



Project management and business development: integrating strategy, structure, processes and projects

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Abstract

The classical school of business development supposed that rationality in structure and process were attained by a theory that defined “one best way” of doing things. The theory was based on four pillars: division of labour, scalar and functional processes, structure, and span of control. Modern business development places more emphasis on strategy that aims to delight customers, processes that lead to the ultimate of efficiency and infinitely flat organisational structures to manage by projects. Organisational theory is rich in the research of strategic management with specific interest in analysis, objective setting and the effect of organisational structure. But strategies do not fail when they are being analysed or when the objectives are being set. They fail during implementation and, more particularly, due to the lack of proper project management. Equally, there are many publications on business processes, without any regard to the natural scientific explanation of process theory. Even though business process re-engineering is discussed in project management circles it remains a mystery as to how this interrelates with organisational theory. Abundant literature is available on the effect that the implementation of strategy has on organisational structure, but void on the interrelation of business processes and the role of project management in relation to strategy and structure. Particularly, on the integration and effect that strategy, structure, processes and projects have on one another. Of note is the fact that project management literature concentrates exclusively on the PROJECT and there is little research done on MANAGEMENT as it applies to the general management of an organisation. This research analysed MANAGEMENT and PROJECT MANAGEMENT in an attempt to find the application and integration of strategy, structure, processes and projects in order to facilitate the development of a business. © 2002 Elsevier Science Ltd and IPMA. All rights reserved.

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1. Introduction

Organisation theory can be seen as social systems of co-operation that are designed to improve individual effort aimed at goal accomplishment. Organisation theory is how collaborative efforts form, function and survive [1]. The industrial revolution marked the beginning of what is referred to today as the modern organisation to which Adam Smith brought a much-needed framework matching the theory of economics to knowledge about organisations in his work on the specialisation of labour [2].

Max Weber built on this in 1900 when he analysed organisations and found bureaucracy to be an ideal form of organisation structure based on knowledge and ability rather than on favouritism, which he found prevalent [3]. The theory of the firm is based on a com-

bination of people, machines and money in order to maximise profit or to create wealth. Wealth, being the basic building block for economic growth where the firm functions as an economic model [4], is created when more is paid for consumption than for production.

It was not until the 1920s that a concerted effort to study organisations formally began. The classical school of thought attempted to create a set of rational techniques that defined one best way of doing things. The theory was founded on *four pillars: division of labour, scalar and functional processes, structure and control* [5]. Control gave way to the theory of management where planning, organising, leading and controlling is found which in turn, gave rise to the behavioural school of thought on how organisations formed, functioned and grew [6]. Publications following the period just after the Second World War, and containing management lessons learnt during the war on how to increase production, reveal a split in organisational theory into two specialist

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parts: systems theory, or business processes as referred to in more recent publications, and behavioural theory, which forms part of industrial psychology.

With their publication “Re-engineering the corporation”, Hammer and Champy caused a revolution in organisational studies when showing quantum leaps in efficiency and profitability when business processes were aligned to best serve customer requirements [7]. Business process re-engineering was attacked with fervour to align strategy with customer delight. Experiencing close to zero growth in many organisations during the 1980s, companies were upsized, downsized, and right sized, and organisational structures rapidly changed to match new strategies and processes. Organisations now seem to stand on *four new pillars: strategy, structure, processes and projects*, which influence and depend on one another in this era of rapid deployment, — enabling an organisation to be the first in line to accept customers money.

Until 1980, project management had been seen as the sole domain of engineers, finding a niche specifically in the civil engineering industry. At first, project management found acceptance in the rapidly developing information technology industry that was heavily relied on when mapping and analysing business processes. Early successes revealed, in literature, a close tie with project management, and soon everyone was following suit. Michael Hammer, in an *Information Week* interview [8] mentioned three reasons related to project management that contribute to business process re-engineering failure. These are: lack of executive commitment, lack of knowledge about what they are doing and a lack of knowledge on how to proceed. All three reasons can be eliminated by proper application of project management theory.

Project management theory as applied to business development that is, and not as applied to industrial development.

2. Strategy

Strategy means: “the art of the general” (from the Greek *strategos*), and originally signified the purely military planning of a campaign. Until the 17th and 18th centuries’ strategy was concerned with the aspects of fortification, manoeuvre, and supply. In the 19th and 20th centuries, with the rise of mass ideologies, conscript armies, global alliances, and rapid technological change, military strategy became difficult to distinguish from “grand strategy”, which is the proper planning and utilisation of the entire resources of a society, military, technological, economic, and political [9].

