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AUTORI: Cosmin Holeab, Marian Zulean

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Titlu limba engleza: *Designing the Landscape of the Intellectual Capital of a Nation*

Autori: Guenter Koch, (coordonator), Andreas Brandner, Bernard Krabina, Claus Nagel-Piciorus, José-Maria Viedma

Coordonatori proiect:

Marian Zulean

Cosmin Holeab

Contents

FONDUL SOCIAL EUROPEAN
Investește în OAMENI

Asigurarea calității în învățământul superior prin abilitare și auditare

Proiect cofinanțat din Fondul Social European prin Programul Operațional Sectorial Dezvoltarea Resurselor Umane 2007-2013

List of Figures

List of Tables

Introduction: Knowledge Economy and the merits of Intellectual Capital for Nations and Regions

THE KNOWLEDGE ECONOMY

THE ADVENT OF THE KNOWLEDGE ECONOMY

Today management of companies and organizations takes place in a new context that has different names such as information society, knowledge society and knowledge economy. Each one has its particularities and characteristics, but we regard them as roughly equivalent and henceforth we will only use the term knowledge economy. (Dahlmann and Andersson, 2000) Moreover, according to World Bank, the four pillars of the knowledge economy are the following:

1. An educational and skilled Labour force that continuously upgrades and adapts skills to efficiently create and use knowledge;
2. An effective innovation system of firms, research centres, universities, consultants, and other organizations that keeps up with the knowledge revolution, taps into the growing stock of global knowledge, and assimilates and adapts new knowledge to local needs;
3. An economic incentive and institutional regime that provides good economic policies and institutions, which promote efficient creation, dissemination, and use of existing knowledge;
4. A modern and adequate information infrastructure that facilitates the effective communication, dissemination, and processing of information and knowledge.

FONDUL SOCIAL EUROPEAN
Investește în OAMENI
Asigurarea calității în învățământul superior prin abilitare și auditare

Next, in this Blueprint booklet we describe the essential features of this new context, emphasizing the key role of knowledge and intellectual capital (IC) in the process of wealth creation within this new context which becomes effective for all advanced economies since already in the 1940ies F.A. Hayek (Hayek, 1945) elaborated on knowledge as an economic factor and later, already starting in the 1970s, management guru Peter Drucker (Drucker, 1999) foresighted the massive venue of knowledge workers in a future "knowledge economy".

The economy, the so called queen of social sciences, has among its many definitions the following: *Economics is the study of wealth. In other words it is the study of the processes of creation and distribution of wealth* (Samuelson, 1980). Throughout history, the word economy has been accompanied by various qualifiers relating to key factors of wealth creation for each different era of human history. So in succession, we have moved from agrarian economy to industrial economy and from industrial economy to service economy. More recently and due to the increasing development of information and telecommunication technologies and the processes of internationalization and globalization, knowledge and learning have emerged as the primary sources of wealth creation (Neff, 1998, pp. 1-12). It is for this reason that today's economy receives the name of "knowledge economy" or the alternative denomination of "knowledge-based economy".

This transformation in the very foundations of the economic process, or in the process of wealth creation, poses significant challenges for management and strategic management of enterprises, organizations and institutions and also in the management and strategic management of public entities such as cities, regions and nations. To address these challenges have emerged in the management field, new concepts (knowledge, intangibles, IC, etc.), and new disciplines such as knowledge

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Investește în OAMENI
Asigurarea calității în învățământul superior prin abilitare și auditare
Proiect cofinanțat din Fondul Social European prin Programul Operațional Sectorial Dezvoltarea Resurselor Umane 2007-2013

management, IC management and organizational learning as well as new approaches of the previous disciplines. All these new disciplines and approaches are closely related to each other and have some similar goals and objectives, but among them we consider Knowledge Management (KM) and IC Management (ICM) as the most relevant. Indeed, if we define IC as "knowledge and other intellectual assets that produce value now, or are able to produce value in the future," (Viedma, 2007) we realize that this definition relates knowledge and other intellectual assets with wealth creation and wealth creation as mentioned previously, has been and remains the ultimate purpose of the economy. In fact, both disciplines KM and ICM share the same strategic objectives and focus on creating value or wealth for companies or organizations. The difference between KM and ICM lies in the approach taken and in the words of Karl Wigg (1997) is the following:

"ICM focuses on building and governing intellectual assets from strategic and enterprise governance perspectives with some focus on tactics. KM has tactical and operational perspectives. KM is more detailed and focuses on facilitating and managing knowledge-related activities such as creation, capture, transformation and use. Its function is to plan, implement, operate, and monitor all the knowledge-related activities and programs required for effective ICM."

Following a different line of thought, Peter Drucker (Neff, 1998, pp. 15-34) came to similar conclusions in his now famous article, *"From capitalism to knowledge society"*. In this article he describes and discusses the increasing importance of knowledge in the economic progress of mankind, and considers in the description and analysis an historical perspective, which focuses primarily on the last three centuries. In fact, it focuses primarily on the last three centuries because knowledge had previously been seen as applied almost exclusively to the development of

the human being considered individually, that was educated mainly on philosophy, literature and the arts or on what later on was called "liberal education". In the period between 1750 and 1900, the focus or object of knowledge has changed radically, passing from being to doing, or from improving human being, to improving economic activities. In this sense, Drucker raises for the last three centuries an evolutionary process that began with the industrial revolution, which continues the productivity revolution and that ends today with what he called the "management" revolution. The era of the industrial revolution was characterized by the application of knowledge to the tools, products and processes, the time of the productivity revolution by the application of knowledge to the study of work and finally the time of the "management" revolution is characterized by the application of knowledge to knowledge itself. The important role of knowledge in this evolutionary process can be summarized using the words of Drucker which we transcribe below:

"The change in the meaning of knowledge that began 250 years ago has transformed society and economy. Formal knowledge is seen as both the key personal resource and the key economic resource. 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 easily, provided there is knowledge. And knowledge in this new meaning is knowledge as an utility, knowledge as the means to obtain social and economic results."

If we focus on the last stage of the evolutionary process outlined above (stage management), we realize that knowledge is now being applied to knowledge. This is the third and perhaps the ultimate step in the transformation of knowledge. Using again the own words of Peter Drucker (Neff, 1998, pp. 1-12): "Supplying knowledge to find out how existing knowledge can

best be applied to produce results is, in effect, what we mean by management. But knowledge is now also being applied systematically and purposefully to define what new knowledge is needed, whether it is feasible and what has to be done to make knowledge effective. It is being applied, in other words, to Systematic Innovation." From the paragraphs and the comments just quoted it is clear that knowledge is conceived in a utilitarian sense that is closely linked with effectiveness and efficiency and is considered the key economic factor, or almost the only economic factor, not only in the current processes but also in the processes of innovation. Even the "management" discipline is defined as a process of knowledge management.

From another point of view and focusing on key agents of wealth creation in the global knowledge economy, we can say without any doubt that people working in firms are the primary agents of wealth creation. However, firms today are organized as a network (Quinn, 1992) and in its wealth-creating processes they use and rely on other companies, organizations and institutions, some of which are located in the immediate environment (city, region, cluster, etc. – see also the taxonomy of Christopher Alexander on patterns) with which to easily share resources and capabilities, and others located in remote environments with which it is harder to share these resources and capabilities, although the difficulty decreases with the progress of new information and telecommunication technologies. When we say resources, we refer mainly to intangible resources and especially tacit knowledge, which are those that are at the root of sustainable competitive advantages.

So we can say that being the firm and especially the innovative firm, the main wealth creator agent, it needs inevitably in the process of wealth creation the cooperative efforts of other companies (suppliers, customers, etc.) organizations (universities, science parks, technology parks, venture capitalist,

incubators, etc.) and institutions (research centres, etc.) which grouped geographically (city, region, cluster, etc.) constitute its essential complement.

In all these enterprises, organizations and institutions the role of knowledge that creates value remains central in gaining and sustaining competitive advantages. All these considerations lead us to the simultaneous and coordinated management of knowledge and IC in firms, organizations and institutions considered individually or grouped in clusters of cities, regions or nations, with the ultimate aim of achieving economic and social development.

THE KNOWLEDGE ECONOMY: CONCEPT, DEFINITION AND CHARACTERISTICS

The Knowledge Economy (KE) concept appears to have emerged in the early 1980s as a description of a state of affairs where wealth creation is increasingly based on the production, distribution, and consumption of knowledge and knowledge-based products (OECD, 1996). The term "knowledge economy", "knowledge-based economy" or "knowledge-driven economy" has become universal, though many still clam for a clear definition of the term, arguing that it is often used in a superficial and uncritical way. The main argument is that the production, distribution and use of knowledge in an economy is "everything and nothing because all economies are in some way based on knowledge" (Smith, 2002, pp. 6-7).

Indeed, the notion that knowledge plays an important role in the economy is not new. All economies have been based on knowledge about how to farm, to produce or to build and the key to economic success is always linked to the advances in knowledge creation and the ability of a nation to translate knowledge into value to the society. What we see today is essentially more of the same only differing on the accelerating

speed at which knowledge is created, transformed and, in many cases, depreciates in terms of economic relevance and value. David and Foray (2003) describe the move to a KE as a sea change or "soft discontinuity" rather than a sharp break from the past.

But while the study of human knowledge has been a central subject of philosophy and epistemology since the time of the ancient Greeks, it is only recently that it has been recognized as a factor of production. In this sense, what is really "new" is the vision that knowledge is becoming the most important feature of the economy, and what makes it so important today is that it is perhaps the key determinant of our revolution. For the first time in economic history, knowledge is not only an input of products and services found in the market, it is actually embedded into them and this fact defines to a large extent the competitiveness that gives to the respective producer economy its comparative advantage. Consequently, it is not the value of knowledge that has changed but the value that market gives to knowledge.

Part of the problem encountered when searching for a definition of "knowledge economy" is that the commodity it rests on – knowledge – is inherently difficult to pin down. Measuring knowledge is a complex, if not impossible, undertaking and relating knowledge to economic effects is still more complex. (Like "knowledge" as a production factor came to the recognition of decision makers only recently, similar happens with *complexity*, which in 2013 first time became the title of a management conference (Global Peter Drucker Society, 2013).

Leaving aside such general definitional problems, we may say that the most important application of the concept of KE is to economic growth. Knowledge is actually recognized as the driver of productivity and competitiveness and consequently its role in achieving competitive advantage is becoming an increasingly important management issue in all business and non-business

sectors. Based on the Wigg's work, the historic evolution of knowledge importance in the economy is traced in Table 1 providing the reader with a roadmap of today's importance of knowledge management and IC.

Stage of Economy	Economic Focus	Key Management Functions
Agrarian Economy	Creating products for Consumption and exchange	Production
Industrial Revolution	Efficiency	Operations, financial, sales
Product Revolution	Product leadership	Operations, product development, marketing/ financial
Information Revolution	Operational excellence and product leadership	Operations, R&D, information management
Knowledge Revolution	Customer intimacy The notion of customer as co-producer	Knowledge management, innovation
IC Approach	Value creation process based on intangibles	IC management

Table 1. Historic evolution of knowledge importance in the economy (Source: Adapted from Wigg, 1997)

As seen in Table 1, at the transition from the industrial economy to the knowledge economy and more recently to an IC management approach, the growth basis is not as much influenced by investments in physical factors, as by knowledge, which is a key productive factor for application and exploitation of physical capital. The focus thus shifts from individual assets to bundles of assets – in line with the more recent IC approach – where different types of assets combine and cooperate in the creation of value. In an information and knowledge society the great share of these assets are intangibles. Economic history has proven that in any industry success comes to the companies that

have the most creative knowledge or apply it most effectively, and not necessarily those with the most muscle.

Literature emphasizes the positive association between the production of knowledge and economic growth. However, it is worth noting that long-run historical series are unavailable because neither economists nor statisticians have compiled data on knowledge as an input or output of the economy. As Machlup (1980, p. 9) explains: "the production of knowledge is an economic activity, an industry [...]. Economists have analysed agriculture, mining, iron and steel production, the paper industry, transportation, retailing, the production of all sorts of goods and services, but they have neglected to analyse the production of knowledge". This failure in the historical register of knowledge as a factor of production is normally explained by the fact that no practical way exists to isolate the knowledge itself as a phenomenon, and consequently, it is particularly hard to quantify or to allocate a price (OECD, 1996).

In the course of its efforts to define the KE, the OECD introduced two related concepts that gave it more substance. The first concerned "investment in knowledge", and the definition is entirely statistical: "expenditures directed towards activities with the aim of enhancing existing knowledge and/ or acquiring new knowledge or diffusing knowledge" (OECD, 2001, pp. 19-47). According to the OECD, investment in knowledge is the sum of expenditures on Research and Development, higher education and software.

The second concept relates to "knowledge-based industries". Knowledge-based industries are defined as those that have:

5. A high level of investment in innovation;
6. Intensive use of acquired technology, and;
7. A highly-educated workforce.

To measure the KE, OECD suggests five categories of indicators: inputs, stocks and flows, outputs, networks, and learning.

Another point to stress when defining the KE has to do with our ability to codify knowledge in the economy. In order to facilitate economic analysis, distinctions can be made between different kinds of knowledge, including know-what, know-why, know-how and know-who. Whilst some types of knowledge, such as know-what and know-why are more easily commoditized, other types of knowledge, in particular, know-how and know-who, are more tacit and difficult to measure, but often more rare and more valuable. The OECD describes these types of knowledge, as follows:

- *Know-what* refers to knowledge about facts, and it refers to information, in that it can be broken down into bits;
- *Know-why* comprises scientific knowledge of the principles and laws of nature, which underlies technological development and product and process advances. This kind of knowledge often prevails in specialized organizations, such as research laboratories and universities;
- *Know-how* suggests the skills or the capability to do something. This type of knowledge is developed and kept within a company and it is the heart of industrial networks that enable firms to share and combine elements of know-how;
- *Know-who* involves information about who knows what and who knows how to do what. It is internal to the organization and its use is becoming the key aspect in the response to the acceleration in the rate of change.

How these different types of knowledge grow and evolve also require different contexts and channels. While *know-what* and *know-why* can be obtained through reading books, attending lectures and accessing databases, the *know-how* and *know-who* are anchored primarily in social practice, social behaviours and sometimes in specialized educational environments. The

sustainability of knowledge advantage remains in its tacit nature because the difficulty to imitate it, which allows continuing differentiation.

