirements over a period of time. The researcher [3] assert that whether or not an organisation intends to strive for any competitive advantage, Information Systems (IS) or IT will still require a strategy to manage it, if only to circumvent being disadvantaged by the conduct of others. Accordingly, [4] affirms that IT enables organisations to implement strategies and to realise objectives.

Additionally, the rapid changes in business and technological environments compel many organisations to adopt strategies in

response to the ever-changing business needs and new opportunities. The objectives are often to increase their capability to escalate competitive and sustainable in line with the organisational vision and strategic intent. Thus, many organisations develop strategies. Some authors argue, though, that most strategic initiatives remain on paper, and are only as good as the paper they are written on [5, 6, 7].

The need to deliver heightened business value and streamlined processes through IT is greater than ever before. Thus, organisations put emphasis on IT strategy and operationalisation thereof to continually enable and support their processes and activities [8]. Moreover, operationalising IT strategy often assists an organisation to change in a more informed and systematic way, thereby managing challenges such as IT ineffectiveness, an IT approach that is vague or uncertain, business and IT plans that are not aligned, IT being reactive as opposed to proactive and inconsistency of IT practises with best practices. Scholar [9] states the greatest benefits of IT strategy seem to be realised when IT investment is linked with other aligned investments and strategies, and all new business processes seem to be important in realising the maximum benefit of IT.

Based on these and other factors, many organisations attempt to operationalise the IT strategies in order to realise their organisational goals and objectives. However, this has not been easy; instead, some organisations develop IT strategy year-in and year-out. Also, if only some human actors adopt, implement and operationalise the strategy, realising the goals and objectives may

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be hampered. Therefore, organisations constantly develop and implement IT strategies, unaware of the numerous challenges hindering the operationalisation of the IT strategy.

The remainder of paper is divided into five main sections. The first and second sections are a review of literature. This is followed by the research methodology that was employed in the study, and analysis of the data. The fifth section presents the results from the analysis, based on which the conclusions were drawn in the last section.

2. Information Technology Strategy and its implementation

Through the innovative use of IT, organisations are able to outperform their competitors [10]. Concurring, [11] are of the view that disruptive innovation is putting some organisations at the lead in a highly competitive environment. Innovations concerning IT have the potential to provide valuable opportunities for organisations [12]. Clearly, IT is not merely a support function. It has become embedded in the systems and processes of many organisations. With the rapid spread of IT and the increasing connectivity of the modern world, relying on an IT strategy is no longer a luxury for organisations; indeed, it has become necessary for survival.

The aim of the IT strategy is often to create a plan that manages investments on IT solutions. Accordingly, [13] assert IT strategy aims to create a medium to long-term plan for introducing information systems and to manage related IT investments. [14] state that IT strategy uses IS to support business strategy; it is the main plan of the IS function, and the collective view of the role of IT within the organisation. [15] affirm that an IT strategy concerns the use of IT to support business operation and strategy. However, [4] maintains that an IT strategy is a phrase that concerns a complex mix of concepts, ideas, visions, experiences, objectives, knowledge, recollections, views and opportunities that provide overall guidance for certain actions in the interest of specific outcomes within the computing environment.

Some studies indicate that while organisations develop comprehensive IT strategy plans, they are unable to implement them successfully, thereby leading to poor overall organisational performance [16, 17, 3]. It is much simpler to reflect on a good strategy than to implement it; thus, the interest in implementing strategies, in practice, has intensified, primarily because good strategies are not necessarily implemented successfully. Authors, [17, 18] articulate a different view, stating that inadequately implementing a strategy may not be bad in an environment where strategies themselves may often be flawed; incorrect implementation may be a valuable source of bottom-up consideration for better strategies. As a result, even after more than a decade of research in the disciplines of information technology strategy, implementation and operationalisation are not fully understood.

A critical challenge within IT strategic implementation is that little has been investigated in terms of how to successfully implement strategic change linked to the use of it [19]. Despite the interest and the vital role of implementing the strategy, most

strategy implementations fail. One challenge organisations experience is that of putting an implementation team in place to execute and operationalise the IT strategy [17].

