

CHAPTER 3: INTELLECTUAL CAPITAL AND ITS ROLE IN THE KNOWLEDGE ECONOMY

3.1 Chapter overview

The diagram below gives a brief overview of this chapter:

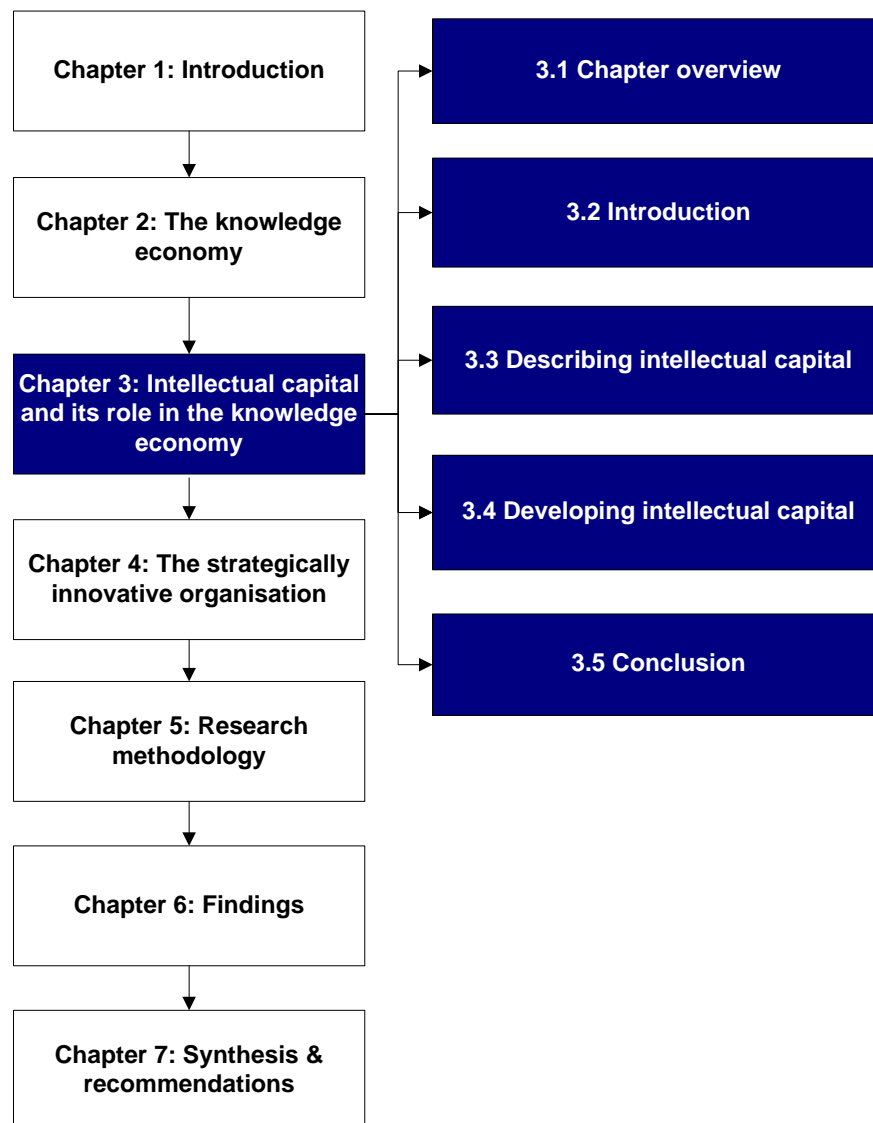


Figure 3.1: Chapter overview

Chapter 2 noted that intangible assets are one of the critical success factors if organisations wish to be competitive in the knowledge economy. One of the major success factors is how an organisation manages and applies its intellectual capital in order to “outsmart” its rivals, i.e. becoming strategically innovative.

The aim of this chapter is therefore to describe the term “intellectual capital” by comparing the different components of intellectual capital, describing the relationships between these components and thereafter sharing some thoughts on managing intellectual capital in the knowledge economy. Some thoughts on developing these different components in the knowledge economy will also be mentioned.

Once the different components of intellectual capital are described, their relevance to creating a strategically innovative environment will be manifested. This is important if organisations wish to stay competitive in the knowledge economy.

3.2 Introduction

Chapter 2 noted that the shift from an industrial economy to a knowledge economy has resulted in companies “winning” or “losing” by means of what they *know* and not what they *have*.

Knowledge has become the currency of the new knowledge economy. In this economy, intangible information and relationship resources are used by companies in order to gain a competitive advantage (see section 2.3). This is in contrast with companies in the industrial economy, where inventories, machinery and property were used to gain a competitive advantage (see table 2.1).

According to Stewart (2001), the term “*intellectual capital*’ seems to have been employed first in 1958 when two financial analysts, describing the stock-market

valuations of several small, science-based companies (Hewlett-Packard, its annual sales then \$28 million, was one of them), concluded, 'The intellectual capital of such companies is perhaps their single most important element' and noted that their high stock valuation might be termed an 'intellectual premium'."

The concept of "intellectual premium" (Stewart, 2001) is also supported by other authors such as Arthur (1996), Edvinsson and Malone (1997), as well as Sveiby (1997). These authors state that the increasing gap between market values and book values, especially in high-tech growth and knowledge-intensive industries, has been as a result of the increasing importance of intellectual capital for these firms. Lev (1989:153-192) and Lev and Zarowin (1999:353) also argue that the major initiators of change are innovative activities. By taking the form of investment in intangible assets such as research and development, information technology, brands and human resources, these innovative activities constantly change an organisation's products, operations, economic conditions and market value.

There is thus a high premium on intellectual capital for organisations to be competitive in the knowledge economy. Rastogi (2000:39-48) refers to this level of competitiveness as an organisation's corporate IQ, i.e. how easily an organisation can share its information and how well the people in the organisation can build on each other's ideas.

In order to shed more light on what is meant by intellectual capital, section 3.3 below will try to describe the term further, by highlighting some of the concepts involved.

3.3 Describing intellectual capital

In order to describe intellectual capital, this section will be broken down into the following subsections:

- The components of intellectual capital
- The relationship between these components
- Managing intellectual capital

3.3.1 The components of intellectual capital

In recent years many authors, researchers, journalists and business people (i.e. Arthur, 1996; Edvinsson & Malone, 1997; Lev, 1989:153-192 and Lev & Zarowin, 1998:353; Rastogi, 2000:39-48; Stewart, 2001; Sveiby, 1997) have formed a general definition of intellectual capital. All these people had one thing in common: How to increase the competitiveness and performance of organisations. Today this is even more true, with organisations constantly trying to stay competitive.

Figure 3.2 below illustrates these views and explains how intellectual capital fits into the overall value of an organisation in today's knowledge economy.

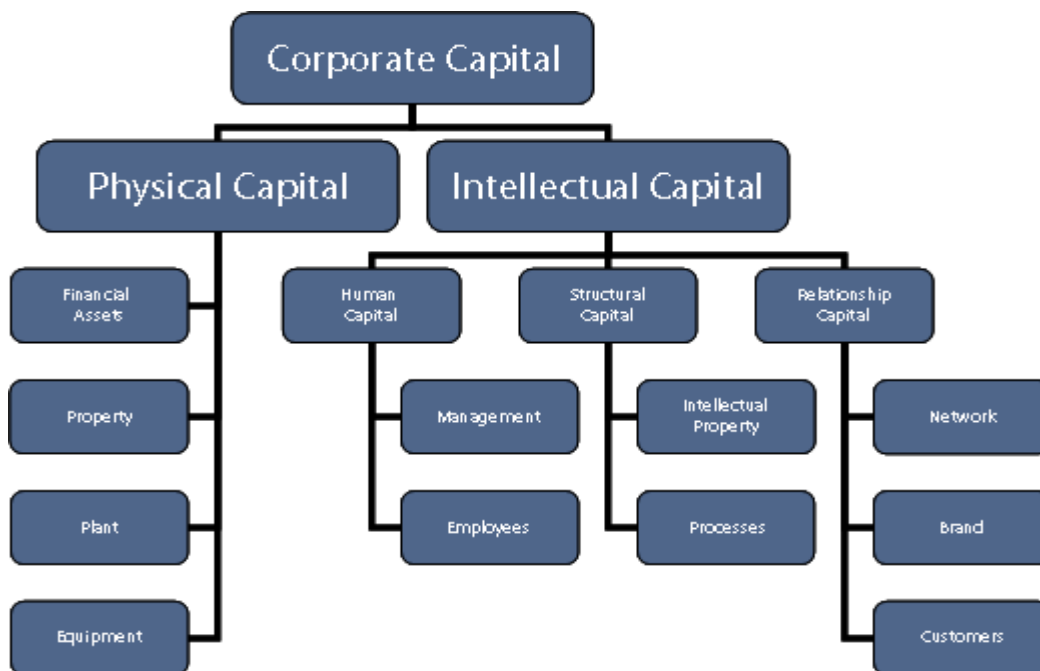


Figure 3.2: Describing intellectual capital in the knowledge economy (Source: Trek Consulting, 2005)

Figure 3.2 illustrates that a distinction is made between physical capital and intellectual capital. This illustration indicates that physical capital and intellectual capital form part of the broader corporate capital. It is this corporate capital that organisations use today to stay competitive in the knowledge economy.

As illustrated, physical capital includes financial assets, property, and plant and equipment, i.e. tangible assets. In contrast, intellectual capital consists of human -, structural - and relationship capital, i.e. intangible assets.

The following subsections will further explain these components of intellectual capital.

3.3.1.1 Human capital

Human capital can be described as the competencies and capabilities of employees (Bontis, 1998:63-75; Edvinsson & Malone, 1997; Sveiby, 2000).

By looking at human capital's description above, one could argue that in a learning organisation (see section 2.5) human capital increases and that an organisation therefore "owns" this asset. This, however, is not necessarily the case, as pointed out by Edvinsson and Malone (1997), who notes that in a free society an organisation cannot own, but only rents its human capital. Sveiby (2000) reiterates Edvinsson and Malone's (1997) statement by arguing that all tangible and intangible assets in an organisation depend on people for their continued existence. This dependency on people highlights the fact that human capital cannot be owned by an organisation but is actually "owned" by the minds of people that entertain their thoughts. It is therefore extremely important for organisations to retain their human capital to prevent them from being uncompetitive in the knowledge economy. This is also referred to as preventing the "brain drain" (chapter 2, section 2.6), which is one of the major challenges facing Africa in the knowledge economy.



In an attempt to define human capital, Bontis (1998) states that human capital is a combination of the following individual aspects:

- genetic inheritance
- education
- experience and
- attitude

Bontis (1998) further sees human capital as the source of innovation and strategic renewal. This view is also supported by Hines (2000). Hines (2000) defines human capital as the combined knowledge, skills, innovation and the ability of a company's employees to complete their daily tasks successfully.

By comparing the similarities between human capital and physical capital, Parnes (1984) further defines the concept of human capital. These similarities are as follows:

- both human capital and physical capital are expensive to attain
- both use resources that could have been used for other purposes
- acquisition of both is to increase productivity
- investment in both can be private or public
- both can be evaluated from an individual, social or a combination of these perspectives

The major difference between physical capital and human capital is that human capital cannot be owned by an organisation (Edvinsson & Malone, 1997). Human capital can only be rented and for this reason it is not as reliable as physical capital. By only being able to rent human capital, organisations are faced with a huge challenge to stay competitive in the knowledge economy. If this is true for developed countries, then the challenge would be even greater for developing countries to capitalise on their human capital (as explained in chapter 2).



For the purpose of this study Hines's (2000) definition of human capital will be adopted. For this reason it can be argued that the value of human capital will increase when:

- employees are continually trained and their skills are honed
- the potential of employees is harnessed and guided
- opportunities are created where people can learn from one another
- learning is captured for the benefit of those who were not initially involved in the learning process
- the organisation's environment is conducive for all of the above to take place

The points above all relates to the importance of learning in an organisation as a success factor for building a strategically innovative environment as was also mentioned in chapter 2.

This view of Hines (2000) is also supported in chapter 2 (figure 2.6), where the value of constant feedback was noted. This feedback is necessary for individuals and organisations to constantly make the correct decisions and adapt to change, i.e. to innovate, thus staying competitive in the knowledge economy.

To be innovative is also emphasised by Bontis (1998) who sees human capital as a source of innovation. Continued innovation will result in an increase in structural capital (Edvinsson & Malone, 1997 and Sveiby, 1998). Part of good leadership is to ensure that structural capital is expanded at every opportunity. In the next section structural capital will be described.

3.3.1.2 Structural capital

The Swedish insurance company Skandia has done missionary work by becoming the first company ever to publish an intellectual capital supplement to its annual financial report in 1995. According to this ground-breaking

organisation, structural capital is everything that is left, after the employees have left. For this reason Skandia defines structural capital as the result of all intellectual activities that were captured in data and knowledge bases, documents, models and drawings (Edvinsson & Malone, 1997).