Because the expansion of KE is mainly based on the interactions, building dynamic community of creators, inventors, innovators to exchange information, resources and experience becomes a fundamental issue. As a consequence, a new kind of organization (knowledge-based communities), and production (knowledge systems) is spearheading the phenomenon. David and Foray (2003, p.21) define knowledge-based communities as "networks of individuals striving, first and foremost, to produce and circulate new knowledge and working for different, even rival, organizations".

Knowledge systems represent a network of knowledge and practice (e.g. communities of practice – CoP) that leads to outcomes (e.g. more knowledge, intellectual property, structural change, employment levels, skill levels, and quality of life) through actors (e.g. governments, enterprises, public institutions, universities) that are engaged in activities (such as R&D, innovation, diffusion of practices and technologies), and some kind of linkages (e.g. networks, alliances, partnerships).

In this sense, the shift from producing indicators of outputs and activity, and moving toward indicators of outcomes or indicators of linkages, or flows constitutes a key concern to international organisms involved on understanding the knowledge system, its actors, activities, linkages and its outcomes.

In order to complete this section we will deal with the key features of the Knowledge economy.

The KE comprises key features that we would not expect to find – or at least not in such abundance – in the previous stages of economy.

Andriessen and Tissen (2004) trace some of those distinctive features:

- Knowledge replaces capital as the key resource in production and intangible assets represent a substantial part of the value added of companies;
- Products and services are knowledge intensive;
- Ownership of resources has changed: the proprietary of the fundamental economic resource – knowledge – is the individual as knowledge resides in the head of employees and;
- Production structures have changed and the management of intangible resources is different from tangible and financial resources.

The notion that knowledge has become the primary force of wealth creation and the source of sustainable competitive advantage is driven by a number of inter-related movements of the new economy. The rise in knowledge intensity of economic activities, the increasing globalization of economic affairs, and the Information and Communication Technology (ICT) revolution are recognized as the main drivers of KE. As depicted in Figure 1, these three forces strictly intertwined involve feed-forward as well as feedback movements.

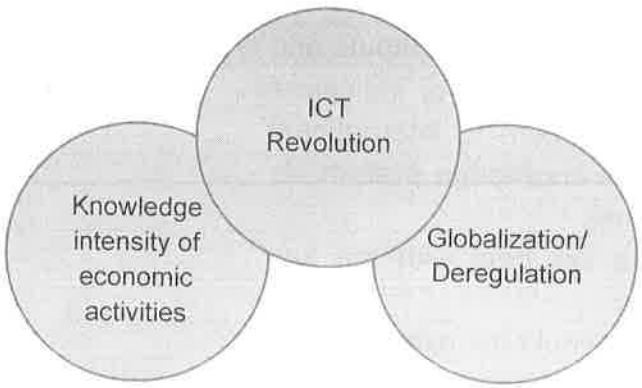

Figure 1. The key features of the knowledge economy

In the sequel, we now describe the main characteristics of the knowledge economy.

A) KNOWLEDGE INTENSITY OF ECONOMIC ACTIVITIES

Knowledge – embodied in individuals, technologies, systems and R&D programmes – has become vitally important to the performance of a nation or an organization. In more practical terms, the increasing knowledge-intensity of economic activities assumes two primary forms. First, the rising educational level of the workforce (*subjective knowledge*); second, the growing scientific and technical knowledge materialized as an integral part of the development of new products and services (*explicit knowledge*).

Literature provides evidence that output, employment, and investment are expanding fastest in high-tech industries and knowledge-intensive service sectors, such as education, communications and information are growing even faster. Equally important are more intangible investments in R&D, the training of Labour force, computer software and technical expertise. It is estimated that more than 50 per cent of GDP in major OECD economies is now knowledge-based (OECD, 1996). Here, productivity and growth are largely determined by the rate of technical progress and the accumulation of knowledge. In this context, learning on the part of individuals and firms is crucial for realizing the productivity potential of new technologies and longer-term economic growth.

A large number of studies show that intellectual assets such as R&D, software and higher education – which measure the investment in knowledge – make a substantial contribution to economic growth, job creation and improved living standards.

Econometric studies suggest that R&D spending is associated with an increase in productivity. Recent research also reveals that there are differences across countries and that foreign R&D has a significant effect in countries with high levels of domestic

business R&D. This is an indication that the size of knowledge *spillovers* depend on a country's ability to adopt technologies the origins of which are abroad.

Another point which can be concluded from international reports is that software has been the most dynamic component of ICT investment in OECD countries in recent years. Investment in software has generally contributed more to Labour productivity than other ICT investments, such as communication and IT equipment.

Finally, the impact of higher education is largely evidenced in statistical documents. Human capital (measured as the improved composition of Labour input) has been referred as a key driver of growth, contributing between 15% and 90% to Labour productivity growth in the G7 countries (OECD, 2006). In developed countries both governments and enterprises are investing more and more heavily in training which seems that on average a more trained Labour force will be better equipped to meet the rapid change in technology, tastes and organizations that is characteristic of modern economies.

B) INFORMATION AND COMMUNICATION TECHNOLOGIES (ICT) REVOLUTION

The ICT revolution and the complex of ICT industries are profoundly interrelated with the move to a KE. Lundvall and Foray (1996, p.4) argue that *"*even if we should not take the ICT revolution as synonymous with the advent of the knowledge-based economy, both phenomena are strongly interrelated [...] the ICT system gives the knowledge-based economy a new and different technological base which radically changes the conditions for the production and distribution of knowledge as well as its coupling to the production system*"*.

There is a growing belief that knowledge can lead to more than economic growth. It can also lead to structural change in the economy and therefore society. New products and services

resulting from technology revolution bring about profound changes in the way we can live, work and socially organize. For instance, this economic transition is characterized by the changing nature of work from low skilled to high skilled.

For most of the countries, the source of increase in investment in knowledge is the software component and the fastest-growing component of ICT investment.

However, the investment in ICT is only one side of the story. In innovative firms total quality management, lean management, flatter hierarchies, decentralized decision making, and better communication channels are interrelated with skills and ICT. There is evidence in the literature that ICT investments are complementary with investment in human resources and skills. What really drives productivity are innovative business concepts and strategies, often underpinned by the use of new IT solutions. Mostly, IT investments per se, do not provide competitive advantage and substantial productivity gains. Instead, it is the intelligent combination of technology processes and new strategies that drives organizational performance.

c) GLOBALIZATION AND DEREGULATION

Another characteristic of the KE is the rapid globalization of economic activities. The pace and extent of the current globalization is without precedent as a consequence of the intertwined effects of both deregulation and developments in information technology, with the computing and communication revolution providing the basic infrastructure necessary for rapid integration of the world economy.

Two key aspects characterize the recent phase of globalization. First, in the recent phase of globalization the foreign direct investment (FDI) and capital flows have grown more rapidly than trade flows, suggesting that the current phase of globalization is about capital movement rather than trade. Second, this process is so rapid and ubiquitous that it is not possible to fully

understand it at the present time nor is it possible to have a clear view of the costs and benefits of such massive globalization (Sheehan, 1999).

A consequence of this globalization movement is that it is changing both the level and nature of competition, contributing to a transformation of the global economy where constant innovation is more and more critical to success. Globalization has accelerated industrial and occupational restructuring, leading to the decline of some industries and jobs, and the growth of others.

It is also recognized that the growing globalization of knowledge makes the long-term trend toward a knowledge-based economy an unceasing movement. It is now a competitive requirement that businesses invest all over the globe to access markets, technology, and talent. FDI data are a clear indicator of the trend toward globalization. It includes corporate activities such as businesses building plants or subsidiaries in foreign countries, and buying controlling stakes or shares in foreign companies.

In this scenario, cost competitiveness is no longer a sufficient condition for success. Innovation and knowledge are becoming central to creating and sustaining competitive advantage and therefore, pressure on enterprises will increase in order to match world best practice and to undertake continuous innovation.

Equally, an important feature of the global KE has been the rapid process of international deregulation over the past decades. The deregulation combined with the advances in communication technologies has strengthened the world competition, and the emergence of a new form of global competition. Consequently, there has been a shift in strategic management thinking toward studying how organizations not only react and adapt to markets, competition and industries, but also anticipate and lead their development. (Prahalad and Hamel, 1994)

WEALTH CREATION IN THE KNOWLEDGE ECONOMY

Wealth creation in the knowledge economy context is closely linked with the concept of competitiveness. There are many definitions of country competitiveness. Among them one of the most cited is the OECD official definition as follows:

"The degree to which a country can, under free and fair market conditions, produce goods and services which meet the test of international markets, while simultaneously maintaining and expanding the real incomes of its people over the long term". (OECD official definition, 2002) (Garelli, 2002)

At the same time relationships among countries' competitiveness, wealth creation and knowledge economy are stressed in the following citations:

- "Nations themselves do not compete, rather, their enterprises do. There is no doubt that competitive enterprises are the main engines of a country's competitiveness";
- "The role of nations in shaping the environment in which enterprises operate influence their competitiveness";
- "Competition among nations can be seen in the areas of education and know-how. In a modern economy, nations do not rely only on products and services, they also compete with brains. The ability of a nation to develop an excellent education system and to improve knowledge in the Labour force through training is vital to competitiveness". (Garelli, 2002)

It is well understood that sound fiscal and monetary policies, a trusted and efficient legal system, a stable set of democratic institutions, and progress on social conditions contribute greatly to a healthy economy.

These factors are necessary for economic development, but far from sufficient. These broader conditions provide the opportunity to create wealth but do not create wealth themselves.

"Wealth is actually created in the microeconomic level of the economy. Wealth can only be created by firms. The capacity for

wealth creation is rooted in the sophistication of the operating practices and strategies of companies, as well as in the quality of the microeconomic business environment in which a nation's companies compete. More than 80 percent of the variation of GDP per capita across countries is accounted for by microeconomic fundamentals. Unless microeconomic capabilities improve, macro-economic, political, legal, and social reforms will not bear full fruit". (Porter, 2005)

And because wealth can only be created by firms, the following citations of Peter Drucker on efficiency and effectiveness will complete the landscape picture given above of wealth creation principles in the knowledge economy at nation or country level.

"Efficiency is the ability to get things done correctly. Managers, who are able to minimize the cost of the resources they use to attain their goals, are acting efficiently.

Effectiveness, on the other hand, is the ability to choose appropriate objectives. An effective manager is one who selects the right things to get done. A manager who selects an inappropriate objective is an ineffective manager. No amount of efficiency can compensate for lack of effectiveness.

The manager's need to make the most of opportunities implies that effectiveness rather than efficiency is essential to business. The pertinent question is not how to do things right, but how to find the right things to do, and to concentrate resources and efforts on them". (Drucker, 1967)

The above citations in the basics of competitive advantage now pave the way for a more systematic description of wealth creation foundations in the knowledge economy as follows:

The advent of the knowledge economy has fundamentally changed the basis of wealth creation in modern social communities and knowledge and other human based intangibles have become the fundamental resources for wealth creation.

The theoretical foundations of wealth creation in the knowledge economy are mainly found at the micro level in the modern strategic management discipline and more specifically in the three well known following perspectives:

- The resource based view;
- The dynamic capabilities based view, and more recently;
- The knowledge based view.

These theoretical foundations at the micro level have to be complemented at the macro level with recent developments on what is called strategic management of intangibles in cities, regions and nations. These recent developments are based on a complex body of principles and theories, such as institutional and evolutionary economics, cultural and social economics, systems theory, systems and innovation, triple (or quadruple to quintuple) helix, regional science and more recently knowledge based development.

Based on the above mentioned theoretical foundations some basic principles on wealth creation in the knowledge economy context can be deducted (Viedma and Cabrita, 2012) as follows:

8. Wealth or poverty of a specific nation is strongly dependant on the number of competitive or excellent companies that this specific nation has.
9. Government does not create wealth per se, but contributes by setting the legal terms either to facilitate or to hinder wealth creation. (This argument has to be mirrored against the article from B. Krabina presented "in line" in this Blueprint report, claiming that public institutions create value in their own right, but their service can't be measured in monetary terms).
10. An excellent or competitive company is the one that achieves long term extraordinary profits due to the fact that it has a business model giving it sustainable competitive advantages.

11. In the knowledge economy sustainable competitive advantages are mainly based on intangibles. Consequently strategic management of intangibles or IC becomes a fundamental task for the company leaders.
12. In order to achieve business excellence, the strategic perspective is the key one.
13. Business excellence is always due to good strategy formulation and superior strategy implementation.
14. Good strategy formulation and superior strategy implementation is always a human task and strongly depends on the quality of the top management team and the key professional people.
15. In a continuous changing environment business models quickly get out-of-date and as a consequence of that, innovation in business models1 becomes an urgent need.
16. In any company the essential activity to perform is always innovation in the business model so it can be converted in an excellent or competitive business model.
17. Companies alone do not create wealth. They need the collaboration of other companies, universities and research institutes, financial institutions, government and other organizations and institutions and especially the existing ones in the cluster(s), region or nation where the company is located. In other words: they need to be active part of a territorial open innovation system and of, what some authors like to call, knowledge based ecologies.
18. When in principle 4 we state that strategic management of intangibles or IC is a fundamental task for gaining and

[1] We consider, in this particular context, that innovation in business models, encompass all types of innovations, including products, services, processes, technical, management, etc.

sustaining competitive advantages, we refer mainly to companies. However, strategic management of intangibles needs also to be applied to the government of clusters/ networks, regions or nations in order to build territorial open innovation systems or, with other words, knowledge based ecologies.

Following the criteria of the above principles this Blueprint booklet in its core concern is about dealing with wealth creation at the macro level in the knowledge economy context and consequently mainly considers knowledge based ecologies that have been mentioned in principle 10. Because of that reason, some more details are elaborated on these ecologies.

As it has been said before in the knowledge economy firms alone are unable to create wealth. They need to be part of a suitable micro cluster, cluster, region or nation where innovation is considered a key competitiveness factor and where knowledge and learning capabilities (i.e. technical and learning skills and capabilities, knowledge infrastructure, networking capacity, values systems and attitudes) are the main ingredients that conduce to innovation systems and innovation processes. That means that governments should play a role, not only in providing macroeconomic stability, adequate incentives, and the technology and financial infrastructure for firms to compete, but also in promoting the types of linkages (across the triple helix of industry, government and universities) and institutions and a collaborative trust-based innovative culture, that are the sine qua non conditions for a sustainable economic development.