Military commanders and theorists throughout history have formulated what they considered to be the most important strategic and tactical principles of war. Napoleon I, for example, had 115 such principles while the Confederate general Nathan Bedford Forrest had

but one: “Get there first with the most men” [9]. The historical roots of strategy date back to the origins of human warfare and the development of large-scale government. The dense tactical infantry formation of overlapping shields called the phalanx, existed in an early form in ancient Sumar in 3000 BC. The development of strategy parallels the growth, spread, and clash of civilisations; technological discoveries and refinements and the evolution of modern state power, ideology, and nationalism.

The Mediterranean basin saw the dawn of modern military strategy. It was under such leaders as Philip II (382–336 BC) and Alexander the Great (356–323 BC) of Macedonia and Hannibal (247–183 BC) of Carthage that the first great strides were made in military science. Philip combined infantry, cavalry, and primitive artillery into a trained, organised, and manoeuvrable fighting force backed up by engineers and a rudimentary signalling system. His son Alexander became an accomplished strategist and tactician with his concern for planning, keeping open lines of communication and supply security, relentless pursuit of foes, and the use of surprise. Hannibal was a supreme tactician whose crushing victories taught the Romans that the flexible attack tactics of their legions needed to be supplemented by unity of command, and an improved cavalry. The Byzantine emperors studied Roman strategy and tactics, and wrote some of the first essays on the subject [9].

The Middle Ages saw a decline in the study and application of strategy — with the exception of the great Mongol conqueror Genghis Khan. Napoleonic strategy was closely studied by the first great theorists of war, the Prussian general, Carl von Clausewitz (1780–1831) and the French general Antoine Jomini (1779–1869). Clausewitz’s *On War* (1832–34; Eng. trans., 1908) emphasised the close relationship between war and national policy and the importance of the principles of mass, economy of force, and the destruction of enemy forces. Jomini, on the other hand, emphasised occupying enemy territory through carefully planned, rapid, and precise geometric manoeuvres. Whereas Jomini’s theories had influence in France and North America, Clausewitz’s teachings in particular were influential on the great Prussian military strategists of the 19th century.

A visit to any academic library will reveal that books on strategy probably take up most of the space in the management section. From the earliest writings found, knowledge of strategy has been held in high regard. “All men can see the tactics whereby I conquer, but what none can see is the strategy out of which victory is evolved” Sun Tzu, *The art of war*, 500 BC which now translated and reprinted is finding favour with the modern manager [10]. Formal study of strategy within the context of the modern organisation did not get under way until the 1950s when the Ford Foundation and the Carnegie Corporation sponsored investigations

into business school curricula. The resulting Howell Report suggested that “Strategic Management” be taught as part of business studies [11]. The strategy making and strategy implementing process in business development is thought to consist of five interrelated managerial tasks: (1) Deciding what business the company will be in, and forming a strategic vision of where the organisation needs to be going, infusing the organisation with a sense of purpose, while providing a long-term direction and establishing a clear mission. (2) Converting the strategic vision and mission into measurable objectives and performance targets. (3) Crafting a strategy to achieve the desired end results. (4) Implementing and executing the chosen strategy. (5) Evaluating performance, while reviewing new developments that could lead to initiating corrective adjustments in the long-term direction, in light of actual experience, incorporating changing conditions, new ideas, and new opportunities [12].

Modern business strategy deals with the matching of the activities of an organisation to the environment in which it operates. Strategic management is that set of managerial decisions that determines the long-term performance of a company. It includes strategy formulation, strategy implementation, evaluation and control. The study of strategic management therefore emphasises the monitoring and evaluation of environmental opportunities and threats in light of a corporation's strengths and weaknesses [11]. Peters and Waterman's book *In search of excellence* popularised the subject and brought to public attention the large number of Fortune 500 companies that failed as a result of not adapting to changing environments in which they operate, resulting in an explosion of publications on strategy during the 1970s and 1980s.

Strategy is considered as having three main elements within it. There is strategic analysis, in which the strategist seeks to understand the strategic position of the organisation. Strategic choice that has to do with the formulation of possible courses of action, their evaluation, and the choice between them and strategy implementation that is concerned with the planning of how the choice of strategy can be put into effect, and the management of the changes required.

Europe's best selling strategy text *Exploring corporate strategy* by Johnson and Scholes attempts to define business strategy as: “the direction and scope of an organisation over the long term: ideally, which matches its resources to its changing environment, and in particular its markets, customers or clients so as to meet stakeholder expectation” [13].

Wheelen and Hunger in *Strategic management and business policy* state that the process of strategic management involves four basic elements: environmental scanning, strategy formulation, strategy implementation, and evaluation and control. At the corporate level,

the strategic management process includes activities that range from environmental scanning to the evaluation of performance. Top management scans both the external environment for opportunities and threats, and the internal environment for strengths and weaknesses. The factors that are most important to the corporation's future are referred to as strategic factors and are summarised with the acronym S.W.O.T., standing for Strengths, Weaknesses, Opportunities, and Threats. Once these are identified, top management then evaluates the strategic factors and determines corporate mission. The first step in the formulation of strategy, a statement of mission, leads to a determination of corporate objectives, strategies, and policies. These strategies and policies are implemented through programs, budgets, and procedures. Finally, performance is evaluated, and information is *fed back* into the system so that adequate control of organisational activities is ensured [11].

