CHAPTER 2

LITERATURE STUDY

Knowledge is of two kinds. We know a subject ourselves, or we know where we can find information on it.

Samuel Johnson (1709-1784),

***quoted in* Boswell's Life of Johnson**

2.1 INTRODUCTION

This study was conducted in the multi-disciplinary fields of Project Management and Organisational Behaviour. Relevant literature has therefore been reviewed from the following multi-disciplinary areas pertaining to the research problem, objectives and questions (set out in Chapter 1):

- project management, projects and project success factors
- organisational culture and project management culture
- assessment of organisational culture and measurement tools
- development of an organisational culture assessment tool

Figure 2.1 sets out the literature fields that have been researched to obtain a better understanding of the contextual framework of the study and to provide some of the answers to the research questions.

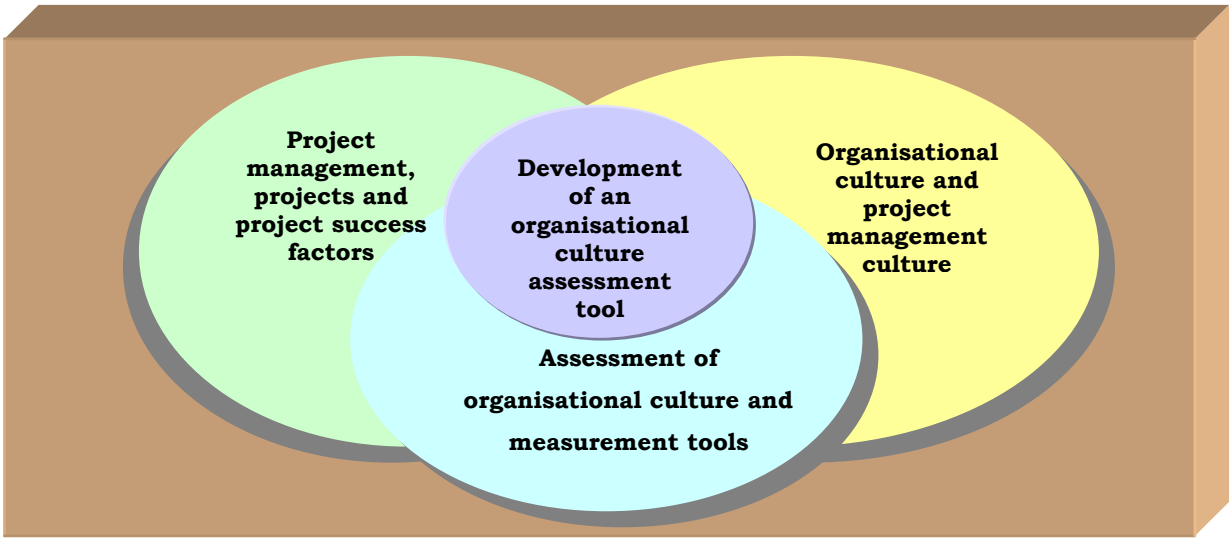

Figure 2.1: Areas of literature researched

2.2 DEFINITION OF KEY CONCEPTS

Definitions of key concepts are provided below to clarify their meaning in this research.

2.2.1 Definition of a 'Project'

Projects can be defined in various ways. The Oxford English Dictionary defines a project as '*something projected or proposed for execution; a plan, scheme, purpose; a proposal'.*

The definition of a project used in this study is a combination of definitions by Baguley (1999:10), Turner (1993:14), Nicholas (1997) and Kerzner (1997).

A *project* is a sequence of connected events, with a definite start and end, that is a unique scope of work targeted towards generating a well-defined outcome, undertaken in an organisation to achieve beneficial change. It therefore carries considerable uncertainty and risk that requires the integration of the organisation and is subject to constraints of time, cost and quality of performance.

2.2.2 Definition of 'Project Management'

Project Management is the *process* by which a project is brought to a successful conclusion. It should have three dimensions (Turner, 1993):

- *clear objectives* that, describe the project scope; are linked to an organisation and are quality, cost and time oriented
- *a management processes* inclusive of planning, organising, implementing and controlling.
- *address all the organisational levels:* strategic and tactical.

Thus *project management* refers to the planning, organisation, leading and controlling of clearly aligned project goals at all levels of the organisation to ensure customer satisfaction in the results delivered.

2.2.3 Definition of 'Organisational Culture'

Organisational Culture is a popular but elusive concept that has been variously defined as:

- a pattern of *'basic assumptions'* developed as the group or organisation learns to cope with its environment (Schein, 1985);
- a system of publicly and collectively accepted '*meanings*' which operate for a group at a particular time (Trice & Beyer, 1984);
- *'the way we do things around here'* (Deal & Kennedy, 1982; Silvester *et al.,* 1999).

Chell (1994) gives an *operational definition* of culture which suggests that culture comprises of three categories of beliefs:

- beliefs about how employees should be treated and the opportunities afforded them;
- beliefs about professionalism and support of efforts to do a good job;
- beliefs about how the organisation interfaces with the environment and strives to accomplish its mission.

The definition of Deal and Kennedy (1982) of organisational culture as '*the way we do things around here',* is the basic theoretical definition adopted in this study, and is complemented by the operational definition of Chell (1994) cited above.

2.2.4 Definition of 'Project Management Culture'

Du Plessis (2001) has developed both a narrow (parochial) and broad (pragmatic) definition of project culture.

A *narrow definition* of the concept project culture, is that a project culture is '*the way the project team does projects in their project environment*'**.** This definition may only reflect the internal, project specific environment and does not emphasise the essence of behaviour, the project character or descriptive elements.

An enhanced narrow definition, reflecting behaviour, the project character and description, has also been formulated by Du Plessis (2001). This definition is inclusive of the total (internal and external) environment. According to this definition, a *project management culture* is '*the disciplined implementation of an integrated project management approach* (the way) *by a competent and committed project team* (we) *creating unique deliverables, faster, cheaper and better than competitors, according to customer requirements and specifications* (do things)*, in a changing and competitive environment* (around here)'.

Du Plessis (2001) believes that a narrow definition does not do sufficient justice to the complexity of projects and project management and the elements involved in a project environment.

A broad definition of the concept is more functional and operationally useful, because it can be adapted to suit the specific needs of a particular organisation and the type of project undertaken.

A *broad definition* of the concept project management culture is more flexible in its application, provided the essence of projects and project management are reflected in the culture of the organisation as a whole, or in the part of the organisation where projects are effected. Du Plessis (2001) developed a framework (see figure 2.2), containing guiding principles and descriptive elements as a basis for a broad descriptive definition.

(Figure 2.2, overleaf)

ORGANISATIONAL CULTURE	PROJECT CULTURE GUIDELINES	CATEGORIES OF DESCRIPTIVE ELEMENTS
THE WAY	The **project process** or approach (HOW) ⇒ Project life-cycle	**Process** elements: ⇒ Integrated process ⇒ Systemic nature ⇒ Phases according to the project life-cycle ⇒ Definite start and end ⇒ Speed of delivery ⇒ Disciplined and controlled ⇒ Customer-oriented ⇒ Results-oriented ⇒ Beneficial change ⇒ Continuous improvement and learning
WE	The **People**: The Project Team and stakeholders (WHO and for WHOM) ⇒ Top management ⇒ Sponsor/owner ⇒ Line manager ⇒ Project leader and team ⇒ Customer/user ⇒ Supplier ⇒ Contractor ⇒ Government This includes behavioural aspects.	**People** elements: ⇒ Mindset ✓ Results-oriented ✓ Disciplined ✓ Flexible paradigm ✓ Team-player ✓ Learning affinity ✓ Change readiness ✓ Risk-oriented ⇒ Competent ⇒ Committed ⇒ Interdependence ⇒ Trusting and trustworthy ⇒ Ethical ⇒ Sound interpersonal relations ⇒ Open communication ⇒ Conflict management ⇒ Calculated risk-taking

Figure 2.2 continued

ORGANISATIONAL CULTURE	PROJECT CULTURE GUIDELINES	CATEGORIES OF DESCRIPTIVE ELEMENTS
DO THINGS	**Project Management Methodology** (WHAT)	**Structure and System** elements ⇒ Project plan ⇒ Communication plan ⇒ Work breakdown structure ⇒ Clear roles, responsibilities and accountability ⇒ Interdependence/ networking ⇒ Team approach ⇒ Shared leadership ⇒ Risk management ⇒ Flexible boundaries ⇒ Temporary structure ⇒ Specifications ⇒ Deadlines, milestones ⇒ Measurement and control ⇒ Learning
AROUND HERE	The **project environment** (WHERE) ⇒ Internal (in project team) ⇒ External (Organisation and wider)	**Environmental** elements 1) Strategic emphasis 2) Upper management support 3) Project planning support 4) Customer/end-user input 5) Project team development 6) Project execution support 7) Communication and information systems 8) Organisational support (Graham & Englund, 1997)

Figure 2.2: Broad descriptive definition of the concept Project Management Culture (adapted from Du Plessis, 2001)

In defining the concept project management culture, one should guard against a restrictive definition. Therefore, guiding principles and elements are more effective in ensuring a better understanding. However, both narrow

and broad definitions should add value to the understanding of the concept (Du Plessis, 2001).

2.2.5 Definition of 'Project Success Factor'

Project success factors are those inputs to the project management system that lead directly or indirectly to the success of the project or business (Cooke-Davies, 2002). For the purposes of this study, the term refers to factors that lead to project success and project management success. De Wit (1988) distinguishes between *project success* (measured against the overall objectives of the project) and *project management success* (measured against the common and traditional measures of performance in terms of cost, time and quality.)

2.2.6 Definition of 'Assessment Tool'

Webster's dictionary (1998) defines the concepts 'assessment' and 'tool' as follows:

> 'An *assessment* is a valuation made by authorized persons according to their discretion, ...for the purpose of fixing ...'
>
> 'A *tool* is something used in the performance of an operation or an instrument'.
>
> Therefore, an *assessment tool* for the purposes of this study, is a diagnostic instrument developed through a scientific process for the purpose of evaluating/diagnosing a project management culture as the operational culture of an organisation doing project work.

2.3 PROJECTS, PROJECT MANAGEMENT AND PROJECT SUCCESS FACTORS

Projects, project management and project success factors are described below to clarify the context and framework of this multi-disciplinary field and the key elements of a project management environment.

2.3.1 Projects

A project is a process, in other words, mechanism that enables an organisation or individuals to focus resources and abilities towards desired outcomes and thus enabling an organisation or individual to respond quickly to the desires of customers (Baguley, 1999:4).

According to Martin and Tate (1998:59), there are only two ways in which work gets done in organisations: through business processes or through projects. Business processes are permanent work structures that transform inputs into repetitive outputs. They can be viewed as on-going operations (Kerzner, 1997:2). Projects, on the other hand, are temporary work structures that transform inputs into unique outputs. Projects start up, produce whatever they have been commissioned to produce, and then shut down.

According to Kerzner (1997:71), there are four categories of project:

- individual projects (these are short in duration, and are normally assigned to an individual);
- staff projects (they can be achieved by one organisational unit).
- special projects (they require the assignment of a primary function or authority on a temporary basis to other individuals or units), and

- matrix or aggregate projects (they require input from a large number of functional units and usually control vast resources.

Projects may differ with regard to the approach to the project. A project can be more specific (hard project) with clear (tangible) results, as in engineering, or it can be less specific (soft projects) with less clear (intangible) results, as in human resources. However, from the literature, it seems that all the projects have the same basic underlying characteristics as described earlier (see the definition).

