

# **Intellectual Capital and Knowledge Management**

Strategic management of knowledge  
resources

**Federica Ricceri**

Routledge Advances in Management and Business Studies

# Intellectual Capital and Knowledge Management

It is widely held that the successful management of knowledge resources within industry creates value. How this value is created is less clear, however. This book explores the management of knowledge resources in organizations. Several of the frameworks which have been created around the world to manage knowledge resources are examined and the book contains several examples of these frameworks in action in order to assess their relevance.

The author revolutionizes the measurement and management of intellectual capital and knowledge resources by establishing the important link between organizational strategy and the intellectual capital of an organization. Drawing on previously established frameworks, Ricceri creates a framework for the strategic management of knowledge resources. Ricceri's thorough analysis of the subject includes discussion of issues such as resources dynamics and stakeholder engagement.

This book will be of great benefit to students and researchers interested in strategy management and intellectual capital, as well as managers and consultants engaged with the management, measurement and reporting of knowledge and intangibles.

**Federica Ricceri** is Assistant Professor in Accounting at the University of Padua, Italy.

### **Advance praises:**

“Ricceri has provided a valuable and highly contemporary view of the state of intellectual capital and knowledge management, packed with rich examples of leading practice around the world, and offering practical insights into the application to organizational strategy.”

Ross Dawson, CEO, Advanced Human Technologies and author,  
*Developing Knowledge-Based Client Relationships 2nd Edition*

“Federica Ricceri elevates knowledge management from a functional specialty to its rightful place as a strategic determinant of enterprise value and competitive advantage. In *Intellectual Capital and Knowledge Management* she provides a cogent and articulate linkage between the ‘why’ and the ‘how’ of effectively identifying, measuring and then managing intellectual capital. This is essential reading for investors, managers, policy-makers and anyone else with a stake in the global, service-oriented, intangibles-driven economy of the 21st Century.”

Jonathan Low, Partner, Predictiv/CCW

“Federica Ricceri has captured the breadth and depth of the knowledge management and intellectual capital fields in this detail-focused and original book. The book is data driven and is full of thought provoking ideas. It is destined to challenge and reshape established ways of thinking about the intersection of knowledge management and intellectual capital and how these realms are implicated in the strategic management of Firm resources. The book synthesises existing material in a manner that makes it easy to track the evolution of thought in the field. The book melds this synthesis with interesting, original, and contemporary observations about the roles that intellectual capital and knowledge management play in the management of value, and in its creation. This book will surely help many readers make significant progress in their quest to better measure and manage knowledge resources for the good of themselves, the entities they are connected to, and for society as a whole.”

Professor Richard Petty, Associate Dean (International),  
Macquarie Graduate School of Management, Hong Kong – Singapore – Sydney

“The past decade has seen a rapid exploration of the impact of knowledge and intangibles on organisational performance. For both the scholar and practitioner it is useful to be able to ‘take stock’ of where we are at and where we should be heading. In this book Frederica Ricceri provides this facility with a comprehensive review of the state of the art and the contribution of a new framework for the strategic management of knowledge resources.”

Dr. Laurence Lock Lee, Co-founder and Principal, Optimice Pty Ltd.

“This book provides a comprehensive and stimulating overview of knowledge resources and intellectual capital management frameworks and practices. It’s worth reading.”

Ahmed Bounfour, Professor, European Chair  
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**This book is dedicated to my mother and my father for their support, wisdom and encouragement that scholarship and engagement with ideas is a worthy pursuit.**



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# Foreword

The function of knowledge resources as the engine of organizations has become widely recognized and there is no doubt that successful organizations tend to be those that continually innovate, relying on technologies and the skills and knowledge of their employees, rather than hard assets such as plants or machinery. The management of knowledge resources (MKR) creates value. Less clear is how value is created. The need to investigate MKR in more depth is well established in the literature and practice.

The terms ‘knowledge resources’ (KR) and ‘intellectual capital’ (IC) may not be used in everyday organizational language. However, what they represent in the knowledge-based economy are intangible resources such as relationships with customers, brands, supplier relationships, networks and employee competences, all of which create value for an organization or for stakeholders.

Federica Ricceri, in this thoughtful book, contributes to the literature by reviewing contemporary thinking about KR and IC and, for the first time, exploring in-depth numerous IC frameworks and actual reporting of MKR. The relevance of KR and their management have been recognized by many IC frameworks, all of which aim to make IC visible, and these are classified and analyzed. Also, a practical and informed understanding of how MKR was conceptualized and reported within a selected group of ‘outstanding practice’ private, listed and public organizations is discussed. Ricceri notes that each individual organization had varied narratives, visuals and metrics which had been used to conceptualize and report MKR.

This book revolutionizes the topics of IC and MKR by conceptualizing strategization and its related concepts (e.g. emergent strategies; incremental and radical innovations; and interactive use of information) which are used to build the strategic management of knowledge resources (SMKR) framework. Ricceri explains this in detail, and several management tools are provided to help managers deal with issues such as resources dynamics and stakeholder engagement.

The original analysis in this book of the contemporary IC frameworks and ‘outstanding practice’ organizations suggests that there is significant and varied international practice concerning MKR and its reporting. To counter this,

Ricceri urges governments, international bodies and professional associations to become actively involved in stimulating MKR within organizations by raising awareness of its importance in the knowledge economy, improving management and reporting competencies, promoting the use of strategic management of knowledge resources, and helping facilitate diffusion of these ideas and practices internationally.

The book will be of benefit to practitioners, policy makers, students and academics as it provides illustration of various IC frameworks and MKR in practice, as well as the ‘revolutionary’ model for SMKR. The book is aimed at practising managers and consultants who are exploring daily the issue of how to manage KR. It is designed to help managers to apply the SMKR framework and also to help business leaders understand IC in practice. The book is well grounded in theory and therefore useful to students in Masters of Management or MBA-type courses in the areas of strategy, management, accounting and other management-related subjects. I congratulate Dr Ricceri on this original and thoughtful contribution to the literature.

*Professor James Guthrie  
Faculty of Economics and Business  
The University of Sydney*

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# List of abbreviations

AR	annual report
BSC	balanced scorecard
CRR	corporate responsibility report
CSR	corporate social responsibility
DIC	direct intellectual capital methods
EPM	extended performance management
IA	intellectual assets
IABM	intellectual assets based management
IABMR	intellectual assets based management report
IC	intellectual capital
ICR	intellectual capital report
ICS	intellectual capital statement/intangible capital statement
KM	knowledge management
KMS	knowledge management system
KR	knowledge resources
LI	listed organization
MCM	market capitalization methods
MKR	management of knowledge resources
PR	private organization
PU	public organization
ROA	return on assets methods
SC	scorecard methods
SME	small to medium enterprise
SMKR	strategic management of knowledge resources
SPM	strategic performance measurement



# 1 Introduction

## **Why the management of knowledge resources?**

In the past few decades, the world has rapidly moved from its industrial economic base, in which economic growth was considered to be mostly determined by the use of tangible resources. Instead national economies around the world have shifted towards a knowledge base, in which wealth creation is associated with the ability to develop and manage knowledge resources (KR) (see, among others, MERITUM 2002; SKE 2005, 2007; EC 2006; Guthrie *et al.* 2007). As Drucker (1993: 42) observes:

knowledge is the only meaningful resource today. The traditional ‘factors of production’ – land (i.e. natural resources), labour and capital – have not disappeared, but they have become secondary. They can be obtained, and obtained easily, provided there is knowledge. And knowledge in this new sense means knowledge as a utility, knowledge as the means to obtain social and economic results.

The role of KR as the engine of organizations has become widely recognized and there is no doubt that successful organizations tend to be those that continually innovate, relying on technologies, and the skills and knowledge of their employees, rather than hard assets such as plants or machinery (Guthrie *et al.* 2007).

It is widely recognized (e.g. Roos *et al.* 2005) that the management of KR creates value; not so clear is the connection between their management and their organizational performance. The need to investigate the management of KR in more depth is well established in the literature. According to Mouritsen (2004: 258) ‘we struggle to specify how decisions can develop knowledge and translate this into desirable effects’. Also, Roos *et al.* (2005: 5) state that if organizations do not change their management practices and strategies to take into account intangible resources, it is likely that benefits deriving from these resources will not be realized.

The importance of KR and their management is not limited to private or listed organizations, but also relates to public and other not-for-profit

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organizations, as all these entities are responsible for delivering value to various stakeholders. Knowledge resources are central to stakeholder engagement and they represent critical elements for assessing the competitive position of the organization and the grounds of organizational performance.

Several practitioners and academics have attempted to provide managerial and reporting tools that aim to facilitate an understanding of KR, their management, and links to organizational performance. These tools aim to improve managers' and stakeholders' decision making and to address the shortcomings of the traditional financial accounting perspective which fails 'to keep up with the revolution taking place in business' (Edvinsson and Malone 1997: 1). For instance, these tools include 'inscription devices' that focus on understanding KR and making them manageable (Mouritsen *et al.* 2001: 736) by using metrics, narratives and visuals, such as figures, tables and pictures.

Also, several national and international institutions have produced various intellectual capital (IC) frameworks<sup>1</sup> and authoritative guidelines. These frameworks provide guidance in the management, measurement and reporting of IC.<sup>2</sup> Also, many of these IC frameworks are the result of cooperation between researchers, companies, industry organizations and consultants and have, therefore, been informed by practice. Several IC frameworks will be reviewed in-depth in chapter 2. However, if and how organizations are actually using these IC guidelines is yet to be established and therefore illustrations of how organizations manage their KR in practice will be explored in chapters 3 and 4. In chapter 5, several lessons from the analysis of the IC frameworks and management of KR (MKR) in practice will be used to build this book's original contribution to the theory and practice of IC which is the design of a strategic management of KR (SMKR) framework.

### **Knowledge resources and strategy**

The inclusion of KR in an organization's strategy<sup>3</sup> formulation process is fundamental for their management and is a major premise of this book. A central question in the field of strategic management is: why do some organizations perform better than others (Barney 2001: 644; Teece *et al.* 1997: 509)? This question forms the foundation of the debate surrounding the strategic relevance of IC and its management. This debate has seen the emergence of two main strategic views: the market-based view and the resource-based view. The main difference between these two views is the identification of those factors which explain the organization's performance and which need to be considered in strategy formulation. These two views will be briefly considered below, highlighting different approaches to strategy formulation and the relevance of KR within these.

In the market-based view, external environmental factors play an important role in explaining an organization's performance and in determining its strategic choices. Within the market-based view several theories and models

have been developed for forecasting future conditions and for scenario building under the motto 'predict and prepare' (Ackoff 1983: 59). Among these, industry and competitor analysis, stimulated in particular by Porter's (1980) book, *Competitive Strategy*, have given rise to models that present a checklist of factors to be considered, often categorized as economic, social, political and technological (Mintzberg 1994: 55).

The resource-based view is based on the assumption that organizational performance can be explained by an organization's resources portfolio (Dierickx and Cool 1989) and its deployment. Therefore, strategies should be defined around firm-specific resources which provide abnormal rents to the organization (Barney 1991). Within the resource-based view, it is recognized that knowledge is a main strategic asset of the organization (Itami and Roehl 1987; Hall 1993; Grant 1996), and a shift towards a more internally focused approach to strategy formulation is proposed. Grant (1991: 129) expressed this as:

the firm's most important resources and capabilities are those which are durable, difficult to identify and understand, imperfectly transferable, not easily replicated, and in which the firm possesses a clear ownership and control. . . . The essence of strategy formulation, then, is to design a strategy that makes the most effective use of these resources and capabilities.

Within this resource-based view, two streams of thought can be identified: the 'static' stream and the 'dynamic' stream. The first stream, 'static', highlights the stocks of strategic relevant resources as the foundations of competitive advantage (see, for example, Barney 1991; Amit and Schoemaker 1993; Peteraf 1993). For instance, Barney (1991) argues that sustained competitive advantage derives from the stocks of resources and capabilities controlled by the firm that are valuable, rare, imperfectly imitable and not substitutable.

The second stream, 'dynamic', is based on the view that accumulating firm-specific assets, that is assets which may be non-tangible and respond to the characteristics highlighted above (Barney 1991; Peteraf 1993), is not enough to support competitive advantage, as these stocks of relevant strategic resources need to be appropriately managed. To achieve and maintain competitive advantage, organizations must learn dynamically to use their resources effectively (Prahalad and Hamel 1990; Senge 1990; Nonaka and Takeuchi 1995) and to build and consolidate 'competencies that empower individual business to adapt quickly to changing opportunities' (Prahalad and Hamel 1990: 81). Therefore, organizations develop their strategic resources and renew these to achieve congruence with a changing environment. This is known as 'dynamic capability'. Teece *et al.* (1997: 515) state that: 'The term "capabilities" emphasizes the key role of strategic management in appropriately adapting, integrating and reconfiguring internal and external



#### 4 Introduction

organizational skills, resources, and functional competences to match the requirements of a changing environment.’

In other words, the ‘dynamic capabilities approach’ links the market-based view and the resource-based view, and highlights the context according to which strategic resources, and in particular KR, have to be understood, managed and developed.

The role of stakeholders in the organizational context is discussed by Clarkson (1995: 107), who states that:

the survival and continuing profitability of the corporation depends upon its ability to fulfil its economic and social purpose, which is to create and distribute wealth or value sufficient to ensure that each primary stakeholder group continues as part of the corporation stakeholder system.

However, the management of relationships with stakeholders can result in much more than simple continued participation in the stakeholder system. Managing relationships with primary stakeholders can constitute ‘intangible and socially complex resources’ that may enhance organizations’ ability to create value in the long term (Hillman and Keim 2001: 127). There is enough evidence to suggest that one effect of the increasing relevance of KR in the knowledge-based economy may be a trend toward a greater reliance on trust<sup>4</sup> (Adler 2001). Therefore organizations are required to consider stakeholders in their decision-making processes. This helps to anticipate issues, to deal with them proactively and, therefore, to achieve organizational sustainability.<sup>5</sup>

The SMKR framework, which is advocated in this book in chapter 5, extends the dynamic capability approach by three main concepts: (a) stakeholder interests are a key focus of the organization, (b) organizational sustainability is central, rather than just focusing on competitive advantage and (c) all organizational types (i.e. private, listed and public) are included.

### **The strategic management of knowledge resources**

Organizational resources can be classified into two broad categories: tangible assets and KR. Tangible assets can be further distinguished into two groups: financial assets and physical assets (see Figure 1.1).

Financial assets include, but are not limited to, an organization’s liquidity, borrowing capacity, investing and financing activities, dollar-value of assets (cash reserves, receivable balance, provisions, inventory balance) and dollar-value of liabilities (loans, accounts payable, unearned revenue), and shareholder equity. Physical assets refer to tangible factors of production that are owned by the organization such as plant, property, equipment and inventory.

KR is the other resource category and can be classified into the following three components and related elements:

- *Human resources* refer to internal stakeholders, such as senior managers and employees, and to their attributes, that is knowledge, abilities, skills,

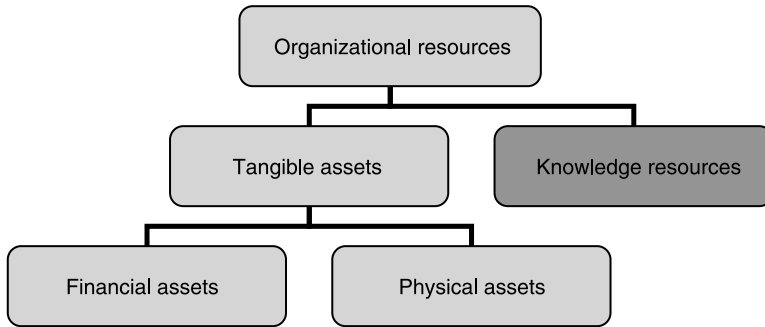


Figure 1.1 Organizational resources.

experiences and innovativeness. These are becoming critical resources for organizations, particularly because they contribute to the ability to respond and adapt to a changing environment.

- *Structural resources* consist of all those things that remain in the organization when the employees have left the building and are in some way owned or controlled by the organization. Structural resources include ‘intellectual property’ and ‘infrastructural resources’. Intellectual property is owned by the company and protected by law and includes elements such as patents, trademarks and copyrights. Infrastructural resources consist of organizational characteristics such as methods and procedures and the organizational context provided to individuals to achieve strategic objectives. Therefore, structural resources include, but are not limited to, culture, processes, routines, and information and networking systems.
- *Relational resources* include the organization’s brand and image in the marketplace, as well as its relationships with external stakeholders (such as government, customers, partners and retailers, suppliers, residents, etc.). Some of these resources are not owned by the organization, but are relationships that are significant and require management.

This tripartite classification<sup>6</sup> of KR is known as intellectual capital<sup>7</sup> (IC) and is a framing device for understanding KR and related elements (see Figure 1.2).

This classification of KR is a ‘snapshot’, which is useful for comprehending what KR the organization has, but is less helpful in understanding how value is created. The relevance of KR for value creation lies not in the ‘stocks’ of KR components or individual elements, but in the ‘flows’ that happen between the various elements. These flows are highlighted in Figure 1.2, by the arrows in the triangle and are named *transformations*.<sup>8</sup> As Sveiby (2001: 347) states:<sup>9</sup> ‘The value creation is primarily determined by the tacit/explicit transfer of knowledge between individuals and in the conversion of knowledge from one type to the other’. Therefore, the understanding of transformations is central for the management of KR.

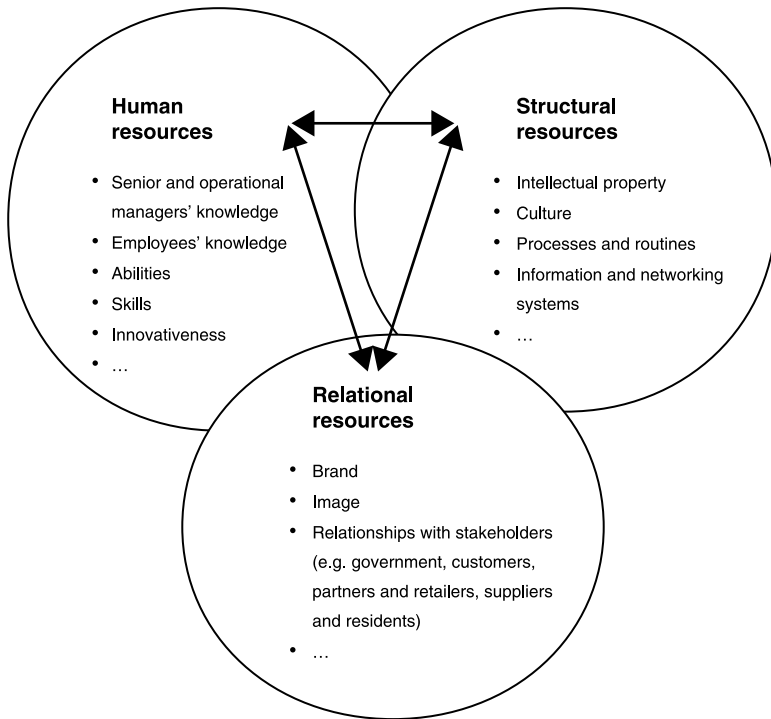


Figure 1.2 The tripartite classification of Knowledge Resources.

For the SMKR framework proposed in this book, any given organization is made up of a unique set of resources (i.e. tangible assets and KR), which are managed to achieve organizational sustainability. The SMKR framework is based on three main activities which are shown in Figure 1.3.

As indicated in Figure 1.3, the three activities within the proposed SMKR framework are: (1) strategization; (2) utilization of SMKR information; and (3) reporting. These three activities, which are parts of an interactive and dynamic process, are introduced briefly below and will be extensively outlined in chapter 5. An understanding of the interconnections between the three activities plays a central role in SMKR.

The first activity is *strategization*,<sup>10</sup> which includes two aspects: strategy formulation and strategy implementation. *Strategy formulation* relates to the crafting and planning of the *intended strategy* for achieving organizational sustainability. It incorporates the results of *resources analysis* and *stakeholder analysis*. The output of strategy formulation is the identification of *strategic objectives* and related strategic management challenges. *Strategic management challenges* specify strategic objectives in terms of KR needed to achieve them and identify areas for managerial intervention. *Strategy implementation* relates to the undertaking of *KR actions* for achieving strategic management

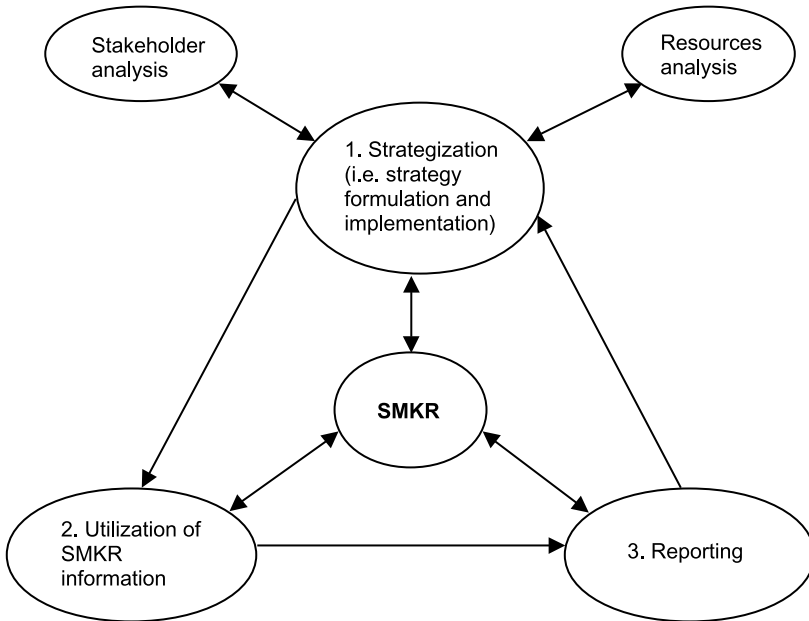


Figure 1.3 Activities within the SMKR framework.

challenges. Also, strategy implementation includes changes to the *day-to-day processes* of the organization. These processes are considered as important sources of *emergent strategies* and therefore of innovation. The *realized strategy* is what ends up happening as the result of intended and emergent strategies.

The second activity is *utilization of SMKR information*. This relates to the use of information about resources and stakeholder interests for a variety of purposes including strategization and performance assessment. *SMKR information* can be metrics, narratives and visuals. The SMKR framework calls for a dynamic balance between two main uses of information: the diagnostic and the interactive use. The *diagnostic use* focuses on guiding the organization towards the implementation of its strategies. The *interactive use* centres the attention on expanding opportunity seeking, dialogue and learning throughout the organization and therefore enhances innovativeness.

The third activity refers to the internal and external *reporting* of SMKR information. An instrument available for internal and external reporting of KR information is the *SMKR statement*.

The proposed SMKR framework can be located within contemporary debates about how knowledge is managed. Theoretical developments in knowledge management can be illustrated using Mouritsen and Larsen's (2005) identification of two waves of knowledge management. The SMKR can be considered the third wave of knowledge management.

The *first wave* of knowledge management focused on capturing the knowledge created by employees, who are at the core of knowledge production. A main thrust of the first wave was making explicit the tacit knowledge embedded in individuals and transferring this knowledge to other individuals. The main techniques used to support the first wave of knowledge management were IT tools (e.g. intranet) and/or the activation of internal environment conditions for the distribution of knowledge (e.g. open-plan offices). Therefore, in the first wave, knowledge management was considered synonymous with knowledge capturing and distribution.

The *second wave* of knowledge management focuses on ‘the transition from measurement to management’ (Mouritsen and Larsen 2005: 388) and on the bundles of KR involved in value creation and is characterized by three main shifts from the first wave (Mouritsen and Larsen 2005: 379). First, a broader view of KR (which replaces the focus on knowledge distribution); second, an idea of knowledge which is centred on the ability to make a difference to users (as opposed to the idea of ‘true knowledge’ prevailing in the first wave); and the third, a focus on translating KR and their management into numbers to make knowledge manageable (as opposed to the capturing and distribution of knowledge in the first wave).

The *third wave*, to be presented in this book, focuses on incorporating strategization within the management of KR. It is based on the understanding that strategy-making includes emergent strategies and allows for innovation and this is an interactive and dynamic process. This extends the first wave, which mainly focused on capturing individual knowledge and its distribution, and the second wave, which focused on understanding KR and making them manageable.

### **Summary and outline of the book**

The shift towards a knowledge-based economy has highlighted the importance of KR, which are recognized as the main strategic resources in modern organizations. These KR should be understood and managed systematically. This book develops and advocates an SMKR framework for this purpose.

As discussed above, the ‘dynamic capabilities’ approach combines the market-based and resource-based views and highlights the need to strategically manage KR. In this book, the strategic management of knowledge resources (SMKR) includes three activities: strategization (i.e. strategy formulation and implementation), utilization of SMKR information and reporting. These will be explained in detail in chapter 5.

Finally, the motivation and objectives of this book are expressed in the following four aims:

- 1 extend the traditional financial focus of organizational performance by including KR as key strategic resources to be managed;

- 2 engage in a process of strategically understanding KR transformations and their links with day-to-day processes;
- 3 enhance dialogue within and between the organization and its main stakeholder groups about KR and other economic, social and environmental areas of concern;
- 4 provide guidance for strategically managing KR to boost innovation and achieve organizational sustainability.

In this chapter it was established that KR needed to be understood and managed systematically. Chapter 2 will review nearly 40 IC frameworks in order to consider how each of these addresses the management of KR and then concentrate on an in-depth analysis of six contemporary IC frameworks to inform the development of the SMKR this book advocates.

## 2 Analysis of contemporary IC frameworks

### Introduction

Managing KR and understanding their link to organizational performance is complex, as discussed in chapter 1. To be able to manage KR effectively, a different way of thinking about organizational resources, processes and performance is required. In order to meet this challenge, a plethora of IC frameworks have been developed internationally and several will be analyzed in this chapter.

By identifying and reviewing some of these international IC frameworks, this chapter aims to explore how each of these addresses the management of KR (MKR). Therefore this chapter will:

- establish a number of management issues for understanding KR and their link to organizational performance;
- provide an overview of how these management issues are addressed in six contemporary frameworks;
- identify gaps in these contemporary IC frameworks.

### International IC frameworks

The challenge of understanding the links between IC and organizational performance has been addressed by many IC frameworks. One common characteristic of these frameworks is that they use measurement as a way to make visible IC. Sveiby<sup>1</sup> identifies many frameworks and more have been added to make a comprehensive list of 37 (see, Appendix A<sup>2</sup>). Sveiby classifies the IC frameworks using four measurement methods:

- 1 *Direct intellectual capital methods (DIC)* estimate the monetary value of IC by identifying its various components, as intellectual property. Once these components are identified, they can be directly evaluated, either individually or as an aggregated coefficient.
- 2 *Market capitalization methods (MCM)* calculate the difference between

a company's market capitalization and its stockholders' equity as the value of its IC.

- 3 *Return on assets methods (ROA)* divide the average pre-tax earnings of a company for a period of time by its average tangible assets.
- 4 *Scorecard methods (SC)* identify the various components of IC and indicators are generated and reported in scorecards.

These measurement methods can be collapsed into two different approaches: the *stock approach* (DIC, MCM and ROA methods) and the *flow approach* (SC methods) (see, Guthrie and Ricceri 2002). Under the stock approach, IC is thought to be static and able to be assigned a monetary value. Under the flow approach, IC is contextualized within the organization for understanding its links to organizational performance, via IC metrics and narratives rather than assigning a specific monetary value. As will be observed later in this chapter, the flow approach supports the idea that metrics by themselves are not informative, as they can capture only the measurable part of KR. For instance, assume that a research organization is developing a new drug for treating patients with a particular disease and that, for this project to succeed, new competencies are needed. Also, for acquiring the necessary competencies, the research organization has to employ five PhD students. Does the metric: 'five new PhD students' represent this situation? The same metric should be integrated by narratives that link to the organizational context (e.g. strategy to focus on this project, the strategic choice of employing the PhD students with specific competencies). Therefore, narratives represent a perspective for understanding the meaning of the metrics for the specific organization.

Table 2.1 highlights 18 stock approach IC frameworks that provide a traditional 'financial view' of IC (see Appendix A for full details of these). The underlying assumption of the stock approach is that IC is recognized mainly on the basis of its market value or for its contribution to the generation of revenues, earnings or cash flows. Therefore, KR are contextualized within a traditional financial accounting frame.

The IC frameworks which adopted a flow approach are illustrated in Table 2.2 (also, see Appendix A). Pioneers of this approach were: the Balanced Scorecard (1992), the Intangible Asset Monitor (1997) and the Skandia Navigator (1997). The underlying assumption of the flow approach is that KR have to be understood and managed in order to create value for the organization and its stakeholders. Given the difficulties associated with determining monetary values for KR, most of the metrics considered by these frameworks do not attempt to put a monetary figure on KR. Metrics used within this approach are designed to support management's decision-making process and to assist in the development of a strategy for the MKR.

The metrics and narratives used in flow approach frameworks are designed to make the KR and the way in which they flow within an organization understandable and manageable. In a number of the flow approach IC



*Table 2.1* Stock approach IC frameworks

<i>Year</i>	<i>Framework</i>
1950s	Tobin's Q
1985	Human resource accounting
1990	The invisible balance sheet
1996	Human resource costing and accounting (HRCA)
1996	Technology broker
1997	IC-Index™
1997	Calculated intangible value
1997	Economic value added (EVA™)
1997	Market-to-book value
1998	Investor assigned market value (IAMV™)
1998	Accounting for the future (AFTF)
1999	Knowledge capital earnings
1999	Citation-weighted patents
2000	Value added intellectual coefficient (VAIC™)
2000	Total value creation (TVC™)
2000	Intellectual asset valuation
2000	The value explorer™
2001	Inclusive valuation methodology (IVM)

*Table 2.2* Flow approach IC frameworks

<i>Year</i>	<i>Framework</i>
1992	Balanced Scorecard
1997	Intangible Asset Monitor
1997	Skandia Navigator™
1999	Intellectual Capital Navigator (ICN)
2001	Knowledge audit cycle
2001	Value chain scoreboard™
2002	IC rating™
2002	European MERITUM Guidelines
2003	Danish Guideline
2003	IC-dVAL
2004	Topplinjen/business IQ
2004	Strategy maps
2004	Value+™ model
2004	Performance prism
2004	German Guideline
2005	Intellectual capital management process
2005	Japan Ministry of Economy, Trade and Industry (METI)
2005	Australian Guiding Principles
2005	Global Reporting Initiative (GRI)

frameworks, this understanding is provided via an intellectual capital statement (ICS) that frames KR metrics and narratives. In the process of developing and using such ICS, organizations inscribe a series of metrics that relate to heterogeneous KR such as employees, processes, customers and

technologies, to make them visible (Mouritsen and Larsen 2005). KR are entangled and bound up in relationships with other resources when considered in the context of the day-to-day processes of the organization and the way in which these KR are entangled and bound up is unique for each organization and depends on its specific context, activities and strategy. Therefore, the flow approach provides an understanding of the KR in the specific organizational context, whilst the stock approach uses the monetary value to identify and add KR together.

In summary, the flow approach attempts to untangle the KR puzzle and provides insight into how KR contribute to organizational performance. It belongs to Mouritsen and Larsen's (2005: 372) second wave of knowledge management, discussed in chapter 1.

### **Critical issues for MKR**

The increasing importance of MKR for organizational performance was identified in chapter 1. Some organizations have responded to this by organizing themselves in matrix structures in order to foster knowledge flows and innovation and enhance 'value creation' (Bukh *et al.* 2005: 4). Other organizations have responded by seeking to manage their KR via the application of information technology. In these and other cases, the organizations are responding to major changes in their external environment by using techniques and tools that belong to the first wave of knowledge management. These organizations are attempting to manage KR, but not in a holistic way and, therefore, their implementation of MKR may be unsatisfactory. Because MKR is central to the make-up of organizations it cannot be separated out and acted upon in the way that a single business process or management system can be (Birkinshaw 2001: 11). The integration of MKR to all the managerial processes of the organization is of critical importance.

The analysis of the IC frameworks attempts to understand how they address four management issues:

- 1 KR and strategy;
- 2 Resources dynamics;
- 3 KR information;
- 4 Reporting.

These issues capture the essence of the second wave of knowledge management and are now discussed in some detail.

Concerning *KR and strategy*, the essential element of strategy formulation is that of a dynamic congruence between the external and internal environments. As indicated in chapter 1, the definition of strategy adopted in this book is adapted from Hax and Majluf (1996) and is consistent with the 'dynamic capability approach' (Teece *et al.* 1997). A key here is to identify what external and internal environmental matters should be considered

when formulating strategy. The following will focus on stakeholders and KR as two important matters to be considered for achieving organizational sustainability.

For the *external* environment the stakeholders<sup>3</sup> of the organization should be engaged<sup>4</sup> when formulating strategy and their interests addressed by managerial actions. Stakeholders<sup>5</sup> are important and can include customers, suppliers, community and residents, and their relationship with the organization is central.

The second wave of knowledge management is focused on the production of value and ‘disregard[s] the distributive effects of decisions about knowledge’ (Mouritsen and Larsen 2005: 378). However, the third wave, identified in this book, considers stakeholders and their interests vital for *creating* value in a sustainable way. Attention to the interests of stakeholders is a fundamental prerequisite for organizational sustainability. Stakeholders’ support gives an organization a social licence to operate and without this support it may find its licence removed, impairing its ability to operate effectively and, also, damaging its economic performance over the long term (ICAEW 2007<sup>6</sup>).

Moving towards organizational sustainability by harmonizing economic productivity, human development and environmental responsibility requires organizations to engage with stakeholders, which involves organizations considering their stakeholders’ interests when formulating strategy. Therefore, it is important for organizations to manage stakeholder engagement,<sup>7</sup> supported by information flows about sustainable performance. Stakeholder engagement helps enterprises to anticipate issues, to deal with them proactively and to build a more sustainable organization. It is critical for the business strategy of leading global organizations<sup>8</sup> (KPMG 2005: 27). This is because ‘stakeholder engagement is central to strategy formulation and increasing contributing to organizational resilience and flexibility, to learning and innovation, to the identification of new opportunities and ultimately to the improvement of sustainable performance’ (SRAC 2005: 3).

Effective stakeholder engagement informs the integration of social, environmental and economic issues into core strategies, business models and the organization’s day-to-day processes. Therefore, via stakeholder engagement, value creation is directed towards the achievement of organizational sustainability:

With the heightened debate on corporate environmental and social responsibility signalling a new perspective on the interaction between business and society and the distinction between what happens inside and outside of the company becoming blurred, stakeholder engagement is rapidly emerging as a vital tool to develop an understanding of what sustainability means for companies and how it can contribute to value creation and the viability of their operations.

(SRAC 2005: 10)

For the *internal* environment, a resource analysis<sup>9</sup> is a first step for undertaking MKR. Considering stakeholders and organizational resources (i.e. financial, physical and knowledge) when formulating strategy helps in defining ‘what’ and ‘where’ the organization wants to be in the future, and in identifying what actions and initiatives should be undertaken to implement the strategy.

The second MKR issue, *resources dynamics*, relates to the identification, identification mapping and assessment<sup>10</sup> of transformations between organizational resources. Resources dynamics assumes that managers have identified the main stocks of organizational resources. The identification of the stocks is developed according to the two broad resources categories (identified in chapter 1, pages 4–6): tangible assets and KR.

The importance of transformations between KR is acknowledged by the resource-based and IC literatures. In the resource-based literature, resources and capabilities can be viewed as bundles of tangible and intangible assets, including a firm’s management skills, its organizational processes and routines and the information and knowledge it controls (Barney *et al.* 2001: 625). It is stated that the bundles of resources impact performance (Lippman and Rumelt 1982) and it is difficult to identify the contribution of individual elements without taking into account the transformations between various resources (Dierickx and Cool 1989; King and Zeithaml 2001).

Within the IC literature, the existence of resources transformations has been highlighted by Nonaka and Takeuchi (1995), who assume ‘interchangeability’ between tacit and explicit knowledge. Also, Roos and Roos (1997) highlight transformations between one IC category and another. Both these contributions focus on transformations between KR. Roos *et al.* (2005: 109) indicate that all organizations have a unique set of tangible resources and KR, that are interconnected in various ways and value is created through the transformation of one resource into the other, within day-to-day processes. Therefore, an understanding of ‘value creation’ processes can be achieved via the identification and the mapping of resources transformations. The understanding of how resources transformations contribute to organizational performance within the day-to-day processes of the organization helps to identify areas that may contain value which would ordinarily be hidden. The identification of these areas means that managerial intervention can take place, if required, and is central for strategy formulation and implementation.

However, Sveiby (2001: 348) states that despite the relevance of transformations between KR, they tend not to be coordinated and systematically managed because senior managers lack an understanding of the ‘full perspective’. Transformations<sup>11</sup> are defined as resources flows that affect different organizational resources types, being tangible assets or KR (see, Roos *et al.* 2005: 109–110). For instance, selling a product means converting physical resources (i.e. the product) into financial resources (i.e. cash flows or credit instruments). This is a transformation within tangible resources which is observable, via financial documents, and financially measurable. Whilst

transformations within tangible resources (being physical or financial) are, in most cases, observable and measurable, transformations which involve KR are difficult to identify. Compare an organization selling a patent, which constitutes a transformation from KR (structural capital) into financial resources (i.e. cash flows or credit instruments), to an organization in which a brand is part of its KR and affects the organization’s financial results. For example, consider the brand Nike. There is a transformation between Nike’s brand (structural capital) and Nike’s revenues (financial resources – cash flows or credit instruments), but this transformation is not easily measurable, nor specifically tracked by financial transactions and the resultant financial documents.

Also, transformations include the flows within KR. For example, in selling a product, several KR elements (e.g. brands, customers, employees’ skills) interact. These transformations are different from one organization to another and are not easily identifiable or measurable, especially in financial terms. Therefore, the identification of transformations is a key step for fostering the understanding of the role played by KR in ‘value creation’ and represents an important input for managing KR (see Figure 2.1).

The third MKR issue, *KR information*, refers to the construction of KR

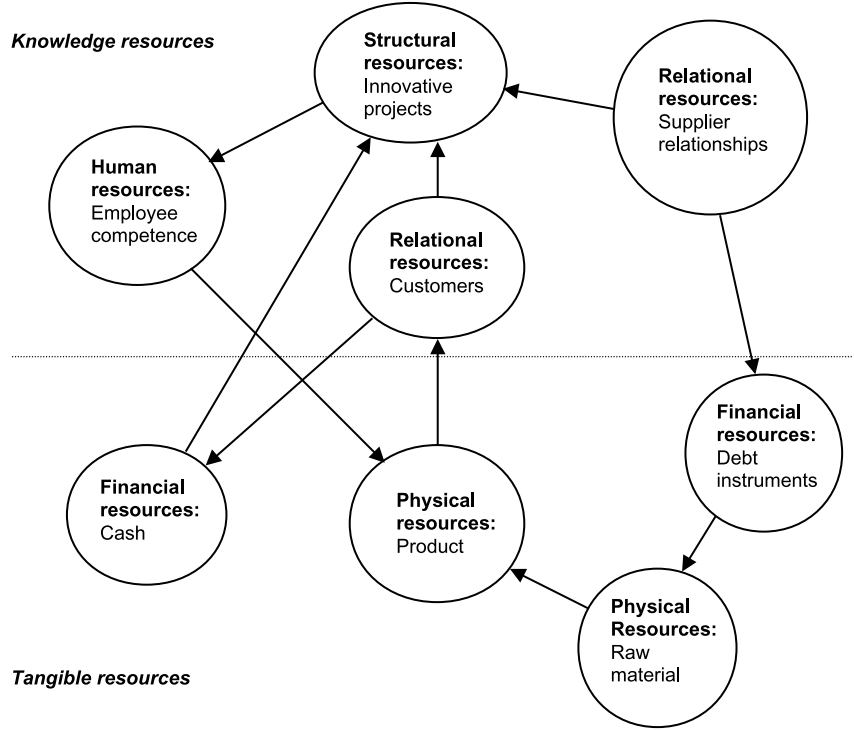


Figure 2.1 Illustration of transformations.

metrics and narratives to support MKR. Traditional accounting-based performance measures are unsuitable for organizations in which resources transformations and stakeholder interests are of strategic importance. Addressing stakeholder interests and managing KR for (long-term) value creation is usually at odds with short-term financial measurement practices.

'Performance' is itself an ambiguous term, and is not capable of simple definition. In particular, the term does not specify to whom the organization is delivering its 'performance' and how it can be 'measured'. Many organizations are integrating traditional accounting-based performance measures with strategic performance measures (or key performance indicators). As Ittner and Larcker (1998; 2003: 88) highlighted, in the past decades increasing number of organizations have been using strategic performance measures to monitor multiple performance perspectives (e.g. customers and innovation) and related drivers (e.g. customer loyalty and employee satisfaction) that do not follow traditional financial management accounting practices.<sup>12</sup>

The role of strategic performance measurement (SPM) systems in assisting managers to develop and assess strategies is important. A distinctive feature of these systems is that they are designed to present managers with financial and non-financial measures covering different performance perspectives which, in combination, provide a way of translating strategy into a set of performance measures and of assessing the organization's overall performance (Chenhall 2005: 395). The integration of SPM into organizations' measurement systems is aimed at capturing the factors leading to the 'creation of value in the business' (Ittner and Larcker 1998: 217) and responding to shortcomings in traditional financial performance measures.<sup>13</sup> The underlying idea is that the SPM should allow a firm to formulate and implement strategy, guide employee behaviour and assess managerial effectiveness (Malina and Selto 2004: 442).

However, using strategic performance measures may not be enough for a comprehensive understanding of organizational performance. For instance, a Deloitte (2007) survey highlights that many board members and senior executives are still in the dark about the overall organization's health and have a lack of high-quality non-financial data that they can act upon. In particular, the survey<sup>14</sup> of senior executives and board members highlighted that: (1) existing performance measurement frameworks are inadequate, and the majority of executives perceive a growing need to better understand the underlying drivers of their performance and (2) the ability of executives to measure and monitor performance through non-financial measurements is inadequate.

A possible reason for this is because SPM systems rely mainly on metrics for monitoring and assessing performance. As highlighted previously in chapter 2, pages 11–13, metrics can capture only the measurable part of a phenomenon and this may be not enough for a comprehensive understanding. For instance, metrics make KR 'visible', but do not explain the complex linkages with other resources and activities. It is the link to the organizational

context (e.g. resources and activities), which is provided by narratives, that enables understanding and managerial intervention. KR metrics can have different meanings in different organizational settings. Therefore, in order for KR metrics to be informative, they have to be explained by narratives.

The *reporting* of KR information aims to provide internal and external stakeholders with an extended view on organizational performance by focusing on the efforts to manage and develop IC (Mouritsen 2004: 259).

An ICS provides information about how KR are created, developed and applied in the organization (for example: Edvinsson and Malone 1997; Sveiby 1997; Bukh *et al.* 2001a; Mouritsen 2004). Also, it summarizes the firm's efforts to develop and use KR and puts evaluative managerial questions that help managers to change KR and direct them towards new strategies (Mouritsen 2004: 259). Therefore, the ICS has two main functions: a descriptive function and an enabling one. First, the descriptive function relates to the description of KR and their management. This function is mainly related to the ability of the ICS to provide a picture of KR and their management to internal and external stakeholders. Therefore ICS can be considered as a descriptive device for understanding KR and their management. Second, the enabling function relates to the knowledge that derives from the ICS and, in particular, to if and how this knowledge enables managerial intervention. It is believed that the enabling function is strictly connected to the descriptive function as, for instance, an incomplete picture of KR and their management will not allow (effective) further managerial intervention. Therefore, this function is an internal one and relates to the ability of the ICS to provide an understanding of the relationships between measurement and operational activities, strategies and context (Mouritsen and Larsen 2005: 373).

Ideally, KR information should be reported internally and a selected set of this should also be reported externally. Reporting should be done in a consistent manner, using a model that links metrics and narratives. The design and content of the external reporting statement may be voluntary or driven by specific legislation reporting requirements (i.e. a specific aspect of KR information). However, in most countries the provision of this type of information is voluntary and there is little support for a 'black letter' prescription of the design and content of these reporting tools (e.g. Unerman *et al.* 2007). The principal reason for this seems to be that IC is organizationally specific and detailed mandatory reporting would be far too restrictive to result in effective communication.

The four MKR issues identified in this section (KR and strategy; resource dynamics; KR information; and reporting) will now be used to analyze the selected IC frameworks.

### **An analysis of IC frameworks**

The frameworks that are analyzed in this section were considered to be 'best examples' of the *flow approach*. These IC frameworks were developed by

national and international institutions as guidelines for organizations to manage and report IC. They provide an understanding of ‘the relationships between measurement on the one side and operational activities, strategies and context on the other’ (Mouritsen and Larsen 2005: 372). Many of these frameworks use an ICS as a way of embarking on the management of KR and for understanding the relationships between measurement and operational activities, strategies and context, which should enable managerial intervention (Mouritsen and Larsen 2005: 373).

The six contemporary IC frameworks to be analyzed now are listed, according to the region to which they belong, in Table 2.3.

The aim of this section is to highlight how several contemporary IC frameworks address the four management issues and a summary table of the results of the analysis is reported in Table 2.7 at the end of this chapter.

Table 2.3 Flow approach IC frameworks analyzed

<i>Region</i>	<i>Framework</i>
Scandinavia	Danish Guideline for Intellectual Capital Statement (2003)
Rest of Europe	German Guideline for Intellectual Capital Statement (2004) Austrian Universities Act for Intellectual Capital Report (2002–2006) European MERITUM Guidelines for Intellectual Capital Report (2002)
Australia/Asia	The Australian Guiding Principles for Extended Performance Accounts (2005) Japanese Guidelines for Disclosure of Intellectual Assets Based Management Report (2005)

### ***Danish Guideline***

The Danish Ministry of Science, Technology and Innovation (DMSTI) has published the ‘Intellectual Capital Statement – The New Guideline’, which was the output of a project over several years, based on the experiences of over 100 companies. Its aim was to foster the companies’ ability to manage KR that creates value for society. The Danish Guideline stimulates organizations ‘to work more systematically and comprehensively with the main initiatives within knowledge management’ (Mouritsen *et al.* 2003: 3). It also aimed to provide a reporting tool for communicating knowledge management to existing and potential internal and external stakeholders via Intellectual Capital Statements (ICS), as part of organizations’ knowledge management strategy.

The Danish Guideline provided a way of managing and reporting IC. This process is based on four interrelated elements ‘which together express the company’s knowledge management’ (Mouritsen *et al.* 2003: 2). They are:



20 *Analysis of contemporary IC frameworks*

- 1 knowledge narrative;
- 2 management challenges;
- 3 initiatives; and
- 4 indicators.

These are illustrated in Table 2.4.

Table 2.4 An extract of Maxon Telecom’s Intellectual Capital Statement 2001

<i>Knowledge narrative</i>	<i>Management challenges</i>	<i>Initiatives</i>	<i>Indicators</i>
<ul style="list-style-type: none"><li>• Product or service: Maxon Telecom develops and designs mobile phones based on cutting edge technology.</li></ul>	<ul style="list-style-type: none"><li>• Product development</li></ul>	<ul style="list-style-type: none"><li>• Check users’ expectations and satisfaction</li></ul>	<ul style="list-style-type: none"><li>• Number of satisfaction studies (and market surveys) conducted</li><li>• Customer satisfaction with quality</li><li>• Number of projects ordered in the year</li></ul>
<ul style="list-style-type: none"><li>• Use value: Competent sparring to provide ‘communication, anytime, anywhere’.</li><li>• Knowledge resources: Employees’ specialist knowledge and competencies, insight in users’ and customers’ needs. Insight in existing and future technologies and the capacity to run projects.</li></ul>	<ul style="list-style-type: none"><li>• Improvement of personal skills</li></ul>	<ul style="list-style-type: none"><li>• Conduct employee performance reviews</li><li>• Establish and implement competency development plans</li><li>• Implement tutor schemes</li><li>• Implement management training</li><li>• Implement CASE training</li><li>• Implement leadership coaching</li></ul>	<ul style="list-style-type: none"><li>• Absence</li><li>• Rate of completion of training needs outlined in the MUS conclusions</li><li>• Employee satisfaction with course or training initiatives</li><li>• Number of performance reviews held on schedule</li><li>• Employee satisfaction</li><li>• Employees’ assessment of their colleagues’ interpersonal skills and competencies</li><li>• Staff turnover</li><li>• Number of employees with competency development plans</li><li>• Number of employees on job rotation, being promoted or posted abroad</li><li>• Number of employees who believe they can develop in Maxon, both professionally and personally</li><li>• Number of employees who see their immediate superiors</li></ul>

- |                                 |                                      |   |
|---------------------------------|--------------------------------------|---|
|                                 |                                      | as being capable of motivating them satisfactorily                                  |
|                                 |                                      | • Number of new employees in proportion to number of tutor schemes                  |
| • Ensuring products are on-time | • Launch Microsoft Projects training | • Number of projects implemented on time  |
|                                 | • Implement project organization     | • Number of projects kept within the agreed budget                                  |
|                                 | • Implement team-building process    | • Number of junior project managers recruited in-house                              |
|                                 |                                      | • Number of employees approved to work as project managers                          |
|                                 |                                      | • Satisfaction with distribution of responsibilities between and within departments |
|                                 |                                      | • Employees' satisfaction with the ability to act with speed                        |
|                                 |                                      | • Number of project groups with under 16 members                                    |
|                                 |                                      | • Number of project groups without own project room                                 |

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Source: Mouritsen *et al.* 2003: 15.

The process for preparing the ICS helps in systematizing knowledge management by finding consistency within the four elements and making them work together. Therefore, the preparation of the ICS requires going from one element to the other. The following highlights the analysis of the Danish Guideline using the four MKR issues.

### *Strategy and KR*

The link between KR and the strategy of the organization is particularly evident in two ICS elements: the 'knowledge narrative' and the 'management challenges'. The knowledge narrative specifies the identity of the organization in knowledge terms (i.e. what the organization is able to accomplish). It can be revealed through working with activities and ideas that are closely related to the company's everyday operations (Mouritsen *et al.* 2003: 18). The

knowledge narrative connects the internal to the external environment, it highlights KR required to create the ‘use value’ the company wants to supply, where ‘use value’ is defined as the value that the product or service generates to the user. Therefore, in the Danish Guideline, users are identified as the main stakeholder group against which the long-term strategy of the organization is defined and KR managed, as ‘knowledge resources must be adapted to the users’ (Mouritsen *et al.* 2003: 36) in order to generate ‘use value’. Also, the objectives for the management of KR are derived from the knowledge narrative; these are named ‘management challenges’ and aim to specify the knowledge narrative in terms of KR requirements. These are seen as having a ‘certain degree of permanence over time’ as they are linked to the knowledge narrative and the organization’s KR (Mouritsen *et al.* 2003: 12). The management challenges therefore express ‘the point around which the company’s knowledge management revolves’ (Mouritsen *et al.* 2003: 31) and they identify critical areas for managerial intervention.

The management challenges are operationalized by a set of initiatives. Initiatives relate to strategy implementation and consist of activities that compose, develop and procure KR and also monitor their extent and effects. Some examples of initiatives are customer and employee satisfaction surveys, the development of IT training programmes and career planning. In order to help managers identify the main initiatives that will have to be implemented, the Danish Guideline used a ‘help table’; this is represented in Table 2.5, in relation to customers/users and employees.

The standard ‘help table’ reports in rows the categories of KR that are considered as relevant and, for each of these, three columns contain the existing actions and initiatives, the existing objectives and strategy, and the assessment of the effect of existing initiatives. Another column sometimes provides an assessment of the ambition level of existing objectives.

### *Resources dynamics*

The Danish Guideline states that ‘a company’s knowledge management is about the four types of knowledge resources and *their interaction*’ (Mouritsen *et al.* 2003: 11). The KR types are: employees, customers, processes and technologies. The four types of KR proposed are not exhaustive; the Danish Guideline specifies that, for instance, organizations may have suppliers or institutions as important types of KR. The Danish Guideline states that knowledge management is also about KR interactions. Despite this, no tools are provided to help in identifying, mapping and assessing them.