THE ROLE OF INTANGIBLES

We observe increasing attention directed to the study of the value of intangibles in the process of value creation in organizations. The ratio of intangible to tangible assets has grown in recent years, suggesting that the earlier style of business management based on tangible assets is undergoing a major transformation (Adams and Oleksak, 2010) and top executives all over the world view intangible resources as being critical for a firm's success. Hope and Hope (1998) discuss the growing importance of the role of intangibles in the process of value creation in organizations. The authors provide evidence that between 50-10% of value created in organizations comes from the management of tangible assets while the remaining 50-90% of value created results from the management of intangibles.

These developments in theory are driving a shift in the basis of business management from tangible towards intangibles or, if we like, IC. Meanwhile, multifarious international initiatives have been carried out to create management tools to assess, report, and develop the IC in organizations.

The first attempt to measure IC, by early 1990s, can be traced back to the initiatives of the Organisation for Economic Cooperation and Development (OECD). It was noticed that intangible investments such as training, R&D, patents and software appeared to increase more rapidly than tangible investments (OECD, 1996), whilst with respect to the measurement difficulties the OECD clearly stated that "a major reason for underinvestment in intangible assets, such as technology and human resources, was their lack of visibility" (OECD, 1998, p. 294). Ever since, the OECD has been

encouraging research in this field and emphasizing on the need to develop a set of indicators of intangibles within firms and a reporting structure that facilitates comparability, which would be of use to managers, stakeholders and policy makers. OECD initiatives were founded on the basis that intangibles were an increasingly important determinant of enterprise growth, productivity gains, profitability, and the creation of wealth.

On occasion of an OECD conference in Berlin in 2000 (Koch 2000), the subject of which was benchmarking relationship between industry and science, the Austrian Research Centers ARC under the management of G. Koch first time published their IC reporting model which they had developed in 1998 and its application in 1999 to a large research organization, thus proving that IC Reporting is an ideal method not only to analyse knowledge organizations, but also to use it for strategic turn around to manage a knowledge company not only by "intuition" of its scientifically competent leaders, but also based on the analysis of its intangibles as the core values of such an organization.

Starting in November 1998, i.e. after the ARC had developed its model and methodology, and running over a 30 month period, a project called MERITUM (Measuring Intangibles to Understand and improve innovation Management, 2002), funded by the TSER (Target Socio-Economic Research) Program of the European Union commenced with the aim to produce a set of guidelines to measure and disclose information on intangibles in order to improve the decision making process of managers and stakeholders. This research project – later followed up by a new project, EKnow-Net – produced an operational conceptualization of intangibles, and contributed to three areas:

- Classification of intangibles;
- Management control of intangible;
- Capital market deficiencies related to intangibles.

At the same time, the European Commission (EC) encouraged the creation of a "learning society", promoting training and education in member countries, and making learning a lifelong endeavour. The European Commission published a White Paper titled *Teaching and Learning – Towards the Learning Society* (1995) proposing a Human Resource Accounting approach that treated training investment in the same way as other capital investment on the balance sheet. There are, however, differing approaches.

A number of other initiatives also took place in the United States. At the end of the 1990s, the Brookings Institution in Washington published a report, *Unseen wealth* (Blair and Wallman, 2001), which confirmed the OECD's and EC's (RICARDIS 2006 – a project in which the authors were involved) argument that intangibles constitute a potential resource for the generation of wealth. Also the Securities and Exchange Commission (SEC) published the report "Strengthening Financial Markets: Do Investors Have the Information They Need?" (SECITF, 2001) and two recommendations were made to improve supplemental disclosures: (a) SEC's initiatives to pull together the efforts on improving reporting and facilitate the creation of a framework for the voluntary supplemental reporting of intellectual assets, operating performance measures and forward-looking information, and (b) government initiatives to create the environment that encourages firms to disclose more information.

In the same line governments initiatives in The Netherlands, Denmark, and Norway have provided incentives for investigation and experimentation with IC. The Danish Agency for Trade and Industry (DATI, 1998) sponsored the preparation of a report on various attempts, at the company level, to prepare "IC accounts", based on the experience of Ten Nordic Companies. Further initiatives were taken by the Danish, Finland and Norway governments. At the same time, empirical research of IC

management and reporting practices was conducted in The Netherlands, Denmark, Sweden, Canada, Spain, Australia and Ireland.

In 2008 a group of five countries became involved in a collective research project, the "IC Statement – Made in Europe" (InCaS-Made in Europe), seeking to implement IC Statements (ICS) in over 1000 European small and medium sized enterprises (SMEs), based on an EU-wide consolidated IC Statement (ICS) methodology. The origin of this methodology was founded in the German "*Wissensbilanz* – Made in Germany" (*Wissensbilanz,* 2004) which again had its foundations in the IC model and template first time invented and applied at the Austrian Research Centers (ARC, today AIT = Austrian Institute of Technology) in 1998-1999 under the leadership of G. Koch and U. Schneider and with the scientific support from K.H. Leitner. The Koch-Schneider-Leitner model first time applied at AIT served as the template for all subsequent IC Reporting methodologies in Europe which were widely applied also in industry as well as in small and medium size enterprises (SMEs). It was also the basis of a legal directive which since 2006 obliges all public universities in Austria to provide an annual IC report to the Ministry of Science which decides on the funding of the respective universities on the basis of such report.

Although many agree that intangibles are the key drivers of companies'/ organizations' success as well as of the competitiveness of countries, there is still a lack of consensus on a precise definition of the term *intangibles* (Marr and Chatzkel, 2004). It is an adjective that applies to different concepts, such as assets, activities and resources. Nevertheless, the wide range of definitions of intangibles that can be found in the literature shows some attributes in common. Intangibles can be considered as the source of probable future economic profits lacking physical substance, which are controlled, or at least influenced, by a firm as a result of previous events and transactions (self-production,

purchase or any other type of acquisition) and may or may not be sold separately from other corporate assets. This classification of intangibles raises important issues in the scope of intangible economy.

International Accounting Standard (IAS) 38 (1998) prescribes that intangible assets should be classified in terms of expending resources or incurring liabilities or the acquisition, development, or enhancement of intangible assets such as: scientific or technical knowledge, design and implementation of new processes or systems, licenses, intellectual property, market knowledge and trademarks. This classification of intangible assets is still very narrow, failing to include assets generated internally such as: employee satisfaction, human resources, customer loyalty, and company reputation. Despite not adhering to the generally accepted accounting practice (GAAP), companies feel that if properly managed, those intangibles have huge potential for creating value, and so they can no longer be ignored.

Although intangible assets cannot be physically "touched", they can be identified and reasonably well classified. One such simple and basic classification is that presented by Sveiby (1997) in his well-known Intangible Assets Monitor (IAM) where intangibles are categorized into external structure, internal structure and individual competence, as depicted in Table 2.

Intangible Assets		
External structure (Relationships: brands, customer and supplier relations, trademarks, reputation, image)	Internal structure (Organization: management, legal structure, manual systems, attitudes, patents R&D, software)	Individual competence (People: skills, education, experience, values, social skills)

Table 2. Classification of intangibles according to Sveiby. (Adapted, 1997)

ASSETS OF EXTERNAL STRUCTURE

This term refers to the company's/ organisation's portfolio of customers and its relationships with suppliers, banks, shareholders, and other stakeholders, its cooperation agreements and alliances (strategic, technological, production, and marketing), its commercial brands, and its image. These assets are owned by the company and some can be legally protected (e.g. commercial brands). There are other frameworks that identify such assets as "relational capital".

ASSETS OF INTERNAL STRUCTURE

This term relates to the company's formal and informal organizational structure, work methods and procedures, software, databases, R&D systems, management systems, and culture. These assets are owned by the company and some can be legally protected (patents, intellectual property, and so on). There are other frameworks that name them as "structural capital".

ASSETS OF INDIVIDUAL COMPETENCE

This term alludes to assets such as the employees' education, experience, know-how, knowledge, skills, and values and attitudes. These assets are not owned by the company, but the use and application of those assets is accessed by the company's hiring of employees. This type of asset is also known as "human capital".

The key questions about intangibles are whether or not they are relevant and why and for what they are relevant. (Marr et al., 2003) Several studies point out that intangibles are crucial sources of competitive advantages that must be identified measured and controlled in order to maximize the individual and organizational knowledge's value.

However, given their often socially complex nature, it is difficult to understand how they are created and why they are valuable. This is due to the fact that the value of intangibles prominently

depends on the owning company's context, i.e. their value can only be calculated based on the use of intangibles in the owning company's context. Intangibles therefore will have highly variable value from context to context (Ortiz, 2009). This represents a central element of the current dilemma of reporting on *the value of intangibles*.

The critical issue, however, is that intangibles are fundamentally different from tangibles:

1. Intangibles may be deployed simultaneously for multiple uses
2. Although unique in many cases, intangibles can be used by multiple people;
3. Intangibles have strong network effects in the sense that intangibles often form the nucleus of important networks;
4. Intangibles are future-oriented because they create future value, and;
5. The value of intangibles is very dependent upon specific use and context.

Given these characteristics, the relationship between intangibles and firm performance is often causally ambiguous (Coff, 1997). As stated by Lev (2001, p.7), "intangibles are frequently embedded in physical assets (e.g. knowledge contained in technology) and in labour (e.g. tacit knowledge), leading to considerable interactions between tangible and intangible assets in the creation of value [...] when such interactions are intense, the valuation of intangibles on a standalone basis become impossible". For example, it is difficult or even impossible to imitate a corporate culture because of its path-dependent nature and its social complexity (e.g. it involves many human interactions and a large set of embedded routines). As Grant (1991) suggests the firm's intangible assets should be one of the central issues in formulating strategy and one of the

most important feature upon which a firm can establish its identity and frame its strategy.

THE DEVELOPMENT OF IC CONCEPT AT THE MICRO LEVEL: DEFINITIONS AND MAIN COMPONENTS

The term "IC" is often treated as synonymous with "intangibles". The literature offers a multitude of different definitions for the term of IC, though there still exists little consensus about what constitutes a good definition of IC (Abeysekera, 2006). A reason for this may be the fact that too much of the nature of IC is still unknown and hard to capture in explicit terms. As suggested by Marr (2005), this invites different people to talk about IC from different perspectives or disciplines, using the same language to describe different things or phenomenon. Differences in national cultures may be another reason for the fuzziness of IC as a construct, since culture alters assumptions about knowledge, its creation and its implementation (Chaminade and Johanson, 2003). While Table 3 summarizes some definitions of IC, we recommend the reading of the *Journal of IC* (2006), Volume 7, Number 1, which offers an important contribution to the field of IC theory, providing a common platform for dialogue and cross-disciplinary learning on definitions and diverse frameworks.

Author(s)	Definitions
Edvinsson and Sullivan (1996)	Knowledge that can be converted into value.
Klein and Prusak (1994)	Intellectual material that has been formalized, captured, and leveraged to produce a higher value asset.
Andriessen (2001)	Unique bundle of intangible assets that are the basis of sustainable competitive advantage.
Lev (2001)	Sources of future benefits (value) that are generated by innovation, unique organizational designs, or
MERITUM (2002)	human resource practices.

Edvinsson et al. (2005)	Embraces all kinds of intangibles, either formally owned or used, or informally deployed and mobilized; it is more than the sum of human, structural and relational resources of the firm, but also how to employ them to create value (connectivity capital).
Marr and Moustaghfir (2005, p.1116)	All factors critical to an organization's future success that are not shown in the traditional balance sheet, i.e. future earnings capabilities. Embraces any valuable intangible resource gained through experience and learning that can be used in the production of further wealth.

Table 3. Defining IC – a selection from a wide range

Although still requiring a universal definition, it is noticed that in most cases definitions have some common elements, namely:

- IC is of intangible nature;
- It refers to knowledge that creates value;
- It is the effect of collective practice, and;
- Its benefits are not necessarily immediately identifiable, but rather are accrued over a long period of time.

Because *IC is knowledge that creates value*, all irrelevant intangibles that have no function over the firm's future potential are suggested to be excluded. Since intellectual assets are often internally generated, interrelated and interdependent, their *value is context-specific*. Prominent amongst those assumptions is that the value companies place on their IC largely depends on the company's view of itself. It gives sense to the importance of management epistemological assumptions.

Göran Roos et al. (1997) define the theoretical roots of IC and refer to two different perspectives: (1) the strategic perspective and (2) the measurement perspective.

- The strategic perspective focuses on the creation, dissemination and use of knowledge to enhance firm value, while

- The measurement perspective focuses on the need to develop a new information system, measuring and reporting intangibles.

For Marr and Moustaghfir (2005), IC means the formulation of a strategy and its role is to address and to identify the value drivers in firms. On the other hand, if we follow IC from a measurement perspective, our concern is the external validation and the aim is to provide useful information for making decisions on economic and financial position of a firm or an organisation.

Another important point to stress is the variety of practical approaches that IC tends to be divided into. From Sullivan's (2000) perspective IC may be seen as creating value or about extracting value. Companies focusing on value creation usually concentrate their efforts on how knowledge is created and its transformation into organizational wealth. Those who focus on value extraction (in economic terms "profits") aim to create intellectual assets and intellectual property from intangible assets. For example, in the early 1990s the Dow Chemical Company focused on value extraction based on a corporate goal of creating intellectual assets and intellectual property from its intangible assets which at that time consisted of a portfolio of over 29,000 patents. In 1993 the company introduced the Intellectual Assets Management (IAM) process to classify value and extract wealth from its Intellectual Assets Portfolio (IAP). On reviewing the patent portfolio, the company verified that from its 29,000 patents only 200 (less than one percent) were considered to be fundamental to Dow's businesses. With a more focused IAP, licensing revenues have increased substantially and savings in tax maintenance costs became significant. More important, Dow Chemical is now able to provide an accurate valuation of its patents.