2.3.2 Project Management

Project management can mean different things to different people. Therefore the meaning has to be clarified for the purposes of this study. An understanding of the underlying principles of project management can facilitate the identification of project management culture elements. Areas that need further clarification to indicate the systemic and holistic nature of project management are

- the interdependencies in project management;
- the project management approach; and
- the project lifecycle.

2.3.2.1 Project management interdependencies

One of the characteristics that distinguish project management from general management is the sheer breadth and complexity of the relationships that need to be managed. Project success depends on the co-operation of a wide range of individuals, many of whom do not directly report to the respective

project manager. To be effective, a project manager must understand how these individuals or groups, often referred to as project stakeholders, can affect the project. Methods for managing this interdependency are thus crucial for success. The organisational culture must also allow this interdependence to take place. The nature of the interdependencies has been described by Gray and Larson (2000). Weirauch (1996) refers to these interdependencies as 'alliances' and Mead (2001) refers to it a 'networks' that are vital for project success.

Project stakeholders are individuals and organisations that are actively involved in the project, or whose interests may be positively or negatively affected as a result of project implementation or successful project completion. The main stakeholders and their interdependence in the project environment are listed and briefly described below.

- The core *project team* is responsible for managing and completing project work. Most participants want to do a good job, but they often have other obligations (if they work in a matrix or temporary structure), and they are concerned about how their involvement in the project could contribute to their reaching their personal goals and aspirations.

- *Project managers* naturally compete with each other for resources and the support of top management. At the same time, they often have to share resources and exchange information.

- *Customers define the scope of the project*, and ultimate project success depends on their being satisfied. Project managers need to be responsive to changing customer needs and requirements and need to meet customer expectations. Customers are primarily concerned with

getting a good deal and this naturally results in tension between customers and the project team.

- *Administrative support* groups, such as the human resources, information systems, procurement, finances, and maintenance functions in an organisation provide valuable support services. At the same time they impose constraints on and set requirements for the project, such as the documentation of expenditures and the timely and accurate delivery of information.

- *Functional managers*, depending on how the project is organised, can play a minor or a major role in project success. In matrix structures, they may be responsible for assigning project personnel, resolving technical dilemmas, and overseeing the completion of significant segments of the project work. Even in dedicated project teams, technical input from functional managers may be useful, and manager's acceptance of completed project work may be critical to in-house projects. Functional managers usually want to co-operate up to a point, but only up to a point. They are also concerned with preserving their status within the organisation and minimising the disruptions the project may cause to their own operations.

- *Top management* approves funding and the allocation of resources to the project. They establish priorities within the organisation as part of strategic planning and determine the strategic importance of the project. They define success and adjudicate rewards for accomplishments. Significant adjustments in a project's budget, scope and schedule typically need their approval. They have a natural vested interest in the success of the project, but at the same time have to be responsible in deciding what is best for the entire organisation.

- *Project sponsors* champion the project and use their influence to gain approval of the project. Their reputation is tied to the success of the project, and they need to be kept informed of any important developments. They defend the project when it comes under attack and are key project allies.

- *Sub-contractors*, in some cases, may do all the actual work. In that case the project team merely co-ordinating their contributions. In other cases, they are responsible for ancillary segments of the project scope. Poor work and schedule delays can affect the work of the core project team. While contractors' reputations depends on their doing good work, they must balance their contributions with their own profit margins and their commitment to other business opportunities.

- *Government agencies* may place constraints on project work with regard to legislative frameworks and procedures. Political influence often also has to be managed carefully to benefit the project.

- *Other organisations or individuals,* depending on the nature of the project, may affect the project directly or indirectly. For example, suppliers provide necessary resources for the completion of the project. Delays, shortages and poor quality can bring a project to a standstill. Public interest groups may exert pressure on government agencies. Customers often hire consultants and auditors to protect their interests in a project. Environmentalists can delay a project if they have not been consulted where necessary.

It should be obvious from the above relational network how complex the interdependencies that facilitate project work are.

2.3.2.2 Project management approach

Grundy and Brown (2002) describe conventional (traditional) project management and contrast it with strategic project management (see to Table 2.1). Since project management involves a variety of tasks throughout a project lifecycle, the 'systems approach' to project management has evolved. It is aimed at assisting managers in viewing the intricate details of a project and capturing it as an overview of a holistic phenomenon (Cleland & King, 1983). The strategic approach to project management is more concerned with the holistic nature and the strategic intent of the project in the business.

Table 2.1: Comparison of conventional project management and strategic project management

Attributes	Conventional project management	Strategic project management
Link with business strategy	Direct and explicit	Vague and distant
Project definition	Usually portrayed a 'given'	Highly flexible, creative, depending on options
Project planning	Follows on directly from project definition	Only done once a project strategy is set
Attitude to detail	Very much based on central control	Important but only in context always attempts to focus on the whole, seeing the bigger picture
Importance of stakeholders	Emphasis on formal structures: project manager, sponsor, team	Far-reaching stakeholder analysis requires continual scanning of the environment to detect who are directly or indirectly affected by the project
Importance of uncertainty	Coped with through critical path analysis after activity planning	Uncertainty analysis done first, then activity planning

Source: Adapted from Grundy & Brown (2002:3)

A project management approach, referred to as the 'PROPEL' (an acronym for the six steps) approach, that depicts the key process elements has been developed by Smith (1999). This approach was adapted by Du Plessis (2001). The approach is a step-by-step approach, consisting of a logical flow diagram with six iterative and integrated stages of business project management (see Figure 2.3):

- **P**eople
- **R**equirements
- **O**bjectives
- **P**roject Plans
- **E**xecution/Implementation of the plan
- **L**earning from mistakes and successes, and ensuring a successful ending/closure of the project.

This approach is set out in a flow diagram in Figure 2.3 which enables a project owner/sponsor and project manager to visualise the results of and the process needed to obtain the desired outcomes, thus enabling him/her to think through the six stages. The *first three stages* (people, requirements and objectives) have to be clearly established before the project plan is drawn up, executed and measured/ controlled.

Figure 2.3 on overleaf

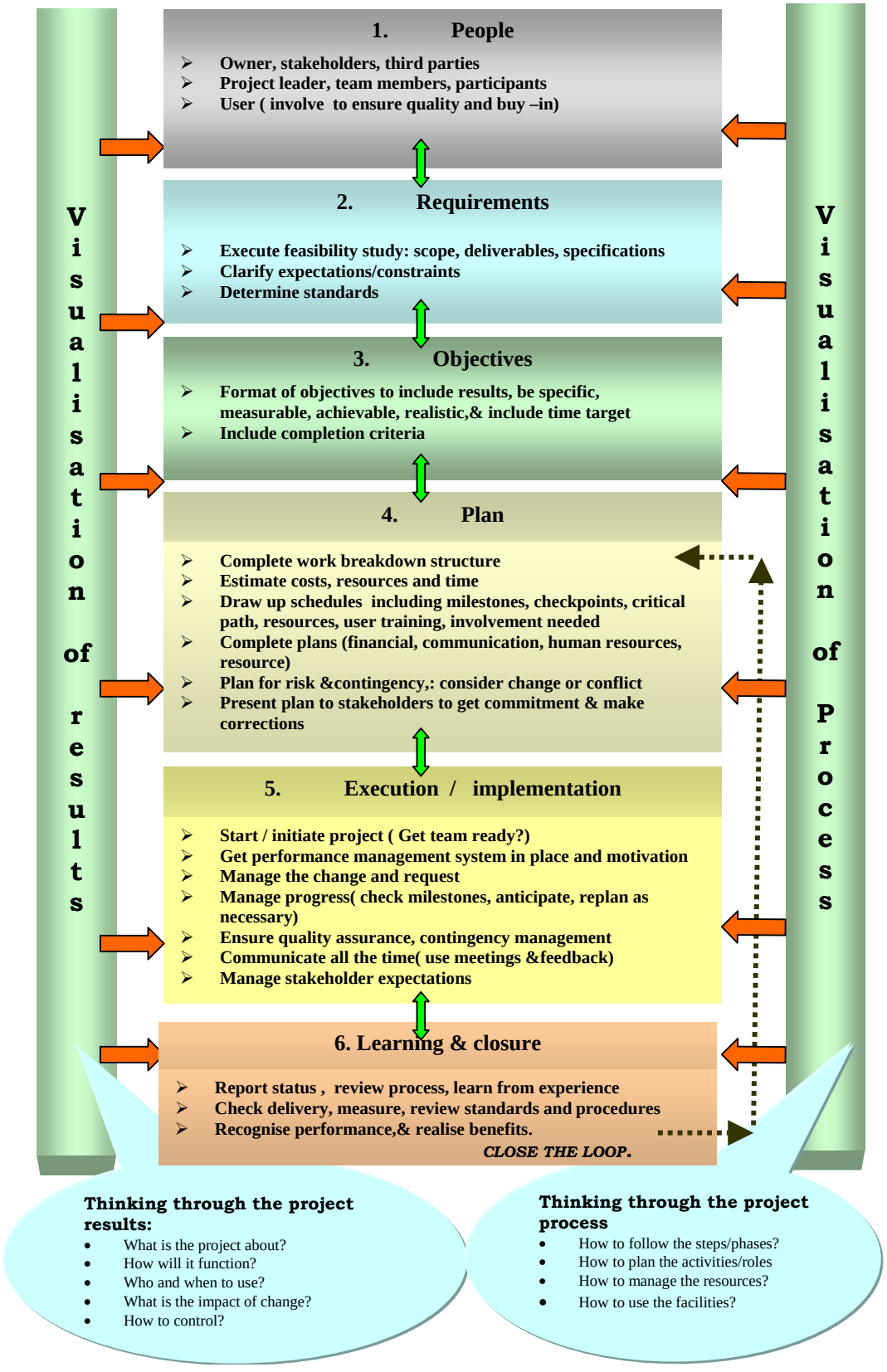

Figure 2.3: PROPEL project management approach (adapted from Smith, 1999)

2.3.2.3 The project lifecycle

From the definition of a project, it is clear that there is a definite start and end. The project can be divided into phases, as in the four-phase project lifecycle approach, (see figure 2.4) as described by Gray and Larson (2000:5-6).

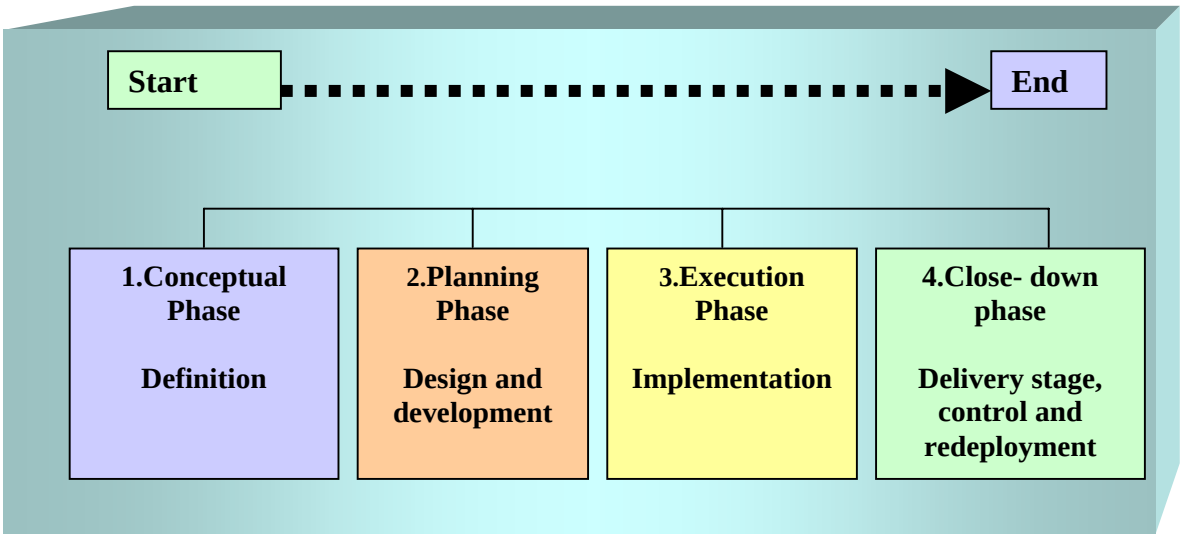

Figure 2.4: Project lifecycle

The strategic project management process described by Grundy and Brown (2002) contains five key stages (see Figure 2.5).