Hence, [17] emphasises that as a result of the prominent deficiency, a conclusion can be drawn verifying a lack of expertise in implementing strategies in organisations. It is apparent that on one hand the implementation of IT strategy does not happen by default, and on the other hand, after the strategy is implemented, the operationalisation is normally left to happen by itself. A comprehensive, coherent IT strategy and implementation plan alone does not guarantee the success of IT. Authors [3] are of the view that a sustainable, strategic approach to support every aspect of IT is inclusive in the IT strategy. Thus, it is critical to operationalise this strategy in fulfilling the objectives.

Regardless of the type and level of strategy in an organisation in the end management is faced with putting strategy into practice which is described as the implementation of tactics so that the organisation moves in the desired strategic direction [20]. Implementation of the IT strategy enables and ensures the use of systems, rendering IT solutions capable of supporting organisational practices [19]. These authors [21] explain that failure to put the implemented IT strategy to good use manifests into strategy blindness. Hence, [19] define strategy blindness as an organisation's inability to achieve the strategic intent of implementation of available IT abilities. While much attention is paid to the challenge of implementing an IT strategy that aligns organisational strategy to IT investment, there is a dearth of information pertaining to putting IT strategy into practice successfully [19].

3. Structuration View

Structuration theory's (ST) main emphasis is to understand how social practices are structured across time and space. The theory of structuration is a general sociological theory regarded as connecting multiple levels from society down to the individual [22]. Academic [23] postulate that although ST only infrequently refers to IT, it has been extensively used in IS studies because it is regarded as particularly useful to describe unexpected results of IT implementation. Structuration theory plays a significant role in this study in comprehending the social, organisational and personal contexts within which an IT strategy is implemented and operationalised. The theory draws a vital connection to comprehend an IT strategy, which on the one hand is constrained or enabled by the societal context in which it operates, and on the other hand, is a means for sustaining or amending that context. As far back as 2003 [24] explain ST has a significant role to play in the advancement of understanding how technological systems support human interaction in societal, organisational and personal contexts. It has been argued that without social interpretation, technology can be viewed as 'meaningless' [25].

Therefore, in this study, ST serves as a lens to understanding the meaning of the actions, rules and resources associated with the operationalisation of an IT strategy. The interaction between

agency and structure signifies a mutually constituted duality. Explaining structuration [26] advocates that human agents (agency) continuously produce, reproduce and change social societies (structures). Similarly, an IT strategy operationalising recursively produces outcomes that mutually reproduce the social world, because the rules and resources available for formulation, development, implementation and dissemination are distinctive to every organisation. One of the main tenets of structuration is the dual relationship between agency and structure.

Duality of structure is described as the repeated relation between human and structures, whereas structures shape human actions, and in turn, form the structure [4]. Whereas, [27] refers to duality of structure as the relationship between agency and structure which poses one of the most prevalent and challenging issues in social theory, asserting that structure exists only in and through the actions of human agents [28]. These dynamics may adversely affect the thoroughness and validity of the processes, technologies and capabilities required to implement an IT strategy rendering it operational.

The role of structure can therefore be seen as both a constraining and enabling element for human action. Thus, [29] suggest that structures in organisations have these enabling and constraining aspects, enabling because they provide a valuable framework for social dealings, but also constraining as they afford little flexibility for how individuals conduct themselves and interact within the organisation's boundaries. While structuration theory assists in explaining communication practices within organisations and helps in clarifying how employees understand their organisational rules, structures can be useful as well as adverse for organisations and employees. Therefore, structuration theory expresses the power of agency and structure over time in a social system [30].

4. Research Approach

The study employed the qualitative method because views and opinions of participants were required in achieving the objectives. According to [31] qualitative method, assist researchers to get hold of the thoughts and beliefs of participants, which enables comprehending the meaning that people attribute to their experiences. Qualitative method undertakes to enhance the understanding of why things are the way they are in social world and why people act the way that they do [32]. The case study approach was employed primarily because real-life setting was the focus. The approach enables an in-depth exploration of a real-life phenomenon in its natural setting [33]. An organisation from the private sector was selected as a case. Private organisations are companies that are owned by private investors. At the time of the study, the organisation needs to operationalise its IT strategy, therefore making it interesting and appropriate to examine the factors influencing the operationalising of its IT strategy. Triumph Technologies, was selected for the study, to gain an empirical understanding of how IT strategy can be operationalised in a real-life setting.