Beyond the lack of consensus concerning IC definitions, the literature reports a number of other terms used interchangeably with IC, such as *intangible assets, IC assets, intellectual assets* and *knowledge assets*. However, according to Lev (2001), the

terms *knowledge assets, intangible assets*, and *IC*, which are widely used refer to the same thing: *a non-physical claim to future benefits.*

The debate around the IC concept also includes its categorization and its dimensions. The increasing awareness by managers of IC as a key driver to sustainable competitive advantage, together with the limitations of the existing financial reporting system for capital markets and other stakeholders, have motivated a spirited dialogue on finding new ways to measure and report on a company's IC. As a result, a plethora of new measurement approaches for synthesizing financial and non-financial measures have emerged. In this Blueprint we do not aim to propose the best known IC taxonomy, for the simple reason that convergence in categorization and language towards a single model can be recognized.

IC traditionally has been defined in tripartite dimensions (Bontis, 1998; Sveiby, 1997; Koch, 2000) covering:

1. The human aspects (human capital, competencies);
2. Organizational structures (structural capital, internal structure)
3. External environment (client capital, structural capital, external structure), as depicted in Table 4.

Rothberg and Erickson (2002) expand the concept of IC, adding a fourth pillar:

4. The competitive capital generated through activities in competitive intelligence systems.

IC		
Human Capital	Structural capital	Relational capital
Attributes of people such as intellect, skills, creativity, experience, commitment, values and beliefs	*Firm-owned items such as processes, system, IP, databases, values, culture, etc.*	*External relations with customers, suppliers, partners, government entities, networks, regulators, etc.*

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Table 4. IC components – a "classical" division

HUMAN CAPITAL

Human capital is the brain and soul of an organization, the foundation of IC. It is a primary element to perform IC functions because "human interaction is the critical source of intangible value in the intellectual age" (O'Donnell et al., 2003:82). It refers to such factors as employee's knowledge, skill, capability, and attitudes in relation to fostering performances which customers are willing to pay for and that the company's profit comes from.

A macroeconomic perspective recognizes human capital as the driver of national economic activity, competitiveness and prosperity (OECD, 1996). At the individual level, human capital is defined as a combination of four elements: *(i)* genetic inheritances; *(ii)* education; *(iii)* experience, and *(iv)* attitudes about life and business (Hudson, 1993). The organizational perspective refers to human capital as "the source of innovation and strategic renewal" (Bontis, 1998). Gupta and Roos (2001) added that "core IC" comprising competence, intellectual agility and attitude are the potential of synergies for the value creation.

STRUCTURAL CAPITAL

Structural capital is what remains in the company when employees go home at night. It comprises internal processes, infrastructures, information systems, routines, organizational structure, databases, culture and all that enable organizations to make their human capital more productive. Roos et al. (1997) classify IC into human and structural capital, "thinking" and "non-thinking" assets. Organizations are not rendered intelligent simply because they have some intelligent people.

Structural capital is the skeleton and the glue of an organization because it provides the tools (management philosophy, processes, culture) for retaining, packaging and moving knowledge. Organizations have to create systems and

procedures that convert human IC into organizational IC allowing it to be used repeatedly. The role of organizations is to provide the necessary structure for individuals to collaborate in a way that leverages their talent and existing market opportunities in order to create economic value. The focus is on getting a higher leverage of the human capital through structural capital, producing a "multiplier effect" (Edvinsson et al., 2005).

RELATIONAL CAPITAL

Relational capital is the knowledge embedded in the relationships with any stakeholder that influences the organization's life. Relationships with stakeholders are the necessary conditions to build, maintain and renew resources, structures and processes over time, because through external relationships firms can access critical and complementary resources. Customers become a new source of competence for the organization, because they renew the overall competence of the organization and rejuvenate the knowledge base, preventing it from becoming obsolete in a turbulent environment (Prahalad and Ramaswamy, 2000; Gibbert et al., 2001).

The IC literature has concerned itself with the nexus between the three IC categories. Some calls have been made for a better understanding of the tangible and intangible assets of the firm as a highly interdependent bundle of resources. One of the most interesting images to explain how these three components of IC combine to create value is given by Edvinsson and Malone (1997) when describing the tree metaphor. The authors explain:

If we imagine a firm as a living organism; for example a tree, one can say that organizational plans, annual and quarterly reports, firm brochures, and other documents are the trunk, branches and leaves. The wise investor will examine the tree whether he can harvest ripe fruit. But to assume that we have now seen the whole tree because we have seen the visible is a

grave mistake. At least half the tree is below surface in the roots. And while the taste of the fruits and the colour of the leaves make a good presentation of the tree, it is much more effective to look at what goes on the roots if one wants to form an opinion about the health of the tree for the coming years. There may be rot below the surface, which as time goes may kill the tree that looks healthy presently. This is what makes IC – investigation of roots of a firm's value, measurement of the dynamic factor, which are found below the visible surface of a firm's buildings and products – so important.

Although this metaphor does not yield a useful model, or even a description, of how value is created from the interaction between the knowledge of individuals and the internal structure and processes within an organization, it nevertheless illustrates that intervention is necessary in order to make future earnings maximally efficient. The fruits represent financial results and, as evidenced by the story, it is in roots where the most crucial activities may take place for future fruition.

MANAGING INTANGIBLES OR IC AT THE MACRO LEVEL

Management of intangibles or IC at the macro level has experienced a continuous development since the advent of the knowledge economy. This development has been fostered by using methodologies and frameworks which were inspired by the IC frameworks designed for the micro level.

Complementary there exist other methodologies and frameworks designed by different macro level institutions such as IMD, the World Economic Forum (WEF), World Bank and OECD, that tackle the issue of IC analysis and management at the macro level in different and specific ways. In this section we would like to highlight from an OECD synthesis report with the title: "New sources of Growth: Knowledge-Based Capital. Key analyses and

policy conclusions" (OECD 2013). Quote from the executive summary:

"Knowledge-based capital (KBC) comprises a range of assets. These assets create future benefits for firms but, unlike machines, equipment, vehicles and structures, they are not physical. This non-tangible form of capital is, increasingly, the largest form of business investment and a key contributor to growth in advanced economies. One widely accepted classification groups KBC into three types:

1. Computerised information (software and databases);
2. Innovative property (patents, copyrights, designs, trademarks);
3. Economic competencies (including brand equity, firm-specific human capital, networks of people and institutions, and organisational know-how that increases enterprise efficiency).

Type of KBC asset	Mechanisms of output growth for the investor in the asset
Computerised information	
Software	Improved process efficiency, ability to spread process innovation more quickly, and improved vertical and horizontal integration.
Databases	Better understanding of consumer needs and increased ability to tailor products and services to meet them. Optimised vertical and horizontal integration.
Innovative property	
Research and Development	New products, services and processes, and quality improvements to existing ones. New technologies.
Mineral explorations	Information to locate and access new resource inputs - possibly at lower cost - for future exploitation.
Copyright and creative assets	Artistic originals, designs and other creative assets for future licensing, reproduction or performance. Diffusion of inventions and innovative methods.
New product	More accessible capital markets. Reduced

development in financial services	information asymmetry and monitoring costs.
Economic competencies	
Brand-building advertisement	Improved consumer trust, enabling innovation, price premia, increased market share and communication of quality.
Market research	Better understanding of specific consumer needs and ability to tailor products and services.
Worker training	Improved production capability and skill levels.
Management consulting	Externally acquired improvement in decision making and business processes.
Own organisational investment	Internal improvement in decision making and business processes.

Table 5. Different forms of knowledge capital and how they affect output growth.

(Source: *left column*, C.A Corrado, C.R. Hulten and D. Sichel (2005), Measuring Capital and Technology: An Expanded Framework. in C. Corrado, J. Haltiwanger and D. Sichel (eds), Measuring Capital in a New Economy, National Bureau of Economic Research and University of Chicago Press).

IDENTIFYING METHODOLOGIES AND FRAMEWORKS FOR MANAGING INTANGIBLES AND IC AT MACRO LEVEL

Trying to identify methodologies and frameworks for an in-depth diagnosis of the foundations of a nation's knowledge driven competitiveness, we easily can realize that World Competitiveness Report from World Economic Forum (WEF) and World Competitiveness Yearbook from International Institute for Management Development (IMD) currently are the two most relevant reports considering their historic toll and scientific foundations. The analysis of alternative methodologies and frameworks other than these two has not been undertaken in this Blueprint. In detail argumentation on the eligibility of these two approaches can be found in the RICBS publication (Viedma and Martins 2006). These are the two main criteria for selecting the two references: (1) the scientific foundation, and (2) the

systematic way the information on competitiveness of developed economies is being collected over a long period.

In the following section we will profile the main competitiveness methodologies and frameworks, while in the subsequent two sections we will describe IC community frameworks or, in other words, the IC community contributions to enable an in-depth diagnosis of a nation´s knowledge driven competitiveness foundations, and respectively we will introduce NICBS as the methodology that synthesizes and embodies the micro and macro principles of wealth creation as described earlier.

COMPETITIVENESS FRAMEWORKS

We stated previously that we will follow the arguably two most relevant frameworks: (1) the World Competitiveness Report from World Economic Forum (WEF) (Schwab et al., 2011) and (2) the World Competitiveness Yearbook from the International Institute for Management Development, Lausanne (IMD 2010).

Of course, there exist other frameworks/ methodologies not fully covering the aspects of Knowledge-Based Economy, such as the European Innovation Scoreboard (EIS2011) as well as "Knowledge for Development" K4D (K4D2011) of the World Bank.

Figure 2 and Figure 3 illustrate the main factors and components of the selected two frameworks:

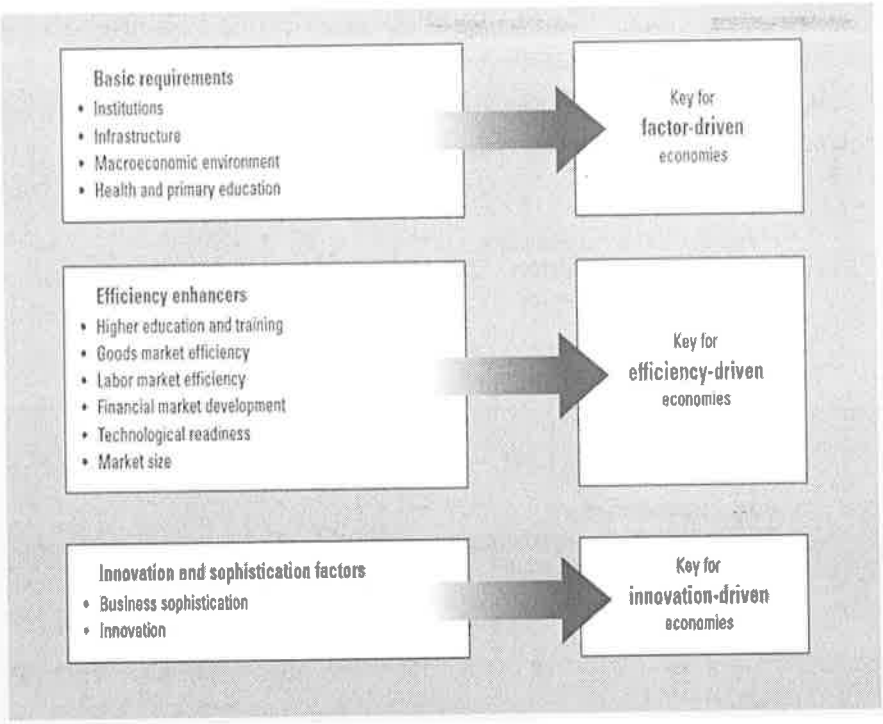

Figure 2. The 12 factors of competitiveness as identified by the World Economic Forum (W.E.F.) Source: The Global Competitiveness Report 2012–2013.

(http://www3.weforum.org/docs/WEF_GlobalCompetitivenessReport_2012-13.pdf)

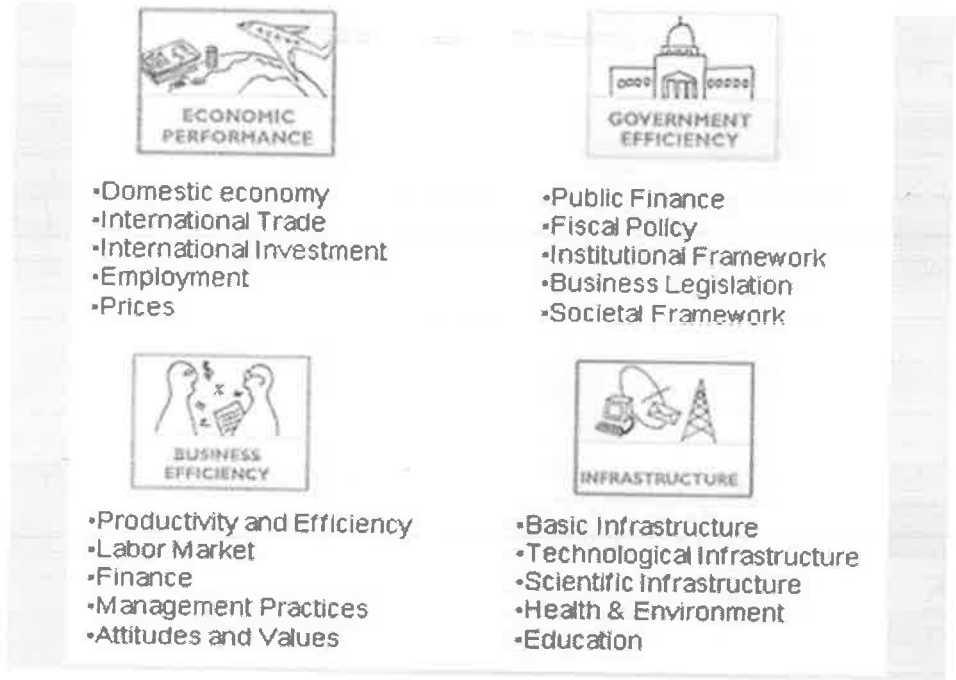

Figure 3. The I.M.D. World Competitiveness Yearbook. (2013)
(http://www.imd.org/news/WorldCompetitiveness2013.cfm)

IC COMMUNITY FRAMEWORKS

Considering that the mode of wealth creation has shifted from mass-production economy to economy of knowledge, where the key drivers of growth are intangibles (Romer, 1986; Drucker, 1993), national level IC has recently emerged as a new topic of research, the focus of which is to understand intangible drivers for national wealth creation.

The efforts of the IC community to identify an optimal solution have crystallized in a set of IC models at nation level.