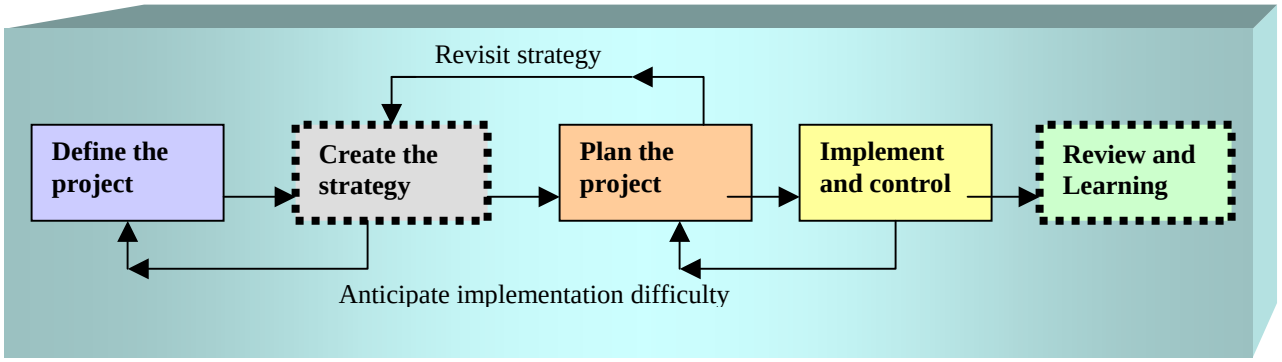

Figure 2.5: Strategic project management process (Grundy & Brown, 2002:13)

The resemblance and differences between the strategic project management process and conventional processes is clear. The strategic project management process is more concerned with the strategic alliance of the project to ensure future enablement. This is especially evident in the review and learning phase, whereas the traditional project management process focuses more on getting the project to deliver the required results and maybe not focusing that much on learning. Both project lifecycles (strategic and traditional) clearly reflect the 'PROPEL' approach (see Figure 2.3), which can be regarded as a combination of the two. It is importance to recognise the lifecycle phases because the emphasis of specific project management cultural elements or the environmental factors necessary for success might differ during each of these phases. This also makes it necessary that projects adopt a flexible approach.

It is clear that project management is not simply a set of tools and techniques, but a process that can be used to help project teams and organisations to succeed by:

- ensuring that all stakeholders are involved in the process and are committed to their role;
- producing deliverables that satisfy customer expectations and needs;
- getting the project done on time and within budget;
- preventing scope creep (constantly changing project requirements);
- making the project a more satisfying experience for team members/ participants and the organisation as a whole; and
- contributing towards the strategic objectives of the organisation.

2.3.3 Project success factors

Projects are run in organisational environments where various factors can influence the different stages of the project lifecycle, especially the implementation thereof, either favourably or unfavourably. The organisational factors that influence the project environment can be external and/or internal to the project environment.

Shenhar *et al.* (2002) used multivariate analysis methods to identify project success factors. They found that project success factors vary with project type, that they depend on high uncertainty or low uncertainty, and that project managers must carefully identify the factors that are critical to their particular project. High-uncertainty projects demand a specific focus on project definition, milestones, design, documentation, policy and customer participation. Low-uncertainty projects need to focus more on formal and structured selection of contractors, budget monitoring, quality and managerial autonomy.

According to a study conducted by Pinto and Kharbanda (1996), the following factors can contribute to project failure**:**

- ignoring the influence of the project environment (including stakeholders);
- pushing a new technology to the market too quickly;
- not bothering about building in fallback options or contingencies;
- when problems occur, blaming the person most visible;
- letting new ideas starve to death from inertia;
- not bothering about conducting feasibility studies;
- never admitting that a project, or part of it, is a failure;
- over-managing project managers and their teams;
- never conducting post-failure reviews;

- never bothering to understand project trade-offs between time, cost and quality;
- allowing political expediency and infighting to dictate crucial project decisions; and
- running a project with a weak project leader.

It is important to understand the factors that can lead to failure, because critical success factors are usually also locked up in these factors. Understanding critical success factors in the project environment is vital for project success.

Graham and Englund, (1997) have designed a tool called 'PEAT' (the Project Environment Assessment Tool) to measure and determine elements of an environment that supports project success. The tool has not been developed to measure project success, but to determine how well organisations support project management. The researchers have identified eight factors that directly influence project success:

- *Strategic emphasis*
  This factor indicates the degree to which the project is aligned with business strategy. In the past, projects often proliferated without any attention being paid to strategic importance. Projects have to be selected based on their contribution to business strategy.

- *Upper management support*
  The degree to which upper management's behaviour supports project success is indicated by this factor. To increase the chances of project success, management should behave in ways sometimes contrary to the accepted ways (organisational culture) in the organisation.

- *Project planning support*
  One of the most important factors in project success is to have team members develop the project plan. This allows them to focus on the project and ensures their commitment.

- *Customer/end-user input*
  Successful projects need close contact to be kept with customers and end-users in order to get the specifications and features of what is needed correct to ensure satisfactory design and implementation.

- *Project team development*
  A well-functioning team whose members are committed and motivated is essential for a successful project.

- *Project execution support*
  Organisational practices and systems must support the implementation of the project. Often the start of a project is accompanied by 'fanfare', but support then waves during the implementation phase, allowing the project to "starve to death'.

- *Communication and information systems*
  Good communication amongst project members is important. Communication should flow easily across different teams, project reviews and regular feedback is vital. Information should be made available to all current and future project teams.

- *Organisational support*
  The systems in the organisation should support projects. Rewards and promotions should foster positive performance and motivation.

Research by other researchers support these factors (Brown, 1999; Clarke, 1999; Johns, 1999; Cooke-Davies, 2002; Lahey, 2002; Loo, 2002; Jiang, Klein & Discenza, 2002). Success factors found in the literature were integrated into eight main categories (see Table 2.2), that are described in detail below, to establish what the desired project success factors are that should be exhibited by an organisation with a successful project management culture.

Table 2.2: Main Categories of Project Success Factors

1. Stakeholders involvement and commitment
2. A team-based and participatory approach
3. Project orientation and control
4. Project management methodology
5. Communication and information systems
6. Risk management
7. The people culture factor
8. Project review and learning

2.3.3.1 Stakeholders involvement and commitment

- *Solid business sponsorship* is needed. A lack of executive-level commitment is a common element of project failure. Executive sponsorship becomes extremely critical in projects that affect the culture of the organisation (Zimmer, 1999). Project sanction as described by Hall (1999) refers to
  - the buying into a project by the senior executive of an organisation who is sponsoring the change (for example, a board director), who is the accountable executive (responsible to the directors and ensuring that the change meets expectations) and who will manage the project;

- the advantages/benefits to be gained (for example, competitive advantage, additional profit gained via a new product, customer retention through cost reduction);
- the impact on the organisation (such as the operational cost of change and the effect on staff);
- any known risks associated with the change (risk is assessed in more detail once the project begins);
- the terms of reference; the time scales for implementation;
- the cost of the change (including project/implementation costs); and
- the pay-back period.

- *Top executives* must 'walk the walk and talk the talk' in building a project management culture (Saia, 1997).

- *Middle management involvement* is evident. Glaser, Zamanou and Hacker (1987) suggest that an important reason why involvement programmes fail is that mid-level managers feel left out and alienated by the process. They are the ones that lose power, as they are asked to give up their main function in the organisation: making decisions. Glaser *et al.* (1987) propose that for an employee involvement program to be successful, involving middle managers in the initial phases of the programme is essential.

2.3.3.2 Team-based and participatory approach

The project leader should act as a facilitator to the team and as a guide throughout the project management process. The team creates the project plan. The team monitors and controls the project. The team assesses what went well and what should be improved for the next project. This approach to project management means that project managers must learn new skills (conflict resolution, active listening, team participation, team decision

making) that participative managers have been using for a long time, but that are new to traditional practices with regard to project management. The participative approach to managing a project is a critical factor in creating better project results (Martin & Tate, 1998; Sweeney & Lee, 1999; Cleland, 1996). Saia (1997) refers to this critical success factor as 'Team leadership'.

2.3.3.3 Project orientation and control

Once the project has been sanctioned, the first task the project manager should undertake is to run a 'Project Definition Workshop' (PDW) to be attended by the key personnel (stakeholders) who will be involved (it may also involve suppliers if they play an important role). In most cases the PDW is the first opportunity for participants to obtain a detailed understanding of the business change and to start building the project team.

Progress has to be monitored to make sure the project stays on track and hence progress reports have to be produced (for the project manager, review board and directors) (Hall, 1999).

2.3.3.4 Project management methodology (Martin & Tate, 1998; Zimmer, 1999)

Project management methodology can be set out using the following headings:

- *Definition of the projects*
  Each project must be defined adequately, based on the needs of the company.

- *Specifications* should be developed in all but the simplest projects. (This has been found to be a common element of project failure). Many companies skip the specification process and 'window shop' for technology or processes. The end result is an actual purchase without a clearly defined need. Often the decision to purchase is based solely on the performance claims of the manufacturer.

- *Project deadlines and milestones*
  Unrealistic milestone dates demoralise the spirit of the project team. Project managers must give special care when developing the project plan so that each 'chunk' is attainable within a reasonable timeframe.

- *Break projects into realistic chunks*
  Companies that use a 'shotgun' approach to implementing technology or processes often fail. A project manager must develop a plan that breaks up a project into 'chunks' of deliverables complete with deadlines, and must assign responsibilities and accountability (Hall, 1999).

- *Skilled project managers to highly complex projects*
  Project managers must possess a well-rounded set of skills to succeed. They must have a thorough understanding of the process involved with the project. They must be coaches and motivators as well as excellent communicator. Project management is not for the faint-hearted. 'Don't put someone in charge of a project simply because you don't have any other place in the organisation for them'.

- *Robust project process architecture*
  Project management is a process. Omitting key pieces of the process or having no clearly defined process often results in substandard results or even failure.

- *A comprehensive project portfolio.*
  Project managers must develop a comprehensive project plan, one that spans the project-life cycle, from conception to implementation, maintenance, and beyond. Every effort must be made to anticipate all outcomes. It is usually unanticipated elements that damage project managers' careers.

2.3.3.5 Communication and information systems

Humans spend 70% of their days communicating in one form or another. This underlines the importance of communications as a key to a successful project. Poor communications, at best, hinder progress and, at worst, sink the project. Good project management practice includes a communications plan. It is vital that the culture of the areas to be affected by the project change is well understood before the communication plan is finalised. A thorough understanding of the culture, or 'the way we do things around here' influences the communication approach (delivery channels, media, terminology) chosen for the communications campaign (Saia, 1997; Hall, 1999).