Knowledge is thus rooted in things such as data and knowledge bases, documents, models and drawings. All this embedded knowledge makes structural capital identifiable in an organisation and provides the means to measure and build intellectual capital in an organisation.

Skandia visualised intellectual capital and its value creating potential internally. For it to do this, it created a framework called the Skandia Navigator (figure 3.3 below).

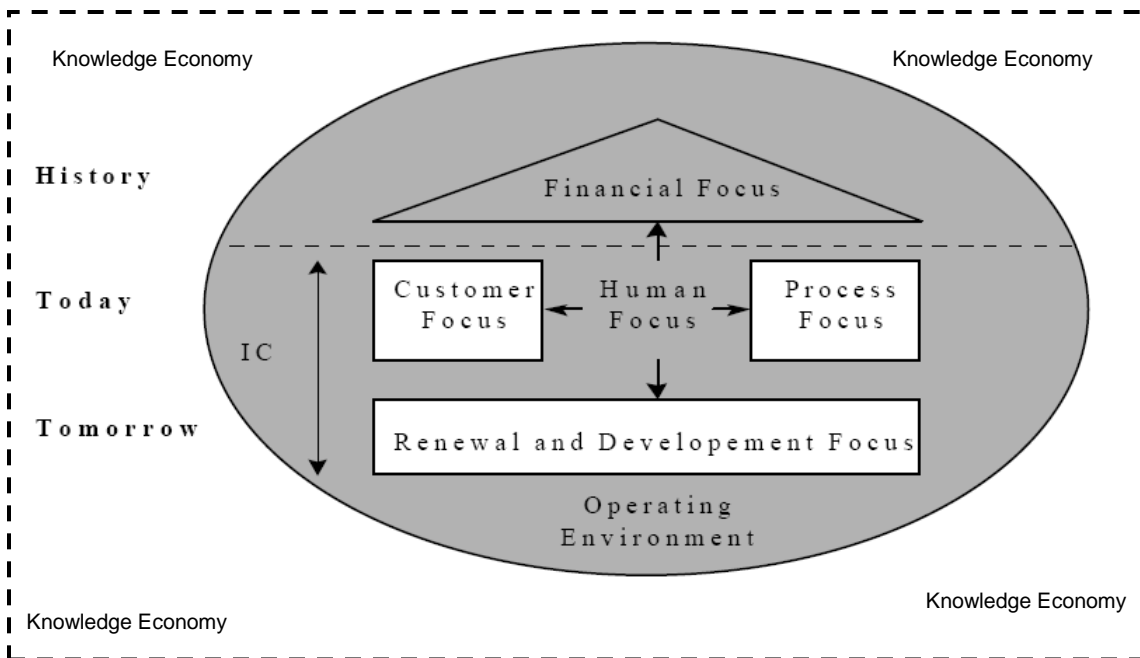


Figure 3.3: Measuring intellectual capital in the knowledge economy: The Skandia Navigator (Adapted from: Rylander *et al.*, 2000:715-741)

Skandia used the Navigator above to measure the importance of intellectual capital in its organisation with great success. This Navigator was therefore used as a tool to measure its competitiveness in the knowledge economy as well as

the relation between the different components of intellectual capital, i.e. structural capital in this case.

Bontis (1998) supports this view of Skandia by defining structural capital as “*the mechanisms and structures of an organisation that help support employees in their quest for optimum performance*”. Bontis (1998) advises that if an organisation’s employees have the motivation and direction, but lack structure, the overall intellectual capital in that organisation will not reach its full potential.

This view of Bontis (1998) that an organisation needs a strong “structure”, i.e. must have sufficient structural capital, is also supported by other authors in the field of leadership development. Groenewald and Groenewald (2004) note that the greatest challenge for any leader lies in the motivational step of the universal law of movement, i.e. *Moditure* (see figure 3.4). The *moditure experience* is the process of learning how to move people, projects and organisations to become more profitable. The concept can be depicted as follows:

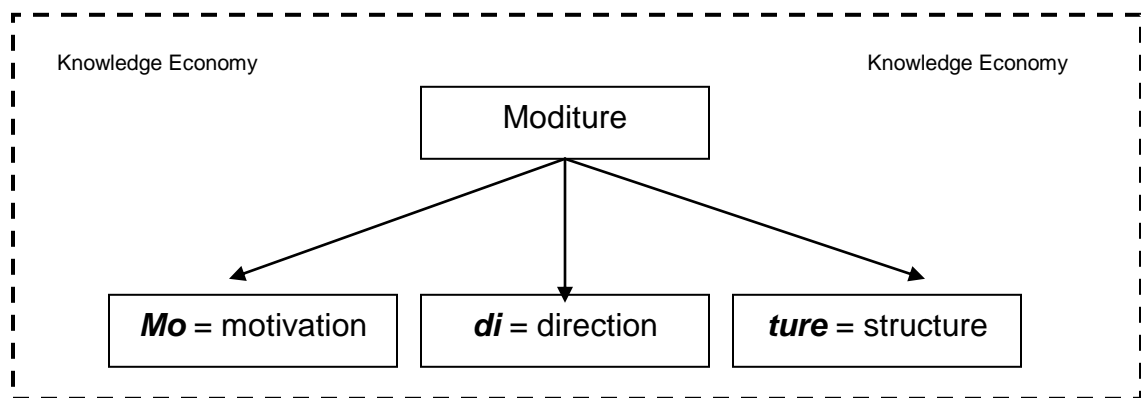


Figure 3.4: Leadership challenges in the knowledge economy (Adapted from: Groenewald & Groenewald, 2004)

Structural capital, together with motivation and direction, is thus very important for the overall intellectual capital to reach its full potential in an organisation. Groenewald and Groenewald (2004) also observe that the key to motivation, direction and structure in an organisation lies in good leadership and not good

management. This view is also supported by Bolwjin and Kumpe (1998, in Van Hootegem *et al.*, 2005), Kotelnikov (n.d.) and Van Amelsvoort (2000) – see chapter 2, section 2.5. These authors are of the opinion that many organisations fail in the knowledge economy, because they are over managed and under led, as stated in chapter 2.

It is argued by Bontis (1998) that an organisation with strong structural capital will create an environment where individuals can try new things, make mistakes, learn from these mistakes and try again and be innovative. Innovation will therefore ensure that the organisation stays competitive in the knowledge economy. It is, however, extremely important that these efforts be captured in order to prevent making the same mistakes over and over again. This feedback process is also referred to by Vermeulen (2007) as the growth loop (chapter 2, figure 2.6).

In order to ensure that employees have easy and fast access to captured knowledge in the knowledge economy, structural capital systems must make provision for access to information on three levels, according to Lank (1997). These levels can be illustrated as follows:

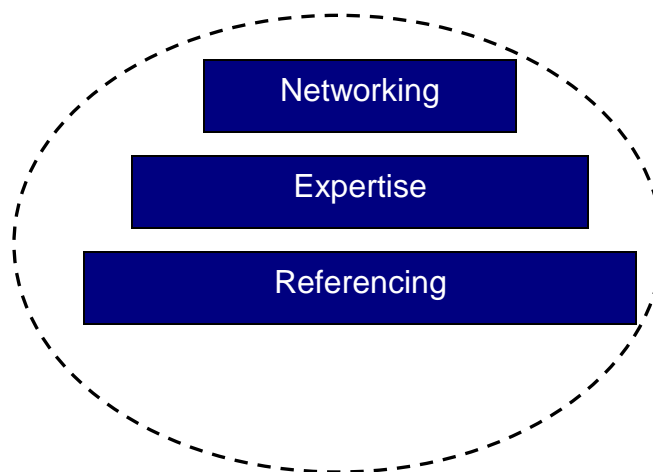


Figure 3.5: Levels of information access in the knowledge economy (Adapted from: Lank, 1997)



Retrieval for **referencing** requires repositories of documents, contracts, lessons learnt etc. These repositories are normally full-text documents in electronic format. This type of knowledge ensures that mistakes of the past are not repeated and that employees can leverage the learning curve for new colleagues.

Retrieval for establishing **expertise** allows employees to find the necessary expertise in an organisation when it is required. It is important to note that employees in this regard need access to tacit knowledge. According to Nonaka and Takeuchi (1995), “*knowledge, expressed in words and numbers, only represent the tip of the iceberg. Knowledge is not easily visible and expressible*”.

Jordan and Jones (1997) also mention that explicit systems tend to record what was done, but not why it was done or the contexts in which it was done.

According to Lank (1997) an effective organisational knowledge base should enable employees to:

- waste less time looking for information or to find access to expertise within an organisation
- improve their own skills and performance through access to knowledge and expertise
- lessen the personal stress levels caused by having too much to do with too little resources

For these reasons a knowledge base is not the same as a database. It is a mix of tacit and explicit knowledge, as depicted by Nonaka and Takeuchi (1995).

The third level of access to information, according to Lank (1997) (figure 3.6) is retrieval for **networking** and just-in-time feedback. Here the organisation should stay in touch with its customers and world-wide experts. This can be done through e-mail and video conferencing. The idea is to break down global barriers of time and geography.



For the purpose of this study structural capital is defined as anything that is left when the people leave.

An important aspect of any organisation is the relationships it builds with its customers in order to become more strategic innovative. Structural capital lays a strong foundation for organisations to build these relationships on. In the next section relationship capital will be defined.

3.3.1.3 Relationship capital

In chapter 2 (table 2.2) it was illustrated that if an organisation wishes to thrive and survive in the knowledge economy, i.e. become more strategic innovative, its structure, systems, people and culture need to be realigned. This will allow the organisation to be competitive at the following levels: price, quality, flexibility and product innovation. It was illustrated that an organisation needs to adopt a structure of networking, i.e. relationship building, and its culture needs to be highly customer focused.

For this reason and for the purpose of this study, relationship capital is equal to customer capital. Duffy (2000) supports this view by arguing that organisations today are challenged to get to know their customers intimately. Organisations do not just need to know about their customers but they need to assess what contribution the relationships with their customers are making towards the achievement of the overall goals.

According to Bontis (1998) the main resource of customer capital is the knowledge of marketing channels and customer relationships. Bontis (1998) states that managers often forget that they can tap into a wealth of knowledge from their own customers. He further notes that customer capital gets more valuable over time and that it is more expensive to retain a customer than to get a new one. This is because the customer is much closer to the organisation

today than in the past. A very important point that Bontis (1998) makes, especially for the purpose of this study, is that the knowledge workers who look after these customers need special attention. This is also pointed out by Vermeulen (2007), who states that employees' emotional intelligence needs to be developed for them to keep growing, i.e. the growth loop (figure 2.6). This is because when knowledge workers leave an organisation, they tend to take their "knowledgeable" customers with them to the next organisation (Ramosedi, 2000). Another reason, according to Ramosedi (2000), why knowledge workers need special attention is that when they leave, it is very difficult to replace them. It is therefore very difficult to build customer capital.

Luckily, according to Sveiby (2000) organisations that are knowledge focused select their customers instead of the other way around. It could therefore be argued that strategically innovative organisations do the same. One of the primary factors for selecting the right customer, according to Sveiby (2000), is for the contribution this customer can make to the organisation at an intangible level. Co-developing products and services and building long-term relationships with customers have therefore become very important in the knowledge economy. One could argue that organisations in today's knowledge economy see competition among them rather in a way best described as "co-opetition" by means of building stronger relationships with one another. Organisations are therefore becoming more strategically innovative by building strong relationships with their customers.

As seen, the concept of customer capital is very difficult to define. For the purpose of this study customer capital is seen as a combination of brands, business collaborations, company names, relationships based on customers and their networks, favourable contracts, value chains, franchising agreements, to name a few.

The section pointed out that the components of intellectual capital do not create value individually, but rather in combination. In the next section the relationship between these components will be described briefly.

3.3.2 The relationship between intellectual capital components

As stated above, the components of intellectual capital work in combination to create value for an organisation (refer to figures 3.2 and 3.3 in the section above), thus making an organisation more knowledge productive. There is therefore a strong relationship between these components. Trek Consulting (2005) summarises these relationships as follows:

- **“People** to create innovation. People are the source of the thinking that creates breakthrough ideas as well as the incremental improvements that lead to continuous improvement”, i.e. human capital.
- **“Mechanisms** to record and share these ideas in the form of instructions, formulas and processes. Sharing ideas enables their value to be replicated throughout an organization—raising the level of everyone’s performance. It also increases the potential for future improvement as more minds are focusing on the same issues”, i.e. structural capital.
- **“Customers** to inspire. Value is only created if there is a willing customer for your ideas. But the relationship with customers in a knowledge company is often more interactive. Instead of being the source of current value, customer needs can be an inspiration for future innovation”, i.e. relationship capital.
- **“Partners** to complement and expand your capabilities. Partners can be suppliers, distributors or service providers. As companies develop a greater understanding of their strongest competencies, many make a choice to ‘outsource’ non-core functions to other organizations”, i.e. relationship capital.