The strategic management process is about moving the organisation from its present position, to a future strategic position, in order to exploit new products and markets. The strategic analysis process investigates the current and future positions. The strategic objective setting process is about planning the trip, its duration and effort. The strategic implementation process is about getting the organisation to move.

3. Structure

Mintzberg's definition of organisation structure states: “the sum total of the ways in which the organisation divides its labour into distinct tasks and then achieves co-ordination amongst them” [14]. This definition recognises two essential aspects of structure, integration and differentiation. Integration refers to coordinating tasks whereas differentiation involves breaking up the work to be done into tasks. The structure of an organisation is usually depicted by means of an organisational chart. This chart shows authority relationships in the chain of command, formal channels of communication, formal work groups and formal lines of accountability [15].

A formal organisational chart presents the official structure explicitly sanctioned by the organisation. Superimposed on these relationships are informal or de facto relationships that are not necessarily sanctioned by the organisation, although they might be perceived to actually exist, and are thus considered by some, to be the real structure. The informal structure evolves from people working in the organisation rather than from being officially established. This comes about because of faults and imperfections found in the *formal processes* resulting from the *formal structure*. The informal organisation can consist of informal work groupings, informal leaders, informal channels of communication, informal power

and status differentials [16]. Organisational analysis involves a critical examination of the elements that make-up an organisation's structure and processes.

The concepts of organisation design and organisation development are often confused. Organisation development refers to changes an organisation makes so that it can better state and achieve its strategic goals. It is a way of achieving organisational effectiveness and efficiency. It may involve a change in structure, but it also usually involves training and development programs for managers and other personnel. It can also include a comprehensive review of organisation policy and processes. As a part of an organisation development program, an organisation can, and often does undertake a comprehensive study of its design to determine if the organisation can be redesigned to find more effective and efficient processes to reach its strategic goals.

Organisational structures have two extremes: (1) tall structures; many layers of management relative to the number of people in each layer; and (2) flat structures; few horizontal layers of management in the organisation. Organisational structures can be differentiated into six parts; similarity of work or function, product, geography, market, processes and equipment.

3.1. Tall structures

Max Webber built on the work of Adam Smith to specialise labour, and described bureaucracy as a way to improve the organisation. The Burns and Stalker study labelled this as a mechanistic structure, in that organisations had defined decision – authority relationships and rules to the point of almost mechanising them. Bernard Reimann finds that one of the limitations of the bureaucratic mechanistic structure is that it tends to be slow to change and tends to encourage rigid adherence to policy and rules in the face of new requirements [17].

3.2. Flat structures

The organic or adaptive context tends to have characteristics which are the opposite of the mechanistic or bureaucratic context. In overcoming the shortcomings of bureaucracy, it is a more appropriate means for integrating organisational tasks for those organisations facing a dynamic environment. Burns and Stalker found, for example, that organic systems are adapted to unstable conditions, when problems and requirements for action arise which cannot be broken down and distributed among specialist roles within a clearly defined hierarchy [18]. Individuals have to perform their special tasks in the light of their knowledge of the tasks and of the firm as a whole.

Even though the organic/adaptive structure overcomes many of the limitations of the mechanistic structure, it is not necessarily true that the organic/adaptive is the

better structure. Organisations facing a shifting heterogeneous environment will find the organic/adaptive structure more effective, but organisations facing a stable, homogeneous environment will find the mechanistic structure suitable. Today's organisations face a shifting, heterogeneous environment causing executive officers throughout the world to succinctly state the case for organic/adaptive structures. Attitudes towards reorganisation are, that in a rapidly changing marketplace, the corporation should change and grow in response to market needs. This change and growth requires reorganisation. Any corporation in a dynamic environment must therefore be prepared to change.

The pace of strategic change has also accelerated. In the past, strategies were developed over 5, 10 or 15 years. Today short-term strategies are to be implemented within weeks and long-term strategies never have a window of opportunity of more than 3 years. Today "there is nothing permanent except change" as observed by Heraclitus in 550 BC [19].

3.3. Organisational forms

Organisational structure determines the speed of adaptability to changing environments. These structures take on many forms which all have different adaptations to assisting the speeds at which change can be brought about. Arranged in order from slowest to fastest these are:

3.3.1. Line structure

Organised around tasks that are involved in producing and distributing primary products the organisation creates.

3.3.2. Line and staff structure

As organisations grow, they add supportive staff to handle the secondary operative work involved in the production of a secondary product.