A most systematic analysis of IC community models are presented in an up-to-date book on National IC (Yeh-Yun and Edvinsson, 2011). In this work, National IC Models proposed by individual researchers are listed up and compared. An excerpt of this list with some key features is given in Table 6.

Initiatives	General Basic Model	Structure	Indicators
Sweden (Rembe, 1999)	Navigator Skandia	- Human Capital - Market Capital - Process Capital - Renewal Capital	Financial indicators Descriptive indicators
State of Israel (Edna Pasher and Associated, 1999)	Navigator Skandia	- Human Capital - Market Capital - Process Capital - Renewal and Development Capital	Financial indicators
Arab Region (Bontis, 2002)	Navigator Skandia	- Financial wealth - Human Capital - Market Capital - Process Capital - Renewal Capital	Descriptive indicators. Intangibles indicators. Financial indicators.
Malasya (Bontis, 2002)	Navigator Skandia	- Financial wealth - Human Capital - Market Capital - Process Capital - Renewal Capital	Descriptive indicators. Intangibles indicators. Financial indicators.
Sweden (SPRING PROJECT 2002)	Navigator Skandia	- Business Recipe - Human Capital - Structural Capital - Relational Capital	Innovation indicators. Competence indicators. Industrial indicators. Company-Universities indicators.
Madrid, Spain	Navigator Skandia	- Human Capital -Organizational capital -Technological capital	Descriptive indicators. Intangibles indicators Innovation indicators

Finland (Stähle and Pöyhönene 2005)	Navigator Skandia	-Relay capital -Social capital -Human focus -Market focus -Process capital -Renewal and development focus	Industrial indicators National indicators Financial indicators

Table 6. IC Community contributions from C. Yeh-Yun Lin and L. Edvinson, 2011.

In addition, Yen-Yun Lin and Edvinsson recently proposed a new "National IC (NIC) Measurement Model" that also includes a carefully selected and validated indicators. (Yen-Yun Lin and Edvinsson, 2008)

Finally, we would like to stress that research work on community IC continues. The current discussion can be summarized as follows: National level IC only recently has emerged as a new topic of research, where the focus is on understanding intangible drivers of national wealth creation. Given that reporting and valuation systems for national competitiveness already exist, the question is why we need a specific IC perspective in addition? (Stahle and Poyhonen, 2005)

In a most recent thesis (Berdenich, 2013) it was confirmed that time has come that the IC perspective should re-focus to return to its original roots, and to concentrate on knowledge-creation and innovation, as was already claimed by Stahle and Poyhonen in 2005. (Stahle and Poyhonen 2005)

RICBS AND NICBS FRAMEWORKS

In this section we present the essentials of the NICBS methodology and framework. NICBS is a methodology that synthesizes and embodies the micro and macro principles of wealth creation formulated and as described in section 1.1.3.

Some excerpts of the main features of NICBS are given as follows (Viedma and Martins, 2006):

NICBS was primarily conceived as a *learning strategy tool* to help nations, and the microclusters within them, make the transition (from S_n to S_{n+1} in Figure 4) to more competitive knowledge economies by:

1. Enabling an in-depth diagnosis of the nation's actual knowledge-driven competitiveness foundations. *What are the resources, competencies, traditions, patterns of behaviour, etc. that act as path-dependencies in the nation's way to growth?*
2. Aiding in the definition of the possible vision, objectives and lines of action to embrace sustainable economic growth. *What is the model of excellence that we want for the nation? What competencies, values and attitudes should we promote to enable innovation and sustainable growth?*
3. Developing awareness of a nation's potential risks and opportunities. *How does the nation cope with change?*

The first two points are basically attained through disclosure of:

1. Skills and competencies;
2. Social and legal frameworks;
3. Technology upgrade and use;
4. Market access and openness;
5. The quality of primary education, universities and research centres;
6. Industry-based collaboration, etc. for both the nation as a whole and each of the core microclusters.

The third point, to which we assign the greatest importance, is the result of a dynamic and systematic assessment of the nation's innovative capacity, in the face of first-class competitors, and a process of cross-fertilised analysis. Moreover, carrying out a rigorous diagnosis (point 1) is an essential step before embarking on the definition of the vision and the objectives (point 2).

Figure 4 depicts the NICBS's main constituents and linkages. The general structure of the NICBS is grounded in regional innovation systems theory (Andersson and Karlsson, 2002; Carlsson et al., 2002; Enright and Roberts, 2001; Cooke and Schienstock, 2000; Cooke et al., 1997) and more specifically on the Furman et al. (2002) model for assessing a nation's innovative capacity and Viedma's (2003) Cities' IC Benchmarking System (CICBS), chiefly in relation to the nation's microclusters' capacity for competitiveness. It is made up of two sub-models and the linkages between them, as well as a set of indicators and extensive questionnaires to operationalize them.

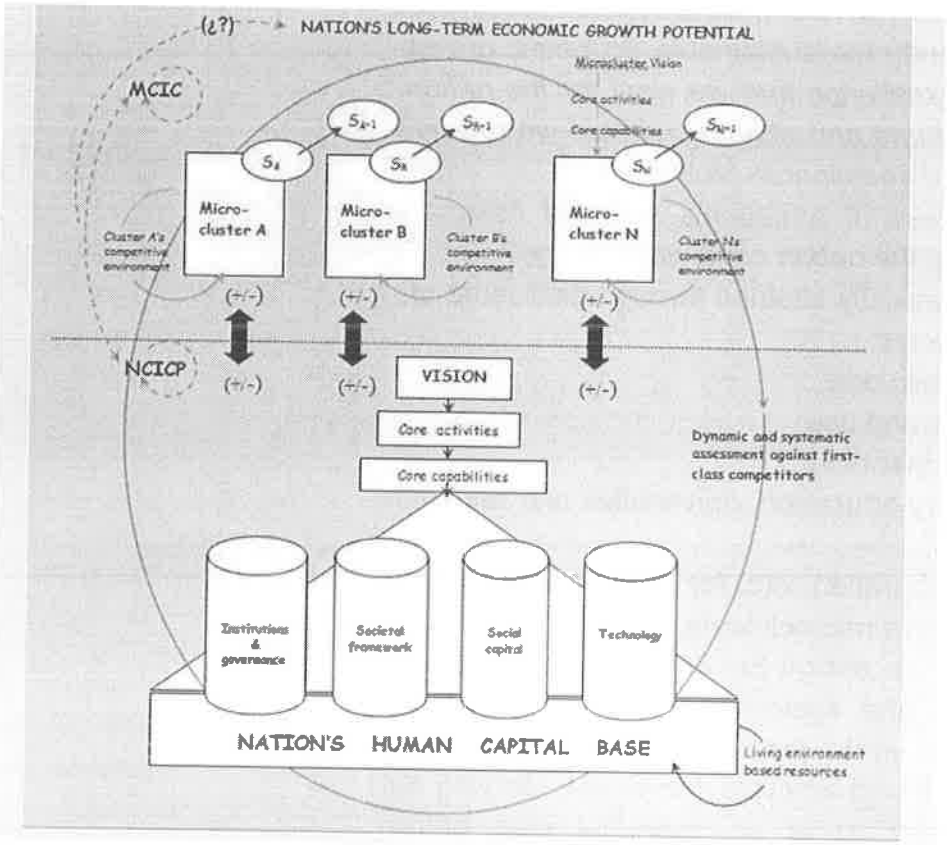

Figure 4. NICBS's main components and linkages.

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(Source: Viedma, J.M. and Martins, B. (2006)"The region's IC benchmarking system: enabling economic growth through evaluation".Journal of Knowledge Management, Vol.10 Issue 5, pp. 41– 54)

The nation's competitiveness IC platform (hereinafter NCICP) represents the bundle of core resources and competencies (capabilities, when tied to the vision and objectives) that are bound together by core activities. In conjunction with the norms, guides and principles set by public and private institutions (*institutions and regional governance* building block); the technological skills and capabilities (*technology* block); the environmental quality of life, as determined by public services, cost of living, and other territorial endowments (*living-environment-based resources* block); and an educated, skilled and values-nurtured human broad base with the aim of creating, sharing and using knowledge (*human capital* and *social capital* blocks), these core resources and competencies condition economic actors' patterns of behaviour, shape the nation's culture, and determine the extent to which the nation as a whole is capable of supporting and fostering an innovative and competitive productive system as displayed by the microclusters. In essence, the NCICP represents the intricacies of resources and relationships that, assuming macroeconomic stability (*economy performance* block), can either boost or hinder microclusters' wealth creation capacity.

However, to gain a comprehensive view of the nation's capacity to grow, we must consider the microclusters' ecology of value chains and supportive business environment—as that is where an economy's real possibilities for growth reside—and also the quality and density of information and knowledge exchanges between the two subsystems, which is what the nation's microclusters' competitiveness IC frame (MCICF) aims for: to unveil the microeconomic environment and capacity for innovation at each of the nation's core microclusters. The MCICF builds mainly on Porter's (1990, 1998) cluster-based theory of

competition and Viedma's (2003) methodology for assessing microclusters' core competencies. Finally, the *linkages* between the national competitiveness platform and the microclusters account for the strength of the system as a whole. It is the density, quality and dynamism of these exchanges that grants the system the mechanisms for self-renewal and the ability to generate knowledge-driven ideas that enable long-term economic growth (see thick black arrows in Figure 4).

THE VENUE OF "KNOWLEDGE POLITICS"

"Knowledge Politics" is a term having been created first time in the 80s by a German sociologist called Nico Stehr (Stehr, 2003). His motivation was to identify a new field for politics which is about to become more and more competent in the face of undamped developments of science and technology in domains such as neurogenetics, embryonic stem cell manipulation, nanomaterials in medicine, brain research etc. His point was that these developments need a discourse beyond scientific communities only. His claim was that knowledge politics shall be a shaping of a domain in politics which is due:

- To aim at supporting the development of competence of citizens and their communities to manage their lives in a sustainable way towards a self-defined and successful design;
- To set measures which serve such aim above all other individual interests;
- To commit and employ people to take responsibility in implementing the agreed aims of knowledge politics.

In formal terms knowledge politics may by divided in a *primary* and a *secondary* dimension. *Primary* is to answer questions like:

- Which are the relevant questions when decisions are taken in principal on production and transfer of knowledge?

- When, who, where, why and how will be decided what is becoming subject of research and will be introduced in the discourse?
- What and how is considered to be a proven result of research, what can be taken as a safe insight, which can be published, disseminated and being used in political decision making.

Secondary is what is also called "science politics", i.e. the institutional level of "making science".

Whereas "knowledge policy" defines a program of development and use of knowledge, knowledge politics opens the discursive and hopefully innovative space for taking democratic decisions towards designing the future. We may think of many guiding questions such as:

- How can the competence of citizens be increased in pursuing a happy and self-defined life?
- Which is the legal framework a knowledge (and information) society needs? E.g. data and privacy protection, intellectual property, copyright, etc.
- How do competition and openness fit together?
- How can enterprises, bodies and communities identify their "knowledge capital" (IC reporting)?
- How can knowledge be used in international development policies?
- Which is the geopolitical claim made by nations w.r.t. knowledge?
- How can new models of work be designed and made attractive for the so called "knowledge workers"2 Who represents the interests of the mass of the resuming self-employed one-person companies?

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[2] Peter Drucker was the visionary who predicted the age of "knowledge workers".

- How can the so called "Knowledge Divide" between those who are educated and those who lack education be narrowed?

In a broader view "knowledge politics" is a natural consequence of an evolution which started from the idea that "knowledge workers" dealing with intangible subjects such as design, software, scientific insights etc. in larger settings involving many knowledge workers using IT technologies as tools would need what then was called knowledge management and, in its economics dimension knowledge economics, or, at macro level knowledge economy. As a simplistic definition, IT scientists conceived knowledge as the next abstract level above data and information, combining and interpreting information as made available by IT systems (Figure 5).

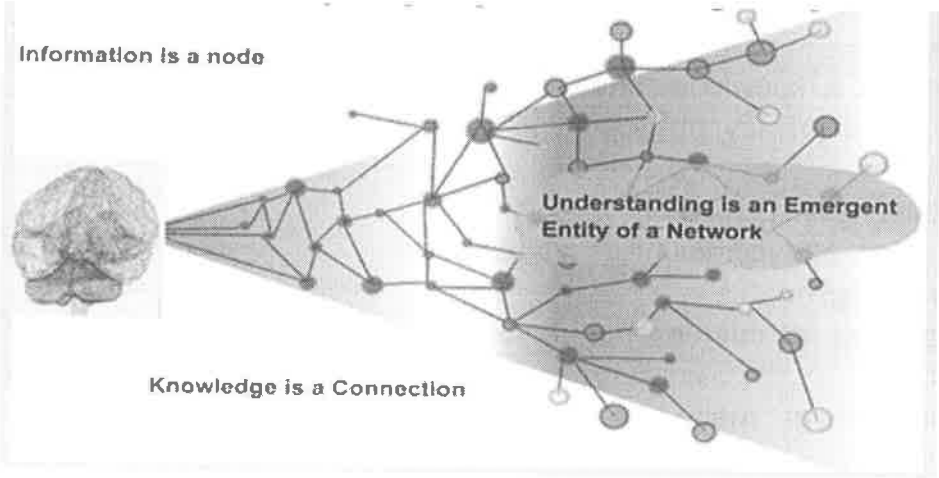

Figure 5. IT broad definition of "knowledge"

The still fuzzy notion of the knowledge society is an emergent consequence of the fact, that knowledge management and economics on an enterprise level and knowledge economy on a macro level proved to be established as well founded disciplines, and the "knowledge society" after a Wikipedia definition also became an established notion: "Knowledge societies have the characteristic that knowledge forms major component of any

activity, particularly economic activities. Economic, social, cultural, and all other human activities become dependent on a huge volume of knowledge and information. A knowledge society/ economy is one in which knowledge becomes major product and raw material."

If we assume that we are living in a knowledge society, the consequence is that we also can expect that knowledge politics is the dimension in which the means for designing and developing such society we are living in are provided.

Although supranational organizations as are in specific United Nations, European Commission, World Bank and OECD, all invested into studies and proclamations on the venue of knowledge society and knowledge economy, and, naturally associated with it knowledge politics and knowledge policies, little has been taken up by national or regional governments. One of the authors of this Blueprint analysed such difficulty and came to the conclusion that "the whole orchestra" has to be put in action in order to raise initial interest (Koch, 2010/2 and Pawlowsky, 2010).