Information should be readily available to support the project. Interpersonal communication, due to the interdependence amongst all the relevant parties, is also vital for project success (Graham & Englund, 1997).

2.3.3.6 Risk Management

There are two types of risk involved in the project environment, namely project risk and operational risk. Project risk refers to all risks that, if realised, would impair the successful delivery of the business change. Operational risk is requires an understanding of the business change that is to take place and the identification of any risk for the business operation.

2.3.3.7 The People culture factor

Even with the best laid plans things can go wrong, either due to circumstances unforeseen within the project plan, or due to unexpected reaction from the people involved. The project team is involved from the start of the project and should understand the need for the project, thus the need for change. Those affected by the project's implementation may not. People do not like change; they may prefer the status quo. Those affected may raise minor objections and delay the project, or worse still, they may refuse to accept the project or the change. The consequence of this is that the project flounders. Note that those affected may not be within the organisation; they could be customers or suppliers in the external environment.

To understand the project impact on people it must be seen from their perspective and an understanding of the culture they live in is essential. To experience their culture one has to empathise and in fact become one of them. Thus, having to put oneself in their shoes understand how one would feel if one were on the receiving end; understand what is reality to them. They may be simply misinformed or their resistance could be more deeply rooted. By getting people involved as early on as possible in the project process one can obtain feedback and problems can be detected and any signs of concern that could lead to problems later on are more visible. The aim of sound communication is to build a bond of mutual understanding. Once this bond has been established, it has to be maintained. This means being honest and this demands sharing bad news as well as good news. People do not like being kept in suspense; and they certainly do not like surprises. The secret of success is to anticipate problems, to look for early signs of things out of the ordinary and to have a process to handle and resolve them successfully.

2.3.3.8 Project review and learning

The ideal time to undertake a formal review of the project is when the experiences of the project are still fresh in everyone's mind. Ideally, this review should occur before the project is signed off. To conduct a proper project review it is essential to have all those with a vested interest attend (this includes the sponsor, the project manager, the project office manager, the communications manager, someone from the area in which the project is effected, any supplier involved, etc.). The purpose of the review is to ensure that the process was followed. This includes checking whatever the sanction process was adhered to, project management and control was effective, risk was managed, communications were effective, the appropriate project documentation was produced, the agreed deliverable and benefits were realised (Hall, 1999).

It is vital that the review is documented, not only to formally record the outcome, but also for the benefit of other projects (they can learn from the experience and apply the lessons learned). It is all about continuous improvement for the overall benefit of the organisation (and this is a must for a 'learning organisation'). Learning is the process by which knowledge is created from experience and the path by which improvement takes place (Bohn, 1994; Fiol & Lyles, 1985). Peters and Homer (1996) emphasize the need for project managers to learn continuously. What is also needed is a set of processes for supporting learning among project team members (Kotnour, 1999; Deane & Clark, 1997).

The project success factors described above can also be identified in the 'PROPEL' approach in Figure 2.3.

2.4 ORGANISATIONAL CULTURE AND PROJECT MANAGEMENT CULTURE

The concept 'organisational culture' is explored below. This was done to enable the researcher to conceptualise the context in which a project management culture, as a holistic operational culture, has to come into existence. The importance of organisational culture for business success was also investigated to establish the role of culture as a success factor.

It was found, from the body of knowledge in literature, that the concepts 'project culture', 'project management culture', 'project climate' and 'project environment' are interrelated and are often used in the same context.

2.4.1 Organisational culture

There seems to be no clear definition or description of organisational culture. Kroeber and Kluckholn (1952) have identified 164 definitions of culture. Ott (1989) has listed 73 phrases used to define organisational culture as identified from 58 published sources. Lundberg (1990) provides the following comments about organisational culture, referring to it as:

- a shared, common frame of reference (in other words it is largely taken for granted and is shared by some significant portion of members, in the case of this study stakeholders in the project environment;
- acquired and governing (in other words it is socially learned and transmitted by members and provides them with rules for organisational behaviour; in the case of this study the practices and principles of project management);
- a common psychology (it denotes the organization's uniqueness and contributes to its identity);

- enduring over time (it can be found in any fairly stable social unit of any size as long as it has a reasonable history);
- symbolic (it is manifested in observables such as language, behaviour and things which are attributed meanings);
- being at its core typically invisible and determinant (it ultimately consists of a configuration of deeply buried values and assumptions); and
- modifiable but not easily so.

Schein (1990) regards culture as a layered phenomenon, composed of interrelated levels of meanings – from those relatively observable to those mostly invisible. Schein (1985) specifies three levels: artefacts and creations, values and basic assumptions.

Organisational culture refers to a system of shared norms, beliefs, values and assumptions which bind people together, thereby creating shared meanings. Customs, norms and habits that exemplify the values and beliefs of the organisation manifest this system. Culture reflects the personality of the organisation and, similar to an individual's personality, can enable us to predict attitudes and behaviours of organisational members. Culture is also one of the defining aspects of an organisation that sets it apart from other organisations even in the same industry (Ball & Asbury, 1989).

To be effective, an organisational culture requires consistency among its various dimensions. In addition, each type of organisational culture reflects a socially constructed, stable sense of what an organisation is and should be. Each represents what certain groups of people think when they hear the word 'organisation', or when they consider which organisations are 'good'. Culture is a characteristic of the organisation, not of individuals, but it is manifested in and measured from the verbal and/or non-verbal behaviour of individuals - aggregated to the level of their organisational unit. People who

hold a common conception of what the organisation should be and how work should be organised tend to create an organisation that realises that conception. An individual who joins that organisation tends to become socialised to that conception and comes to perceive the way work is conducted as appropriate and natural (Deal & Kennedy, 1982).

Organisations can produce a culture within themselves. Researchers that hold this view of culture generally have a systems theory approach. Typical variables that are considered in this research tradition are structure, size, technology and leadership patterns in an organisational environment. The overall systemic balance and effectiveness of the organisation is in some way attributed to the organisational culture (Smircich, 1983).

Gordon (1991) suggests that the nature of an industry has an important influence on corporate culture. If an industry's environment changes it results in a dysfunction between and organisation's culture and industry demands. Thus corporate culture is strongly influenced by the characteristics of the industry in which an organisation operates.

2.4.1.1 Dimensions in Organisational Culture

According to Gray and Larson (2000:236-237), research suggests that there are ten primary characteristics which capture the essence of an organisation's culture. The key dimensions of an organisation's culture (also see Figure 2.6) are the following:

- member identity – the degree to which employees identify with the organisation as a whole rather than with their type of job or field of professional expertise;

- team emphasis – the degree to which work activities are organised around groups rather than individuals;
- management focus – the degree to which management decisions take into account the effect of outcomes on people within the organisation;
- unit integration – the degree to which units within the organisation are encouraged to operate in a co-ordinated or interdependent manner;
- control – the degree to which rules, policies, and direct supervision are used to oversee and control employee behaviour;
- risk tolerance – the degree to which employees are encouraged to be aggressive, innovative, and risk-seeking;
- reward criteria – the degree to which rewards such as promotion and salary increases are allocated according to employee performance rather than seniority, favouritism, or other non-performance factors;
- conflict tolerance – the degree to which employees are encouraged to air conflicts and criticisms openly;
- means versus end orientation – the degree to which management focuses on outcomes rather than on techniques and processes used to achieve those results; and
- open-systems focus – the degree to which the organisation monitors and responds to changes in the external environment.

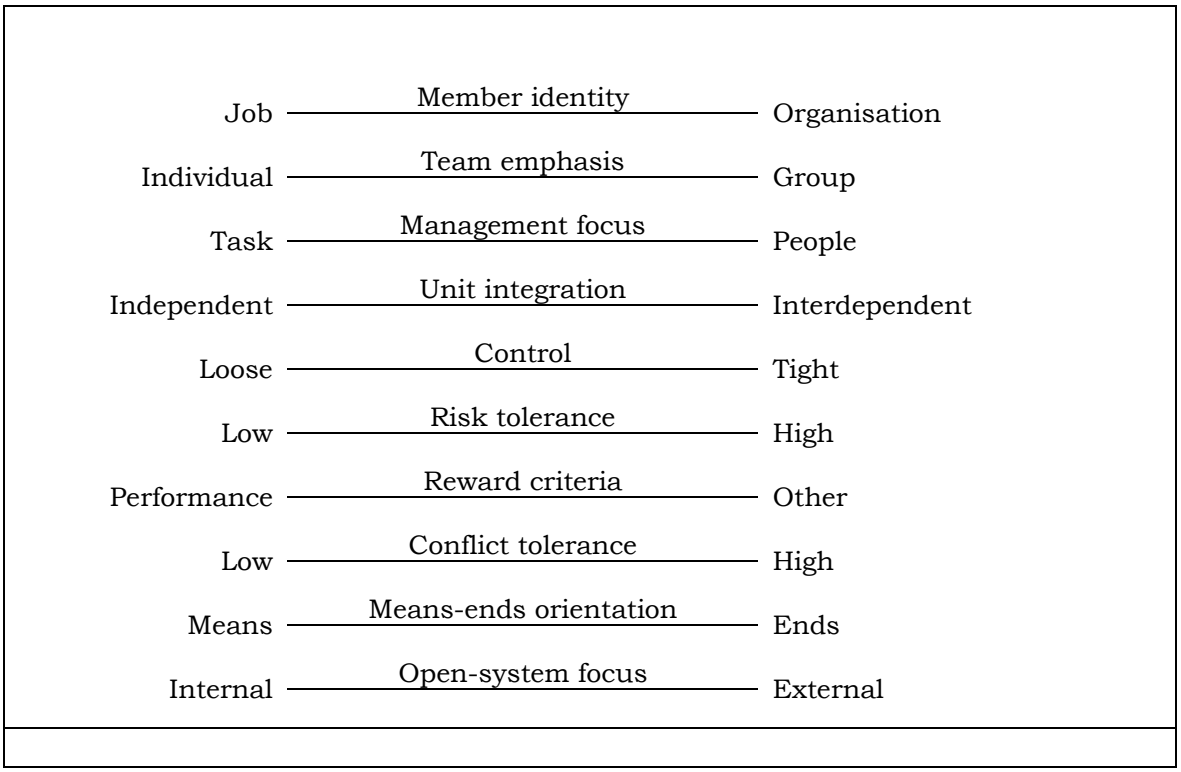

Figure 2.6 Key dimensions defining an organisation's culture

Hofstede (1998) have identified six dimensions of (perceived) practices of culture in a cross-organisational factor analysis study of 20 organisational units:

- Dimension 1: process-oriented vs. results-oriented
- Dimension 2: employee-oriented vs. job-oriented
- Dimension 3: parochial vs. professional
- Dimension 4: open system vs. closed system
- Dimension 5: loose vs. tight control
- Dimension 6: normative vs. pragmatic

These dimensions can be briefly described as follows:

Dimension 1 explores the differences between a concern with means and a concern with goals. The three key items show that, in process-oriented cultures, people perceive themselves as avoiding risks and expending only a limited effort on their jobs, while each day is pretty much the same. In a results-oriented culture, people perceive themselves as being comfortable in unfamiliar situations and putting in a maximum effort, while each day is felt to bring new challenges.