3.3.3. Functionalised structure

Originally developed by Taylor it is a line and staff structure that has been modified by the delegation of managerial authority to personnel outside their normal spans of control [18].

3.3.4. Matrix structure

First described by Jay Galbraith, as used in military weapons production, it superimposes a product or project structure onto existing function based structures. Resources from vertical units are assigned to horizontal units based on the need in each unit. There are three different kinds of matrix structures: product structure, project structure and program structure [20].

3.3.5. Multidimensional matrix structures

Developed by Dow Corning who views the matrix organisation as a four dimensional system composed of:

1. Profit centres: the different businesses of the company along product lines.
2. Cost centres: the functional entities such as marketing, manufacturing, and research, as well as supportive activities such as communication, legal and administrative services.
3. Geographical areas: local or international areas considered for profit and cost.
4. Space and time: fluidity through time, as the multi-dimensional organisation is constantly changing [18].

It is worth looking into the disadvantages of the matrix structure. First, the structure requires the project, product, or program managers to work co-operatively with the functional heads to handle conflict. It also requires the general manager of all these workers to be able to mediate conflict between program, project, or product managers and functional heads when they cannot work out problems among themselves. The appropriate delegation needed under the matrix may not be forthcoming in some organisations. Second, matrix structure, especially project matrix structure, may require a lot of relocation of personnel, which can cause behavioural traumas (e.g. breaking and forming new work and friendship groups, frequently moving families who need to form new superior–subordinate relationships based on mutual trust). Some individuals may have difficulty coping with these activities.

If explicit authority is not assigned to project, program, or product managers vis-à-vis functional heads, the unity-of-command principle can be violated. Explicit authority differentiation between the matrix managers and functional heads needs to occur so people under the matrix know to whom they are accountable for what and for what time period [18].

3.3.6. *Linking-pin structures*

Developed by Likert, this structure holds that subordinate managers do not just link a superior with a subordinate's subordinate, they link a team of managers with a team of subordinates [21]

3.3.7. *Strategic business units (SBUs)*

Described by Lester Digman as organisational units established primarily for strategic planning and decision making purposes. SBUs are comprised of a group of related products or services directed to a distinct group of customers or clients, they are used mainly in diversified multiproduct/multiservice organisations. SBUs are structured differently for strategic planning purposes than for operations [22].

3.3.8. *Joint venture*

Structured like an ad-hocracy they also contain elements of the matrix structure. The difference is that two or more organisations pool resources to accomplish a particular project.

3.3.9. *Laissez-faire*

These are loose collections of people who are brought together for a period of time under a relatively loose style of management and control to satisfy the desires of the members rather than the needs of a client.

3.3.10. *Industrial democracy*

Known in Europe as co-determination, the structure is like laissez-faire, but more structured, as labour and management have a joint role in running the organisation.

3.3.11. *Virtual structures*

These are essentially formal structure-less organisations working in a distributed fashion through the use of information technology. Informally some structure does exist along the lines of protocol rather than on control as in this form of organisational structure there is no power by which the team is controlled the team exists only by mutual consent [23].

From this it can be clearly seen that organisational structures have evolved from tall rigid arrangements to infinitely flat flexible affairs. The main reason for this is a necessity to cope with ever increasing and more rapid changes to strategic direction of organisations as demanded by changing market conditions.

4. Systems or process theory

Systems or processes are another matter altogether. There seems to be no regard for the natural scientific definition of a process where organisational theory is concerned. Each book has its own definition, some contrary to the use of proper English.

4.1. *Scientific process*

The Academic Press Dictionary of Science and Technology defines a process as follows: "Process- to perform a series of activities, or the series itself. Specific uses include: computer technology 1) to perform operations on data in a computer. 2) in multiprogramming, a program that is in a state of execution or would be executing if all of its required resources were available. 3) A systematic procedure designed to perform some action, engineering a continuous or periodic series of actions organised and conducted to achieve an end result such as a chemical manufacturing process. 4) Mathematics a sequence of random variables defined on a common probability space." In the revised edition (1989) the American National Standard for Industrial Engineering Terminology a process is defined as: "A systematic sequence of operations to produce a specific result."

This research finds it important to not only understand what processes are, but to also understand how they are measured and controlled. No better explanation of good

scientific principles can be found than that expressed in the *Encyclopaedia of Chemical Technology* by Kirk–Othmer, where it is stated that in order to operate a process in a safe and efficient manner, it is essential to be able to control the process at a desired state or sequence of states. This goal is usually achieved by implementing control strategies on a broad array of hardware and software. “The state of a process is characterised by specific values for a relevant set of variables, e.g. temperatures, flows, pressures” [24]. Both external and internal conditions, classified as uncontrollable or controllable, affect the state. Controllable conditions may be further classified as controlled, manipulated, or not controlled.