THE PUBLIC VALUE REPORT – BRIDGING THE GAP BETWEEN IC REPORTING AND PUBLIC VALUE [ARTICLE]

IC Reports have been used in various public sector agencies across the world. However, IC reporting has not yet become a mainstream tool in public management. It is rather an additional exercise to be carried out by innovative public agencies. This paper tries to highlight some key features of the method of IC reporting that are useful for and compatible to different aspects of modern public management. It also suggests a "Public Value Report" that can serve as an instrument for communicating public service delivery and public value creation, leading to a more transparent and accountable public sector.

Though we have recently seen the development of extensive literature on non-financial performance reporting within the public sector, insufficient attention has been paid to the possibilities associated with the adaptation of IC reporting frameworks for use within the public sector. Extended performance can be better illustrated via the reporting of IC information, and this is as important in public sector applications, as in other sectors of the economy.[3]

Although its origins come from the private sector, many authors show that IC reporting can be seen to fit even better in a public sector environment: The nature of its services make the public sector more suitable for IC management.[4] IC can provide a conceptual framework for managing non-profit organizations, as their main inputs and outputs are intangible in nature.[5] Preliminary research initiatives indicate that the role of IC in non-profit sector is more critical in the case of private sector.[6]

Performance of Public Institutions

It has been widely observed that many new strategic intangible resources that are increasingly important in the rise of knowledge-based economy are not accounted for in traditional financial statements. Furthermore, the movement towards sustainable development has underlined and given rise to the re-emergence of the criticism that has long been put forward: that the traditional financial reporting framework only gives an incomplete account of an organisation's activities; that economic activity is producing an increasing number of environmental and

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[3] Guthrie, et al.: Public Sector Performance Reporting, 2004.

[4] Abeysekera, et al.: Researching for intellectual capital management, 2010.

[5] Bronzetti, et al.,: Intellectual Capital, 2011.

[6] Cohen/Vlismas: Relations, 2011.

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social problems; and that these consequences are not reported under the traditional financial reporting framework.[7]

Attempts to improve the financial reporting frameworks have been deficient – that is, inadequate attention has been paid to other elements which could add substantial value to public sector accounts if fused into the reporting framework.[8]

In Austria the discussion about the improvement of the financial reporting framework has mainly been around the question of switching to the double bookkeeping standard (as has been decided on federal level) or improving the existing system to a multi-dimensional accounting framework (on the local level). The activities are focused on establishing an outcome oriented performance management, but they have not taken into consideration the question on if and how to report on intangible assets.

The Public Value Report – A Strategic Public Management Tool

Aside from the shortcomings of financial reporting frameworks to deliver a comprehensive view on public sector organizations, IC reporting has the potential to evolve to an important management tool: We are interested in the intangibles from a management point of view, that is, how intangibles should be managed in order to create economic value; it is not an accounting or financial problem, but rather a management one.[9]

Rather than being an entity to carry out orders and strategies developed elsewhere, the public institution has to be an entity with its own strategy, where meaning and order are created in interaction with the actors outside the organisation.[10]

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[7] Guthrie, et al.: Public Sector Performance Reporting, 2004.
[8] Guthrie, et al.: Public Sector Performance Reporting, 2004.
[9] Bronzetti, et al.: Intellectual Capital, 2011.
[10] Bukh and Kjaergaard: Intellectual Capital Statements, 2008.

Managing and reporting the strategy, the performance, and the outcome of a public institution can be done by using the idea of IC reporting and adopting it to the specifics of public sector institutions. We follow the original Austrian IC reporting model developed by Koch/Schneider or the Austrian Research Centre ARC in 1999[11] and modify it to a "Public Value Report".

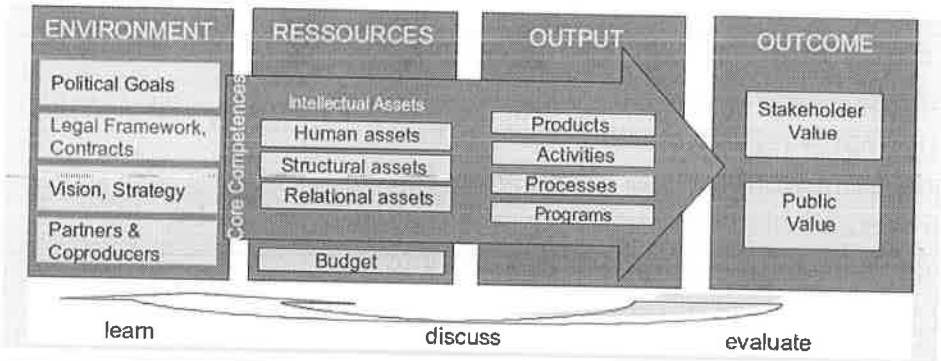

Figure 6. The Public Value Report

The structure of the IC model is different to most of the classical IC models since it follows a process logic or input-output logic and should thus be related as „process-oriented model".[12] This enables the IC model not only to be used as a reporting tool for intangible assets, but also as a strategic management tool. The main rationale behind developing the Austrian model was justification of allocation of resources in a research organization funded by the Ministry of Science. Koch and Schneider took the process-oriented aspects ideas of EFQM and the additional focus of IC reporting and put these together in a very successful model. The principles are still used in public sector context by all Austrian Universities, many Universities of Applied Science, the

[11] Koch, et al.: Measuring and reporting intangible assets, 2000.
[12] Leitner: Intellectual Capital Reporting, 2002.

Austrian National Bank, the Federal Audit Court, the National Library and – just recently – the Department for Regional Planning and Development of the Vienna City Administration (MA 18) and it served as a blueprint for the model applied in Germany[13]. The initial idea of providing a comprehensive report going beyond the financial aspect was overlapped by the innovative approach of adding indicators on the intellectual assets. But even the original model can be seen not just as an IC reporting framework, but as a more holistic view on inputs, outputs and outcomes of a public sector organisation.

The first pillar in the suggested Public Value Report is the environment of the public sector organization. There are political goals set out in a governmental declaration, there is a legal framework where the organization is set up and its competences are regulated. There might be contracts agreed on between politicians, the leaders of the organizations and the departments. The vision and strategy of the organizations serve as internal guidelines. Partners and co-producers play an important role in the value creation process, as not everything is done/ can be done inside the organization.

The second pillar shows the resources (the input factors). Most IC frameworks divide assets into three categories – external/ customer capital, internal/ infrastructure capital and human capital – although branches or sub-categories of the three common IC categories may differ slightly between the frameworks.[14] We follow the suggestion of the Austrian Federal Audit Board[15] and use the term "assets" rather than "capital".

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[13] See http://www.akwissensbilanz.org/

[14] Guthrie, et al.: Public Sector Performance Reporting, 2004.

[15] See http://www.rechnungshof.gv.at/berichte/leistungsberichte.html where the Austrian Federal Audit Board publishes their performance reports including IC reports.

To provide a holistic view on the resources, the budget is re-integrated to the IC report. The classical IC frameworks usually don't care about the financial data, because they were set up to overcome the shortcomings of only reporting the financial situation, but for a comprehensive view it is important to include an overview of the organization's budget. This is especially important when reporting for a sub-division of an organization. Often in the financial accounting reports, the budget of a division of an organization is not visible. In the discursive process of setting up an IC report, the cornerstone of the reporting is the discussion on the organization's core competences that are supported with the intellectual assets and lead to the output of the organization's activities resulting in an outcome.

The third pillar shows the output of the organization's activities. An important task in public management is the definition and management of products or services an organization delivers. The output can also include activities, processes and programs of the organization.

The fourth pillar finally reports on the outcome. Following the public value model, we can divide in stakeholder value (value generated for organization's stakeholders) and the broader public value that is generated as a result of the organizational activities (and other, external factors).

A crucial activity in designing performance management systems is the development of performance measures, which include measures for outputs and outcomes, sometimes also for inputs and processes. This leads to the necessity to define the outputs as well as the products. In contrast to performance management systems and evaluation, IC reports focus explicitly on the IC and hence enlarge the existing input and output categories of performance management systems.[16]

[16] Leitner: Intellectual Capital Reporting, 2002.

By these modifications to the original IC reporting framework it becomes obvious, that the Public Value Report can serve as a comprehensive performance management and reporting framework including important aspects of public management like outcome orientation, product management and public value.

PUBLIC VALUE

The rise of "public value" may be attributed to a need for correcting and advancing New Public Management (NPM) concepts that commonly display a stricter focus on economic models and management techniques borrowed from the private sector. Despite appearing to be much more elusive than existing ideas of reforms in the public sector such as performance contracting, budgeting, a move from input to output/outcome orientation or performance-related payment, public value promises a more holistic perspective for current public sector challenges than NPM approaches.[17]

Public benefit entities differ from private sector organization in that their main objective is not the creation of shareholder value, but rather the delivery of outcomes to stakeholders. In the public sector, the relationship between accountor and accountee is much broader than the conventional shareholder-manager relationship.[18]

Public value assumes that public managers will try to both shape public opinion and have their views shaped in turn. This is much more of a continuous conversation than an exercise in market research and should be viewed as a serious effort to restore trust in the public realm. Public value is best understood as a management framework for challenging public organisations to perform better, embedded in a political theory of deliberative

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[17] Meynhardt: Public Value, 2012.
[18] Schneider and Samkin: Intellectual Capital Reporting 2007.

governance and citizenship. First and foremost, public value makes it clear that all public services need clear objectives and that the public must be involved in the process of deciding what these should be.[19]

This is why the evaluation and learning cycle indicated in the Public Value Report is so important: political goals and the contributions of partners and co-producers can and will be reshaped according to the achieved outcomes. The learning cycle also is not only within the organisation, but includes a discussion element for public involvement. The Public Value Report enables public institutions to communicate their achievements to the public.

The public value approach is based on the notion that public services, like the private sector, create value but, unlike the private sector, this value cannot be simply reduced to financial profit and loss.[20] The approach suggests that public value can only be identified and assessed through a process of democratic engagement between service providers and service users. For most public value theorists, this means the establishment of forums within which providers and users set priorities and develop strategies for public service delivery.[21]

Measuring public value is not a trivial task. Usually multidimensional indicator sets have to be developed customized to the domain to be examined. As an example, the Austrian Broadcasting public value study[22] identifies five quality

[19] Coats and Passmore: Public Value, 2008.

[20] B. Frey and C. Frey Marti point out, that many "intangibles" as to be provided by public service can't be captured directly in monetary terms, as e.g. can't be e.g. happiness. (A hint which would be worthwhile to be further investigated is happiness measurement as is regularly applied by the government of the State of Bhutan).

[21] McAteer: Rethinking Public Service Reform, 2008.

[22] Firgo, et al.: ORF, 2013.

dimensions: individual value, societal value, "Austrian value", international value and organizational value. For some parts, indicators and qualitative descriptions are published, only for some aspects there are value estimates in Euros. The public value study for the Austrian Federation of Limited-Profit Housing Associations (GBV)[23] distinguishes between the stakeholder values (for residents, the building industry and the financing partners) and the public value in a social, economic, ecological, spatial and societal dimension.

Cole and Parston suggest four stages of a work plan for the Public Sector Value Model[24]:

1. Define Outcomes and Metrics;
2. Calculate Outcome and Cost-Effectiveness Scores;
3. Perform the Public Service Value Performance Matrix;
4. Analyse the Public Service Value Performance Results.

The Public Sector Value Model does not only include outcomes but also aspects of cost-effectiveness. By increasing either outcomes or cost-effectiveness, an organization creates value.

TRANSPARENCY AND ACCOUNTABILITY

Organizations which are mainly financed by public funding, are also confronted with an increased demand by the owners and citizens for transparency regarding the use of those funds. This call for public accountability requires the disclosure about the social and economic outcomes.[25]

Accountability of the government to the general public is an integral part of democratic society. Accountability of government departments is first and foremost to shareholding ministers, and then to the Parliament. Ultimately however, the public is the most

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[23] Biwald, et al.: Public Value, 2011.
[24] Cole and Parston: Unlocking Public Value, 2006.
[25] Bukh and Kjaergaard: Intellectual Capital Statements, 2008.

important stakeholder. In a democratic society the public is entitled to demand accountability from the government and local government authorities.[26]

The most common method of discharging accountability to stakeholders is through the annual report. This report facilitates a dialogue between the organization and its stakeholder and serves as an accountability vehicle through which the delivery of outputs and outcomes are detailed to ratepayers and other stakeholders. The idea of open reporting of local governments can be extended to include IC disclosures.[27]

Hence, the Public Value Report should not be seen as an additional exercise in addition to the annual reports, it can serve as a framework for the structure of the reports and the methodology for the reporting process.

IC reporting should serve as an instrument to take more strategic, efficient and transparent decisions, taking into account different perspectives simultaneously.[28] Schneider and Samkin[29] suggest an IC Disclosure Index constructed through a participatory stakeholder consultation process which includes a set of generic indicators to be used in IC reports of local governments as well as quality criteria for scoring disclosure from 0 = Non-disclosure (does not appear in the annual report) to 5 = Quantitative/ Monetary and Descriptive (clearly defined in monetary or actual physical quantities and descriptive statements are made).

FURTHER RELATED WORK

The Balanced Scorecard (BSC) was the first attempt by researchers to highlight how organizations could be effective by

[26] Schneider and Samkin: Intellectual Capital Reporting 2007.
[27] Schneider and Samkin: Intellectual Capital Reporting 2007.
[28] Leitner: Intellectual Capital Reporting, 2002.
[29] Schneider and Samkin: Intellectual Capital Reporting 2007.

focusing on non-financial information.[30] Despite its success in the private sector, the BSC is not as widely used in practice in public sector organizations. A main shortcoming of the BSC for public sector organizations is that its focus is on communicating the strategy internally and it is not as suitable for publication of publicly available reports as the Public Value Report. A second shortcoming is that the aim of BSC is to give "instructions" to individuals on how to contribute in a measurable way to achieve strategic goals. This approach counts in organizations driven by economic goals, but much less in the domain of public service.

The term "Public Value Scorecard" was first used by Moore (2003) in a working paper, where he basically suggested his strategic triangle as the public sector alternative for the Balanced Scorecard. He includes three areas:

- Legitimacy and support;
- Organizational capabilities;
- Social mission.