### *KR information*

The Danish Guideline uses narratives and indicators to define, assess and report the organization’s knowledge management. In particular, the Guideline details the use of narratives and indicators for performance assessment. It

Table 2.5 Help table for assessing existing initiatives and identifying new ones

<i>Knowledge resources</i>	<i>Existing actions and initiatives</i>	<i>Existing objectives and strategies</i>	<i>Assessment of initiative effect</i>
Customers/users	What actions and initiatives have been launched: <ul style="list-style-type: none"> <li>• to ensure the right customer portfolio?</li> <li>• to upgrade customer relations and customer competencies?</li> <li>• to promote customer satisfaction?</li> </ul>	What objectives exist for: <ul style="list-style-type: none"> <li>• customer mix?</li> <li>• upgrading customer relations and customer competencies?</li> <li>• customer satisfaction?</li> </ul>	<ul style="list-style-type: none"> <li>• How do the company's initiatives contribute to creating something of value to its users?</li> </ul>
Employees	What actions and initiatives have been launched: <ul style="list-style-type: none"> <li>• to ensure the right employee portfolio?</li> <li>• to train and upgrade employees?</li> <li>• to promote employee satisfaction?</li> </ul>	What objectives exist for: <ul style="list-style-type: none"> <li>• employee mix?</li> <li>• training and upgrading employees?</li> <li>• employee satisfaction?</li> </ul>	<ul style="list-style-type: none"> <li>• How do initiatives affect employee contribution to creating a better company?</li> </ul>

Source: an extract from Mouritsen *et al.* 2003: 25.

uses two main ways of assessing performance: first, a *qualitative assessment* and, second, a *quantitative assessment*. A qualitative assessment relates to the use of narratives to assess initiatives. This concerns existing initiatives at the time of the implementation of the ICS and relates to the evaluation of two initiatives characteristics: effectiveness and ambition level. The initiatives' ambition level can be evaluated by considering the answers to questions such as: is the organization doing enough to support and develop its KR? Are the investments in KR (e.g. employees, customers, processes and technology) adequate? The initiatives' effects can be assessed by considering: what are the effects of the initiatives in terms of KR development? Also, narratives can be used to comment on quantitative assessment (i.e. indicators) as Mouritsen *et al.* (2003: 25) states that: 'Figures cannot, however, speak for themselves. They must be brought into play by the text'.

A quantitative assessment is developed via a set of indicators that can be defined *ex ante* in terms of target scores (Mouritsen *et al.* 2003: 62). The use

of indicators is considered a condition for systematic knowledge management as they make it visible and therefore assessable. Indicators have three main functions: definition, assessment and reporting. Their role is to specify quantitative metrics for the management challenges and initiatives, to assess whether these are started and implemented, to assess their effects, and to report the results to stakeholders.

In the Danish Guideline, IC indicators are reported according to three main areas: effect, initiatives for developing KR and resource mix. Indicators related to effects are, for instance, customer satisfaction, quality and productivity; an initiative-related indicator would be, for example, the number of training days offered; and indicators related to resource mix would include, for example, the proportion of particularly important employee groups (e.g. IT employees), composition of education and major technology platform. The assessment of performance is one of the indicators' functions in the ICS: indicators also contribute to the *definition* of management challenges and initiatives and they are an important part in the external *reporting*.

### *Reporting*

For the Danish Guideline, an ICS is an internal tool for managers, but it can also be used to externally communicate to 'target groups' of stakeholders. The external ICS should contain a total overview of the knowledge management of an organization, going from knowledge narrative to indicators. As often the ICS is too large and complex to be communicated effectively to those outside the organization, a selection of management challenges, initiatives and indicators may be required for external reporting. The target groups can affect both the choice of the ICS element to be disclosed and, also, the weight given to them.

Also, in relation to external reporting, the Danish Guideline highlights that the ICS is one of the 'supplementary accounts' that is available to expand the focus of financial statements. Other supplementary accounts considered for external reporting by this Guideline are: stakeholder accounts and green/social accounts. All the supplementary accounts have in common the aim of 'developing the company, to make it better prepared for the future' and the use of figures and of narratives to create a link to the company's challenges and results. However, they are characterized by different purposes, contents and strategic perspectives, as illustrated in Table 2.6. The three supplementary accounts also provide different extended performance perspectives on the organization. If, and how, these accounts can be integrated in a unique format is left open to the individual organization.

The Danish Guideline argues that a standalone ICS addresses wider target groups and therefore can provide more variation with respect to content and depth (Mouritsen *et al.* 2003: 46). Also, ICS may be included in annual reports with some amendments in terms of length (the ICS included in the annual report should be shorter as some information may be already disclosed

Table 2.6 Three types of 'supplementary accounts'

	<i>Intellectual capital statements</i>	<i>Stakeholder accounts</i>	<i>Green/social accounts</i>
Purpose	The purpose of the intellectual capital statement is to explain the company's resource base and the activities that management implements to develop it.	The purpose of the stakeholder account is to explain the company's cooperation with selected groups of stakeholders.	The purpose of the green/social accounts is to explain how to handle the company's undesirable effects on society.
Content	The content of the statement relates to the company's accumulation and development of knowledge resources, for example in the form of relations with and between employees, customers, technology and processes.	The content of the accounts relates to flows of actions and relative wages paid by and to the stakeholders involved. This describes the general goods or benefits that the state, employees, customers and the local community receive.	The content of the accounts relates to the company's initiatives to ensure a balance in its ecological and social space.
Strategic perspective	The strategic perspective of an intellectual capital statement is to develop the company's value by supporting development, usage and sharing of knowledge resources and competencies. This enables the company to support its intangible assets and its knowledge management.	The strategic perspective of stakeholder accounts is to support the development of the company's value by creating a balance between the demands of different stakeholders relative to each other. This reduces uncertainty around the stakeholders' behaviour.	The strategic perspective of green/social accounts is to develop the company by engaging in a broad dialogue on the company's role in society. This enables the company to demonstrate its responsibility to society.

Source: Mouritsen *et al.* 2003: 66.

in the annual report). Also, an internet-based ICS could be presented, where readers can customize the information by clicking through parts of the ICS.

In summary, the Danish Guideline comprehensively addresses the MKR issues apart from resources dynamics, in which no tools are provided to guide

the identification, mapping and assessment of resources transformations. The link between KR and strategy is particularly evident in two ICS elements: the knowledge narrative and the management challenges. The knowledge narrative highlights the KR required to create the use value and identify users as the main stakeholder group. In this Guideline, the knowledge narrative is then specified in terms of KR requirements by management challenges, which are implemented via a set of initiatives. KR information (i.e. narratives and indicators) are then used to define, assess and report management challenges, initiatives, effects and resources mix. The key focus is the use of KR information for performance assessment. Also, the Guideline emphasizes the need for systematic knowledge management and for creating a consistent story that highlights the links from the knowledge narrative to the indicators. In relation to reporting, the ICS expresses the company's knowledge management, which can be used for internal and external reporting. Also, in relation to external reporting, the Guideline provides a brief comparison between the ICS and other 'supplementary accounts' (i.e. stakeholder accounts and green/social accounts) for extended performance reporting.

### ***German Guideline***

The German Guideline was issued in 2004 by the Federal Ministry of Economics and Labour to foster 'the implementation of the intellectual capital statement and of knowledge management in both small and medium-sized enterprises, and in the trades sector' (FMEL 2004: 3). The Guideline targets small and medium-sized enterprises (SMEs). The German Guideline is based on the Danish Guideline and a pilot project was established to adjust them for German SMEs, 13 of which were using the ICS for internal management and ten for external reporting purposes (FMEL 2004: 10). The following discusses how the German Guideline addressed the four MKR issues.

### ***Strategy and KR***

In the German Guideline, the ICS is integrated into the 'strategy cycle', as illustrated in Figure 2.2.

The 'strategy cycle' visualizes the process of strategy formulation and its five main parts: business strategy, knowledge strategy, measures, ICS and adjustment. Therefore, for this Guideline, strategy, and in particular knowledge strategy, is the result of several 'rounds of improvements' (FMEL 2004: 20), which are supported by the information contained in the ICS. As illustrated in Figure 2.2, the 'knowledge strategy is derived from the business strategy' and it is developed for the 'long-term successful orientation of the organization in a knowledge society'<sup>15</sup> (FMEL 2004:19). According to the German Guideline, the business strategy<sup>16</sup> 'describes how to act on the market in the future' and arises from relating the opportunities and risks emerging



Figure 2.2 The strategy cycle.

Source: FMEL 2004: 20.

from the business environment to the organization's 'vision'. In particular, the assessment of the risks and opportunities of the external environment take into consideration different, mainly market, stakeholders (e.g. competitors, customers, suppliers and potential and existing employees) and also the social environment, economic cycle and political trends.

The organization's knowledge strategy, derived from the business strategy, 'describes the organization's position with regards to sub-areas of IC' (FMEL 2004: 19). The Guideline indicates that in order to develop the knowledge strategy, managers should look for answers to a series of questions. What made the organization strong in the past? What intellectual capital is needed to implement the business strategy? How must the strategy be developed in regards to customers and competition? What part of IC is unique and ensures competitive advantage? (FMEL 2004: 19–20). Also, the knowledge strategy is detailed by a set of measures which guide the definition of the metrics reported within the ICS.

### *Resources dynamics*

The German Guideline uses an Intellectual Capital Statement Model (see, Figure 2.3) to introduce the issue of resource transformations. The ICS Model shows how the vision, business goals, ICS and measures are linked to the internal processes (i.e. business processes and knowledge processes), and to create business success. Business processes are affected by three main IC dimensions: human capital; structural capital; and relational capital and other resources (FMEL 2004: 11). The three IC dimensions interact within the knowledge processes and business processes to affect 'the efficiency and



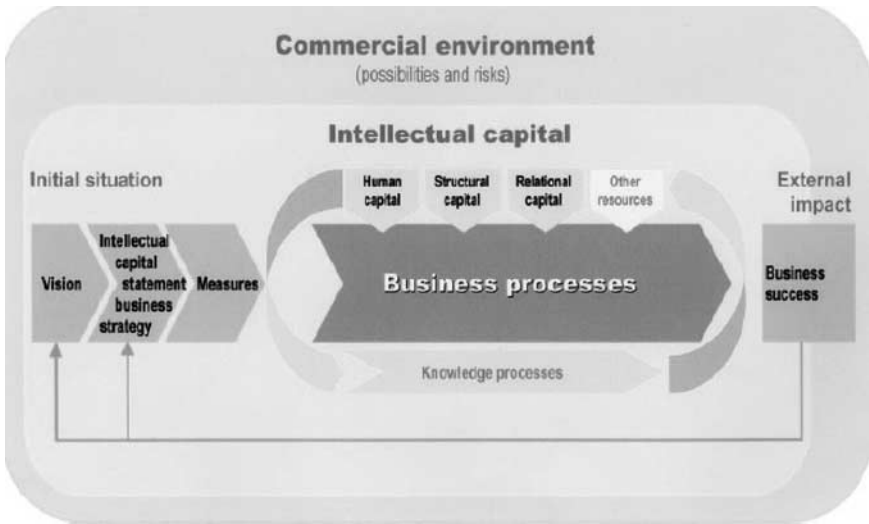


Figure 2.3 IC influences business processes.

Source: FMEL 2004: 22.

effectiveness of performance and the success of the organization on the market' (FMEL 2004: 22).

The German Guideline states that, in order to manage IC there is a need to understand the interactions between the elements<sup>17</sup> and therefore provides two different tools for visualising these interdependencies (FMEL 2004: 33): the matrix and interdependencies network. These tools are based on the identification of 'influencing factors' (e.g. building up employees' experience) that relate to intangible aspects that influence business processes. Influencing factors are identified during brainstorming sessions and 'help questions' to guide this identification are provided (FMEL 2004: 22–24).

In more detail, the matrix contains the influencing factors in the *x*-axis and in the *y*-axis and the intersection between the rows and columns highlights the strength of the interactions between these; interactions are measured on a 0–3 scale, where 3 means that the one element has a strong influence on the other and 0 means no influence. An excerpt of the matrix is provided in Figure 2.4.

The structure of the matrix is similar to the transformation matrix<sup>18</sup> (Roos *et al.* 2005: 122), but here the numbers in the cells highlight the strength of the interactions and not their relevance for 'value creation'. Performance processes relate to the provisions of products and services to the customers and are considered as the most important business processes (FMEL 2004: 21). Figure 2.4 highlights that performance processes are heavily influenced by staff experience, motivation and leadership (see column 1). Also, performance processes heavily influence the building up of staff experience, motivation and leadership (see row 1). In regards to interactions between IC



The picture highlighted in Figure 2.5 shows that product innovation affects performance processes and business success (E1 and E2). Product innovation itself is influenced by ‘cooperation within the organization’ (SK2), which in turn is affected by employee motivation. Since image/brand has a major impact on employee motivation, an interdependency circle is closed, a so-called generator (FMEL 2004: 34).

### *KR information*

For the German Guideline, KR information is portrayed as narratives and indicators. Narratives describe the context, interpret the results, show the consequences from the point of view of the organization and highlight future trends. An indicator is defined as an ‘absolute or relative benchmark which serves to describe a circumstance’ (FMEL 2004: 11) and to visualize the elements of the ICS. Therefore, the main stated function of the KR information is to *describe* a condition. Also, this Guideline highlights that it is not possible to make generalized valid statements on how to select indicators, as these vary according to the context of the organization and to the influencing factors identified.

However, the German Guideline provides guidance in regards to several issues that are related to the structure of the IC indicators in the ICS. Indicators should be presented according to the main IC dimension to which they belong (i.e. human capital, relational capital or structural capital) and should be grouped around the influencing factor to which they relate. For instance, within human capital an influencing factor (e.g. ‘building up employees’ experience’) can be described and measured by one or more indicators (e.g. ‘experience in years’ and ‘experience in years not including apprentices’). Also illustrated is the need to present indicators over different reporting periods, a qualitative assessment of the degree of achievement of stated objectives and the desired trend of the indicators for the new reporting period.

### *Reporting*

The ICS in this Guideline is seen as an instrument to assess and develop the IC of an organization: ‘It shows how organizational goals are linked to the business processes, the IC and the business success of an organization using indicators to visualize these elements’ (FMEL 2004: 11). According to this Guideline, the organization should select which details are for internal use only and those that should be communicated externally. For internal reporting purposes, the German Guideline indicates that the table of indicators should be accompanied by verbal or written narratives that can be different according to various stakeholders. Also, this KR information could be partly disclosed in the external ICS. The Guideline proposes to draw up the ICS on the basis of the internal and external target groups and propose criteria for communication (FMEL 2004: 31).

In summary, the German Guideline addresses comprehensively all four MKR issues in a logical and well-connected framework, known as the strategy cycle. The strategy cycle, in which the knowledge strategy is derived from the business strategy, describes the organization's position with regards to sub-areas of IC. The business strategy incorporates the analysis of the business environment and information on market stakeholders. However, this analysis aims to identify possibilities and risks in the market more than stakeholders' interests. Also, strategy is seen as the result of several 'rounds of improvements' (FMEL 2004: 20) which are supported by the information contained in the ICS. This Guideline does not consider in detail the initiatives for achieving the knowledge strategy and states that the 'management of IC' focuses on the identification, mapping and assessment of resources interdependencies. For mapping and assessing resources interdependencies the Guideline provides two tools: the matrix and the interdependencies network. Also, for the German Guideline, KR information is seen as an interconnection between narratives and indicators. Narratives describe the context, interpret the results, show the consequences from the point of view of the organization and highlight future trends. An indicator is defined as an absolute or relative benchmark which serves to describe a circumstance. Narratives and indicators are included in the ICS that is used both for internal and external reporting purposes. Importantly, the Guideline highlights the importance of adjusting the ICS according to the internal and external target groups and provides criteria for this.

### ***Austrian Universities Act***

The Austrian Universities Act (FMESC 2002) and its related Regulation (FMESC 2006) are the first mandatory requirements to produce an Intellectual Capital Report (ICR). The Act came into force in 2004 and was aimed at restructuring the educational and legal framework of universities (Altenburger and Schaffhauser-Linzatti 2006). According to this directive, universities were granted autonomy from the Federal Ministry of Education, Science and Culture (FMESC) and universities' budgets were placed on a performance-oriented basis. One consequence of this was the introduction of new forms of reporting. Whilst internal reports could still be developed and implemented according to the individual needs of each university, external reports were required to be standardized. This was because the Austrian government wanted universities to report in a way that allowed for inter-university comparisons.

The four external reports that universities are required to provide are:

- 1 performance report;
- 2 intellectual capital reports (ICR);
- 3 evaluation report;
- 4 financial statement.

Austria is the first country to establish an ICR by law. The design and content of the ICR is governed by a Regulation.<sup>20</sup>

The Regulation states that a university's ICR is aimed at 'presenting, evaluating and communicating intangible assets, performance processes and their consequences and serves as a qualitative and quantitative basis for generating and entering a performance agreement' (FMESC 2006: 1). The following highlights the analysis of the Austrian requirements according to the four MKR issues.

### *Strategy and KR*

The Regulation defines the first section of the ICR as: 'I. Scope of application, objectives and strategies'; it is one of the two sections that contains narratives and it shows the university's activities, social goals, objectives and strategies. Some details on the strategy formulation and implementation processes can be found in the part of the Act that relates to the performance agreement (FMESC 2002: 10). In particular, it is stated that the university should derive its long-term objectives<sup>21</sup> from its special priorities and strengths and that resources should be allocated to attain these objectives. Also, these objectives should cover social goals that express the university's contribution to social progress.

In regard to strategy implementation, the definition of objectives is addressed in the performance agreement which states that 'human resources development measures and incentives are required in order to attain the objectives'. Also, the Regulation provides a list of the measures and topics for each university that have to be reported in a narrative form in the first section of the ICR (see Figure 2.6).

As illustrated in Figure 2.6, the Regulation focuses on guiding the *reporting* to the Ministry of various matters including measures. However, this provides very little insight into individual universities' managerial choices.

### *Resources dynamics*

The second section of the Regulation: 'II. Intellectual property', relates to the university's Intellectual Capital, and is broken into human, structural and relational capital.<sup>22</sup> Also, this section contains a mandatory list of indicators for each IC category. For instance, human capital includes indicators such as the number of university staff; structural capital includes indicators such as costs for available online research databases; and relational capital includes indicators such as number of partner institutions/enterprises incorporated in cooperation. Therefore, the Regulation focuses on identifying single KR elements (stocks) and does not address the issue of resources transformations.

§ 4. (1) The section “**I. Scope of application, objectives and strategies**” is to be composed in a narrative format. In addition to the scope of application, objectives and strategies the following topics are also to be included in a narrative format:

- (a) measures for gainfully employed students and for students with child care duties or similar care-taking duties;
- (b) measures for quality assurance;
- (c) measures for public relation;
- (d) measures for promoting equal opportunities for men and women and affirmative actions for women, particularly with the purpose of increasing the percentage of females in management positions and among the academic staff;
- (e) measures for personnel development and further education of the staff;
- (f) measures for students with special needs or chronic disorders, or both, such as preparation for studying at the university, for certain groups while pursuing a degree program, for facilitating the transition into a career, as well as relevant research activities;
- (g) prizes and awards;
- (h) research clusters and networks structured according to:
  - time of establishment,
  - duration,
  - organisational structure,
  - size (staff number, approved total volume),
  - research topics,
  - orientation and
  - partners;
- (i) Current state of the implementation of the Bologna declaration.

*Figure 2.6 Illustrations of indicators for Section I.*

*Source:* FMESC 2006: 1–2.

### *KR information*

The Regulation specifies that the ICR must contain five sections. The first section outlines objectives and strategies. The second section labelled ‘II. Intellectual Property’ focuses on single KR elements as discussed above. The third section specifically relates to core processes. The fourth section focuses on outputs and impacts of core processes. The fifth section provides a summary of the ICR and highlights prospects for the future.

The third and fourth sections relate to strategic performance measurement and are divided into two main areas: ‘Education and continuing education’ and ‘Research and development’. The third section deals with processes in these two main areas and includes indicators, such as the number of academic programmes offered and number of ongoing evaluated research and development projects. The fourth section is concerned with ‘outputs and impacts of core processes’ in relation to education and continuing education and research and development; it includes indicators such as number of awarded degrees and number of scientific publications by staff. An illustration of the ‘IV.2 Outputs and impacts of core processes – research and development’ is provided in Figure 2.7.

The Regulation specifies that indicators must be in accordance with the information required by the Ministry, however, it recognizes that individual universities may provide additional indicators: ‘The universities may include

(9) Section “**IV.2 Output and impact of core processes – research and development**” includes the following indicators:

- IV.2.1 Number of awarded doctoral degrees**  
[per university, per curriculum]  
(according to gender, nationality, type of doctoral degree)
- IV.2.2 Number of scientific publications of the staff**  
[per university, per scientific discipline]  
(according to type of publication)
- IV.2.3 Number of presentations held as invited speaker or selected presenter at scientific/art events**  
[per university, per scientific/art discipline]  
(according to gender, type of event, type of presentation)
- IV.2.4 Number of patents awarded to the university**  
[per university, per scientific discipline]  
(according to location of patent award)
- IV.2.5 Proceeds from research and development projects and projects for developing and promoting the arts according to subsection 26(1) and paragraph 27(1)3 of the University Act 2002 in Euro**  
[per university, per scientific/art discipline]  
(according to commissioning/funding organisation, registered office of commissioning/funding organisation)

(10) Section “**V. Summary and prospects**” is to be composed in a narrative format.

(11) Section “**VI. Specific set of indicators for universities of medicine**” includes the following indicators:

*Figure 2.7* Illustration of indicators for Section IV.

*Source:* FMESC 2006: 5.

additional indicators, succeeding respective sections, in their intellectual capital report for the purpose of illustrating individual performance, particularly in connection with the performance agreement’ (FMESC 2006: 6–7).

The type of KR information required by universities is performance oriented and should comply with individual performance agreements, which means that performance assessment and measurement is central to the core of the universities ICR.

### *Reporting*

The Regulation focuses on defining the design and structure of the ICR as an external reporting device. The ICR is made of five sections<sup>23</sup> (see Figure 2.8), three of which contain a mandatory set of metrics and two of which are in narrative form.

As indicated above, the Regulation requires that universities produce a standardized ICR for benchmarking across the university sectors. Also, only in the sections ‘I. Scope of application, objectives and strategies’ and ‘V. Summary and prospects’ the regulation suggests the integration of indicators with narratives for an understanding of universities’ performance. However, the remaining sections (i.e. ‘II. Intellectual property’, ‘III. Core processes’ and ‘IV. Output and impacts of core processes’) are composed of indicators. For example, in the Intellectual Property section, the indicators for human

### Structure of the intellectual capital report

§ 3. (1) The intellectual capital report includes the following sections:

- I. Scope of application, objectives and strategies
- II. Intellectual property
  - 1. Human capital
  - 2. Structural capital
  - 3. Relational capital
- III. Core processes
  - 1. Education and continuing education
  - 2. Research and development
- IV. Output and impact of core processes
  - 1. Education and continuing education
  - 2. Research and development
- V. Summary and prospects.

Figure 2.8 Structure of the intellectual capital report.

Source: FMESC 2006: 1.

capital contain certain mandatory information. The Regulation provides a list of standardized indicators which are mainly represented by numbers (see Figure 2.9). The required set of metrics is enlarged by specific sets for defined fields of studies and research (e.g. arts or medicine). Also, the Regulation specifies that the ICR may only be published in the university gazette upon completion of a data clearing process performed by the Federal Ministry for Education, Science and Culture. Publications of ICR in the university gazette after the reporting period of 2006 are to include a chronological

(3) Section “II.1 Intellectual property – human capital” includes the following indicators:

- II.1.1 Staff**  
[per university]  
(According to gender, type of function, assessment criteria)
- II.1.2 Number of awarded teaching qualifications (habilitations)**  
[per university, per scientific/art discipline]  
(according to gender)
- II.1.3 Number of appointments to the university**  
[per university, per scientific/art discipline]  
(according to gender, home university/previous employer, limitation)
- II.1.4 Number of appointments from the university**  
[per university, per scientific/art discipline]  
(according to gender, location of host university)
- II.1.5 Number of academic/art staff who have completed a temporary stay abroad amounting to at least 5 days (outgoing)**  
[per university]  
(according to gender, category of host country)
- II.1.6 Number of incoming academic/art staff**  
[per university]  
(according to gender, country of home institution)
- II.1.7 Number of participants in programs for continuing education and personnel development**  
[per university]  
(according to gender, type of function)

Figure 2.9 Illustration of indicators for Section II.

Source: FMESC 2006: 2.



presentation of all indicators. If available, they are to be listed chronologically for a minimum of three reporting years.

In summary, the Austrian Universities Act in 2002 was a world first – the first time an ICR had been required by law. The Ministry's aim in mandating an ICR was to shift universities to a performance oriented approach. In 2006, the Ministry released a Regulation which detailed the structure and content of the ICR, but was measurement-oriented and provided little insight into individual university's strategy formulation and implementation. It provided few details as to how a university should derive its long-term objectives from its special priorities and strengths or how resources should be allocated to attain these objectives. In regard to strategy implementation, a list of precise measures to be reported was provided. In relation to Resources dynamics, the Regulations deal only with the identification of stocks of IC.

The Regulation prescribed an enormous list of KR information, mainly indicators, which must be included in an ICR and which resemble a list of data rather than provide information about inputs and outputs. The stated main purpose of the Act and the Regulation was to allow for university benchmarking and, in conjunction with the performance report, to check that individual universities were meeting the requirements of their performance agreements. It is still too early to assess the impact and operations of this mandatory ICR experiment.

### ***European MERITUM Guidelines***

The MERITUM (Measuring Intangibles to Understand and Improve Innovation Management) Guidelines for managing and reporting on IC were established in 2002. These Guidelines<sup>24</sup> aim to assist organizations in the development of their IC by its identification, measurement and control. Also, they aim to assist organizations in the external disclosure of the intangible determinants of their value creation capability (MERITUM 2002: 56).

The Guidelines were intended to be for any types of organization, with the project involving 80 private companies from several European countries.<sup>25</sup> The MERITUM Guidelines are divided into three sections: the conceptual framework, the management of intellectual capital and the intellectual capital report. The first section, *conceptual framework*, defines the basic concepts of intangibles and intellectual capital. The second section, the *management of intellectual capital*, addresses the relationship between measurement, reporting and management. This is done in two ways:

- 1 identifying different steps (formulating the vision of the firm, identifying critical intangibles and measuring the critical intangibles) that need to be followed by the organization when developing an intangible management system; and
- 2 identifying supporting processes that are essential to ensure the transformation of measurement and reporting into managerial action.

The last section, *Intellectual Capital Report*, contains a model for communicating IC information to stakeholders. The different elements that should be included in the ICR are described. These are (a) vision of the firm, (b) summary of intangible resources and activities and (c) a system of indicators.

The following highlights the analysis of the MERITUM Guidelines using the four MKR issues.

### *KR and strategy*

In the MERITUM Guidelines the starting point for the formulation of a strategy for managing IC is the 'vision'. The vision of the firm should describe, in a narrative form, how customers, investors and 'other stakeholders' benefit from the firm's knowledge production activities. However, the MERITUM Guidelines do not provide details on 'other stakeholders' and their needs. Also, the vision identifies the strategic objectives of the organization. The firm then needs to identify those intangibles that are critical to their strategic objectives. The critical intangibles are 'the main factors, the key drivers, which contribute most to the value creation process. They embrace the core competencies the company possesses or needs to develop in order to attain its objectives.' (MERITUM 2002: 68). Finally, the firm should define the 'support activities' that allow an adequate monitoring and follow up of all the intangible activities and their impact on the critical intangibles. Therefore, this process results in a picture of critical intangibles and helps to identify the activities that have to be implemented to achieve the strategic objectives.

In relation to strategy implementation, the guidelines distinguish between processes and activities. Processes are implemented to transform the measurement of intangibles into managerial action and integrate IC management within the firm's internal management processes whilst activities are undertaken on intangibles in order to achieve strategic objectives. Also, activities can be used to create 'the right' connectivity between IC categories (MERITUM 2002: 63). These processes are of five main types: the recognition and measurement of the IC base; the reporting to internal and external stakeholders; the evaluation of the measurement processes results; directing the attention of middle management and employees to IC resources; internal and external marketing to reveal the purpose of the production of measures and indicators. The MERITUM Guidelines report examples about supporting processes for the integration of intellectual capital management within the firm's internal management processes; these are illustrated in Figure 2.10.

The MERITUM Guidelines distinguish between three types of activities (MERITUM 2002: 75) that:

- 1 develop intangible resources internally or acquire them externally (e.g. employment of people with specific competencies, the acquisition of new IT systems to support knowledge sharing in the organization);

1. Recognition and measurement processes
  - Human and customer surveys executed on a regular basis and in a systematic way can act as a solid base for measuring and recognizing the importance of intangibles
2. Reporting processes
  - Continuous and well structured internal reports to as many management levels as possible
  - Investor relation information (reports) to analysts and other stakeholders
3. Evaluation processes
  - Evaluation of single indicators by each manager in combination with dialogues between the management levels
  - Statistical analysis of the indicators providing a view of the trend followed in previous periods.
4. Attention processes
  - Time is set of for meetings focusing on the status and trends regarding different intangibles
  - Structured dialogues and work counseling meetings are held on a regular basis
  - Internal benchmarking activities (identification of best practices)
  - The indicators and measures are connected to the salary bonus system
5. Marketing processes
  - Internal and external marketing activities revealing the intention and purpose of the production of measures and indicators

*Figure 2.10 Supporting processes for the integration.*

*Source:* MERITUM 2002: 76.

- 2 increase the value of KR (e.g. training to increase employee skills and abilities);
- 3 assess the effects of previous activities (e.g. employee survey may provide the organization with information about the effectiveness of its investment).

This last type of activity pertains to performance assessment.

### *Resources dynamics*

In the MERITUM Guidelines, the term ‘intangibles resources’ encompasses three main categories: human capital, structural capital and relational capital.

The definition of these three categories in the MERITUM Guidelines is illustrated in Figure 2.11:

**Human capital** is defined as the knowledge that employees take with them when they leave the firm. It includes the knowledge, skills, experiences and abilities of people. Some of this knowledge is unique to the individual, some may be generic. Examples are innovation capacity, creativity, know-how and previous experience, teamwork capacity, employee flexibility, tolerance for ambiguity, motivation, satisfaction, learning capacity, loyalty, formal training and education.

**Structural capital** is defined as the knowledge that stays within the firm at the end of the working day. It comprises the organizational routines, procedures, systems, cultures, databases, etc. Examples are organizational flexibility, a documentation service, the existence of a knowledge centre, the general use of Information Technologies, organizational learning capacity, etc. Some of them may be legally protected and become Intellectual Property Rights, legally owned by the firm under separate title.

**Relational capital** is defined as all resources linked to the external relationships of the firm, with customers, suppliers or R&D partners. It comprises that part of Human and Structural Capital involved with the company's relations with stakeholders (investors, creditors, customers, suppliers, etc.), plus the perceptions that they hold about the company. Examples of this category are image, customers loyalty, customer satisfaction, links with suppliers, commercial power, negotiating capacity with financial entities, environmental activities, etc

Figure 2.11 Classification of intellectual capital.

Source: MERITUM 2002: 63.

Within the MERITUM Guidelines, the concept of IC embraces all kinds of intangibles, either formally owned or used, or informally deployed and mobilized. IC is more than simply the sum of the human, structural and relational resources of the firm, it is about how to let the knowledge of a firm work for it and have it create value (Roberts 1999). This can be achieved by creating the right connectivity between those resources through the appropriate intangible activities (MERITUM 2002: 63).

Therefore, the MERITUM Guidelines recognize that IC is not just the stock of individual elements but the 'connectivity' between the various resources via intangible activities. Despite this recognition, tools for identifying, observing and understanding the 'connectivity' between resources are not considered in the MERITUM Guidelines.

### *KR information*

The MERITUM Guidelines use indicators and narratives to support and describe IC management. A system of indicators is used to visualize the operations of the organization. These should be specific to an organization rather than a pre-determined set of indicators. The Guidelines place the system of indicators as central to the construction of the ICR (see Figure 2.11).

Also, the Guidelines specify certain key characteristics of indicators (MERITUM 2002: 82):

- It creates a visualization that allows actions to be translated into a system of indicators.
- It has an array of indicators that describe the company's value creation process.
- It typically has indicators from all three components of Intellectual Capital.
- It may contain a mix of financial and non-financial indicators.
- All indicators must be verifiable even when not purposely audited. The criteria followed for producing, defining and presenting them should be provided in the report.

In the MERITUM Guidelines, indicators have to be defined and reported in relation to the three intangibles resources categories (i.e. human capital, structural capital and relational capital) and they should measure activities undertaken. It is stated that the organization should try to make an estimate of the impact of each activity on intangible resources and highlight reasonable cause and effect relationships between activities and results.<sup>26</sup>

Also, indicators should be used to assess the achievement of strategic objectives. However, in relation to the assessment, there is no reference to the setting of target indicators against which to evaluate performance.

The Guidelines state that the indicators used for management purposes should reflect the 'changes and the learning effects accomplished by the organization' (MERITUM 2002: 72). Therefore, the set of indicators used by the firm is dynamic. However, as stakeholders and the organization need to understand performance over time, it may be necessary to keep a core and stable set of indicators over a relatively long period of time (MERITUM 2002: 73).

In relation to narratives, their use is not addressed in detail by these Guidelines. However, narratives are required for the description of the vision of the firm and its strategic objectives.

### *Reporting*

The main stated purpose of the MERITUM Guidelines is the managing and reporting of intangibles and it is argued that to be able to manage intangibles one should have a system by which these resources can be observed, identified, measured and reported. To be able to do this, the MERITUM Guidelines produce a conceptual framework in which management and the construction of an ICR are seen as interchangeable. Therefore, the construction of the ICR should be developed around three main points: the vision of the firm, a summary of intangible resources and activities and a system of indicators. In more detail, the three parts of the ICR are as follows (MERITUM 2002: 78):

- 1 *the vision of the firm* (strategic objectives, core competencies and key intangible resources) which presents the firm's main objectives and strategy and the key drivers (or critical intangibles) to reach those objectives;
- 2 *a summary of intangible resources and activities* describing the intangible resources the company can mobilize and the different activities undertaken to improve the value of those resources;
- 3 *a system of indicators* for the intangible resources and activities, intended to estimate correctly the firm's future expected earnings and risk. In that sense, it is useful to both external parties and management to disclose not only the indicator but also its expected trend and its relation to the company's future earnings and growth.

This schema is illustrated in Figure 2.12.

In these Guidelines the importance of disclosure in a stand-alone ICR is highlighted by the following two requirements (MERITUM 2002: 78). First, based on a well-defined strategy, the firm has to have a stated commitment to sustain and develop its intellectual capital. Second, in order to adequately

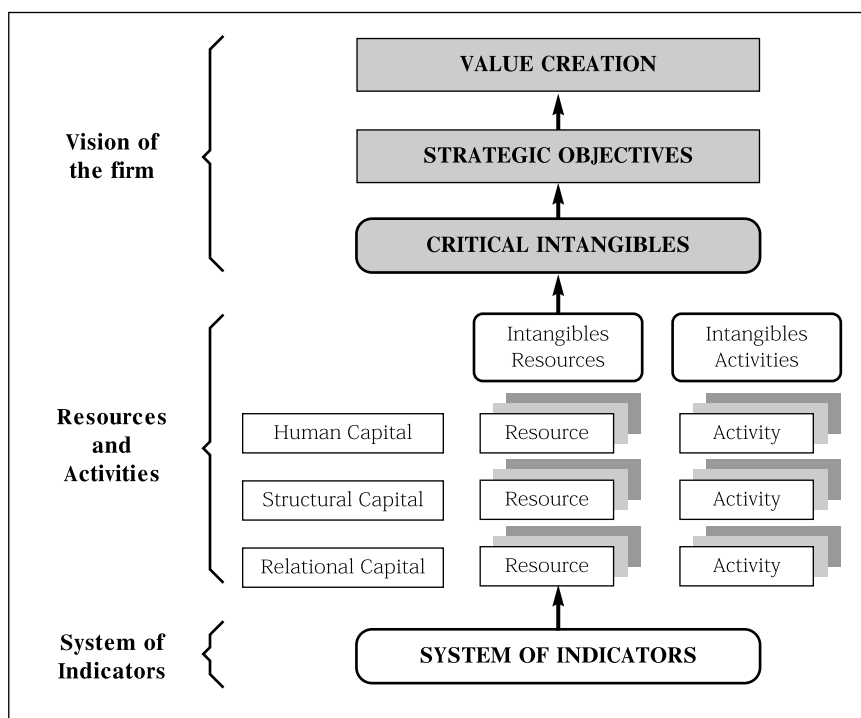


Figure 2.12 A schema for the presentation of intellectual capital statements.

Source: MERITUM 2002: 83.

communicate its strategy both internally and externally, the firm must disclose, at least partially, information on the efforts made to sustain and develop its intellectual resources. The first condition puts the vision of the firm, that is, its strategic objectives, into context (i.e. to put the management of intellectual capital on the firm's agenda). The second condition is that there is value to be derived from intellectual capital reporting. Reporting should improve – and not merely describe – relationships with customers, employees, partners and, in general, the increased emphasis on knowledge-sharing activities across stakeholders and organizational boundaries. The reporting of information on IC has an impact on the firm's image and that affects the organization's ability to acquire resources. For instance, it can improve the firm's ability to attract human resources through the dissemination of information on its professional development plan or improve sourcing conditions by publishing information on its average time-to-payment.

In summary, these Guidelines cover all the four MKR issues in a comprehensive manner, except for the specific issue of Resource dynamics. The MERITUM Guidelines provide a view on how the strategy can be linked to intangibles. The vision of the firm defines how the customers and other, mainly market, stakeholders benefit from the firm's knowledge production activities. The vision of the firm is detailed by strategic objectives and related critical intangibles to achieve them. In these Guidelines, the strategic objectives can be achieved via intangible activities that aim to acquire and develop critical intangibles. Also, the Guidelines outline five main supporting processes that aim to integrate the IC management into the firm's internal management. In relation to resource dynamics, the Guidelines recognized the importance of the connectivity (i.e. transformations) between the various IC categories. However, these were not explored in detail and no tools for their identification, mapping and assessment are provided. For these guidelines, internal and external reporting of IC is key to the management process and the transparency of the organization's intangibles for stakeholders. The ICR focuses on indicators that relate to intangible resources and activities and are used for performance assessment. Narratives are used to describe the vision and the strategic objectives. Also, these guidelines provide a structure for the ICR and suggested disclosure in a stand-alone report.

### ***Australian Guiding Principles***

The Australian Society for Knowledge Economics (SKE) produced the 'Australian Guiding Principles on Extended Performance Management' (SKE 2005), with the objective of inspiring Australian organizations to measure, organize and report their knowledge-intensive resources. The Principles aim was to: provide a broad and balanced perspective on organizational health and wealth; better define the capacity an organization has to create value in the future; make visible knowledge-intensive organizational resources, identifying new opportunities for management intervention and

financial valuation (SKE 2005: 4). The Principles use the term 'Extended Performance Management' (EPM) to describe the framework developed. Also, they highlight three main management phases that are used to operationalize EPM: (1) Business Orientation, (2) Business Analysis and (3) Performance Assessment.

The Principles can be used from two main perspectives (SKE 2005: 9). First, an internal management perspective, which provides managers with a practical tool for gaining a better understanding of knowledge-intensive resources and business performance. Therefore, internally, EPM represents a useful device for improving strategy formulation and resource allocation processes as well as for motivating employees. Second, an external reporting perspective, which organizations can use to disclose information to stakeholders through extended performance accounts. These communicate the organization's knowledge-intensive resources which are not included in traditional financial accounts. The following will highlight how the Principles address the four MKR issues.

### *Strategy and KR*

The Principles use the first two management phases to conceptualize strategy formulation as Business Orientation and Business Analysis. In particular: 'The outcome of the business orientation phase is an identification of the organization's strategic business objectives, relative to its identity, vision for creating use value and knowledge gaps' (SKE 2005: 51).

In defining strategy, the Principles place stakeholder engagement at the centre. The SKE identifies stakeholders as: 'those people external or internal to the organization, who affect, or are affected by, the organization's operating activities' (SKE 2005: 19). External stakeholders include: capital market actors, community, customers, suppliers and non-government organizations. Internal stakeholders include: board members, consultants, contractors and employees such as senior executives, managers and staff.

The Principles outline processes for undertaking stakeholder engagement and therefore the establishment of strategic objectives. Stakeholder Analysis pertains to the identification and analysis of the expectations, perspectives and needs of internal and external organizational stakeholders. Stakeholder Analysis facilitates reciprocal, as opposed to one way, communication flows between organizations and the people they serve and affect. For the SKE, this stakeholder engagement 'provides organizations with new knowledge about the needs and perspectives of key stakeholder groups, thus creating opportunities for reflecting on existing management activities and devising new avenues for organizational development' (SKE 2005: 51–52).

The first management phase, Business Orientation, is devoted to the identification of the 'identity of the organization', its 'vision for creating use value' and 'knowledge gaps'. In particular, the vision leads to the identification of strategic objectives in terms of 'use value' to be delivered to stakeholders.



Also, from these objectives 'knowledge gaps' are derived, and these refer to the KR that are needed to achieve the strategic objectives.

The second management phase, Business Analysis, includes four main process steps: market analysis, stakeholder analysis, resources analysis and resource management analysis. In particular, stakeholder analysis: 'aims to identify and examine the expectations, perspectives and needs of internal and external organizational stakeholders' (SKE 2005: 51). Also, stakeholder analysis helps in identifying new avenues for organizational development and informs strategy formulation (SKE 2005: 52). Resources analysis provides an inventory of the stock of resources that the organization has at its disposal.

The process step of resource management analysis represents the basis for the management of resources of the organization as it focuses on the analysis of five activities for managing knowledge-intensive resources: acquisition, development, utilization, maintenance and disposal of KR. These activities can be implemented in relation to each category of knowledge resource (i.e. human, structural and relational capital).

### *Resources dynamics*

The Principles identify three main knowledge-intensive resources: relational, structural and human resources. These resources, along with monetary and physical resources, represent the organizational resources. These are considered within the resources analysis which aims to provide an inventory of the knowledge-intensive resources the organization has at its disposal in its pursuit of value creation. In the resources analysis (SKE 2005: 52) the three categories of KR are considered separately and there is no reference to transformations between resources.

### *KR information*

The issue of KR information is addressed by the Australian Principles by the third management phase, Performance Assessment. This phase aims to assess the organization's progress in managing KR relative to its strategic objectives. It provides inputs for managers planning activities, and particularly for re-orientation of strategic objectives, action planning and target setting. The process of assessing performance is informed by market analysis, stakeholder analysis, resources analysis and resource management analysis.

The Principles state that the process of measuring performance and related techniques and practices: 'are still in the infancy stage and they require more empirical testing through research and practice' (SKE 2005: 65). The Principles identify three main categories of indicators (or measures): stocks of KR, investments in KR and effects on KR. However, the Principles highlight that a cause-and-effect relationship between investment and effect has still to be demonstrated (SKE 2005: 32). The Principles briefly tackle several

critical issues related to choice of indicators. The issues identified are: validity, objectivity, accuracy, incomparability in time and space and availability of information. Also, the Principles highlight that measures should be set within a broader 'strategic context of market trends, organizational strategy and operations, stakeholder value and environmental impacts and contributions' (SKE 2005: 35) and that targets should be defined. To illustrate EPM in operation, the Principles provide several examples of measures that are reported along with narratives within extended performance accounts (SKE 2005: 45; 49).

### *Reporting*

The Extended Performance Account, which is provided in a draft format, represents the proposed frame for reporting. The account is structured according to the three main knowledge-intensive resources (i.e. relational, structural and human capital) and for each of these identifies strategic objectives, managerial efforts (i.e. current and planned actions), and indicators (i.e. external and internal). The proposed draft Extended Performance Account is shown in Figure 2.13.

Indicators are divided into external and internal, in order to highlight the need to extend the traditional focus of performance to include external impacts of organizational activity, be they social, environmental or economic. The examples of EPM in operation provided in the Principles highlight how narratives and indicators can be integrated in this reporting frame. In particular, narratives are used to describe strategic objectives and managerial efforts.

	Strategic Objectives	Managerial Efforts		Indicators (External and Internal)		
		Current Activities	Planned Actions	Indicators	Past / Current	Target
Relational Capital						
Structural Capital						
Human Capital						

Figure 2.13 The Australian Guiding Principles draft Extended Performance Account.

Source: SKE 2005: 39.

Internally, the Extended Performance Account can be used for brainstorming and planning to improve resources allocation and business strategy, for fostering changes in the organization and for motivating employees.

The Extended Performance Account can also be used for external reporting purposes to complement traditional financial accounts and provide external stakeholders with a broader perspective on the organization's value creating activities and abilities (SKE 2005: 40).

In summary, the Australian Guiding Principles are an advanced IC framework for the measurement, management and reporting of knowledge-intensive resources and address comprehensively three out of four MKR issues. However, like many of the frameworks analyzed in this chapter, it does not consider the transformations between resources. In the Australian Principles, the organization's strategy is considered within the first management phase, Business Orientation, and it is expressed in terms of 'use value' to be delivered to stakeholders. In this management phase, knowledge gaps that express the knowledge-intensive resources that are needed to achieve strategic objectives are identified. Strategy formulation is informed by the stakeholder analysis and the resources analysis.

The Australian Principles is the only framework analyzed in this chapter that highlights the relevance of considering a wide range of stakeholder expectations, perspectives and needs when formulating the strategy and provides guidance for how to achieve this. Also, the Principles focus on five activities for managing KR: acquisition, development, utilization, maintenance and disposal of KR. Resources dynamics are not considered in this framework as the resources analysis focuses on the identification of the resources stocks. The Principles consider performance assessment as one of the main uses of KR information, indicators and narratives. Also, indicators and narratives are used for re-defining strategic objectives, planning actions and setting targets. The Principles identify three main categories of indicators: stocks of KR, investments in KR, and effects on KR. Moreover, they briefly state several critical issues related to the choice of the indicators. Also, the Principles support the integration of indicators and narratives to measure and assess performance and highlight the need for defined targets. In relation to the fourth MKR issue, the Principles propose the use of Extended Performance Accounts for internal and external reporting. The reporting structure consists of the three KR components which are reported against strategic objectives, managerial efforts (i.e. current and planned actions) and indicators (i.e. internal and external). Also, the Principles contain a brief review of other forms of EPM reporting which are seen to complement the Extended Performance Account.

### ***Japanese guidelines***

In recent years, the Japanese government has become concerned with the creation, protection and exploitation of Intellectual Assets (IA). Based on this,

the Japanese Industrial Structure Council issued an Interim Report on IA which examined measures to promote Japan 'to become a society where higher added value is realised' (SMIA 2005: 5). The council specified a major problem in that:

Currently, there is not a sufficient exchange of such information, and corporations are not satisfied with the current situation where only financial indicators receive attention. Confirming the results is no longer enough, and it is important to disclose 'management information' for the future. In such a situation, it will become possible for corporations not only to cope with regulatory disclosure but also to proactively present information in a strategic way.

(SMIA 2005: 27)

The way the Council proposed to address the shortcomings of financial indicators was to promote the management and reporting of IA, which represent the beginning of a 'virtuous cycle' of benefits for the organization, capital markets and Japanese national wealth:

If a corporation receives a proper assessment from its stakeholders by such disclosure, it will create a virtuous cycle: the value of the corporation realized in the market will increase (such as an increase in the aggregate market value), financing of the corporation will become easier; efforts for and investment in the creation and utilization of IA will increase; corporate value will further increase and IA based management will be further strengthened; and it leads to the next disclosure.

(SMIA 2005: 27)

However, the main point of the Interim Report was not the disclosure, but rather the management of IA (SMIA 2005: 47–48). The Council stated that in a knowledge-based society, Intellectual Assets Based Management (IABM), in which corporations accurately recognize and utilize their potential, was becoming increasingly important (SMIA 2005: 63). Also, in discussing IABM, the Interim Report considered the measures of individual corporations that have taken the lead in practising IABM to identify, manage and utilize their own IA. These include large Japanese corporations such as Nissan, Shiseido, Okaya Electric Industries and Hitachi. For instance, in relation to Shiseido, the Interim Report states that:

As 'THE SHISEIDO WAY', Shiseido Co., Ltd. has established guidelines for employees' activities for the stakeholders, i.e., customers, clients, shareholders, employees, and society (THE SHISEIDO CODE). In addition, its brand is enhanced based on the policies of 'HIGH IMAGE,' 'HIGH QUALITY' and 'HIGH SERVICE.' In overseas markets such as

China, measures are taken to use the know-how of brand enhancement in Japan.

(SMIA 2005: 19)

Therefore, the Council formed the view that unless Japanese corporations make the effort to understand, manage and utilize IA, and unless stakeholders properly assess such measures, it would be difficult for Japan to increase national wealth. This focus on the management of IA rather than reporting was, for the Council, a core difference between IA and Corporate Social Responsibility (CSR) Reporting. The IABM assesses value creation from an internal perspective and therefore focuses on elements such as ‘Human Resources’ and ‘Organizational Response Capability’. The CSR represents the external viewpoint of value creation and, therefore, the assessment focuses on elements such as ‘Labour standards’ and ‘Human Rights’ (SMIA 2005: 60). This is illustrated more fully in Figure 2.14.

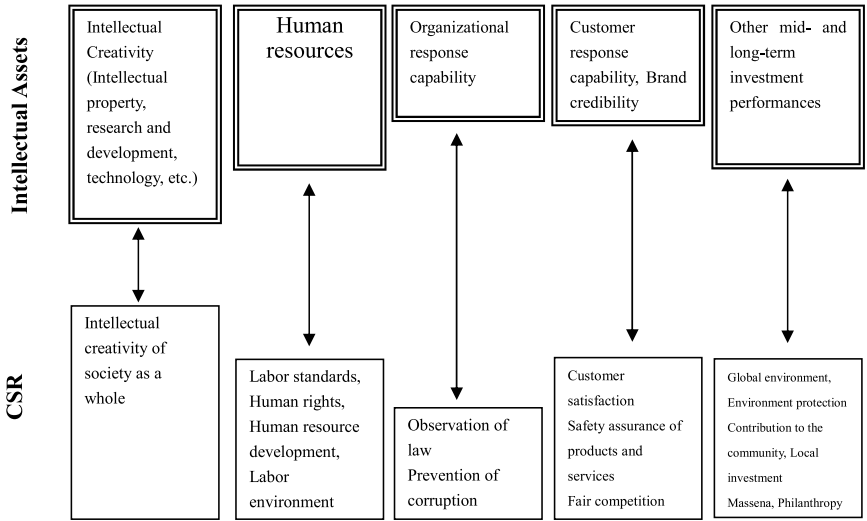


Figure 2.14 Intellectual Assets and CSR as foci of managerial activities.

Source: SMIA 2005: 60.

In response to the Council’s Interim Report, the Ministry of Economy, Trade and Industry (METI) released the ‘Guidelines for Disclosure of Intellectual Assets Based Management’ (METI: 2005). The focus of these Japanese Guidelines was on IA management of companies, rather than just IA reporting (METI 2005: 1).

*KR and strategy*

Both the Interim Report and the Guidelines highlight the ‘creation of value’ as the main objective of IABM. For instance, the Interim Report states that

the success or failure of IABM can be determined on the basis of its ability to manage effectively IA that are sources of corporate value (SMIA 2005: 8). Also, the Interim Report highlights the link between the traditional financial notion of value (i.e. 'present discounted value of the corporation's future cash flow') and extended notions of value (i.e. 'social value, organization[al] value, and environmental value') (SMIA 2005: 8).

The content and size of value created by the IA can vary depending on the corporation's strategies and processes. The Interim Report highlighted that, in contrast to Europe and the United States, where many corporations have overall strategies in a top-down sequence, in the Japanese experience it is necessary to separately develop strategies at the highest level of management. In many cases in Japan, such 'holistic strategies' are rarely disclosed either internally or externally and, therefore, it is fair to conclude that there is a huge opportunity to make innovative improvements through IABM (SMIA 2005: 53). For the Japanese Guidelines, the notion of 'value creation' is strictly connected to the generation of sustainable profits (METI 2005: 1).

The IABM aims to create value 'with an eye' to stakeholders. The stakeholders identified include: stockholders, employees, clients, creditors and communities (METI 2005: 3). However, the Japanese Guidelines consider stakeholders only in relation to the reporting activities of IABM, and not strategy.

However, an understanding of the strategic orientation of the organization is provided in the 'General' section of the IABM via two sub-sections: the 'basic management philosophy' and the 'outline of business'. The 'basic management philosophy' represents the *raison d'être* of the corporation and is embodied in the context of business activities. This is then complemented by an outline of the external business environment in terms of products and services offered, business stakeholders and the context in which the organization operates (METI 2005: 5).