Dimension 2 explores the differences between a concern for people and a concern for getting the job done. The key items selected show that, in employee-oriented cultures, people feel that their personal problems are taken into account, that the organisation takes a responsibility for employee welfare, and that important decisions tend to be made by groups or committees. In the job-oriented units, people experience a strong pressure to get the job done. They perceive the organisation as only being interested in the work employees do, not in their personal and family welfare; and they report that important decisions tend to be made by individuals.

Dimension 3 compares and contrasts units whose employees derive their identity largely from the organisation with units in which people identify with their type of job. The key questions show that members of parochial cultures feel that the organisation's norms cover their behaviour at home as well as on the job. They feel that in hiring employees, the company takes their social and family background into account as much as their job competence; and members do not look far into the future (they assume the organisation will do this for them). Members of professional cultures, however, consider their private lives to be their own business. They feel that the organisation has hired them on the basis of their job competence only, and they think far ahead.

Dimension 4 looks at the differences between open and closed systems. The key items show that in open system units members consider both the organisation and its people to be open to newcomers and outsiders; almost anyone would fit into the organisation, and new employees need only a few days to feel at home. In closed system units, the organisation and its people are felt to be closed and secretive, even in the opinion of insiders. Only very special people fit into the organisation, and new employees need more than a year to feel at home.

Dimension 5 looks at the amount of internal structuring in the organisation. According to the key questions, people in 'loose control' units feel that no one thinks of cost, meeting times are only kept approximately, and jokes about the company and the job are frequent. People in 'tight control' units describe their work environment as cost-conscious, meeting times are kept punctually, and jokes about the company and/or the job are rare.

Dimension 6, finally, deals with the popular notion of 'customer orientation'. Pragmatic units are market-driven; normative units perceive their task towards the outside world as consisting of the implementation of inviolable rules. The key items show that, in the normative units, the emphasis is on correctly following organisational procedures, which are more important than results; in matters of business ethics and honesty, the unit's standards are felt to be high. In pragmatic units, there is a strong emphasis on meeting customers' needs, results are more important than correct procedures, and in matters of business ethics, a pragmatic rather than a dogmatic attitude prevails.

In terms of the above dimensions it is possible to distinguish between different types of organisational culture by utilising assumptions about work means and assumptions about work ends. The focus will be on work means.

The assumptions about work ends deal with issues related to organisational performance and productivity concerns.

Work means assumptions can be divided into two areas:

- structural and organisational design elements; and
- people-related elements.

The structural concerns and organisational design elements are

- division of labour. This concerns the degree to which it is thought, at one end of the spectrum, that jobs should be highly specialised and formalised, or, at the other, that they should be varied and flexible. It also concerns the hierarchical nature of the relationship among jobs - that is, how much power and autonomy should be allotted to different positions.

- locus of identification and involvement. This focuses on employees' commitment to the organisation. The level of commitment can range from superficial and instrumental to internal and personal. The object of commitment can take many forms: it can be the organisation itself, the business unit, the boss, the profession, the client, the product, or the systems of the organisation.

- main control mechanism. This refers to the ways the organisation and its management ensure that employee actions contribute to organisational objectives and that the efforts of various units are co-ordinated.

- information flow. This refers to the degree to which information should either flow freely or be withheld, and the legitimacy of informal communication.

Concerns related to the people side of the organisation are the following:

- power base. This refers to the foundations of power in the organisation. It is concerned with the legitimacy of power and indicates what kind of power is acceptable to the members of the organisation and why.

- career plan and basis for promotion. This identifies the career paths valued within the organisation and the criteria used to facilitate or hinder the clearing of various vertical or lateral professional hurdles.

- conflict identification and resolution. This refers to the dominant or accepted criteria used in the organisation to label an incident as a conflict and to identify acceptable ways of resolving it.

2.4.1.2 The importance of an Organisational Culture

Peters and Waterman (1982) told managers that the key to organisational success lay in having a strong culture. This resulted in an upswing in interest in an organisational culture (Lewis, 1996a).

Culture performs several important functions in organisations. An organisation's culture provides a sense of identity for its members. The more clearly an organisation's shared perceptions and values are stated, the more strongly people can identify with their organisation and feel a vital part of it. Identity generates commitment to the organisation and reasons for members to devote energy and loyalty to the organisation.

An organisational culture helps legitimise the management system of the organisation. Such a culture helps to clarify authority relationships and provides reasons for why people are in a position of authority and why their authority should be respected. Furthermore, an organisational culture, through organisational myths, stories and symbols helps people to reconcile incongruities between ideal and actual behaviour.

Most importantly, organisational culture clarifies and reinforces standards of behaviour. It helps people to define what is permissible as opposed to inappropriate behaviour. These standards span a wide range of behaviour from dress code and working hours, to challenging the judgement of superiors and collaborating with other departments. Ultimately, an organisational culture helps create social order within an organisation and influences performance (Zwell, 2000). The customs, norms and ideals conveyed by the culture of an organisation provide the stability and predictability in behaviour that is essential for an effective organisation.

Although this discussion of organisational culture may appear to suggest that one culture dominates in an entire organisation, in reality this is rarely the case. 'Strong' or 'thick' are adjectives used to denote a culture in which an organisation's core values and customs are widely held and widely shared within the entire organisation. Conversely, a 'thin' or 'weak' culture is one that is not widely shared or practised within a firm.

Even within a strong organisational culture, there are likely to be subcultures often within specific departments or speciality areas. Similarly, countercultures can emerge within organisations that reflect a different set of values, beliefs and customs – often in direct contradiction to the culture espoused by top management. How pervasive these subcultures and countercultures are affects the strength of the culture of the organisation

and the extent to which organisational culture influences members' actions and responses (Gray & Larson, 2000).

Martins and Terblanche (2003) describe the roles that organisational culture play in an organisation. It can be divided into the *functions* of organisational culture and the *influence* that organisational culture has on the different processes in the organisation.

The functions of organisational culture as discussed by Furnham and Gunter (1993) are internal integration and co-ordination. Internal integration can be described as the socialising or orientation of new members in the organisation, creating the boundaries of the organisation, a feeling of identity among employees and commitment to the organisation. The co-ordinating function refers to creating a competitive edge, making sense of the environment in terms of what is required as acceptable behaviour and social system stability 'which is the social glue that binds the organisation together' (Martins, 2000).

Organisational culture offers a shared system of meanings which forms the basis of communication and mutual understanding. If an organisational culture does not fulfil these functions in a satisfactory way, the culture may significantly reduce the efficiency of an organisation (Furnham & Gunter, 1993).

Organisations use different resources and processes to guide behaviour and change. Organisational culture complements rational managerial tools by playing an indirect role in influencing behaviour. Organisational culture epitomises the expressive character of organisations: it is communicated through symbolism, feelings, the meaning behind language, behaviours, physical settings and artifacts. Rational tools and processes like strategic direction, goals, tasks, technology, structure, communication,

decisionmaking, co-operation and interpersonal relationships are designed obtain results.

The expressive practice of organisational culture is more a reflection of a way of saying things (Coffey, Cook & Hunsaker, 1994). Organisational culture fills the gaps between what is formally announced and what actually takes place. It pushes the strategy of the organisation into the desired direction (Martins, 2000).

2.4.2 Project management culture

Project management culture has been described by various authors, including, Wang (2001), Gray and Larson (2000), Kerzner (2000), Graham (1993), Hobbs and Menard (1993), Harrison (1992), Firth and Krut (1991), and Cleland (1982). However, none of these authors have clearly defined the concept 'project management culture' as a holistic, systemic phenomenon. To some degree, several of them, regard project management culture as the culture of the project management profession or the project team. Hobbs and Menard (1993:96) refer to a 'project management culture as a system of attitudes and behavior patterns'. Cleland (1982:181) states: 'Taken in its cultural context, project management is a complex whole that includes knowledge, belief, skills, attitudes, and other capabilities and habits acquired by people who are members of some project society'.

However, most of the above authors use the term 'project management culture' or other similar terms in the sense of a sub-culture in an organisation instead of the operational culture of the organisation. It is used to support the successful management of projects as a holistic phenomenon. Wang (2001) has developed a project culture definition and description for the project management profession. Duncan (2001) has developed a project management culture model which provides a mechanism to assess how

'project friendly' an organisation is; and Kerzner (2000: 212) refers to 'corporate cultures for project management'.

Some authors (Gray & Larson, 2000; Graham, 1993; Hobbs & Menard, 1993; and Firth & Krut, 1991) have indicated some work-related values and beliefs as dimensions of a project management culture, for example:

- Project management is results-oriented.
- It is pre-occupied with the integration of various efforts and disciplines.
- Uncertainties and changes are taken as a way of life.
- Temporary situations and relationships are normal.
- People's status comes from what they do rather than who they are.
- Speed, flexibility, and lateral communication are emphasised.
- Teamwork is highly valued.
- People are task-oriented rather than authority-oriented.
- Indefinite and inadequate authority is not unusual.

Gray and Larson (2000) attempt to give meaning to the concept as described in the following riverboat trip metaphor:

> 'Culture is the river and the project is the boat. Organising and completing projects within an organisation in which the culture is conducive to project management is like paddling downstream. Much less effort is required, and the natural force of the river generates progress towards the destination. In many cases, the current can be

> so strong that steering is all that is required. Such is the case for projects that operate in a project-friendly environment *where teamwork and cross-functional co-operation are the norms, where there is a deep commitment to excellence, and where healthy conflict is voiced and dealt with quickly and effectively'.*

Conversely, trying to complete a project in an organisation in which several important features of the dominant culture inhibit effective project management is like paddling upstream; much more time, effort, and attention are needed to reach the destination. This would be the situation in cultures that *discourage teamwork and co-operation, that have a low tolerance for conflict, where risks are to be avoided, and where getting ahead is based less on performance and more on cultivating favourable relationships with superiors*. In such cases, the project manager and her people not only have to overcome the natural obstacles of the project but also have to overcome the prevailing negative forces inherent in the culture of the organisation. Greater project authority and resources are necessary to complete the projects that encounter a strong, negative cultural current. Conversely, less formal authority and fewer dedicated resources are needed to complete projects in which the cultural currents generate behaviour and co-operation essential to project success. The key issue is the degree of interdependency between the parent organisation and the project team and the corresponding need to create a unique project management culture conducive to successful project completion. *(my emphasis)*

Du Plessis (2001) has defined the concept project management culture as a broader concept inclusive of interdependent parts based on the systems theory.

In view of the literature researched it can be concluded that there is no 'ideal' project management culture, but that there are certain dimensions that can

be utilised to underpin a culture. If the associated descriptive elements of a successful project, project management and organisational culture are taken into consideration it is possible to identify the cultural elements in an organisation that can contribute successfully to a project.

2.4.2.1 Project management culture dimensions and associated descriptive elements

Gray and Larson's (2000:241-243) findings of cultural dimensions supportive of project management are set out in Figure 2.7 and discussed below.