4.2. Process systems

Because of the large number of variables required to characterise the state, a process is often conceptually broken down into a number of subsystems, which may or may not be based on the physical boundaries of equipment. Generally, the definition of a system requires both definitions of the system’s boundaries, i.e. what is part of the system and what is part of the system’s surroundings, as well as knowledge of the interactions between the system and its environment, including other systems and subsystems.

The system’s state is governed by a set of applicable laws supplemented by empirical relationships. These laws and relationships characterise how the system’s state is affected by external and internal conditions. Because conditions vary with time, the control of a process system involves the consideration of the system’s transient behaviour. Process systems are broadly categorised as self-regulatory and non-self-regulatory. The former is one in which a change in an external condition can cause the system to move from an initial steady state to another steady state without additional external intervention. The latter, a non-self-regulatory process system, does not achieve another steady state without additional control action once the first external change occurs.

4.3. Controlled conditions, correcting conditions, and control algorithm

The basic elements of process control are the conceptual definition of the process system, the selection of the controlled conditions, the correcting conditions and the disturbance sources that need to be addressed, and the selection of the control algorithm.

4.4. Control hierarchy

The goal of process control is achieved by adjusting the values of an appropriate subset of process variables,

i.e. the correcting conditions, or manipulated variables, so as to change the values of other process variables. That is, the controlled conditions or variables, to compensate for variations and disturbances in the process system. The controlled variables are selected so that their values characterise both the state of the process system as well as the process and operating objectives. The manipulated variables are selected so that these can easily be manipulated to affect the controlled variables. The control algorithm defines how the manipulated variables are to be adjusted to bring the controlled variables to their desired values, that is, to bring the process system to its desired state.

4.4.1. Generic control strategies

The two generic strategies for process control are feedback and feed forward control. Most process control strategies are based on one or a combination of these strategies. In industry, plant optimisation control level applications determine the values of key variables that optimise the overall plant material and energy balance. The control applications at the local optimisation and supervisory control level, on the other hand, focus on subsystems within the overall plant. These subsystems usually consist of a single, or at most a few, highly interactive pieces of equipment. Most of the applications at this level are aimed at optimising the subsystem within an operating window defined by soft constraints. For example, values determined by the plant optimisation level applications, and hard constraints, e.g. equipment material limits.

Often the optimal operating point of the subsystems is against one of the constraints of the operating window. Hence, many of these control applications employ a constraint control strategy, i.e. a strategy that pushes the subsystem against the closest active constraint. Typically the closest currently active constraint changes with time and situations, e.g. between day and night, different weather conditions, different operating states of upstream equipment, etc. The constraint control strategies continually make minor adjustments to keep the substantial along the active constraint, or near optimum.

4.4.2. Process measurement

The most commonly measured process variables are pressure, flow, temperature and level. The selection of the proper instrumentation for a particular application is dependent on factors such as the type and nature of the product involved, relevant process conditions; range ability; accuracy and repeatability required; response time; maintainability and reliability.

4.4.3. Instrumentation

Instruments are components of a control loop, which provides the direct interface between the process and the

control hierarchy, which serves as the fundamental source of information about the process state and the ultimate means by which corrective actions are to be transmitted to the process. The function of the process measurement device is to sense the value, or changes in value, of process variables.

A natural law thus exists in that if processes are not continuously and incrementally adjusted and improved they naturally deteriorate to a point where they stop functioning.

4.4.4. Business processes

Not a company exists whose management doesn't "want an organisation flexible enough to adjust quickly to changing market conditions, lean enough to beat any competitor's price, innovative enough to keep its products and services technologically fresh, and dedicated enough to deliver maximum quality and customer service" [7]. It would seem that the results companies achieve are often very different from the results that their management desire.

Geary Rummler and Alan Brache, in their book entitled *Improving performance: how to manage the white space on the organisation chart* have found the process level to be the least understood and least managed level of business enterprise performance. "Processes roll along or more frequently stumble along in organisations" [25]. They found that a tremendous amount of learning and improvement could result from the documentation and examination of the linkages depicted in a process map as between every input and every output a process exists. Here business processes are defined as "a series of steps designed to produce a product or service". Most processes they state are "cross-functional, spanning the white space between the boxes on the organisational chart" [25].

Some processes result in products or services that are received by the organisation's external customers, and are called customer processes. Other processes produce products or services that are invisible to the external customers but essential to the effective management of the business. These are referred to as administrative processes. Further categories of processes exist called management processes. These include actions managers should take to support the business processes, Management processes include goal setting, day-to-day planning, performance feedback, rewards, and resource allocation. "A process can be seen as a value chain by its contribution to the creation or delivery of a product or service; each step in a process should add value to the preceding step" [26].