In more detail, these Guidelines (METI 2005: 6) provide a discussion on the link between IA and value creation via the analysis of the critical IA based on the past experience of the organization (see, 'Asset and value chain that accumulated in the corporation'). This is then translated into critical IA for the future of the organization defined as 'expected as future source of corporate profits' (see, 'Intellectual assets and value creation methods rooted in the corporation') and 'actions enhance and maintain their value creation potential identified' (see, 'Investment to maintain and enhance intellectual assets').

### *Resources dynamics*

The Interim Report alludes to the issue of 'value creation' and connectivity between various IA, in particular, when discussing leadership and strategies for implementation. The construction and development of the mechanisms of value creation ('value chain') are achieved by connecting the various IA.

Also, by appropriate management, maximization and continuation of created value becomes possible and corporate value is enhanced. This is the essence of IABM (SMIA 2005: 15). However, it is difficult to determine what 'mechanisms of value creation' are available to corporations to understand and manage their Resources dynamics.

### *KR information*

The Guidelines recognize the role of KR information, being indicators and narratives, for providing an understanding of 'corporate value' both for internal and external purposes, in other words, for 'telling the story' of the organization's IA. Also, the Guidelines use key performance indicators to enhance credibility about IABM (METI 2005: 3).

The Guidelines state that the indicators need to have credibility through internal control. For substantial and effective internal management, approximately five to ten indicators are adequate, although it is possible to use more indicators and support these with various figures. However, the Guidelines indicate that internal management indicators should be not reported. In such a case, narratives, without indicators, should be enough information.

The Guidelines provide typical examples of IA indicators. Also, they indicate that each corporation can select from among these, or develop their own. In order to ensure credibility, it is preferable to show historical change in a given indicator and to include the average value of other corporations in the same industry, in addition to the method of calculation (METI 2005: 7). In the use of indicators for management and reporting, the Guidelines state that it is preferable to show target values on IA indicators (METI 2005: 6). Therefore, the Guidelines address this MKR issue by highlighting the need to integrate indicators and narratives which are supported by targets, trends and, if possible, some form of industry benchmarking.

The Guidelines do not provide an optimal number of indicators, but it is stated that, on average, five to ten indicators may be sufficient. Also, there is no specific set of measures provided that can be considered valid for any corporation, although a table that lists possible indicators is provided at the end of the Guidelines (METI 2005: 7).

In conclusion, these Guidelines stress that indicators, and the way they are calculated, are not meaningful on their own but depend on the relationship with the story to have meaning. Therefore, it is pointless to attempt to compare indicators between organizations without referring to the related story (METI 2005: 7).

### *Reporting*

The Guidelines state that they aim to help managers of Japanese organizations to produce an Intellectual Assets Based Management Report (IABMR) that provides an understanding of how companies' specific IA combinations

can create value. Also, 'disclosure of information itself is less important than the actual practice of IA based management by corporations, which is reflected [in] the disclosure' (METI 2005: 2) and, therefore, the focus is also on internal management processes and activities. The IABMR is composed of two sections: the main body and the attachment. The main body of the report consists of three sub-sections: (1) general, (2) from past to present, (3) from present to future. To date, the guidelines have been taken up by 12 Japanese organizations which have produced reports.<sup>27</sup>

For the Japanese Ministry, the reporting of corporate 'value creation' was focused not only on economic sustainability but, social and environmental values. Stakeholders play a central role within the two main aims of the IABMR: (1) to inform about how business activities contribute to value creation and enhance corporate value to stakeholders in a story easy to understand; and (2) share a sense of value with stakeholders (METI 2005: 2).

In order to achieve these aims the Guidelines specify eight basic principles that should be observed in the production of a report (METI 2005: 2–3). These are:

- 1 showing the overall picture of corporate management from the viewpoint of a top manager;
- 2 focusing on the future value creation that affects corporate value;
- 3 as a prerequisite for future value creation, evaluating future uncertainty (risks/chances) fairly and explaining how to deal with them;
- 4 making a report easy to understand for important stakeholders (stockholders, employees, clients, creditors, communities, etc.);
- 5 supplementing and complementing financial information;
- 6 adding supporting key performance indicators to the points of the story to enhance credibility. Explanation on status of internal control is also desirable;
- 7 providing historical comparability (e.g. KPI for the past two years);
- 8 giving explanations reflecting the current business activities in a consolidated based accounting.

According to the Guidelines, corporations should not present IABMR reluctantly and passively out of legal and moral responsibility, rather it should be a proactive expression of management strategies, undertaken 'with pride and confidence':

It is desirable for corporations to make early decisions on management reform, for intellectual assets based management to be firmly established, for stakeholders to increase the capacity to accurately perceive changes, which would create a positive cycle of value creation in the economy as a whole, consequently realizing more effective management.

(SMIA 2005: 64)



In summary, the Japanese Guidelines address two out of four MKR issues and they focus on IA from both a management and reporting perspective. However like most of the frameworks analyzed in this chapter, what was missing was resources dynamics. In relation to strategy, the Japanese Guidelines focus on value creation, however, they do not address in detail the process of strategy formulation and implementation. Also, it is not clear if and how stakeholder interests are incorporated into strategy. These Guidelines identify a strong link between IA and value creation via the analysis of the critical IA. However, the identification of critical IA is in relation to the past of the organization, and does not consider its strategy for the future. The Guidelines recognize the role of KR information, being indicators and narratives, for providing an understanding of ‘corporate value’ both for internal and external purposes. Indicators and narratives should be supported by targets, trends and, if possible, some form of industry benchmarking. Also, the Guidelines stress that indicators, and the way they are calculated, are not meaningful on their own but depend on the relationship with the story to have meaning. For the Japanese Ministry, the reporting of corporate ‘value creation’ was focused not only on economic sustainability but on social and environmental values.

### **Summary of the analysis and conclusions**

The above detailed analysis of the six IC frameworks was driven by a desire to understand how MKR was incorporated into various frameworks. For the purpose of understanding MKR in the various IC frameworks analyzed, four MKR issues were used:

- 1 KR and Strategy;
- 2 Resources dynamics;
- 3 KR information;
- 4 Reporting.

The analysis highlighted several important general observations. First, that the main focus of most of these frameworks was on external reporting, however, they also provide guidance internally of how the management of KR can be undertaken. Second, all of these frameworks, except the Australian Principles, assume ‘value creation’ as one of the main objectives for which KR should be managed. Third, the frameworks are similar in that they deal with the issues of strategy and actions, performance assessment and reporting, and consider these as parts of a process for MKR. Fourth, the majority did not address the important issue of resources dynamics. In particular, only the German Guideline addressed the issue of resources interdependencies and provided guidance on how to identify and visualize them. Fifth, only one framework refers to organizational sustainability (the Australian Principles), which was expressed in terms of an extended view of organizational

performance and considered the analysis of various stakeholder interests for the identification of the organization's objectives. In general, from these observations a main conclusion is that only one of these frameworks, the German Guideline, covers all the MKR issues.

Table 2.7 summarizes the findings of the analysis of the individual IC frameworks and provides an overview of each management issue in the examined set.

The specific findings of this chapter are now discussed in detail to highlight key points from the analysis. These points are then used to help construct the SMKR framework, presented in chapter 5.

*Table 2.7 IC frameworks and MKR issues*

	<i>a) Strategy and KR</i>	<i>b) Resources dynamics</i>	<i>c) KR information</i>	<i>d) Reporting</i>
1. Danish Guideline	√	×	√	√
2. German Guideline	√	√	√	√
3. Austrian Universities Act	×	×	√	√
4. European MERITUM Guidelines	√	×	√	√
5. Australian Guiding Principles	√	×	√	√
6. Japanese Guidelines	×	×	√	√

### ***KR and strategy***

Concerning strategy, all the frameworks (except the Austrian and the Japanese) address the relevance of considering IC and stakeholder interests in the organization's strategy in different ways. The Austrian<sup>28</sup> and Japanese frameworks are focused on performance assessment and reporting and do not address the need to include stakeholder interests and KR into strategy formulation and implementation.

In the Danish Guideline the formulation and implementation of the strategy for MKR plays a central role and is derived from the construction of a knowledge narrative. The knowledge narrative is centred on the KR required to create 'use value' and considers users as the main stakeholders. The knowledge narrative is specified, in terms of KR requirements, by the management challenges which are then operationalized by a set of initiatives. Initiatives consist of activities, concerned with how to compose, develop and procure KR.

The German Guideline identifies a strategy cycle, in which the knowledge strategy is derived from the business strategy and describes the organization's position with regards to sub-areas of IC. The business strategy is derived from the analysis of environmental factors and the organization's vision. This is informed by the ICS which, in this Guideline, measures and evaluates the success of the knowledge strategy. The analysis of the organization's

environment considers the social and the political context and, therefore, also information about stakeholders. However, this analysis aims to identify possibilities and risks in the market more so than other stakeholders' interests. The impression is that this Guideline focuses only on market stakeholders (e.g. customer, suppliers, competitors). Also, the issue of undertaking actions in order to achieve the knowledge strategy is not addressed in detail. It states that the 'management of IC' focuses on the identification, mapping and assessment of resources transformations.

In the MERITUM Guidelines, the vision of the firm is about how the customers and other (market) stakeholders benefit from the firm's knowledge production activities. This is the starting point for the identification of strategic objectives and intangible resources. Customers and suppliers are considered by this framework, but other stakeholder groups are not taken into account in the strategy formulation. Also, all the illustrations provided about 'other stakeholders' relate to market stakeholders. The implementation of the strategy is then undertaken via intangibles activities that aim to acquire and develop critical intangibles in order to achieve strategic objectives. Also, the Guidelines identify processes that can facilitate the integration of IC management within the firm's managerial processes.

In the Australian Principles, the identification of gaps to be addressed by MKR is informed not only by market analysis, but by the analysis of the perspectives and needs of a range of internal and external stakeholder groups and the resources analysis. The organization's strategy is expressed in terms of 'use value' to be delivered to stakeholders. Therefore, the Australian framework is the only one that provides guidance on how to consider the interests of various stakeholder groups in strategy formulation. In relation to strategy implementation, the Principles identify five activities for managing KR: acquisition, development, utilization, maintenance and disposal of KR.

In summary, the majority of IC frameworks highlight a view of strategy in which its formulation drives strategy implementation and not vice versa. Moreover, in providing guidance on strategy implementation these frameworks are limited to actions for managing KR and do not highlight the role of day-to-day processes in strategy implementation and formulation. In relation to stakeholders, only the Australian framework provided some guidance for considering a wide range of stakeholder interests whilst others only considered market stakeholders (e.g. customers and suppliers). The SMKR framework advocated by this book will extend the approach to strategy of these types of IC frameworks in order to focus on organizational sustainability, consider a wide range of stakeholder interests in strategy formulation and include the role of emergent strategies as sources of innovations.

### ***KR and resources dynamics***

The majority of the frameworks consider KR transformations as important. It is acknowledged that all organizations have a unique set of tangible and

KR that are interconnected in various ways and value is created through the transformations of resources. Therefore, an understanding of the 'value creation' process can be achieved via the mapping of resources transformations and is central for strategy formulation and implementation.

However, only one framework details the tools for identification, assessment and mapping of KR transformations. The German Guideline addresses in a systematic way the issue of resources transformations. According to these guidelines, without understanding resources interactions, KR cannot be 'sensibly' managed (FMEL 2004: 33). Therefore, the analysis and assessment of interdependencies is considered in this Guideline as an important prerequisite for managerial action. The identification of 'influencing factors' (e.g. building up employees' experience) is the starting point. Then, the Guideline proposes two tools for mapping and assessing interdependencies between influencing factors: the matrix and the interdependencies network.

In summary, the relevance of Resources dynamics for value creation is acknowledged by nearly all the frameworks. However, only the German Guideline provides practical tools for managers to map and assess resources transformations and therefore consider in a systematic way the contribution of KR to 'value creation'. The SMKRR stresses the relevance of providing managerial tools to map and assess resources transformations, as this is important for understanding the contribution of resources to organizational performance.

### ***KR information***

All the frameworks use KR metrics and accompanying narratives for identifying, measuring and assessing IC and provide examples of financial and non-financial KR metrics. Not all of them provide examples about accompanying narratives (e.g. Austrian and MERITUM). Also, the majority of the IC frameworks recognize that KR metrics are organizationally specific. The Austrian framework provides a generally applicable set of IC indicators for the University sector. Moreover, some of the frameworks identify specific characteristics that the metrics should have (e.g. Danish, MERITUM and Australian).

The Danish Guideline uses narratives and indicators for a qualitative assessment and a quantitative assessment of performance. The first, qualitative assessment uses narratives to assess the effectiveness and the level of ambition of existing initiatives for knowledge management. The second, quantitative assessment uses a set of indicators to specify the management challenges, initiatives and results. Also, for this Guideline, indicators should be calculated on a systematic basis to allow for comparability over time and can be defined *ex ante* in terms of target score.

The German Guideline defines indicators as an absolute or relative benchmark which serves to describe a circumstance. Indicators refer to the main IC category to which they belong (i.e. human capital, relational capital and

structural capital) and are defined in relation to an influencing factor. Also, for the indicators the Guideline outlines the need for the following: (a) integrating indicators with a qualitative assessment of the degree of achievement of stated objectives, (b) presenting indicators over different reporting periods, (c) defining the desired trend of the indicators for the future. Also, indicators should be supplemented by narratives; these describe the context, interpret the results, show the consequences from the point of view of the organization and highlight future trends.

In the regulated Austrian framework, universities must provide a mandatory list of KR metrics. The metrics refer to three main areas: intellectual property, core processes and output and impacts. Therefore, metrics relate to resources (e.g. number of students), activities (e.g. number of doctoral programs) and results (e.g. number of awarded degrees). Also, narrative information should be provided for an understanding of universities' strategies and performance.

The MERITUM Guidelines propose the use of narratives for describing an organization's vision and strategic objectives, whilst indicators relate to intangible resources and intangible activities. Also, these guidelines highlight the relevance of using indicators for assessing performance over time.

The Australian Principles identify three main categories of indicators (i.e. measurement areas): stocks of KR, investments in KR and effects on KR. Moreover, they briefly state several critical issues related to the choice of the indicators. These are issues associated with validity, objectivity and accuracy, incomparability in time and space and availability of information. Also, the Principles support the integration of indicators and narratives to measure and assess performance and highlight the need to define targets.

The Japanese Guidelines support the need to integrate metrics and narratives to 'tell a story' about value creation. In this story, indicators support the narratives and it is through their inter-relationships that their meaning can be understood. Moreover, these Guidelines specify that, in order to enhance the credibility of the indicators, these should be subject to internal control and historical changes should be reported. Also, targets for indicators should be defined.

In summary, the majority of the frameworks recognize the relevance of the provision of KR metrics and narratives for understanding and managing IC. In particular, KR information is used by the frameworks to describe and understand KR and their management, to assess performance and to guide the organization towards the achievement of its objectives. Also, all the frameworks, except for the Austrian, recognize that KR information is organizationally specific. The SMKR framework proposed will extend the range of KR information considered and its uses, particularly highlighting the role of visuals and the use of KR information for fostering innovation and for strategy formulation.

## **Reporting**

All of the frameworks analyzed focus on reporting and provide models for this purpose. These models include KR and their management via financial and non-financial metrics and narratives. The Danish Guideline promotes the ICS for internal and external use. In the design of the ICS, IC components (which can be modified by each organization) are reported against knowledge narratives, management challenges, initiatives and results. These are inter-related elements which together express the company's knowledge management. Also, for external reporting, this framework compares IC and other 'supplementary accounts' and addresses the issue of the choice of reporting media.

The German Guideline promotes the use of the ICS for internal and external reporting purposes. The ICS shows the links between organizational goals, IC and performance, using indicators and narratives. This framework states that it is not possible to define a generally valid structure for the ICS. However, in the illustration provided for a sample ICS, seven parts are used: (1) Foreword. Why an ICS in our organization?; (2) Company description; (3) Business success and challenges; (4) Business and knowledge strategy; (5) Our intellectual capital; (6) Future perspectives and measures; (7) Collection of indicators. The Guideline highlights the need to identify internal and external target groups and criteria for communications and provides a help table for this. Issues about reporting media and differences between internal and external ICS are not discussed in detail.

The Austrian framework focuses on external reporting. The ICR it proposes identifies five sections: (1) Scope of application objectives and strategy; (2) Intellectual property (divided into human, structural and relational capital); (3) Core processes (divided into education and continuing education, and research and development); (4) Output and impact of core processes; (5) Summary and prospects. This framework is strongly measurement-oriented and most of the ICR sections contain metrics. Only the first section, 'Scope of application objectives and strategy', and the last one, 'Summary and prospects', state that narratives should be used, but no illustrations of these are supplied. Probably, the use of the ICR for government funding and performance agreements requires a standardization of the information reported for the university sector.

The MERITUM Guidelines promote the use of the ICS for internal and external reporting purposes. Three main reporting areas are identified: vision of the firm (including strategic objectives and critical intangibles); summary of intangible resources and activities; systems of indicators for intangible resources and activities. The guidelines also tackle the issue of the reporting media and recommend the use of a stand-alone ICS.

The Australian Principles propose the use of Extended Performance Accounts for internal and external reporting. The reporting structure consists of three KR components which are reported against: strategic objectives,

managerial efforts (i.e. current and planned actions) and indicators (i.e. internal and external). Also, the principles contain a brief review of other forms of reporting that highlight the increasing number of international guiding principles on how to manage, measure and report knowledge intensive organizational resources.

The Japanese Guidelines focus on the Intellectual Asset Based Management Report for external reporting. The main body of the report is divided into: (a) general; (b) from past to present; (c) from present to future. The report contains narratives and indicators in the main body and, in the attachment, a list of others indicators and calculation formula. Also, the Guidelines consider other forms of reporting and, in particular, compare IA and CSR reporting.

Nearly all the frameworks provide detailed guidance for reporting. As indicated above, the various frameworks promote the use of a stand-alone ICS as the media for internal and external reporting. It was clear from the analysis that the various frameworks envisage an ICS as including MKR objectives, processes, results and IC components. A variety of narratives and metrics were used. The SMKR framework promoted in this book calls for widening the coverage of the reports in order to include stakeholder interests and for the use of the reports among all the workforce.

In conclusion, the relevance of KR and their management in a knowledge-based economy have been recognized by various contemporary international IC frameworks, which have been discussed and reviewed in detail in this chapter. Nearly 40 IC frameworks, all of which aim to make IC somehow visible, were classified on the basis of their measurement approach: the stock approach versus the flow approach. The above analysis focused on six frameworks of the flow approach using four critical MKR issues. The findings of the analysis highlighted several important observations which are detailed above.

Many of the IC frameworks analyzed are the result of cooperation between researchers, companies, industry organizations and consultants and have, therefore, been informed by practice. If and how organizations are actually using these IC guidelines is yet to be established. Therefore, 'outstanding practice' illustrations of MKR will be explored in the following two chapters.

# 3 MKR in practice

## Danish developments

### Introduction

This chapter considers the management and reporting of KR in more depth by giving illustrations of MKR in practice in a variety of organizations. These examples demonstrate how MKR has been applied in actual organizations and the examination of these is invaluable in understanding how organizations translate the concept of MKR. A consistent analytical frame is used to examine each illustration.

The illustrations were found in a variety of reporting media, including sections in Annual Reports, Corporate Responsibility Reports and stand-alone IC Statements. However, due to the difficulty of accessing internal documents such as strategic plans, business plans and financial resource plans, these were not examined. Therefore, the information set is limited to external documents provided by an organization.

### Methods

This section deals with several issues surrounding the selection of the organizations analyzed,<sup>1</sup> the reporting media and the frame used.

### *Organization selection*

In identifying suitable examples of MKR, several academic articles highlighting practices were examined (e.g. Ordóñez de Pablos 2002; Habersam and Piber 2003; Leitner and Warden 2004; Boedker *et al.* 2005; Mouritsen *et al.* 2005); also considered were recent workshops, seminars and conference proceedings (e.g. EIASM 2005; OECD 2005; 2006). Several recent books on the topic area were analyzed (e.g. Bounfour 2003; Andriessen 2004; Roos 2005; Marr 2006). Also, international and national policy bodies, green papers and other reports were examined (OECD 1999; MERITUM 2002; Mouritsen *et al.* 2003; NIF 2003; METI 2005; SMIA 2005; SKE 2005; EC 2006). Then a web search<sup>2</sup> was performed in order to download the relevant documents. Consequently, a list of over 50 organizations was extracted. Seventeen private,



listed and public sector organizations were then selected from this list,<sup>3</sup> using geographical and organizational criteria. An overall table of the group of organizations analyzed is provided in Table 3.1.

Three main geographical regions were identified: Scandinavia, Rest of Europe and Australia/Asia. This geographical representation criterium was also used for classifying the contemporary IC frameworks that were analyzed in chapter 2. The 17 organizations analyzed were spread over Scandinavia, rest of Europe and Australia/Asia, with Scandinavia having eight organizations, the rest of Europe six organizations and Australia/Asia three organizations. No American,<sup>4</sup> Middle Eastern or African organizations were found in the search. The organizations analyzed are represented by the following two criteria: type and sector.

Three main organizational *types* were identified: private, listed and public organizations. Private (PR) organizations are privately owned entities. Usually these organizations are small and medium enterprises (SMEs), owned by a small number of investors, and they operate in the interest of their owners

*Table 3.1* MKR in practice ‘outstanding organizations’

	<i>Country</i>	<i>Type</i>	<i>Sector</i>
<i>Scandinavia</i>			
Arkitema	Denmark	PR	Service
ATP Group	Denmark	PR	Service
Carl Bro Group	Denmark	PR	Service
Center for Molecular Medicine	Sweden	PU	Research
Coloplast	Denmark	LI	Manufacturing
COWI	Denmark	PR	Service
SentensiaQ	Sweden	PR	Service
Systematic	Denmark	PR	Service
<i>Rest of Europe</i>			
Austrian Research Centers	Germany	PU	Research
Banco Bilbao Vizcaya Argentaria	Spain	LI	Service
Brembo	Italy	LI	Manufacturing
Oesterreichische Nationalbank	Austria	PU	Service
Plastal	Italy	PR	Manufacturing
ZIP	Italy	PU	Service
<i>Australia/Asia</i>			
Development Bank of Japan	Japan	PU	Service
Electronic and Telecommunications Research Institute	Korea	PU	Research
NSW Department of Lands	Australia	PU	Service

*Note:* LI=listed; PR=private; PU=public.

who may also run the organization or employ professional managers. Listed (LI) organizations are entities whose shares are traded on the stock exchange. Usually these are large organizations, owned by a large number of investors and are characterized by the separation between ownership, management and control. Public (PU) organizations are entities operating for the benefit of a community. Public organizations' primary objective is to provide services, without commercial benefit to the organization. Public organizations may be involved in areas of activity such as research, charity, health, education and politics. Public organizations can be governmental or non-governmental.

Organizations are also represented on the basis of the *sector* they belong to, that is financial or non-financial. Non-financial organizations were divided into three main sub-sectors: research, manufacturing and service.

### ***Reporting media***

The reporting media considered in this book are documents specifically devoted to reporting MKR. These documents are stand alone reports (e.g. Intellectual Capital Statement) or a section of other reports (e.g. Annual Report or Corporate Responsibility Report). Only documents which specifically were designed to report MKR practices were used in the analysis. Clearly the documents considered are not the only reporting media used by organizations to disclose information. A variety of reporting media, including annual reports, websites, analysts' meetings and quarterly reports, can be used (see Unerman *et al.* 2007). Eight of the reports considered were named 'Intellectual Capital Statement' or 'Intellectual Capital Report'. Also, as stated above, specific named sections of the Annual Report (AR) devoted to IC as well as Corporate Responsibility Reports (CRR) were considered. This meant that five IC sections of annual reports, one 'Social, Environmental and Intellectual Assets Report' and one section of a CRR were also considered in the analysis. The documents analyzed were mostly in English, two were in Italian (Plastal and Zip). The material used for the illustrations was extracted as accurately as possible from the original text.

### ***The MKR analytical frame***

This sub-section describes the analytical frame used for examining the documents. It includes three main categories (Strategy and KR, Managing KR and Performance assessment) and nine related issues (see Table 3.2).

The categories and issues of the analytical frame are derived from the MKR issues considered in chapter 2. The issues in category 1 are concerned with understanding the strategy of the organization and the role of KR and stakeholder groups. In category 2, the issues 2.a and 2.b focus on the stocks and flows of KR, whilst issue 2.c relates to KR actions. Finally, issues in category 3 relate to the use of KR information for performance assessment.<sup>5</sup>

The *Strategy and KR* category aims to provide an understanding of the

*Table 3.2* MKR analytical frame for illustrations of practice

1	<i>Strategy and KR</i>
1.a	KR and strategic intent
1.b	KR management challenges
1.c	MKR and stakeholders
2	<i>Managing KR</i>
2.a	KR components and elements
2.b	Resources transformations
2.c	KR actions
3	<i>Performance assessment</i>
3.a	KR measurement and reporting
3.b	Monitoring variances over time
3.c	Defining targets and assessing achievements

strategy of the organization and, within this, the role played by KR and stakeholder interests. Including KR and stakeholders in the strategy is the first step in achieving the ultimate goal of organizational sustainability as discussed in chapter 2. This understanding is provided via three issues. The first issue, KR and strategic intent, concerns the long-term perspective of the role of KR in determining the identity of the organization and shaping its future. This would usually be expressed in terms of strategic intent, mission, guiding values, etc.

Some examples are provided below:

Within the organization the intention of publishing an ETRI’s IC report is to acknowledge the true means for long-term competitiveness. Externally, we would like to inform more people that the real value of research institute lies in the sum of intangible intellectual capital rather than tangible assets.

(ETRI 2004: 4)

The identification, measurement and management of intellectual capital is key to ensuring that knowledge applied to value creation is captured, utilised and renewed for the best advantage of the organization, its employees and the government and community we serve.

(Department of Lands (NSW) 2005: 7)

BBVA considers the role of Human Resources to be a key component of its value creation strategy.

(BBVA 2005b: 120)

The above extracts indicate the stated role of KR in the strategic intent of the various organizations.

The second issue, KR management challenges, identifies the main aims of the management of KR. It explores how the management of KR is defined and how this links to the organization's strategy and the way it performs its business.

Several examples are provided below:

promote our expertise in soil, water and environmental conservation for the benefit of publicly and privately held lands. . . . Encourage strategic partnerships and alliance across the public and private sectors. . . . Review internal processes with the view to improving productivity and capturing explicit organizational knowledge. . . . Create a 'learning organization' environment, which supports and encourages the development of knowledge and skills.

(Department of Lands (NSW) 2005: 9)

The [ETRI's] mission becomes feasible by creating and diffusing the necessary knowledge and technology required for information and telecommunications development, conducting research on information security and IT standardization, and providing the private business sector with information and transferable technologies.

(ETRI 2004: 6)

Public confidence in the top-quality fulfillment of central banking tasks is every central bank's most important asset. To keep it at a high level, the OeNB pursues an active information policy. The proactive transfer of knowledge is targeted at increasing the public's understanding of how a central bank works and thus contributes to ensuring public confidence. Active communication and cooperation with its customers enables the OeNB to continually improve its products and services and to adapt them to market requirements.

(OeNb 2005: 7)

The third issue, relationship between MKR and stakeholders, relates to the role played by stakeholders within the strategy of the organization. In particular, this issue highlights possible links between the definition of KR management challenges and stakeholder interests and therefore if stakeholder engagement is perceived as a strategic priority for the management of KR. A number of extracts are provided below:

DBJ is closely interconnected with all kind of organizations, enterprises and people, especially the people of Japan. This generation has inherited a society that we wish to make sustainable, and to do this, DBJ is enhancing its dialogue with all its stakeholders.

(DBJ 2005: 3)

The CMM knowledge goals are formed by society, science and various interest groups with the common aspiration to improve public health. In order to reach the knowledge goals, human, structural, and relational capital is invested in the key processes of CMM – research and knowledge transfer.

(CMM 2004: 7)

improving relationships with the community, other agencies and organizations; multi-channels distribution strategies; customer focus and responsiveness and our corporate image and identity.

(Department of Lands (NSW) 2005: 10)

In summary, these issues provide an understanding of the strategy of the organization and of how KR and stakeholder interests contribute to its definition.

The category, *Managing KR*, highlights how the organization aims to ‘create value’ via KR and their management. In particular, issues 2.a and 2.b relate to the organization’s KR and their behaviour in organizational processes, whilst issue 2.c focuses on KR actions.

The first issue, KR components and elements, is concerned with how the organization identifies and describes its KR. There is not a pre-defined set of KR elements that can act like a check list, even if commonly accepted IC frameworks do exist.<sup>6</sup> Each organization has its unique set of KR elements that are relevant for performing its activities and have to be managed within the context of that organization. Without identifying specific KR elements, the organization is unable to visualize or manage its KR.

Illustrations of KR components and related elements are provided below:

Relational Capital . . . represents the various relationships that the company has been able to develop with its customers.

Organizational Capital . . . indicates the series of skills that exist within the structure of the company, our capacity for innovation and the efficiency of our processes.

Human Capital . . . consists of the know-how, skills and capacity of the persons who work within the organization. Equally important in this area is the level of motivation and the sense of belonging to the company.

(Plastal 2004: 2)

- 1 Human capital comprises staff structures as well as the staff skills applied to business processes. It is captured by indicators which relate to e.g. ‘number of working visits to national and international organizations’ and ‘number of completed and certified training courses’.
- 2 Structural capital encompasses both the organizational framework and the technical infrastructure designed to ensure smooth business oper-

ations. Examples of related indicators are ‘number of product managers’ and ‘availability of the ARTIS payments system’.

- 3 Relational capital indicators illustrate the OeNB’s focus on cooperation and its network of national as well as international customers and partners, and its dealings with the public. In this context, the OeNB reports e.g. the ‘number of international bodies with OeNB representatives’ or the ‘confidence index,’ which is compiled on a quarterly basis by an external polling institute.
- 4 Innovation capital comprises the resources the OeNB needs to remain successful in the future. Some key indicators are ‘percentage of staff resources utilized for innovative projects’ and ‘internal R&D expenditure’.  
(OeNb 2005: 10)

Therefore, this issue provides an understanding of the organization’s KR components and related elements which would be unique to the sector and specific activities of the organization.

The second issue in this category is resources transformations<sup>7</sup> and focuses on KR flows in day-to-day processes. Establishing a relationship between KR and processes is important for understanding how KR are involved in ‘value creation’. Also, it aims to illustrate how KR transformations are reported, as shown below:

Innovation and continuous improvements that are a prerequisite for R&D activities come from individual competence. Human capital should be given the highest priority as a source of structural capital and relational capital. In other words, an increase in human capital entails improvements in structural and relational capital. Therefore, success or failure in human capital management will have major impacts on nurturing each employee and coalescing the organization into an aggregate of proactive knowledge-sharing experts and more creative knowledge networks.

(ETRI 2004: 10)

Our reputation, which depends on this satisfaction, provides the basis for sales, recruitment and commitment in our daily work. This in turn allows us to continuously generate and improve our knowledge resources, thus creating a perfect circle. We call this circle COWI’s knowledge cycle.

(COWI 2005: 56)

The best systems engineers in the market are the lifeblood of Systematic. The ability to produce quality software on time is dependent on the knowledge and commitment of our employees. We therefore put a strong emphasis on attracting and retaining the best employees in the market. We must provide a stimulating and challenging workplace with an

active investment in the professional and personal development of our employees.

(Systematic 2004: 26)

These extracts provide an insight into the transformations that happen within organizational resources, and particularly KR, which have to be understood and managed.

The third issue, KR actions, focuses on what is done (or will be done) in the organization to enhance and deploy KR. For instance, KR actions that relate to human resources include activities undertaken to monitor and improve employee competence.

Examples of the identification of KR actions are provided below:

The design for a new corporate-wide customer service model was completed over the course of the year. This model seeks to standardize the way customers are treated all over the world. Plans are for the model to be simultaneously implemented throughout the Group in 2006. At the same time, BBVA entered into a project aimed at developing advanced customer and employee indicators, which will establish links with value management.

(BBVA 2005a: 128)

Coloplast has been measuring employee satisfaction since 1996. Last year a new measuring tool, 'Employee Satisfaction and Loyalty Measurement' (ESLM), was introduced. As the name indicates, we shall, in future, not only measure employee satisfaction but also loyalty.

(Coloplast 2005: 4)

A patent support programme has been introduced to enable quick publishing of data while securing the intellectual property rights for the researcher. Future efforts will continue to accumulate relational and structural resources to smooth the formation of new knowledge enterprises.

(CMM 2004: 5)

Therefore, this issue provides an understanding of specific KR actions and of how these are related to the KR of the organization.

In summary, for the second category associated with managing KR, the above three issues have illustrated the importance for organizations of identifying and mapping resources transformations. However, before this can be achieved, individual KR components and elements that are specific to the organization need to be identified and discussed. Only from this perspective can transformations and value creation be understood and managed.

The *Performance assessment* category provides an understanding of KR performance. In particular this category delineates what and how KR information is reported and how this is assessed. The first issue in this category,

KR measurement and reporting sets out the reporting frame used to summarize KR metrics. Therefore, main categories and issues in the reports are identified.

In Figure 3.1 the organization has produced an ICR which is framed according to three categories: client and market, organization and staff. Also, for each category, resources, processes and results are identified. The ICR identifies 28 specific KR elements; it also highlights metrics for processes and results.

Monitoring of variances over time is the second issue in this category. This issue focuses on the periods covered by the metrics. In the COWI illustration (Figure 3.1), the KR metrics are reported over a three-year period, allowing for an understanding of the underlying trend of the element measured.

In Table 3.3, specifically addressing Relational Capital, two-time periods are used to highlight changes in the specific KR elements. As can be gauged from the numbers, there have been both increases and decreases over the period.

Another form of framing KR metrics and variances is illustrated in Figure 3.2. ETRI indicates its range of employee metrics over three years and movements in individual KR elements; for example, patent issued per employee.

The third issue, defining targets and assessing achievements, focuses on the use of future targets to establish desired trends and assess performance. In Table 3.4, KR indicators for structural capital are linked to targets. Arrows are used to indicate the required performance of the specific elements and corresponding knowledge goals for the organization are highlighted.

In summary, the analytical frame used in this chapter, supported by examples of specific issues associated with MKR, provide us with a flavour of how organizations construct and report MKR in practice. In the following, a group of Danish organizations which participated in the government sponsored project for the management and reporting of IC known as the Danish Guideline, will be considered.

### *Specific organizations' practice*

In the previous section MKR was conceptualized as consisting of strategy, actions and performance assessment. These categories and related issues were established from the analysis of the contemporary IC frameworks. Actual practice within organizations is still in its infancy with much internal experimentation. As explained on pages 59–61, for the analysis which follows, a group of over 50 organizations were identified and from these a sub-set of 17 were selected as having 'outstanding' external disclosure documents which report MKR. In order to explore how MKR is reported in practice, the external documents of these 17 organizations have been analyzed in depth. (For the criteria used for selection see pages 59–61.)

The next section will focus on the MKR practice of five Danish organizations which took part in the project to develop the Danish Guideline. The



# Intellectual Capital Report 2005

RESOURCES			PROCESSES			RESULTS		
Financial year			Financial year			Financial year		
2005			2005			2005		
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Table 3.3 CMM relational capital indicators over a two-year period

<i>Relational Capital</i>	<i>Total 2004</i>	<i>Average per group 2004</i>	<i>Total 2003</i>	<i>Average per group 2003</i>
Number of PhD students with a clinical background	51	2	N/A	N/A
Number of researchers who have clinical appointments	82	4	74	4
Number of commissions <sup>1</sup>	125	6	131	6
Number of CMM groups with whom the group collaborated	90	4	72	3
Number of groups at Karolinska University Hospital with whom the group collaborated	92	4	109	5
Number of collaborating groups at Karolinska Institute (apart from CMM)	73	3	73	3
Number of Swedish collaborating groups/ departments outside Karolinska Institute/ Karolinska University Hospital	106	5	93	4
Number of collaborating groups abroad	164	7	174	8
Number of previous doctoral students now working in a research group abroad	50	2	46	2
Number of faculty who spent at least one month abroad	17	1	22	1
Number of doctoral students from other countries in the group	41	2	43	2
Number of faculty with undergraduate study background outside Sweden	38	2	24	1

Source: CMM 2004: 17.

need to consider these organizations separately from the others is driven by the idea that these organizations have undergone a common experience in the management and reporting of knowledge resources. The other 12 organizations' MKR practices will be discussed in chapter 4.

### **Influence of the Danish Guideline**

The five organizations which are to be analyzed are shown in Table 3.5, and represent 'outstanding practice' not only within Denmark but also within our group of selected organizations.

As can be seen in Table 3.5, the majority of these organizations were private and service-based, whilst one organization was listed as belonging to the manufacturing sector. In relation to the media used for reporting on MKR, three organizations utilized specific sections of the AR whilst two of them

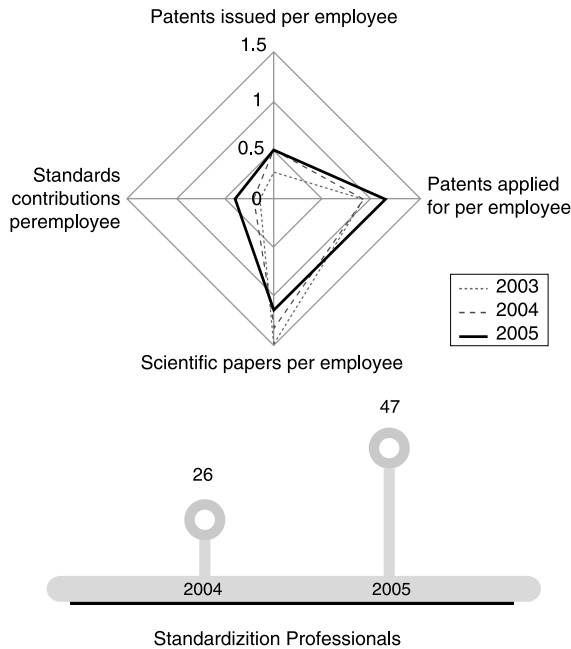


Figure 3.2 ETRI's visualization of employee metrics over a three-year period.

Source: ETRI 2005: 9.

used standalone documents. The documents analyzed were the latest made available as at March 2007.

The MKR practices of the five Danish organizations (i.e. ATP, Carl Bro, Coloplast, COWI and Systematic) all scored highly in terms of the nine MKR issues outlined on pages 61–67 (see also Table 3.6).

As will be seen from the following discussion and examples of MKR in practice provided for each of the organizations, the understanding and reporting of MKR in these organizations is advanced. This supports the argument for the use of government policy to advance the practice of MKR.

### **ATP (The Danish Labour Market Supplementary Pension Scheme)**

The ATP group provides, in conjunction with the state-funded old-age pension system, basic pension and social insurance services. The ATP<sup>8</sup> Pension Fund is an independent organization and, together with two recent funds, the Temporary Pension Savings Scheme (DMP) and the Special Pension Savings Scheme (SP), forms part of the Danish pension system.

The document examined was the 'Knowledge Activities' (KA)<sup>9</sup> section of ATP's 2005 annual report (ATP 2005) and was in English. This KA section

Table 3.4 ONeB structural capital indicators and targets

<i>Indicators</i>	<i>Value 2005</i>	<i>Target</i>	<i>Corresponding knowledge goals</i>			<i>Value 2004</i>
			<i>Competence</i>	<i>Confidence</i>	<i>Interdisciplinarity</i>	<i>Efficiency</i>
<i>Management structure</i>						
Span of supervision	7.5	→				8
Number of product managers	75	↘	●			69
<i>Technical infrastructure</i>						
Number of IT applications	202					196
Availability of ARTIS payment system (%)	99.95	→	●	●		99.87
Error-free payment transaction (%)	99.99	→	●	●		99.99
<i>Environmental protection and quality assurance</i>						
Number of environmental auditors	12	→				12
Number of quality auditors	18	→				18
<i>Procurement</i>						
Catalogue orders as a percentage of total orders	38.26	↗				37.06
Number of calls for tender	25			●		26
<i>Group</i>						
Number of subsidiaries in payment systems services	6		●		●	7

Source: ONeB 2005: 14.

Table 3.5 ‘Outstanding practice’ Danish organizations

		<i>Country</i>	<i>Type</i>	<i>Sector</i>	<i>Year</i>	<i>Reporting document</i>
1	ATP Group	Denmark	PR	Service	2005	AR – Knowledge Activities section
2	Carl Bro Group	Denmark	PR	Service	2005	AR – IC account section
3	Coloplast	Denmark	LI	Manufacturing	2005	IC Statement
4	COWI	Denmark	PR	Service	2005	AR – IC Report section
5	Systematic	Denmark	PR	Service	2004	IC Report

Note: PR=private, LI=listed.

reports on challenges, strategy and results achieved in the management of KR. ATP used a Balanced Scorecard for managerial purposes and used the KA section to report externally about ‘significant activities and results’ achieved by the group. Also, it was stated that the ‘KA represents a “supplementary report”’, that could be read independently from the rest of the annual report (ATP 2005: 98).

Table 3.6 Danish MKR ‘outstanding practice’ patternings

	<i>MKR issues/Organization</i>	<i>ATP</i> <i>1</i>	<i>Carl Bro</i> <i>2</i>	<i>Coloplast</i> <i>3</i>	<i>COWI</i> <i>4</i>	<i>Systematic</i> <i>5</i>	<i>Total</i>
1	<i>Strategy and KR</i>						
1.a	KR and strategic intent	1	1	1	1	1	<b>5</b>
1.b	KR management challenges	1	1	1	1	1	<b>5</b>
1.c	MKR and stakeholders	1	1	1	1	1	<b>5</b>
2	<i>Managing KR</i>						
2.a	KR components and elements	0	1	1	1	1	<b>4</b>
2.b	Resources transformations	1	1	1	1	1	<b>5</b>
2.c	KR actions	1	1	1	1	1	<b>5</b>
3	<i>Performance assessment</i>						
3.a	KR measurement and reporting	1	1	1	1	1	<b>5</b>
3.b	Monitoring variances over time	1	1	1	1	1	<b>5</b>
3.c	Defining targets and assessing achievements	1	1	1	0	1	<b>4</b>
	<b>Total MKR issues disclosed per organization</b>	<b>8</b>	<b>9</b>	<b>9</b>	<b>8</b>	<b>9</b>	

The KA section reported on eight out of the nine MKR issues. In relation to strategy, the primary *foci* are on competitive position, through innovation and competency development, and on market stakeholders (i.e. clients and staff). However, in response to the growing interest from ‘outsiders’ in ATP social responsibility, attention has been paid to the internal working environment. Specific management challenges for KR are identified; reports on KR actions and resources transformations are included for managing KR for value creation. In particular, the KA highlighted how KR actions have helped ATP to identify new opportunities in the market and re-focus the business. Also, in this KA section, specific actions for social responsibility are reported. In relation to performance assessment, the report addressed all the issues and used narratives, text and figures. Narratives told the story about how ATP’s performance evolved, and examined variances and targets.

In relation to the first MKR category, *strategy*, the link between KR and strategic intent was represented by the development of employee competencies, which the organization stated was a key factor in determining its competitive position and innovation capacity:

Competency development is a vital competitive parameter – both for ATP and for the individual staff member. This is clearly reflected in ATP’s mission statement, setting out competitiveness and innovation as prioritized values.

(ATP 2005: 101)

The report identified a number of stakeholders, including social partners, members of Parliament, pensions and labour market organizations, media, and staff. However, the report did not make clear how stakeholder interests were identified and considered when defining management challenges.<sup>10</sup>

The main specific management challenges reported were ‘for client and staff satisfaction ratings to be high and in line with those of comparable Danish companies’ (ATP 2005: 99). Also, the KA section showed that ATP aimed to be a socially responsible group and established specific actions to achieve this.

The ATP report summarized 2005 management challenges, action areas and results achieved for the three main KR components (i.e. clients, staff and business procedures). Management challenges for clients are illustrated in Figure 3.3.

The illustration of challenges is similar to the ‘management challenges’ within the Danish Guideline and highlights links between the challenges, actions and actual results achieved.

Concerning the second category, *managing KR*, this report provided numerous examples of how this organization understood its resources transformations and individual KR actions. However, few examples were found of specific KR elements. One illustration of KR actions was in

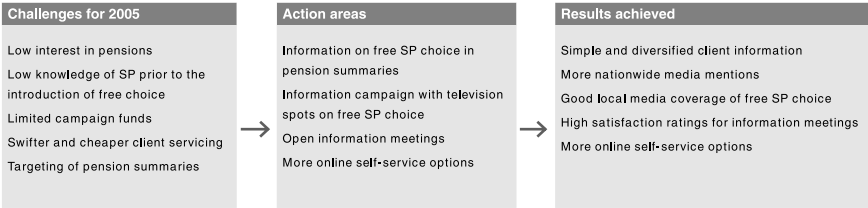


Figure 3.3 ATP 2005: clients' challenges, action areas and results.

Source: ATP 2005: 105.

terms of client surveys, which indicated the need to manage various client age segments:

The age targeting was prompted by client surveys that clearly demonstrated that older ATP members require more detailed information than their younger counterparts. While the basic versions have been retained, we took the age targeting a step further in 2004 and 2005 by further differentiating the basic versions. In 2005, the age segments were the 16–27-year-olds, the 28–33-year-olds, the 34–49-year-olds and the 50–65-year-olds.

(ATP 2005: 103)

Therefore, in this illustration the KR actions provided a better understanding of KR elements (e.g. clients) and identified areas for managerial intervention allowing the organization to re-focus the business. Also, this illustration highlights a link between KR and organizational processes, as an understanding of the age of clients led to changes in the way the organization segmented its market.

Also, the staff challenge, 'establishing a healthy workplace', was translated into action. The KA section reported on the provision of stress management courses for staff and 'affirmative programmes' in which at least 5 per cent of the workforce were from ethnic minorities, or were people with disabilities, for example. The focus on social responsibility stemmed from increasing pressure from 'outsiders' and also from the belief that this would be of benefit to the organization's performance (ATP 2005: 107).

The KA section included another 2005 ATP staff challenge, 'competencies development', in which the organization undertook both competency plans and CV management. These actions resulted in an increased amount of staff time devoted to competency development:

Competency plans have been developed for all ATP staff members, describing their professional, social and personal competencies, while at the same time identifying desired developments.

Loss of market value on account of insufficient competency development poses a large risk to the employee and, therefore, the target is for

ATP's staff to increase their market value by working for the company. ATP and the individual employees share a common interest in ongoing competency development, and the way to achieve that is through active CV management.

(ATP 2005: 105)

Concerning the third category, *performance assessment*, this report provided interesting information relating to KR measurement, reporting targets and assessment. In terms of performance measurement metrics on clients and staff, these were provided over a four or five-year period, therefore allowing for trend analysis. For instance, Table 3.7 illustrates KR metrics in relation to staff satisfaction.

Targets for a number of challenges were highlighted and their achievement assessed. For instance, for 'competencies development', the organization's target was to devote at least five days to competency development (in the form of co-worker training programmes or other activities) for at least 80 per cent of all employees. This target was not achieved in 2004, when 65 per cent of the staff managed to complete more than five days of competency development, but was achieved in 2005 (ATP 2005: 105). Therefore, performance assessment was not only reported in terms of KR metrics, but also via detailed narratives about targets, actual and achieved.

In summary, this report incorporated eight of the nine MKR issues. The influence of the Danish Guideline is evident and this report would be considered an excellent illustration of how a financial service industry could visualize and report its KR. Only one issue was not included in the report and that was the definition of specific KR elements.

## Carl Bro

Carl Bro Group is an international privately owned consulting engineering company based in Denmark. They offer consultancy in the fields of building, transportation, water, environment, energy and industry. This organization has produced IC Accounts (ICA)<sup>11</sup> since 2001. The following analysis uses the 2005 annual report which has an ICA section (Carl Bro 2005) and is in English.

The Carl Bro Group ICA produced information for external reporting that was also used for internal management processes. The stated purpose for

Table 3.7 ATP staff satisfaction (%)

	2002	2003	2004	2005
Satisfaction	76	73	72	67
Motivation	75	75	72	70
Loyalty/faithfulness	83	80	80	73
Commitment	86	86	86	84

Source: ATP 2005: 106.



producing an ICA was to ‘to establish the extent to which Carl Bro Group is developing the conditions for living up to its mission’ (Carl Bro 2005: 13). The data compiled for the external ICA was used for internal management purposes.<sup>12</sup>

This report addressed in three pages all the nine MKR issues. It highlighted a clear strategy for each of the KR components, which is translated into actions and assessed by metrics, narratives and figures, through which a comprehensive picture of MKR for this organization was provided. The following will provide illustrations and narratives about how this was done by Carl Bro.

Concerning *strategy*, the report provided a clear understanding of IC and its management, which starts from the definition of the organization’s strategic intent. This is defined as the ‘overall objective’ which is centred on KR (see Table 3.8).

Carl Bro Group’s overall objective is to be among the foremost consulting engineering companies in northern Europe. This objective will be achieved by building a company that combines knowledge, talent and initiative to create intelligent solutions for customers and society alike, centred around the Group’s core competencies as consulting engineers.  
(Carl Bro 2005: 3)

Therefore, for this organization, the *management of KR* is seen as a way of creating value for its stakeholders (e.g. clients, staff, society and owners) and for achieving organizational sustainability. The following illustration, which deals with the reasons for producing an ICA, indicates how Carl Bro approached MKR:

The purpose [of the ICA] is to establish the extent to which Carl Bro Group is developing the conditions for living up to its mission. Only by improving these conditions on a continuous basis can we ensure healthy

*Table 3.8* Carl Bro Group’s mission, vision and values

<i>Mission</i>	We fuse knowledge, talent and energy to create intelligent solutions for clients and society.
<i>Vision</i>	We aspire to be the intelligent choice.
<i>Values</i>	<p>We enjoy creating value – for clients, colleagues, society and owners.</p> <p>We insist on growth – in equity, intellectual capital and brand.</p> <p>We create opportunities – for people who have the courage to challenge their own capabilities.</p> <p>We are responsible – in our daily actions and through ethical, environmental and social practice.</p> <p>We are a colourful community – open to change, sharing across boundaries.</p>

*Source:* Carl Bro 2005: 12.

and sustainable development of the business for the benefit of customers, employees and society at large.

(Carl Bro 2005: 3)

Carl Bro defines its Intellectual Resources as ‘the group combined Intellectual Capital’ that are composed of three main components: ‘customer capital’, ‘human capital’ and ‘structural capital’. These were defined as follows:

Customer capital is defined as the value of the company’s knowledge of and relations with customers. Human capital is defined as knowledge related to the company’s employees. Structural capital is defined as knowledge related to the company’s structures, which can be reproduced and shared with others, for instance processes and IT.

(Carl Bro 2005: 13)

Interestingly, the external stakeholders considered within Intellectual Resources are limited to customers. This is probably because, in the annual report, the ‘Intellectual Resources’ section is followed by a specific section on ‘Environmental H&S [Health and Society]’ in which details about Carl Bro policies for sustainability are provided.

The strategic intent was detailed in terms of aims according to three main Intellectual Resources components. For instance, in relation to employees the reports stated:

Carl Bro Group aims to be a workplace that creates opportunities for people who have the courage to challenge their own capabilities and where knowledge, talent and initiative are developed for the benefit of employees, customers and society at large.

(Carl Bro 2005: 13)

The report makes clear that the organization’s view is that the development of employees’ capabilities, knowledge and skills is functional not only for performing the business but also for benefiting society more broadly. Also, the organization recognizes the importance of human capital and its reports detailed measurements of satisfaction within the workplace and the feeling of employees towards the Group (see Figure 3.4). These indicators are reported over a three-year period and the accompanying narratives analyze the trends.

In terms of customers’ aims, these were addressed as follows: ‘The objective of Carl Bro Group is to create value for the customers in the form of intelligent solutions formulated in cooperation with the individual customer’ (Carl Bro 2005: 13). In order to achieve its aims, KR actions were implemented. The KR actions, for instance, related to ‘encouraging innovation and creativity’ within its employees and ‘optimising project management’. Therefore, the narratives provided an understanding of transformations within KR and related elements in organizational processes, where customer capital (i.e.