So far, Moore has not provided any real cases on how to turn the conceptual framework into actual "scores" for each area under investigation.[31] The Public Value Scorecard includes a figure on "production processes" and "value chains" that can be seen as a blown up version of the part of the "strategic triangle" that links operational capacity to public value.[32] Some ideas where included in the above mentioned Public Value Report.

The goal of making government more open is central to a wide span of reforms and improvement efforts. Openness in terms of greater transparency can spur improvements in performance, accountability, and integrity across any aspect of government.

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[30] Abeysekera, et al.: Researching for intellectual capital management, 2010.

[31] Meynhardt: Public Value, 2012.

[32] Moore: Public Value Scorecard, 2003.

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Enhanced participation and collaboration with citizens enhances trust and confidence in government and engages stakeholders in creating better, more efficient services. The Center for Technology in Government has therefore published a linkage between Open Government and Public Value.[33]

It is desirable that, within the context of public sector reporting frameworks, information on both economic and non-economic performance should be reported. This enables public sector entities to provide a more complete account of their performance in the areas of value creation and sustainability.[34]

Performance management systems document outcomes, but to a lesser extent give information to understand the complex nature of knowledge-production.[35]

The Public Value Report therefore brings together the important aspects of intellectual assets, knowledge management and public sector performance management including references to public value creation.

Public value calls for managers and staff to have a clear view about the broad objectives of public organisations for which they work.[36] Hence, the Public Value Report provides a methodology on a process on how to define and report the organisation's activities.

Empirical evidence indicates that IC is equated with improved financial and perceived performance. The positive relations between IC and financial performance hold in the public sector as well.[37] There is a need for a greater capacity to generate new knowledge and better apply and manage existing knowledge in

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[33] Center for Technology in Government, 2011.
[34] Guthrie, et al.: Public Sector Performance Reporting, 2004.
[35] Leitner: Intellectual Capital Reporting, 2002.
[36] Coats and Passmore: Public Value, 2008.
[37] Cohen and Vlismas: Relations, 2011.

order to facilitate the creation of improved capacity to deliver quality services within constrained resource bases.[38]

Accountability is based on the proper and efficient use of resources. This includes the requirement to communicate outputs and outcomes to stakeholders. Schneider and Samkin promote the "public interest" concept of accountability and recognize that there is considerable scrutiny of, and interest in the activities of local authorities. Local authority accountability obligation is discharged through the provision of information about the conditions, performance and activities undertaken in their annual reports thereby enabling stakeholders to assess the accountability and performance of local authorities. The voluntary disclosure of IC in the annual report facilitates the discharge of accountability to stakeholders. By providing information regarding IC in the annual report, stakeholders are able to scrutinize local authority activity in regards to IC measurement and management.[39]

However, in the IC literature, it is recognized that IC reporting frameworks cannot of themselves provide fully exhaustive solution sets.[40] Therefore it is a main benefit of the Public Value Report to be compatible with other aspects of modern public management. The Public Value Report can serve as an instrument for communicating public service delivery and public value creation, leading to a more transparent and accountable public sector.

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[38] Guthrie, et al.: Public Sector Performance Reporting, 2004.
[39] Schneider and Samkin: Intellectual Capital Reporting 2007.
[40] Guthrie, et al.: Public Sector Performance Reporting, 2004.

Towards a reference format of an IC Report

As is introduced in the first section of this Blueprint, a large choice of models and methods is available for painting a picture of the knowledge capital of a nation, region, or city. We will dig deeper in the question not only what an IC report shall cover in terms of identification of the object of analysis and which aspects shall be covered, rather than also how the report will be created. By experience, one accepted position is that the report in the end is an indispensable product, but the bigger benefit resumes from the process to create it.

This chapter deals with the question, which report model could serve as a reference for a potential national IC report for Romania and its regions. Within the community of The New Club of Paris (www.new-club-of-paris.org) at least ten different models and methods have or still are promoted, some specific for the structures in mind. E.g. for municipalities, Rybinski and Wodecki (2008) propose a specific "Methodology of measuring IC of Polish cities", the framework of which is presented in Figure 7.

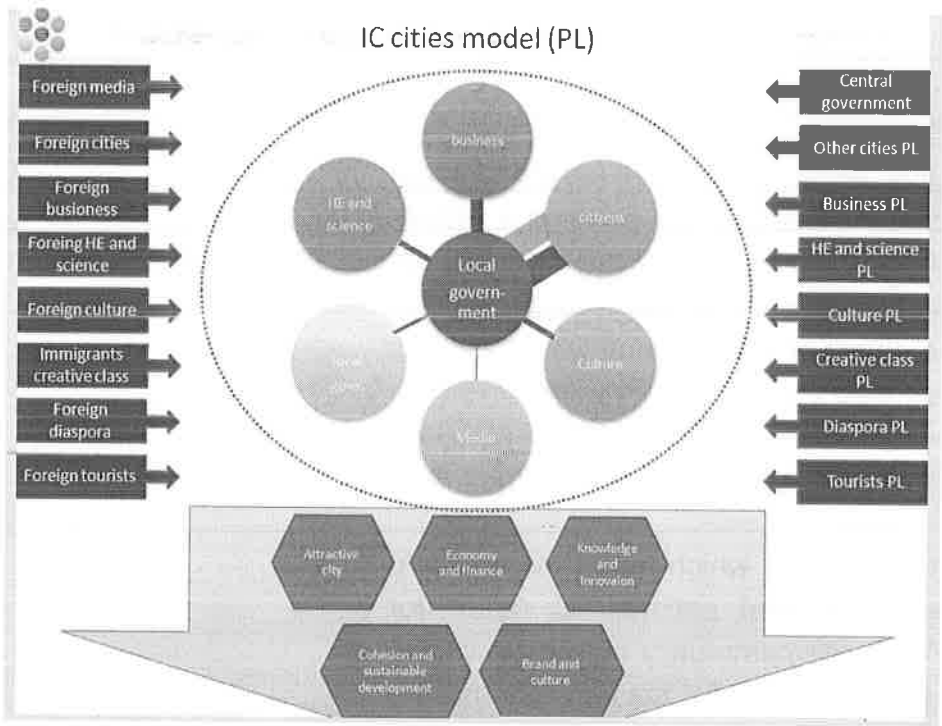

Figure 7. Framework of measuring IC of Polish cities

It is evident, that Rybinski and Wodecki's approach is rich in aspects to be analyzed such as:

- Stakeholders and their intellectual and human capital;
- Disciplines contributing to the identification of IC;
- A multitude of public life and public interest domains;
- Government and governmental bodies;
- "Benchmark institutions" abroad, as e.g. comparable cities, may be in competition.

It is also evident, that their model reflects the urban culture more than a rural one, i.e. what we learn from them is, that the design of an appropriate model depends on the subjects to be "IC analysed".

This observation is even more true when decomposing the model of J. Carrillo (Carrillo, 2006) and B. Garcia which is being

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applied to identify the "Most Admired Knowledge City" (MAKCi) with the aim of granting a bi-annual award – the "MAKCi Award" – to that one global municipality which demonstrates best its qualification after the model in Figure 8. This framework addresses in total eight dimensions of indicators to be evaluated, part of these dimensions compatible with the ones already introduced earlier. The MAKCi model, different from the Polish model, which prefers to identify cultural social assets, tries to combine physical, i.e. tangible capital in terms of finance and investment with intangible characteristics of a city such as its identity or intelligence of those "making" a city.

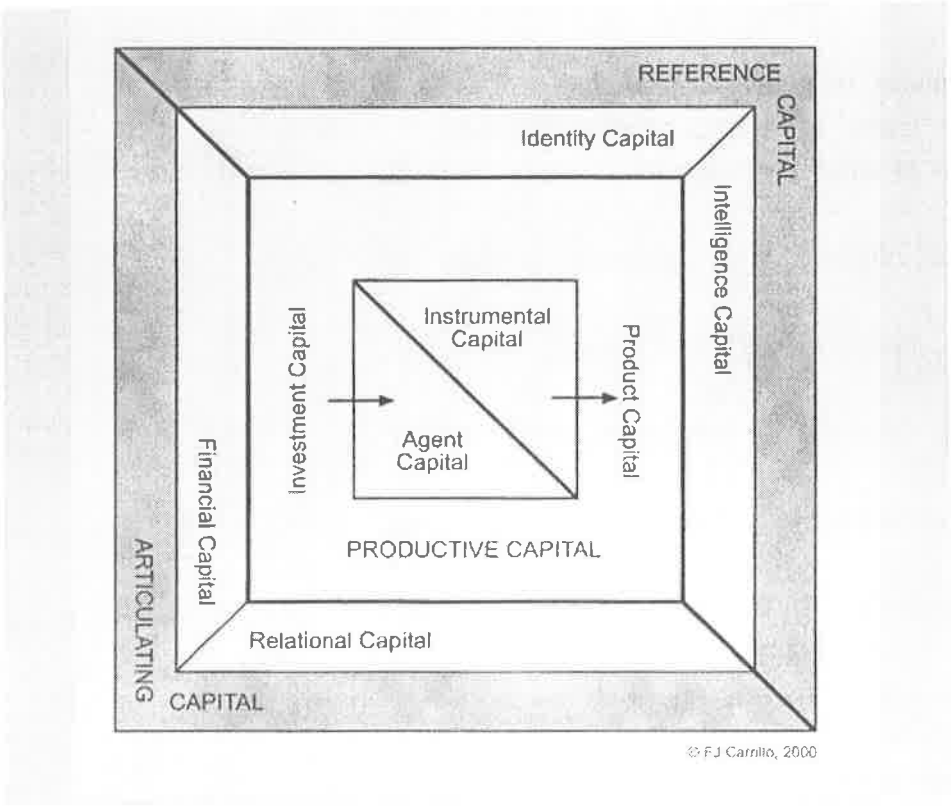

Figure 8. The MAKCi model for identifying the IC of cities and their eligibility to be awarded.

When discussing in the Mutual Learning Workshops on IC Reporting – International Practice w.r.t Regions and Nations in 2012-2013, the challenge for the authors of this Blueprint was to find out which model and method amongst the many ones studied would fit best for Romania. We agreed that the following criteria shall be taken into account.

Model and method for an IC report shall:

- Be well structured and systematic;
- Be easy to conceive in its "philosophy";
- Be strategy oriented aiming at results for an implementable development strategy;
- Be state of the art, but also solid because of having been tested;
- Cover bottom-up perspectives, as well as top down;
- Cover different levels and "sizes" of regions or municipalities;
- Assume a clear definition of what the subject of analysis shall be;
- Support participation of citizens and interest groups in developing the analysis;
- Require clear ownership, responsibility and interest from the body launching it;
- Combine common basic "standard" indicators with context depending varieties;
- Ending in a well-structured, readable and easy to communicate report
- Follow a good balance between "process" and "product", i.e. between participative working towards an IC report and this report to become a valuable strategy document for the public at large as well as political decision makers.

The working team, i.e. the authors of this report came to the conclusion, that an optimal reference model/ method/ report is the (2nd) IC report of the State of Israel, that has been developed first time by Pasher in 1998 and, in 2004 in a second edition be

launched under the responsibility of "The Office of the Chief Scientist within the Ministry of Industry Trade and Labour".

THE IC MODEL OF THE STATE OF ISRAEL (NATIONAL FOCUS)

THE STRUCTURE OF THE IC REPORT OF THE STATE OF ISRAEL

The report has a clear structure, divided in three parts and it results in a final set of discoveries made as follows:

PART 1: THE IC OF ISRAEL REPORT

The report follows the first IC Report of Israel published by Pasher and Associates already in 1998, at that time based on the theoretical model called "Skandia Model" developed by Edvinsson. The model has five focal areas, which consider the tangible and intangible assets of Israel, namely: Financial Capital; Human Capital; Process Capital; Market Capital; Renewal and Development Capital.

The assets identified in these five domains are integrated to present the competitive edge of Israel.

PART 2 OF THE REPORT

This part includes a comprehensive listing of government support programs that exist in Israel, and operate in order to provide financial support and cooperative infrastructure to foreign investors and businesspeople.

PART 3 OF THE REPORT

This part concludes a few examples of successful Israeli companies in different fields

Finally: The main findings (in the specific case of Israel in 2004 – on abstract level, but supported by detailed and concrete analysis)

The report discloses that, in spite of its small size and relatively young age, Israel has many core qualities, such as:

Excellent human resources: highly educated workforce, and unique cultural characteristics such as: curiosity, creativity, a positive outlook, innovative thinking, that are important to success in research and development of high technology.

Modern infrastructure: a supportive business environment, a highly advanced banking financial sector, legal protection of foreign trademarks and patents.

Cutting edge technology and scientific breakthroughs: Israel is one of the largest centres in the world for start-up high technology enterprises.

As a typical example for a detailed analysis of the intellectual work power, Figure 9 points out what the share of employment in the strategic sector of ICT is in Israel at the time when the report was constituted.

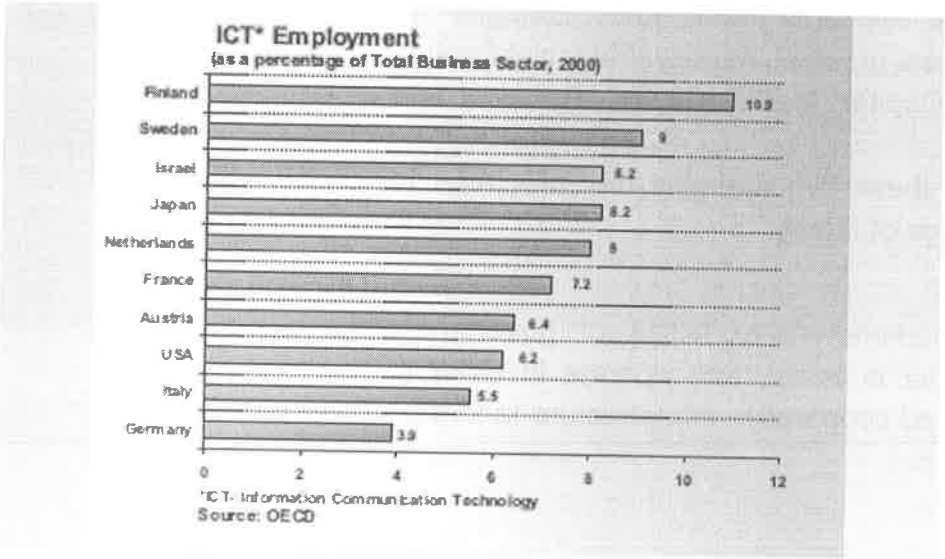

Figure 9. One typical chart from the Israeli report.