These relationships between the components of intellectual capital can be further illustrated by the following distinction tree (figure 3.6):

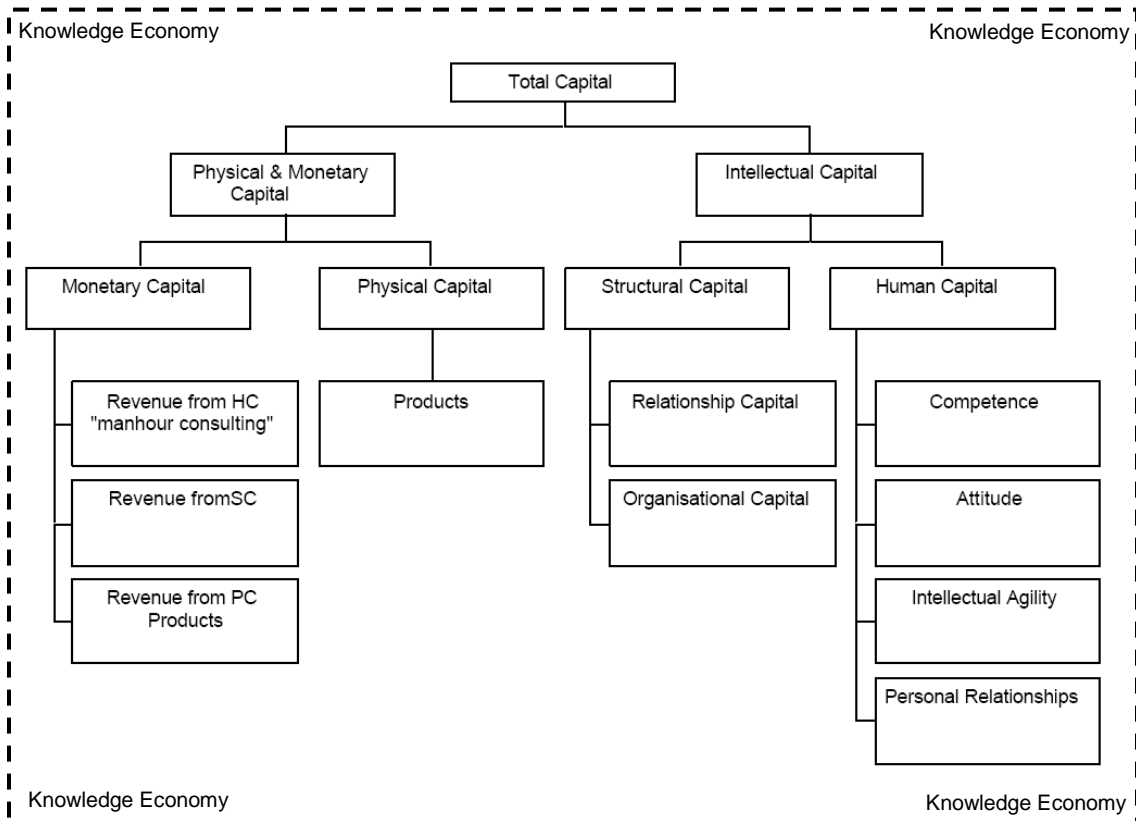


Figure 3.6: Relationship between intellectual capital components in the knowledge economy (Adapted from: Rylander *et al.*, 2000:715-741)

Figure 3.6 above serves as an example of how the different components of intellectual capital, in relation, can contribute to the overall success of an organisation in the knowledge economy. This distinction tree was used by Skandia in conjunction with the *Navigator* (figure 3.3) in order to measure the contribution the different components of corporate capital made to the overall financial results of the company.

This study focussed on the human capital component of intellectual capital (see figure 3.6) as it is believed that that human capital is a catalyst for strategic innovation.

Intellectual capital should also be managed properly in order to allow organisations to become strategic innovative in the knowledge economy. Section 3.3.3 below will briefly look at managing intellectual capital in an organisation.

3.3.3 Managing intellectual capital

As seen from section 3.3.2 above, intellectual capital plays a big role in the overall success of any organisation (refer to figure 3.6 above). Many organisations manage individual components of intellectual capital very effectively. Human capital is, for example, the main focus area of any human resource department; sales are the main obligation of a sales department, and branding, marketing etc. are the obligation of a marketing department.

As one of the critical components of a strategic innovative organisation's success, intellectual capital, however, should also be managed at a strategic, company-wide level. Some of the critical success factors for managing intellectual capital at a strategic level, according to Trek Consulting (2005), are given below:

- Does the organisation have the right business model in order to be competitive in the knowledge economy?
- Does the organisation attract, develop and retain the right people?
- Do an organisation's people share what they learn in order to create structural capital?
- Does the organisation build lasting and effective external relations that build value and knowledge for the organisation?
- Does the organisation stay close to its customer needs?

Effective intellectual capital management will ensure that an organisation becomes smarter and builds on innovations from the past (Trek Consulting, 2005), thus becoming more knowledge productive.

To enable organisations to manage intellectual capital at a strategic level, they need combined information to analyse the bigger picture. In the past organisations relied on financial statements to provide them with this “bigger picture”. Unfortunately financial statements and systems are based on the needs of an old industrial economy. The balance sheet and income statement were used in the industrial economy in order to determine if the organisation was doing well or not, i.e. meet its targets.

Unfortunately intellectual capital cannot be captured by such an accounting model. This was also highlighted by Skandia (refer to section 3.3.1). As stated in section 3.3.1 above, an organisation cannot own its intellectual capital. For this reason intellectual capital cannot fit into an accounting model. A challenge for organisational leaders is therefore to understand what they have, where the organisation is and how to expand the future potential of the organisation.

According to Trek Consulting (2005), there are two alternatives to the traditional accounting model approach:

- **Dashboards or scorecards:** These will compile internally generated data from different departments, e.g. marketing, sales, in order to capture operational indicators that can be measured objectively. A dashboard or scorecard can help an organisation to see intellectual capital and then to link it to the accounting model.
- **Standardised assessment systems:** These tools can help to evaluate the different components of intellectual capital. This type of report captures the experience and understanding of internal and external stakeholders to understand the strength of intellectual capital. Contrary to the balance sheet, an assessment system gives a summary of the type and strength of resources available to the organisation. Unlike a balance sheet, which looks at a single point in time, this approach can also look forward by evaluating risk and innovation processes.

These tools will enable organisational leaders to better understand the impact of the different components of intellectual capital in the organisation and will allow them to improve the performance and value of the organisation (see also figure 3.6).

3.4 Developing intellectual capital

This section argues that developing intellectual capital, especially human capital, is at the heart of creating a strategically innovative environment.

Research conducted by Tebbut (2004) indicates that intellectual capital represents about 78% of the value of the Fortune 500 companies. Tebbut (2004) is of the opinion that any set of software tools cannot make an organisation rich in intellectual capital, but intellectual capital should rather be developed in line with the organisation's strategic priorities.

Tebbut (2004) concurs with the views of Rastogi (2000:39-48) and iterates that the success of developing intellectual capital lies not in an organisation's structures and systems, but in how employees relate to one another, how they work together to learn and how they learn to work together. There is thus a strong emphasis on the role the individual plays in developing intellectual capital. It is therefore the purpose of this section to highlight some of the initiatives to improve and develop intellectual capital by focusing on the role of the individual in the organisation. It is the researcher's opinion that without people intellectual capital cannot be developed and improved.

According to Rastogi (2000:39-48), intellectual capital cannot be harnessed in what the author refers to as an "*an absence of social fabric of virtuous reality*". He explains that this virtuous reality comprises things such as trust and cooperation, sincerity and goodwill, help and care as well as shared values and vision. These traits are all human in nature and Rastogi (2000:39-48) refers to

them as an organisation's "*inner virtuous reality*" which in turn shapes the outer reality of its competitiveness in the knowledge economy.

An organisation's ability to combine, orchestrate and deploy its processes, competencies and innovative strength in a flexible and creative manner represents the effectiveness of its intellectual capital (Rastogi, 2000).

Rastogi (2000) advises that the development of intellectual capital in an organisation does not involve a plan, but that it should rather be a systematic process. This view of Rastogi (2000) that the development of intellectual capital is a systematic process is also supported by various other authors.

Concurring with Rastogi (2000), Schultz, Hatch, Larsen and Mouritsen (2002) conclude that the development of intellectual capital rests on the following four pillars:

1. The relationships between heterogeneous media to promote an organisation's "*aesthetic reflexivity*"
2. "*Games*" played by employees, demonstrating that local creativity produces results relevant to outside factors
3. Accountability between employees who commit "psychic energy" or motivation to identifying and solving problems; people commit themselves to be part of a team
4. Organisational storytelling

These "human" pillars result in organisations becoming expressive in nature. By developing these pillars Schultz *et al.* (2002) point out that expressive organisations create future value.

VanderKaay's paper (2000) on measuring the vital signs of intellectual capital argues that if organisations wish to thrive, i.e. create future value in the knowledge economy, they constantly need to measure their intellectual capital



“vital signs”. These signs then constantly need to be realigned and developed. Although these vital signs might seem to be subjective, VanderKaay (2000) states that when times are tough for organisations, intangibles such as arrogance, complacency and remoteness from customers are often used as common explanations for the organisation’s decline. VanderKaay (2000:18) describes the intellectual capital vital sign scorecard as follows:

1. *“Brand image and reputation”*
2. *“People living the strategy”*
3. *“Great place to work”*
4. *“Deliberately share knowledge”*
5. *“Challenge the status quo”*
6. *“Anticipate the future – action orientated”*
7. *“Net-driven – rethink entire business”*
8. *“Customer empathy”*
9. *“Recognising initiative”*
10. *“Knowledge intensive – learning from multiple sources”*

VanderKaay (2000) also highlights that most leaders in the field of intellectual capital development are still stuck in the Industrial Age, focusing on what is easy to quantify, rather than what really matters to an organisation’s survival in the knowledge economy, as depicted by the “vital sign scorecard” above.

As stated earlier, Rastogi (2000) is of the opinion that a critical success factor for developing intellectual capital lies in how the organisation expects and enables its people to engage in the organisation.

Harrold (2000:63) emphasises the importance of human capital in an organisation too, stating that *“the scarce resource is now human talent, knowledge and creativity”*. He indicates that humans’ ability to imagine, judge, create and to strengthen human relationships are the most essential human traits for increasing an organisation’s economic growth. These human traits are also

highlighted by Rastogi (2000) as critical success factors for development if organisations wish to face up to the turbulence of today's business environment.

According to Rastogi (2000), certain high level initiatives can be employed by organisations wishing to develop their human capital. Continuous learning opportunities should be created for employees by creating a milieu where people can engage in dialogue and enquiry. A sustained manner for collaboration and team sharing should be encouraged and rewarded and tools should be developed to capture and share learning experiences. People should be involved in creating and sharing a collective vision and leaders should be identified and developed who model and support learning at individual, team and organisational level. Individuals should be provided with the opportunity to frequently debate, discuss and clarify for themselves what constitutes knowledge in their areas of work. The focus should be on the flow of knowledge rather than on its stock. Managers should not lose focus on what makes their organisation unique during benchmarking and comparing their organisation to others. A "boundary less" organisation should be created where people can look for ideas from anywhere. A skill-based pay plan should be introduced as part of a wider system of incentives and reward and recognition. Employees should be paid more for developing and mastering new skills that are relevant to the company's strategic goals.

Managers are faced with several challenges in order to promote and develop human capital. Rastogi (2000) feels that the role of managers should be reoriented towards coaching and mentoring. This is in line with authors such as Kotelnikov (n.d.), Mayo (2007:4) as well as Mets and Torokof (2007), who are all of the opinion that the traditional management role has shifted to one of leadership. Maxwell (2005) indicates that the main difference between leadership and management is as follows:

- Management = managing processes.
- Leadership = managing people, i.e. mentoring and coaching.



Rastogi (2000) as well as Mayo (n.d.) advise that management, i.e. leadership, should combine teaching and learning towards helping to identify skill gaps and development of these gaps in order to improve performance. Employees should be motivated to keep up with new developments in their professions. Employees should be enabled to gain insights into organisational goals, performance requirements and their readiness to meet the organisation's expectations. Out of the box thinking, when trying to solve problems should be encouraged and employee's perspective, aptitudes and aspirations should be valued. Performance feedback is essential in treating poor performance. Employees should furthermore be motivated to become responsible for their own personal development.