Triumph Technologies (TT) is a multinational privately-owned organisation in the telecommunication industry. The organisation

is wholly owned by the employees. The organisation operates in over 170 countries and regions, including South Africa. The head office referred, to as 'headquarters' (HQ) is in Asia and the regional office is situated in South Africa. The organisation was selected as a case for study based on specific criteria, including: (i) a developed IT strategy in the organisation; (ii) a willingness to participant in the study; and (iii) previously established distinct foci for the organisation.

According to [34] the purpose of qualitative interviewing is to express and clarify individuals' real-world life as they live it, feel it, experience it and make sense of accomplishments. Semi-structured interview was used for the data collection. [this author [35] describe semi-structured interviews as starting with defined questions, however the interviewer has the autonomy to adapt the questions to a specific directions response in an effort to allow for more spontaneous and instinctive conversations between the interviewer and interviewee. Sixteen (16) participants were interviewed until a point of saturation was reached. Generally, researchers should carry on the interview participants until the field of interest is saturated, meaning until anything new is said by the all participants [35]. Through the hermeneutic approach form the perspective of the interpretivist approach the data was analysed using the lens of the structuration theory as a guide. The results from the case study give a deeper understanding to how IT strategy is operationalised in an organisation, making a case for generalisation. According to [36:1452], "the end product of qualitative analysis is a generalization, regardless of the language used to describe it".

5. Data analysis through duality of structure

The data collected from the case was analysed with a hermeneutic approach from the interpretive paradigm. The analysis was guided by structuration theory employing duality of structure as a lens to guide the analysis. A summary of the analysis is depicted in Table, below. Through duality of structure, the research examined how rules and resources enable and constrain agencies to operationalise the IT strategy, producing and reproducing events, processes and activities in the organisation.

Agencies at TT were divided into two categories: technical and non-technical. Technical agencies comprised proprietary technologies and IT systems; playing an integral part in developing and implementing systems and innovations to operationalise the IT strategy. At TT, the IT specialists and business users are the non-technical agents. Most of the non-technical agents, in particular, the IT specialists and IT management representatives such as the CIO, report into the international structures. Although the regional office has IT specialists, the headquarters IT support team based in Asia remotely supports the regional office in South Africa.

At the organisation, structure was classified under rules as IT policies, and resources were the IT and business people and the processes. These IT policies are the guidelines followed to operationalise the IT strategy. Resources include IT and business people and processes. The IT people are IT specialists and IT management teams that implement and operationalise the IT strategy. The business people are non-IT employees who are participating in operationalising the IT strategy. Processes are used by IT and business employees to perform business activities and actions.