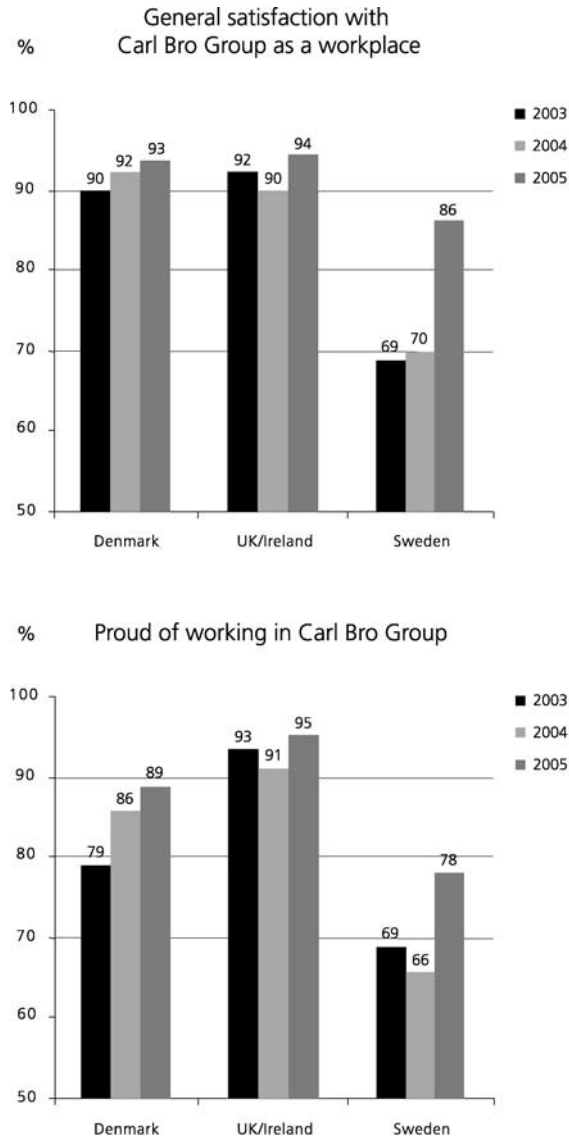


Figure 3.4 Employees’ general satisfaction: Carl Bro Group.

Source: Carl Bro 2005: 14.

customer satisfaction and loyalty) is affected by human capital (i.e. employees’ creativity and innovation) and (‘project management’) internal capital. However, further details on the KR actions undertaken and on transformations were not provided in the report.

Also, a mix of metrics and narratives were provided to *assess performance* and the degree of achievements of stated objectives:

Customer satisfaction at Carl Bro Denmark remained high, and the customer satisfaction index for 2005 was computed at 95. This means that the target, an index of 95, has now been met for the third consecutive year.

(Carl Bro 2005: 13)

Most of the metrics and narratives were provided over at least a two-year period, and therefore allowed for establishing a trend in the reported metrics. For instance, in relation to customer loyalty the report stated:

Customer loyalty was measured at 98 per cent, which exceeded the target of a customer loyalty rate of 97 per cent. The last four years, customer loyalty has been in the range of 97 to 99 per cent.

(Carl Bro 2005: 13)

In summary, this Intellectual Resources section of the annual report covered the nine MKR issues succinctly and was clearly informed by the Danish Guideline. Also, as stated above, the KR data has been compiled over several years for the external intellectual accounts and has also been used for internal management purposes. This report from a privately owned consulting organization is a good example of how a knowledge service company can visualize and report its MKR.

## **Coloplast**

Coloplast develops, manufactures and markets medical devices and services and is listed on the Copenhagen Stock Exchange. The analysis considers the 2005 'Intellectual Capital Statement' (ICS),<sup>13</sup> which is in English (Coloplast 2005).

Coloplast's primary stated motivation for producing an ICS is to 'support the dialogue with the stakeholders and to provide other readers with a better understanding of how the organization conducts its business' (Coloplast 2005: 1). Coloplast reported that the dialogue with stakeholders and a systematization of this knowledge provides insights into stakeholder interests and facilitates managerial efforts in finding a balance between conflicting stakeholder interests (Coloplast 2005: 1).

The analysis of the MKR issues, as highlighted in Table 3.6, indicates that this listed organization's ICS for 2005 includes all nine MKR issues.

For *strategy*, Coloplast's strategic intent is defined by its 'mission and values' reported in the ICS. The strategic intent is defined as the desire to excel in the market and to create value for the four main stakeholder groups – customers, employees, society and environment and shareholders.

The definition of the strategic intent guided the definition of KR management challenges and also the undertaking of KR actions. Also, Coloplast’s ‘mission and values’ links knowledge resources, organizational sustainability and value creation for stakeholders as shown in the following example:

Throughout the world we wish, within our selected business areas, to be the preferred source of medical devices and associated services, contributing to a better quality of life. By being close to customers we fulfil their needs with innovative, high quality solutions. Through empathy, responsiveness and dependability we seek to earn their loyalty. Our culture attracts and nourishes individuals who are energetic, committed and have a passion for our business. We respect differences and pledge to act responsibly in social, environmental and business contexts. By striving to be best in our business we achieve growth and increased value for our customers, employees and shareholders.

(Coloplast 2005: 2)

The strategic intent is then detailed in terms of enablers, activities and results for each stakeholder group. For instance, for customers, enablers are: ‘understanding customers’ needs and the market’, ‘mastering key processes and technologies’ and ‘innovation’ (see, Figure 3.5).

In terms of the *management of KR* category, specific KR elements were identified in the narratives sections for each of the enablers, and related KR actions undertaken during the period were highlighted. For instance, in order to address customer needs, the organization involved product users, along with professionals, in the product and services development process to create a dialogue with relevant market actors and also implemented customer surveys:

At Coloplast, we involve health professionals and product users in the development process. We run various dialogue panels, e.g. Coloplast Ostomy Forum, Coloplast Continence Advisory Board, Wound Advisory Board, Skin Care Forum and Skin Health Advisory Board. In 2004/05 the level of activity was 41 per cent higher than the year before. Coloplast

Value chain for customers



Figure 3.5 Customers’ enablers and results.

Source: Coloplast 2005: 2.

also participated in 11 major, international congresses, from which many contacts with health professionals originate.

(Coloplast 2005: 2)

This extract illustrates the link between KR and organization processes (i.e. the involvement of end users in the development process) and of KR activities (i.e. dialogue panels and customer surveys).

In regards to 'society and environment', Coloplast identifies four main enablers: corporate social responsibility, economic contribution, managing the environment and partnerships (Coloplast 2005: 7). Therefore, for Coloplast, social, economic and environmental issues are included in KR strategy. As for other stakeholders, the ICS contains details on the activities undertaken. For society and environment these include: cooperation with educational institutions, initiative for waste reduction and considering environmental and health and safety-at-work issues in all development projects.

For the third category, *performance assessment*, the Coloplast ICS assessed performance using narratives and metrics in a variety of ways. For instance, narratives and metrics highlight the results achieved for each enabler in relation to stakeholder groups. In some cases, results are compared to the ones obtained the previous year:

Coloplast Academy completed ten different educational programmes for 260 employees compared with 182 last year, while the number of management training days increased from 600 last year to 1,498 this year.

(Coloplast 2005: 5)

Also, results are sometimes assessed against targets defined in measurable terms:

All Coloplast sites have been certified to one quality management system. We monitor delivery performance on an on-going basis, and 98.0 per cent of the deliveries lived up to the target set for 2004/05.

(Coloplast 2005: 3)

At other times results are assessed against competitors:

The overall loyalty index for the Coloplast measurements is 68 in 2004/05 compared with 65 for the other 84 companies.

(Coloplast 2005: 5)

In summary, this short web-based ICS covers all nine MKR issues. This report provides an excellent illustration of how KR, value creation, sustainability and stakeholders can be linked together. Also, the ICS (and the process for preparing it) is seen as a strategic tool, helping the organization not only to

maintain a dialogue with stakeholders, but also to identify and balance their interests for management purposes. These two issues, as discussed in sections 1.2 and 2.3 of the previous chapters, represent the foundation of the SMKR framework that will be presented in chapter 5.

The ICS was developed with a direct focus on the organization's principal stakeholders and illustrates challenges and actions for each of these. Also, a set of metrics and narratives were provided. However, there are few detailed metrics, although the narratives create a story around how this listed company has managed its KR. The ICS is expressed in terms of 'value creation for stakeholders' and a stakeholder report which discussed stakeholder relationships was included in the annual report. This stakeholder report summarized the 'Intellectual Capital Statement and value creation for stakeholders' (Coloplast AR, 2005: 63) as is illustrated in the following:

At Coloplast we are determined to act in dialogue with our stakeholders. We aim to balance the value creation among our stakeholders. We also need to balance short term results with long-term considerations. This report is a summary of Coloplast's Intellectual Capital Statement, which is available in full at [www.coloplast.com](http://www.coloplast.com). It accounts for the various efforts supporting overall value creation, and it is the eighth stakeholder report published by Coloplast.

(Coloplast 2005: 1)

Coloplast's mission is a good illustration of how strategic intent, KR, value creation, organizational sustainability and stakeholders are linked together. The fact that the stakeholder report is a summary of the ICS signals how these two forms of reporting are merging.

## COWI

COWI is a Danish privately owned organization that operates within engineering, environmental, science and economic consulting. COWI was one of the organizations that took part in the Danish project. The 'Intellectual Capital Report 2005' (ICR),<sup>14</sup> which was considered in this analysis, was contained in a specific section of COWI's Annual Report. This is the eighth ICR developed by the organization and published within its annual report. The report is in English.

The ICR is provided in order to account 'not only for our knowledge resources but also for our knowledge processes and their results' (COWI 2005: 56). For this organization, knowledge is considered as an important resource and the ICR represents an account of its knowledge cycle. The following highlights how this organization met eight of the nine MKR issues as shown in Table 3.6.

In relation to *strategy*, the report highlights the focus on value creation for clients as the main *raison d'être* of this organization and knowledge embodied

in the organization as the main way to achieve this. The report is designed around the identification of three main market stakeholders as the main resources: clients, staff and organization. These resources are seen as inter-related in organizational processes. Also, a detailed illustration of KR activity for knowledge sharing is provided. In relation to performance assessment, the report provides an extensive set of metrics that relates to the three stakeholders, related processes and results.

The organization's strategic intent is based on the knowledge and experience acquired by its employees while performing the day to day activities of the business and on the ability to transform this knowledge into organizational knowledge. An illustration of this is:

Our most important resource is knowledge. Knowledge represents our intellectual capital . . . which we manage and develop dynamically at COWI, tracking and reporting on key aspects of this asset in our Intellectual Capital Report (ICR)

(COWI 2005: 56)

Also, the annual report highlights the importance of COWI's primary stakeholders to 'value generation' and identifies these as: 'clients and market', 'staff' and the 'organization' (COWI 2005: 26).

The ability of the organization to pursue its strategy is related to the management of knowledge, as the IC report states that: 'When COWI's skills complement each other, we create synergy and total solutions for our clients. Our strength lies in our extensive, shared network' (COWI 2005: 60). Therefore, the integration of the knowledge of employees represents the main KR management challenge as it determines the organization's ability to generate value for its clients and pursue its strategic intent.

Concerning the second category, *managing KR*, COWI adopts a 'Knowledge Cycle' model, which is used to identify the main transformations between KR, as illustrated in the following narrative and in Figure 3.6:

Our reputation, which depends on this satisfaction, provides the basis for sales, recruitment and commitment in our daily work. This in turn allows us to continuously generate and improve our knowledge resources, thus creating a perfect circle. We call this circle COWI's knowledge cycle.

(COWI 2005: 56)

The report also provides a visual representation of COWI's 'Knowledge Cycle' and this highlights the transformations that happen between KR in the organization (see Figure 3.6).

Also, Figure 3.6 identifies resources, processes and results according to the three main stakeholders: 'clients and market', 'organization' and 'staff'. This figure illustrates the links between the various resources, and the COWI working processes in achieving results. Three main relationships are highlighted:



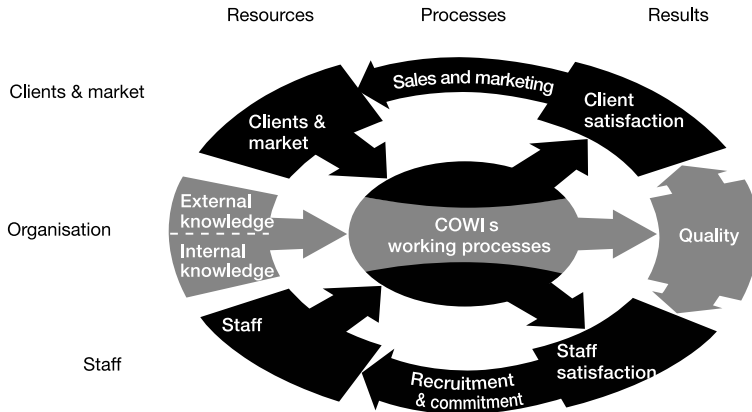


Figure 3.6 The 'Knowledge Cycle'.

Source: COWI 2005: 56.

(1) Resources to processes to results (e.g. the excellence of internal knowledge in the working processes affects the quality of the service provided); (2) Results to results (the quality of the service provided affects customer satisfaction); and (3) Results to processes to resources (client satisfaction affects the (actual and potential) clients in the market).

Also, the IC report highlights an understanding of resources transformations in organizational processes, which is described as:

Our day-to-day corporate activities comprise a series of interacting processes which provide the framework within which we deploy our resources to execute tasks for clients and provide quality, to the satisfaction of clients and employees alike.

(COWI 2005: 56)

Of interest is that a specific sub-section of the report is devoted to a description of networking, which is a way of performing KR actions that 'help to disseminate knowledge and improve efficiency' (COWI 2005: 57).

In relation to the third category, *performance assessment*, the ICR provides a table that is built according to the Danish Guideline. The table, called 'Intellectual Capital Report' is reproduced in Figure 3.7 and provides indicators over a three-year period, presented in terms of resources, processes and results. These are identified in Figure 3.7 for each of the three main stakeholder groups. Therefore, indicators belonging to each of these three categories are then divided into resources indicators, processes indicators and results indicators. Also, each indicator in the ICR is accompanied by a short note (not reproduced here) that explains how the indicator was calculated. Targets or desirable trends for the indicators are not reported, so this issue is not addressed.

RESOURCES			PROCESSES			RESULTS		
CLIENTS & MARKET	ORGANISATION	STAFF	Financial year			Financial year		
			2005	2004	2003	2005	2004	2003
1 Public clients	40%	40%	49%	47%		12	10	17
2 Semi-public clients	9%	8%	9%					
3 Private clients	42%	32%	34%			9	7	12
4 Other clients	9%	10%	10%					
5 Number of clients	1,634	1,617	1,494					
6 Projects abroad	32%	31%	34%					
7 Clients abroad	19%	18%	17%					
13 Professional networks, number (*)	58	55	56					
14 Staff participation in professional networks (*)	32%	21%	22%			15%	15%	16%
15 "Best practices on the Intranet", number (*)	1,022	978	965			51%	51%	51%
16 Projects/employee, number	18	17	14			45%	48%	46%
17 Ongoing projects, number	5,326	4,958	5,016			8.6%	11.4%	12.9%
18 Average turnover/employee (DKK '000)	1,167	1,197	1,148			0.2%	0.3%	0.5%
						7.9%	7.3%	7.9%
						6.3%	7.0%	5.8%
						1.0%	1.0%	0.9%
29 Number of employees	1,879	1,923	1,960					
30 Average age	44.5	44.1	44.0			0.6%	0.6%	0.6%
31 Length of education, year	6.3	6.3	6.2			5.8%	7.0%	6.0%
32 Length of education, written down, year	4.1	4.2	4.1					
33 Employees with highest education (PhD, etc)	4.1%	4.0%	4.0%					
34 Higher education: technical	54%	54%	52%					
35 Higher education: natural sciences	5%	5%	5%					
36 Higher education: social sciences	9%	9%	9%					
37 Other higher education	5%	5%	5%					
38 Work experience, year	17.2	16.9	16.2					
39 Seniority in COWI, year	10.9	10.6	10.1					
40 Project management capacity, all projects	61%	61%	59%					
41 Project management capacity, major projects	40%	39%	36%					
42 Project management capacity, int. projects	26%	25%	25%					
43 International travelling experience in COWI	25%	23%	22%					
8 Lectures/100 employees, number (*)								
9 Professional publications/100 employees, number (*)								
19 Inter-disc. cooperation: technical								
20 Inter-disc. cooperation: natural sciences								
21 Inter-disc. cooperation: social sciences								
22 Trade within COWI Group (*)								
23 Staff exchange within COWI Group								
24 Long-term postings								
25 Development activity, externally financed								
26 Development activity, internally financed								
44 Supplementary education (*)								
45 Travelling activities abroad								
27 QA audits/100 employees, no. (*)								
28 Costs attributed to external errors (*)								
46 Staff inflow (*)								
47 Staff outflow (*)								
48 Staff satisfaction index (*)								
49 Sick leave								
50 Staff owning COWI shares (*)								
51 Engineering students' preferred place of work, rank, (*)								
52 Business students' preferred place of work, rank (*)								
53 Employee flexibility								
54 Company flexibility								
10 Client inflow (*)								
11 Client outflow (*)								
12 Media exposure, millions, number (*)								
2005	2004	2003	2005	2004	2003	2005	2004	2003
n/a	20%	13%	21%	13%	21%	4.6	4.4	4.1
0.4%	0.2%	0.1%						
11%	13%	12%						
13%	67.6%	n/a						
2.5%	2.5%	2.2%						
42%	45%	46%						
n/a	7/2	n/a						
n/a	42/9	n/a						
6%	n/a	6%						
6%	n/a	6%						

Figure 3.7 COWI's 2005 Intellectual Capital Report.

Source: COWI 2005: 58–59.

In summary, this ICR was brief and the initial part of the report was devoted to illustrating and explaining the 'Knowledge Cycle'; therefore, little space was devoted to a more detailed identification and description of the issues that were reported. However, as eight of the nine MKR issues were achieved in fewer than six pages, it was evident that this was a very succinct and interesting report. The use of the Danish Guideline was evident and the fact that this was the eighth IC report produced by this private consulting firm clearly indicates their commitment to knowledge management and its role in organizational sustainability.

## Systematic

Systematic is a private organization based in Denmark and provides IT solutions for information and telecommunication systems. The first 'Intellectual Capital Report' (ICR)<sup>15</sup> was produced in 1999. This is the organization's fourth ICR (Systematic 2004) and is written in English.

The ICR was designed to provide insights into how the organization is responding to its management challenges on KR (Systematic 2004: 3). However, Systematic's first ICR was developed to support the organization's knowledge management and therefore was mainly aimed internally. With its second ICR, Systematic experienced the use of the report as a communication tool and, therefore, 'the external motive became more prominent' (Bukh *et al.* 2001b: 145). The latest ICR provided a wider perspective on organizational performance as this was measured according to four main areas: customers, processes, employees and finance (Systematic 2004: 2). The main focus of the final report was on the first three areas.

This report addressed all nine MKR issues. Concerning the first category, *strategy*, the three issues are represented in the report. The ICR starts with the mission and vision of the organization and a set of values that represent the foundation of organizational culture. Also, a number of these values relates directly to the organization's 'core competencies' and how they are managed. These are, for instance, 'active knowledge-sharing', 'constant change as a way of improving personal competence', and 'partnership with customers' (Systematic 2004: 33).

Systematic's core competencies are stated to be the link between the business needs and the IT service delivered to customers and end users. A visual representation of the organization's value chain suggests the integration between KR and the different phases of the value chain (see Figure 3.8).

Systematic defines itself as a 'knowledge intensive company' (Systematic 2004: 11) that finds its value creation capability as 'having the right knowledge resources based on close customer relationships, efficient processes and competent employees'. Therefore, in its ICR, this organization identifies the KR that produce value to the end user and also highlights KR management challenges. These are illustrated in Figure 3.9 (see p. 87).

The three management challenges represent a link between Systematic's

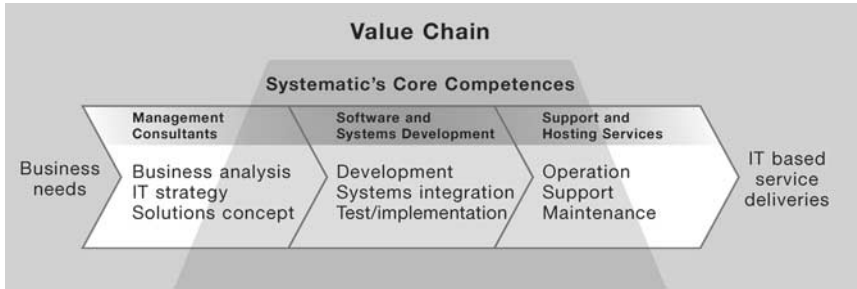


Figure 3.8 Value chain and core competencies in Systematic.

Source: Systematic 2004: 8.

founding values and its core competencies. Also, two out of three management challenges directly relate to two stakeholders: their employees and their customers.

In relation to the second category, *managing KR*, the IC report provides illustration of the activities implemented to achieve the management challenges, and of the ‘measures that matter’. For instance, the KR management challenge ‘partnership with customers’ is described as follows:

We intend to be the preferred partner for professional IT customers within our fields of expertise. Therefore, we want both parties to commit to cooperation. We will not be satisfied with merely being a good one-off supplier. Systematic attaches great importance to open cooperation. We



Figure 3.9 Systematic's management challenges.

Source: Systematic 2004: 11.

report if anything fails, for example if the schedule is slipping. Likewise, we expect our customers to inform us if there are delays in the provision of requirements, test data etc. Openness is fundamental to our ability to take corrective action in time.

(Systematic 2004: 13)

Also, the KR action undertaken to maintain and improve relationships with customers were stated to be as follows:

After each major delivery and at the end of each project, the processes and the cooperation are reviewed. It is essential for us to deliver what was required – to time and budget – and that the cooperation was positive and lessons have been learned.

(Systematic 2004: 13)

Results of a number of KR activities undertaken are illustrated in several graphs and tables, for instance, see Figure 3.10 which illustrates the results of an employee satisfaction survey.

It is recognized that, in order to foster ‘partnership with customers’, actions may also be performed on other KR components, for instance, KR actions for maintaining and improving relationships with customers may relate to employees as seen in the following example:

Systematic employs a number of specialists who have many years of experience in the fields of defence and healthcare. These employees contribute to the project teams by providing expertise that can bridge the gap between the customer/end-users and the systems engineers. Furthermore, they participate actively in our internal training and arrange visits and field studies with our customers and potential customers.

(Systematic 2004: 15)



Figure 3.10 Reported result of KR activity: employee satisfaction survey.

Source: Systematic 2004: 28.

Therefore, Systematic provides an understanding of resources transformations: employees' competence and knowledge about the customers affect customer satisfaction and therefore the relationships between the customers and the organization. Also, the narrative reported below highlights the relevance of human capital in determining the effectiveness of the core processes of the organization (i.e. software production):

The ability to produce quality software on time is dependent on the knowledge and commitment of our employees. We therefore put a strong emphasis on attracting and retaining the best employees in the market.

(Systematic 2004: 26)

In the ICR analyzed there was an understanding of resources transformations and also narratives about specific KR actions. Metrics and narratives associated with them play an important part in Systematic's latest publicly available ICR.

Concerning the third category, *performance assessment*, Systematic has also provided measures about KR components and related elements.

Customers: Active project customers include customers with whom Systematic had invoiced assignments during the accounting year. Small or one-off customers are not included. Strategic customers are identified on the basis of expectations to increase in turnover among our top ten customers in the near future or added value in the form of references or technology. The duration of existing customer relationships is defined as the number of years between the first purchase and the current accounting year. . . . Employees: Systems engineers are those employees who either work directly on customer projects or who, by education or experience, are able to do so. Professional software competence is defined by the number of years since graduation plus any further relevant experience. Training investment per employee is calculated on the basis of actual costs, excluding working hours. Employee satisfaction surveys are conducted anonymously by independent consultants.

(Systematic 2004: 33)

Also, an analysis of how these measures are assessed and used for managing the organization is provided.

Customer satisfaction on average was assessed at 4.3 on a scale from 1 to 5. In response to the question 'Would you recommend Systematic to others?', 85 per cent of our customers answered 'yes', and 97 per cent answered 'yes' or 'probably yes'. It is significant that the score is highest from customers in businesses where our employees have in-depth knowledge of their operational requirements. This confirms that

customer and end-user understanding should continue to be given high priority.

(Systematic 2004: 15–16)

In many cases, measures are reported along a three year period and targets are defined in terms of desirable trends. An illustration of measures that relate to the organization's employee and competence profile over a three year period is illustrated in Table 3.9.

Also, the ICR contained an opinion of the auditors (Deloitte) about the reliability of the data and the information included in the report:

We have conducted our review in accordance with Danish auditor practices on statement assignments, intended to provide reasonable assurance that data and information has been well-documented in accordance with the guidelines in the accounting policies. Hence the review is not as

*Table 3.9 Measures for employees and competence profile*

<i>Employee and competence profile</i>	<i>2000/01</i>	<i>2001/02</i>	<i>2002/03</i>	<i>Desirable trend</i>
<i>Number of employees</i>				
Headcount in Denmark as of 30 September	187	257	305	↗
Systems engineers	154	208	247	↗
Full-time equivalent employees	150	210	271	↗
<i>Joiners and leavers</i>				
Systems engineers joining	60	63	55	↗
Systems engineers leaving	18	9	15	→
<i>Employee satisfaction</i>				
Total employee satisfaction (scale 1–5)	3.8	3.8	3.9	↗
'My appraisal is taken seriously'	3.8	3.8	3.8	↗
'My opportunities for further education are good'	3.8	4.0	4.2	↗
'Our work motto: Freedom with responsibility'	4.3	4.3	4.2	↗
% who perceive Systematic as a satisfactory/very satisfactory workplace	93	92	94	↗
Sickness absence (days per employee per year)	4.9	5.0	4.7	→
<i>Competence Development</i>				
Professional SW competencies (total no. of years)	775	1,118	1,401	↗
Per systems engineer	5.6	5.7	8.0	↗
Training days per employee per year	8.5	14.9	11.5	↗
Training investment per empl. per year (€)	1,817	2,833	2,048	↗

*Source:* Systematic 2004: 31.

comprehensive as an audit. From a perspective of essentiality and risk, our review has included analyses, interviews, random sampling of data and documentation and control of whether accounting principles applied have been followed. In areas where it has been possible, we have also tested the relationship with the financial Annual Report through financial analysis.

In our opinion, the Intellectual Capital Report has been prepared in accordance with the guidelines stated in the accounting policies.

(Systematic 2004: 33)

In summary, this ICR consisting of over 36 pages, provides a comprehensive understanding of the organization's KR and the activities related to its management. Also, it outlines in detail its mission, vision and values in which knowledge and IC are central. It identifies that being a knowledge-intensive company means that value creation is dependent on having the right KR. The organization sees its KR priorities as close customer relationships, efficient processes and competent employees. More importantly, it provides illustration of the use of IC information for managerial purposes.

## **Conclusions**

This chapter provided an outline of the method that was used to analyze the selected organizations. The cluster of Danish companies reported in this chapter had in common their participation in the Danish project and followed the Danish Guideline for reporting MKR. However, there was significant diversity in how organizations reported on MKR. In particular each organization was found to use a variety of narratives, visuals and metrics.

In line with a shift in the type of businesses populating most developed economies, the cluster of organizations were mainly service based organizations. As indicated in the illustrations of MKR in practice, the type of KR and their value creation, such as staff competencies, customer relationships and computer and administrative systems, are now being accounted for very differently than they would have been under a traditional financial reporting model.

Collectively, their efforts have highlighted the importance of government, academic institutions and organizations cooperating in developing some common understandings about MKR and its reporting.

Although the focus of these illustrations of MKR in practice is on the organizational level, there is also evidence to support the assertion that IC is instrumental in driving national economic performance. This is probably because many nations have transformed their economy from an industrial base to a knowledge economy. This is evident in the Danish economy where the government sponsored the experimentation of the Guideline and MKR.

As will be seen in the next chapter, there is evidence that organizations in other countries, including Australia and Asia, have made an effort to report on their IC, in much the same way as these Danish organizations.



## 4 MKR in practice

### International developments

#### Introduction

This chapter continues the analysis of MKR in practice that was undertaken in chapter 3. The analysis in this chapter follows the same analytical frame to examine each organization's MKR reporting but broadens the selection of organizations beyond those involved in the Danish Guideline project. The 12 organizations discussed in this chapter represent European and Australian/Asian organizations (see Table 4.1).

Table 4.1 consists of organizations considered to approach their MKR with 'outstanding practice'. The organizations include private, listed and public organizations. Of the public organizations included, there are both government and non-government. The media used for analysing the organizations' reporting on MKR is mainly stand-alone intellectual capital documents; these were used by nine organizations out of the twelve. Moreover, in two organizations (i.e. Banco Bilbao Vizcaya Argentaria, Development Bank of Japan) the link between sustainability and KR is highlighted. As will be seen from the following discussion, it is not only the organizations involved in the Danish Guideline project that can be considered to be examples of 'outstanding practice' in MKR. Table 4.2. summarizes the results of the analysis and shows that five out of the twelve organizations considered scored highly in terms of MKR issues.

#### Arkitema

Arkitema is a privately owned architectural consulting organization based in Denmark. The document analyzed was the 'Knowledge Activities Account 2005' (Arkitema 2005).<sup>1</sup> It was in English.

Arkitema's Knowledge Activities Account (KAA) focused on 'our role as architects and business partners in a complex business industry' (Arkitema 2005: 1). The report was produced both for internal and external purposes:

In relation to external readers the knowledge audit provides an insight

Table 4.1 'Outstanding practice' organizations

		<i>Country</i>	<i>Type</i>	<i>Sector</i>	<i>Year</i>	<i>Reporting document</i>
<i>Europe</i>						
1	Arkitema	Denmark	PR	Service	2005	Knowledge Activities Account
2	Center for Molecular Medicine	Sweden	PU	Research	2005	IC Report
3	SentensiaQ	Sweden	PR	Service	2006	IC Report
4	Austrian Research Center	Austria	PU	Research	2005	IC Report
5	Banco Bilbao Vizcaya Argentaria	Spain	LI	Financial	2005	AR (IC in 'other areas' section) +CRR
6	Brembo	Italy	LI	Manufacturing	2005	Report of Tangible and Intangible Value
7	Oesterreirchische Nationalbank	Austria	PU	Financial	2005	IC Report
8	Plastal	Italy	PR	Manufacturing	2005	Intangible Capital Statement
9	ZIP	Italy	PU	Service	2005	IC Statement
10	<i>Australia/Asia</i> Development Bank of Japan	Japan	PU	Financial	2005	Sustainability report: Social, Environmental and Intellectual Assets Report
11	ETRI	Korea	PU	Research	2005	IC Report
12	NSW Department of Lands	Australia	PU	Service	2006	AR – IC Statement section

*Note:* PR = private; LI= listed; PU= public.

into our processes, the expectations our clients have when they collaborate with us, and the results of our work.

In relation to internal readers – staff, partners, and the board of directors at Arkitema – the knowledge audit directs attention towards our ability to share knowledge and develop our skills in relation to the challenges we are presented with. This also applies to the relation between the structure of our organization and our ability to develop knowledge and create learning.'

(Arkitema 2005: 1)

As seen in Table 4.2, Arkitema has five out of nine MKR issues covered in the KAA examined.

Table 4.2 'Outstanding practice' patterning

<i>MR issues/ Organization</i>	<i>Arkitema 1</i>	<i>CMM 2</i>	<i>SentensiaQ 3</i>	<i>ARC 4</i>	<i>BBVA 5</i>	<i>Brembo 6</i>	<i>OeNB 7</i>	<i>Plastal 8</i>	<i>Zip 9</i>	<i>DBJ 10</i>	<i>ETRI 11</i>	<i>NSW Lands 12</i>	<i>Total</i>
<b>1</b>													
<b>1</b>													
<b>1.a</b>													
KR and strategic intent	1	1	1	1	1	1	1	0	1	1	1	1	11
<b>1.b</b>													
KR management challengers	1	1	1	1	1	0	1	1	1	0	1	1	10
<b>1.c</b>													
MKR and stakeholders	1	1	1	1	1	1	1	1	1	1	0	1	11
<b>2</b>													
<b>2</b>													
<b>2.a</b>													
Managing KR components and elements	0	1	1	1	1	1	1	1	1	1	1	1	11
<b>2.b</b>													
Resources transformations	1	1	0	1	1	0	1	0	1	1	1	1	9
<b>2.c</b>													
KR actions	1	1	1	1	1	0	1	1	1	1	1	1	11
<b>3</b>													
<b>3</b>													
<b>3.a</b>													
Performance assessment													
KR measurement and reporting	0	1	1	1	1	1	1	1	1	0	1	1	10
<b>3.b</b>													
Monitoring variances over time	0	1	1	1	1	1	1	1	1	0	1	1	10
<b>3.c</b>													
Defining targets and assessing achievements	0	0	0	1	0	1	1	0	0	0	0	0	3
<b>Total MKR issues disclosed per organization</b>	<b>5</b>	<b>8</b>	<b>7</b>	<b>9</b>	<b>8</b>	<b>6</b>	<b>9</b>	<b>6</b>	<b>8</b>	<b>5</b>	<b>7</b>	<b>8</b>	

In relation to *strategy*, the knowledge account focused on the ‘strategy for a new architectonic practice’ that is based on a combination of the organization’s expertise, the industry dynamics and social and economic responsibility (Arkitema 2005:1). It acknowledges the importance of managing KR for achieving a sustainable organization:

We must combine our expertise within the building industry with social and economic responsibility. As an example, using our expertise to reduce the cost of construction will mean more and better schools, hospitals, factories, housing etc. But reducing costs means that we must revolutionise the building industry by increasing productivity and innovation, etc.

(Arkitema 2005: 1)

Arkitema’s vision was contained in a ‘knowledge narrative’ which analyzed the business environment and expressed the organization’s ‘wishes and dreams for the future’ (Arkitema 2005: 2). This narrative included industry background, which was characterized by an impasse determined by four main factors: ‘changing business partners’ (i.e. instability of partnerships in the building projects), ‘routines and conventional thinking’ (i.e. barriers to learning), ‘demand for generalists’ (i.e. scarce specialization of competencies and, therefore, scarce differentiation between competitors), ‘lack of innovation’ (i.e. few research and development investments).

The report highlighted that Arkitema’s vision was to ‘provide architecture with better conditions’ and therefore to play an active role in helping the industry to overcome this impasse (Arkitema 2005: 4). This was to be achieved by a vision of the role of Arkitema in the industry, incorporating the knowledge gained from its experience. For instance, it was recognized that fulfilling clients’ needs is not the only priority and that other stakeholders should also be taken into account: ‘if we also look after the interests of the other parties, both the client and we ourselves, will achieve a much greater value’ (Arkitema 2005: 5). Fostering active cooperation between different competencies and ‘combining the specialist’s insights with the generalist’s breadth view’ (Arkitema 2005: 6) will help in understanding customers’ needs and proposing innovative solutions. Other parts of the vision included policies for employee development and retention, and also increasing the organization’s knowledge by developing ‘new methods for working on a procedural basis’ (Arkitema 2005: 7).

This vision was to be translated into practice via the identification of knowledge challenges and the definition of a set of ‘measures’ that aim ‘to reduce the distance between what we wish for and what we do’ (Arkitema 2005: 11). Therefore, knowledge challenges and ‘measures’ were defined by expressions of the way this organization achieved its vision.

The KAA identified four main challenges that were summarized as: innovative management processes that focus on knowledge sharing; innovation in the production of architectonic solutions; individual development through continuous learning; the promotion of knowledge flows within the

organization (Arkitema 2005: 11–14). For instance, in relation to individual development the report addressed the importance of implementing learning in day-to-day operations. The extract below summarizes Arkitema's challenge in regard to individual development:

Over and above training, the challenge therefore involves our ability to implement learning on an everyday basis. We must incorporate learning into far more situations; into all phases of projects, via evaluation, in technical and architectonic discussions.

(Arkitema 2005: 12)

Also, it was perceived as important to manage the organizational processes in order to provide space for individual development and initiative. The organization focused on defining processes that would allow decentralized decision making and therefore enable employees to become actors for social responsibility. This is illustrated in the report as follows:

With our focus on the innovative design process, it goes without saying that the challenge is to develop skills that enable us to work on a procedural basis and to make important decisions at a decentralised level. . . . This would be the first step towards the development of the 'socio-eco-responsible' employee, while the next step would focus on project management, professional cutting-edge skills, etc.

(Arkitema 2005: 12)

For Arkitema, knowledge is 'not merely information stored in databases' – it is embedded in employees and can be shared within the organization.

Arkitema's KAA reported *managing KR* through the identification of a set of areas for managerial intervention and related 'measures' for achieving knowledge challenges. For instance, in relation to the challenge of 'knowledge sharing', Arkitema focused on the development of networks between employees, providing opportunities for learning. One way of supporting networking between employees was changing the physical layout of the workspace (Arkitema 2005: 13). Also, the organization developed specific networking projects, such as the environmental network described in the illustration below:

Lars Kvist manages the environmental network and has environmental coordinators in all departments. The environmental network sharpens the focus on and disseminates the professionally qualified debate on the environment at the drawing office, and provides the various departments with help in connection to projects. In addition, the environmental network builds up and maintains our environmental tools. The environmental network generates new knowledge, finds new knowledge and, very importantly, passes it on to us.

(Arkitema 2005: 18)

The development of networking is one of the 18 focus areas for managerial intervention and relates to knowledge sharing. For each of the focus areas, the report highlights 'measures' that were being implemented or that were to be implemented in the future. For instance, in relation to the focus area creation of professional networks, the report identifies the need to develop an account of already existing networks and their main features in terms of aim and composition.

In describing the measures for pursuing Arkitema's knowledge challenges, the report provides insights into the organization's understanding of KR transformations. For instance, participation in international projects helps in developing employee competencies and skills.

By working with other cultures and traditions we not only challenge our ability to listen and observe, but also challenge our working methods, and thereby our expertise and professional ability. In addition, we believe that international projects are of significance for our ability to recruit and retain the best employees.

(Arkitema 2005: 21)

Also, this statement highlights KR transformations, in that the relational capital (represented by the element of international business partners) affects the human capital (and, in particular, the element of employee competencies). In reporting each measure, the KAA names the person in the organization who is responsible for implementation of the measure itself.

Concerning *performance assessment*, interestingly, Arkitema did not consider this important in its KAA. There was scant evidence of metrics and targets and little discussion of how achievements were to be monitored and assessed in numerical terms.

It was recognized in the report, that the production of a KAA enhanced the organization's understanding of their working processes and methods. It was acknowledged that organizational learning was considered to be one of the main benefits of producing the KA.

Preparing the knowledge audit is a dynamic process that is continually influenced by what is happening, both internally and externally. New challenges and strategies focusing on particular issues are tested in various forums and processed, and as a result we acquire new knowledge and become wiser. It may therefore seem almost inconsistent to put the final full stop to such a process. We do so however in the expectation that, in its final form, the knowledge audit will lead to a dialogue, both internally and externally.

(Arkitema 2005: 2)

In summary, Arkitema's KAA provides evidence of how the MKR can be positioned to achieve organizational sustainability. The KAA was a good

illustration of a strategic document that was forward looking, however it lacked details on a number of MKR issues, such as the identification of KR components and elements. Also, as indicated, performance metrics and detailed narratives about assessments of past, present and future KR were surprisingly absent. However, Arkitema’s KAA usefully illustrates how KR transformations and the need for integrating KR activities into day-to-day processes represent knowledge that can be incorporated into the SMKR framework, as will be discussed in chapter 5.

Center for Molecular Medicine

The Center for Molecular Medicine (CMM) is a Swedish public research organization founded in 1995 with the aim of promoting ‘openness and knowledge interactions’ about medical research. This analysis uses CMM’s ‘Intellectual Capital Report’ (ICR)<sup>2</sup> for 2005, which was produced in English.

Figure 4.1 illustrates the Intellectual Capital Report Model used by this research organization, which illustrates the input and output of research and knowledge transfers. This model is used to frame the ICR analysis.

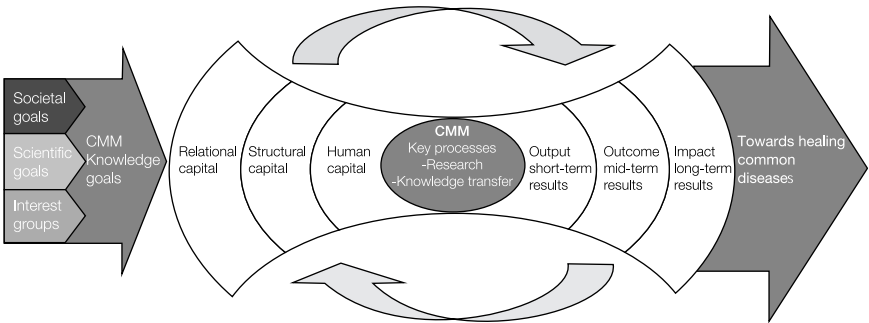


Figure 4.1 CMM’s Intellectual Capital Reporting Model.

Source: CMM 2005: 11.

This report addresses eight out of the nine MKR issues. In relation to *strategy*, the report addresses all the issues and provides interesting illustrations of practice. It states that new knowledge makes society evolve and this is the ultimate purpose of research (CMM 2005: 11). Also, the report indicates the importance of the main stakeholder groups, whose interests were included in the CMM strategic intent, as illustrated below:

The research at CMM is therefore aimed at the goals of society, science, and various interest groups, such as patient organizations. In order to reach these goals, human, structural, and relational capital is invested in the key processes of CMM – research and knowledge transfer.  
(CMM 2005: 11)

The ICR model specifies the strategic intent in terms of CMM's knowledge goals, which are defined in more detail in the report, for instance:

CMM strives to stimulate the mutual benefit between clinical competence and experimental experience, and aims to disseminate knowledge on medical technology and methodology relevant for molecular medicine in the clinical practice.

(CMM 2005: 11)

One of the 'knowledge goals' was to promote the knowledge exchange between researchers and clinicians. This was pursued, for instance, by encouraging staff to work together at the clinic and in the laboratory (CMM 2005: 13). Another 'knowledge goal' was making knowledge available to society (CMM 2005: 13), which was achieved via specific KR actions for *managing KR*. An illustration for making knowledge usable is provided below:

Furthermore, CMM offers patent support to stimulate entrepreneurship and facilitate for the researchers to further develop their research results. The recently introduced patent support has so far led to the creation of one start-up company.

(CMM 2005: 11)

The Intellectual Capital Model is based on three main IC components: relational capital, structural capital and human capital. In the report, each component identifies several unique KR elements which are central to the nature of this research organization. For instance, in regards to relational capital, the report identifies 'internal cooperation' between researcher and clinicians, 'national and international networks' with other research partners and 'cooperation' with industries. In relation to human capital, the report identifies not only numbers of staff but also their attributes, for instance, young researchers and support staff:

Compared to 2004, CMM has grown nearly 6 per cent, from 343 people to 363. The senior staff consists of 23 professors and 55 assistant professors, while the younger researchers are divided in 83 postdocs and 153 PhD students. This age distribution is consistent with efforts at CMM to support young researchers and to give them an opportunity to evolve in their role as scientists. The remaining 49 staff members consist of laboratory technicians, laboratory assistants and administrators.

CMM has a relatively even distribution of male and female researchers [. . .]. In Faculty the ratio male/female staff is 51/49, and of the PhD students the same ratio is 26/74. This can also be seen among the group leaders, 16 groups with a mean size of 15 members have a male leader, while 11 groups with a mean size of 10 members have a female leader. The distribution between group leaders over and below the age of 50 has



a similar distribution, with 11 and 16 groups, respectively and with a mean size of 16 group members with more senior leader and 10 group members with younger leaders

(CMM 2005: 14)

Also, the report highlighted the strategic relevance of the transformations between KR. A concern with the future development of the organization's human capital was illustrated:

To secure future generations of researchers in molecular medicine, CMM needs to recruit young outstanding researchers and support their development. The strategy is therefore to emphasize the intellectual, relational, and structural infrastructure for this group in particular.

(CMM 2005: 12)

Concerning *performance assessment*, the report provides insights into how the performance of this research organization is assessed via three main areas: knowledge resources, knowledge processes and specific short-term and medium-term IC results. The report identifies metrics for KR elements and also metrics and narratives around the processes and interpretation of results. This is illustrated in Table 4.3.

As can be seen from Table 4.3, the IC report highlights the elements of each area and sub-area and related metrics were reported over a one year period. Metrics are also provided about staff groupings although no details are provided as to how these groups are identified or what the relevance of this information is. Surprisingly, an assessment is made in the narratives about the progress achieved in comparison to 2004, although the table does not include 2004 metrics.

In conclusion, CMM's ICR covers eight of the nine MKR issues. It does not, however, report on targets and achievements. The report provides an illuminating Intellectual Capital Report Model (see Figure 4.1), which highlights the flow from CMM knowledge goals to KR components, through knowledge processes, to the achieved MKR results. In relation to managing KR, the report provides an understanding of the relevance of KR transformations for the advancement of researchers' knowledge and also several details on its specific KR elements. In relation to performance assessment, CMM provides an interesting way of measuring performance by reporting specific metrics for knowledge resources, processes and results.

## **SentensiaQ**

SentensiaQ is a privately owned Scandinavian organization that operates as an IT consultancy. The 2006 'Intellectual Capital Report' (ICR)<sup>3</sup> considered by this analysis is the organization's second and is in English (SentensiaQ 2006).

Table 4.3 Extract from the Intellectual Capital Report 2005

	<i>Total</i>	<i>Average per group</i>
<i>Human capital</i>		
Number of staff	363	13
Number of professors	23	1
Number of assistant and associate professors	55	2
Number of postdoctoral employees	83	3
Number of doctoral students	153	6
Percentage of male/female doctoral students	26/74	
Percentage of male/female faculty	49/51	
<i>Relational capital</i>		
Number of PhD students with a clinical background	54	2
Number of researchers who have clinical appointments	86	3
Number of collaborations within CMM	93	3
Number of collaborating groups at Karolinska University Hospital (KUS)	128	5
Number of collaborating groups at KI (apart from CMM)	99	4
Number of Swedish collaborating groups/departments outside KUS/KI	112	4
Number of collaborating groups abroad	192	7
Number of previous doctoral students now working in a research group abroad	72	3
Number of doctoral students from other countries	62	2
Number of faculty with undergraduate study background outside Sweden	46	2
<i>Structural capital</i>		
Number of bio banks used	63	2
Total amount of funds spent on technical framework conditions (MSEK)	12.6	0.5
<i>Key process research</i>		
Ratio of basic/disease/patient oriented research	24/56/20	
Percent of budget derived from external funds	79	
Percent of budget derived from companies	18	
Research budget (MSEK)	157.4	5.7
<i>Key process 'knowledge transfer'</i>		
Percentage of researchers' working time spent in the clinic	36	
Research leader in information meetings with patient organizations	54	2
Number of public debates in which the group leader participated	22	1

(Continued Overleaf)

Table 4.3 Continued

	<i>Total</i>	<i>Average per group</i>
Number of interviews that the group leader gave to a journalist	107	4
Previous doctoral students or postdoctoral employees who now work in a company	50	1
<i>Short-term results</i>		
Number of dissertations completed in the group	46	2
Number of published articles in refereed international journals during 2005	408	15
Total number of prizes and awards during 2005	32	1
<i>Mid-term results</i>		
Number of patents approved during 2005	7	
Number of spin-off companies created	4	
New medical treatment or diagnostic programmes in progress	~30	

Source: CMM 2005: 18.

The stated reason for producing an ICR was to ‘give a holistic view of the company, based on well defined indicators on the basis of the company vision, strategy, basic values and goals’ (SentensiaQ 2006: 2). Also, the ICR and its indicators were seen as a managerial tool: ‘Comparison of indicators over time will give an opportunity to detect changes and developments and to help management to act correctly’ (SentensiaQ 2006: 2).

The latest ICR addresses seven out of the nine MKR issues. Concerning *strategy*, the strategic intent of the organization was expressed in terms of the company’s ‘soul’ and this includes the mission, business concept, vision and strategy, goals and basic values. The company uses a framework which includes KR and financial resources and this appeared on the front page of the 2006 ICR.

It is interesting to note that SentensiaQ sees value in terms of finance capital and IC. For this organization IC was divided into three main blocks of assets: human capital, structural capital and customer capital.

For this organization the basic business concept was stated as ‘Long-term customer relationships are a guiding point in everything we do. We always act in a business-like manner with a high degree of integrity and professionalism’ (SentensiaQ 2006: 4). Therefore, customers were seen as the main external stakeholders of the organization. This understanding is supported also by Figure 4.3, which identifies customers as the only external stakeholder group within the SentensiaQ strategic models.

The ICR states that the company’s vision and strategy was to be the ‘most

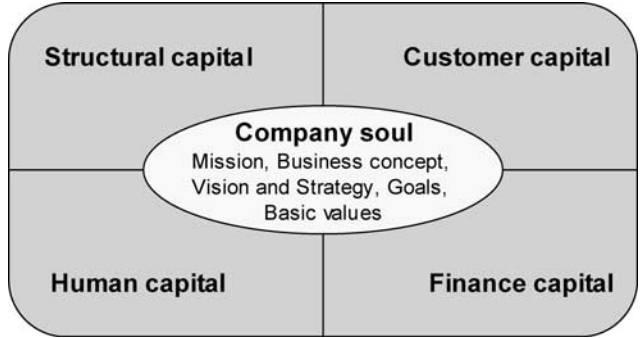


Figure 4.2 SentensiaQ KR and strategy.  
Source: SentensiaQ 2006: 1.

attractive knowledge-company for customers and co-workers (SentensiaQ 2006: 5). This organization marries IC with modified critical success factors derived from the Balanced Scorecard. From this combination it identifies focus areas for managerial action (SentensiaQ 2006: 13). Figure 4.4 clarifies this organization’s understanding of the relationships between the critical success factors of the BSC and the three IC components.

Concerning the second MKR category, *managing KR*, the identification of the main IC components of the organization’s ‘value’ is not accompanied by a detailed discussion about resources transformations. However, specific KR actions are identified; for instance, in relation to structural capital, it is stated that ‘We are also always working with our quality system, our ability to share



Figure 4.3 The strategic model of SentensiaQ.  
Source: SentensiaQ 2006: 5.

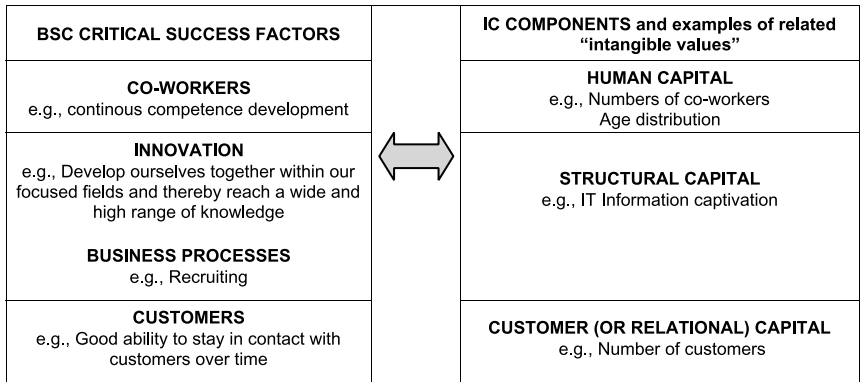


Figure 4.4 Relationships between the BSC and IC.

knowledge and to document our knowledge in our information structure’ (SentensiaQ 2006: 7).

Concerning the third category, *performance assessment*, for each IC category, specific elements are identified and a number of metrics provided. Table 4.4 illustrates this in regard to ‘structural capital’.

The arrows in the figure indicate an underlying trend. The indicators are designed to reveal the need for action and intervention: ‘Comparison of indicators over time will give an opportunity to detect changes and developments and to help management to act correctly’ (SentensiaQ 2006: 2). The choice of indicators is significant and probably reflects the organization’s ‘wish list’: ‘All indicators must be assessed on the basis of their contribution to the strategic vision of the company’ (SentensiaQ 2006: 2). Interestingly, the ICR does not contain detailed narratives about how to understand and read the metrics contained in the report.

In summary, this report achieves seven out of the nine possible MKR issues. It is an excellent illustration of how to present metrics for performance assessment. However, this ICR does not highlight transformations and reports that: ‘All indicators must be evaluated on the merit of their contribution to the strategic vision of the company’ (SentensiaQ 2006: 2). Also, in this ICR there is no assessment of the indicators, neither in general terms (i.e. about the figures reported) nor in relation to the contribution to the organization’s ‘soul’. The indicators refer to the current reporting period and trends and variances over time are indicated by arrows. Also, the failure to include detailed narratives does not allow a genuine understanding of how the metrics relate to the strategy of the organization.