In their book *Re-engineering the corporation*, Hammer and Champy state that most companies today, no matter what business they are in, or how technologically sophisticated their products and services are, can trace their work styles and organisational roots back to the

prototypical pin factory that Adam Smith described in *The Wealth of Nations*, published in 1776. Smith recognised that the technology of the industrial revolution had created unprecedented opportunities for manufacturers to increase worker productivity and thus reduce the cost of goods, not by small percentages, which one might achieve by persuading an artisan to work a little faster, but by orders of magnitude. Hammer and Champy also state that the word process gives most managers the greatest difficulty. "Most business people are not 'process-oriented'; they are focused on tasks, on jobs, on people, on structures, but not on processes." They define a business process as "a collection of activities that takes one or more kinds of input and creates an output that is of value to the customer" [7].

Under the influence of Adam Smith's notion of breaking work into its simplest tasks and assigning each of these to a specialist, modern companies and their managers focus on the individual tasks that make up a process and tend to lose sight of the larger objective. "The individual tasks within a process are important, but none of them matters one whit to the customer if the overall process doesn't work, that is, if the process doesn't deliver the goods" [7]. In combining what we know of scientific processes and business processes we can see that both are made up of an input, process, output relationship.

If it is considered that the state of a process is characterised by specific values for a relevant set of variables, (temperatures, flows, pressures and levels), and that the condition of the process can be measured by instruments, then the reading thus obtained, can be used to take corrective action or to exercise control, one realises just how much engineering processes and businesses have in common [24].

For comparison purposes, the simple engineering process of water, flowing through a pipe is used. If we increase the pressure, flow increases to a point. Instruments will tell us that once a certain rate of flow has been achieved no further increase in flow is experienced, irrespective of how much additional pressure is applied. Instead, temperature increases and as temperature increases it further increases pressure. If control is not exercised to reduce this pressure, the process will destroy itself.

Now compare it with a business process. If we increase the pressure on employees, workflow increases to a point. Behavioural instruments will tell us that once a certain rate of workflow has been achieved no further increase in flow is experienced, irrespective of how much additional management pressure is brought to bear. Instead, behavioural temperature increases and as temperature increases it further increases pressure. If control is not exercised to reduce the pressure, the workers will destroy the process.

This follows what content and process theories teach us when describing the behaviour of individuals within

the organisation [27]. It is exactly at this point where business processes fail: no measurement, no control, no maintenance and no incremental improvement. The author is of the opinion that the natural scientific description of a process reveals everything we need to know about how to manage a business process. The difference is that in a business, one is dealing with people. Processes exist in the organisation in three different forms. There are the formal processes, then there are best practices and then there are the real processes. The first is used by management, the second by consultants and the third by workers — apparently with no connection between the three forms.

This research has found that formal processes come about when management reserves for themselves the sole right to good ideas. Real processes come about when workers who are doing the work experientially come up with the ideas. Best practices arise when consultants, through questioning workers, see the shadow of a real process and then sell it to management as the existence or substance of a best practice process.

Studies done by Professor Edgar Schein of MIT and published in his twin volumes *Process Consultation*, clearly illustrate the need to study processes in organisations by actual observation, rather than by questionnaire. Studies of organisational differentiation and integration have shown that four levels of involvement are present in performing the work of the organisation. These are: decisionary, steering, anchoring and operational. One could explain these levels of involvement as: those who create the VISION, those who set the OBJECTIVES, those who IMPLEMENT ideas and, those who perform the WORK [28]. The two middle levels are normally referred to as management, with the key difference being in the level of preoccupation in the visionary process of the organisation. Studies of Group Dynamics done by; Bales, Carter et al., Chapple, Lewin and White and Lippitt who studied groups from anthropological, sociological and psychological perspectives, showed the effects of different kinds of leadership on group morale and productivity [29].

This means that those who are doing the work have their efficiency affected by management, i.e. management can either help the workers to get the work done or they hinder the workers in the performing of their duties. These studies of group dynamics clearly showed that effective and efficient workers have two kinds of leader: a task leader (technical leader) who helps the group to do its job and a ‘socioemotional’ leader (process leader) who helps to build and maintain good relations among group members [29].

Only rarely were these two kinds of leader the same person.

Studies done by: Arensberg, Dalton, Dickson, Homans, Mayo, Roethlisberger, Schein and White and into Group Interpersonal Relations, showed that how

people actually relate to each other bears only limited similarity to how formal organisation structures says they should behave. These studies illustrate the need to study human processes in organisations by actual observation rather than what people say in interviews or on survey questionnaires.

Process consultation developed by Professor Schein sets out to define how the roles of the ‘technical leader’ differs from the ‘process leader’ and how they influence the performance of the workers. The formal definition of process consultation is: “a set of activities on the part of the consultant that help the client to perceive, understand, and act upon the process events that occur in the clients environment in order to improve the situation as defined by the client” [29].