Table 1: Overview of Analysis at Triumph Technologies

Structure	Signification	Domination	Legitimation
	At the organisation, some employees considered the IT strategy and its operationalisation as very critical and significant in achieving efficiency and effectiveness. This consideration was based on factors, such as people, technologies processes, and continuous learning.	Owing to the IT strategy impacting business processes, activities and events, IT staff put emphasises on operationalising it. The IT staff where the main role players driving the implementation and operationalise the IT strategy. Due to their involvement as main role players, some were aware of the IT strategy and had the skills to operationalise it. Because knowledge and skills were critical, some employees used it to dominate the environment.	The organisation had rules, policies, processes, frameworks and controls that guided and managed carrying out of the IT strategy activities and actions that authorised some employees' actions and behaviour, legitimating it.
Modality	Interpretive scheme	Facility	Norm
	At Triumph Technologies, based on different views and interpretations from various employees across the organisation, the IT strategy and operationalisation of it, on the one hand, enabled and on the other hand constrained business activities, events, processes and policies.	In an effort to operationalise the IT strategy different resources (people) such as people in the headquarters in Asia were employed in various roles as enablers and at the same time constrained some processes. An example is the remote support provided by the people in the headquarters. This constrained some business events, as they had to wait for assistance from someone who is based far and remote.	It was the organisational culture to that the people, processes and technologies involved and through which the IT strategy was operationalised were allocated and managed from a central point, the headquarters in Asia. This included skilled people, new processes and advanced technologies and training, roles, responsibilities.
Interaction	Communication	Power	Sanction
	Different means and ways were used to communicate, share knowledge and information about IT strategy and how it can be operationalised in the organisation. This included teleconference, video conference, meetings, workshops and electronic training. The CIOs were accountable and responsible in sharing information about IT strategy its operationalisation with the stakeholders.	The roles some employees occupy in the organisation delegate authority, in particular CIO and the heads of the different IT divisions to manage and control how to operationalise the IT strategy. This type of control, where power played a role, increases the interest and contribution from some of the employees, because they respect the authority bestowed on the person.	The work ethics and culture of some employees in the organisation was to adhere to instructions and go beyond the call of duty to operationalising the IT strategy. This was not only based on their employment agreement with the organisation, also on the work-centric and customer-centric attitude and believes.

The discussion that follows should be read with the Table to gain better understanding of the data analysis.

5.1. Signification/Interpretive scheme/Communication

In the organisation, the IT strategy was the roadmap defining what and how solutions should be deployed. This includes planning, IT systems development and management of telecommunication devices. In addition, through the IT strategy, synergy and consolidation of artefacts and systems were carried out. From this viewpoint, some employees considered the IT strategy significant in that it simplifies the numerous activities that were carried out within the environment. In operationalising the IT strategy, the consolidation approach reduced the numerous systems, some of which were redundant and others duplications. This ensures that the solutions selected and deployed were unified, enhancing consistency, standardisation, and reducing complexity, promoting efficiency and effectiveness, and advancing the organisation's competitiveness.

Another important aspect of the IT strategy was that its operationalisation enabled a seamless link between the branches of the organisation across the world, between the Asian and African continents. This enabled Triumph Technologies to achieve the organisational goals and objectives by reducing operational cost and increasing competitiveness. This was important to both the management of the organisation including some employees. However, many employees did not fully grasp the significance of consolidating and unifying technology

solutions in the organisation, as these employees thought it was fanciful, or nice to have. Others, however, understood the cost implications as well as the efficiency and effectiveness that such initiatives contribute to the environment. This diverse understanding was based on individual and group interpretation of the activities undertaken within the business units as enabled and supported by the IT unit through operationalisation of its strategy. The interpretation was influenced by communication.

In Triumph Technologies, electronic mail (email) and mobile electronics applications (apps) were the primary methods of communication. Video conferencing and teleconferencing were secondary methods of communication within the organisation, because both video conferencing and teleconferencing were often used for meetings and clarifications of subjects that had previously been communicated through the email. Spoken language was a challenge during communication, whether management-to-employee or employee-to-employee. This critically influenced the interpretation of contents during operationalisation of the IT strategy within the organisation. Occasionally language had to be translated for other employees or stakeholders. In the process of language translation, some of the meanings or contexts are misconstrued.

Operationalisation of the IT strategy was influenced, enabled and constrained within Triumph Technologies by the significance associated to it. Moreover, interaction was of mixed feelings because some employees were privileged and others were not in terms of sharing organisational information. Thus, meanings

which individuals and groups make of the technology solutions and artefacts affected the operations. In addition, communication was not always straightforward, which often influenced employee interpretations and the value they associated with the IT strategy.

5.2. Domination/Facility/Power

At Triumph Technologies, there were imbalances from various perspectives, such as allocation of tasks and information sharing. The imbalances enabled and sometimes constrained events, processes and activities, consciously or unconsciously. These were actions that reproduced themselves during the operationalisation of the IT strategy in the organisation. During operationalisation of the IT strategy, various facilities were employed, including processes and spoken languages. The facilities were employed from two viewpoints, personal and organisational. At the organisational front, processes were followed in the operationalisation of the IT strategy towards achieving the goals and objectives of the organisation. From a personal perspective, some employees spoke in the language that friends among colleagues understood, excluding others from participating in discussions.