### Austrian Research Centers

The Austrian Research Centers (ARC) is the main applied research organization in Austria. ARC performs research and development in the fields of

Table 4.4 Structural capital (organizational capital) indicators

Category	Indicator	Measure	Value 04/05	Value 05/06	Trend	Notes
Information systems	Information captivation/ distribution	Document management	2	2	►	(max=5)
		Customer relation management	3	4	▲	(max=5)
		Knowledge management	2	2	►	(max=5)
	How well IT supports core operation	Employee survey	3,5	tbm	►	(max=5)
		Process support	–	1	►	(max=5)
Quality management	Formal quality system	Existing Yes/No (standard/own/non)	Yes (own)	Yes (own)	►	
		Process review	–	–	–	no m
		Internal review of quality system	Yes	No	▼	
		Projects meeting requirements (expectations)	4,8	tbm	–	(max=5)
Innovativeness	R&D costs	% of available time/employee	6,8%	4,3%		
	Innovation process	Feedback to new ideas	–	–	–	no m
	New/impr. products	Income of new products/fields	–	–	–	no m
Comp. dev.	Training	Training/education/development hours per employee	110	83		
Working conditions	Physical conditions	Mobile conditions	4	4	►	(max=5)
		Satisfaction with IT resources from survey	–	tbm		
		Time due to trouble in IT/ adm/employee	18	9	▼	hours
Governance	Org. structure	Internal structure description from survey	–	–	–	no m?
	Communication and strategy	How often are strategy and goals reviewed	1	1	►	
		Employees participation in review/year	2	2	►	
Business processes	Maturity	Process maturity	–	–	–	no m
	Customer interface	Customer experience of process result	4,7	tbm		(max=5)

Source: SentensiaQ 2006: 9.

information technology, material technologies and engineering, life sciences, nuclear technology services and systems research and provides research and development services for the economy and society.

It was stated in the ICR that ARC represents a link between basic research at universities and the specialized applied research carried out by companies, which means that ARC's role is to transfer academic knowledge to practical applications, provide infrastructure and a platform for cooperative research projects and assume the risk of innovative research in the early stage.

ARC is owned 51 per cent by the Republic of Austria and 49 per cent by private organizations. Despite the government owning the majority of ARC shares, the organization operates as a private limited company, and therefore it has been considered for this analysis as a private organization.

ARC started producing its 'Intellectual Capital Report' (ICR) in 1999 and its 2005 report is ARC's seventh.<sup>4</sup> ARC was one of the first research organizations in Europe to produce an ICR for the whole organization. The ICR is a stand alone report and supplements the information contained in the annual report. This analysis uses the latest ICR (ARC 2005), which is in English.

This report addresses all the MKR issues. The foreword of the Managing Directors highlights the external purpose of the ICR which was to provide an understanding of the organization's factors for future success:

explains the basic elements for the future success of our customers and partners, and gives examples of our current research activities and future applications that will continue to enhance the attractiveness of Austria as a business location in the face of European competition.

(ARC 2005: 5)

This is also stated in the Executive Summary where:

By publishing its annual intellectual capital report, ARC aims to give a clear overview of its newly acquired knowledge and knowledge flows and to provide interested parties and potential customers with information about the company's very considerable potential.

(ARC 2005: 8)

Therefore, for *strategy*, the creation of new knowledge and its exchange represents a key element in shaping the future success of this research organization and this was also highlighted in the strategic intent:

The aim of the ARC Group is to strengthen the technological innovativeness of Austria as a business location in the long term. Austrian Research Centers is a partner to industry, generating technologically and socially relevant innovations within its ten thematic research and technology programs.

(ARC 2005: 12)

The strategic intent highlights the value of the newly acquired knowledge for the organization and its 'relevance' for the society and the industry partners. In the report, the focus on innovation is detailed in terms of KR management challenges for each of the four research areas (i.e. nanoscience, bioinformatics, embedded systems/transport technologies and environmental systems research). The challenges relate both to knowledge creation and knowledge exchange. For instance, two management challenges were (1) Nanoscience: 'In the medium term, competitive research will underpin the integration of the newly established Nano-System-Technologies division as an interdisciplinary technology' (ARC 2005: 39) and (2) Bioinformatics: 'New technology expertise in the interactive subject areas of molecular biology, bioinformatics and image processing within the ARC Group will ensure that our customers maintain a competitive advantage in the marketplace' (ARC 2005: 39). In simple terms, the nanoscience challenge relates to the generation of new knowledge, whilst the Bioinformatic challenge focuses on how to use new knowledge, in this instance, for the competitive advantage of customers.

Knowledge creation and exchange are developed respectively within two 'core processes' of ARC business activity: 'independent research' and 'contract research projects'. 'Independent research' is the long-term, pre-competitive research of ARC, organized in joint research ventures, mainly financed by public funds, and focused on acquiring knowledge. 'Contract research projects' are carried out for private and public customers, where specific problems are addressed and solutions generated (ARC 2005: 36). Therefore, for ARC, the management of stakeholder relationships becomes an important step in pursuing strategic intent. Also, knowledge creation and exchange are strictly related to the ability to establish and maintain relationships with main external stakeholders such as universities, research partners and private companies. A visual representation of this is provided in the report (see Figure 4.5).

Figure 4.5 relates the ARC's stakeholders (i.e. universities and industry) to the two main research types (i.e. independent and contract research) and highlights the role of ARC as a knowledge incubator.

Also, in relation to *managing KR*, the narratives within the ICR identify three main knowledge and know-how streams that are acquired and developed via research projects and collaborations with main stakeholders. These are: 'scientific cooperation' (i.e. cooperation with universities), 'technological cooperation' (i.e. cooperation with research and government organizations) and 'entrepreneurial cooperation' (i.e. cooperation with industry and governmental organizations) (ARC 2005: 36). These are examples of KR transformations. For instance, in relation to the independent research core processes and, in particular, to scientific cooperation, the relationships with the universities (external resources) interact with the knowledge embedded in the employees (human resources) or in organizational processes (internal resources). Therefore, Figure 4.5 could be considered as the first step in mapping KR transformations within organizational processes. The flows of KR were defined as vital for shaping the ARC's future:



As the largest non-university research and technology organization in Austria's national innovation system and a key player in the European research area, the exchange of knowledge between universities and companies is of vital importance for the successful development of ARC.  
(ARC 2005: 8)

In relation to the identification of KR components and elements, the report highlights that this research organization uses a tripartite classification that divides KR into: human capital, structural capital and relational capital. Also, the relevance of a specific KR element is highlighted: 'Patents are growing in importance in the context of evaluating technology companies, and are a vital precondition for successful innovation' (ARC 2005: 9).

A number of specific KR activities for enhancing the innovative potential of the organization and building and maintaining relationships with stakeholders are provided along with the report. For instance, in relation to the first issue: 'ARC is cooperating with European research and technology organizations and industrial corporations on a total of 25 new EU projects commissioned in 2005' (ARC 2005: 8).

In relation to *performance assessment*, the ICR provides a set of financial and non-financial indicators which measure the three main KR categories, being human capital, structural capital and relational capital as well as 'core processes' and 'results'. This is illustrated in Table 4.5, which can be considered an excellent example of a set of metrics within an MKR framework.

Each indicator is reported over a three-year period and the related trend is shown by an arrow. Also, the formulas used to calculate each indicator are provided at the end of the report. The table reports results that can be divided

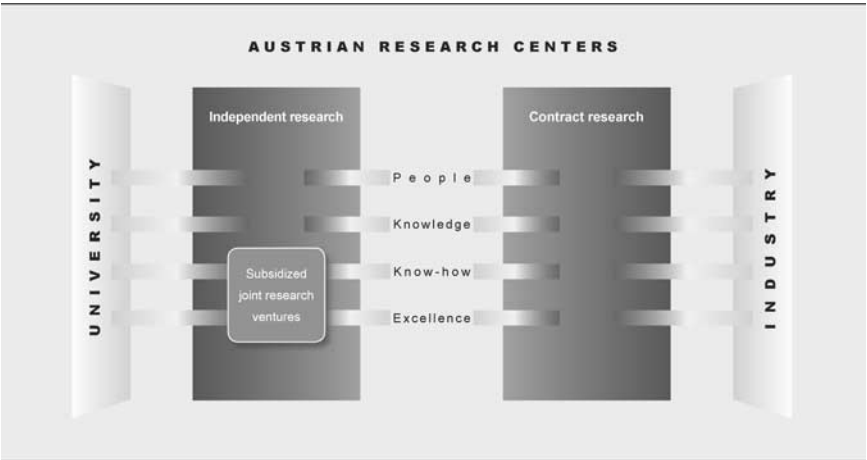


Figure 4.5 Stakeholders, project types and knowledge flows.

Source: ARC 2005: 37.

Table 4.5 ARC's Intellectual Capital Report in figures

	2003	2004	2005	Trend
<i>Human capital</i>				
Number of staff (individuals)	764	885	995	↗
Number of researchers (individuals)	397	484	522	↗
Proportion of women (%)	24.0	26.4	25.7	⇒
Women in senior positions (%)	14.7	19.2	19.8	↗
Total days training per employee	1.21	0.78	0.82	⇒
<i>Structural capital</i>				
Hit rate for EU research programs (%)	35	40	43	↗
<i>Relational capital</i>				
Number of new EU projects	16	27	25	⇒
Number of new interdepartmental contract projects	16	44	44	⇒
Number of international researchers	44	77	96	↗
Number of dissertations	118	144	152	↗
Number of theses	92	122	125	↗
<i>Core processes</i>				
Proportion of total expenses accounted for by independent research (%)	55	51	57	↗
Revenues from customer projects incl. small projects (€ m.)	32,781	33,058	35,951	↗
Turnover/contract (excl. small projects, €)	50,027	41,353	53,633	↗
Proportion of international customers (%)	18	26	27	↗
<i>Results</i>				
Total operating revenues (€ 000)	96,320	98,680	114,651	↗
Market success (%)	50	49	50	⇒
Proportion of new orders from industry (%)	52	62	74	↗
Coordination of EU projects and networks	8	8	12	↗
Publications: peer-reviewed journals	86	105	135	↗
Peer-reviewed journals per researcher	0.23	0.24	0.26	↗
Proportion of publications in future technology fields (%)	43	39	41	↗
Patents granted	6	8	21	↗
Patents applied for	36	23	45	↗

Source: ARC 2005: 9.

into economic-oriented results and research-oriented results. However, the figures in the table and the narratives do not assess performance against KR management challenges in a systematic way, although, a qualitative assessment of the degree of achievement of management challenges (that are here referred as to 'strategic milestones') is provided via colour coding. In particular, the degree of achievement of each milestone is signalled by fully colouring one of the three circles which accompany each narrative: in the original document the circle on the left is green, the central one is yellow and the one on the right is red. When performance meets targets the fully coloured circle will be the green one (left side circle), when performance deviates from targets the fully coloured circle will be the yellow one (central circle); finally when performance significantly deviates from targets the fully coloured circle will be the red one (right circle).

An illustration from the ICR about environmental systems research is provided in Figure 4.6, where the fully (green) coloured circle on the left side express that this milestone has been achieved according to targets.



Figure 4.6 ARC strategic milestone for environmental systems research.

Source: ARC 2005: 39.

The narratives report KR variances over time: for instance, the 'ARC research companies applied for national and international patents for a total of 45 inventions in 2005 a rise of 95 per cent compared to 2004' (ARC 2005: 9).

In summary, this organization is one of the few that achieves all nine MKR issues and is an excellent illustration of an ICR. This may be because of its relatively long history of reporting and the legislative requirements of the Austrian University Act (see chapter 2). The report provides a comprehensive understanding of the fundamental role of KR and their management for the strategy and sustainability of this research organization. Also, it reflects a deep understanding of its unique KR and how these are embedded into its core processes. It defines detailed management challenges for each research area and assesses performance over time and with the use of metrics and narratives.

### **Banco Bilbao Vizcaya Argentaria**

Banco Bilbao Vizcaya Argentaria (BBVA) is a listed group<sup>5</sup> based in Spain and operating in the financial industry. A section of BBVA's 2005 annual

report contains a specific sub-section on IC and stakeholders. A number of the MKR issues are addressed in depth within the 2005 Corporate Responsibility Report (*CRR*), which is the fourth such report. This analysis considers both the IC sub-section of the annual report (BBVA AR 2005a) and the CRR (BBVA 2005b). Both documents are in English.<sup>6</sup>

The two reports address eight out of the nine MKR issues. In relation to *strategy*, IC is identified as the key ingredient for achieving organizational sustainability. The importance of value creation for stakeholders is not just a strategic proposition but is translated into action.

The CRR presents a ‘comprehensive approach to the understanding of business activity’ that supplements the data contained in the annual report (BBVA 2005b: 2). Initially, the CRR was produced for external reporting, as the perspective contained in the CRR was ‘increasingly called for by societies, with ever higher levels of instruction and awareness and is increasingly appreciated by the market’ (BBVA 2005b: 2). Even if external reporting remains the main reason for producing a CRR, according to the BBVA AR the information contained in the CRR also proved to be useful for managerial purposes:

It is also one that is turning out to be more and more useful for the actual management of the company itself, as it contributes to sustained value creation over time. We should not forget this – sustainability in the broadest sense of the term – is a goal that is inherent to any company.

(BBVA 2005a: 2)

The IC sub-section acknowledges the relevance of intangible assets/intellectual capital for value creation and sustainability and therefore identifies the link between IC and the group’s mission:

Intangible assets are the key to the competitive success of companies and are a fundamental factor in the creation of value. In this sense, intellectual capital is the differentiating element that enables an organization to be more creative and innovative, which, in the end, results in an outstanding competitive advantage ensuring development that is sustained and sustainable in time.

(BBVA 2005a: 122)

The creation of value for the organization is defined according to a stakeholder perspective: the tangible direct value, the intangible direct value and the indirect value. This is illustrated in the following text:

The tangible direct value: this is the economic value provided to each one of its stakeholders.

The intangible direct value: this is the value of a non-immediate financial nature that it provides to each one of its direct stakeholders, in terms

of the quality of its products and the services it provides. The indirect value: this is the induced value that the Group's activities generate in the societies in which it operates.

(BBVA 2005b: 37)

Both the documents highlight the group's 'Direct Stakeholders' as the 'main focus of our performance as a company: our shareholders, employees, customers and suppliers' (BBVA 2005b: 3). IC is constructed as a fundamental resource to create value for stakeholders, and therefore has to be managed systematically.

Also, in regards to *managing KR*, the documents define the concept of IC and value creation as composed of three groups: human capital, structural capital and relational capital. These are described in the following illustration:

Human capital, referring to the knowledge that the organization's people and teams have; structural capital, understood as all elements of structural knowledge, that is, information and communication systems, corporate culture, available technology, work processes, management systems, etc.; and, last of all, relational capital, referring to all the relations that the Group maintains with the players in its environment.

(BBVA 2005a: 122)

Within the various KR actions that the group has undertaken in pursuing its mission, two have achieved a significant level of progress in the organization. These are the 'Human Resources Model' and the 'Corporate Reputation Management System'.

The 'Human Resources Model' was developed and implemented to manage human capital and aimed to develop the skills and knowledge of employees to achieve value creation (BBVA 2005a: 120). This is defined in more detail by the extract below and illustrated in Figure 4.7.

BBVA considers the role of Human Resources to be a key component of its value creation strategy. Accordingly, it has a complete and comprehensive model for human capital management, which has been equipped with a series of tools that are an assurance of excellence in the recruitment, assessment, development and reward of the Group's professionals

(BBVA 2005a: 120)

The 'Corporate Reputation Management System' is much more than its name implies, as it is developed and implemented in order to integrate the expectations of different stakeholders into the management of the group so that 'they [stakeholders] may be responded to in a proactive, systematic, balanced and proper manner' (BBVA 2005b: 31).

Therefore it appears that significant KR activities have been implemented to monitor stakeholder needs and to incorporate these into the management

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**BBVA Human Resources Model**


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Figure 4.7 BBVA human resources model.

Source: BBVA, AR 2005: 120.

processes of the organization. Also, this can represent an illustration of how organizational capital (e.g. management systems) is linked to human capital (e.g. employee competencies and development) in organizational processes.

In relation to *performance assessment*, for each of the three IC groups, a table of indicators is provided. Indicators of human capital and structural capital are grouped on the basis of BBVA's 'commitment'. For instance, human capital indicators are divided into three groups, 'Managing diversity as a competitive advantage, ensuring equal opportunities and respect for all individuals' (BBVA 2005a: 123). In regards to relational capital indicators, these are also grouped on the basis of the main stakeholders (i.e. customers, society, suppliers and shareholders) and, within these, management challenges. An illustration of relational capital indicators is provided in Table 4.6.

Also, the *CRR* provides insights into how BBVA's IC measures are used for management purposes.

In order to be fully aware of, and effectively manage customer experience, Corporate Quality coordinates and assumes control over all customer satisfaction measurement processes, along with yearly assessment of the internal customer-supply chain. This knowledge is further enhanced by the information obtained from employee motivation and satisfaction indicators. The information on these three areas is then used to analyse and diagnose its combined effect on overall business results.

(BBVA 2005: 69)

This illustration highlights the relevance of considering the links between the information of relational capital and human capital in order to achieve an understanding of the business and therefore the management of the group.

Table 4.6 Relational capital indicators over a two-year period

	2005	2004
<b>CUSTOMERS</b>		
<b>Winning the trust of customers through the fulfilment of commitments and ethical and transparent conduct</b>		
Customers (millions)	38	35
Private individual customer satisfaction index (%) <sup>(1)</sup>	67.9	67.6
Spontaneous awareness index (1st mention, BBVA brand) (%) <sup>(1)</sup>	12.7	13.8
<b>Providing a proactive and customised service, knowing how to treat each customer in terms of their needs and potential</b>		
Branches (No.)	7,410	6,868
• Spain	3,578	3,385
• The Americas	3,658	3,303
• Rest of the world	174	180
Staff in management and front-office positions (%)	68	67
Countries where the Group operates (No.)	31	32
New channels		
• Calls handled by telebanking (millions)	196	79
• Customers using on-line services (thousands)	4,013	3,449
• ATMs and other self-service devices (No.)	14,509	14,231
<b>Offering the best advice and the most efficient solutions with a service that goes beyond the purely financial business</b>		
Public access websites with Group content (No.)	53	43
Network of Group's correspondent banks abroad (No.)	4,189	4,263
<b>SOCIETY</b>		
<b>Encouraging involvement in programmes closely related to social concerns</b>		
BBVA Group foundations (No.)	5	5
<i>Ruta Quetzal</i> participants (cumulative number)	8,700	8,350
Community support: funds allocated by the Group and its foundations (million euros)	46.5	38.3
Socially responsible investment funds (% of the total of investment funds managed)	1.53	1.83
<b>Contributing to the establishment of stable financial systems in all the markets in which the Group operates</b>		
Countries of the Group with Research departments (No.)	10	9
Periodical publications issued by the Group's Research departments (No.)	32	49
Expenditure on publications, sponsorship and collaborations with the Group's Research departments (thousand euros)	963	1,702

**Acting in accordance with strict rules of ethical conduct,  
determining our way of understanding business**

Full audits of branch network for verifying compliance with standards and with money-laundering preventing procedures (No.)	1,937	2,764
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**SUPPLIERS**

**Maintaining a mutually beneficial relationship within the  
framework of relations with partners, collaborating in the  
development of their personal and business projects**

Supplier satisfaction index (score out of 5, biennial survey)	–	3.7
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**SHAREHOLDERS**

**Affording in the long-term a profitability rate higher than that of  
benchmarked competitors**

Shareholders (thousands)	985	1,081
Shares (millions)	3,391	3,391

**Providing timely, comprehensive and accurate information**

Channels available to shareholders (No.)	12	12
Periodical publications issued annually for shareholders (No.)	21	21
Number of enquiries attended to by the Shareholders' Office (annual)	11,679	10,737

(1) Source: FRS Inmark, referring to Spain.

Source: BBVA, AR 2005: 125.

In summary, the two documents analyzed contain an impressive amount of information that cover eight out of the nine MKR issues. In particular, in regards to performance assessment, two out of the three issues are addressed and provide an interesting way of integrating KR and stakeholders. Also, remarkable is the reporting of how KR information is used for management decision making processes. Despite this, measures for objectives and targets are not provided and, therefore, it is difficult to assess progress in MKR. However, these reports attempt to merge stakeholders and IC and to integrate them in all the MKR categories: strategy, management and performance assessment. This approach is considered fundamental for organizational sustainability and this is highlighted in the SMKR framework that will be presented in chapter 5. Also, this analysis highlights the 'overlap' between IC reports and Corporate Social Responsibility reports and provides useful insights into the need to consider merging these reports into one Extended Performance Report, which will be discussed in depth in chapter 5.

## Brembo

Brembo is listed on the Milan Stock Exchange and produces braking systems for high-performance cars, motorcycles and commercial vehicles. Since its



foundation in 1961, Brembo has received many awards in relation to its innovation ability, processes and external disclosure.<sup>7</sup>

Brembo was one of the first Italian organizations to produce an ICR in 1999, but mainly for internal managerial purposes. Up to 2003, the ICR was only partially released to the public within the Annual Report. In 2004, Brembo started reporting externally its 'Intangible Capital Report', as a supplement to its annual accounts. In 2005, the report was renamed 'Intangible Value Report' and included in the 'Report of Tangible and Intangible Value' in which both traditional tangible measurements of organizational performance and intangible measures of performance (i.e. the Intellectual Capital Report) are considered in one document.

The following analysis used Brembo's '2005 Report of Tangible and Intangible Value',<sup>8</sup> which was written in English. As stated before, this is the seventh report on IC prepared by the organization and the second report externally disclosed.

The Brembo report is structured in four main parts. The first part (pp. 1–24) contains the foreword and an overview of the organization, including its mission, values and code of ethics. The second part (pp. 25–48) presents Brembo's tangible value. The tangible value includes mainly financial figures (key performance indicators, main financial results and traditional financial statements) and an analysis of the market, in relation to single segments and geographical region. The third part (pp. 49–73) presents Brembo's intangible value. The intangible value is the result of the combination of 'Intellectual Capital components' (Brembo 2005: 51). This part provides a set of indicators which are briefly explained and assessed. The fourth part (pp. 73–88) relates to share performance which is seen as the synthesis of Brembo's tangible and intangible value:

The share value of a listed company is the result of how the market operators perceive its potential future growth. In other words, share performance reflects both the market's appraisal of the company's published economic and financial results, and the assessment of its industrial plan, capacity for innovation, reputation, brand and intellectual capital, which are the prerequisites for continuity and success.

It is for this reason that share value provides a good concise indicator of Brembo's tangible and intangible value, which we have illustrated in the two previous sections of this publication.

(Brembo 2005: 83)

Brembo considers that its reports are produced for internal use only since 1999, which helped performance assessment and decision making:

as an important source of information for the company's management that permits careful contemplation of the value generated by intangibles. It can be used as an innovative 'tableau de bord' for strategic management

and for guiding corporate policies. More specifically, the intangible value reporting process also features a performance tracking and alert system so that intervention priorities can be identified.

(Brembo 2005: 51)

The motivation for changing the report in 2004 and 2005 was to include external stakeholders by providing them with a comprehensive view of the organization and to supplement the information contained in the annual report. This was seen as an external communication device that:

provides the stakeholders – in addition to the information contained in the traditional Financial Statements – with information regarding the organization's intellectual assets. This is accomplished through non-economic/financial indicators that are important factors for evaluating the company's future competitive capacity and potential for growth.

(Brembo 2005: 51)

The 2005 Intangible Value Report addresses six of the nine MKR issues. For *strategy*, the foci of the organization are on value creation, stakeholders and sustainability and intangible capital. The report provides an overview of the organization, via a brief description of its structure and historical steps, of its mission, guiding values, code of ethics and governance. The organization's mission is linked to the intangible capital via innovation and 'value creation' for stakeholders, including customers and suppliers. The report states that:

Brembo sees its corporate mission as a constant drive both to: create and supply the market with innovative solutions for dynamic vehicle control; create value and well-being for its customers, collaborators, shareholders, suppliers and the community.

(Brembo 2005: 15)

Also, the majority of the guiding values stress the relevance of stakeholder relationships in determining how the organization performs its business. For instance, the 'ethic' guiding value states that:

To base interpersonal relationships with the company and the community on loyal and honest behaviour that aspires to widespread, shared ethical principles; to base the company's growth on respect for man and nature; to act with transparency in dealing with all stakeholders; to abide by the rules and regulations governing the various contexts in which Brembo operates.

(Brembo 2005: 15)

The report outlines rules that the organization has implemented for running its business in order to protect the IC that drives it towards sustainability. This is expressed in the report as:

Brembo bases its conduct on rigorous principles, including transparency, rules, ethics, and responsibility. This provides a basis for and protects the company's intangible capital, which primarily consists of its brand, its reputation and the set of values shared by employees and collaborators that guides the actions of a socially responsible company.

(Brembo 2005: 19)

Concerning the second MKR category, *managing KR*, Brembo constructs IC as three components: relational capital, structural capital and human capital. These are defined as follows:

- Relational capital: it is the set of relations that the company has established with the market. Customer relations, the customers' level of satisfaction in their relationship with the company, enhancement of corporate image, brand awareness, and presence of the trademark are some of the integral parts of relational capital.
- Structural capital: it represents the company's innovative capacity in terms of the development of its technical know-how and the related management methodologies, the efficiency of its production processes, its organizational structure and the solidity and consistency of the aspects of its corporate culture.
- Human capital: it is the ensemble of competencies, attitudes and conduct of the company's management and collaborators.

(Brembo 2005: 51)

For each IC component various elements are identified; for instance, contractual relationships, synergies and shared values (see, Figure 4.8).

Concerning the third MKR category, *performance assessment*, IC components and elements were used for illustrating the IC and for reporting the indicators. The process for producing IC indicators involved management and stakeholders, including employees and customers (see Figure 4.9).

Figure 4.9 highlights that indicators were produced following a four-step process as follows: (a) Planning and starting the process; (b) Data collection and improvement of the process; (c) Calculation of the indicators and preparation of the internal document; (d) Document disclosure. Also it was indicated that once step (c) is performed, the indicators are presented to the highest level of management, for analysis and final approval.

The output of this process was a set of 28 indicators. However, these do not represent the entire set of indicators which were used as *tableau de bord* for internal management purposes, as several were sensitive (Brembo 2005: 52). The 28 indicators are reported in a table and then each indicator is briefly reviewed. The table also specifies the frequency with which each indicator is measured (quarterly, six-monthly, yearly, biennially).

Each IC indicator is accompanied by a brief narrative. Most of the

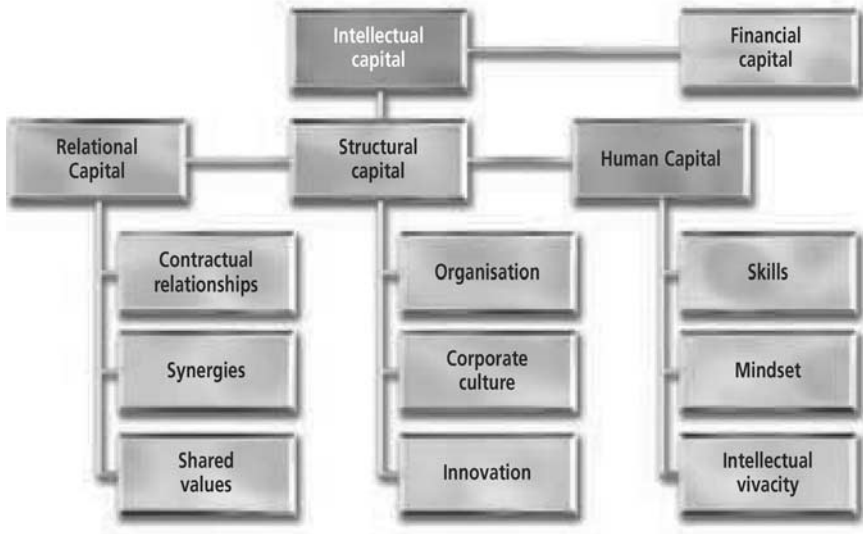


Figure 4.8 Brembo's intellectual capital and financial capital.

Source: Brembo 2005: 52.

indicators are detailed in terms of business units and figures are reported over a three-year period. The narratives relate to the meaning of the indicator and of its figures and, in particular, to relevant variations over the previous years. In some cases, within the narratives, the indicator figures are related to a strategic objective of the organization. The strategic objective is qualitatively described. For instance, in relation to two new patents<sup>9</sup> filed the narrative specifies:

The new patents submitted by Brembo were the result of its commitment to constant innovation, with a view to maintaining the uniqueness of its already well-known products and driving the market by introducing new concepts and solutions.

(Brembo 2005: 64)

In summary, despite the stated role of intangible capital for guiding organizational sustainability it is not clear how this is achieved at Brembo as its report does not cover KR management challenges, KR actions or an understanding of resources transformations. Also, the report considers only market stakeholders. In relation to performance assessment, the report presents a partial set of 28 indicators and provides extensive narratives, including targets and assessments of achievements.

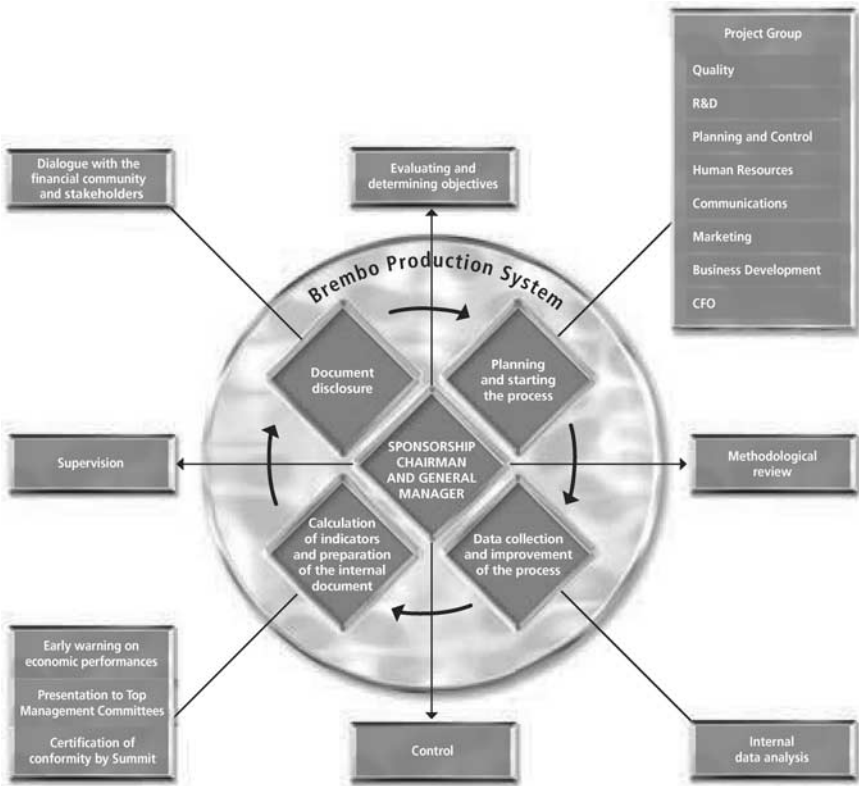


Figure 4.9 The process for preparing indicators.

Source: Brembo 2005: 53.

## Oesterreichische Nationalbank

Oesterreichische Nationalbank (OeNB) is the central bank of the republic of Austria and therefore, a governmental organization. OeNb is a pioneer among central banks in the production of Intellectual Capital Reports (ICR) and the 2005 ICR<sup>10</sup> is its third. It was written in English (OeNb 2005). The bank recognized the need to identify valuable ‘immaterial capital’ which is not tracked by traditional financial statements, in order to manage its development (OeNb 2005: 5).

The ICR is used both internally and externally. Internally, it represents a ‘key strategic instrument’ for the management of the organization’s knowledge. Externally, it is used to provide stakeholders with an understanding of the performance of the organization and of its manifold related activities (OeNB 2005: 2). The ICR is contained within the annual report:

The partial integration of the Intellectual Capital Report into the OeNB’s

Annual Report is testimony to its growing importance. The information about knowledge-based capital and its development represents an ideal complement to the information about the OeNB's overall performance in the Annual Report.

(OeNb 2005: 9)

Concerning *strategy*, this organization has identified a 'process-oriented model' for understanding and reporting IC; this establishes a connection between OeNB strategy and knowledge-based goals, knowledge-based capital, business processes and OeNB's responsibilities and services (OeNb 2005: 9). The model is presented in Figure 4.10.

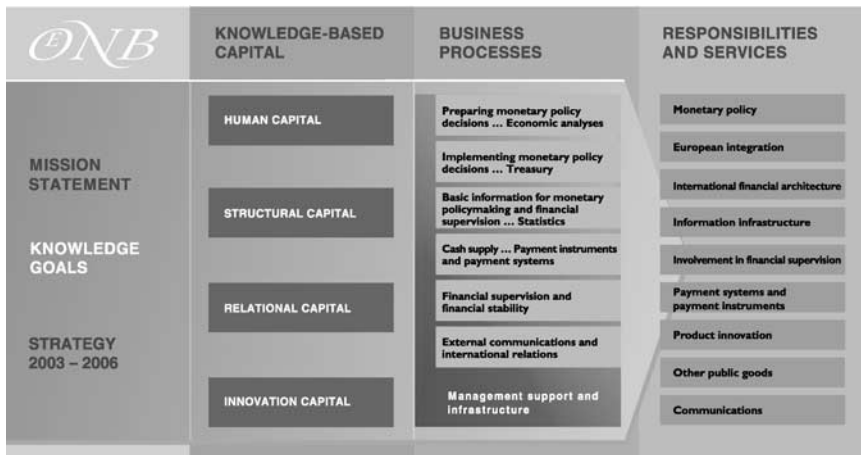


Figure 4.10 Intellectual Capital Report Model.

Source: OeNb 2005: 8.

The ICR resulting from this process highlights a comprehensive understanding of strategic issues that relate to the management of IC and of its impact for future success (OeNb 2005: 9):

The report provides an integrated view of the strategically important management of human, relational, structural and innovation capital; it clarifies the relationships between different types of capital and describes various determinants that influence the OeNB's intellectual capital. The findings of the report serve to assess the consistency of the OeNB's intellectual capital with its knowledge-based strategic orientation.

(OeNb 2005: 2)

Knowledge and IC are considered as the means for achieving the organization's strategic objectives and pursuing OeNB's mission of being a 'knowledge-based central bank'. The following statement illustrates this.

For the OeNB, knowledge and the generation of expertise are not just an end in themselves, but are the means to optimally fulfil the manifold tasks of the present and to be well prepared for future challenges. Knowledge and expertise secure the attainment of corporate objectives, which are derived from the applicable legal provisions and the OeNB's corporate strategy. The accumulated intellectual capital is also a solid foundation for the OeNB's strategy for 2007 to 2010, which aims at making the OeNB a knowledge-based central bank and puts even greater emphasis on its staff's role as knowledge workers.

(OeNb 2005: 25)

The organization's mission and strategic objectives are translated into 'Knowledge management goals' that are medium term objectives and establish 'the framework for the use and development of knowledge-based capital and tie in logically with the OeNB's mission statement and strategy' (OeNb, 2005: 7). Therefore, the 'knowledge management goals' translate the strategy in knowledge terms to guide the activities in the management of KR.

The report identified four 'Knowledge management goals': developing 'Competence through specialised knowledge'; 'Confidence through knowledge transfers'; 'Interdisciplinarity through internationality and cooperation'; and 'Efficiency through modern management'. The link between knowledge management (KM) goals and the organization's strategy is highlighted in the extract below, referring to the KM of developing 'specialised knowledge':

The OeNB is an active player in the Eurosystem and has established itself as a recognized center of competence. This requires identifying key topics with a guaranteed potential for the future and accumulating and further developing relevant, high-quality specialist knowledge. To this end, OeNB staff in all business areas must have highly specialized knowledge and must show top-level ability to perform well, a distinctive willingness to learn and great flexibility. Versatile personnel management instruments and targeted training and education measures are crucial factors supporting and promoting this requirement.

(OeNb 2005: 7)

Also, one of the KM goals (internationality and cooperation) relates to external stakeholders, for instance: 'Eurosystems counterparts, commercial banks public authorities and scientific institutions'. These stakeholders are referred to in the report as 'partners'.

In relation to *managing KR*, the report states that a key management instrument is the assessment of the four 'knowledge-based capital types': human capital, structural capital, relational capital and innovation capital. These are defined also by the metrics used to measure them, as illustrated below:

- 1 Human capital comprises staff structures as well as the staff skills applied to business processes. It is captured by indicators which relate to e.g., 'number of working visits to national and international organizations' and 'number of completed and certified training courses'.
  - 2 Structural capital encompasses both the organizational framework and the technical infrastructure designed to ensure smooth business operations. Examples of related indicators are 'number of product managers' and 'availability of the ARTIS payments system'.
  - 3 Relational capital indicators illustrate the OeNB's focus on cooperation and its network of national as well as international customers and partners, and its dealings with the public. In this context, the OeNB reports e.g., the 'number of international bodies with OeNB representatives' or the 'confidence index', which is compiled on a quarterly basis by an external polling institute.
  - 4 Innovation capital comprises the resources the OeNB needs to remain successful in the future. Some key indicators are 'percentage of staff resources utilized for innovative projects' and 'internal R&D expenditure'.
- (OeNb 2005: 10)

Therefore, in this report, innovation is considered as a separate 'knowledge-based capital type' and has a definition which is similar to the learning and growth performance perspective of the Balanced Scorecard.

Therefore, for this organization the management of the four knowledge-based capital types represents a way to achieve its knowledge management goals. An assessment of the contribution of each category is shown in Figure 4.11.

Also, the report provides an understanding of the 'flows' within knowledge-based capital types. For instance, the illustration provided below highlights the interdependency between relational capital (customers) and structural capital (organizational knowledge) within the organization's processes. In particular, it underlines the need to acquire knowledge about customers when providing services.

The quality of the OeNB's services is determined to an overwhelming extent by the economically sound deployment of its knowledge-based capital. Ultimately, however, the success of the OeNB's products and services hinges on their usefulness to customers. Consequently, the priority of knowledge transformation is the steady improvement of customer benefit. Knowledge acquired while rendering services changes intellectual capital and makes its mark on future Intellectual Capital Reports.

(OeNb 2005: 9)

The understanding of KR transformations is quite advanced in this report and allows for the identification of the contribution of KR to value creation processes:



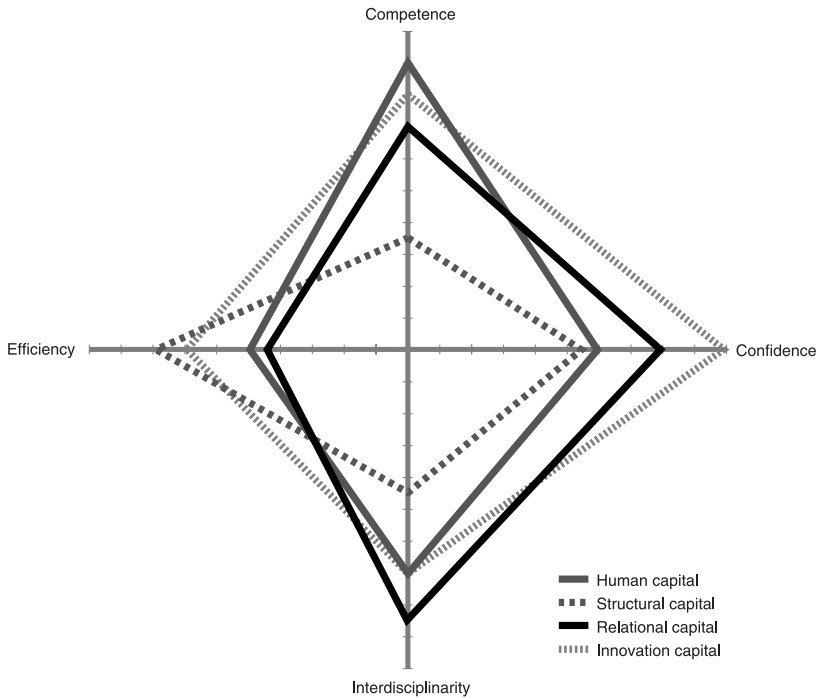


Figure 4.11 Contribution of knowledge-based capital types to achieving knowledge goals.

Source: OeNb 2005: 11.

One of the basic tasks of the OeNB is to promote the smooth operation of payment systems. The OeNB does this by monitoring the market and by providing efficient and sound clearing and payment systems. To this end, detailed knowledge about the entire field of cashless payments and an intense exchange of information with legal experts, equity interest management experts, economists, treasury experts and financial market analysis and supervision experts are indispensable . . . expertise is increasingly becoming the most important asset. Only the correct application of knowledge can guarantee the successful handling of all business processes.

(OeNb 2005: 21)

This advanced understanding is reflected also in the undertaking of KR activities that are described in detail in the report:

The OeNB's personnel development activities concentrated on creating incentives and means to enhance staff mobility. The job rotation scheme was further supported by the introduction of a new electronic information

Table 4.7 Structural capital indicators

Indicators	Value 2005	Target	Corresponding knowledge goals			Value 2004
			Competence	Confidence	Interdisciplinarity	
<b>Management structure</b>						
Span of supervision	7.5	→				8
Number of product managers	75	↗	●			69
<b>Technical infrastructure</b>						
Number of IT applications	202					196
Availability of ARTIS payment system (%)	99.95	→	●	●		99.87
Error-free payment transactions (%)	99.99	→	●	●		99.99
<b>Environmental protection and quality assurance</b>						
Number of environmental auditors	12	→				12
Number of quality auditors	18	→				18
<b>Procurement</b>						
Catalogue orders as a percentage of total orders	38.26	↗				37.06
Number of calls for tender	25			●		26
<b>Group</b>						
Number of subsidiaries in payment systems services	6		●		●	7

Source: OeNb 2005: 14.

platform at the OeNB. These schemes support employees who wish to gain some work experience at the ECB, another national central bank (NCB), one of the OeNB's subsidiaries or another division within the OeNB for a limited period. In the review year, 63 employees participated in the job rotation scheme; 25 of the job rotation positions were international. The average share of employees on job rotation, which currently stands at 6.5 per cent, is targeted to rise in the future.

(OeNB 2005: 13)

Also, some of the KR activities reported under relational capital relate to environmental issues:

Corporate environmental policy was reinforced by the implementation of the EMAS-compliant environmental management system. In the reporting year, 30 environmental controllers attended to various environmental issues and frequently implemented improvements, e.g., of energy consumption. A core feature of the environmental management system is the performance of company environmental audits. The OeNB trained 18 environmental auditors to perform audits at the OeNB.

(OeNB 2005: 15)

In relation to *performance assessment*, knowledge capital types are measured via indicators and reported in tables for each knowledge-based capital type. For each indicator, several details are provided: the figures over a two-year period, the medium-term target, which is indicated by an arrow and the corresponding knowledge goal/goals. Also, indicators are grouped on the basis of the area measured. An illustration of the Structural Capital indicators is provided in Table 4.7.

Also, Table 4.7 highlights 'environmental protection and quality assurance' processes as one relevant element in this knowledge-based capital type. The reporting of KR activities that relate to the environment may be signalling the use of the management of KR as a way of addressing environmental issues.

In summary, this ICR meets all the MKR issues and is an excellent example of practice. The OeNB report provides an illuminating Intellectual Capital Report Model which highlights the flow from the organization's mission and knowledge goals to the knowledge-based capital types to the business processes and the responsibilities and services. Also, it provides good illustrations of the stocks and flows of four main knowledge-based capital types and their relevance for OeNB processes. The performance assessment is also advanced, using metrics and narratives to provide a comprehensive picture of KR performance over time and against strategic objectives.

## Plastal

Plastal is a privately owned organization based in Italy. It is a manufacturing organization that operates within the automotive industry. Plastal was one of the first private organizations producing IC reports in Italy. This is the sixth year that Plastal has produced an Intangible Capital Statement (ICS)<sup>11</sup> and this analysis considered the 2005 ICS (Plastal 2005) which was available in Italian.

The ICS was used as an external communication device for improving relationships with stakeholders and informing them about the long-term drivers of the organization: 'the information provided by the Statement of Intangible Capital complements and integrates the data shown in the Financial Statements, demonstrates to our stakeholders the company's prospects for the long-term, and reinforces the faith of the clients and the markets' (Plastal 2005: 3). Also, the ICS was seen to be an internal management tool, it: 'provides important information to all those within the organization for whom Intellectual Capital is an important factor giving information regarding trends in intangible variables' (Plastal 2005: 3).

This ICS addresses six of the nine MKR issues. In relation to *strategy*, the report identifies the organization's strategic focus as aligned with the three main IC components, that is relational, structural and human capital (see Figure 4.12). Also, it details these in terms of strategic factors. The strategic factors reported highlight that this manufacturing organization focuses on market stakeholders.

Each IC strategic area highlighted strategic factors; for instance, for relational capital, suppliers and customers. Therefore, for this organization, the three IC strategic areas and related factors can be considered as KR management challenges.

In regards to *managing KR*, the ICS reported briefly on KR actions that were undertaken in previous years, such as an 'Intellectual Capital action plan'. This plan aimed to use the ICS to define and promote improvements in the organization and this is illustrated below:

During the course of 2005, we continued our activities aimed at bringing about improvements within the company by applying our Intellectual Capital Action Plan. This project involves working groups from across the organization who analyse the data generated by the Statement of Intangible Capital in order to implement plans of action in certain strategic areas, such as relations with external customers, internal communications and involvement, incentives and organization of the work.

(Plastal 2005: 3)

Another KR action, 'Continuous Improvement' plan aimed to monitor, promote and reward the best ideas and the commitment of employees:

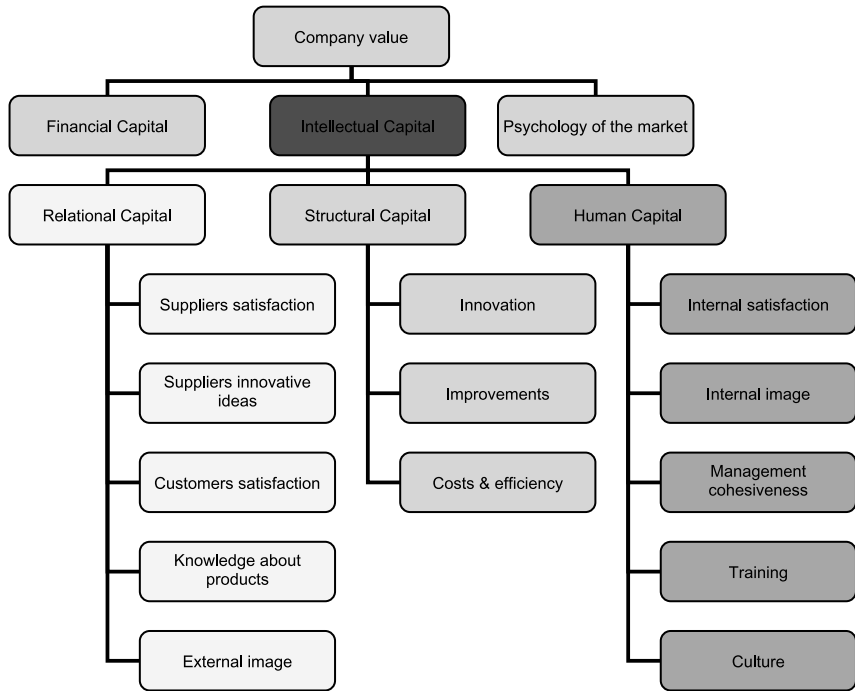


Figure 4.12 Company value and intangible capital.

Source: Platal 2005: 4.

The ‘Continuous Improvement’ plan has been implemented also this year to involve the employees in the organization’s plan for cost reduction via motivating and rewarding employees who contribute to reaching the aim. The ideas emerged were classified in: ‘best idea’ (the best feasible ideas) and ‘fidelity’ (which combines the name with the frequency and the fidelity).

(Platal 2005: 9)

Platal implemented significant KR actions which involved management and the entire workforce. The report identified resources transformations, for instance, one of the metrics contained in the ICS related to the innovative ability of suppliers, and this metric can be seen as related to a transformation between relational and structural capital. This means that the relationships with suppliers (relational capital) in the day-to-day organizational processes were considered as an important source of innovation (structural capital) (Platal 2005: 7). However, narratives in the report do not provide practical examples of this. Also, there was no attempt to identify, describe or map resources transformations in any other part of the report.

In regards to *performance assessment*, strategic areas and related factors

are reported. The assessments used metrics, narratives and graphics to provide an understanding of performance over time. Within these assessments, the results of several KR activities that had been carried out systematically in the last three years were highlighted. Figure 4.13 reports the results of a survey carried out to understand how the organization was perceived by external market stakeholders, in relation to ten main factors.

Figure 4.13 highlights the main factors that affected the organization's image, for instance, Plastal's consideration of customer needs, reliability, effective communication with clients, etc. Also, it allows for a comparison of 2005 with previous years. For this assessment, the report provided an indication of the organization's satisfaction with the reported metrics: 'Our external image as perceived by the customers is extremely satisfactory. Most of the indicators are above 65 per cent; therefore, we can safely claim that Plastal as a company is perceived as important, reliable, specialised, dynamic, and considers customers' needs' (Plastal 2005: 7).

The IC elements were measured and reported and a comparison of most of the indicators was made over a three-year period. The reports also stated that, from the analysis of the indicators, new areas for managerial intervention were identified and plans for improving the IC were to be developed (Plastal 2005: 15).

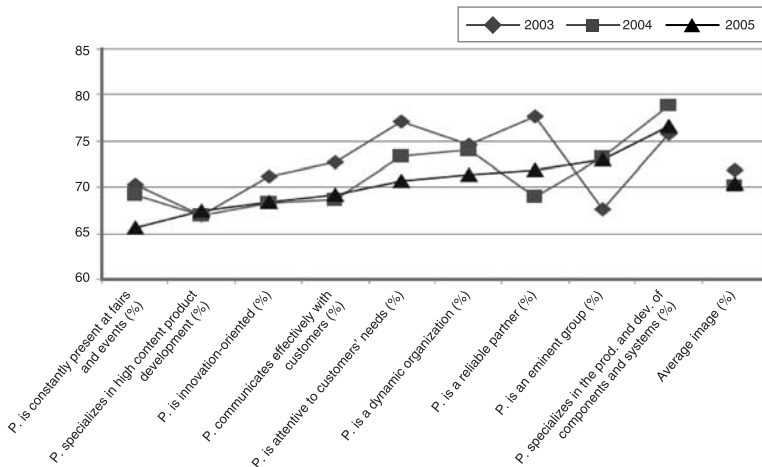


Figure 4.13 Plastal's external image from 2003 to 2005.

Source: Plastal 2005: 9.

In summary, this report covers six of the nine MKR issues; those not included are the strategic objectives, resources transformations and the definition and assessment of targets and their achievements. Absent from this Plastal ICR was the link between the strategy of the organization and the contribution of MKR to this. This report is very performance assessment

oriented as it devotes 11 out of 15 pages to illustrating and commenting on IC metrics. In regards to the second MKR category, the report provides interesting details on multi-year KR activities that had been undertaken to put KR management into practice and to drive change in the organization.

### **ZIP (Consorzio Zona Industriale of Padua)**

Consorzio Zona Industriale of Padua (ZIP) is a public organization based in Italy, founded by the Municipality, the Province and the Chamber of Commerce of Padua. ZIP is in charge of the industrial development of the territories surrounding Padua with a particular focus on their social, economic and environmental sustainability. The first Intellectual Capital Statement (ICS)<sup>12</sup> was in 2005 and was in Italian (ZIP 2005). The stated function of the ICS was to improve the effectiveness of internal managerial processes and to promote transparent communication with stakeholders (ZIP 2005: 13). Traditional financial accounts were considered to be unable to provide a complete picture of the organization and especially to incorporate the 'Intangible Capital' components of the organization (ZIP 2005: 21).

This report addresses eight of the nine MKR issues. In relation to the first category, *strategy*, the ICS highlighted ZIP's mission as 'value creation' for stakeholders, which consisted of promoting social, economic and environmental development in the territories surrounding Padua. For this purpose, ZIP created infrastructure and offered services for organizations willing to locate their business activity in the area surrounding Padua. The ICS also stated that ZIP's activity was based on transparency, responsibility and cooperation with the community, either economically, socially or politically (ZIP 2005: 10).

The organization's KR management challenge, as stated in the ICS, was to apply its competencies to new markets. The following extract highlights the strategic role of competencies for this process: 'Now that we are facing a saturation of the surrounding territory . . . the ability of finding new opportunities for applying our competencies in new markets and areas is becoming a priority' (ZIP 2005: 33).