A process consultant (i.e. process leader, socio-emotional leader) helps the ‘technical leader’ (i.e. task leader or functional manager) to assess the consequences of different alternatives or suggest alternatives that have not been considered. Process leaders do not have ‘pat’ answers or expert solutions. They assist in adding perspective. Detailed analysis of small group problem solving showed that groups best develop solutions with the aide of a process leader in conjunction with the technical leader and the team of workers.

Functional management has the advantage that task leaders (general managers) are usually thought of as having formal responsibility for defined organisational outcomes; they have line bosses, and they have specific resources at their disposal with which to exercise the authority they have been given. They are accountable, and this accountability cannot be delegated. Project managers (process leader) have delegated resources from across the functions that still have functional demands placed on them. The project team members must balance loyalty to the cost centre that pays their salary with the demands of the project. They are deemed to be responsible for the outcome of the project but rarely are they seen to be accountable.

This brings us to the realisation that the management of business processes and the management of projects are interrelated.

In fact the process team can be directly equated with the project team. Both teams work across functions. From the natural scientific definition of a process, a natural law exists in that if processes are not continuously and incrementally adjusted and improved they naturally deteriorate to a point where they stop functioning. In business, it is found that in order for a process to exist, one must identify why the process is required and why we need to be involved. Conversely, if the need for a process cannot be identified, no continual incremental improvement is required, and there is no need for people to be involved, as the process has no reason to exist.

This research found that business processes are governed by the following rules:

1. There must be a clear purpose to the process, which is the goal (non-specific) that it is trying to achieve.
2. Incremental improvement has to take place during the process of reaching the goal.
3. Each incremental improvement must be a project which involves people.

From these rules it is clear that processes are governed by a group of projects that bring about incremental improvement.

5. Projects

At the 28th annual seminar of the American Project Management Institute held in Chicago on 29 September to 1 October 1997, Zeitoun and Heimy presented a paper entitled *The pyramids and implementing project management processes* [30]. The intent of the paper was to show that it is possible that the building of the pyramids could have followed the process of project management outlined in the American Project Management Institute's 1996 publication *A guide to the project management body of knowledge*. Here, a project is defined as "a temporary endeavour to create a unique product or service" and project management is defined as "the application of knowledge, skill, tools and techniques to project activities in order to meet or exceed stakeholder needs and expectations from a project" [31].

Most authors state that project management had its origin in 1958 with the development of the PERT methodology [32]. Project management as an engineering discipline in architecture and production can be seen as a mature issue as it is well used and understood in these areas. Industrial development projects such as chemical plants, power stations, bridges, dams, and production plants, to name only some, use human resources in a dedicated centralised team working full-time on one project at a time to manage the project. Implementation is performed by using contractor's staff, and never one's own staff. Project duration is in years and all project costs are of a capital nature as an investment, which has a payback period, or return on investment.

Management effort is spent in the implementation stage where management of change to the original plan is a key activity. Project risk is quantified prior to gaining financial commitment to the project by the sponsor, and once gained, this risk does not feature. Product risk is quantified in the planning stage as it is originated by the design, and impacts on quality, time and cost in the implementation stage through conventional processes.

Design is completed formally by an in-house design team or by a contractually appointed external team.

Contract management always follows a specification preparation, a tender evaluation and a contract negotiation process on these projects. Implementation is always completed by a contractor, with the client administering the contract on site. Many formal tools and techniques exist, and are frequently used to complete the task. Project close out is not normally seen as part of the project, neither is commercial operation.

On the other hand, British Standard 6079 of 1996 (BS6079) defines a project as "a unique set of co-ordinated activities, with definite starting and finishing points, undertaken by an individual or organisation to meet specific objectives within defined schedule, cost and performance parameters" [33]. Project management is defined as the "planning, monitoring and control of all aspects of a project and the motivation of all those involved in it to achieve the project objectives on time and to the specified cost, quality and performance" [33].

Here clear distinguishing factors are the 'individual' and 'motivation' laying emphasis on managing people who manage the work of the project instead of on 'tools and techniques'. Business development projects involve bringing business processes, strategy, any change, and restructuring into being or modifying existing aspects internal to the organisation. Human resources used to manage these projects involve people from distributed cross-functional teams, lateral teams and virtual teams working on many projects concurrently. Predominately in-house staff is used with some input by consultants. Project duration is in weeks or days and most often, there is no money spent on capital equipment. Costs incurred are in terms of labour man hours spent.

Most management effort is spent in the planning stage due to very short implementation periods, and changes to the original plans result in almost automatic failure. Managing people is the key activity as the people manage the tasks. Project risk requires alignment with strategic direction, and changes to marketing windows of opportunity remain a constant threat throughout the project. Product risk is quantified in the planning stage as part of design, and if featured during implementation, negatively influences time, cost and quality.