A South African language (Sesotho) and an Asian language (Hakka) were commonly spoken divisively to exclude colleagues from discussions. In addition, some employees having close or have personal relationships with their managers preferred to speak in the language only both understand instead of the generally accepted language of the environment, which was English at the time of this study. The use of the English language was mainly because they, the promoters, did not have a choice but to employ an inclusive approach for tasks to be carried out. The reliance on a particular spoken language to exclude certain colleagues was at some point a hindrance to the operationalisation of the strategy. This was so because many of the interested employees, or those with the necessary skill-sets, found it difficult to participate in discussions, affecting their overall execution of tasks. This worsened as the exclusion approach was also practiced in formal meetings.

Through the preferred spoken language, employees unconsciously created networks within the organisation, meaning that networks were formed along language lines. Consciously or unconsciously, the networks regulated activities of the IT strategy during operationalisation. This was primarily because some of the employees were more loyal to their networks than the organisational objectives. Another reason for loyalty was attributed to the fact that some employees admitted to receiving more information from their networks than from the formal hierarchical structure within the organisation. In the operationalisation of the IT strategy, there were also factors of power at personal levels and from organisational hierarchical levels (positions). This factor caused imbalance in the organisation during the operationalisation of the IT strategy. At a personal level, the source of power came from knowledge, which some employees acquired through continuous learning and the privilege to information.

Although there was power associated with knowledge, skills and understanding of the IT strategy and its operationalisation in the organisation, there was also power that bestowed on the positions. The staff in the headquarters (HQ) had power to approve or reject activities relating to the operationalisation of the IT strategy in the organisation. The HQ team includes the Chief Information Officer (CIO) and the IT specialists in Asia. Business initiatives were discussed with the HQ team who have the ultimate decision-making power. It is clear that during the operationalisation of the IT strategy, there were imbalances, which means that some employees were dominant over their colleagues. This dominance was based on levels of access to facilities that were sources of power. Power was enacted by the facilities, enabling and simultaneously constraining activities in the operations of the IT strategy

5.3. Legitimation/Norms/Sanction

At Triumph Technologies, operationalisation of the IT strategy entails various activities through different processes, rules and regulations to fulfil organisational requirements, goals and objectives. These actions were assessed and deemed eligible for use within the organisation. Thereafter, actions were executed by humans using facilities such as technology solutions (devices), spoken language and face-to-face meetings to operationalise the IT strategy.

In operationalising the IT strategy, micro and macro approaches were employed at middle management and lower management, respectively. The different management approaches, micro and macro, were employed because of the hierarchical structured nature of the environment. The macro focuses on strategic intent, while the micro was operational. Thus, the approaches were purposely followed to enforce the different types of instructions, rules and regulations through the hierarchy, for different events and activities during operationalisation of the IT strategy.

At both micro and macro levels, long working hours (beyond the prescribed eight working hours) and late-night meetings were held. Although some employees were initially not accustomed to this culture, with time, they became acclimated to this as it gradually became the norm as operationalisation of the IT strategy continued within the organisation. Few other actions, such the use of certain spoken languages for exclusivity, were also norm. This occurred even though they were consciously or unconsciously used to enable or constraint in one way or the other, the activities involved in the operationalising of the IT strategy.

Even though the facilities were approved for organisational purposes, some of the actions that manifested were not entirely geared towards achieving the goals and objectives of the IT strategy. For example, Hakka was spoken for exclusivity purposes. Despite its negative connotation, it became a culture, a way of conducting the business of operationalising the IT strategy, practiced over a period of time within the organisation. Some

employees accepted this practice, not because they liked or agreed with it, but because they felt that had no choice.