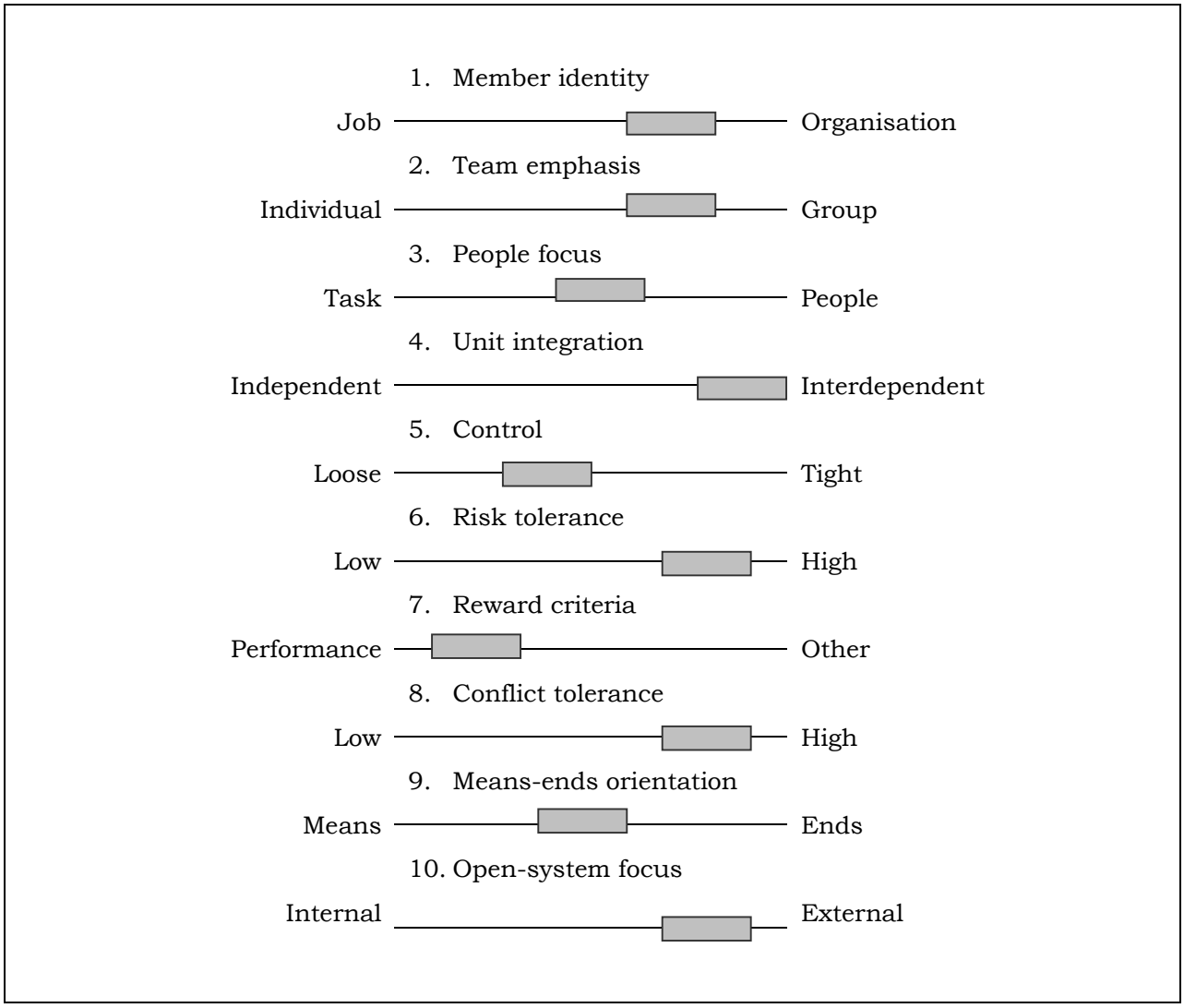

Figure 2.7: Culture dimensions of an organisation supportive of project management

The ideal culture is not at any extreme of these dimensions. For example, a fertile project culture is likely to be one in which management balances its focus on the needs of both the task and the people. An optimal culture would balance concern with output (ends) and processes to achieve those outcomes (means). In other cases, the ideal culture would be at one end of the spectrum of a dimension. Most projects require collaboration across disciplines.

Therefore it is desirable that the culture of the organisation emphasises working in teams and identifying with the organisation, not just the professional domain. Likewise it is desirable that the culture supports a certain degree of risk-taking and a reasonably high conflict tolerance.

In cases where the prevalent organisational culture supports the behaviours essential to project completion, a weaker project management structure can be effective.

When the parent organisation possesses a dominant culture that inhibits collaboration and innovation among disciplines and groups of people, it is advisable to insulate the project team from the dominant culture by creating a self-sufficient, dedicated project team. If a dedicated project team is impossible because of resource constraints, then at least a project matrix should be used where the project manager has centralised control over the project. In both cases, the managerial strategy is to create a distinct subculture within the project team in which a new set of norms, customs and values evolve that are conducive to project completion.

The managerial strategy should be to insulate project work from the dominant culture so that a more positive 'sub-culture' can emerge among project participants. The project management structure of the organisation

and the culture of the organisation are key elements of the environment in which a project is initiated.

Du Plessis (2001) has identified and integrated elements of project management culture based on a triangulation study including a literature study, a qualitative survey questionnaire and a concept mapping technique. The findings of the research by Du Plessis (2001) indicate that a project management culture can be based on four highly interdependent key dimensions, with descriptive elements (as mentioned in the definition earlier in this chapter in Figure 2.2). The four dimensions are:

- the *project process* (what needs to be done);
- the *people and their behaviour* in the project environment (who needs to deliver, to whom - stakeholders and project team);
- the *project structure and systems* (methodology, practices and principles); and
- the *project environment* (internal and external to the project).

These dimensions also form the basis of the model on which this study is conducted.

2.5 ORGANISATIONAL CULTURE ASSESSMENT

Although the concept of organisational culture has been prominent in organisational and management literature since the 1970s (Barley, Meyer & Gash, 1988), researchers still disagree on the best way to measure it (O'Reilly, Chatman & Caldwell, 1991; Rousseau, 1990).

2.5.1 Measuring organisational culture

In the mid-1980s, researchers and practitioners began to question the use of organisational culture information and its applicability as a managerial tool.

This resulted in the first attempts to measure organisational culture quantitatively. Among authors who suggest some use of quantitative measures are Cooke and Rousseau (1988), Reynierse and Harker (1986), Reynolds (1986), and Wiener (1982).

Many researchers have agreed that triangulation (multimethod) is the most accurate way to capture the idiosyncrasies of an organisation's culture, because the vantage point from which one looks at a phenomenon determines what it is that one sees, and no single vantage point provides a complete picture (Faules, 1982; Rodrick, 1988). An intriguing advantage of triangulation is the focus on multimethods (Cheney, 1983; Faules, 1982; Glaser *et al.*, 1987; Jick, 1979; Rousseau, 1990). Triangulation combines the specificity and accuracy of quantitative data with the ability to interpret idiosyncrasies and complex perceptions provided by qualitative analysis (Kreps, 1989). Other researchers have suggested the use of multiple methods (Reynierse & Harker, 1986; Rousseau, 1990), but these methods have been described as complex, expensive and time-consuming.

The literature suggests that questionnaires can play an important role in the quantitative analysis of organisational culture (Reichers & Schneider, 1990; Rousseau, 1990).

Meek (1988) argues that organisational culture is an all-encompassing concept that needs to be broken up into manageable proportions for study. Grundy and Rousseau (1994) make the point, more over, that Schein's (1985) model of culture (often used as basis for organisational culture research) implies a complex, multilevel phenomenon that can be construed in many different ways.

Schein (1985) suggests that organisational culture has three levels

> The levels range from visible artifacts and creations to testable values and lastly to invisible and even preconscious basic assumptions. It is his view that all three levels must be studied to achieve a complete view of an organisation's culture
>
> In view of this complexity this study agrees, with Marcoulides and Heck's (1993) view that the delineation of an organisations culture's parameters must start with a realistic admission of its limitations.
>
> The limits of a quantitative study of organisational culture are set out in Smircich's (1983) description of two aspects of organisational culture: it is something an organization *has* and it is something an organization *is*. This research study regards culture primarily as something that an organisation *has*.

The most appropriate means of assessment of organisational culture according to Rousseau (1990), depends on the cultural level to be examined. It is generally agreed that surveys represent an efficient and standardised means of tapping the shallower levels of Schein's typology, which are the artifacts and testable values. The deepest level of culture which is the basic assumptions, on the other hand, can be investigated only through more intensive observation, focused interviews and the involvement of organisational members in self-analysis (Ott, 1989; Rousseau, 1990; Schein, 1990). The thrust of this argument is that there is a clear and continued role for quantitative measures as a means to assess the less abstract levels of organisational culture.

Deal and Kennedy (1982) propound a different view, namely that there may be grounds for maintaining that the three levels of culture described by Schein (1985) are unified, especially when a culture is strong. A 'strong'

culture is described by Deal and Kennedy (1982) as an organisational culture with a consensus on values that drive the organisation towards performance. In this case, quantitative measurements of organisational culture may have the potential to tap deeper levels of culture (Ott, 1989; Rentsch, 1990). It has even been mentioned that organisational culture may be rooted in perceived practices rather than in values (Hofstede & Neuijen, 1990), and therefore offers a window into the operating environments of organisations. Although this conclusion may be caused by the relatedness of practices and the values they reflect, such questions serve to emphasise further the potential of quantitative measures to increase the understanding of organisational culture.

Ashkanansy, Broadfoot, and Falkus (2000a) note that the nature of survey methods render them especially useful for organisational culture research. Self-report measures have been found to offer internal credibility to organisational members, which is likely to increase the likelihood that members will accept the results of the survey. Researchers such as Cheney (1983), Faules (1982), Glaser *et al*. (1987), Jick, (1979), Reichers & Schneider (1990), Cooke & Rousseau (1988), Rousseau (1990) and Xenikou and Furnham (1996) have cited numerous other advantages of survey assessment and of quantitative techniques generally. These include allowing replication and cross-sectional comparative studies, providing an accepted frame of reference for interpreting data, helping the evaluation and initiation of culture change efforts in organisations, and providing data that can be analysed through multivariate statistical techniques.

2.5.2 Survey methods for measuring organisational culture

The interest in organisational culture noted by Barley *et al*. (1988) has given rise to a variety of questionnaires designed to assess organisational culture.

There are significant differences between them. There is a lack of consensus concerning questionnaire format or style (Frost, Moore, Louis, Lundberg, and Martin, 1991; Ott, 1989; Rousseau, 1990). The lack of a theoretical basis for many of these instruments is further cause for concern on the part of cultural researchers and practitioners.

Ashkanasy *et al.* (2000a) have compared a diverse range of instruments and have classified 18 instruments published from 1975 to 1992. They also present a new typology for the classification of culture measures and have reviewed a wide range of organisational culture surveys. They sought to present them in a consistent framework that would allow for comparison. Surveys can be classified as either *typing* or *profile* scales.

Typing surveys are those that are those that classify organisations into particular taxonomies. They use standardised instruments to yield discrete sets of organisational culture 'types'. Usually, the types are accompanied by detailed descriptions of the behaviours and values associated with them (for example, Myers-Briggs). Thus typing allows respondents to understand the consequences of their type-category membership and also to compare their types with others). The work of Cooke and Rousseau (1988), for example, suggests that typing can help managers to articulate their visions of change, expressing them in terms of behaviours needed from organisation members. The use of typing is also beneficial for tracking the process of cultural change in organisations (Ashkanasy & Holmes, 1995).

Typing surveys identify organisations as belonging to one of several possibly mutually exclusive categories. The typing approach is subject to the following *limitations*:

- Typing implies discontinuous categories, something that is difficult to sustain on theoretical grounds (Rousseau, 1990).

- Typing implies that all organisations of a particular type are similar, or should be similar, neglecting the unique nature of cultures (Schein, 1985).

- Not all organisations necessarily conform to particular types, since they are unique, whereas others appear to be mixtures of types (Deal & Kennedy, 1982).