On the other hand, Lewis (1997) discovered that for human capital to develop successfully, individuals should take ownership of their own development, especially in harnessing the full potential of their brain. He gives the following tips for employees to train their brain:

- Take up mind sports such as chess etc.
- Take up a speed reading course.
- Learn about memory and how to improve it.
- Read more.
- Learn the skill of mind-mapping.
- Learn and develop accelerated learning techniques.
- Learn more about how your brain functions and how to use it better.

It is, however, important to note that all the above require patient efforts from both leadership and employees over time.

What is evident from this section is that without the development of human capital, intellectual capital cannot be improved and developed.



3.5 Conclusion

The aim of this chapter was to describe the term “intellectual capital” by comparing the different components of intellectual capital, describing the relationships between these components and thereafter to share some thoughts on managing intellectual capital in the knowledge economy. Some thoughts on developing these different components in the knowledge economy were also expressed.

It was found that the relationships between the different components of intellectual capital play an integral part in the success of an organisation in the knowledge economy. These relationships also need to be managed and developed if an organisation wishes to stay competitive in the knowledge economy. The development and nurturing of human capital was identified as a major contributor to creating a strategically innovative environment. This “human” factor was also identified in chapter 2 as a critical component in the knowledge economy.

As stated by Van Amelsvoort (2000), an organisation’s performance is determined by a combination of technical and social factors, i.e. people, culture, structure and systems. By combining all these factors, an organisation has a better chance of continuous and sustained improvement and innovation. This continuous and sustained improvement and innovation is extremely important for organisations wish to create a strategically innovative environment.

CHAPTER 4: THE STRATEGICALLY INNOVATIVE ORGANISATION

4.1 Chapter overview

The diagram below gives a brief overview of this chapter:

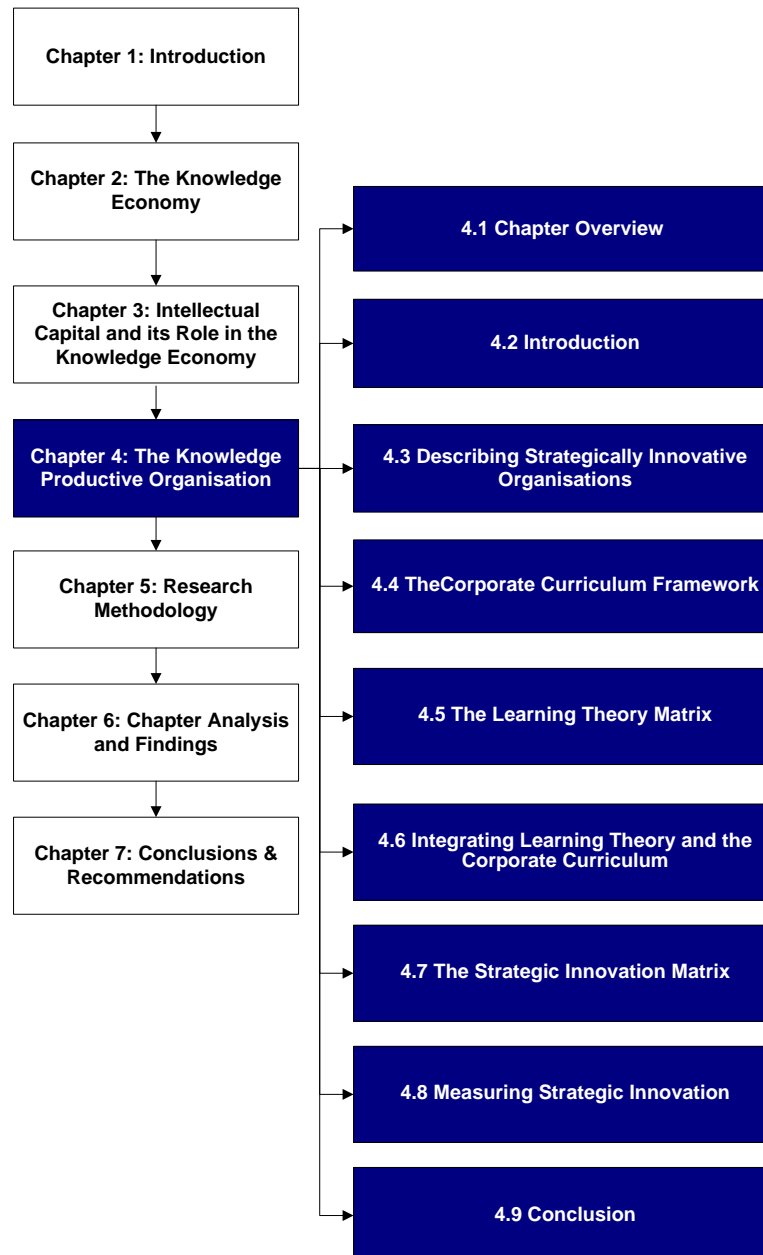


Figure 4.1: Chapter overview

The aim of this chapter is to describe the concept of a strategically innovative organisation.

After a brief introduction, the concept of strategic innovation is discussed. Human capital development through knowledge development is highlighted and the importance of organisational learning as a catalyst to creating a strategically innovative environment is once again emphasised.

After describing the concept of strategic innovation, the term “corporate curriculum” (Kessels, 1996) will be explored. It is important to understand what this curriculum entails as it provides a framework for organisational learning.

After explaining the corporate curriculum, Cronje and Burger’s (2006) matrix on learning will be briefly explained. These two authors proposed a learning matrix for organisations by incorporating learning theory and certain pedagogical dimensions to evaluate an information resource. An information resource, for the purpose of this study, is referred to as an environment conducive to learning as referred to by Harrison & Kessels (2004).

In the latter part of this chapter the corporate curriculum (Harrison & Kessels, 2004), Cronje & Burger’s (2006) matrix on learning theory as well as elements of strategic innovation (Palmer & Kaplan, 2007) are integrated to develop a four quadrant matrix for strategic innovation. Burger & Cronje (2006) matrix on learning theory will be used as a base to develop this new matrix for strategic innovation.

4.2 Introduction

The previous chapters highlighted that the development of intellectual capital is extremely important for organisational survival in the ever-changing knowledge economy. This dependency of a strategically innovative organisation on



intellectual capital is also supported by other authors as depicted in the preceding chapters, where it was expressed that the “human factor” is especially important due to the fact that knowledge resides in people and that this knowledge is crucial for survival in the knowledge economy.

As mentioned in chapter 3, intellectual capital is a catalyst in creating a strategically innovative organisation. The role of intellectual capital in creating a strategically innovative environment is summarised below. The first column notes certain variables associated with different intellectual capital components.

Table 4.1: Variables that inhibit or promote strategic innovativeness with reference to intellectual capital

| Human capital – People development | |
|------------------------------------|--|
| Variable | Description |
| Personal skilfulness | By understanding the way you acquire knowledge and how others acquire knowledge is at the heart of knowledge productiveness. The skill is therefore for the individual to become more knowledgeable in ways that will benefit the organisation by: <ul style="list-style-type: none"> • gathering & supporting individually produced information • supporting knowledge exchange by collective learning • creating situations where people can utilise existing knowledge to solve problems and to produce from it new knowledge |
| Practical judgement | Human sensitivity to a situation is needed as well as a sense of appropriateness to solve a problem. This community of knowledge and appropriateness, together with an inclusive approach to learning is vital for knowledge productivity. |
| Leadership | Facilitation, guidance and coaching is needed to create an environment for knowledge productivity. |
| Personal accountability | Individuals need to take personal accountability for lifelong learning and development. |
| Personal/self mastery | Individuals must know themselves. Individuals must understand how they acquire knowledge and how others acquire knowledge. |

This study

Table 4.1: (Cont.)

| Structural capital - Organisational environment | |
|---|---|
| Variable | Description |
| Organisational plan for learning | Harrison & Kessels (2004) proposed a corporate curriculum to create an environment conducive to knowledge productivity. |
| Knowledge creation & development | The process of knowledge creation should follow the knowledge spiral as suggested by Nonaka & Takeuchi (1995). There should be a mix of tacit and explicit knowledge, but the focus should be on developing tacit knowledge in developing countries, as depicted by Tushman & Nadler (1996, as cited by Harrison & Kessels, 2004). This study focuses on how to create and/or diagnose an knowledge productive environment. |
| Relationship capital - Networking | |
| Communities of knowledge | Focus group discussions on a particular topic to share and exchange knowledge. |
| Physical capital - Technology | |
| Variable | Description |
| Technology platform to promote learning and knowledge sharing | <ul style="list-style-type: none"> • An e-learning platform is proposed to enhance and promote the learning experience for individuals. • Information should be easily and freely available. • On-line forums e.g. BLOGS can be used to share knowledge. |

This study

The second column describes these variables in relation to characteristics that could promote or inhibit strategic innovation.

From the table above it is clear that a strategic innovative organisation encompasses various different aspects of intellectual capital an organisation.

The reason for the importance of intellectual capital development as a critical success factor for developing a strategically innovative environment might lie in the way knowledge is viewed in an organisation. This view also has an implication for how knowledge is created in an organisation (Nonaka & Takeuchi, 1995). Nonaka and Takeuchi (1995) describe knowledge as either *tacit* or *explicit*.

If knowledge is viewed as a commodity it often leads to a centrally managed knowledge system with a strong emphasis on data collection and information processing systems. This commodity of knowledge is referred to as *explicit*

knowledge (Nonaka & Takeuchi, 1995) where knowledge is stored as an asset on a database. At the other end knowledge is viewed as a web of relations used to adapt and to transform. This is referred to as *tacit* knowledge by Nonaka and Takeuchi (1995) and requires an approach where knowledge is fostered in an environment suitable for learning (i.e. developing human capital) to take place. The emphasis here is for learning to take place through shared knowledge and experiences in communities of practice. The process of learning is therefore a continuous process as depicted by Kessels and Keursten (2001). Burger and Cronje (2006) also highlighted the importance of learning theory (i.e. process of learning). These authors argued that by integrating objectivist and constructivist elements of learning theory as well as certain pedagogical dimensions an environment conducive to optimal learning could be created. This will be elaborated on at a later stage.

According to Tushman and Nadler (1996, as cited by Harrison & Kessels, 2004), there is evidence from research indicating that organisations operating in an emerging knowledge economy, i.e. developing countries, should give less preference to developing explicit knowledge. The reason is that it is not likely to contribute to the constant innovation and improvements in work processes, products and services; because it is believed that explicit knowledge does not contribute to information (Weggeman, 1997; Malhotra, 2000; Kessels, 2001b).

Tacit knowledge, on the other hand, where there is a constant flow of ideas between parties and where relationships are at the core, should take precedence.

It can therefore be argued that knowledge as an entity cannot be “managed”, but that it should rather be facilitated, guided and coached, due to its human nature. It is also argued in this thesis that people should be led and processes should be managed (Maxwell, 2005), therefore putting a strong emphasis on leadership development in creating a strategically innovative environment. Based on what

has been said about management vs. leadership, leadership development (at all levels in an organisation) will be the essence for companies wishing to become strategically innovative. Harrison and Kessels (2004) developed what is believed as an organisational framework for learning. These authors believe that this learning framework could assist organisations in becoming knowledge productive. The author of this thesis argues that by integrating the corporate curriculum of Harrison and Kessels (2004) with learning theory (Cronje & Burger, 2006) and elements of strategic innovation (Palmer & Kaplan, 2007) an organisation could not only become knowledge productive but also strategically innovative.

4.3 Describing strategic innovation

According to Prentice (2009) people drive innovation. Prentice (2009) argues that innovation will only take place when people's needs are not adequately met. When needs are not met it urges people to learn and explore ways to meet their needs. This view of Prentice (2009) once again highlights the importance of human capital in an organisation.

Govindarajan & Trimble (2004) emphasis that people need to learn through strategic experiences in order for organisations to be innovative. These experiences are what Cronje & Burger (2006) refer to as constructivist learning (see addendum 3). Organisational knowledge development i.e. learning needs to be orchestrated at all levels of an organisation if organisations wish to be competitive in the knowledge economy according to Pitt & Clark (1999).

One of the challenges for managers today is therefore how to create an environment conducive to producing new knowledge (i.e. learning) as was highlighted by Harrison & Kessels (2004).