A team compiled from management and contractually appointed consultants complete the design. During the planning of the project, contracts are entered into between departments for the supply of labour and are a feature of these projects. Contracts for supply, delivery and installation, as seen in industrial development, are an extremely rare occurrence on successful business development projects. The same team, which did the design, completes implementation. Use of tools, techniques, processes, procedures, methodology and models do not exist to a large extent, and are not often used. Here effort is specifically directed at the motivation of those involved with communication, and time management is the key to success. The commercial operation

stage of the project is characterised by ongoing modification and changes to project deliverables, often leading to obscuring the end of the project.

Business processes are continuously incrementally improved in order to remain in use. Employees using real processes all day long, realise improvements to these processes, and request improvements as projects. The result is that if all requests for improvements from management, staff, customers and suppliers are seen as requests to improve working processes, then by logical deduction these requests contain the evidence of the processes being used or at least those that are used.

To identify these processes each request should be turned into a project where the project title needs to correctly, and unambiguously define the measurable end goal and beneficial change of the project, as stated at the end of the implementation stage of the life cycle. When this has been done the collective project titles contain processes that are used and in need of repair.

As part of this research, processes were identified following this convention at an engineering company identifying 137 projects concerned with accommodation. Closer investigation revealed 23 people in the organisation dealing with accommodation, revealing a high percentage of temporary staff used. A switch to more permanent staff, and purchasing a building in which to house short-term staff, not only resulted in improving effectiveness of production, but also negated the need for the 23 staff members to be involved in these projects.

Applying one-off corrections may change the process or identify a new process that will be the true process requiring incremental improvement. Once these projects have been achieved, new projects may once again change the process. This relationship between the process and the projects needs to be understood and accepted, as the end goal of the process is not directly accessible. The projects therefore seem to meander towards the goal of the process by applying continuous incremental improvements, of which water logic by Edward De Bono, is a good example. Scientific processes are continuously incrementally improved through controlled adjustments to flow, pressure, temperature and levels of equipment. Business processes are continuously incrementally improved through controlled adjustments to flow, pressure, temperature and levels of people.

This aspect of the relationship, is revealing project management as the point of departure for all management theory, where management manages the behavioural processes of people, who manage the continuous incremental improvement of business processes in the organisation through projects that guide the business process to address the change in the strategic direction of the organisation.

The contribution that knowledge of managing projects can make to management at large is greatly underrated, and generally poorly known. For years, project management

was ridiculed in business development as a low-tech, low-value and questionable activity. Only recently has it been recognised as a central management discipline. Major companies now use project management as their principal management style. Management by projects has become a powerful way to integrate organisational functions and motivate groups to achieve higher levels of performance and productivity. Literature on modern organisational theory refers to United States of America — Military Department of Defence programmes during the 1960s, developing new forms of organisational structure referred to as *Matrix structures*. Used in military weapons production, it superimposes a product or project structure onto existing function based structures [34]. Resources from vertical units are assigned to horizontal units, based on the need in each unit. Three different kinds of matrix structures are referred to as product structure, project structure and program structure.

These structures are derived from the role of differentiation and integration in organisational theory. Differentiation splits up authority into horizontal levels in the organisation so that each level has more authority than the level below it. At the same time as an organisation differentiates itself, it must also integrate activities into sets of tasks performed as a co-ordinated whole. The span of control in management theory refers to the number of immediate subordinate positions that a superior position controls. The matrix structure can be seen as the cross over point between tall vs. flat structures. Differentiation in the matrix is split, not only horizontally, but vertically as well, while work is integrated across functions in the organisation.

During this research, it was discovered while scanning literature, that most management books separate the work or task being performed, from the management of the person performing the work. Managers are seen as task technical leaders and the human resources practitioners are seen as the social emotional leaders.

If business development is to prove anything, it is that the successful outcome of any change in the organisation can only be achieved when business processes and human behavioural processes converge in the person of the project manager.

6. Conclusion

The objective of this paper was to provide insight into business development with relation to the make-up of strategy, structure, processes and projects as applied to the modern organisation. Research was done on the theory of how these aspects exist, are managed and implemented individually within the organisation. The project management of business development requires new insight into how strategy, structure, processes and projects interact with one another.

The natural scientific definition of processes brought the required light to these subjects and was used to explain their interactions. Project management was shown as that aspect of business dynamics that turns vision into results. Project management brings together a team of people from diverse levels of education, social backgrounds, religions and experience to form a coercive group that can reach the objectives put to it in an efficient and effective manner.

This aspect revealed project management as the point of departure for management theory, where management manages the behavioural processes of people who manage the continuous incremental improvement of business processes in the organisation, through projects that guide the business process to address the change in the strategic direction of the organisation. If business is to develop then the successful outcome of any change in the organisation can only be achieved when business processes and human behavioural processes converge in the person of the project manager.

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