Profiling surveys are concerned with describing organisations' cultures by measuring the strengths or weaknesses of a variety of organisational members' beliefs and values. The different scores on several culture dimensions, generated by the varying outcomes for different beliefs and values, provide a profile of an organisation's culture. Profiling surveys differ from typing surveys in that they categorise organisations in terms of multiple categories of norms, behaviours and values or beliefs that are not necessarily mutually exclusive. According to Ashkanasy *et al.* (2000a), profiling surveys can be divided into three subcategories: effectiveness surveys, descriptive surveys, and fit profiles.

- *Effectiveness surveying* is the most prevalent approach, assessing the values that are thought to produce cultures associated with high levels of organisational effectiveness and performance.

- *Descriptive instruments* measure values, but no evaluation of an organisation's effectiveness is made on this basis.

- *Fit profiles* look at the congruence between individuals and the organization.

The three approaches are based on a common notion that important characteristics of organisational culture can be viewed as properties comprising distinct variables that reflect measurable dimensions (Likert, 1967; Schein, 1990).

This study focuses on an effectiveness profiling instrument, which is therefore described in more detail. According to Gordon and DiTomaso (1992), most empirical research has attempted to relate organisational culture to organisational outcomes through an effectiveness trait approach, described by Saffold (1988) as a focus on values that are thought to produce a 'strong' culture. Others, such as Kotter and Heskett (1992), Schein (1985) and Weick (1985), however, have disputed the idea that a stronger organisational culture is necessarily better; they argue that the relationship is contingent on environmental factors. However, effectiveness profiles still constitute an important category of organisational culture measures.

Ashkanasy *et al.* (2000a) describe a few effectiveness profiling approaches:

- Harris and Moran's (1984) survey is the first example of an effectiveness profiling approach. The instrument focuses on the effectiveness of managers and the organisation, including leadership and communication

- Sashkin and Fulmer's (1985) instrument describes the values they measure as those that must be present for the work to get done. These values include attending to people, managing 'hands-on' and believing in a common organisational philosophy.

- Woodcock's (1989) instrument focuses on actions required by management to achieve organisational success. In this instance, strongly held values are seen to be essential to organisational effectiveness.

The literature reveals that little significant development of new survey measures has taken place since 1992. A notable exception is the GLOBE instrument developed for a large cross-national study of organisational culture and leadership as set out in Ashkanasy *et al.* (2000a). The instruments included in the research done by Ashkanasy *et al.* (2000a) represent the work of both academic researchers and consultants. These instruments were published over an 18-year period and were reported in academic journals and popular books. The levels of organisational culture at which they are targeted vary from behaviours to beliefs and values. The instruments vary in format, although most use Likert-style response scales. In terms of validity and reliability, however, only the instruments offered by Cooke and Lafferty (1986) and O'Reilly *et al.* (1991) have been reported as being reliable and possessing consensual, construct and criterion validity.

2.6 DEVELOPING AN ORGANISATIONAL CULTURE ASSESSMENT TOOL

DeVellis (1991:1-2) states that in the 'quantification of a particular phenomenon in research where there are either inappropriate or unavailable measurement tools, the development of a measurement instrument seems to be the only option' (which is the case in this study). The social sciences often measure elusive, intangible phenomena derived from multiple, evolving theories and thus pose a clear challenge to research (DeVellis, 1991:7). Knowledge about the specific phenomenon or construct being studied is probably the most important consideration in developing a measurement scale.

Duncan (1984) argues that the roots of measurement lie in social processes and that these processes and measurement actually precede science: 'all measurement…is social measurement. Physical measures are made for social purposes' (Duncan, 1984:35). Whatever the initial motive of measurement, each area of science develops its own set of measurement procedures. In the social sciences, a typical measurement procedure is the use of questionnaires, and the variables of interest are part of a broader theoretical framework (DeVellis, 1991:3).

The literature reviewed in this chapter reveals a variety of often conflicting theoretical positions and a lack of empirical support for many of the measures of organisational culture. The development of an organisational culture assessment tool which is perceived as a valid tool should clearly reflect the emerging research perspectives on organisational culture.

To overcome negative critiques of organisational culture assessment tools and the dimensions to include in the instrument the literature was surveyed from a multi-disciplinary point of view to ensure a thorough theoretical foundation. The model or framework on which the assessment tool developed in this study is based was derived from intensive previous research by Du Plessis (2001).

Scale development is a complex process. Clark and Watson (1995:309-319) discuss validity and the basic issues in scale development. DeVellis (1991:52-80) comments on the development of a scale instrument using eight steps, which are supported by Clark and Watson (1995). The first two steps are concerned with ensuring substantive validity and the remainder are concerned with structural validity.

Step 1: Determine clearly what is to be measured- (the purpose)

- *A thorough theoretical base must be developed as an aid to clarity.*

The conceptualisation of the phenomenon to be tested or the theoretical framework must be clear and the boundaries of the phenomenon must be identified. If there is no theory available to guide the research, a conceptual framework must be developed before developing the scale instrument. A tentative theoretical model, based on a thorough literature review, must be specified to serve as a guide to scale development. Thinking through and not just about the theoretical issues and understanding the underlying constructs prior to entering into the process of scale construction increases the likelihood that the resulting scale will contribute to theory.

- *Specificity is an aid to clarity.*
  A prediction of a general class of definition (broader description) or a specific (narrow) set of measurement must be done. A scale should be developed by determining beforehand what the intended function thereof is, as well as what it is not, and an active decision should be taken about the specific purpose of the instrument. It is not enough to generate a set of items and then see what they look like after the fact. Scale specificity can vary along a number of dimensions, including content domains, setting (specific environment) or population.

- *Be clear about what to include in a measure, as well as* what to exclude. Thus make sure the underlying construct is well defined and focuses on the main purpose.

Step 2: Generate an item pool

The goal is to arrive at a set of items, some of which indicate a high level of latent variable when endorsed and others with a high level of latent variable when not endorsed. Choose items that reflect the scale's purpose. 'Start with 40 items and end with 10 items' (DeVellis, 1991). However, ensure that the

theoretical construct is not lost because of removing items unnecessarily (Hofstede & Neuijen, 1990). Each content area must be well represented in the initial item pool.

This process of item development is referred to as the 'theoretical-rationale or deductive method' of scale development (Clark & Watson, 1995). An ideal to strive for is that every item should be accounted for based on the theoretical construct to ensure content validity. Good scale construction is an evolving and iterative process.

Items should also be written well, ensuring that the items are easy to read and to comprehend.

Step 3: Determine the format for measurement

Usually two dominant response formats are used in assessments, dichotomous 'true-false or yes-no' scales and the Likert-type rating scales. The Likert–type scale is viewed as a more acceptable and appropriate measurement scale, because it provides a wider choice of options and is thus more reliable and stable. A desirable quality of a measurement scale is variablility. Likert-type scales can be used in different response formats; the most popular of these are:

- the frequency format ('never' to 'always')
- the degree or extent format ('not at all' to 'very much')
- the similarity format ('like me' to 'not like me'), and
- the agreement format ('strongly agree' to 'strongly disagree')

The number of response options included in the Likert-type scale also needs careful consideration to fit the research.

Equal number options can result in respondents' falling on one side, whereas midrange options can result in respondents' choosing the middle option.

Step 4: Have initial item pool reviewed by a pool of experts

It is advisable to have the initial item pool validated by a pool of experts who can add value by:

- confirming or invalidating the inclusion of an item;
- evaluating the items' clarity and conciseness; and/or
- pointing out ways to expand items.

Lawshe's (1975:563-575) quantitative approach to the content validity of items can be applied. The judgment of experts in the field who are subject matter experts is regarded as the highest authority to challenge the 'purported content validity of the test'.

The formula for content validity is expressed as a ratio, the 'content validity ratio, CVR'.

$$CVR = \frac{n_e - N/2}{N/2}$$

Where;

n_e = number of respondents who indicate the item as essential

N= the total number of respondents

The CVR is negative if fewer than half say an item is 'essential', and positive when more than half say it is 'essential'. Thus, the more respondents over 50%, perceive the item as 'essential', the greater the extent or degree of its content validity.

Therefore the content validity ratio (CVR) is an item statistic that is useful in the rejection of specific items from the initial item pool and the computation of the content validity index (CVI) for the whole item pool (the mean of the CVR values retained in the test).

Step 5: Consider the inclusion of validation items

Ensure that the items are valid by conducting applicable validity tests to check:

- content validity (representative sample of items);
- criterion validity (predictive validity, which is more a practical than scientific validity); and
- construct validity (theoretical relationship of a variable to other variables).

Step 6: Administer the items to a development sample

Include the validated items in the questionnaire, together with new items (if applicable) and send the questionnaire out to a sample of subjects. The sample size recommended by DeVellis (1991) as well as Clark and Watson (1995) is around 300 respondents. Make sure the sample is representative of the population under study.

Step 7: Evaluate the items

Evaluate the items to determine which ones to include or retain from the item pool. An inter-item correlation of 0.15 to 0.5 is recommended. The ultimate goal of scale development according to Clark and Watson (1995:316) is to maximize validity rather than reliability. Internal consistency reliability is concerned with the homogeneity of the items comprising a scale and is typically equated with the Cronbach's coefficient alpha, α. Item-scale correlation indicates to what degree items inter-correlate with each other. The items with an alpha correlation of 0.70 and higher are viewed as acceptable regarding reliability, the nearer to 1 the better. If the alpha is negative, something is wrong and reverse scoring or a deletion is advisable.

Step 8: Optimise scale length using factor analysis

At this stage the pool of items should demonstrate acceptable reliability. Factor analysis should be used to optimise the scale length.

Factor analysis is described by Hair, Anderson, Tatham, and Black (1998) as 'a generic name given to a class of multivariate statistical methods whose primary purpose is to define the underlying structure in a data matrix'. Thus its purpose is to construct common underlying dimensions in which the individual items can be grouped. Factor analysis could have an exploratory or confirmatory perspective. Exploratory Factor Analysis (EFA) is useful in searching for structure among a set of variables. Confirmatory Factor Analysis (CFA) assesses the degree to which the data fits the expected structure, as supported by literature or prior research. The stages in factor analysis are clearly depicted and discussed in Hair *et al.* (1998) and shown in Figure 2.8. (The process steps followed in this study are indicated in colour).