ZIP identified the strategic role played by competencies developed in the technical, legal and economic areas, as these were the ones that determined the quality, timeliness, efficiency and sustainability of projects (ZIP 2005: 29).

In relation to the second MKR category, *managing KR*, all resources (i.e. physical, financial) were considered part of the organization's value (ZIP 2005: 20). For this organization, IC is divided into three main components: human capital, structural capital and relational capital (see Figure 4.14).

The narratives in the ICS highlighted the elements that were particularly relevant for this organization. For instance, the human capital component contained elements such as internal competencies, professional skills and employee motivation. Structural capital included organizational competence and its application in internal processes. Relational capital included the organization's image in the surrounding territories, as well as relationships

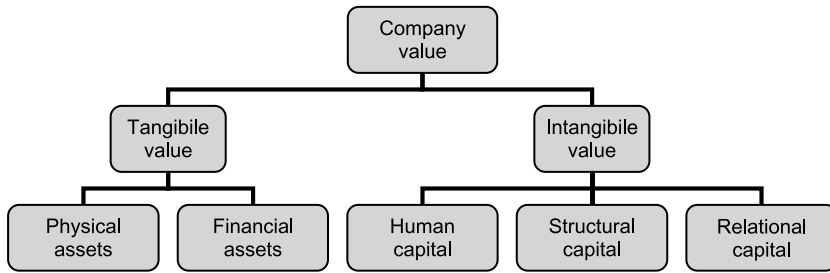


Figure 4.14 Company value: tangible value and intangible value.

Source: ZIP 2005: 20.

with external stakeholders, who were identified as clients, institutions, suppliers and the surrounding community.

The competencies and skills developed by the workforce in over 50 years of experience were organizational KR processes that were used to achieve significant results (ZIP 2005: 31). ZIP's ICS highlighted the interactions between human and structural capital: 'The planning skills along with the economic and legal competence have been incorporated into operational methodologies and processes characterised by a remarkable efficiency. This is acknowledged by all ZIP stakeholders . . .' (ZIP 2005: 31).

Another KR action undertaken during the year was monitoring stakeholders' perceptions. For instance, stakeholder and customer satisfaction surveys were carried out annually (ZIP 2005: 42). The results of these KR actions highlighted how some customers and stakeholders had a poor perception of ZIP's role and activities. As a result the organization improved communications with stakeholders and also focused its efforts on developing the green areas of the territories (ZIP 2005: 42).

Table 4.8 Relational capital metrics

Indicators	2005
Average customer satisfaction index (from 1 to 5)	2.5
Number of complaints from clients	17
Newsletter addressees	1,640

Source: ZIP 2005: 41.

In relation to the third MKR category, *performance assessment*, the ICS contains basic IC metrics pertinent to each IC component. Most of these are reported on a one-year basis, whilst the human capital metrics are reported over a two-year period. Table 4.8 illustrates several relational capital metrics.

However, there are no targets or trends identified in the ICS.

In summary, this is the first ICS for this organization and includes an analysis of the strategic relevance of IC for ZIP's future. In relation to strategy,



it highlights the relevance of IC for the sustainability of the organization. In regards to managing KR, the report provides an understanding of the KR actions that were undertaken to monitor its IC and of how results were used to highlight relevant focus areas for the business. In regards to performance assessment, this report provides some basic IC indicators, mainly over a one-year period. However, as pointed out in the analysis, the management of IC is still in its infancy. The KR actions reported are mainly related to the monitoring of IC elements and this may be a good starting point for undertaking further action. This is not surprising given that it is the first external IC report of the organization. However, indicators related to human capital, which were most probably in use previously, are reported over a two-year period.

### **Development Bank of Japan**

The Development Bank of Japan (DBJ)<sup>13</sup> is a government organization providing government policy-based financing to realize a sustainable society. DBJ works with private organizations and provides loans and investment funds for projects that are significant for the sustainability of the economy, the society and the environment (DBJ 2005).

The report considered is the ‘Sustainability Report 2005: Social Environmental and Intellectual Asset Report’<sup>14</sup> (DBJ 2005), which is in English. This was DBJ’s third Sustainability Report, the first being in 2003, but the 2005 report includes a specific section on Intellectual Assets (IA) and the name of the report has therefore been changed to reflect this new focus.

The DBJ stated that it produced a Sustainability Report because of its commitment to creating a sustainable society. According to DBJ, a new section on IA was added as IA are the ‘wellspring of corporate value’ (DBJ 2005: 36). Furthermore it claims that IA drove the bank towards its mission of building a sustainable society (DBJ 2005: 37), and facilitated the understanding of DBJ’s operations (DBJ 2005: 2).

This report addresses five out of the nine MKR issues. In relation to *strategy*, it illustrates how stakeholders and KR are the basic ingredients for achieving organizational sustainability and therefore have to be managed properly. The report states that DBJ’s mission is to build a sustainable society in three prioritized sectors within the bank’s loan and investment programmes (see Figure 4.15): community development, environmental conservation and sustainable society, and creation of new technologies and industries.

The report indicates that, for achieving its mission, two fundamental ingredients are required: stakeholders and IA. As will be highlighted below, it was believed that these ingredients had to be managed properly to achieve organizational sustainability. In relation to the first ingredient, stakeholders, these were defined as ‘All persons with an interest in a firm’s business activities’ (DBJ 2005: 3) and an illustration of the main stakeholders and the relationships with them is provided in Figure 4.16.



Figure 4.15 DBJ's mission and its three priorities.

Source: DBJ 2005: 8.

The report acknowledged the relevance of establishing a dialogue with stakeholders in order to identify their needs:

DBJ is committed to maintaining communication with various stakeholders in order to earn society's trust. This allows DBJ to ascertain society needs and reflect these insights in its management and investment operations.

(DBJ 2005: 9)

Therefore, as illustrated above, fostering stakeholder dialogue was important for comprehensive stakeholder management activity. The report stressed the relevance of addressing stakeholders' interests in order to achieve organizational sustainability:

DBJ has responded with flexibility to the changing needs of the times in performing its roles as a policy-based financial institution. This is possible because of its abilities to plan and carry out its loan and investment programs, which originate in its network, and the trust it has earned from stakeholders.

(DBJ 2005: 36)

The second ingredient for organizational sustainability was IA, which is seen as the basic ingredient for 'value creation', and this relates to the second MKR category, *managing KR*:

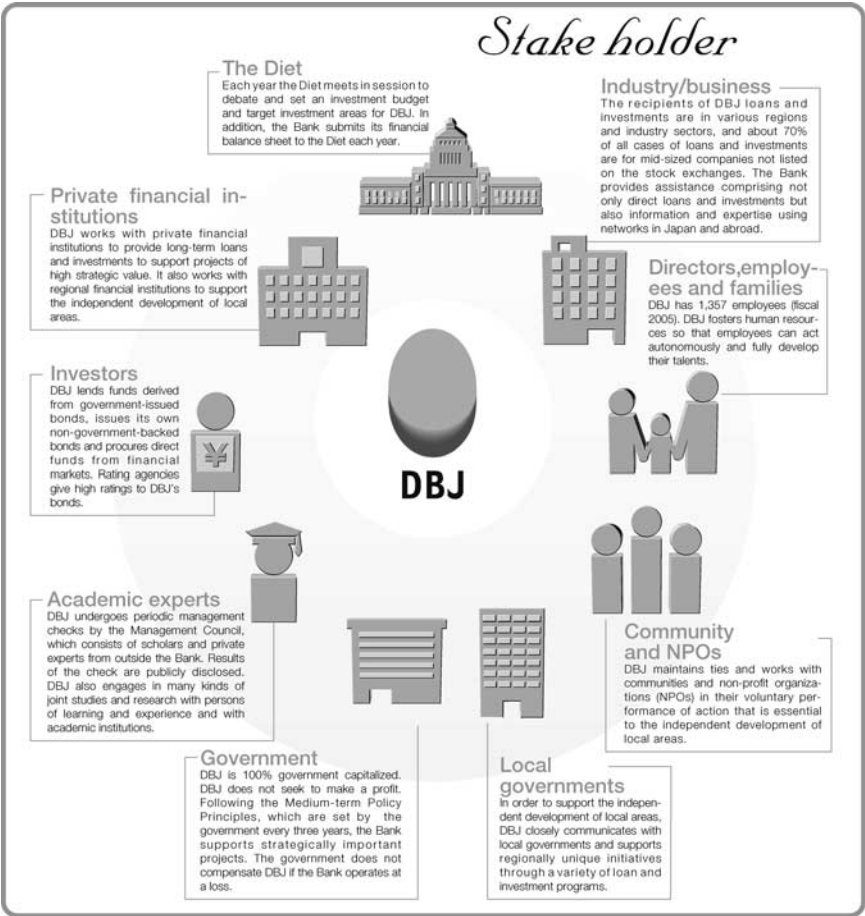


Figure 4.16 DBJ's stakeholders.

Source: DBJ 2005: 3.

Intellectual Assets are seen as the wellspring of corporate value and the banks strive to optimize these intellectual assets to fulfil its role in building a sustainable society.

(DBJ 2005: 36–37)

Three main IA components are identified in DBJ's report: relational, structural and human capital (or Assets). Each component is detailed in terms of elements (see Figure 4.17).

DBJ indicated that it is not stocks of IA that create value, but the synergies (i.e. the flows or transformations) within them:

To provide an example, the process in which synergy is created between

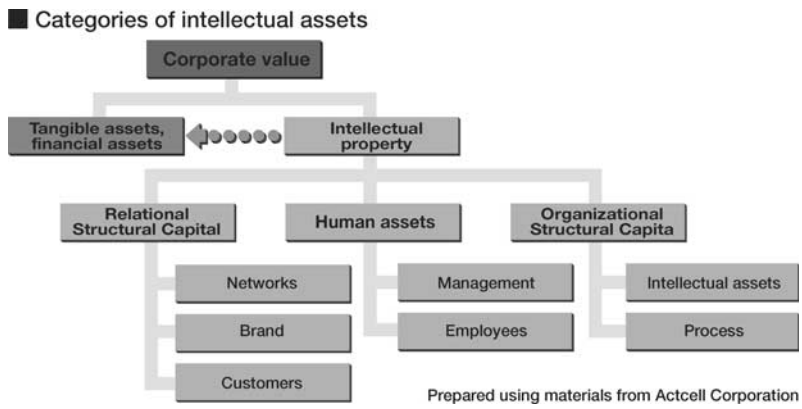


Figure 4.17 Intellectual Asset categories and related elements.

Source: DBJ 2005: 37.

DBJ’s networks personnel and knowledge on the one hand and its loan and investment operations on the other is an intellectual asset that help DBJ perform its mission as a policy-based financial institution.

(DBJ 2005: 36)

The illustration provided above can also be considered a KR activity as it demonstrates how the organization produces and deploys its IA and this is depicted by the ‘Knowledge creation process’ (see Figure 4.18).

The knowledge creation process is embedded in the business processes and is important to building a sustainable society (DBJ 2005: 37).

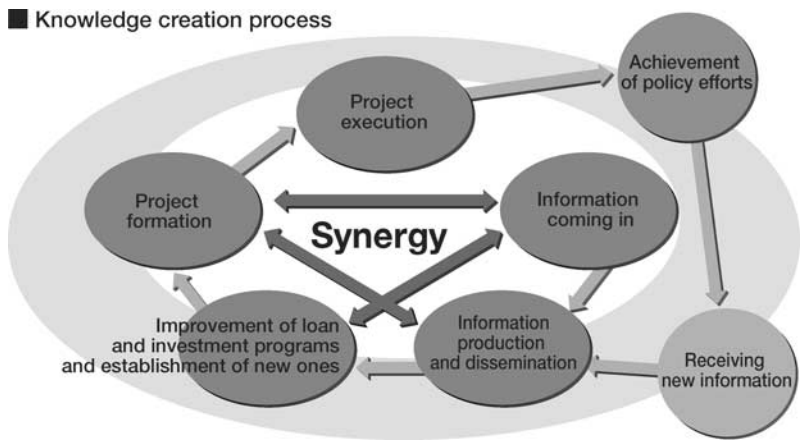


Figure 4.18 The knowledge creation process.

Source: DBJ 2005: 37.

DBJ makes its own unique contributions to Japan's economy and society by introducing new financial methods into Japan and cooperating with private-sector institutions to adapt these methods to policy-based financing

(DBJ 2005: 37)

The report provides other illustrations of the relevance of IA and stakeholder relationships for organizational sustainability:

DBJ takes advantage of its domestic and international networks and accumulates knowledge through study and research on the economy, society, industry and communities in order to provide concrete support to projects with planning and advice.

(DBJ 2005: 9)

This report did not include a *performance assessment*.

In summary, this report represents an excellent illustration of the merging of IA and stakeholder relationships for organizational sustainability. However, only five of the nine MKR issues are reported on. It does not define specific KR management challenges and does not deal with performance assessment of its IA.

### **Electronics and Telecommunications Research Institute**

Electronics and Telecommunications Research Institute (ETRI) is a Korean government research organization in the field of information and communications. It is affiliated to the Korean Research Council for Industrial Science and Technology (KOCI), led by the Ministry of Science and Technology.

The following analysis considered ETRI's Intellectual Capital Report 2005<sup>15</sup> (ETRI 2005). The report was in English and this was the third such report. ETRI (2005: 3) stated that the Intellectual Capital Report (ICR) was produced to overcome criticism of the performance measurement systems of research organizations. It served both as an internal and external reporting tool.

Internally, understanding the level of ETRI's intellectual capital and providing fundamental data for value-enhancement; externally, utilizing the report for the purpose of realizing the effect of R&D on the basis of intellectual capital. Furthermore, this report is presented as a sound practice in measuring R&D performances that pave the way to a knowledge- and information-based society.

(ETRI 2005: 1)

The report also provided details on how Intellectual Capital Management took place in the research organization. In 2001, ETRI implemented a

knowledge management system (KMS) for enabling the systematic creating, storing, circulating and sharing of information and knowledge. After three years of operating the KMS, scepticism arose as to whether the information system adequately represented the creative intellectual activities of the organization. Therefore, since 2004, KMS focused on developing intellectual capital management, which was seen as extending the initial knowledge management model (ETRI 2005: 5).

Overall ETRI's 2005 ICR addresses seven out of the nine MKR issues. In terms of *strategy* it focuses on creating knowledge for economic and social development, and in ETRI's report this is also detailed in terms of KR management challenges. The Chairman's letter, an excerpt of which appears below, highlights that an understanding of IC and its management plays an important role in fostering MKR (ETRI 2005: 3). Also, the narratives within the report highlight the link between the organization's mission, IC and management:

ETRI's mission seeks to contribute to economic and social development by creating and developing new knowledge and technology as a member institute of the Korea Research Council for Industrial Science and Technology.

(ETRI 2005: 4)

The mission of economic and social development was pursued via the management of IC and the main challenges were identified:

To meet this goal, the value of ETRI's existence lies in its ability to enhance national economic value by creating and advancing knowledge and technology, conjointly conducting research on information security and technology standardization while providing technology-related information to the industry.

(ETRI 2005: 4)

In regards to the second category, *managing KR*, the knowledge of ETRI was illustrated using the tripartite classification of IC: human capital, structural capital and relational capital. For each of these, sub-components and elements were highlighted, as indicated in the illustration for human capital provided in Figure 4.19.

Also, the narratives in the report explained each of these components in relation to this specific organization in a clear and well defined manner. The three IC components and related parts are linked together by three KR actions: knowledge creation, knowledge retention/sharing and knowledge utilization/transfer (see Figure 4.20).

The IA report of this research organization stated that the KR actions nourish the transformations within IC, and these relate to the MKR issue of resources transformations. An illustration:



Figure 4.19 Human capital sub-components and elements.

Source: ETRI 2005: 8.

Innovation and continuous improvements, prerequisites for R&D activities, come from individual competence. Individual competence is, in turn, transformed as human capital through organizational-level management, which includes training and knowledge-sharing. In other words, an increase in human capital entails improvements in structural and relational capital.

(ETRI 2005: 8)

These narratives provided a defined picture of how KR actions enhanced the transformations within IC.

Concerning the third category, *performance assessment*, IC is measured according to the three main IC components. Table 4.9 illustrates structural capital metrics over a three-year period.

These metrics were accompanied by detailed narratives that explained the variances reported and links for understanding performance, for instance:

In particular, improved indicators regarding the organizational capability of mid- and long-term strategies coupled with a technology roadmap demonstrate that the efforts between research and administration are attuned to one another. These efforts, in turn, were joined by a sharp increase in the number of patents and IT standards, which affirms that R&D planning capabilities and research performance are closely linked. Furthermore, steady advancement of both infrastructure and organizational culture, as well as managerial efficiency and HRM effectiveness, demonstrate that employee satisfaction with organizational management continues to progress.

(ETRI 2005: 11)

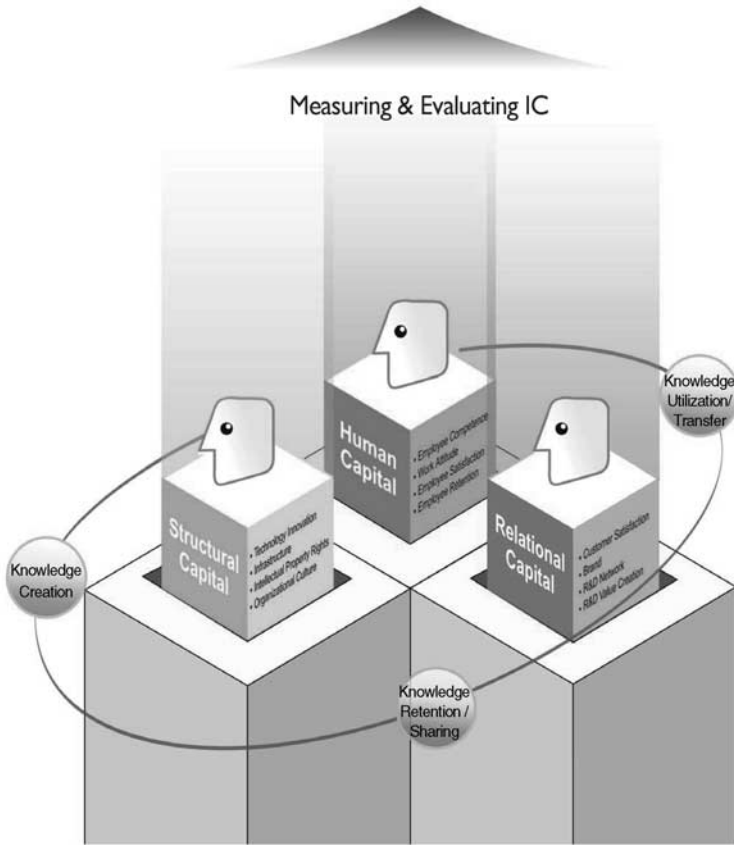


Figure 4.20 IC components and KR actions.

Source: ETRI 2005: 4.

Several tables with detailed metrics over time were provided. Therefore, metrics were reported both in tables and in different types of visual representations. For instance, two visual representations about human capital are illustrated in Figure 4.21.

In summary, this report addresses seven out of the nine MKR issues. Despite the strategic focus on economic and social development, it is not stated how stakeholders' interests are considered when formulating the strategy of the organization or identifying its KR management challenges. Also, in relation to performance assessment there is no definition of strategic targets and therefore it is not possible to assess the achievement of objectives. However, this report presents an advanced understanding of how IC creates value in organizational processes and provides a comprehensive understanding of the performance of this research organization.



Table 4.9 Structural capital indicators

Category	Components/Indicators	Unit	2003	2004	2005	Variance (2004–2005)	Variance (%)
Technology innovation	<b>New technology</b>	ETR new technology	NA	55	38	-17	-31
		R&D investment in ETRI new technology	NA	115,227	100,195	-15,032	-13
	<b>Policy participation</b>	Participation in policy planning	138	139	146	7	5
	<b>Vision planning and practice</b>	Vision planning and practice	43.6	48.3	53.6	5.4	11
	<b>Managerial efficiency</b>	Managerial efficiency	44.0	45.8	48.3	2.5	5
	<b>Work ethics</b>	Work ethics	57.5	61.5	62.7	1.2	2
	<b>HRM effectiveness</b>	HRM effectiveness	47.1	50.4	52.5	2.1	4
	<b>R&amp;D process</b>	Best practices in QM	41	92	141	49	53
	<b>Improvement</b>	R&D process effectiveness	NA	44.0	45.5	1.5	3
	<b>Information systems</b>	Information systems satisfaction	47.8	53.3	61.7	8.4	16
IPRs	<b>Patents</b>	Patents issued	608	1,068	1,148	80	7
	<b>Papers</b>	Papers	3,053	2,855	2,582	-273	-10
	<b>Standards</b>	Standards contributions	285	476	913	437	92
		International standards	11	15	30	15	100
	<b>Know-how</b>	New know-how for technology transfer	199	167	276	109	65
Organizational culture	<b>Organizational culture</b>	Organizational culture	49.4	53.2	53.5	0.3	1

\* Point: Surveyed by five-point Likert scale and converted to 100-point scale.

Source: ETRI 2005: 11.

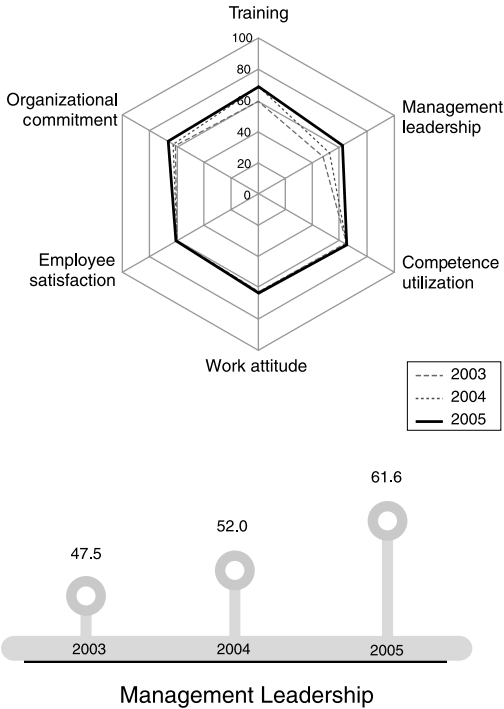


Figure 4.21 Visual representations of human capital indicators.

Source: ETRI 2005: 9.

## New South Wales Department of Lands

The NSW Department of Lands (Lands) is a New South Wales (Australia) government agency for land and property information and services and the provider of specialist soil conservation and environmental services. This organization issued its first Intellectual Capital Statement (ICS) in 2005, within its annual report. The second ICS was issued in 2006<sup>16</sup> and sought to 'articulate the progress made in improving performance and confidence among our management and staff' (NSW Lands 2006: 8). The two ICS will be referred as to NSW Lands (2006) and NSW Lands (2005) and are a sub-section of the annual report, written in English.

The 2006 AR contains three sub-sections that provide an understanding of the organization and its performance, these are respectively: 'About the Department of Lands' (pp. 6–7); 'Intellectual Capital Statement' (pp. 8–11); and 'Balanced Scorecard – performance against strategic objectives' (pp. 12–17). The ICS sub-section is linked to the other two as the second contains the 'strategic orientation' of the ICS and the third contains the achievement of some strategic objectives and the IC measures. Therefore, the complementary

nature of the ICS and the Balanced Scorecard (BSC) as reporting frameworks is recognized and there is an attempt to integrate them (NSW Lands 2006: 8, and see Figure 4.22).

This report, in six pages, addresses eight out of the nine MKR issues. In relation to the first category, *strategy*, the report provides a good illustration of how a strategy for organizational sustainability can be developed.

The KR were linked to the strategic intent of the organization to achieve a sustainable business model: ‘By strengthening our focus upon our staff, our internal processes and our relationships and partnerships with other organizations, we believe that we will create a more efficient, effective and sustainable organization’ (NSW Lands 2006: 8).

The links between KR and strategy can be found in the ‘strategic orientation’ sub-section of the annual report. In particular, four (out of eight) guiding values link strategy to KR, these are:

Customer service: We are committed to identifying customer needs and providing excellent products and services to clients in all locations.

Accountability: We provide our services in accordance with government and community expectations and manage government finances with strict probity to achieve value for money.

Innovation: We seek to develop innovative strategies and solutions to provide customer services and meet government needs.

Leadership: We are committed to providing leadership to the community and the public sector in areas of geospatial information and land management, and at all levels across the organization.

(NSW Lands 2006: 7)

The ‘strategic orientation’ sub-section outlined six strategic objectives that were related to the management of IC. These six were stated to be as follows:

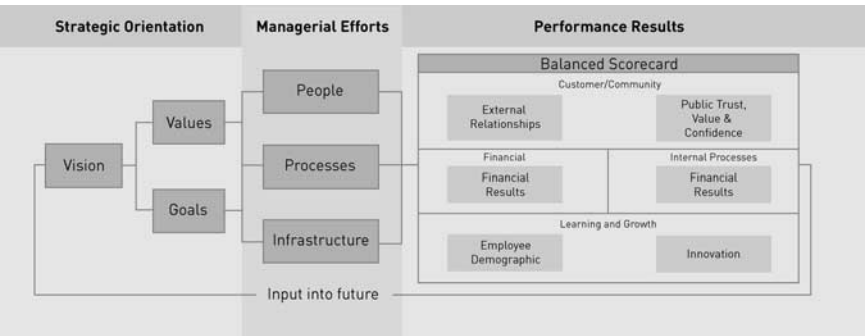


Figure 4.22 The integration between the Balanced Scorecard and the intellectual capital framework.

Source: NSW Lands 2006: 8.

promote the expertise in soil, water and environmental conservation; implement innovative business solutions to improve the management of public and private resources; encourage strategic partnerships and alliances across the public and private sectors; improving productivity and capturing explicit organizational knowledge via the review of internal processes; engage IT and communication solutions that deliver improved, customer-focused service delivery options; and create a 'learning organization' environment, which supports and encourages the development of knowledge and skills.

(NSW Lands 2006: 7)

Also, NSW Lands highlighted the relevance of relationships with stakeholders (e.g. government organizations and the community) in regards to its strategic intent:

The strength of our relationships with stakeholders, other government organizations and the wider community contributes to the value we deliver to the public. These relationships also contribute to the creation of public trust and confidence in our organization, its products and services, as well as a contribution to society in general.

(NSW Lands 2006: 9)

This illustration also highlights how these relationships with stakeholders contribute to the value creation process. The report highlights the social, environmental and economic aspects of value, which are related to the notion of sustainability:

The contribution of Lands is not only in the supply of direct products and services, whether they relate to conveyancing, the management of Crown land, the supply of spatially related information or the remediation of farming and other land. It is also the value to the wider society through economic, social and environmental outcomes.

(NSW Lands 2006: 9)

However, for the KR and strategy category, the 2006 ICS did not identify any new 'management challenges', but refers back to the 'management challenges' identified in the 2005 ICS (NSW Lands 2006: 7; NSW Lands 2005: 10).

Concerning the second MKR category, *managing KR*, IC is composed of external capital, internal capital and human capital. The three aspects were defined via their related elements:

- Human capital – the knowledge, motivation, abilities and skills of the employees with the organization.
- External capital – also generally known as relational capital, which

reflects the value of external relationships with the Department. Typically this would include stakeholders, customers, suppliers and other government and non-government agencies.

- Internal capital – knowledge which has become embedded in the organizational structure such as commonly held values, culture, processes, digital data systems, policies, procedures and organizational structures. The value of internal relationships between employees and with management is also relevant to this aspect.

(NSW Lands 2005: 7)

The 2006 management challenges were: ‘external relationships’ (external capital), ‘service delivery’ (internal capital) and ‘employee demographic’ (human capital). For instance, the management challenges identified in relation to ‘employee demographic’ were sharing and retaining knowledge, employee attitudes and motivations, learning and development and innovation (NSW Lands, 2005: 10). The 2006 ICS reported an update on the managerial efforts made in the achievement of each ‘management challenge’. For instance, in relation to employee demographic, the KR activities identified were undertaken in order to enable the sharing and retaining of knowledge:

courses were developed in several areas of Lands and have been successful in introducing our staff to learning strategies, developing existing skills and knowledge, enabling staff to understand and undertake a wider role within the organization.

(NSW Lands 2006: 10)




The outcome of managerial efforts on ‘performance results’ were described via narratives along four dimensions: ‘customer and community’, ‘internal processes’ ‘learning and growth’ and ‘financial results’. This was a combination of the Balanced Scorecard and the ICS. As indicated: ‘The Balanced Scorecard complements the intellectual capital reporting framework by enabling NSW Lands to test organizational goals and provide feedback which can help us to adjust our strategies’ (NSW Lands 2006: 8).

A depiction of the NSW Lands (2005) vs. the NSW Lands (2006) approach to reporting performance results is illustrated in Table 4.10.

In the 2006 report, the IC aspects were integrated with three BSC dimensions. The ‘external capital’ aspect was replaced by the ‘customers and community’ dimension. This also included ‘public trust, value and confidence’ which was added to ‘external relationships’. The ‘internal capital’ aspect was renamed to ‘internal processes’ and the content of this remained unchanged. The ‘human capital’ aspect was renamed to ‘learning and growth’, which expressly referred to innovation.

The 2006 ICS describes the progress and managerial efforts made, such as:

Table 4.10 The integration between the IC and the BSC categories

<i>ICS aspects (NSW Lands, 2005)</i>		<i>ICS and Balanced Scorecard dimensions (NSW Lands, 2006)</i>
External capital: • External relationships		Customer and community: • External relationships • Public trust, value and confidence
Internal capital: • Service delivery		Internal processes: • Service delivery
Human capital: • Employee demographics		Learning and growth: • Employee demographics • Innovation

Participation in the development of Masterplans and community partnerships with local councils working with Rural Lands Protection Boards to transfer travelling stock routes; working with other land management organizations; catchment management authorities and rural communities to reduce the impact of soil degradation; working with the Emergency Service Organizations in relation to emergency response information management needs; and engaging with rural and regional communities through the Office of Rural Affairs.

(NSW Lands 2006: 9)

Concerning the third MKR category, *performance assessment*, results and managerial efforts were measured via ‘key performance indicators’ and grouped into the three ICS-BSC performance dimensions. An illustration about the ‘customer and community’ perspective is shown in Table 4.11 (NSW Lands 2006:16).

Key indicators are reported over a two-year period and changes indicated in percentages. Also expected trends are highlighted by arrows.

In summary, this report can be considered an excellent example of MKR in practice as it covers eight out of the nine MKR issues. However, it should be noted that more details of resources transformations would improve the understanding of the relevance of KR for this government organization. Also, an assessment of the reported metrics against management challenges should be provided as this would allow assessment of MKR effectiveness.

Also of interest is the focus on social, economic and environmental value for society. The report defines the management challenges that are identified in relation to the three main IC components (‘aspects’) and highlights managerial efforts undertaken to achieve them. This relates to the second MKR category, managing KR. In relation to the third MKR category, performance assessment, the report provides a comprehensive understanding of the performance of this government organization over time, via metrics and

Table 4.11 Key performance indicators

<i>Key performance indicators</i>	<i>Division</i>	<i>2004/05</i>	<i>2005/06</i>	<i>% change</i>	<i>Expected trend</i>
<i>Customer/community</i>					
Land title transactions registered	LPI	806,965	810,037	0.4	→
Plans registered	LPI	13,181	11,912	-10	→
Copies of land title related documents supplied to customers	LPI	4.25m	4.27m	0.5	→
Boundary determinations	LPI	17	16	-6	→
New land valuations issued to Office of State Revenue	LPI	2.4m	2.4m	-	→
New land valuations issued for rating purposes	LPI	683,000	817,000	20	→
Supplementary valuations issued	LPI	46,806	41,987	-10.3	→
Land valuation objections received	LPI	16,515	11,000	-33	→
Land valuation objections processed	LPI	10,179	14,400	41	→
Percentage of land valuations changed as a result of objection	LPI	29	36	24	→
Survey enquiries (including SCIMS searches)	LPI	88,081	78,970	-10	→
Number of formal customer complaints	SCS	4	3	-25	→
Number of new clients • Consult	SCS	22	25	14	↑
• Works	SCS	269	226	-16	↑
• Operations	SCS	5	6	20	↑
Percentage of perpetual leases converted	CL	-	36.48	-	→
Percentage of enclosure permits granted	CL	-	22.57	-	→
Number of Community Trust Boards	CL	658	661	0.5	→
New State Parks established	CL	-	1	-	↑
New Regional Reserves established	CL	-	3	-	↑
Number of internet feedback requests [monthly av.]	Dept/ICS	285	232	-19	→
Number of hits on website [monthly av.]	Dept/ICS	1.8m	2.3m	28	↑

Source: NSW Lands 2006: 17.

narratives. Also it highlights the expected future trend of the reported metrics.

## Summary and conclusions

In summary, chapters 3 and 4 aimed to provide a practical and informed understanding of how KR and MKR were conceptualized and reported within a selected group of organizations considered to be outstanding in their practice. An analytical frame for examining MKR in practice was used and consisted of strategy, managing KR and performance assessment. The analysis of the group of 17 private, listed and public organizations indicates

strongly how each individual organization has varied narratives, visuals and metrics which have been used to report on their MKR. Even in the cluster of organizations that were part of the Danish project, it was observed that there was variety in the narratives, construction of the visuals and the reporting of various metrics. This supports the proposition that any attempt to construct standards, guidelines, regulations or acts of Parliament needs to be aware that 'black letter' prescription as to the identification of KR elements, the type of metrics and how they should be reported will not work, as the MKR is organization specific and the idea that IC can be treated as a stock of resources which is common to all organizations is unsupported by examination of MKR in practice.

While the organizations examined have attempted to make visible the invisible sources of 'value creation', in most cases, this was not achieved via the use of a consistent framework. From the analytical reading of these 'outstanding practice' documents, there is evidence of various approaches, combining reporting of KR and other economic, social and environmental matters.

From the analysis in chapters 3 and 4 the following general conclusions are reached. First, all organizational types were found to be reporting on MKR. Second, in the cluster of organizations following the Danish Guideline, there was significant diversity in practice when it came to reporting of their particular understanding of MKR. For the total group of 'outstanding practice' organizations, the documents reviewed told the stories about individual organizations' focus on and achievements in MKR.

Third, there is some evidence of 'integration' of ICS, BSC and CSR. Several of the organizations analyzed integrated dimensions of the BSC with KR categories and reported accordingly (e.g. Lands, SentensiaQ, Systematic). Some other organizations were integrating ICS and CSR (e.g. BBVA and DBJ). This highlights that these organizations are attempting to provide an extended view of organizational performance.

Fourth, the majority of the reports focused on only one market stakeholder group (e.g. customers) or a few (e.g. customers, market, suppliers) and only a couple of organizations considered broader stakeholder engagement (e.g. multiple internal and external groups). An illustration of this was BBVA which indicated that they integrated the expectations of different stakeholders into the management of the group. The lack of stakeholder engagement in the 'outstanding practice' illustrations is considered a shortcoming.

Also, the following specific conclusions were established (the patterning of individual disclosure issues is reported in detail in Tables 3.6 and 4.2). First, the IC documents examined generally indicated that KR information externally reported was used for internal decision making. Also, almost all the organizations provided an understanding of the strategic relevance of MKR for organizational performance. However, even though the majority of them provided a discussion about resources transformations within day-to-day processes, only two of them provided a visualization of this.



Second, as would be expected, nearly all these ‘outstanding practice’ illustrations outlined definitions of KR elements and KR actions that were specific to each organization.

Third, nearly all the organizations used KR information to assess performance, mainly as a comparison between metrics reported in different periods of time. However, only a few organizations provided assessments against defined targets. Also, most of the organizations reported detailed metrics that were separate from narratives. Only a few organizations incorporated KR metrics within the narratives and, therefore, provided a combined and comprehensive assessment of their MKR in terms of organizational context, strategy and operations.

In conclusion, an important lesson from the analysis of practice was that there is a variety of ways to conceptualize KR and MKR. This was done using a range of narratives, visuals and metrics which were organization-specific. The lessons learned from this analysis are used to inform the SMKR outlined in chapter 5.

# **5 Strategic management of knowledge resources framework**

## **Introduction**

The analysis and lessons of the previous chapters are used in this chapter to create the strategic management of knowledge resources (SMKR) framework. This serves to provide guidance for achieving organizational sustainability. The SMKR framework is this book's contribution to the theory and practice of IC. In this chapter the future of IC is discussed both in terms of research and policy.

The first four chapters of this book sought to highlight the relevance of KR and their management in a knowledge-based economy. Chapter 1 discussed the importance of KR for organizational performance. It was acknowledged that KR needed to be understood and managed systematically to achieve this. Chapter 2 reviewed IC frameworks to understand the differences between the stock vs. flow approaches to IC measurement. Then six contemporary flow approach IC frameworks were investigated in-depth. One result of these investigations was that most of these frameworks were found lacking when it came to considering the interests of a wide range of stakeholders in strategy formulation and in providing detailed guidance on how to understand resource transformations. Chapters 3 and 4 illustrated how a group of 'out-standing practice' organizations addressed MKR, drawing on their reports.

## **Lessons from IC frameworks**

It has been established in chapters 1 and 2 of this book that KR are key strategic resources to be understood and managed and that the key to this is the flow approach used by some IC frameworks. In the flow approach, KR are represented by various financial and non-financial metrics and associated detailed narratives. This flow approach belongs to the second wave of knowledge management. The second wave of knowledge management is characterized by three main shifts from the first wave. First, a broader view of KR, second, an idea of KR which is centred on the ability to make a difference to users and third, a focus on translating KR and their management into numbers to make them manageable.

The detailed analysis in chapter 2 of the six flow approach IC frameworks highlighted how MKR was incorporated into them. For the purpose of understanding MKR in the various IC frameworks four MKR issues, which captured the essence of the second wave of knowledge management, were used in the analysis (a) KR and strategy, (b) resources dynamics, (c) KR information and (d) reporting. Five key lessons from the analysis are now highlighted and used to build the SMKR framework. First, many of the frameworks have a view of strategy as an incremental process that starts with top management formulation and flows to KR actions. Also, many of the frameworks accept that strategy formulation leads to deliberate actions and this is coupled with an acceptance that an application of knowledge and leverage of resources enhances organizational performance. It was found that these frameworks view strategy and the MKR based on the notion of intended strategies. Therefore, it was assumed that all these frameworks had a common view of the MKR, which was to achieve intended strategies. What is missing from these frameworks is consideration of emergent strategies and, in particular, a focus on innovation.

Second, in relation to stakeholders, only the Australian Principles considered a wide range of stakeholder interests; the others only considered market stakeholders (e.g. customers and suppliers). Therefore, what is missing is the consideration of stakeholder engagement for achieving *organizational sustainability*.

Third, most of the frameworks recognized the importance of KR transformations for organizational performance, however, only the German Guideline included an analysis of resources transformations. What is missing is the analysis of resources transformations.

Fourth, the majority of the frameworks use KR metrics and narratives for describing and measuring IC and/or assessing performance. Also, the frameworks recognize that KR information is organizationally specific. However, KR information in many of these frameworks is limited to describing and assessing MKR for senior management use. In order to develop emergent strategies and therefore to enhance the dynamic capability of strategically managing KR, it is important for KR information also to be used by the workforce. In the light of this (i.e. importance of transformations and use of KR information by all the workforce), the role of visuals should be considered. What is missing is the availability of KR information so that it can be used by the workforce.

Fifth, the various frameworks promote the use of an ICS for internal and external reporting purposes. These frameworks generally envisage an ICS as including IC components, MKR objectives, initiatives and results. They did not include stakeholders, economic, social and environmental concerns. What is missing is the inclusion of a wider perspective of organizational performance.

## **Lessons from MKR in practice**

In chapter 3, the MKR was conceptualized as an integrated approach consisting of strategy, managing KR and performance assessment. These three categories and related issues are derived from the MKR issues considered in chapter 2. Actual practice is still in its infancy with much experimentation, however, as indicated in chapters 3 and 4, there are several external disclosure documents which report on MKR. The illustrations of practice in chapters 3 and 4 was not meant to provide a comprehensive set of 'outstanding practice' examples, but rather illustrations of different ways of conceptualising and presenting the MKR. These illustrations are important because their analysis showed that an individual organizational context is central to the effective representation of MKR.

This analysis of the external documents of 17 private, listed and public organizations provided useful insights into how these organizations understand MKR. There were several lessons from this detailed analysis which are now used to inform the SMKR framework. First, all organizational types were reporting on MKR. Second, in the cluster of organizations following the Danish Guideline, there was significant diversity in practice when it came to the reporting of their particular understanding of MKR. For the total group of 'outstanding practice' organizations, the documents reviewed told the stories about individual organizations' attention and efforts for MKR. This demonstrates that there is not a 'one size fits all' solution to the reporting of MKR. Third, there is some evidence of an integration between ICS, BSC and CRR. Several of the organizations analyzed were combining dimensions of the BSC with KR categories and reporting accordingly. Some other organizations were integrating ICS and CSR. This shows that these organizations were combining different managerial and reporting tools to provide an extended view of organizational performance. Fourth, the majority of the reports focused only on one market stakeholder group (e.g. customers) or a few (e.g. customers, market, suppliers) and only a few of them were more inclusive of general stakeholder engagement (e.g. multiple internal and external groups). The lack of stakeholder engagement in the practice illustrations is considered a shortcoming.

## **The SMKR framework**

This book advocates the adoption of the SMKR framework which belongs to the third wave of knowledge management. This framework has been established as a response to the limitations identified in the analysis of the IC frameworks and the reporting of MKR practices discussed in previous chapters and the previous two sections. The framework is grounded in the strategic management debates about the relevance of KR and stakeholder engagement for achieving sustainable organizational performance.

As explained, the third wave focuses on incorporating strategization within

the management of KR. It is based on the understanding that strategy-making includes emergent strategies and allows for innovation, which is an interactive and dynamic process. This extends the first wave which mainly focused on capturing individual knowledge and its distribution and the second wave which focused on the understanding and management of organizational KR.

A focus on organizational sustainability is a key characteristic of the third wave of knowledge management. This can be conceptualized by three main additions to the second wave. First, the role of stakeholder interests and resources transformations in strategy are considered. Second, emergent strategies, not only intended strategies, are included. The third addition is the interactive use of information. Therefore, the SMKR framework is an interactive and dynamic process made of three activities:

- 1 strategization;
- 2 utilization of information;
- 3 reporting.

For the SMKR framework, any given organization is made up of a unique set of resources (i.e. tangible assets and KR) and these are managed in order to achieve organizational sustainability. The analysis in chapter 2 identified what has been missing in previous IC frameworks, that is the centrality of *strategically managing KR for achieving organizational sustainability*.

Figure 5.1 illustrates the three main activities within the SMKR framework and the interconnections between the activities represented by the arrows.

The SMKR framework is relevant for all organizational types (i.e. private, listed or public) because organizations compete with each other in order to obtain community support, sustain community confidence, achieve government grants or contracts and satisfy customers (Fletcher *et al.* 2003: 506). All these organizations are dealing with changing internal and external environments and various stakeholder groups. In public organizations, strategic objectives are directly related to creating and delivering value to stakeholders. Only a few studies have investigated the role of KR in this process (e.g. Fletcher *et al.* 2003; Habersam and Piber 2003; Boedker *et al.* 2005) and these suggest that managing KR is of strategic relevance. For instance, Habersam and Piber (2003: 775), in investigating IC in two European hospitals, found that ‘the management of Intellectual Capital was highly relevant for these organizations’. Also, IC facilitated the integration between different levels of expertise and competencies which was critical for providing better performance for the community. In particular, they found that understanding and highlighting the existing transformations (i.e. ‘connectivity capital’) within KR elements was important. Also, Boedker *et al.* (2005: 522–523), in analysing a public sector organization, state that an awareness of KR transformations helps to introduce a ‘new’ perspective to understanding the value creation processes.

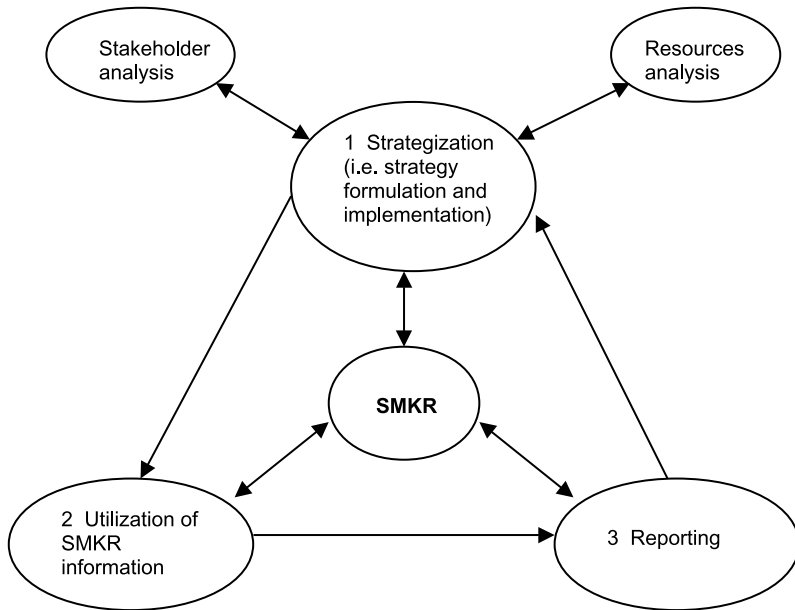


Figure 5.1 Strategic management of knowledge resources framework.

Similar findings could be drawn from implementations in private and listed organizations (Ricceri 2002; Ricceri 2004; Guthrie *et al.* 2007; Bozzolan *et al.* 2003; Bozzolan *et al.* 2006). Usually, in these organizations, the ‘traditional’ focus has been on market stakeholder interests and capital suppliers, as performance was limited to its economic and financial dimension, rather than KR. Also, as highlighted by recent scandals, a sustainable organization cannot be achieved if economic, social and environmental matters are not addressed in the managerial and operational activities of the organization (Ricceri 2004; Yongvanich and Guthrie 2006). Attention to stakeholder interests in social, environmental and economic aspects of organizational activity is important for customers, suppliers, investors, pressure groups and the community and is a fundamental prerequisite for organizational sustainability. The management of KR is relevant for private, listed and public organizations and therefore SMKR is applicable to all organizational types.

### **Strategization**

Strategization involves two concepts: strategy formulation and implementation. These concepts are seen as being interactive and part of a continuous process of innovation and enactment. This can be incremental or radical innovation which occurs throughout the organization when emergent strategies are allowed to be autonomously set by the managers and the workforce,

within or outside the current strategy (Davila 2005). For the formulation and implementation of strategy there are several management tools and those relevant to the conceptual foundations of the SMKR will be explored in the following discussion.<sup>1</sup>

The first concept of strategization, strategy formulation, is the crafting and planning of the intended strategy of the organization. The SMKR framework is based on the assumption that, for achieving organizational sustainability, stakeholder interests and KR should be considered when formulating the strategy of the organization. Two management tools for undertaking this form of strategy formulation are stakeholder analysis and resources analysis and these will be briefly discussed below (see Appendix B for more detail).

Stakeholder Analysis consists of the identification and assessment of specific stakeholder groups and their interests. One underlying assumption of the SMKR is that, in order to achieve organizational sustainability, the organization must consider stakeholder interests when formulating its strategic objectives. This will allow it to incorporate stakeholder interests within the organizational processes and activities and to manage stakeholder engagement. Stakeholder interests are expressed in terms of social, environmental and economic areas of concerns. There are three main steps in stakeholder analysis. The first step is to identify the organization's stakeholders. The second step is to prioritize stakeholders on the basis of their power (i.e. ability to affect organizational activities) and their impact/interest (i.e. direct or indirect impact of organizational activities on them). The third step is to link stakeholders' areas of concerns to strategic objectives.

Considering stakeholder interests in the SMKR framework provides the organization with four main benefits. First, the opinions of stakeholders are used to shape the organization's activities, strategic objectives or projects at an early stage. Not only does this make it more likely to have their support, their input can also improve organizational performance as, for instance, the organization can win more resources. Second, management can anticipate reaction to projects or strategic objectives and build into their plan the actions that will win stakeholders' support. Third, the organization can proactively address threats and opportunities to change 'the rules of the game' (AccountAbility 2005: 28). Fourth, stakeholder engagement can secure a formal and informal licence to operate. The need to include stakeholder analysis in strategizing is driven by the recognition that organizational sustainability cannot be achieved without managing stakeholder engagement. Each stakeholder group has its own interests and the ability of the organization to address these is central for achieving sustainability.

The second management tool is resources analysis, which involves an audit of (stocks of) organizational resources (i.e. tangible assets and KR) and the identification and assessment of the transformations (flows) between them. The identification and assessment of resources stocks and flows is central to the SMKR framework. Resources transformations are at the core of organizational performance and need to be understood and strategically managed.

The starting point for strategy formulation is the strategic intent, which expresses, in general terms, the organization's desired position for the future (see Figure 5.2).

The strategic intent is a powerful statement that guides the decisions and actions of the organization. However, in order to better direct organizational activity, it has to be detailed in strategic objectives and strategic management challenges. The formulation of strategic objectives is informed by the strategic intent and combines the outcomes of both the stakeholder and the resources analysis. For the SMKR framework, stakeholder interests are assessed and expressed as areas of concern and the strategic objectives link these to organizational resources.

The strategic management challenges identify areas for managerial intervention. They can be used to specify strategic objectives in terms of KR gaps that need to be addressed. This notion of strategic management challenge refers to the intended strategy and is the concept used by many of the IC frameworks. Also, strategic management challenges may be related to 'emergent strategies'<sup>2</sup> and therefore express the KR that are needed to address the incremental or radical innovations to the strategy. The strategic management challenges that derive from the incremental innovations relate to the development of KR that are already present in the organization or that are relatively easy to acquire. The strategic management challenges that derive from radical innovations require major changes in the KR that the organization possesses and identifies as key strategic resources. Therefore, some strategic management challenges are about developing existing KR (e.g. personal knowledge and project management skills) for improving the use value for

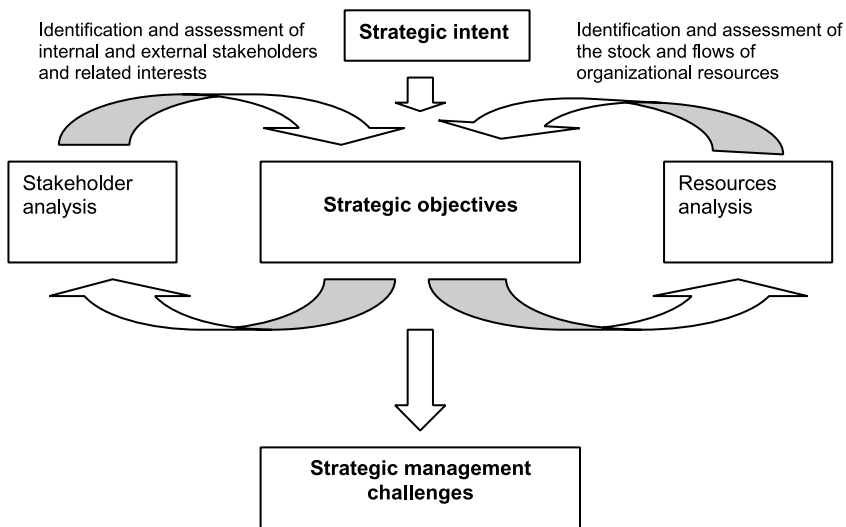


Figure 5.2 Strategy formulation process in SMKR.



customers. Others are about acquiring and developing new KR that are not found within the organization, such as product development competencies for managing environmental impacts of organizational activities. In both cases, strategic management challenges help the organization to identify key initiatives.

Strategy implementation refers to the role of KR actions and day-to-day processes in achieving strategic management challenges. KR actions are initiatives to acquire, develop, improve and, if needed, dispose of KR. For instance, the building of a customer database to acquire internal systems (structural resources), training employees on how the database works to develop employees' competencies (human resources) and using the information on customers to develop specific initiatives for customer retention (relational resources). However, KR elements are interdependent and, therefore, in the above illustration, the training of employees on how a customer's database works relates not only to human resources, but also to structural resources. Thus training will affect the value creation potential of the database and therefore organizational performance, because now it is updated, used and properly maintained. However, strategy implementation is not just limited to the undertaking of isolated KR actions, but also includes changes to the day-to-day processes of the organization.