This was because the senior organisational management sanctioned the practice. Management and even some employees sanctioned some of the actions, such as the long hours of meetings, meetings at late hours, and the use of the Hakka language for exclusivity. This was not because they wanted to, but because it facilitated productivity in the operationalisation of the IT strategy in the organisation. These actions were practiced, and eventually became the norm, mainly because they were first sanctioned by the management at the HQ, the decision-making authority in Asia.

At Triumph Technologies, as an initiative to educate aspiring IT specialists to address the different spoken language imbalances, learning materials were presented. The intention of this initiative was to make operationalisation of IT strategy easier and more efficient, creating a culture of learning and inclusion. The learning culture was sanctioned by everyone who wanted to acquire skills and knowledge and participate in operationalising the IT strategy. The culture of learning encouraged employee awareness of the IT strategy, learning and understanding why and how to operationalise it.

In operationalising the IT strategy, many of the human actions as well as the technological solutions were reproductive. Even though the actions and technological solutions were eligible (legitimate) within the frame of the organisation, they were not always to promote organisational interest. In addition, some of the actions and activities that were considered as the norm were not generally agreed upon by the many of the employees. For example, only a few of the employees agreed to the abnormal working hours to protect their jobs. The management sanctioned activities and actions intended for the benefit of the organisation, but with little regard for the consequences to the employee.

6. Discussions and findings

Six factors were identified from the analysis that enabled and simultaneously constrained the operationalisation of the IT strategy at Triumph Technologies (TT): hierarchical consciousness; technology solutions; network of people; training and skill-set; exclusivity vs inclusivity; and language differentiation (Figure). The figure needs to be perused with the discussion in mind to ascertain exactly how the factors shape IT strategy and its operationalisation.

The model depicted in Figure 1, present factors that are interrelated. Thus, the factors influence and are being influenced by others. In other words, these factors enable and constrain each other during the IT strategy operationalization process at Triumph Technologies.

6.1. Hierarchical consciousness

Hierarchical levels are necessary in an environment to steer information appropriately [37], such as IT strategy solution. Author [38] suggests that processing information or tasks that involve many behavioural options require consciousness. This is

to avoid potential disintegration of solutions such as the operationalisation of the IT strategy within an environment. Furthermore, [39] explain that consciousness can play a role in enabling tasks within an environment. To the contrary [37] argue that some users often lose consciousness of their tasks as they navigate within hierarchy. But successful integration of artefacts or solutions requires clear consciousness of the people that are involved [39].

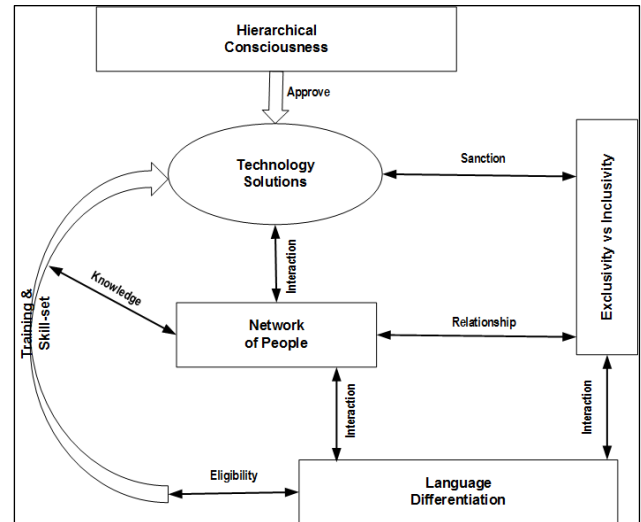


Figure 1: Model for operationalizing an IT strategy

At Triumph Technologies, adherence to organisational structure was considered an important influencing factor in operationalising the IT strategy in the organisation. During the operationalising of IT solutions, approval was sought from senior management and structures in Asia, a practice accepted by both IT specialists and business users, irrespective of whether or not they agreed with the strategy and its processes. This enabled smoothness of the processes and various activities as well as employee inclusiveness in the operationalisation of the IT strategy. Additionally, the approval of the strategy ensures that the solutions operationalised are in alignment with the organisation's universal strategy.