Palmer and Kaplan (2007, p.4) differentiate between a strategic innovation approach and the more traditional approach to innovation. According to these two authors there is a distinct difference between the two approaches as summarised by the table below:

Table 4.2: Traditional approach to innovation vs. a strategic innovative approach

| Traditional approach | Strategic innovation approach |
|--|--|
| Adopt a "present to future" orientation. Takes today as a starting point | Starts with the end in mind. Identifies long term opportunities and then brings it back to the present |
| Assume a rule-maker/taker (defensive/follower) posture | Assume a rule breaker (revolutionary) posture |
| Accept established business boundaries | Seeks to create a new competitive space/playing field |
| Focus on incremental innovation | Seek breakthrough, disruptive innovation while continuing to build the core |
| Follow traditional, linear business planning models | Marries process discipline with creative inspiration |
| Seek input from obvious, traditional sources | Seek inspiration from unconventional sources |
| Seek articulated customer needs | Seek unarticulated customer needs |
| Are technology driven (seek customer satisfaction) | Is customer inspired (seek customer delight) |
| May have a "one-size-fits-all" organisational model | May experiment with organisational structures |

(Source: Palmer & Kaplan, 2007)

In strategic innovative organisations, table 4.1 above describes the approach to innovation as being radically different from a traditional approach. Palmer and Kaplan (2007) indicate that many organisations rely on traditional serendipitous acts of creativity to bolster innovation. Sometimes an ad-hoc, unstructured approach is followed which may result in incremental improvements only with more often than not poor implementation as well.

According to Palmer and Kaplan (2007) strategic innovation on the other hand is characterised by a holistic and systematic approach, focussing on quantum-leap innovations. This holistic approach is also highlighted by DeGraff when questioned about the ingredients of innovation (Workforce Management, 2008). According to Tushman and Anderson (2004), without a multifaceted understanding of innovation, attempts to manage, encourage, and make the most of it are unlikely to succeed.

Palmer and Kaplan (2007) further indicate that innovation becomes strategic when it is an intentional and repeatable process that creates significant value for the organisation and its customers. Dehne (2006) also emphasises the fact that innovation moments should be encouraged in order for it to become repeatable and predictable. It is argued in this thesis that these innovation moments are nothing more than an environment suitable for learning.

Palmer and Kaplan (2007) distinguish between four types of innovations. These types of innovations are summarised by figure 4.2 below:

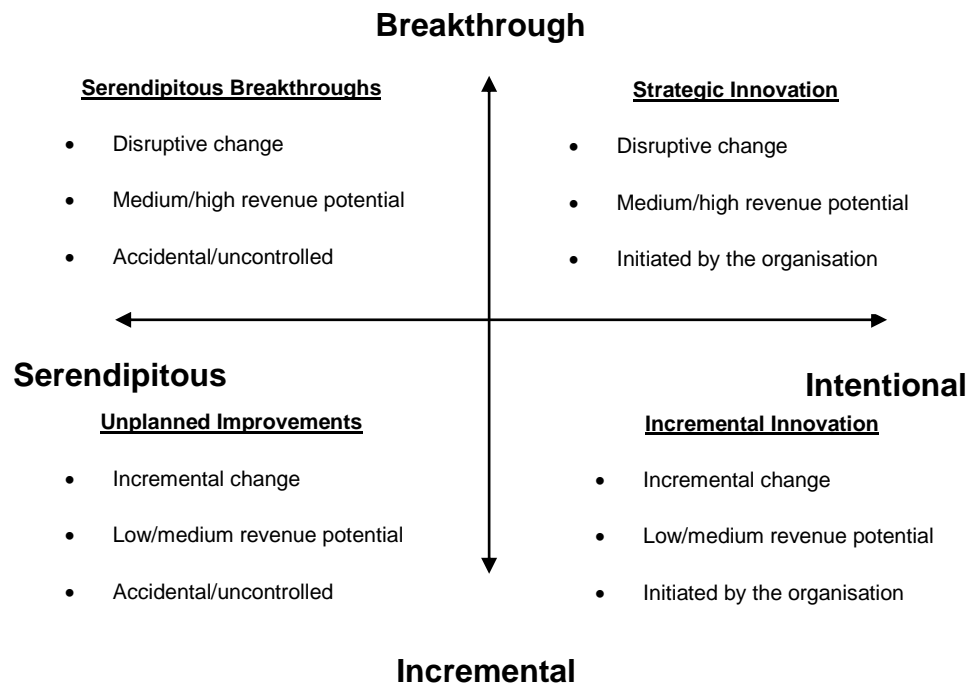


Figure 4.2: Four types of innovations (Palmer & Kaplan, 2007)

Figure 4.2 illustrates the four types of innovations (Palmer & Kaplan, 2004). The major difference between strategic innovation and the other three types of innovations is that strategic innovation is initiated by the organisation which leads to a disruptive change. This change in the organisation may lead to medium to high revenue potential for the organisation.

Based on what has been said before about the topics surrounding intellectual capital, organisational learning and strategic innovation, strategic innovation can be defined (for the purpose of this study) as: *“Creating and applying knowledge to the benefit of the organisation through creating an environment conducive to learning”*.

Understanding the way we and others acquire knowledge, i.e. learn, is at the heart of strategic innovation, as stated earlier. According to Keursten and Kessels (2002), this emphasis on knowledge development rather than knowledge management has instigated a demand for a corporate curriculum. In the next section this corporate curriculum will be explained.

4.4 The corporate curriculum framework

Keursten and Kessels (2002) raise the question of how the work environment can be conducive to learning. In attempting to answer this question, these authors propose the implementation of the corporate curriculum as introduced by Kessels in 1996.

According to Kessels (1996, 2001a), the corporate curriculum is nothing other than an organisational plan for learning. With this plan organisations can create an environment where learning and working can be integrated effectively. By doing this, organisations will become more innovative and will be able to continuously adapt to the many challenges that the knowledge economy poses.

One of the major challenges for such a learning plan in any organisation is to have the necessary coaching, guiding and mentoring, i.e. leadership (Maxwell, 2005) of experts in order to create an integrated community of practice (Wiessner & Sullivan, 2007:88-112; Wenger, 1999:2). Garrick (1999, as cited by Keursten & Kessels, 2002) says that this learning environment may also highlight other issues such as race, cultural differences, gender and ethical issues. These



issues are especially prominent in developing countries. It is therefore extremely important to provide a strong foundation, i.e. pillars, for organisational learning to take place and to emphasise the role that strong practical judgement plays in creating an environment for an organisation to become strategically innovative. Table 4.3 below lists these pillars of learning in the first column as described by Harrison and Kessels (2004) and Stam (2007:53-60). In the second column the author of this thesis expands these pillars by describing their impact on organisations in the knowledge economy.

Table 4.3: The eight pillars of the corporate curriculum

| No. | Pillar (i.e. what an organisation should do) | Impact on the organisation and possible applications |
|-----|---|---|
| 1 | Appoint and/or identify subject matter experts and professional knowledge | This should be directly related to the organisation's core competencies and strategy. Employees should have someone to "look up to", a guru from whom they can gain specialist knowledge, e.g. a junior software developer learning from a senior software developer. There should be a mix between tacit and explicit knowledge (Kessels, 2002a). |
| 2 | Teach employees how to identify and deal with new problems | Employees should apply their new knowledge which they gained from the subject matter experts. They need to be guided and coached in order to help them integrate their knowledge to solve problems and to innovate. |
| 3 | Cultivate reflective skills and metacognitions | This will help to locate, acquire and apply new knowledge. Sessions can be conducted to answer the following questions: How do we learn from our experiences? How can we improve our ability to develop, share and utilise knowledge in the workplace? How can we help others? A knowledge productive organisation helps people find their passion by stimulating their growth. This in effect will give people a feeling of substance. |



Table 4.3: (Cont.)

| No. | Pillar (i.e. what an organisation should do) | Impact on the organisation and possible applications |
|-----|--|---|
| 4 | Acquire and develop communicative and social skills | This will assist in accessing the knowledge networks of others, participate in communities of practice and make organisational learning more socially inclusive. Social networks need to be established where workers can freely share their knowledge. Socialising of experiences and the development of collective competence are essential for resolving problems. Trust, concern, curiosity and inspiration for a common mission will enhance knowledge productivity and benefit knowledge sharing. Staff can sit together in mixed teams where they can learn from one another and build trust and recognition from one another's expertise. |
| 5 | Acquire and develop skills to regulate motivation, affinities, emotions and affections concerning working and learning in the organisation | Knowledge productive employees should be encouraged to identify personal skills that they may need to develop when learning in the workplace and they must have the confidence and encouragement to develop these skills. Introducing career path planning will help employees to grow. |
| 6 | Promote a calm and stable working environment | This will promote exploration, coherence, synergy and integration as well as continuous improvement of products, services and processes. Employees must be given the opportunity to master and to elaborate on a plan, idea or operation procedures. There should always be a balance because too much calm and stability can lead to laziness, one-sided specialisation and an excessive internal focus. Career development opportunities will be used to judge the workplace. |
| 7 | Stimulate and steer creative turmoil | This can lead to radical innovation. It must be noted that disturbance alone, without the drive to innovate, can be very counterproductive. There must always be a balance between calm and stability and creative turmoil. Employees should work in an environment which constantly intrigues them. This should inspire them to continuously learn and apply these new learnings. It would not be a bad idea to move employees around in different departments to stimulate their growth and to build their confidence and skills. However, the reason and goals must be clearly communicated beforehand. |



Table 4.3: (Cont.)

| No. | Pillar (i.e. what an organisation should do) | Impact on the organisation and possible applications |
|-----|---|---|
| 8 | Develop and apply practical judgement between employees | This is done to ensure sensitivity, flexibility to the needs of the situation and of those involved in it. Practical judgement/wisdom can only be developed through a continuous interplay between experience, feelings and cognitions. This is the most difficult aspect of the corporate curriculum to achieve and measure. |

(Adapted from: Harrison & Kessels, 2004 and Stam, 2007:53-60)

The author of this thesis argues that by applying the eight pillars of learning, organisations can create an environment conducive to learning, therefore improving the operational environment for strategic innovation. If these pillars are further integrated with learning theory (Cronje & Burger, 2006) and elements of strategic innovation (Palmer & Kaplan, 2007) the author of this thesis believes that an instrument could be developed to measure an organisation's strategically innovative environment.

The corporate curriculum highlights a few important principles to guide organisations in the task of creating and sustaining the learning environment. These principles are summarised by Harrison and Kessels (2004) as follows:

- *"...it is essential to develop every individual's skilfulness in learning and knowledge processes.*
- *Learning environments should respond positively to diversity in individuals' involvement in learning and knowledge development.*
- *A reduction in emphasis on knowledge as a type of commodity should lead to reduced preoccupation with designing and distributing uniform instructional content.*
- *A major focus should be placed on the effective combination of learning and working.*
- *Ways should be identified in which practical judgement can be developed and supported in the workplace".*

It is important to note that strategic innovation flourishes in uninhibited learners who participate in self-controlled communities of practice (Harrison & Kessels, 2004). Organisations must focus on building sustainable collaborative communities of practice that rely on the practical judgement/wisdom of its members to ensure that the organisation's value systems are respected in order to promote learning. Cronje and Burger (2006) refer to these communities of practice as connection strengths between individuals.

The next section will describe Cronje and Burger's (2006) matrix on learning theory. This matrix is important as it describes the way in which people learn.

4.5 The learning theory matrix

Cronje and Burger's (2006) learning matrix (figure 4.3) was developed by integrating two learning theories namely objectivism and constructivism as well as Reeves' (1997) pedagogical dimensions.

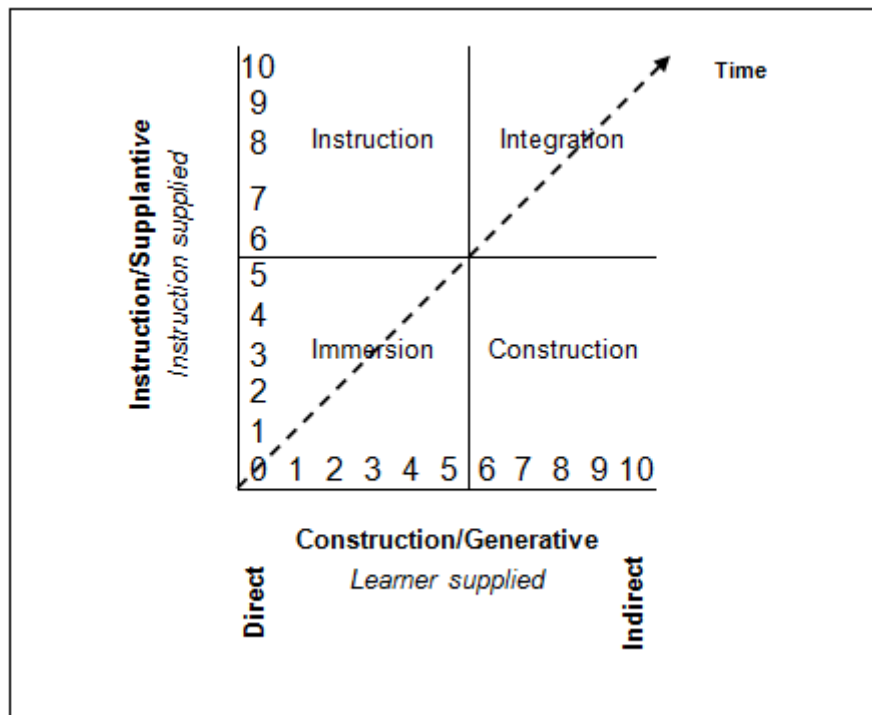


Figure 4.3: Cronje & Burger's (2006) learning matrix

This matrix, as depicted in figure 4.3 above, was developed to evaluate an information resource, which, for the purpose of this study can be regarded as the learning environment Harrison and Kessels (2004) refers to.