For the SMKR framework, strategizing is the result of a dynamic and interactive process constantly integrating decisions and actions. Also, it is not limited to the intended strategy and its implementation but should also include emergent strategies and innovations. Intended strategies are those planned for the future and are incorporated in strategic objectives, whilst emergent strategies reflect the absence of intentions and occur during actions. Both types of strategy, intended and emergent, contribute to determine the realized strategies. Also, uncertainties and complexities in the internal and external environments that arise in the day-to-day processes must be addressed to become opportunities for innovation.

Davila (2005: 42–44) makes an important distinction between two types of innovation (i.e. strategic changes) that can emerge from day-to-day processes: incremental and radical innovation. The first, incremental innovation, is the strategic change that happens within the existing business model and that relates to the notion of 'emergent strategies'. In this, innovation is shaped from the managers (top-down) and/or the workforce (bottom-up) as they interpret and adapt the strategies while performing their tasks. This builds upon competencies already present in the organization or those that are relatively easy to develop or acquire and that will lead to minor changes in the strategy and the organizational environment. Also, it is associated with low risks and expected returns.

The second, radical innovation, involves a substantial redefinition of the strategy and the core competencies of the organization. This re-definition of strategy can be either top-down or bottom-up and can lead to major transformations of the strategy and the organizational environment. In the SMKR

framework, the concept of emergent strategies is extended in order to include incremental *and* radical innovations. Emergent strategies require the organization to take into account new opportunities and possible threats or changes in the internal or external environments and can lead to the adjustment or re-definition of the strategy and the organizational environment (Davila 2005: 42–44). In the SMKR framework, senior managers must conceptualize strategizing as a process that includes and enhances the incremental and radical innovations emerging from the day-to-day processes, where opportunities for value creation and pathways to organizational sustainability arise.

The SMKR strategization activity is illustrated in Figure 5.3, which highlights the strategization activity with emergent strategies as a key component, shown by the arrows. Emergent strategies lead to changes or re-definitions of

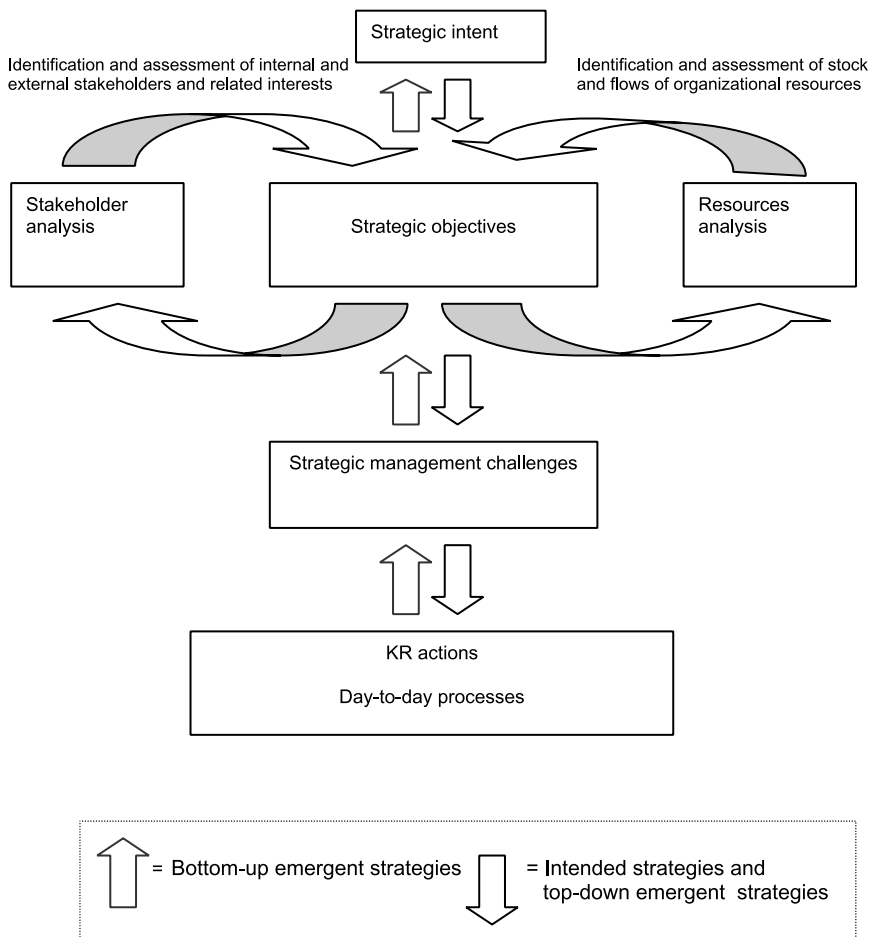


Figure 5.3 SMKR strategization activity.

strategic management challenges, strategic objectives and the strategic intent of the organization. A way of enhancing the innovation potential of the organization relates to the utilization of SMKR information and this point will be now discussed in more detail.

### ***Utilization of SMKR information***

The second activity, utilization of SMKR information, relates to the use of information about stakeholders' interests and resources for a variety of purposes including strategization and performance assessment. SMKR information can be metrics, narratives and visuals. Metrics consist of financial and non-financial indicators, which are chosen by the individual organization to represent its specific strategic and operational context. As seen in chapter 2, metrics by themselves are not informative, as they can capture only the measurable part of an object or action. Therefore, in order to be meaningful, they should be integrated with narratives that represent a perspective for understanding the meaning of the metrics for the specific organization. Also, visuals, such as tables, graphs and figures, can help in understanding IC and resources transformations (Davison and Skerratt 2007). The majority of the IC frameworks use information about KR for understanding and managing IC. In particular, KR information is mainly used by the frameworks for managers to describe and understand KR and their management, to assess performance and, therefore, to guide the organization towards the achievement of its objectives. As is outlined below, this is only one use of SMKR information.

In the SMKR framework, information can be utilized in two main ways (Henry 2006). It can be used for achieving intended strategies and assessing performance (i.e. diagnostic use) and/or for stimulating communication flows and dialogue, innovation and opportunity seeking (i.e. interactive use). The diagnostic use focuses on guiding the organization towards the implementation and achievement of its strategies. Therefore, in general, the diagnostic use underlines a mechanistic view of the use of information which is reported mainly to senior managers for the purpose of guiding the organization towards the achievement of its objectives, via assessing performance and learning about past actions. Almost all the IC frameworks and the 'outstanding practice' illustrations use information diagnostically (i.e. for describing and understanding MKR, for assessing performance and for achieving the organization's strategic objectives). The diagnostic use of information leaves little space for innovation and creates incremental refinements in the organization's strategic and operational context. This incremental innovation is embedded in the on-going change of objectives and day-to-day processes.

Interactive use is focused on expanding opportunity-seeking, dialogue and learning throughout the organization with the aim of enhancing its innovativeness. It involves a shift in the construction of information from creating measures to control, to developing measures that provide a greater

level of understanding and the opportunity to have influence (Leitner and O'Donnell 2007: 88). The interactive use stimulates the development of ideas and initiatives and guides the bottom-up emergence of strategies by focusing on strategic uncertainties (i.e. contingencies threatening or invalidating underlying assumptions of current strategies). When information is used interactively the following occurs:

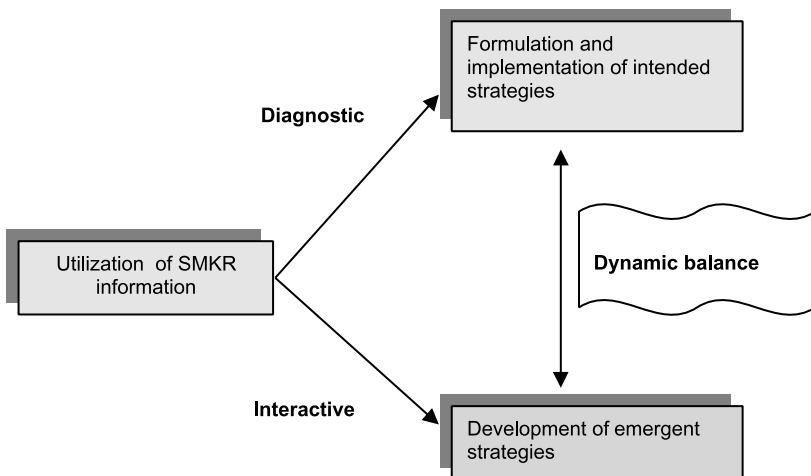
- 1 frequent and regular attention is fostered throughout the organization (i.e. senior managers and the workforce);
- 2 data are discussed and interpreted among organizational members of different hierarchical levels;
- 3 continual challenges and debates occur concerning data, assumptions and action plans (Henry 2006: 533). For instance, information can be used interactively through brainstorming to promote communication and dialogue throughout the organization.

The two uses of SMKR information are shown in Figure 5.4, which also illustrates the interactive use and the way that the dynamic balance<sup>3</sup> between the diagnostic and interactive uses of SMKR information gives power to the framework.

### ***Reporting***

The reporting of SMKR information is the third activity and refers to both internal and external reporting. There are three points to reporting.

First, an SMKR statement can be designed either for internal and external reporting purposes. The content of the statements is SMKR information



*Figure 5.4* Utilization of SMKR information.

presented as metrics, narratives and visuals which should be around the organizing theme of KR and strategic management challenges. However, not all organizations like to disclose sensitive information to an external audience. Therefore, it is likely that the structure and content for the internal reporting of SMKR information would be more expansive and driven by the other two SMKR activities to create an information system which is dynamic. However, a management challenge lies in aligning the internal and external reporting systems (AccountAbility 2005: 124).

In the SMKR framework, internal reporting would be used to drive the organization towards the achievement of its stated objectives and strategic management challenges (i.e. diagnostic function) *and* to foster innovation and communication flows within the organization (i.e. interactive function). As highlighted by the analysis in the previous three chapters, IC practice has traditionally used the Intellectual Capital Report (ICR) to make IC explicit and transparent, and to control resources, strategies, indicators and so forth (i.e. diagnostic function). However, a greater benefit of these reporting tools arises from the discussion of the link of IC to strategies, objectives and indicators (Leitner and O'Donnell 2007: 89) (i.e. interactive function). For the interactive function, the SMKR statement supports the development of an enabling internal environment which fosters communication, collaboration and debate. This is achieved via the use of the SMKR statement in meetings and brainstorming sessions, that involve managers and different levels of the workforce, and that are aimed at fostering autonomous initiative, networking and creativity amongst internal stakeholders. A main managerial task in these meetings would be to find a balance between the provision of guidance towards objectives and the enhancement of autonomous initiative, networking and creativity.

Similar observations could be made in relation to external reporting.<sup>4</sup> The SMKR statement would be used to provide market and other stakeholders with an extended view on the organization and its performance. Reporting is an integral part of SMKR both in terms of dialogue with those directly involved in stakeholder engagement and as a mechanism for informing those that were not involved. Therefore, for the SMKR, one-way communication is only a first step toward a more interactive relationship with external stakeholders that should feed into strategization and, ultimately, into reporting. The structure, content and use of the external statement should reflect this. In conclusion, the SMKR statement represents a tool for managing stakeholder engagement.

Second, there are a number of issues to be considered for SMKR reporting. One of these is at whom is the reporting targeted? In other words, which stakeholder groups are being addressed? What are their interests and their information needs? What do we expect from reporting to these stakeholders? In order to address this issue, organizations can use the outcomes of the stakeholder analysis and, in particular, the stakeholder group prioritization matrix and summary table. Another issue is the type of media to be used for

reporting (e.g. stand-alone statements, annual reports, stakeholder presentations, internet). Which is the most appropriate media for communication and dialogue with a variety of stakeholders? As highlighted by Unerman *et al.* (2007), the role of the annual report as the media for communicating information about IC is limited. This is because IC disclosures (and other information) in the annual report is outdated almost before the report is printed, whereas information reported via websites and some other documentary media, as stand-alone reports, can be updated regularly. Also, many of the preparers of reports perceived their IC value drivers to be both complex and unique. They considered face-to-face interaction a more effective medium than reports to explain the impact of these complex and unique value drivers. In summary, the SMKR framework supports the use of stand-alone SMKR statements as the first step for undertaking a two-way communication process with stakeholders, which, for external stakeholders, may vary from one-to-one conversation, to follow-up telephone briefings and stakeholder presentations.

Third, what are the reporting categories? How much detail is needed? How often should we be reporting? What other forms of communication are we using? Figure 5.5 summarizes the three reporting issues and illustrates that the identification of the reporting target is the first step and this drives decisions about the media and report design. Addressing these three issues will enable internal and external reporting on SMKR and on the progress made in achieving organizational sustainability.

The SMKR statement proposed is an example of a possible frame for internal and/or external reporting activities. The design of the SMKR statement is informed by the analysis of the IC frameworks and by the 'outstanding practice' illustrations. In particular, the SMKR statement merges the traditional ICS with the other forms of extended performance reports (e.g. Social and Environmental Reports), with the inclusion of KR and other economic, social and environmental information. Therefore, the SMKR statement represents an integrated form of extended performance reporting which, as outlined above, supports the SMKR framework and various related internal and external communication processes. This is illustrated in Figure 5.6, which frames the reports around its four main interrelated parts: strategic objectives/areas of concern, strategic management challenges, KR actions and day-to-day processes and metrics (i.e. past, current and target).

In the first column of Figure 5.6, the overall objectives of the organization and the main economic, social and environmental areas of concern of stakeholders are presented. These objectives and concerns are then specified in terms of KR requirements by the strategic management challenges, which are expressed according to the three KR components (i.e. human, structural and relational resources) and related organization-specific elements. Strategic management challenges will focus managerial intervention and therefore should be expressed in a 'practical' way.<sup>5</sup> The third column, KR actions and day-to-day processes, refers to the specific initiatives that are (or will be)

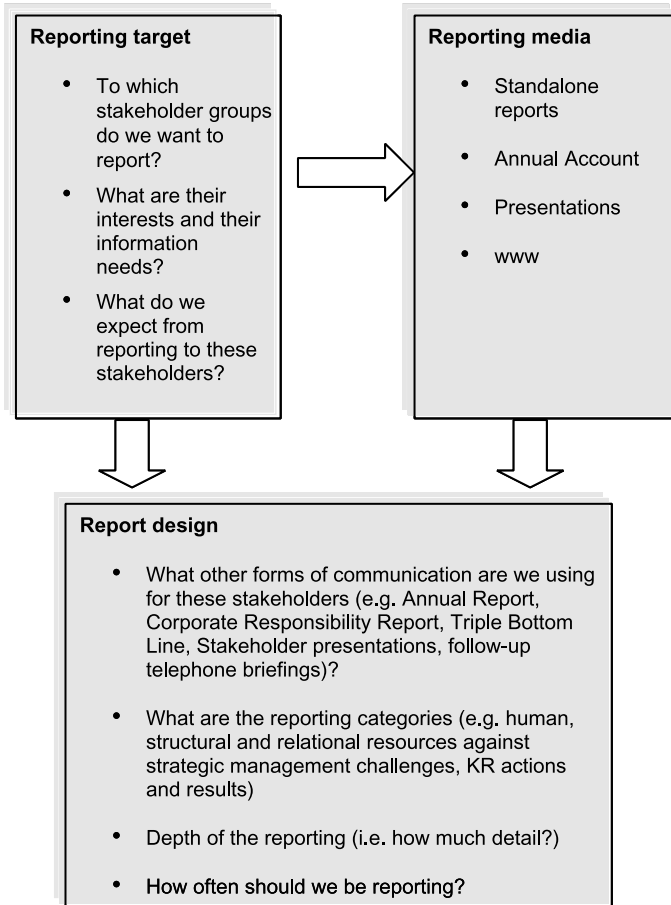


Figure 5.5 Issues in reporting of SMKR.

undertaken for achieving the strategic objectives linking the day-to-day processes to innovation. The fourth part, metrics, refers to resources, activities and processes and can be expressed as past, current and/or targets. Also, targets could be expressed in terms of desired trends, without metrics (e.g. with arrows) as was shown in the ‘outstanding practice’ illustrations. The SMKR statement should be made up of a mixture of metrics, narratives and visual representations. In particular, visual images could represent resources transformations (see the Intellectual Capital Navigator considered in Appendix B) and these should complement the SMKR statement.

Compared to the frameworks and examples of practice analyzed, the SMKR statement differs significantly in its focus, and avoids being a prescription of structure or content. The SMKR framework should be used not only as a diagnostic tool (i.e. for monitoring and assessing performance), but also

Strategic objective/ Stakeholders, areas of concern	Strategic management challenges	KR actions and day-to-day processes	Metrics		
			Past	Current	Target
	Human resources				
	Structural resources				
	Relational resources				

Figure 5.6 Design of an SMKR statement.

as an interactive one (i.e. for enhancing dialogue and innovation). Therefore, the SMKR statement should be a flexible and dynamic frame which adapts to the unpredictability of innovation, but stable enough to help frame cognitive models, communication patterns and actions within the organization (Leitner and O'Donnell 2007: 88).

## Summary and conclusions

The key message of this book is that KR have to be understood and managed systematically to achieve organizational sustainability. One way to address this is to follow the SMKR framework advocated in this book. The shift towards the knowledge-based economy has highlighted the importance of KR. They are recognized as main strategic resources in modern organizations, as highlighted in chapter 1. Various IC frameworks, which have been discussed and reviewed in detail in chapter 2, acknowledge the relevance of KR and their management in a knowledge-based economy. However, the issues of if and how organizations are using these IC frameworks are yet to be determined. The in-depth analysis of the six contemporary flow-approach IC frameworks showed that the issue of resources dynamics was not incorporated into most of the previous frameworks, except the German Guideline. The SMKR framework addresses this issue and a number of other lessons learned from the analysis in chapter 2.

Chapters 3 and 4 provided a practical and informed understanding of how MKR was conceptualized and reported within a selected group of organizations. Each individual organization had varied narratives, visuals and metrics which had been used to conceptualize and report on MKR. Even in the cluster of organizations that were part of the Danish project, it was observed that there was variety in the narratives, visuals and the reporting of various



metrics. The SMKR framework recognizes this and suggests the use of a range of organizationally specific narratives, visuals and metrics.

The organizations examined have attempted to make visible the invisible sources of 'value creation'. However, in most cases, this was not achieved via the use of a consistent framework. From the analytical reading of these 'outstanding practice' documents, there is evidence of a combined reporting of KR and other economic, social and environmental matters. In chapters 3 and 4, several gaps were identified and these were incorporated in the SMKR framework. First, the SMKR framework has been designed to be applied to private, listed and public organizations. Second, the diversity of organization-specific KR information has been recognized in the framework. Third, an extended view of organizational performance is incorporated into the SMKR framework by the use of different managerial and reporting tools (e.g. stakeholder analysis, resources analysis and SMKR statement). Fourth, the lack of stakeholder engagement was considered a shortcoming and the SMKR framework includes stakeholder engagement for achieving organizational sustainability.

There is an emerging visibility of MKR and in an attempt to address this there have been various IC frameworks produced by regulators and practitioners, as well as academics, for the management and reporting of KR. This was conceptualized in the second wave of knowledge management, which emphasized the need to understand and manage KR. In this book, a third wave was proposed in which MKR is incorporated into strategization for the purpose of allowing for innovation to emerge and to achieve sustainability. Strategization includes emergent strategies and allows for innovation.

The SMKR framework outlined in this chapter belongs to the third wave. This framework is an interactive and dynamic process made of three activities:

- 1 strategization;
- 2 utilization of information;
- 3 reporting.

In conclusion, the SMKR framework focuses on organizational sustainability and incorporates key characteristics of the third wave. These characteristics are now conceptualized by six movements from previous waves of knowledge management. These movements from MKR to SMKR are shown in Figure 5.7.

- 1 *Focus on organizational sustainability* This relates to an extended view of *organizational performance* and the related notion of *value*. Organizational performance is not limited to a narrow view of economic value (e.g. competitive advantage), but includes other economic, social and environmental values and therefore relates to achieving organizational sustainability.

- 2 *Focus on stakeholder engagement* This relates to defining stakeholder groups as not only market stakeholders (e.g. customer, suppliers, investors), but also a broader set of stakeholder groups (e.g. communities, employees, governments). This allows the identification of a fuller set of stakeholder interests that should be addressed by day-to-day processes and engaged with organizational activity.
- 3 *Focus on a dynamic view of KR* This relates to the movement from a static view of IC to a dynamic view of KR. Within this dynamic view the focus is on the transformations in and between KR elements and other organizational resources.
- 4 *Focus on strategizing* This movement sees a shift from the traditional approach to strategy to an interactive process of strategization activity. This strategization activity focuses on top-down and bottom-up emergent strategies which should allow for incremental and radical innovation to occur within the organization.
- 5 *Focus on SMKR information and its utilization* This movement is from a traditional diagnostic use of information within MKR to the inclusion of both diagnostic and interactive uses of information. In the MKR, information was mainly used by senior managers and was made of metrics and narratives. In the SMKR, information is used by senior managers and the workforce and is made of metrics, narratives and visuals.
- 6 *Focus on reporting for supporting SMKR and engaging with stakeholders* This movement sees a radical shift from the traditional one-way communication approach to reporting IC, to an engaging and enlightening dialogue between the organization and its stakeholders.

The six movements outlined above highlight how the SMKR framework achieves the four stated aims for this book, which were:

- 1 extend the traditional financial focus of organizational performance by including KR as key strategic resources to be managed;
- 2 engage in a process of strategically understanding KR transformations and their links with day-to-day processes;
- 3 enhance dialogue within and between the organization and its main stakeholder groups about KR and other economic, social and environmental concerns;
- 4 provide guidance for strategically managing KR to boost innovation and achieve organizational sustainability.

### **Future research and policy**

It is recognized that there is value in MKR and practice is leading policy in this area. The analysis of the contemporary IC frameworks and 'outstanding practice' organizations suggest that there is significant and varied international practice concerning MKR and its reporting. One exception would

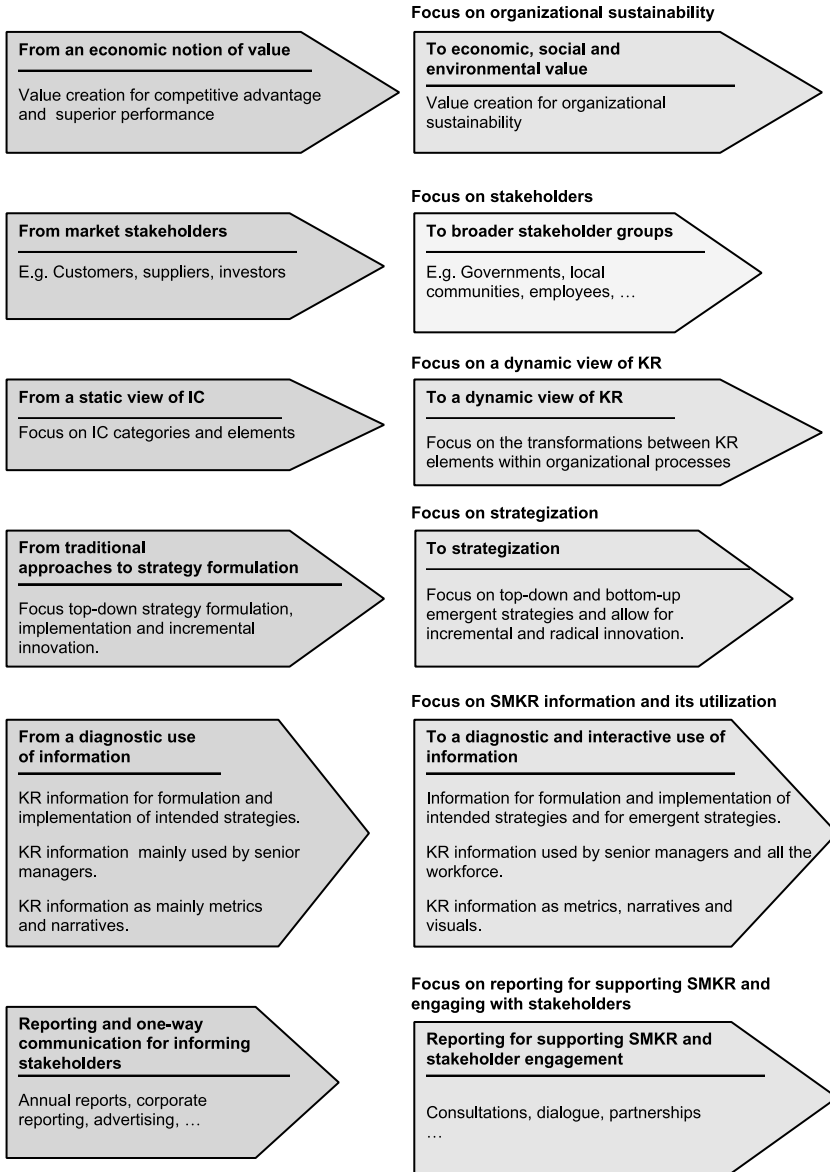


Figure 5.7 From MKR to SMKR.

be the Danish experiment in which practice and policy was established in a collaborative environment over several years, funded by government. However, as indicated in chapter 3, there is significant diversity in MKR practice and reporting with selective use of the Guidelines. In the field of MKR, development is happening, for the most part, at a practical level and the

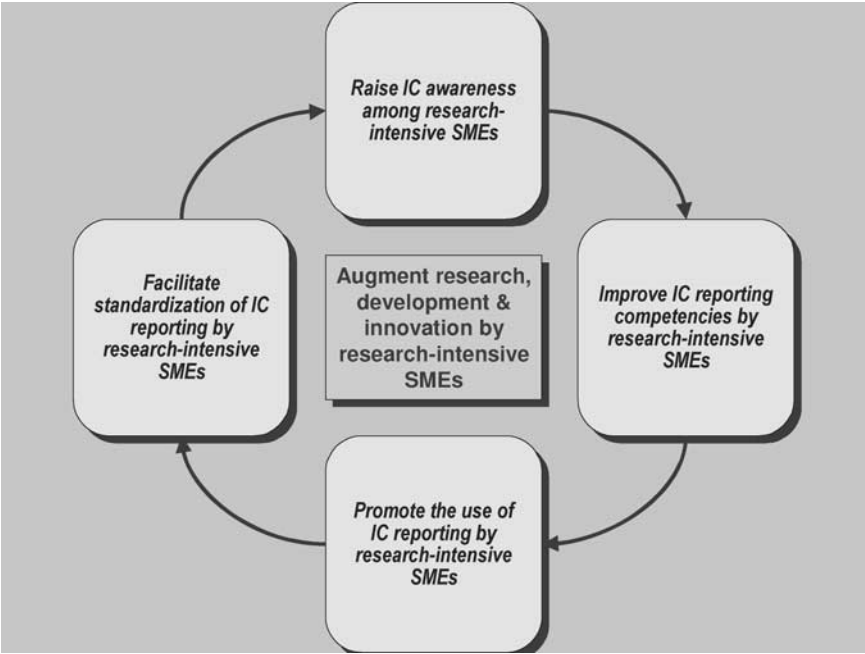
practice is then being studied and modelled by guidelines. When practice leads policy there are various issues that need to be agreed upon. For instance, should policy be prescriptive or normative? If guidelines are promulgated, will they prescribe certain types of reporting? Presumably, given the differences in organization type and activities, considerable fluidity and flexibility would have to be built into any policy arrangements to accommodate a wide scope of approaches to MKR in organizations.

Chapter 4 discusses the need for any attempt to construct standards, guidelines, regulations or acts of Parliament to be aware that 'black letter' prescription as to the identification of KR elements, the type of metrics and how they should be reported will not work, as the MKR is organizationally specific. The idea that IC can be treated as a stock of resources which is common to all organizations is unsupported by examination of MKR in practice.

There have been several recent attempts to influence IC policy. Guthrie *et al.* (2007) suggested that the accounting profession and/or international bodies (e.g. OECD, EC and UN) should be involved in the development of IC policy, establishing a stakeholder taskforce that should facilitate stakeholder engagement in the MKR activities of organizations, help finance research into the MKR and encourage the development of voluntary guidelines and experimentation internationally.

Another excellent illustration of how policy could be used to stimulate SMKR is provided by the recently released RICARDIS report (EC 2006) (*Reporting Intellectual Capital to Augment Research, Development and Innovation in SMEs*) which made seven main policy recommendations of this Expert Group to the European Commission. It stated that the use of IC reporting as a management and reporting tool can help to counter market failures. 'Creating more transparency, both externally and within enterprises, about the role of intellectual capital and complementary assets in successful innovation will lead to a better understanding of value creation by research-intensive SMEs and provide a better basis for decision-making to managers and investors' (EC 2006: 13). For the RICARDIS Expert Group stimulating IC reporting requires an approach from the European Commission that would aim to coordinate guidelines, empower national policies and allow translation and adoption in the various member states at different speeds and levels. For this to take place, RICARDIS illustrated in a diagram (see Figure 5.8) the sequence of this process starting from the internal implementation of IC awareness, followed by improving IC reporting competencies and IC management routines. As SMEs learn how to make the best use of their intangibles and prepare relevant IC statements, an important step towards more effective management behaviour will have been achieved.

In conclusion, the current policy vacuum in MKR and its reporting has resulted in the failure to establish a set of clear guidelines which incorporate all the elements of the SMKR framework. To counter this, governments, international bodies and professional associations should become actively



*Figure 5.8* A concerted effort to augment R&D in research-intensive SMEs.

*Source:* EC 2006: 14.

involved in stimulating MKR within organizations by raising awareness of its importance in a knowledge-based economy, improving management and reporting competencies, promoting the use of SMKR, and helping facilitate dissemination of these ideas and practices internationally.

# Appendix A

## IC frameworks

Year	Name	Major proponent	Approach	Description
2002–2006	Austrian Universities Act	Federal Ministry of Education, Science and Culture (FMESC)	Flow	<p>The University Act (FMESC 2002) requires state universities to prepare and disclose Intellectual Capital Reports (ICR) by 2006. Austria is the first country worldwide to prescribe ICR by law. Universities are budgeted on the basis of ‘performance agreements’ for a three-year period and the ICR enters the formula-based component of the global budget allocated by the Federal Ministry to each University.</p> <p>The regulation that specifies in detail the structure of the ICR has been issued on 15 February 2006 (Federal Law Gazette of the Republic of Austria, 63rd regulation, 15 February 2006) and came into force on 1 February 2006. This regulation is named Intellectual Capital Report Act (ICRA). According to this order: ‘the Intellectual Capital Report aims at presenting, evaluating and communicating intangible assets, performance processes and their consequence and serves as a qualitative and a quantitative basis for generating and entering a performance agreement’.</p> <p>Besides providing stakeholders with detailed information, ICR for Austrian universities should also serve as a management instrument. In the course of the preparation of IC reports, universities have to discuss the targets and strategy they have to develop, to interpret indicators, and therefore learn about their knowledge production process (Leitner <i>et al.</i> 2005: 531). Furthermore, ICR is an important basis for satisfying the increasing demand for transparency about the use of public funds and it also constitutes a basis for the university’s budgetary reimbursement.</p>

(Continued Overleaf)

<i>Year</i>	<i>Name</i>	<i>Major proponent</i>	<i>Approach</i>	<i>Description</i>
2005	Japanese Guidelines	Ministry of Economy, Trade and Industry (METI)	Flow	<p>The content of the IC report is explicitly defined by law (FMESC 2006) and includes five sections: (1) Scope of Application, Objectives and Strategy; (2) Intellectual Property, which is broken into Human Capital, Structural Capital and Relational Capital; (3) Core Processes; (4) Output Impact of Core Processes; (5) Summary and Prospects.</p> <p>The Guidelines aim to help corporations (managers) who prepare Intellectual Assets-based Management Reports and those who assess them. These guidelines would also be a help in preparing and appreciating reports on CSR and sustainability reports.</p> <p>Based on an examination of the Subcommittee on Management and Intellectual Assets (SMIA 2005) the guidelines provide a guide for information disclosure concerning intellectual assets-based management.</p> <p><i>Intellectual Assets-based Management</i> is defined as a management method itself rather than an aspect of management. It is used to enhance corporate value with an eye to many stakeholders. Based on the pursuit of interest, this method intends to make sustainable profits and growth through making the best use of the corporation's own strengths.</p> <p><i>The objectives of an Intellectual Assets-based Management report</i> are:</p> <p>(1) for top managers to inform business activities to produce sustainable profits and enhance corporate value to stakeholders in a story easy to understand;</p> <p>(2) to share a sense of value with stakeholders.</p>
2005	Australian Guiding Principles	Society for Knowledge Economics (SKE)	Flow	<p>The Australian Guiding Principles were developed in response to the criticism associated with traditional performance accounts that fail to illustrate the value of knowledge intensive resources. The main scope of the Guiding Principles is to provide a framework for extended performance management and strategies which will help to better manage knowledge intensive resources. Knowledge intensive resources are divided into</p>

relational, structural or human. The extended performance management framework comprised three main management phases: (1) Business Orientation; (2) Business Analysis; (3) Performance Assessment. Each management phase then includes one or more 'process step'. The Guiding Principles also provide guidance for preparing extended performance accounts which 'make visible' knowledge intensive resources.

The Intellectual Capital Management Process 'is the development and management of intellectual capital resources and their transformation (into other intellectual capital resources or into traditional economic resources)' and aims 'to maximise the present value of the organization's value creation in the eyes of its stakeholders' (Roos *et al.* 2005: 42). The Intellectual Capital Management Process consists of five main steps: (1) to analyze the organization's present and future desired strategic position; (2) to construct a resource distinction tree of the organization; (3) to decide how resources are to be deployed to achieve the organization's desired position; (4) to analyze and evaluate the effectiveness of the intellectual capital navigator; (5) to create a performance management tool for tracking the efficiency with which value is created in the organization (Roos *et al.* 2005: 51).

The German Intellectual Capital Statement Guideline aims to provide a 'sustained impetus for the broad implementation of the intellectual capital statement and of knowledge management' and is addressed in particular to SMEs (FMEL 2004: 3). The Intellectual Capital Statement (ICS) has both an internal managerial and external reporting function. From an internal managerial perspective the ICS 'represents a tool for the systematic development of strategy and of the organisation. It makes possible to manage projects and initiative internally so as to improve intellectual capital management' (FMEL 2004: 8). From an external reporting perspective the ICS 'can be used for external communication . . . and supplements the traditional balance sheet' (FMEL 2004: 8). The Guideline identifies six main steps for preparing an Intellectual Capital

(Continued Overleaf)



<i>Year</i>	<i>Name</i>	<i>Major proponent</i>	<i>Approach</i>	<i>Description</i>
2004	Value+™ Model	Bygdås, Røyvrik and Gjerdø	Flow	<p>Statement: (1) Describing the initial situation; (2) Assessing intellectual capital; (3) Evaluating intellectual capital; (4) Finding and evaluating indicators for intellectual capital; (5) Communicating intellectual capital; (6) Managing intellectual capital.</p> <p>The Value+™ Model represents the activity-based view on IC and focuses on the dynamic aspect of value creation. It aims to give a view of the patterns of everyday work practices and knowledge flows underlying organizational capability building. The model is built using three steps: mapping, measuring and acting.</p>
2004	Strategy Maps	Kaplan and Norton	Flow	<p>Kaplan and Norton (2004: 52) state that the 'strategy map describes the logic of ... [an organization's] ... strategy, showing clearly the objectives for the critical internal processes that create value and the intangible assets required to support them'. Strategy maps are designed to link the intangible assets of an organization to its strategy. Strategy maps are built from the top down, identifying the company's desired destination and then mapping how to get there.</p>
2004	Topplinjen/ Business IQ	Sandvik	Flow	<p>A combination of four indices: Identity Index, Human Capital Index, Knowledge Capital Index and Reputation Index. Developed in Norway by the consulting firm Humankapitalgruppen.</p>
2003	Danish Guideline	Mouritsen, Bukh, Flagstad, Thorbjørnsen, Rosenkrands Johansen, Kotnis, Thorsgaard, Larsen Nielsen, Kjærgaard Jensen,	Flow	<p>The Danish Guideline was the output of a project over several years, based on the experiences of over 100 companies and aimed to foster the companies' ability to manage KR that creates value for society. The Danish Guideline stimulates organizations 'to work more systematically and comprehensively with the main initiatives within knowledge management' (Mouritsen <i>et al.</i> 2003: 3). Also, to provide a reporting tool for communicating knowledge management to existing and potential</p>

Krag, Jeppesen,  
Haisler, and Stakemann

internal and external stakeholders via Intellectual Capital Statements (ICS), as part of organizations' knowledge management strategy. The Danish Guideline provided a way of managing and reporting IC. This process is based on four interrelated elements 'which together express the company's knowledge management' (Mouritsen *et al.* 2003: 2). They are: (a) knowledge narrative; (b) management challenges; (c) initiatives; (d) indicators.

Bounfour

IC-dVAL

2003

The IC-dVAL (Intellectual Capital dynamic Value) framework is designed to identify and measure IC performance by looking at the alignment between the processes devoted to the creation of corporate value. Corporate value is seen as determined by the integration of: shareholder's value, client's value and internal value. Five practical steps are proposed to build IC-dVAL: (1) Identifying critical processes of each value component. (2) Benchmarking corporate performances with those best in class, at a level of processes, and quantifying this positioning via an ad hoc index. (3) Benchmarking corporate performances with those best in class, at the level of activities, and quantifying this positioning via an ad hoc index. (4) Evaluating the overall corporate performance by calculating the corporate IC performance index. (5) Calculating the overall Intellectual Capital Value for the whole company.

Neely, Adams and  
Kennerly

Performance  
Prism

2002

The Performance Prism is a multi-stakeholder framework and explicitly differentiates between stakeholder wants and needs and the organization's perception of the wants and needs of the stakeholder. The Performance Prism therefore has five facets: stakeholder wants and needs; strategy; business processes; capabilities and resources; organizational needs of the stakeholders. The prism is based on the belief that those organizations aspiring to be successful in the long term within today's business environment need to understand who their key stakeholders are and what they want.

(Continued Overleaf)

<i>Year</i>	<i>Name</i>	<i>Major proponent</i>	<i>Approach</i>	<i>Description</i>
2002	European MERITUM Guidelines	MERITUM	Flow	The purpose of the MERITUM Guidelines (MEasuring Intangibles To Understand and improve innovation Management) for managing and reporting on Intangibles is, on the one hand, to assist companies in the development of their ability to identify, measure and control their intangibles in order to increase the efficiency of their management. On the other hand, the guidelines attempt to provide a guide for firms willing to disclose information on the intangible determinants of their value creation capability. The model for developing an IC management system proposed by the guidelines identifies three non-linear related phases: (1) Define strategic objectives; (2) Identify the intangible resources; (3) Actions to develop intangible resources. On the disclosure side the IC statement is composed of three different parts: the vision of the firm, the summary of IC resources and activities, and the systems of indicators. According to the MERITUM Guidelines, IC is composed of Human Capital, Structural Capital and Relationship Capital.
2002	IC Rating <sup>g</sup> <sup>TM</sup>	Edvinsson	Flow	An extension of the Skandia Navigator framework incorporating ideas from the Intangible Assets Monitor; rating efficiency, renewal and risk. See <a href="http://www.intellectualcapital.se">www.intellectualcapital.se</a> .
2001	Value Chain Scoreboard <sup>TM</sup>	Lev	Flow	A matrix of non-financial indicators arranged in three categories according to the cycle of development: discovery/learning; implementation; commercialization.
2001	Knowledge Audit Cycle	Schiama and Marr	Flow	A method for assessing six knowledge dimensions of an organization's capabilities in four steps: (1) define key knowledge assets; (2) identify key knowledge processes; (3) plan actions on knowledge processes; (4) implement and monitor improvement, then return to (1).

2001	Inclusive Valuation Methodology (IVM)	M'Pherson and Pike	Stock	Inclusive Valuation Methodology uses hierarchies of weighted indicators that are combined, and focuses on relative rather than absolute values. Combined Value Added = Monetary Value Added combined with Intangible Value Added.
2000	The Value Explorer™	Andriessen and Tissen	Stock	Accounting methodology proposed by KPMG for calculating and allocating value to five types of intangibles: (1) assets and endowments; (2) skills and tacit knowledge; (3) collective values and norms; (4) technology and explicit knowledge; and (5) primary and management processes.
2000	Intellectual Asset Valuation	Sullivan	Stock	Methodology for assessing the value of intellectual property.
2000	Total Value Creation, TVC™	Anderson and McLean	Stock	A project initiated by the Canadian Institute of Chartered Accountants. TVC™ uses discounted projected cash flows to re-examine how events affect planned activities.
2000	Value Added Intellectual Coefficient (VAIC™)	Pulic	Stock	VAIC™ measures how much and how efficiently intellectual capital and capital employed create value based on the relationship to three major components: (1) capital employed; (2) human capital; (3) structural capital.
1999	Intellectual Capital Navigator (ICN)	Roos and Jacobsen	Flow	The ICN is a numeric and visual representation of how management views resources deployment to create value in the organization. It focuses on identifying the interactions between resources and analyzes how important the interactions are. The first step in developing an ICN is to determine what resources are available to the organization for value creating purposes. The second is to assign a value to each of the resource groups (physical, monetary, human, organizational and relational) representing the relative importance of the resources for value creation, using a fixed sum approach. The next step is to determine the relative importance of each individual resource (as opposed to resource category) with respect to each of the other resources and the relative importance of the interactions between resources. (Continued Overleaf)

<i>Year</i>	<i>Name</i>	<i>Major proponent</i>	<i>Approach</i>	<i>Description</i>
1999	Citation-Weighted Patents	Bontis, Dragonetti, Jacobson and Roos	Stock	A technology factor is calculated based on the patents developed by a firm. Intellectual capital and its performance is measured according to the impact of research development efforts on a series of indices, such as number of patents and cost of patents to sales turnover; that describe the firm's patents.
1999	Knowledge Capital Earnings	Lev	Stock	Knowledge Capital Earnings are calculated as the portion of normalized earnings over and above expected earnings attributable to book assets.
1998	Accounting for the Future (AFTF)	Nash	Stock	A system of projected discounted cash flows. The difference between AFTF value at the end and the beginning of the period is the value added during the period.
1998	Investor Assigned Market Value (IAMV™)	Standfield	Stock	IAMV™ takes a company's True Value to be its stockmarket value and divides it into Tangible Capital + Realized IC + IC Erosion + SCA (Sustainable Competitive Advantage).
1997	Market-to-Book Value	Stewart (1997); Luthy (1998)	Stock	The value of intellectual capital is considered to be the difference between a firm's stock market value and its book value.
1997	Economic Value Added (EVA™)	Stewart	Stock	EVA™ (Stewart 1990) is calculated by adjusting a firm's disclosed profit with charges related to intangibles. Changes in EVA provide an indication of whether the firm's intellectual capital is productive or not.
1997	Calculated Intangible Value	Stewart (1997); Luthy (1998)	Stock	Calculated Intangible Value calculates the excess return on hard assets then uses this figure as a basis for determining the proportion of return attributable to intangible assets.
1997	IC-Index™	Roos, Roos, Dragonetti, and Edvinsson	Stock	The IC-Index™ consolidates all individual indicators representing intellectual properties and components into a single index. Changes in the index are then related to changes in the firm's market valuation.

1997	Skandia Navigator™	Edvinsson	Flow	<p>Intellectual capital is measured through the analysis of up to 164 metric measures (91 intellectually-based and 73 traditional metrics) that cover five components: (1) financial; (2) customer; (3) process; (4) renewal and development; (5) human.</p> <p>Management selects indicators, based on the strategic objectives of the firm, to measure four aspects of creating value from three classes of intangible assets labelled: people's competence; internal structure; external structure. Value creation modes are: (1) growth; (2) renewal; (3) utilization/efficiency; (4) risk reduction/stability.</p> <p>Celemi, a Swedish company specializing in learning tools, produced its first Intangible Asset Monitor in 1995 (see: <a href="http://www.sveiby.com/Portals/0/articles/CelemiMonitor.html">http://www.sveiby.com/Portals/0/articles/CelemiMonitor.html</a> (last accessed May 2007).</p>
1997	Intangible Asset Monitor	Sveiby	Flow	<p>The intellectual capital value of a firm is assessed based on diagnostic analysis of a firm's response to 20 questions covering four major components of intellectual capital.</p>
1996	Technology Broker	Brooking	Stock	<p>HRCA calculates the hidden impact of HR-related costs which reduce a firm's profits. Adjustments are made to the P&amp;L. Intellectual capital is measured by calculation of the contribution of human assets held by the company divided by capitalized salary expenditures.</p>
1996	Human Resource Costing and Accounting (HRCA)	Gröjer and Johanson	Stock	<p>A company's performance is measured by indicators covering four major focus perspectives: (1) financial perspective; (2) customer perspective; (3) internal process perspective; (4) learning perspective. The indicators are based on the strategic objectives of the firm.</p>
1992	Balanced Scorecard	Kaplan and Norton	Flow	<p>The difference between the stock market value of a firm and its net book value is explained by three interrelated 'families' of capital: human capital, organizational capital and customer capital. The three categories first published in this book have become a de facto standard.</p>
1990	The Invisible Balance Sheet	Sveiby	Stock	

*(Continued Overleaf)*

<i>Year</i>	<i>Name</i>	<i>Major proponent</i>	<i>Approach</i>	<i>Description</i>
1985	Human Resource Accounting	Flamholtz	Stock	The pioneering work on HR accounting. A number of methods for calculating the cost and value of human resources.
1950s	Tobin's Q	Tobin	Stock	The 'Q' is the ratio of the stock market value of a firm divided by the replacement cost of its assets. The basic assumption that underlines the Tobin's Q is that capital markets are strongly efficient and the value of a company is at all times equal to its fundamental value, where the fundamental value is defined as the expected present discounted value of future payments to shareholders. The underlying inference is that if the market value of the firm is greater than the replacement cost of its assets, the difference must reflect the value of intangibles.

# Appendix B

## Stakeholder analysis and resources analysis

This appendix provides detailed guidance on two management tools: stakeholder analysis and resources analysis. In the SMKR framework, stakeholder analysis and resources analysis are fundamental to strategy.

### Stakeholder analysis

Stakeholder analysis aims to identify and assess stakeholder groups and their interests and is important for stakeholder engagement. A central part of this analysis is to arrange a workshop of managers from across the organization's functions who are likely to be knowledgeable about stakeholders and their interests. The following analysis will provide tools and visuals that can be used within the workshop.

Stakeholder analysis consists of three steps: (1) identifying organizational stakeholders; (2) prioritising stakeholders; (3) understanding stakeholder interests. These three steps can apply to the entire organization, or to specific organizational projects.

#### *Step 1: identifying organizational stakeholders*

The first step in stakeholder analysis is to brainstorm who stakeholders are: groups who affect or are affected (in the short and long-term) by current and planned activities. AccountAbility (2005: 24) highlights five criteria to identify stakeholders:

- 1 *Responsibility*: organizations and people to whom the organization have (or may have in the future), legal, financial and operational responsibilities enshrined in regulations, contracts, policies or codes of practice.
- 2 *Influence*: organizations and people who are, or in future may be, able to influence the ability of the organization to meet its goals – whether their actions are likely to drive or impede its performance. These can include those with informal influence and those with formal decision-making power.
- 3 *Proximity*: organizations and people with whom the organization



- interacts most, including internal stakeholders, those with longstanding relationships, those the organization depends on in its day-to-day operations, and those living next to its production sites.
- 4 *Dependency*: organizations and people most dependent on the organization, for example, employees and their families, customers who are dependent on its products for their safety, livelihood, health or welfare or suppliers for whom the organization is a dominant customer. Employees, customers and suppliers are named market stakeholders.
  - 5 *Representation*: organizations and people who are, through regulatory structures or culture/tradition, entrusted to represent other individuals (e.g. heads of a local community, trade union representatives, councillors, representatives of membership based organizations).

These criteria help to identify a set of stakeholder groups on the basis of their relationships with the organization. Table B.1 highlights several groups who might be considered stakeholders.

The results of the first step may be a long list of stakeholders that affect the organization’s activities or are, directly or indirectly, affected by them. Some of these stakeholders may have the power either to block or advance organizational activities. Some others may be interested in the organization’s activities, others may not care. Managers have to prioritize stakeholder groups in order to address their interests in a consistent way. This will now be discussed in the second step.

***Step 2: prioritize stakeholders and identify their interests***

This step involves prioritising the stakeholder groups and assessing their relevance by mapping them on the basis of power and impact/interest over the organization’s activities. This is illustrated in Figure B.1. Power is defined as the ability of the stakeholder to affect the organization’s activity, whilst impact/interest is defined by the (direct/indirect) impact of the organization’s activity on stakeholders.

Figure B.2 highlights how a stakeholder group’s position on the matrix can be used to identify possible actions that the organizations have to undertake to manage stakeholder engagement. However, before taking action it is

*Table B.1* Examples of stakeholder groups

Competitors	Shareholders	Government and regulators
Private partners	NGOs	Trades associations
Workforce	Suppliers	The press
Academia and Scientific community	Lenders	Interest groups
Customers	Analysts	The public
Prospective customers	Public partners	The community

<b>Power</b>	High	Keep satisfied	Manage closely
	Low	Monitor	Keep informed
		High	Low
		<b>Impact/Interest</b>	

Figure B.1 Stakeholder groups prioritization matrix.

necessary to identify the interests and concerns of ‘main’ stakeholders. In order to achieve this the organization has three main options.

First, an active and immediate way of gathering information about main stakeholder groups would be to convene a meeting with them in order to establish a dialogue and identify and understand their interests and ‘approach’ to the organization. However, this could be expensive, in terms of time, resources and commitment, and also it could contribute to raising stakeholders’ expectations. Therefore, at least in the beginning, more passive monitoring activities could be appropriate. Usually, any organization would have an idea of what the main interests of its stakeholders are. Even if a process of stakeholder engagement or stakeholder analysis had never been undertaken before, within the existing activities of the organization important sources of information about stakeholder interests can be found and this is a second option. For instance, the knowledge acquired within investor relations meetings, customer liaison and exhibitions could be brought together through a process of systematic review. A third option might include screening information sources such as national, local and relevant specialist and academic press, government and intergovernmental organizations’ communications or reports, NGO campaigns, influential research and relevant internet discussion forums.

Examples of high power and high impact/interest issues would include:

*High power* stakeholders are those that have the power to:

- remove, grant or influence a ‘license to operate’;
- restrict access to resources, operating sites or intellectual capital;
- damage or build a company’s reputation;
- contribute or detract from a company’s ability to learn and innovate;
- restrict or provide access to investment funds.

*High impact/interest* stakeholders are those that are in a position of:

- direct financial dependence (e.g. who are dependant on wages, purchases, grants);
- indirect financial dependence (e.g. whose livelihoods are dependant on contributions to the regional economy, or, for example, low income customers who depend on low prices for basic goods which the organization may provide;
- non-financial dependence (e.g. those who depend on the organization for essential services);
- non-financial impairment or risk from the organization’s operations (e.g. through air or noise pollution or from risk to health for consumers of products).

(Adapted from AccountAbility 2005: 45)

However, all stakeholder groups should receive attention and different levels of engagement have to be identified depending on the power and impact/interest of each group. Stakeholders’ interests can be classified in terms of social, environmental and economic concerns. Also, the prioritization of stakeholders and related interests will enable the organization to focus attention and actions to ensure that it can achieve strategic objectives, while respecting the rights of significantly impacted stakeholders.

***Step 3: linking stakeholder groups’ interests and strategic objectives***

This step links the interests of main stakeholder groups to the organization’s strategic objectives and determines the main areas of concern to be addressed for achieving its strategic objectives *and* becoming a sustainable organization. Whilst the previous two steps could have been developed in reference to the entire organization, this step needs to be developed for each strategic objective. The key question in this step is: what social, environmental and economic interests (i.e. areas of concerns) do primary stakeholders have for this

*Table B.2* Summary table of stakeholder analysis

<i>Strategic objective</i>	<i>Areas of concern</i>	<i>Stakeholder 1</i>	<i>Stakeholder 2</i>	<i>Stakeholder 3</i>
		<i>Consumers’ interests</i>	<i>Government interests</i>	<i>Employees’ interests</i>
To open a new subsidiary in region Y	Economic	Use value	New public–private partnerships	Integrative pensions schemes
	Social	Ensuring compatibility with dietary requirements	Employment opportunities	Equal opportunity and diversity
	Environmental	Materials and energy uses	Air and water discharges	Health and safety

strategic objective? Table B.2 provides an illustration of stakeholder areas of concerns for the strategic objective ‘To open a subsidiary in region Y’.

The table above could be used to facilitate a discussion around the strategic objectives specifically focusing on the implications these have for various stakeholders. Also, this table can be used to summarize the outputs of stakeholder analysis as it highlights for each strategic objective the (main) stakeholder areas of concern that have to be addressed. For the SMKR framework, the results of this analysis will inform the strategization and the reporting activities.