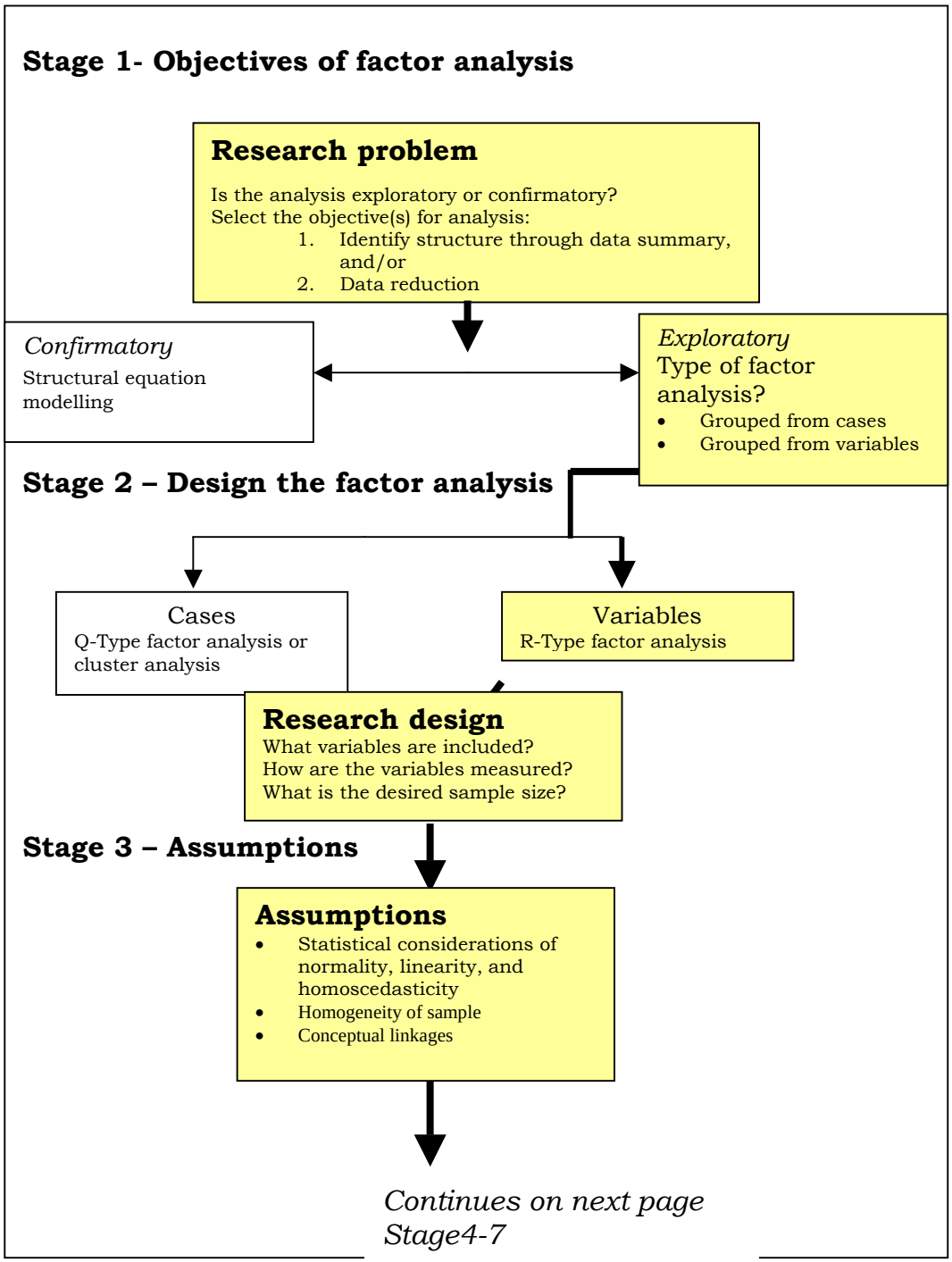
Stage 1- Objectives of factor analysis
Research problem
Is the analysis exploratory or confirmatory?
Select the objective(s) for analysis:
1. Identify structure through data summary, and/or
2. Data reduction
Confirmatory
Structural equation modelling
Exploratory
Type of factor analysis?
Grouped from cases
Grouped from variables
Stage 2 – Design the factor analysis
Cases
Q-Type factor analysis or cluster analysis
Variables
R-Type factor analysis
Research design
What variables are included?
How are the variables measured?
What is the desired sample size?
Stage 3 – Assumptions
Assumptions
Statistical considerations of normality, linearity, and homoscedasticity
Homogeneity of sample
Conceptual linkages
Continues on next page
Stage4-7

Figure: 2.8 continue

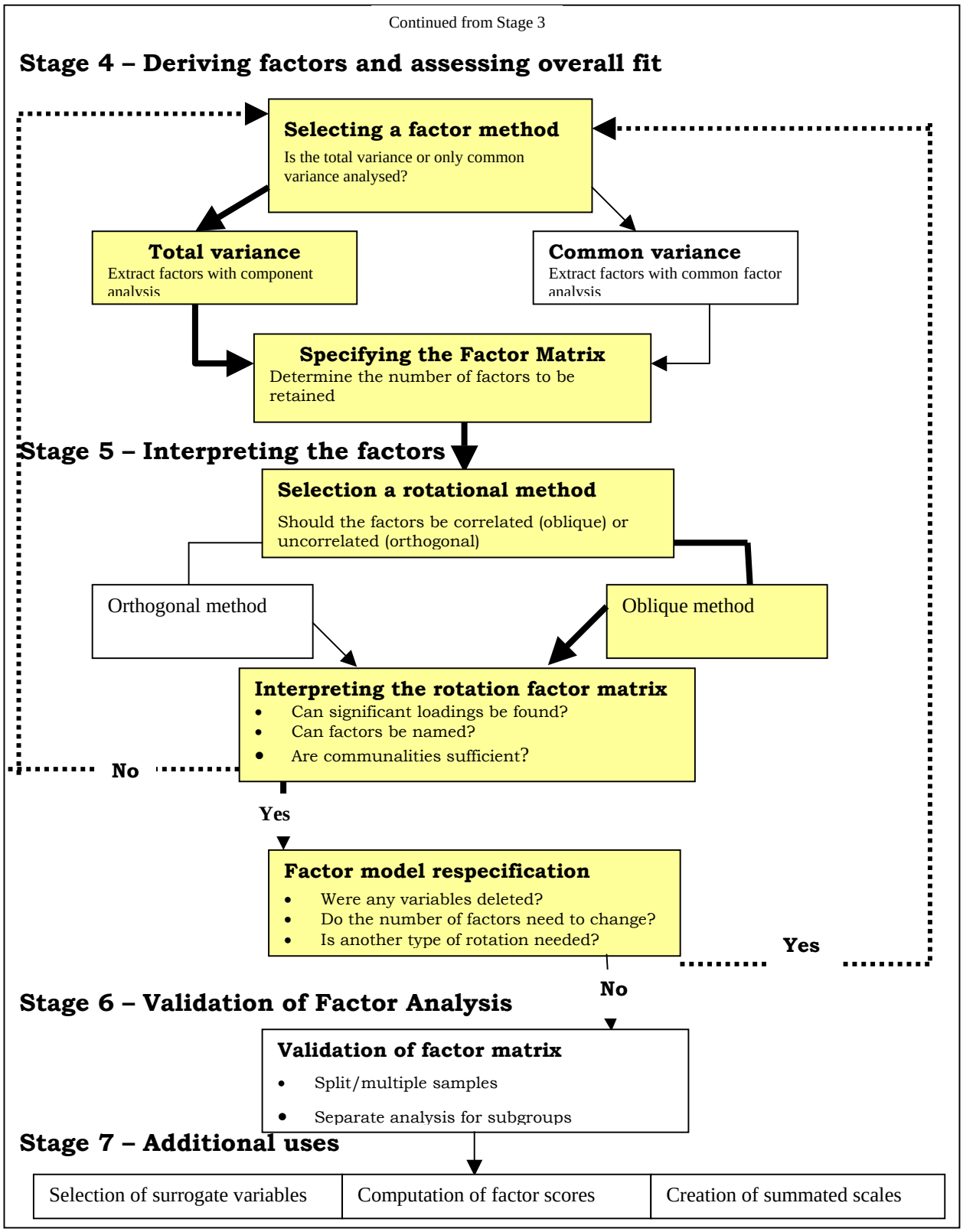

Figure: 2.8: Factor analysis stages 1-7 (adapted from Hair *et al.*, 1998:95-101)

Factor analysis generally requires the number of cases to be much larger than the number of variables, although various authors remain vague on the allowable limit: 'Unfortunately, nobody has yet worked out what a safe ratio of the number of subjects to variables is' (Gorsuch, 1983:332). A ratio of five to ten subjects per item is advised by DeVellis (1991). Kaiser's eigenvalue rule is used to extract the factors that explain more variance. Eigenvalues higher than 1.0 can be considered for the inclusion of a factor.

The reason for wanting a large number of subjects is that factors can become unstable and unduly dependent on the whims of individual respondents. To avoid such pitfalls it is therefore wise to keep the number of factors small, - much smaller than the number of cases and smaller than what is technically possible based on 'eigenvalues' larger than 1.0. Also, one should only consider variables with high loadings on a factor, say over 0.50 or 0.60. However one should keep the underlying theoretical construct in mind (Hofstede & Neuijen, 1990).

2.7 CONCLUSION

The literature studied in this chapter provides a solid foundation for this study and provides information to answer some of the questions and objectives stated in Chapter 1 (see below), as well as substantive information to facilitate the research process involved in the scale development.

- *Is a project management culture, as an operational organisational culture, able to contribute towards business success in organisations that use project work?*

The literature states that organisational culture does contribute towards business success (Turner & Simister, 2000; Ashkanasy, Wilderom, & Peterson, 2000b; Kotter & Heskett, 1992; Furnham & Gunter, 1993), and

that project culture does contributes towards project success (Cleland, 1994; Lientz & Rea, 1999; Gray & Larson, 2000).

- *Is the measurement of organisational culture, and project management culture necessary?*

The measurement of work-based values and corporate culture is central to business improvement and sustainability. If one cannot measure something one cannot monitor its progress as part of organisational management and business process improvement (Maullin & Townsend in http://www.cfoweb.com.au/stories). Knutson (2001) supports the measurement of project management in organisations, because it can result in prolonged utilisation of the philosophy, principles and practices of project management and therefore sustain the profession of project management.

- *What should a supportive organisational culture for optimal project success consist of? (What are the components/elements of a project management culture?)*

Du Plessis (2001) has defined the concept of 'project management culture' and the associated descriptive elements by conducting a triangulation study which includes three phases (Phase 1: Literature Study; Phase 2: Qualitative Dimension-Questionnaire; and Phase 3: Concept Mapping technique).

Sufficient qualitative information was gathered from this research to define the concept 'project management culture' and associated descriptive elements in both a narrow and broad sense. However, the framework of descriptive elements is being verified and analysed by experts, in this case, experienced in the field of project management, as relevant for inclusion in a project management culture assessment tool. The verification and analyses

of the framework and descriptive elements will be discussed in Chapters 3 and 4.

- *How should organisations (those currently engaged in and those that want to apply project work) assess their project management culture?*

Project management is regarded as a holistic and interdisciplinary field, applied in an open system of multiple interdependent parts (sub-systems). The open systems approach (von Bertalanffy, 1950) offers a holistic approach, but also emphasises the interdependence between the different sub-systems and elements in an organisation which is regarded as an open system (French & Bell, 1995). The systems model explains the interaction between organisational sub-systems (goals, structure, management, technology and psycho-sociology). This complex interaction, which takes place at different levels, between individuals and groups within the organisation, and with other organisations and the external environment, can be seen as the primary determinant of behaviour in the workplace. The patterns of interaction between people, roles, technology and the external environment represent a complex environment which influences behaviour in organisations (Martins & Terblanche, 2003:65). In multiple levels these behaviours influence performance and the operating culture of the business, as well as the operating culture in which projects have to deliver outcomes. The operating cultures of organisations can be regarded as a direct function of the assumptions and values shared by members and as important determinants of individual and organisational performance (Ashkanasy *et al.*, 2000).

The key project deliverables are usually measured against specific objectives pertaining to time, cost and quality - the classic project management performance triangle (Turner & Simister, 2000:799), which is technically

biased and not supportive of the holistic approach. The reason for this is that organisational culture in a project environment or a project management culture is new to the field of project management and organisational behaviour. An applicable holistic organisational culture assessment tool has not yet been developed. Such an assessment tool would assist organisations in determining their present compliance or gap with regard to a project management culture from a holistic, open systems point of view, as well as provide a framework of guiding principles to develop a project management culture that could support project work.

In Chapter 3, the rationale for the research methodology is discussed and supported with reference to the relevant literature.