As organisational structure allows strategy and its process to circumvent duplication of IT solutions, promoters of the IT strategy verified and validated each innovation with senior management. The verification and validation processes occurred by way of interaction among stakeholders involved in operationalising the strategy. Without approval through the organisational structures, activities and events involving operationalisation would potentially be delayed, with some activities even facing termination or rejection. Thus, IT specialists and business users were intentionally conscious, aware of the significance of the organisational structures in carrying out their responsibilities related to the operationalisation of the IT strategy.

6.2. Technology solutions

Technological solutions refer to information systems and technological tools or artefacts used to enable and support activities [40]. IT strategy defines the solutions and arranges them in priority perspective for more efficient organisational use. This

evolves over time, gradually addressing the changing needs of an organisation [41]. Technological solutions do not operate in and of themselves, but require human expertise [42].

Technology solutions were defined by the IT strategy, including standard deployment, management and use of the solutions for best organisational purposes. The IT systems, IT infrastructures and telecommunication devices were the main aspects of the IT strategy, with IT systems involving mobile applications, applications, electronic flows (e-flows) and tools. At Triumph Technologies, IT infrastructures consist of servers, laptops, desktops and notebooks used by the employees to manage processes and activities. Telecommunication devices were employed for teleconference and videoconference meetings with the headquarters and other branches globally.

The IT strategy was operationalised to enable deployment of the technology solutions, with the intent of improving organisational efficiencies. During operationalisation of the technology solutions, processes and activities were managed attentively to ensure appropriateness and suitability in accordance with organisational purposes. This was because technology solutions both influence and are influenced by other factors such as hierarchical consciousness, skill-sets and networks of people (Figure). The process of operationalisation required legitimisation that happens through hierarchical consciousness of management. Also required were appropriate skill-sets and the deliberate involvement of various personnel. Above all, interaction and relationships among stakeholders were of critical importance.

6.3. Network of People

Network of people refers to conscious or unconscious groupings of employees within an organisation. According to [43], people engage in networks for various purposes, both personal and organisational. These authors [44] explain how the interaction that occurs within networks of people influence technology deployment within an organisation. The success or failure of operationalisation of IT strategy can be influenced by the interactions and actions within networks of people. Scholar [45] argue that in recent years, traditional hierarchical approaches are struggling against challenges of an emerging relational set-up in which decisions cannot be imposed but must emerge from the interactions among actors.

Alignment of various agencies played a significant role in operationalising the technology solutions as the agencies formed a homogenous network of people, consciously or unconsciously, intended to achieve business objectives of the organisation. The networks, formed based on spoken languages, skills and competencies, were enabling as well as constraining in the operations of personnel. From the enabling front through the networks, deliverables were fostered, primarily because employees were either acquaintances or friends, and based on strength of relationships, they offered various levels of support to each other. From the constraining perspective, collaboration between various networks were challenging because of factors such as language differences, which, while including some, often excluded others.

In the operationalisation of IT strategy, it is important that the different networks of people involved have not only the skill-set and understanding of various processes but work collaboratively with one another to achieve organisational business objectives. Thus, skill-sets and collaboration of various people were significant in operationalising the IT strategy. Skill-set deficiencies and lack of training surrounding various processes involved in operationalisation meant inefficiency and ineffectiveness of the IT strategy.

6.4. Training and skill-set

The roles of employees are not as easily ascertained as believed; otherwise, the operationalisation of technology solutions will be even more complex due to human actions [44]. The different standards and levels of employee actions, based on knowledge and skill, determine the success of activities within an environment [45] so it is critical that organisations involve employees with the right of skill-sets as that is critical for competitive advantage [46]. Thus, it is essential to train and develop employees appropriately about operationalising the IT strategy in the organisation.

Training and development meant that employees in the organisation were equipped with vital knowledge and skills for understanding the processes and activities involved in operationalising technological solutions as defined by the IT strategy. Training and development were often conducted through different methods and mediums such as electronic learning (e-learning), which gave employees the convenience of accessing training material and course participation in the operations of the IT strategy in the organisation. The training enabled some of the employees to carry out their responsibilities from anywhere, and at any time, through their mobile devices.