The x- and y-axis can be explained as follows:

The x-axis is called the generative axis, with the cognitive load of information processing supplied (generated) by the learner. The y-axis is called the supplantive axis, with the cognitive load of information processing supplied by instruction through a third party.

According to Smith and Ragan (1999) there are some factors that influence the cognitive load of information processing when learning takes place. These factors are categorised as follows and some examples are given:

- **Context factors**, which include time (generative strategies take longer), goal priority and accountability
- **Learner factors**, which include prior knowledge (more prior knowledge decreases the load), aptitude (high skills = supplantive; low skills = generative), motivation, anxiety (very anxious = supplantive; very relaxed = generative) and available cognitive strategies
- **Task factors**, characterised by complexity, performance level and if the task is critical or hazardous (hazardous task = supplantive; non-hazardous = generative)

Smith and Ragan (1999) conclude that a learning event should be as generative as possible and that any learning event may move from supplantive to generative.

A brief description of each of the four quadrants follows:



4.5.1 Construction

A learning event is designed in such a way that the learner constructs his/her own meaning intrinsically, by building on previous knowledge. The principle outcome is individual understanding and it has the advantage of effectiveness and transfer, i.e. constructivism, constructionism and cognitivism.

This is supported by Gullo (1999), who defines constructivism as a theory of learning which recognises that individuals learn within a social context, and they are internally driven. As a result of this learning theory, a constructivist environment is individual-focused and emphasises problem-based activities that are anchored in relevant world settings.

According to Lowry and Wilson (2000), it appears that constructivist learning can be considered in different ways:

- To some people, constructivism implies specific learning activities or instructional strategies, e.g. case- or project-based learning, working within authentic contexts (Savery & Duffy, 1996).
- To others, constructivism is a theory of learning. This theory includes the notion of schemas or mental models, and emphasises qualitative changes in understanding based on prior knowledge (Mayer, 1996).
- To others still, constructivism is an underlying way of thinking that informs instructional decisions and activities - but does not imply specific strategies. Teaching from a constructivist viewpoint may include a drill, or a lecture, or a prepared reading assignment without sacrifice of principle. A constructivist would ask: "*What are the fundamental aims?*", "*How is meaning construction best facilitated in this case?*" Strategies are then placed opportunistically in the service of these worthwhile ends.

Greeno (1998:55) offers what might constitute a mission statement for constructivist learning:



“We need to organise learning environments and activities that include opportunities for acquiring basic skills, knowledge, and conceptual understanding, not as isolated dimensions of intellectual activity, but as contributions to students’ development of strong identities as individual learners and as more effective participants in the meaningful social practices of their learning communities in school and elsewhere in their lives.”

Lowry and Wilson (2000) introduce three core principles for using the Web for effective learning based on the above mission statement by Greeno (1998):

- Provide access to rich sources of information.
- Encourage meaningful interactions with content.
- Bring people together to challenge, support, or respond to each other.

Nordhoff (1999) highlights the following characteristics of constructivism:

Table 4.4: Characteristics of constructivism

| Constructivism |
|--|
| Constructivism = learners are in control |
| The learner: <ul style="list-style-type: none"> • Takes responsibility for his/her own learning • Learns new ways to learn • Uses technology to learn |
| The educator has to: <ul style="list-style-type: none"> • Be a facilitator • Be a guide • Give cognitive support • Be open-minded • Assess the learners individually |
| Learning: <ul style="list-style-type: none"> • Is an active process • Is achieved through discovery • Aims to develop higher order thinking skills • Is a social activity and cooperative learning is supported |
| Material: <ul style="list-style-type: none"> • Constructivist teaching is inclined to be inductive – from the general to the specific • Constructivist teaching supports cooperative learning |

(Source: Cronje & Burger. 2006)



According to Mann (1994), it is imperative that individuals today learn how to be an information manager, rather than an information regurgitator. This is evident in today's world where there is an enormous amount of information available at the click of a button.

Appropriate assessment must be considered as perhaps the thorniest issue yet to be resolved regarding the implications of constructivism for learning (Jonassen, 1991). If constructivism is a valid perspective for delivering instruction, it should also provide a valid set of criteria for evaluating the outcomes of that instruction. In other words, the assumptions of constructivism should be applied to evaluation.

Jonassen (1991) makes twelve points about appropriate assessment and constructivism:

1. Technology can and will force the issue of constructivism.
2. Assessment will have to be outcomes-based and student-centred.
3. Assessment techniques must be developed which reflect instructional outcomes.
4. "Grades" must be contracted where grades are required.
5. There must be non-graded options and portfolio assessment.
6. There must be self-evaluation and peer evaluation as well as teacher assessment.
7. Performance standards must be developed.
8. A grading system must be developed which provides meaningful feedback.
9. Technology will be used to facilitate communication with parents.
10. Students will be videotaped as they work as part of their portfolio.
11. The focus must be on originality rather than regurgitation; it is important to evaluate how the learner goes about constructing his/her own knowledge rather than the product.
12. Assessment is context-dependent.



4.5.2 Instruction

Instruction corresponds closely to what has been written about behaviourism and instructivism. It is a preplanned extrinsically determined learning practice. It is the domain of programmed learning, tutorials, processes, lectures and drill-and-practice. The principle objective is “automaticity” (Bloom, 1986). It has the advantage of efficiency and focus. It is lean and effective and can be found in, for example, military instruction.

Untiedt (2001) defines behaviourism as follows:

- Behaviourism is a theory in the philosophy of mind, which maintains that talk of mental events should be translated into talk about observable behaviour.
- The foundations of behaviourist theory are based on animal research. Pavlov demonstrated that a dog would reflexively salivate upon hearing a bell after he came to associate the bell with feeding time. In the behaviourist model, individuals react reflectively to their environment.
- The theoretical goal of behaviourism is the *prediction and control of behaviour*.
- Associated with behaviourism are the terms "stimulus" and "response".
- The basic ideas of behaviourism are that human behaviour is a product of the stimulus-response interaction and that behaviour is modifiable.



Table 4.5: Characteristics of instructivism

| Area | Characteristic |
|----------------------|---|
| Stimuli-response | Learners play active role in responding to stimuli |
| Repetition | Desired actions are reinforced |
| Sequence | Initial success is assured by arranging tasks in order of difficulty |
| Reinforced | Desired behaviour is reinforced |
| Motivation | Teacher provides needed extrinsic motivation |
| Fluency & automatism | Drill and practice until fluency and automatism |
| Learning | A process of changing behaviour as the result of reinforcement of an individual's responses to events |
| Learners | Efforts to accumulate the knowledge |
| Teachers | Their efforts to transmit knowledge |

Source: Untiedt (2001)

4.5.3 Immersion

This quadrant can also be called the chaos quadrant. Learning is not determined by an outside entity and it is not placed in a predetermined sequence. The learning experience is opportunistic and is often seen as experiential/incidental learning. It is the domain of serendipitous learning.

Around 450 BC Confucius stated the following: *“Tell me, and I will forget. Show me, and I will remember. Involve me, and I will understand.”* This argument suggests that the learner should be “involved” in his/her own learning experiences. This statement relates closely to Kolb’s (1998) theory on experiential learning.

Kolb (1984) had a dramatic impact on the design and development of lifelong learning models. What happens in Cronje and Burger’s (2006) quadrant of immersion relates closely to Kolb’s (1984) theory, with one difference: Kolb (1984) states that the concept of experiential learning explores the cyclical pattern of all learning from experience through reflection and conceptualising to action and on to further experience, as depicted by the diagram below:

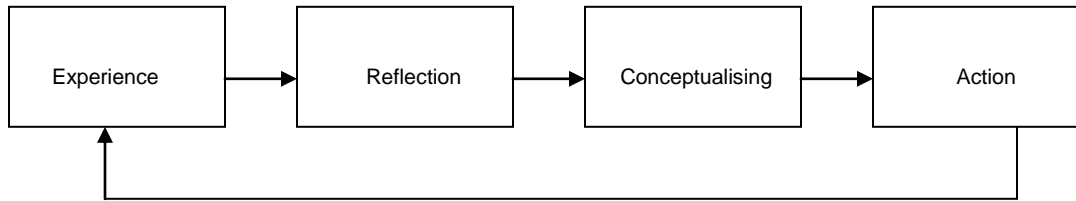


Figure 4.4: Cyclical pattern of learning

This differs from Cronje and Burger’s (2006) viewpoint that learning does not take place in a predetermined sequence.

Kolb’s (1984) model is well known and forms the heart of many training and learning events such as the learnership model followed by the South African government to bridge the gap between the skills shortage in the country and unemployment. It describes the process for recording continuous professional development, by taking time to capture, record and implement learning through the learner’s daily work routine. Another organisation using Kolb’s (1984) theory is the South African based International Consortium for Experiential Education, which organises its networking activities within four “villages” concerned with community action and social change and with personal growth, self-awareness and group effectiveness.

A further development of Kolb’s (1984) ideas has led to the notion of some companies transforming themselves into what is called learning organisations.

One also needs to look no further than the Internet to explore and develop one’s own learning experiences, as it offers a virtually limitless source of data.

4.5.4 Integration

This quadrant is a combination of instruction and construction where the goal would be analysed to determine the essential learning outcome. Further analysis

would then determine the skills and sub skills required for the learning outcome to be achieved and the development of instructional objectives.

4.5.5 Comments on Cronje and Burger's (2006) matrix

Cronje and Burger (2006) have introduced an interesting concept to the whole debate about organisational learning and developing an environment conducive for strategic innovation.

Apart from Cronje and Burger's (2006) objectivism/constructivism debate, other conceptions of organisational learning include the corporate curriculum (Harrison & Kessels, 2004) socially shared cognition (Resnick, 1991), socio-cultural theory (Rogoff, 1990), situated learning (Lave & Wenger, 1998) and social development theory (Vygotsky, 1978). Other approaches being discussed also include expansive learning (Engeström, 1987) and explorative learning (Hakkarainen *et al.*, 1999).

With all these approaches being explored, no particular theory has yet been accepted as the best approach or as the big theory or model for organisational learning. The reason for this could lie in the fact that because we as human beings develop constantly, our conceptions change constantly to form new conceptions.

According to Sievänen (2004), it might be impossible to construct a learning environment that would support only one particular learning theory. Sievänen (2004) states that it is more important to recognise different underlying learning conceptions than to justify focusing on some particular learning theory when developing particular types of learning events.

The instrument from this research could be developed into such an operational tool to support different learning perceptions to make learning environments as



rich as possible, therefore enhancing an organisation's strategically innovative ability. By adding more dimensions to the initial matrix of Cronje and Burger (2006) and by incorporating the corporate curriculum (Harrison & Kessels, 2004), learning theory (Cronje & Burger, 2006) as well as elements of strategic innovation (Palmer & Kaplan, 2007) the matrix could help organisations understand and function better in the innovative environment in which they find themselves.

The next section will attempt to integrate the mentioned concepts in order to refine Cronje and Burger's (2006) matrix. This matrix will be used to plot the results on from the instrument developed for this study as already mentioned.

4.6 Integrating the corporate curriculum, learning theory and strategic innovation

The following tables will attempt to integrate elements of intellectual capital (see table 4.1) with characteristics of the corporate curriculum (Harrison & Kessels, 2004), learning theory (Cronje & Burger, 2006) and strategic innovation (Palmer & Kaplan, 2007). From integrating the aforementioned constructs four quadrants emerge which is described in tables 4.6 - 4.9. These quadrants are:

- Unplanned improvements (table 4.6)
- Incremental innovation (table 4.7)
- Serendipitous breakthroughs (table 4.8)
- Strategic innovation (table 4.9)



Table 4.6: Unplanned improvements quadrant

| Quadrant Variable | Proficiency (Human Capital) | Personal skilfulness (Human Capital) | Subject matter expertise (Human capital) | Organisational learning environment (Structural capital) | Complexity (Structural capital) | Leadership (Human capital) | Communities of knowledge (Relationship capital) | Approach to innovation (Human capital) |
|-----------------------------------|--------------------------------|---|---|--|--|--|---|--|
| Unplanned improvements | 1. Chaotic 2. Brainstorming | 1. Lack of integration of concept 2. Not necessarily beneficial to organisation | 1. Ideas are valued more than expert knowledge 2. Expert knowledge not required | 1. Opportunistic learning 2. Interactive environment and flexible 3. Environment should be as rich as possible taking into account personal interests, motivation and capabilities of people | 1. No high skill involved 2. Anything goes | 1. Poor or non- existent 2. No real focus on people or processes | 1. Crisis management 2. Chaotic 3. Knowledge acquired through senses 4. Weak connection between individuals and between individuals and manager 5. Mode I to Mode II knowledge | 1. Thinking out of the box 2. Forced change 3. Unplanned improvements 4. Low revenue potential |

Characteristics based on: Harrison & Kessels (2004); Cronje & Burger (2006); Palmer & Parker (2007)



This quadrant could be referred to as the “chaos” quadrant where there is a lack of integration of concepts. Brain storming is used to come up with new ideas but these ideas are not always to the benefit of the organisation. Opportunistic learning takes place in an interactive and flexible environment. It is not necessary to have expert knowledge to participate in discussions and there is an attitude of “anything goes”.