## Resources analysis

Resources Analysis relates to the identification, mapping and assessment of the stocks of organizational resources and the flows that happen between them for an understanding of resources and their contribution to organizational performance. For the SMKR framework, resources analysis is a fundamental input of the strategization activity. The identification of the stocks of organizational resources serves the purpose of understanding the resources the organization has at its disposal and is undertaken according to: tangible assets (i.e. financial and physical assets) and knowledge resources. KR are further classified into three main components: human resources, structural resources and relational resources. Also, for each KR component, elements should be identified and these are organizationally specific (see, Section 1.3. for an illustration of these elements).

However, as highlighted in chapter 2, pages 10–58, it is more important to understand the flows of resources, and therefore managers should focus on managing the connectivity instead of counting resources (Bjurström and Roberts 2007: 47). Therefore the following analysis will be developed with particular regards to resources flows, which are named transformations.

Transformations were defined in chapter 2 as flows that affect resources types, whether financial, physical or KR. For instance, selling a product means converting physical assets (i.e. the product) into financial assets (i.e. cash flows or credit instruments). This is a transformation within tangible assets that is observable (via financial documents), and financially measurable.

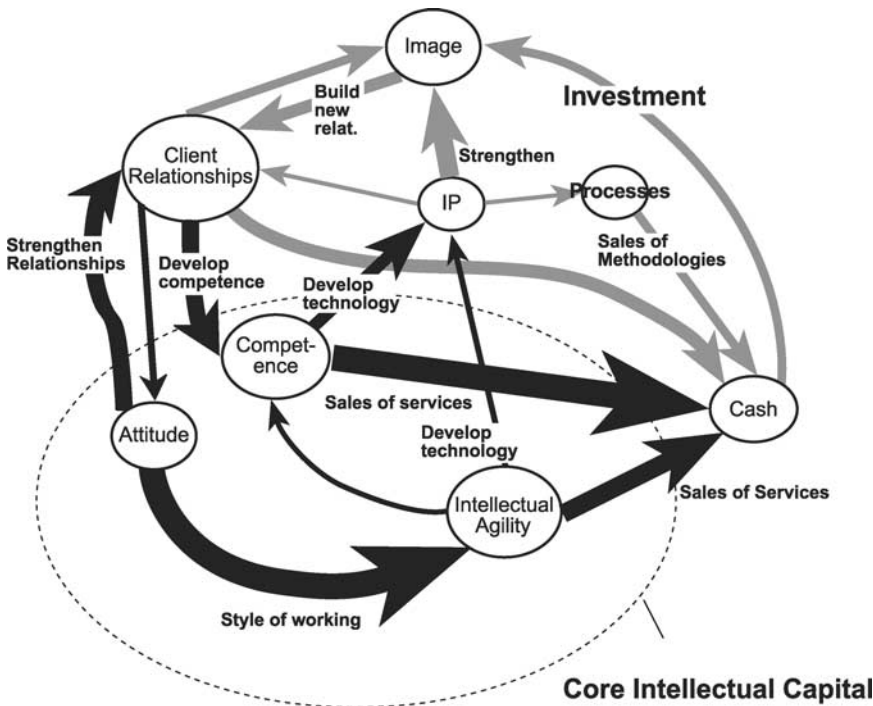
The following explores how transformations can be understood within the specific organizational context and processes. Resources Analysis involves three main steps: (1) identification, (2) mapping, (3) assessment.

### *Step 1: identification of resources transformations*

The first step consists of the *identification* of resources transformations, which is a complex task, especially in relation to KR. It is easier to identify transformations that involve resources which are tangible (as physical resources) or at least observable or measurable (as financial resources), than to identify

transformations within KR. This is because many KR lack physical substance. Also, the knowledge (production) process differs from the linear completion of manufacturing stages and the accompanying accumulation and aggregation of physical resources into the final product. Whilst the industrial production process can be considered as based on the idea of the pipeline, the knowledge production process is based on the idea of a network which links the interdependencies of resources (Bjurström and Roberts 2007: 47). Therefore, any representation of transformations between resources, and particularly between KR, is subjective in nature and expresses an understanding about how resources interact within day-to-day processes. Different people may have different views about how resources interact, and this may have consequences for decision-making processes.

Comparing these different views will create a comprehensive understanding of KR transformations. Therefore, the subjectivity of managers' 'pictures' can be reduced by outlining, discussing and comparing different mental models during meetings within managerial teams and with the workforce in order to obtain a 'balanced' understanding of KR dynamics. A way to facilitate this process is to use maps of resources, and this is now discussed.



*Figure B.2* An illustration of the IC Navigator for a research-based consulting firm.

*Source:* Gupta and Roos 2001: 300.

Resource weighting	Cash	Bonds	Guaran	Office&	IT Facil	Test Pr	Custor	Supplie	Partner	Resear	Financi	IT Syst	Brand	Organiz	Accum	Know-I
8.00 Cash	1.00				0.50	0.50	1.60	0.40	0.40			0.70	0.70		0.40	0.80
1.00 Bonds&Stocks		1.00														
1.00 Guarantee			1.00													
5.00 Office&Facility				0.19	0.50		0.38	0.13	0.13	0.13	0.13	0.19	1.50	0.13	0.13	0.13
1.00 IT Facility							1.10	0.20	0.30			0.28			0.60	1.40
4.00 Test Processing Machine								0.13		0.38			0.30	0.13	0.75	1.00
10.00 Customers	1.50						0.60						3.25	0.13	0.75	1.00
2.00 Suppliers							3.30	0.15					0.15		0.90	0.90
6.00 Partners	0.45			0.30									0.60		1.05	1.05
1.00 Researchers													0.29	0.13	0.30	0.30
1.00 Financial Network	0.53												0.34			
4.00 IT System	0.20			0.20			0.30	0.20						0.30	0.40	0.70
4.00 Brand	1.10						1.08	0.19	0.27	0.19				0.24		
4.00 Organisational Culture	0.20						1.00	0.20	0.20				0.60		0.30	0.30
8.00 Accumulated Data	1.80				0.20	0.20	1.20	0.20		0.50			1.60			1.20
20.00 Know-how	6.00				0.50		3.00			0.25		0.25	2.50	1.00	1.25	
5.00 Knowledge	1.00			0.13			0.88			0.31			0.44	0.25	0.25	1.00
4.00 Problem Solving	1.10						0.80						0.40	0.15		0.60
4.00 Human Skill	1.00						0.80						0.30	0.20		0.60
4.00 Attitude	0.60						0.80	0.15	0.15				0.50	0.70	0.30	0.30
3.00 Self-development	0.15						0.15						0.30			
100.00	17.73	0.00	0.00	0.13	2.11	1.50	17.17	1.72	2.05	1.30	0.67	1.55	13.63	3.42	4.15	10.76

Figure B.3 An illustration of the transformation matrix.

Source: Roos *et al.* 2005: 122.

**Step 2: mapping of resources transformations**

The second step consists of representing resources and their transformations respectively by circles and arrows (Roos and Jacobsen, 1999; Gupta and Roos, 2001; Marr *et al.*, 2004; Roos *et al.* 2005). These visuals may be used as a basis for discussion and brainstorming. A well-known visualization instrument is the IC Navigator<sup>1</sup> (Roos and Jacobsen 1999; Gupta and Roos 2001; Peppard and Rylander 2001; Roos *et al.* 2005), illustrated in Figure B.2. The illustration refers to a small research-based consulting firm and visualizes the specific resources flows within the day-to-day processes.

**Step 3: assessing resources transformations**

The third step in observing resources dynamics is the *assessment* of resources and their transformations. It consists of assigning a weight to resources and their transformations, which expresses their value relevance for the strategic management challenges of the organization. In the IC literature,<sup>2</sup> the assessment of resources transformations is addressed in two main ways: qualitatively and quantitatively.

A qualitative assessment of the resources and transformations uses visual means to show resources stock (represented by circles) and flows (represented by arrows) and related assessment. The size of the circles and arrows represents the qualitative assessment of the resources and transformations. This was illustrated in Figure B.2, in which the size of the circles and arrows provide a visualization of the assessments of resources and related transformations of a research-based consulting firm against its strategy. Highlighted is that client relationships and competence were valuable KR of the organization. Also, the figure shows several relevant KR flows; it illustrates, for instance, how the organization, in performing its business, transforms competence into cash and this is a core transformation for this organization.

The quantitative assessment consists of assigning numerical weights to resources transformations. This is a difficult task to accomplish, particularly when measures are not always available or, if available, may not be reliable indicators of resources transformations. Also, quantitative assessment may require knowledge about statistical tools (as in Roos *et al.* 2005) to produce a transformation matrix and visualize the quantitative assessments of transformations (see Figure B.3).

In Figure B.3 the numbers in the cells represent the managers' perceptions about the relevance for value creation of the interdependency between the resource in the row and the ones in the column. Therefore, a higher number in the cell indicates a higher relevance of the transformation for value creation. However, it is believed that a quantitative assessment of transformations is not required for the purposes of understanding resources dynamics. Therefore, the relevance of resources transformations can be assessed qualitatively.

# Notes

## 1 Introduction

- 1 Several IC frameworks which have been developed by national and international institutions to guide in the management and reporting of IC are analyzed in chapter 2, pages 18–58.
- 2 The key concepts of KR and IC are defined in more detail in chapter 1, pages 4–6.
- 3 The definition of strategy used in this book is adapted from Hax and Majluf (1996: 13–14): ‘Strategy determines and reveals the organizational purposes in terms of long-term objectives, action, programs, and resources allocation priorities; selects the business the organization is in or is to be in; attempts to achieve a long-term, sustainable advantage in each of its business by responding appropriately to the opportunities and threats in the firm’s environment, and the strengths and weaknesses of the organization; identifies the distinct managerial tasks at the corporate, business and functional levels; is a coherent, unifying and integrative pattern of decisions; defines the nature of the economic and non-economic contributions it intends to make to its stakeholders; is an expression of the strategic intent of the organization; is aimed at developing and nurturing the core competencies of the firm; is a means for investing selectively in tangible and intangible resources to develop the capabilities that assure a sustainable competitive advantage’. For this book a ‘sustainable competitive advantage’ is considered to be one aspect of organizational sustainability, which is a balance of the economic, social and environmental issues of organizational activity.
- 4 For Kochan and Schmalensee (2003: 4): ‘managers must build and maintain the trust of a broad set of stakeholders through openness, transparency, and accountability’.
- 5 ‘Sustainability’ is defined according to OECD (2001: 47) as ‘linking the economic, social and environmental objectives in a balanced way . . . and using a long-term perspective about the consequences of today’s activities. . . . Meeting the challenge of sustainable development requires clear processes for identifying integrated environmental, social and economic goals, and for implementing these goals efficiently across all responsibility areas’.
- 6 The tripartite classification is adapted from Sveiby (2001: 347) and Guthrie and Petty (2000: 166).
- 7 In this book the term KR is used. However, when the term IC is used by authors referred to in the text, this book also uses that term.
- 8 Chapter 2, see pages 15–17 for a definition of transformations and Appendix B for an illustration of tools for their identification, mapping and assessment.
- 9 This quote refers back to Nonaka and Takeuchi (1995).
- 10 The key concepts for SMKR are in *italics* and are explained in more detail in chapter 5.



## 2 Analysis of contemporary IC frameworks

- 1 See, Karl-Erik Sveiby <http://www.sveiby.com/Portals/0/articles/IntangibleMethods.htm> last accessed in March 2007.
- 2 In Appendix A, a list of 36 frameworks is provided along with the year of publication, the name, the measurement approach and brief description of the stated objectives for each IC framework.
- 3 Stakeholders can also be identified in relation to the internal environment and include employees, managers, the board of directors, etc.
- 4 There is a variety of tools available for undertaking stakeholder engagement. One example is provided in Appendix B.
- 5 As originally stated by Freeman (1984: 48), stakeholder theory 'is about groups and individuals who can affect the organization, and is about managerial response to these groups of individuals'. Therefore, stakeholder theory identifies the groups of stakeholders and the methods by which management can consider the interests of these groups.
- 6 An overview of Corporate Responsibility is available at <http://www.icaew.com/index.cfm?route=112326> (ICAEW 2007, last accessed in April 2007).
- 7 The AA1000 guidelines from AccountAbility provides guidance on how to establish a systematic stakeholder engagement process that generates the indicators, targets and reporting systems needed to ensure its effectiveness in impacting on decisions, activities and overall organizational performance (See, [www.accountability.org.uk](http://www.accountability.org.uk), last accessed in April 2007).
- 8 KPMG (2005: 21) reports the results of the triennial survey which analyzes trends in corporate responsibility reporting of the world's largest corporations (including the top 250 companies of the Fortune 500 and top 100 companies in 16 countries). With its coverage of over 1,600 companies, the survey provides a global picture of reporting trends over the last ten years. Also, within this survey, benefits for companies of a strong stakeholder engagement programme are reported and include: a strengthened licence to operate; enhanced two-way communication and trust leading to reduced legal and reputation costs; strengthened shareholder value; increased access to markets; the identification of potential risks.
- 9 The resources analysis consists of identification of the resources, in particular, the stocks of KR the organization has at its disposal and of the transformations between organizational resources. This analysis will be addressed in Appendix B.
- 10 There is a variety of tools available for identifying, mapping and assessing resources transformations. One example is provided in Appendix B.
- 11 The concept of 'transformation' was discussed in Roos and Jacobsen (1999) and Gupta and Roos (2001) and further developed by Roos *et al.* (2005: 109–223) in which mapping and measurement tools are extensively described.
- 12 A well-known example of a strategic performance measurement (and management) system is the Strategy Map developed by Kaplan and Norton (2001), which identifies four main performance perspectives: financial, customer, internal and learning and growth. The Strategy Map considers the financial perspective (i.e. long-term shareholders' value) as the overall strategic objective and aims to describe how an organization creates value by connecting the four perspectives in explicit cause-and-effect relationships. The financial perspective builds up from: (a) the learning and growth perspective, which includes organizational resources (e.g. human capital, information capital and organizational capital); (b) the internal perspective, which includes organizational processes (e.g. operations management processes, innovation processes and customer management processes); (c) the customer perspective, which includes the impacts of the previous perspectives in terms of customer value proposition (e.g. price, quality and brand).

- 13 Ittner and Larcker (1998: 217) report the findings of studies highlighting eight main reasons that drive companies' dissatisfaction with the use of 'traditional' accounting measures for decision making and performance evaluation. These are: (1) the backward-looking perspective; (2) the lack of the predictive ability to explain future performance; (3) the rewarding of short-term incorrect behaviour; (4) the scarce power to drive action as they provide little information on root causes or solution to problems; (5) the inability of timely signalling of key business changes; (6) the fact that they are too aggregated to guide managerial action; (7) do not reflect 'cross-functional processes'; (8) give inadequate consideration to 'difficult to quantify "intangible" assets such as intellectual capital'.
- 14 The study was undertaken by Deloitte and the Economist Intelligent Unit and consisted of a global survey in December 2006 that obtained responses from 175 senior executives and board members of worldwide large organizations. Also, in-depth telephone interviews were conducted with senior executives and board members for large worldwide companies (Deloitte 2007: 1).
- 15 The Guideline does not define what is intended for long-term success. However, it is assumed that the main focus of the Guideline is on long-term economic performance, as it is stated that: 'An intellectual capital statement basically shows the assets of an enterprise which are not directly accessible, but which are vital to future economic success' (FMEL 2004: 8).
- 16 A business strategy describes how to act on the market in future, which investments are necessary for this, at what locations with which products and services one should work, and which measures should be initiated and implemented for research and development (FMEL 2004: 43).
- 17 The IC elements contained in the matrix are the ones that are critical for business performance and are named 'Influencing Factors'.
- 18 For an illustration of the transformation matrix see Appendix B (Resources Analysis).
- 19 For an illustration of the IC Navigator see Appendix B (Resources Analysis).
- 20 The Regulation was issued by the Federal Ministry of Education, Sciences and Culture on 15 February 2006 and came into force on 1 February 2006 (FMESC 2006). For an analysis of the Act and the Regulation see Altenburger and Schaffhauser-Linzatti (2006).
- 21 In the Regulation there is no definition of the terms 'long-term objectives' and 'self-imposed objectives'; these are assumed to be equivalent.
- 22 Human capital is defined as the knowledge of the academic and non-academic staff that is relevant to perform all university tasks, structural capital as non-personal equipment, and relationship capital as networks of social relations that support universities' performances and help to acquire knowledge from outside (Altenburger and Schaffhauser-Linzatti 2006: 5).
- 23 Additional sections are required for the universities of medicine and of arts, see FMESC 2006: 1.
- 24 These Guidelines are the result of a 30-month (1998–2001) project funded by the European Union within the Targeted Socio-Economic Research (TSER) programme.
- 25 The project involved seven institutions of six different countries: IADE – Autonomous University of Madrid (Spain), Group HEC (France), Research Institute of the Finnish Economy and the Swedish School of Economics and Business Administration (Finland), Stockholm University (Sweden), Copenhagen Business School (Denmark), and Norwegian School of Management (Norway). There were many academic outputs from this project. One of these is: Chaminade, C. and Catasús, B. (2007), *Intellectual Capital Revisted: Paradoxes in the Knowledge-Intensive Organization*, Cheltenham, UK, Edward Elgar.
- 26 'Theoretically the firm starts by identifying and measuring its intangible resources

at a given time (t). Then it develops different activities that might affect them and measure its intangible resources again in period  $t+1$ . As a result the firm monitors the different changes in its intangible resources levels as a consequence of its management actions'. (MERITUM 2002: 78). However, it is not entirely clear that variations in the IC resources from period  $t$  to period  $t+1$  are completely due to the activities implemented by the organization.

- 27 Hitoshi Funahashi (Actcell Corporation), [Introductory notes] OECD Conference on Intellectual Asset-Based Management: Toward Innovation and Sustainable Growth, 8 December 2006, who announced the use of IABMR by various Japanese organizations, of which several had produced reports over the previous two years.
- 28 The Austrian Act highlights that the objectives should be derived from the priorities and strengths of the university and that they should be specified in terms of social goals. Also, resources should be allocated to attain these objectives. In regards to strategy implementation the Act specifies the need to report the measures undertaken according to a specific list. The Austrian Act provides very little detail from an internal managerial perspective.

### 3 MKR in practice: Danish developments

- 1 The aim of the analysis was not to highlight the amount of information reported, as many previous academic studies on the reporting of IC have done (e.g Guthrie and Petty 2000; Olsson 2001; Brennan 2001; Bozzolan *et al.* 2003; Bozzolan *et al.* 2006; Guthrie *et al.* 2007), but to get a general understanding of how organizations manage and report KR.
- 2 The web search was performed in English and in Italian and looked for the following words: intellectual capital, intellectual capital statement, intellectual capital report, intangible capital, intangible assets, intangible assets report, intangible assets statement, intangibles, intangible resources, knowledge, knowledge management, management of knowledge resources, knowledge assets, knowledge resources, knowledge reports.
- 3 The main reason for excluding some organizations from the analysis was related to the availability of the report to external parties, the language of the report (English or Italian), and the year of the last externally available reports (from 2005 onwards).
- 4 The reason for this, at least in the case of America, is that the prevailing approach to intangible resources is that of traditional financial accounting, rather than reporting MKR: 'Reviewing the above models, a trend distinguishing "North American" versus "European" tendencies in the field of fashion is discernible. Starting out from near-identical beginnings, in the Balanced Scorecard and Navigator, North American contributors (Cap Gemini, Dzinkowski, Lev, Lynn) are associated with the emergence of an orthodox measurement emphasis and a hard accounting calculus; the European arm (DATI, MERITUM, Mouritsen) tends more towards telling the "story" of intellectual capital in firms. The pre-occupation with external disclosure and accounting standards is characteristic of the US; in Europe/Scandinavia intellectual capital accounting as management fashion is interpreted more as an internal management and reporting technique.' (Fincham and Roslender 2003: 785).
- 5 The issue of external reporting is not considered by this analytical frame as the documents examined are made available externally.
- 6 For some generalized checklists see Section 1.3 and Appendix B 'Knowledge Resources'. Also, see Sveiby (1997), Guthrie and Petty (2000), Bozzolan *et al.* (2003), and Guthrie *et al.* (2007).
- 7 Resources transformations relate to the flows within organizational resources (see Section 2.3 and Appendix B).

- 8 ATP was named the Best European Pension Fund in 2005 by an international jury appointed by the magazine *Investment and Pensions Europe*.
- 9 The report was available at: <http://www.atp.dk/> and consisted of 13 pages (accessed in February 2007).
- 10 The only exception to this was in considering social responsibility as a priority in response to general external pressure. This will be discussed in relation to staff challenges.
- 11 The report specifies that Carl Bro UK/Ireland started producing ICS Statements in 2001 while Carl Bro Sweden started the process in 2003 (Carl Bro 2005: 12–13). Also, since 2004 the ICA is not produced as a separate account and is included in a specific section (i.e. 'Intellectual Resources') of the annual report.
- 12 The ICA is available at, [www.carlbro.com](http://www.carlbro.com) and consists of three pages (pp. 12–14). Page 3 of the annual report was also considered as it better explained the organization's strategy. As in 2004, Intellectual Capital Accounts for 2005 will not be published in a separate form (Carl Bro 2005: 13).
- 13 The Intellectual Capital Statement is presented as a click-through report made available on the organization's website. Also, within the annual report the 'Stakeholders' section 'is a summary of Coloplast's Intellectual Capital Statement. It accounts for the various efforts supporting overall value creation' (Coloplast AR 2005: 63). The 11 pages of the Intellectual Capital Statement referenced in the analysis relate to a document created by the author and include the narratives, metrics and figures reported in the click-through Intellectual Capital Statement available at [www.coloplast.com](http://www.coloplast.com) (accessed in February 2007).
- 14 The Intellectual Capital Report 2005 (COWI 2005) it is also available as a click-through report on the organization's website ([www.cowi.com](http://www.cowi.com)). The Intellectual Capital Report considered in this analysis was a sub-section of the annual report and consisted of six pages (accessed in February 2007).
- 15 ICR were produced in 1999, 2000, 2002 and 2004. The 2004 was the latest available on Systematic's website ([www.systematic.com](http://www.systematic.com) was last accessed in March 2007). The report consists of 36 pages and was included as it contained an audit opinion of the ICR.

#### 4 MKR in practice: International developments

- 1 The 'Knowledge activities account 2005' has been provided by the management of Arkitema to the author. The report consisted of 23 pages.
- 2 The report was available on the organization's web-site ([www.cmm.ki.se](http://www.cmm.ki.se)) and was 24 pages in length (web-site accessed in February 2007).
- 3 The ICR was available as a stand-alone document on the organization's website ([www.Sentensia.se](http://www.Sentensia.se)), accessed in February 2007. The report consisted of 13 pages and includes a sub-section with a set of indicators which were developed in the PIP project (see, <http://nhki.si.is/>).
- 4 The latest report consisted of 52 pages and is available on the ARC's web-site ([www.arcs.ac.at](http://www.arcs.ac.at), accessed in February 2007).
- 5 BBVA's shares are traded on several European capital markets and on the New York Stock Exchange.
- 6 The subsection of the annual report considered consisted of 12 pages, whilst the CRR consisted of 156 pages. The documents were made available on the BBVA website ([www.bbva.com](http://www.bbva.com), accessed in February 2007).
- 7 For instance, in 2005, Brembo received the 'National Award for Corporate Social Responsibility' sponsored by the Italian Ministry of Labour and Social Policies and the 'Italian Award for Creativity' for its innovative business practices (Brembo 2005: 5).

- 8 The report consisted of 94 pages and was made available on the organization's website ([www.brembo.it](http://www.brembo.it)), accessed February 2007.
- 9 New patents are contained in the indicator: 'number of active patents and patents used in production/number of filed and active patents'.
- 10 The 2005 OeNB ICR consisted of 28 pages and is available on the OeNB web-site ([www.oenb.at](http://www.oenb.at)), accessed in February 2007.
- 11 The Intangible Capital Statement was made available by Plastal's management to the author. It consisted of 15 pages.
- 12 The Intellectual Capital Statement is available (in Italian) at web-site ([www.zip.padova.it](http://www.zip.padova.it)). The report consisted of 52 pages and was accessed in February 2007.
- 13 The Development Bank of Japan is preparing for its eventual privatization as recommended by recent developments in Japanese law (e.g. The Important Policy for Administrative Reform, The Administrative Reform Promotion Law and the Policy-Based Financing Reform Plan).
- 14 The 'Sustainability Report 2005: Social Environmental and Intellectual Asset Report' was available on the bank's web-site ([www.dbj.go.jp](http://www.dbj.go.jp)), accessed in February 2007 and consisted of 44 pages. In the later 2006 Sustainability report no reference is made to Intellectual Assets and no other document was found on the organization's website about Intellectual Assets and related management practice.
- 15 The Intellectual Capital Report 2005 is available on ETRI's web-site ([www.etri.re.kr](http://www.etri.re.kr)), accessed in February 2007 and consisted of 20 pages.
- 16 The 2006 Intellectual Capital Statement consisted of six pages. It is available on the NSW Lands web-site ([www.lands.nsw.gov.au](http://www.lands.nsw.gov.au)), accessed February 2007.

## 5 Strategic management of knowledge resources framework

- 1 Also, a fuller discussion on two important management tools (i.e. stakeholder analysis and resources analysis) is presented in Appendix B.
- 2 As will be outlined below the notion of 'emergent strategies' (Mintzberg and Waters 1985) originally included only the idea of incremental innovation. In this book the notion of 'emergent strategies' is extended in order to include radical innovation (Davila 2005).
- 3 The 'dynamic balance' can be thought of conceptually in the following terms. A diagnostic use of information 'ensures that the positive effects of interactive use on capabilities will be achieved. In some circumstances, the potential benefits of interactive use may vanish due to insufficient diagnostic use to set boundaries and to highlight effectiveness issues. This can produce a loss of direction, wasted energy and a disruption of continuity (Cameron, 1986; Chenhall and Morris, 1995). However, the potential benefits of interactive use can be lost due to excessive diagnostic use which constrains innovation and risk taking. This can produce stagnation, loss of energy and declining morale (Cameron, 1986; Chenhall and Morris, 1995)' (Henry 2006: 537).
- 4 'A primary goal of reporting is to contribute to an ongoing stakeholder dialogue. Reports alone provide little value if they fail to inform stakeholders or support a dialogue that influences the decisions and behaviour of both the reporting organization and its stakeholders. However, GRI clearly recognises that the engagement process neither begins nor ends with the publication of a sustainability report' (GRI 2002: 9).
- 5 For strategic management challenges one should avoid general statements as: 'increase customer satisfaction', and include a more detailed focus as: 'increase the timeliness of delivery to customers'.

**Appendix B: Stakeholder analysis and resources analysis**

- 1 As will be observed below, the IC Navigator can be also used as a tool for visualising the qualitative assessments on resources and their transformations.
- 2 For qualitative assessment see Gupta and Roos 2001; and Marr *et al.* 2004, whilst for (qualitative and) quantitative assessment see Roos *et al.* 2005.

# Bibliography

- AccountAbility (Krick, T., Forstater, M., Monaghan, P. and Sillanpaa, M.) (2005) *The Stakeholder Engagement Manual – Volume 2: The Practitioner's Handbook on Stakeholder Engagement*, Accountability, United Nations Environment Programme, Stakeholder Research Canada Inc.
- Ackoff, R. L. (1983) 'Beyond prediction and preparation', in *Journal of Management Studies*, 20 (1): 59–69.
- Adler, P. S. (2001) 'Market, hierarchy, and trust: the knowledge economy and the future of capitalism', *Organization Science*, 12 (2): 215–234.
- Altenburger, O. A. and Schaffhauser-Linzatti, M. (2006) 'The order on the intellectual capital statements of Austrian universities: a critical analysis', paper presented at the 2nd workshop on the Process of Reform of University Systems, CINI Foundation, Venice, Italy, 4–6 May.
- Amit, R. and Schoemaker, P. J. H. (1993) 'Strategic assets and organizational rent', *Strategic Management Journal*, 14 (1): 33–46.
- Anderson, R. and McLean, R. (2000) *Total Value Creation*, CD-ROM available from CICA (Canadian Institute of Chartered Accountants).
- Andriessen, D. (2004) *Making Sense of Intellectual Capital: Designing a Method for the Valuation of Intangibles*, Oxford: Elsevier Butterworth-Heinemann.
- Andriessen, D. and Tiessen, R. (2000) *Weightless Weight: Find your Real Value in a Future of Intangible Assets*, London: Pearson Education.
- Arkitema (2005) *Knowledge Activities Account*, provided to the author by Arkitema management.
- ATP (2005) *The ATP Group Annual Report 2005*, available at [www.atp.dk](http://www.atp.dk) (accessed February 2007).
- Austrian Research Center (ARC) (2005) *Intellectual Capital Report 2005*, available at [www.arcs.ac.at](http://www.arcs.ac.at) (accessed February 2007).
- Banco Bilbao Vizcaya Argentaria (BBVA) (2005a) *Annual Report 2005*, available at [www.bbva.com](http://www.bbva.com) (accessed February 2007).
- Banco Bilbao Vizcaya Argentaria (BBVA) (2005b) *Corporate Responsibility Report 2005*, available at [www.bbva.com](http://www.bbva.com) (accessed February 2007).
- Barney, J. B. (1991) 'Firm resources and sustained competitive advantage', in *Journal of Management*, 17: 99–120.
- Barney, J. B. (2001) 'Resource-based theories of competitive advantage: a ten year retrospective on the resource-based view', *Journal of Management*, 27: 643–650.
- Barney, J., Wright, M. and Ketchen, D. J. (2001) 'The resource-based view of the firm: ten years after 1991', *Journal of Management*, 27: 625–641.

- Birkinshaw, J. (2001) 'Making sense of knowledge management', in *Ivey Business Journal*, 65 (4): 32–36.
- Bjurström, E. and Roberts, H. (2007) 'The principle of connectivity networked assets, strategic capabilities and bundled outcomes', in C. Chaminade and B. Castàs (eds) *Intellectual Capital Revisited*, Cheltenham: Edward Elgar, pp.46–61.
- Boedker, C., Guthrie, J. and Cuganesan, S. (2005) 'An integrated framework for visualising intellectual capital', *Journal of Intellectual Capital*, 6 (4): 510–527.
- Bontis, N., Dragonetti, N., Jacobson, K. and Roos, G. (1999) 'The knowledge toolbox: a review of the tools available to measure and manage intangible resources', *European Management Journal*, 17 (4): 1–20.
- Bounfour, A. (2003) *The Management of Intangibles, the Organisation's Most Valuable Assets*, London: Routledge.
- Bozzolan, S., Favotto, F. and Ricceri, F. (2003) 'Italian annual intellectual capital disclosure: an empirical analysis', *Journal of Intellectual Capital*, 4 (4): 543–558.
- Bozzolan, S., Ricceri, F. and O'Regan, P. (2006) 'Intellectual capital disclosure (ICD) in listed companies: a comparison of practice in Italy and the UK', *Journal of Human Resource Cost and Accounting*, 10 (2): 92–113.
- Brembo (2005) *Report of Tangible and Intangible Value*, available at [www.brembo.it](http://www.brembo.it) (accessed February 2007).
- Brennan, N. (2001) 'Reporting intellectual capital in annual reports: evidence from Ireland', in *Accounting, Auditing and Accountability Journal*, 14 (4): 423–426.
- Brennan, N. and Connell, B. (2000) 'Intellectual capital: current issues and policy implications', *Journal of Intellectual Capital*, 1 (3): 206–240.
- Brooking, A. (1996) *Intellectual Capital*, London: Thomas Business Press.
- Bukh, P. N., Larsen, H. T. and Mouritsen, J. (2001a) 'Constructing intellectual capital statements' in *Scandinavian Journal of Management*, 17: 87–108.
- Bukh, P. N., Mouritsen, J., Johansen, M. R. and Larsen, H. T. (2001b) 'Intellectual capital reporting and knowledge management in systematic', Børsem: Viden Regaskober.
- Bukh, P. N., Christensen, K. S. and Mouritsen, J. (2005) *Knowledge Management: Establishing a Field of Practice*, Basingstoke: Palgrave Macmillan.
- Bygdås, A. L., Røyvrik, E. and Gjerde, B. (2004) 'Integrative visualisation and knowledge-enabled value creation', *Journal of Intellectual Capital*, 5 (4): 540–555.
- Carl Bro (2005) *Annual Report 2005 Carl Bro Group*, available at [www.carlbro.com](http://www.carlbro.com) (accessed February 2007).
- Center for Molecular Medicine (CMM) (2004) *Intellectual Capital Report 2004*, available at [www.cmm.ki.se](http://www.cmm.ki.se) (accessed February 2007).
- Center for Molecular Medicine (CMM) (2005) *Intellectual Capital Report 2005*, available at [www.cmm.ki.se](http://www.cmm.ki.se) (accessed February 2007).
- Chaminade, C. and Castàs, B. (eds) (2007) *Intellectual Capital Revisited: Paradoxes in the Knowledge-intensive Organization*, Cheltenham: Edward Elgar.
- Chenhall, R. H. (2005) 'Integrative strategic performance measurement systems, strategic alignment of manufacturing, learning and strategic outcomes: an exploratory study', *Accounting, Organization and Society*, 30: 395–422.
- Clarkson, M. (1995) 'A stakeholder framework for analysing and evaluating corporate social performance', *Academy of Management Review*, 20: 92–117.
- Coloplast (2005) *Intellectual Capital Statement 2005*, available at [www.coloplast.com](http://www.coloplast.com) (accessed February 2007).



- COWI (2005) *COWI Annual Report 2005*, available at [www.cowi.com](http://www.cowi.com) (accessed February 2007).
- Davila, T. (2005) 'The promise of management control systems for innovation and strategic change', in Chapman C. S. (eds) *Controlling Strategy: Management, Accounting, and Performance Measurement*, New York: Oxford University Press.
- Davison, J. and Skerratt, L. (2007) *Words, Pictures and Intangibles in the Corporate Report*, Edinburgh: The Institute of Chartered Accountants of Scotland.
- Dawson, R. (2005) *Developing Knowledge-based Client Relationships*, Amsterdam: Elsevier.
- Deloitte (2007) *In the Dark II*, Deloitte.
- Department of Lands (2005) *Annual Report 2004/2005* available at [www.lands.nsw.gov.au](http://www.lands.nsw.gov.au) (accessed February 2007).
- Department of Lands (2006) *Annual Report 2005/2006*, available at [www.lands.nsw.gov.au](http://www.lands.nsw.gov.au) (accessed February 2007).
- Development Bank of Japan (DBJ) (2005) *Sustainability Report 2005 – Social, Environmental, and Intellectual Assets Report*, available at [www.dbj.go.jp](http://www.dbj.go.jp) (accessed February 2007).
- Dierickx, I. and Cool, K. (1989) 'Asset stock accumulation and sustainability of competitive advantage', *Management Science*, 35 (12): 1504–1511.
- Drucker, P. (1993) *Post-Capitalist Society*, New York: Harper Business.
- Edvinsson, L. (1997a) 'Developing intellectual capital at Skandia', *Long Range Planning*, 30 (3): 266–373.
- Edvinsson, L. (1997b) *IC Rating™*, available at: [http://www.icratings.com/about\\_icrating.htm](http://www.icratings.com/about_icrating.htm) (accessed April 2007).
- Edvinsson, L. and Malone, M. (1997) *Intellectual Capital: Realising Your Company's True Value by Finding its Hidden Brainpower*, New York: HarperCollins.
- Electronics and Telecommunications Research Institute (ETRI) (2004) *Intellectual Capital Report 2004*, available at [www.etri.re.kr](http://www.etri.re.kr) (accessed February 2007).
- Electronics and Telecommunications Research Institute (ETRI) (2005) *Intellectual Capital Report 2005*, available at [www.etri.re.kr](http://www.etri.re.kr) (accessed February 2007).
- European Commission (EC) (2006) *RICARDIS: Reporting Intellectual Capital to Augment Research, Development and Innovation in SMEs*, Brussels: European Commission.
- European Institute for Advanced Studies in Management (EIASM) (2005), 1st Workshop on Visualising, Measuring and Managing Intangibles and Intellectual Capital, Ferrara, Italy, 18–20 October, [www.eiasm.org](http://www.eiasm.org) (accessed February 2007).
- Federal Ministry of Economic and Labour (FMEL) (2004) *Intellectual Capital Statement: Made in Germany*, Berlin: FMEL.
- Federal Ministry of Education, Science and Culture (FMESC) (2002) *Federal Act on the Organisation of the Universities and their Studies (Universities Act 2002)* available at <http://www.bmbwk.gv.at> (accessed February 2007).
- Federal Ministry of Education, Science and Culture (FMESC) (2006) *63rd Regulation: Regulation on Intellectual Capital Reports*, available at <http://www.bmbwk.gv.at> (accessed February 2007).
- Fincham, R. and Roslender, R. (2003) 'Intellectual capital accounting as management fashion: a review and critique', *European Accounting Review*, 12 (4): 781–795.
- Flamholtz, E. (1985) *Human Resources Accounting*, Los Angeles: Jossey-Bass Publishers.
- Fletcher, A., Guthrie, J. and Steane, P. (2003) 'Mapping stakeholder perceptions for a third sector organization', *Journal of Intellectual Capital*, 4 (4): 505–527.

- Freeman, R. E. (1984) *Strategic Management: A Stakeholder Approach*, Boston: Pitman.
- Global Reporting Initiative (GRI) (2002) *Sustainability Reporting Guidelines*, available at [www.globalreporting.org](http://www.globalreporting.org) (accessed February 2006).
- Grant, R. M. (1991) 'The resource-based theory of competitive advantage: implications for strategy formulation', in *California Management Review*, 33 (3): 114–135.
- Grant, R. M. (1996) 'Toward a knowledge-based theory of the firm', in *Strategic Management Journal*, 17: 109–122.
- Gröjer, J. E. and Johanson, U. (1996) *Human Resource Costing and Accounting*, Joint Industrial Safety Council, Stockholm.
- Gupta, O. and Roos, G. (2001) 'Mergers and acquisitions through an intellectual capital perspective', *Journal of Intellectual Capital*, 2 (3): 297–309.
- Guthrie, J. and Petty, R. (2000) 'Intellectual capital: Australian annual reporting practices', *Journal of Intellectual Capital*, 1 (3): 241–251.
- Guthrie, J. and Ricceri, F. (2002) 'Quantify intellectual capital: measuring and reporting to demonstrate value of KM to stakeholders', paper presented at KM Australia: building and improving on knowledge management initiative for commercial proficiency conference, Merchant Court Hotel, Sydney, 4 December.
- Guthrie, J., Petty, R. and Ricceri, F. (2007) *Intellectual Capital Reporting: Lessons from Hong Kong and Australia*, Research Monograph, Edinburgh: The Institute of Chartered Accountants of Scotland.
- Habersam, M. and Piber, M. (2003) 'Exploring intellectual capital in hospitals: two qualitative case studies in Italy and Austria', *European Accounting Review*, 12 (4): 753–779.
- Hall, R. (1993) 'A framework linking intangible resources and capabilities to sustainable competitive advantage', *Strategic Management Journal*, 14 (8): 607–618.
- Hax, A. C. and Majluf, N. S. (1996) *The Strategy Concept and Process: A Pragmatic Approach*, Upper Saddle River: Prentice Hall.
- Henry, J. (2006) 'Management control systems and strategy: a resource-based perspective', *Accounting, Organizations and Society*, 31: 529–558.
- Hillman, A. J. and Keim, G. D. (2001) 'Shareholder value, stakeholder management and social issues: what is the bottom line?', *Strategic Management Journal*, 22: 125–139.
- Institute of Chartered Accountants in England and Wales (ICAEW) (2003) *New Reporting Models for Business*, London: Institute of Chartered Accountants in England and Wales.
- Institute of Chartered Accountants in England and Wales (ICAEW) (2007) see <http://www.icaew.com/index.cfm?route=112326> (accessed April 2007).
- Itami, H. and Roehl, T. W. (1987) *Mobilizing Invisible Assets*, Cambridge: Harvard University Press.
- Ittner, C. D. and Larcker, D. F. (1998) 'Innovations in performance measurement: trends and research implications', *Journal of Management Accounting Research*, 10: 205–238.
- Ittner, C. D. and Larker, D. F. (2003) 'Coming up short on nonfinancial performance measurement', *Harvard Business Review*, 81 (11): 88–95.
- Kaplan, R. S. and Norton, D. P. (1992) 'The balanced scorecard: measures that drive performance', *Harvard Business Review*, 70 (1): 71–79.
- Kaplan, R. S. and Norton, D. P. (2001) *The Strategy-focused Organization: How*

- Balanced Scorecard Companies Thrive in the New Business Environment*, Boston: Harvard Business School Press.
- Kaplan, R. S. and Norton, D. P. (2004) *Strategy Maps: Converting Intangible Assets into Tangible Outcomes*, Boston: Harvard Business School Press.
- King, A. W. and Zeithaml, C. P. (2001) 'Competencies and firm performance: examining the causal ambiguity paradox', *Strategic Management Journal*, 22 (1): 75–99.
- Kochan, T. A. and Schmalensee, R. L. (2003) *Management: Inventing and Delivering its Future*, Cambridge: MIT Press.
- KPMG (2005) *KPMG International Survey of Corporate Responsibility Reporting 2005*, Zurich: KPMG International.
- Leitner, K.H. and Warden, C. (2004) 'Managing and reporting knowledge-based resources and processes in research organisations: specifics, lessons learned and perspectives', *Management Accounting Research*, 15: 33–51.
- Leitner, K. H. and O'Donnell, D. (2007) 'Conceptualizing IC management in R&D organizations: future scenarios from the complexity theory perspective', in C. Chaminade and B. Catusés (eds) (2007) *Intellectual Capital Revisited: Paradoxes in the Knowledge-intensive Organization*, Cheltenham: Edward Elgar.
- Leitner, K. H., Schaffhauser-Linzatti, M., Stowasser, R. and Wagner, K. (2005) 'Data envelopment analysis as method for evaluating intellectual capital', *Journal of Intellectual Capital*, 6 (4): 528–543.
- Lev, B. (1999) 'Seeing is believing: a better approach to estimating knowledge capital', *CFO Magazine*, April.
- Lev, B. (2001) *Intangibles: Management, Measurement, and Reporting*, New York: Brookings Institution Press.
- Lippman, S. A. and Rumelt, R. P. (1982) 'Uncertain imitability: an analysis of inter-firm differences in efficiency under competition', *Bell Journal of Economics*, 13 (2): 418–438.
- Luthy, D. H. (1998) 'Intellectual capital and its measurement', in proceedings of the Asian Pacific Interdisciplinary Research in Accounting Conference (APIRA) Osaka, Japan. Available online: <http://www3.bus.osaka-cu.ac.jp/apira98/archives/htmls/25.htm> (accessed November 2006).
- M'Pherson, P. K. and Pike, S. (2001) 'Accounting, empirical measurement and intellectual capital', *Journal of Intellectual Capital*, 2 (3): 246–260.
- Malina, M. A. and Selto, F. H. (2004) 'Choice and change of measures in performance measurement models', *Management Accounting Research*, 15: 441–469.
- Marr, B. (2006) *Strategic Performance Management*, Oxford: Elsevier.
- Marr, B., Schiuma, G. and Neely, A. (2004) 'The dynamics of value creation: mapping your intellectual performance drivers', *Journal of Intellectual Capital*, 5 (2): 312–325.
- MERITUM (2002) *Guidelines for Managing and Reporting of Intangibles*, Madrid: Fundacion Airtel Movil.
- Ministry of Economy, Trade and Industry (METI) (2005) 'Guidelines for Disclosure of Intellectual Assets Based Management', Japan: METI.
- Mintzberg, H. (1994) *The Rise and Fall of Strategic Planning*, London: Prentice Hall.
- Mintzberg, H. and Waters, J. A. (1985) 'Of strategies, deliberate and emergent', *Strategic Management Journal*, 6: 257–272.
- Mouritsen, J., Bukh, P., Flagstad, K. et al. (2003) *Intellectual Capital Statements: The New Guideline*, Danish Ministry of Society, Technology and Innovation.

- Mouritsen, J. (2004) 'Measuring and intervening: how do we theorise intellectual capital management', *Journal of Intellectual Capital*, 5 (2): 257–267.
- Mouritsen, J. and Larsen, H. T. (2005) 'The 2nd wave of knowledge management: the management control of knowledge resources through intellectual capital information', *Management Accounting Research*, 16: 371–394.
- Mouritsen, J., Larsen, H. T. and Bukh, P. N. (2001) 'Intellectual capital and the "capable firm": narrating, visualising and numbering for managing knowledge', in *Accounting, Organizations and Society*, 26: 735–762.
- Mouritsen, J., Bukh, P. and Kaasgaard, B. H. (2005) 'Understanding intellectual capital in an innovative medium-sized firm: the case of Maxon', The Aarhus School of Business, Copenhagen.
- Nash, H. H. (1998) *Accounting for the Future, a Disciplined Approach to Value-Added Accounting* available online at <http://home.sprintmail.com/~humphreynash/indexback.htm> (accessed March 2007).
- Neely, A., Adams, C. and Kennerley, M. (2002) *The Performance Prism: The Scorecard for Measuring and Managing Business Success*, London: Prentice Hall.
- Nonaka, I. and Takeuchi, H. (1995) *The Knowledge Creating Company*, Oxford University Press.
- (The) Nordic Industrial Fund (NIF) (ed.) (2003) 'How to develop and monitor your company's intellectual capital: tools and actions for the competency-based organisation', available at <http://www.icframe.net/>.
- Oesterreichische Nationalbank (OeNB) (2005) *Intellectual Capital Report 2005*, available at [www.oenb.at](http://www.oenb.at) (accessed February 2007).
- Olsson, B. (2001) 'Annual reporting practices: information about human resources in corporate annual reports in major Swedish companies', *Journal of Human Resource Costing and Accounting*, 6 (1): 39–52.
- Ordóñez de Pablos, P. (2002) 'Evidence of intellectual capital measurement from Asia, Europe and the Middle East', *Journal of Intellectual Capital*, 3 (3): 287–302.
- Organisation of Economic Cooperation and Development (OECD) (1999) 'Guidelines and instructions for OECD symposium', International Symposium on Measuring and Reporting Intellectual Capital: Experiences, Issues and Prospects, June, Amsterdam.
- Organisation of Economic Cooperation and Development (OECD) (2001) *Policies to Enhance Sustainable Development: Meeting at the OECD Council at Ministerial Level*, Paris.
- Organisation for Economic Cooperation and Development (OECD) (2005) 'Intellectual assets and innovation: value creation in the knowledge economy', Ferrara, Italy, 20–22 October, [www.ferraraonintangibles.net](http://www.ferraraonintangibles.net) (accessed February 2007)
- Organisation for Economic Cooperation and Development (OECD) (2006) 'Creating value from intellectual assets, meeting of the OECD council at ministerial level', [www.oecd.org/dataoecd/53/19/36701575.pdf](http://www.oecd.org/dataoecd/53/19/36701575.pdf) (accessed February 2007).
- Peppard, J. and Rylander, A. (2001) 'Using an intellectual capital perspective to design and implement a growth strategy: the case of APiON', *European Management Journal*, 29 (5): 510–525.
- Peteraf, M. A. (1993) 'The cornerstones of competitive advantage: a resource-based view', *Strategic Management Journal*, 14 (3): 179–191.
- Pike, S., Fernstrom, L. and Roos, G. (2005) 'Intellectual capital: management approach in ICS Ltd', *Journal of Intellectual Capital*, 6 (4): 489–509.
- Plastal (2004) *Intangible Capital Statement 2004*.

- Plastal (2005) *Bilancio del Capitale Intangibile 2005* (Intangible Capital Statement 2005).
- Porter, M. E. (1980) *Competitive Strategy*, New York: Free Press.
- Prahalad, C. K. and Hamel, G. (1990) 'The core competence of the corporation', *Harvard Business Review*, May–June: 79–91.
- Pulic, A. (2000) 'VAIC™: an accounting tool for IC management', *International Journal of Technology Management*, 20 (5–8): 702–714.
- Ricceri, F. (2002) *Intellectual Capital: Between Strategy and Measurement*, PhD Thesis, University of Venice, Italy. Italian version.
- Ricceri, F. (2004) 'Intellectual capital (IC) statement: the case of an Italian "(non-) knowledge-intensive" company', in A. Neely, M. Kennerley and A. Walters (eds), *Performance Measurement and Management: Public and Private*, pp. 875–881.
- Roberts, H. (1999) 'The control of intangibles in the knowledge-intensive firm', Paper presented to the 22nd Annual Congress of the European Accounting Association, Bordeaux, 1999.
- Roos, G. and Jacobsen, K. (1999) 'Management in a complex stakeholder organization: a case study of the application of the IC-process to a branch of the Commonwealth Public Service', *Monash Mt. Eliza Business Review*, 2 (1): 82–93.
- Roos, G. and Roos, J. (1997) 'Measuring your company's intellectual performance', *Long Range Planning*, 30 (3): 413–426.
- Roos, J., Roos, G., Dragonetti, N. C. and Edvinsson, L. (1997) *Intellectual Capital, Navigating the New Business Landscape*, London: Macmillan Business.
- Roos, G., Pike, S. and Fernström, L. (2005) *Managing Intellectual Capital in Practice*, Oxford: Elsevier.
- Sandvik, E. (2004) *Business IQ*, Oslo: N. W. Damm and Søn.
- Schaffhauser-Linzatti, M. (2004) 'Intellectual capital reporting for Austrian universities: a thrilling work in progress', paper presented at the *ELIASM Workshop on the process of reform of the university across Europe*, Siena, Italy, 24–26 May.
- Schiuma, G. and Marr, B. (2001) 'Managing knowledge in e-businesses: the knowledge audit cycle', *Profit with People*, Deloitte and Touche.
- Senge, P. M. (1990) 'The leader's new work: building a learning organization', *Sloan Management Review*, 32 (1): 2–18.
- Society for Knowledge Economics (SKE) (ed.) (2005) *Australian Guiding Principles on Extended Performance Management*, Sydney: SKE.
- Society for Knowledge Economics (SKE) (ed.) (2007) *Intangible Drivers of Organisational Productivity and Prosperity*, Sydney: SKE.
- Stakeholder Research Associate Canada (SRAC) (2005) *The Stakeholder Engagement Manual – Volume 1: The Guide to Practitioner's Perspective on Stakeholder Engagement*, Stakeholder Research Associate Canada Inc.: Ontario, Canada.
- Standfield, K. (1998) 'Extending the Intellectual Capital Framework', available online <http://www.knowcorp.com/article075.htm>
- Stewart, M. L. (1990) *The Quest for Value*, New York: Harper.
- Stewart, T. A. (1997) *Intellectual Capital: The New Wealth of Organizations*, New York: Doubleday/Currency.
- Subcommittee on Management and Intellectual Assets (SMIA) (2005) *Interim Report by Subcommittee on Management and Intellectual Assets*, August.
- Sullivan, P. H. (2000) *Value Driven Intellectual Capital: How to Convert Intangible Corporate Assets into Market Value*, New York: John Wiley and Sons.
- Sveiby, K. E. (1990) *The Invisible Balance Sheet*, Affärsvärlden Förlag.

- Sveiby, K. E. (1995) see <http://www.sveiby.com/Portals/0/articles/CelemiMonitor.html> (accessed May 2007).
- Sveiby, K. E. (1997) *The New Organizational Wealth: Managing and Measuring Knowledge Based Assets*, San Francisco: Berrett Koehler.
- Sveiby, K. E. (2001) 'A knowledge-based theory of the firm to guide in strategy formulation', *Journal of Intellectual Capital*, 2 (4): 344–358.
- Systematic (2004) *Intellectual Capital Report 2004*, available at [www.systematic.com](http://www.systematic.com) (accessed March 2007).
- Teece, D. J., Pisano, G. and Shuen, A. (1997) 'Dynamic capabilities and strategic management', *Strategic Management Journal*, 18 (7): 509–533.
- Unerman, J., Guthrie, J. and Striukova, L. (2007) *UK Reporting of Intellectual Capital*, London: Institute of Chartered Accountants in England and Wales Centre for Business Performance.
- Yongvanich, K. and Guthrie, J. (2006) 'An extended performance reporting framework for social and environmental accounting', *Business Strategy and the Environment*, 15 (5): 309–321.
- ZIP (Consorzio Zona Industriale of Padova) (2005) *Bilancio degli intangibili* (Intellectual Capital Statement) available at [www.zip.padova.it](http://www.zip.padova.it) (accessed February 2007).

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