Through training and development, knowledge about the technology solutions was acquired. Therefore, networks of people had the capabilities and knowledge to operationalise the IT strategy. The importance of training and development during operationalisation was for the network of people to generate a common understanding about the processes and activities when interacting during operationalisation; however, employees were also eligible to interact in different languages, which created a language barrier in the organisation.

6.5. Language Differentiation

Understanding of activities and tasks is mediated by language of instruction and engagement through facilitating communication among team members [47]. Thus, devising effective strategy is necessary to bridge the language barrier and manage significantly negative activity [48]. Even though training programs are carried out, they do not always consider language barriers, an oversight that can engender additional complexities in an environment [49]. This needs more attention in that through language the communicating of thoughts, ideals and knowledge is manifest, so language is clearly an influence in terms of how IT strategy is operationalised.

The spoken language was used, whether consciously or unconsciously, to enable and occasionally constrain operationalisation of the IT strategy in the organisation. On the one

hand, when employees of the same network communicate using a preferred language, such as Hakka, in sharing knowledge and ideas to ease understanding about technology solutions and processes, smooth operationalisation is heightened; but on the other hand, when employees who are unfamiliar with the network language become difficult, communication challenges escalate. This is a constraining barrier during the operationalisation of the IT strategy. This situation was reproduced time and again in operationalising the IT strategy in the organisation.

The language differentiation influenced and was influenced by networks of people, by the exclusivity or inclusivity of employees, and by the use of technology solutions. This was both enabling and constraining in operationalising the IT strategy, as explained above. The most important thing is that language differentiation has been identified as an essential influencing factor when operationalising IT strategy in an environment as it creates division among employees in operationalising the IT strategy in the organisation.

6.6. Exclusivity and Inclusivity

Inclusiveness aims to enrol as many as possible participants while exclusiveness is about access by only a privilege few. According to [50] inclusivity is a process that genuinely and legitimately allows broader participation in an activity. However, deceptive actors tend to use more cognition, inclusivity and exclusivity in words when interacting with groups within environment [51]. Postulated by [52] an understanding of information system continuance for information-oriented mobile applications requires a dramatic shift from exclusivity to inclusivity to influence operationalisation of the IT strategy.

In operationalising the IT strategy in an organisation, exclusivity and inclusivity of employees were both enabling and at the same time constraining. Exclusivity minimises too many opinions and options, mineralising complications inherent in decision-making. However, the same factor of exclusivity deprived certain employees from participating in processes and activities tasked for the execution of IT strategy. The concept of inclusiveness was beneficial to both the business and IT units of the organisation, from an alignment viewpoint, as alignment between business and IT units was instrumental in operationalising the IT strategy in the organisation. Despite the positive aspect of inclusivity, it was also constraining. For example, too many people could not be involved in certain decisions, especially those requiring technical expertise.

In the environment and during operationalisation of the IT strategy, exclusivity or inclusivity of a group of employees was sometimes consciously and sometimes unconsciously created. This happened at various levels, from senior management to technical expertise. Some employees were privileged, granted exclusive access to information pertaining to IT strategy operationalisation. Both exclusivity and inclusivity of employees influenced and was influenced by the relationship and interactions during operationalisation of IT strategy in the organisation, impacting how some employees were nominated for skills development, but not others, how processes were defined, and how

tasks were assigned to certain distinct individuals in the operationalising the IT strategy in the organisation.

7. Conclusion

This paper provides a clear distinction between IT strategy implementation and operationalisation. This is a confusion that has contributed to the misunderstanding, and negativity which the IT strategy has received for many years. The study reveals, and makes it possible to gain better understanding of the factors that influence operationalisation of an IT strategy in an organisation, which were not empirically known. The factors are critical as they assist in achieving business goals and objectives. Thus, the research intended to benefit academics and professionals alike that focus on operationalising IT strategies in organisations. The academics domain gain from this research through its addition to existing literature in the subject areas of information technology strategy, implementation and operationalisation. Professionals in the business sphere, the benefits come from gaining better understanding of the influential factors involve in operationalising IT strategies in organisations.

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