This quadrant is often characterised as having very poor or non-existent leadership without a focus on people and processes. This quadrant is often associated with crisis management where someone must come up with a solution quickly to avoid a catastrophe. There are very weak connections between peers and between peers and their manager.

Thinking out-of-the box is encouraged where organisations sometimes wish to force change without consensus. Operating in this quadrant leads to unplanned improvements in an environment with low to medium revenue potential for the organisation. An example of people operating in this environment is people brainstorming a new idea.

Table 4.7 below describes the incremental innovation quadrant. This quadrant is characterised by repeatable and predictable outcomes and is often referred to as “best practice”.

In this quadrant people are sharply focussed and errors are not tolerated. People demonstrate a high skill level in this quadrant where learning is unsupported.



Table 4.7: Incremental innovation quadrant

| Quadrant Variable | Proficiency (Human capital) | Personal skilfulness (Human capital) | Subject matter expertise (Human capital) | Organisational learning environment (Structural capital) | Complexity (Structural capital) | Leadership (Human capital) | Communities of knowledge (Relationship capital) | Approach to innovation (Human capital) |
|-----------------------------------|---|--|--|---|---|--|---|---|
| Incremental innovation | 1. Repeatable and predictable outcomes 2. Best practice 3. Consistent | 1. People do what they are told and ask no questions 2. Sharply focused and task driven 3. No room for error | 1. Definite prerequisite 2. High skill | 1. Preplanned environment 2. Programmed learning – tutorials, military instruction 3. Unsupported learning – individuals are extremely motivated to learn 4. Inflexible environment 5. Individualism is not tolerated | 1. Low level complexity for individuals 2. Routine tasks in a moderately complex environment 3. No room for experimentation | 1. Little emphasis on individual but rather on processes 2. Authoritarian leadership 3. Direct instruction | 1. Strong connection between individuals and manager 2. Weak connection between individuals 3. Mode I knowledge | 1. Intentional, incremental change 2. Incremental improvements, initiated by organisation 3. Low/medium revenue potential |

Characteristics based on: Harrison & Kessels (2004); Cronje & Burger (2006); Palmer & Parker (2007)

The working environment is inflexible and individualism is not tolerated. The work environment is not very complex and routine tasks are carried out daily. There is often a strong connection between individuals and their manager with the manager adopting an authoritarian leadership style.

Operating in this quadrant results in incremental improvements which are initiated by the organisation to achieve incremental change in an environment. This quadrant is characterised by low to medium revenue potential for an organisation. An example of this quadrant is military instruction where errors are not tolerated or where mistakes could lead to possible life loss in the field.

Popadiuk and Choo's (2006) fourth quadrant probably best describes this quadrant. These authors state that an organisation creates new knowledge through the exploitation of explicit knowledge and commercialises this knowledge with existing market knowledge. Popadiuk and Choo (2006) describe this scenario as incremental innovation where changes in products and processes are relatively minor. The business case for commercialisation is often clear and customer reaction can be anticipated.

Table 4.8 below describes the serendipitous breakthroughs quadrant. Individual understanding through continuous feedback is one of the characteristics of this quadrant. Past experiences of individuals are key to unlock value and a high skill level is required to operate in this quadrant. The learning environment is flexible where people are encouraged to learn from their past mistakes. This is indirect contrast with the unplanned improvements quadrant (see table 4.6) where mistakes are not tolerated at all.

This environment is further characterised with a high level of adaptable complexity which individuals must deal with on a daily basis. The leadership still in this quadrant could be described as being participative where the manager



plays a facilitation role. There exist a strong connection between peers but not so strong connection between individuals and their manager.

Unintentional quantum changes may occur in these environments. Accidental and uncontrolled breakthroughs are initiated by individuals with medium to high revenue potential for the organisation.

This quadrant is similar to the first quadrant of Popadiuk and Choo (2006). These authors describe the scenario as one of radical innovation where ideas often appear unexpectedly from unexpected sources. The ideas appear usually from through the insight of some unexpected individual or group. Addressing new customer needs or entering new markets may be the catalyst for this type of innovation according to Popadiuk and Choo (2006).



Table 4.8: Serendipitous breakthroughs quadrant

| Quadrant Variable | Proficiency (Human capital) | Personal skilfulness (Human capital) | Subject matter expertise (Human capital) | Organisational learning environment (Structural capital) | Complexity (Structural capital) | Leadership (Human capital) | Communities of knowledge (Relationship capital) | Approach to innovation (Human capital) |
|--|---|---|--|---|--|---|---|---|
| Serendipitous breakthroughs | <ol style="list-style-type: none"> 1. Outcome is individual understanding 2. Lessons learnt | <ol style="list-style-type: none"> 1. Past experiences – key to unlocking value 2. Reconstruction of concepts – retrospection and introspection | <ol style="list-style-type: none"> 1. Definite prerequisite | <ol style="list-style-type: none"> 1. Environment should be as rich as possible taking into account personal interests, motivation and capabilities of people 2. Flexible environment 3. Learning from mistakes 4. Supported learning 5. Tailored to outcome | <ol style="list-style-type: none"> 1. High level of adaptive complexity | <ol style="list-style-type: none"> 1. Facilitation 2. Identify and manage patterns 3. Participative leadership | <ol style="list-style-type: none"> 1. Stand still, pay attention, gain new perspective 2. Strong connection between individuals – share experiences 3. Mode II knowledge | <ol style="list-style-type: none"> 1. Different approaches to solving a problem 2. May lead to unintentional quantum change 3. Accidental and uncontrolled breakthroughs which are initiated by individuals 4. Medium to high revenue potential |

Characteristics based on: Harrison & Kessels (2004); Cronje & Burger (2006); Palmer & Parker (2007)



Table 4.9: Strategic innovation quadrant

| Quadrant Variable | Proficiency (Human capital) | Personal skilfulness (Human capital) | Subject matter expertise (Human capital) | Organisational learning environment (Structural capital) | Complexity (Structural capital) | Leadership (Human capital) | Communities of knowledge (Relationship capital) | Approach to innovation (Human capital) |
|---------------------------------|--|---|--|--|---------------------------------------|---|--|--|
| Strategic innovation | 1. High performing organisation 2. Adaptive enterprises – reinvent themselves | 1. Past experiences – key to unlocking value 2. Reconstruction of concepts – retrospection and introspection 3. Constant feedback and retrospection | 1. Definite prerequisite | 1. Flexible – depends on outcome 2. Uninhibited to promote personal interests and stimulation | 1. High level of adaptive complexity | 1. Facilitate, guide, coach – situational leadership model 2. Servant leadership | 1. Scenario planning 2. Sense-analyse-respond 3. Strong connection between individuals and between manager and individuals 4. Mode II knowledge by integrating Mode I knowledge | 1. Intentional quantum change 2. Controlled breakthroughs – initiated by organisation 3. Medium/high revenue potential |

Characteristics based on: Harrison & Kessels (2004); Cronje & Burger (2006); Palmer & Parker (2007)

Table 4.9 above describes the strategic innovation quadrant. Organisations who constantly reinvent themselves to adapt to their environment find themselves in this quadrant. Employees have a high skill level and there is constant feedback to foster growth in employees (see figure 2.5, chapter 2). A high skill level is required of staff to work in a complex, flexible and adaptable environment.

In this environment the manager adopts a servant leadership style and he acts as facilitator, guide and coach. This quadrant is further characterised with scenario planning where there is a strong connection between peers and between peers and their manager.

There are intentional controlled breakthroughs, initiated by the organisation which might lead to medium to high revenue potential for the organisation.

This quadrant is similar to Popadiuk and Choo's (2006) third quadrant of innovation where an organisation creates new knowledge through exploitation that combines existing explicit knowledge and commercialises this knowledge by using new market knowledge. This type of innovation is normally associated with product development where an important source of innovation is knowledge that has been made explicit. According to Popadiuk and Choo (2006) reconfigurations of component architectures can lead to new products for new markets. New markets are therefore created based on incremental improvement in technology and processes.

A phased approach was followed for integration (tables 4.6 – 4.9) as explained below:

Firstly literature pertaining to the topic at hand was analysed. From analysing the literature, categories and subcategories were identified. These were:

- The knowledge economy (chapter 2)
- Intellectual capital (chapter 3)
- Learning theory and the corporate curriculum (this chapter)
- The strategic innovative organisation (this chapter)

Secondly, material within these categories was reanalysed to identify certain variables or elements on the basis of specific content within the data.

This resulted in the following intellectual capital variables being identified based on their contribution in creating a strategically innovative environment:

- Proficiency
- Personal skilfulness
- Subject matter expertise
- The organisational learning environment
- Complexity
- Leadership
- Communities of knowledge
- Approach to innovation

Further to this, Cronje and Burger's (2006) matrix on learning theory, the corporate curriculum (Harrison & Kessels, 2004) as well as Popadiuk and Choo's (2006) model on innovation was used to add characteristics to each variable per innovation quadrant (Palmer & Kaplan, 2007).

By integrating key concepts of intellectual capital, strategic innovation (Palmer & Kaplan, 2007), learning theory (Cronje & Burger, 2006), Popadiuk and Choo's (2006) model on innovation and the corporate curriculum (Harrison & Kessels, 2004) Cronje and Burger's (2006) matrix can be adapted. The next section will discuss the changes to this matrix in more detail.

4.7 The strategic innovation matrix

Prentice (2009) argues that people drive innovation. These human conceptions related to innovation can be analysed, based on positioning data on what is called a learning matrix (Sievänen, 2004), or as in the case of this study, an innovation matrix. A matrix ensures a relationship between data presentation, data analysis and the theoretical framework.



Cole (1994) states that the use of a matrix not only provides a conceptual frame for coding data, but also suggests a map for reproducing analysed data into an organised pattern that connects the findings of the research with the review of the literature.

According to Sievänen (2004), the set of dimensions comprising a matrix distinguishes between emphasis on individuality and sociality in learning, between viewing learning as knowledge adoption and as knowledge construction, and between viewing learning as subjective and objective to time. This same argument could be applied on how innovation is viewed in an organisation.

This study proposes a matrix on strategic innovation by integrating Cronje and Burger's (2006) matrix on learning theory, the pillars of the corporate curriculum (Harrison & Kessels, 2004 and Palmer & Kaplan's (2007) matrix (see figure 4.2) on strategic innovation to explain the evolving process towards an organisation's ability to create and apply knowledge effectively to become strategically innovative. Cronje and Burger's (2006) matrix could therefore be adapted as depicted in figure 4.5.

The strategic innovation matrix can be used to visualise and compare conceptions of strategic innovation extracted from literature and by using other data analysis methods, such as interviews and observation.

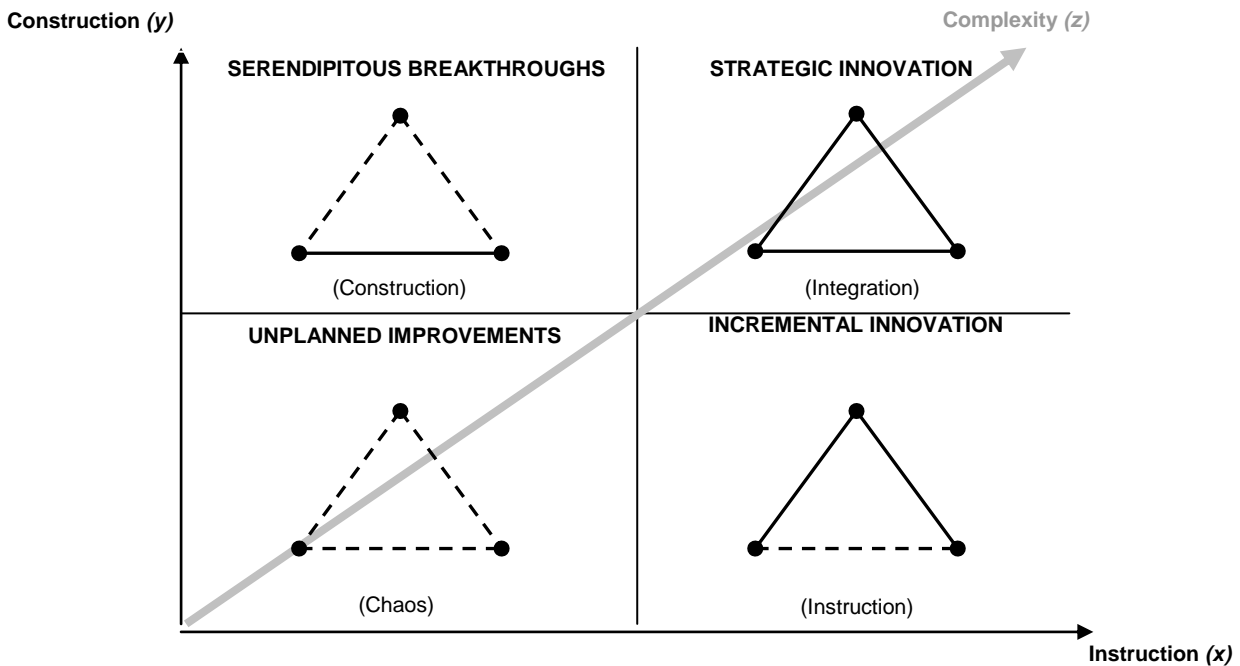


Figure 4.5: Integrated matrix towards strategic innovation (Adapted from: Cronje & Burger (2006:218-236) and Palmer & Kaplan (2007))

The four quadrants of Cronje and Burger (2006:218-236) have been renamed as follows:

| | | |
|-----------------|---|-----------------------------|
| Immersion/chaos | ➔ | Unplanned improvements |
| Instruction | ➔ | Incremental innovation |
| Construction | ➔ | Serendipitous breakthroughs |
| Integration | ➔ | Strategic innovation |

The quadrants are explained in tables 4.5 – 4.8 above. The *x-axis* represents learning through construction and the *y-axis* represents learning through instruction (see addendum 3). The *z-axis* represents complexity. The triangles represent the connection strengths (communities of knowledge) between peers and subordinates.

In order to develop an instrument to measure if an organisation is strategically innovative the characteristics on the instruction axis (see table 4.10) and construction axis (see table 4.11) are summarised below. The distinction between the two axes was based on analysing the literature. Characteristics from Burger and Cronje's (2006) model on learning as well as Palmer and Kaplan's (2007) model on innovation that best describe each axis were matched to Harrison and Kessels' (2004) pillars of learning therefore attempting to create a more holistic instrument to

measure innovation that incorporates learning theory and elements of knowledge production and innovation.

Table 4.10: Characteristics of the instruction axis

| Variable | Characteristic | |
|--------------------------------------|---------------------------------|--|
| Intellectual capital (see table 4.1) | Proficiency | <ul style="list-style-type: none"> Business outcomes are predictable and repeatable Errors are not tolerated – no room for experimentation |
| | Personal skilfulness | <ul style="list-style-type: none"> People are task driven and sharply focused Clear-cut objectives to meet |
| | Subject matter expertise | <ul style="list-style-type: none"> Emphasis is on doing and not understanding |
| | Learning environment | <ul style="list-style-type: none"> Tutorials and manuals exist with documented processes to follow Inflexible environment |
| | Complexity | <ul style="list-style-type: none"> Low level of complexity for workers – routine tasks |
| | Leadership | <ul style="list-style-type: none"> Manager is the authoritarian provider of knowledge Workers get instructions on what to do on a constant basis – “spoon fed” |
| | Communities of knowledge | <ul style="list-style-type: none"> Group work not a priority Peers do not socialise or interact with one another |
| Innovation | Approach to innovation | <ul style="list-style-type: none"> Works from the “present” towards the future Adopts a rule-maker/taker (defensive/follower) attitude Business boundaries and product categories are accepted The focus is on incremental innovation Traditional and linear planning models Input from obvious sources Seeks to respond to “known” customer needs Technology driven – seeks consumer approval “One size fits all” organisational model |

(Adapted from: Harrison & Kessels (2004); Cronje & Burger (2006:218-236) and Palmer & Kaplan (2007))

These characteristics can be used to determine the degree to which an organisational environment lends itself to an instructivist approach to innovation.

Table 4.11: Characteristics of the construction axis

| Variable | Characteristic |
|---------------------------------|--|
| Proficiency | <ul style="list-style-type: none"> Employees are allowed to gain their own understanding of a situation Experimentation is encouraged in order to promote understanding of a problem |
| Personal skilfulness | <ul style="list-style-type: none"> Past experience is key to unlocking value Employees are regarded as individuals with pre-existing knowledge, aptitudes and motivations – self-directed exploration and discovery |
| Subject matter expertise | <ul style="list-style-type: none"> Employees' intentions and experience are central in creating and applying new knowledge |
| Learning environment | <ul style="list-style-type: none"> Simulations and post-mortems are used to gain new insights Flexible environment |
| Complexity | <ul style="list-style-type: none"> High level complexity for employees – adaptive Constant change |
| Leadership | <ul style="list-style-type: none"> The manager guides, coaches and mentors the employees through issues and obstacles The manager tries to identify unique interests of employees and then utilises these interests to solve problems |
| Communities of knowledge | <ul style="list-style-type: none"> Group work is encouraged Peers socialise and interact with one another |
| Approach to innovation | <ul style="list-style-type: none"> Starts with the end in mind Adopts a rule-breaker (revolutionary) attitude Wants to create a new competitive "space" Continues to build core while seeking breakthrough (disruptive) innovation Integrates process with creative inspiration Seeks input from unconventional sources Seeks to respond to "unknown" customer needs of the future Consumer inspired – seeks consumer delight Experiments with entrepreneurial ventures and organisational structures |

Intellectual capital (see table 4.1)

Innovation

Learning theory: Cronje & Burger (2006)

Palmer & Kaplan (2007)

(Adapted from: Harrison & Kessels (2004); Cronje & Burger (2006:218-236) and Palmer & Kaplan (2007))

These characteristics can be used to determine the degree to which an organisational environment lends itself to a constructivist approach to innovation.

4.8 Measuring strategic innovation

Various authors were consulted on the topic of measuring innovation. These authors put forward what they believe are appropriate models and/or tools to measure an organisation's innovativeness. Rogers (1998) notes that innovation covers a broad range of activities which varies vastly from firm to firm. Rogers (1998) highlights that



various methods exist to measure innovation in organisations. These methods include using information gathered from survey data, company accounts and intellectual property statistics. From these methods a large number of measures or indicators are produced which can be used for further analysis to determine an organisation's innovativeness. These innovation indicators are classified into inputs to the innovation process and then the subsequent outcomes of the innovation process.

Mairesse and Mohnen (2002) proposes the innovation accounting framework to measure innovation which also considers indicators relating to innovation inputs and outputs.

Berwig and Marston *et al.* (2009) argue that organisations typically focus on inputs e.g. research and development spending versus outputs e.g. number of patents filed to evaluate their innovation efforts. Some organisations also use interview-based assessments and rankings to track their innovation effort. According to these authors the approach mentioned above is very narrow and does not take into account the evolution of innovation performance over time. These authors also mention that data availability is a problem and that most metrics fail to connect innovation to the organisation's performance. Berwig and Marston *et al.* (2009) proposes a scorecard to measure innovation which they call the Innovation Performance Score (IPS) which they argue takes into account a broader spectrum of variables to determine an organisation's innovation success.

With so many views on how innovation should be measured the question then arises: How do you measure innovation?

All the mentioned authors above agree that metrics can be important levers to innovation, driving behaviour as well as evaluating the results of specific initiatives. This was also noted by Kaplan and Winby (2007). Due to the nature of innovation Kaplan and Winby (2007) noted that measuring innovation can be more than an art than a science. Kaplan and Winby (2007) argues that although metrics can be valuable for driving investment in innovation and evaluating results they often provide a very limited view on innovation. These authors go further in stating that

some of the metrics used today can even inhibit strategic innovation. Kaplan and Winby (2007) promote using a “family” of metrics to measure innovation. A more holistic approach to measuring innovation was also proposed by authors such as Rogers (1998), Mairesse and Mohnen (2002) as well as Berwig and Marston *et al.* (2009).

Kaplan and Winby (2007) suggest using the approach as illustrated by the figure below:

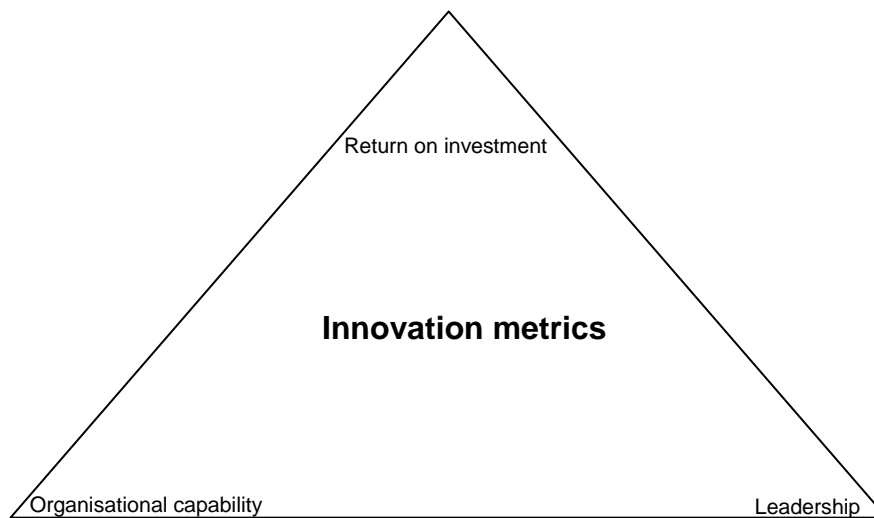


Figure 4.6: Family of metrics to measure innovation (Kaplan & Winby, 2007)

According to Kaplan and Winby (2007) metrics for measuring innovation should include:

- **Return on investment (ROI):** This should address resource investments and financial returns. ROI will help justify and recognise the value innovation programs and the overall investment in innovation.
- **Organisational capability:** These metrics focus on the organisational environment (i.e. training, instruction, distinctive skills and knowledge etc.) and process for innovation. Capability measures provide focus to initiatives geared towards building repeatable and sustainable approaches of invention and re-invention.
- **Leadership:** These metrics address the behaviour that senior managers and leaders in the organisation must demonstrate to support a culture of innovation, including the support of certain growth initiatives.



The biggest difference between Kaplan and Winby's (2007) proposed way of measuring innovation and the authors already mentioned is the inclusion of the organisational environment and leadership (as defined above) as metrics to measure innovation. It seems that Kaplan and Winby's (2007) method focuses more on the "human" element of innovation as opposed to mere tangible inputs and outputs

This thesis defines strategic innovation as: *"Creating and applying knowledge to the benefit of the organisation through creating an environment conducive to learning"*. For this reason the instrument developed for this study will focus only on elements of organisational capability and leadership as defined by Kaplan and Winby (2007) above.

4.9 Conclusion

It was argued in Chapter 2 that the environment in which organisations need to operate in the knowledge economy is totally different from the one in which they used to operate in the industrial economy (see table 2.2). The environment in the knowledge economy is dictated by factors such as price, quality, flexibility and product innovation. Chapter 2 further noted that the innovation process needs to speed up if organisations wish to survive in the knowledge economy (see table 2.2). People are key in speeding up the innovation process and organisations needs strong leadership in order to retain and develop key talent.

Chapter 3 explained the role intellectual capital plays in the knowledge economy. It was argued in this chapter that human capital development is critical if organisations wish to become strategically innovative.

This chapter argues that organisations therefore need an environment where key talent can be retained and developed in order to meet the challenges of doing business in the knowledge economy. Individuals need to create and apply knowledge effectively and to the benefit of the organisation, which will result in organisations being strategically innovative. This chapter argues that if organisations



become strategically innovative, they will be able to meet the many challenges of operating in a knowledge economy.

There are many views on how to measure strategic innovation as highlighted in this chapter. It is argued that that a different approach should be taken in measuring strategic innovation. The aim of this thesis is to build an instrument that integrates elements of intellectual capital (see chapter 3), the corporate curriculum (Harrison & Kessels, 2004), learning theory (Cronje & Burger, 2006) and strategic innovation (Palmer & Kaplan, 2007) to measure the organisational environment and leadership which Kaplan and Winby (2007) refers to.

The results from the newly developed instrument will be plotted on the matrix proposed in this chapter (see figure 4.5). By plotting the results on this matrix the researcher aims to illustrate which variables affect an organisation's strategically innovative environment. Furthermore, by understanding in which quadrant an organisation operates in the matrix could provide a guideline for organisations, helping them to create environments conducive to strategic innovation.

The method used to develop this instrument is described in the next chapter.