Although the authors suggest to take this report as a reference also in terms of size and substance, it must be stated, that this version may hold for a nation at large, i.e. in our case for Romania, however, w.r.t. IC reporting for provinces, i.e. for

structurally smaller and less complex regions, this reference may be too extensive and too "expensive". We therefore leave it for consideration to take the Israel report as the reference for the State of Romania as a whole, whereas on regional level we prefer to suggest an IC reporting model which we will further discuss, and which is based on the Austrian/ German *Wissensbilanz*, model being applied and tested in less complex environments.

THE IC MODEL OF AUSTRIA AND GERMANY (REGIONAL FOCUS)

BENEFICIARIES AND TARGET GROUPS – GENERAL CONSIDERATIONS

IC is the Capital on which the future is based. It is a new form of capital which cannot be managed by the same methods as in the past by the classical linear and cause-effect spirit. (Here we may quote Albert Einstein who was convinced that problems cannot be solved by the same methods which produced them).

Without doubting in the beneficial role of the European Commission, the paradigms its decisions are made upon are the ones of the past: Smart Specialization, which is wisdom from the past – and is not wrong in principle –, does mean that we have to step back and draw our future from what we already are good in. The knowledge society is a society which draws its future from a new understanding of societal and economic developments. Indications can be found in the venue of dominating new companies (Facebook, Google et al.) This fundamental change is also a break in the perception; the different generations – elder and younger – have in mind.

The transformation from information society into knowledge society is more fundamental than just an evolutionary step. It goes in parallel with a new phase of elicitation, leaving from the convictions on the "calculability" of the future rather accepting the self-referential nature of new developments.

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The key challenge in this "revolution" is to take influence on the mind-set of today's decision makers in office, i.e. members of governments and in economy on all levels. Knowledge politics, knowledge economy and knowledge economics to their mind-set is unconventional if not revolutionary and does not fit to their classical economic model. Convincing political and economic decision makers is not done at instance rather than in a co-joint approach along different lines of exercising influence.

Kind of a proof of such unwillingness for innovation in politics is the way governments and their administrations are organized. Ministries are divided in science, technology, economy, education, etc. In South Korea, at least an attempt was made, to find more adequate re-combinations when they once founded a Ministry for Knowledge Economy (MKE – which was renamed when they found out that this ministry is about trade, industry and energy, although their self-definition starts with this interesting statement: "As the ministry in charge of the real economy, we are working to build a "creative economy", a new paradigm that will expand growth engines, create better jobs, and support balanced growth among industries."[41]

Besides such rare exception in the recognition of the importance of the knowledge economy on national or regional level, the case for change towards knowledge society and knowledge economy remains to be kept virulent and strategies for change need to be invented. Figure 10 visualizes the many dimensions along which actions need to be taken – as is the intention of this Blueprint.

[41] http://www.motie.go.kr/language/eng/about/message.jsp

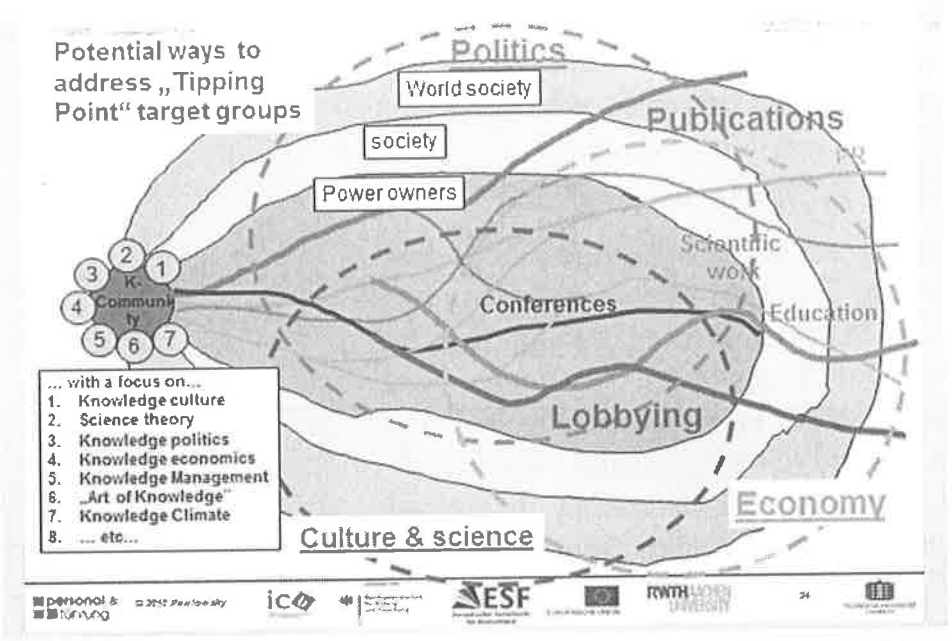

Figure 10. Means and ways to change mindset in favor of knowledge politics (Pawlowsky and Koch, 2010).

The question arises, who would be the beneficiaries of such change, also in institutions.

NATIONAL ECONOMY

At large, national economy will benefit from better education leading to richer knowledge. This has been proven by hundreds of studies, many of the stemming from OECD. A special case was argued by the German Bertelsmann Foundation which found out that the economic effect of pupils not finalizing primary school, i.e. remaining uneducated and therefore becoming a social burden in the long run would cost the national economy so much, that the total depth of the state could be compensated if they would finish school with success. Clear enough that this is a theoretical consideration, but it demonstrates very well the dimension of the problem.

An even more convincing argument is that national economy's development in terms of growth of GDP per capita is clearly correlated to the level of competencies based on education and knowledge.

CITIZENS: THEIR PERSONAL SATISFACTION AND HAPPINESS

In recent years happiness indicating the well feeling of people has become subject of research. The most famous case in public became the strategy of the State of Bhutan aiming that its citizens shall achieve an optimum of happiness. The government of Bhutan invests high efforts in order to systematically research the "happiness level" of the country (Gross National Happiness[42] – last time acquired in 2010) and consequently to derive measures for change in the country's politics, mainly through reformation in governance[43].

Several studies have been performed on the question, how personal well feeling, i.e., happiness and satisfaction correlate with the level of education. One of those studies (Noval and Garvi 2008) on Empirical Relationship between Education and Happiness) even claim, that not only there exists a positive correlation, they also indicate that over age this positive effect is predictively growing.

GOVERNMENT AND POLICY MAKERS

A major beneficiary of IC reporting will be governments. As has been demonstrated by the project of IC reporting of the State of Israel (Pasher, 1998) the near-to-complete picture of the "state of knowledge" of a country leads to well defined, clear, rational and easy to communicate strategies in raising the level of knowledge and education. As will be explained in Chapter 4 of this report, the first benefit resulting from an IC Reporting project is that

[42] see http://www.grossnationalhappiness.com/
[43] see http://www.gaportal.org/

either existing development strategies will be improved and made more concrete, or, in case there exist no such strategy yet, running an IC reporting project naturally leads to some definition of such strategy. Once a strategy becomes evident, subsequent actions and planning steps become easy to conceive, in the end down to decisions to be taken for budget priorities.

THE REGION AT SMALL AND AT LARGE

Regional policy and autonomy has different traditions in Europe. Countries like Germany, Italy or Austria due to their history in federal policy, i.e. a long time not having been a consistent nation, have a much stronger tradition in federalism than e.g. France or Romania. In such more centralistic-minded nations, regional policy is a political invention of the last years.

Romania with its entry to the European Union also became a partner in the European Commission's "Danube Strategy", the idea of which is to form a region with an own identity and with the aim to raise the global appearance/ image and competitiveness of the whole region, as e.g. the Baltic region demonstrates to become.

THE DANUBE REGION AS THE DIMENSION TO BE FINALLY AIMED AT

The area covered by the EU Strategy for the Danube Region (EUSDR) stretches from the Black Forest (Germany/ Baden-Württemberg) to the Black Sea (Romania-Ukraine-Moldova) and is home to some 115 million inhabitants. "Official" Member States in this group therefore are: Germany, Austria, Hungary, Czech Republic, Slovak Republic, Slovenia, Bulgaria, Romania and Croatia. So called Accession Countries belonging to this group are: Serbia, Bosnia and Herzegovina and Montenegro. Finally, neighbouring countries being included in the considerations and consultations are: Moldova and Ukraine.

The Danube Region Strategy addresses a wide range of issues; these are divided among 4 pillars and 11 priority areas.

Each priority area is managed by 2 Priority Area Coordinators (PACs).

The Priority Area Coordinators (PACs) ensure the implementation of the Action Plan by agreeing on planning, with targets, indicators and timetables, and by making sure there is effective cooperation between project promoters, programmes and funding sources. They also provide technical assistance and advice. The coordinators work in consultation with the Commission, and relevant EU agencies and national/regional bodies.

In the pillar "Building Prosperity" one of three priorities besides "Competitiveness" and "People and Skills" is "Knowledge Society", which is the domain we address with our project on "National IC for Romania".

Priority Area 07 "To develop the Knowledge Society (research, education and ICT)" which for our project is of major importance is coordinated by Slovakia and Serbia, with the involvement of a wide network of key players.

The EUSDR strategy, as has been documented from its beginning, made a series of suggestions on how develop the profile of a Knowledge (Society) Region. One typical action which demonstrates such commitment is "To strengthen cooperation among universities and research facilities and to upgrade research and education outcomes by focusing on unique selling points". This means that universities and research institutes in the Danube Region are motivated to engage in stronger cooperation in various fields, such as analysing existing education and research programmes in the Region and developing joint programmes of common interest, mobility schemes for students and researchers, common research projects, exchange of best practices (e.g. in implementing the Bologna process), or developing innovative education programmes for target groups new to universities (e.g. lifelong learning programmes for older

citizens). Future cooperation should build on existing programmes, such as the EU programmes Erasmus and Erasmus Mundus, Leonardo da Vinci or the Jean Monnet Programme and make best use of existing structures like the Danube Rector's Conference.[44]

Thus, on an action level, a series of initiatives have been triggered since 2011, however, no definition of what a "Knowledge Region" is or shall be so far has been given. The New Club of Paris as a competence body in the development of knowledge economy (and Knowledge Society) has taken a series of attempts in order to find and apply methods of characterizing regions and nations as "knowledge regions". (Koch, 2010)

APPLYING THE "*WISSENSBILANZ* – MADE IN GERMANY" APPROACH IN PRACTICE

As has been elaborated at large in the first chapter of the Blueprint, discussions on the future wealth of a region mainly suffer from the fact that most of the important values of a region are of intangible nature and so far they were not reported or managed in a structured and well to communicate way.

The IC reporting Framework with its published Guidelines[45] for an IC report was developed in the framework research

[44] Example of existing institutions and initiatives: the Danube Rectors Conference, linking universities in the Danube Region (www.d-r-c.org), the Rectors Conference of the Alps-Adriatic Universities, the Regional Network for Central and South-East Europe of the Association of European Life Science Universities (ICA – CASEE), or the Salzburg Group.

[45] See version 1.0 in English:
http://www.akwissensbilanz.org/Infoservice/Infomaterial/Leitfaden_english.pdf
and the German version under:
http://www.akwissensbilanz.org/Infoservice/Infomaterial/WB-Leitfaden_2.0.pdf

programme of "Fit to compete with knowledge"[46] initiated by the "Federal Ministry of Economy and Labour"[47] in Germany. This initiative concentrated on the following goals:

- Focused development of IC in Germany as a region for innovation and support in systematic management of new trends in organization and management;
- The possibility for SMEs to improve their credit rating after Basel II by providing complementary information on their IC;
- Early creation of awareness among SMEs concentrating on the significance of knowledge as a key resource and, finally;
- Getting prepared for foreseeable statutory amendments and standards (cf. IAS 38, DRS 12).

The "*Wissenbilanz* – Made in Germany" Guideline was drafted by a project consortium built from the Knowledge Management Competence Center of the Fraunhofer Institute for Production Systems and Design Technology (IPK)[48] in Berlin and international experts including Leif Edvinsson as the most prominent amongst them. Building on the methods of the Scandinavian IC statement pioneers and even more on the Austrian model and experience made in their initial project at the "Austrian Research Centers" (today Austrian Institute of Technology), as well as drawing inputs form other international projects, the consortium implemented a pilot project the goal of which was to adjust IC reporting methodology to the German situation and to test it under real conditions as they are faced by small and medium-size enterprises (SMEs).

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[46] See http://www.mittelstand-digital.de/DE/Wissenspool/unternehmerisches-wissen.html

[47] See http://www.bmwi.de/EN/root.html

[48] See http://www.ipk.fraunhofer.de/en/homepage/

Stage 1 consisted in the development of the methodological framework and derivation of the German model from the original Austrian template, as well as the preparation of the guidelines how to implement an IC report especially in SMEs. The final phase of this stage consisted in testing the model in 14 pilot companies.

Stage 2 was devoted to the training of moderators and facilitators in IC-reporting processes in companies and other institutions, with the intention to create a nationwide IC reporting "movement".

Stage 3 consisted of the scientific review of the results reached so far and, in consequence, to publish a revised version of the guidelines (version 2.0).

Stage 4 aimed at establishing the IC reporting methodology as consolidated management instrument becoming a standard analytical tool in German companies, such strategy supported through a series of marketing events.

In addition to these four stages, the research project developed and launched a software-based toolbox[49] the purpose of which is to support completely every step for compiling an IC report for companies.

The success of the German project with around 1000 applications (estimated) transmuted into the European project "InCaS – IC Statement in Europe"[50].

The main difference between the German model and most of the preceding models was that it put much more accent on the process of generating an IC report. The guidelines therefore

[49] For free download under: http://www.akwissensbilanz.org/Projekte/wb-software.htm

[50] See http://www.incas-europe.eu

describe how to establish the IC report as an ongoing and continuous process in companies.

The focus of the model concentrates more on the process of generating an IC report that on just collecting indicators. The process of implementing the model is instantiated through workshops with key participants in the respective company. The participants of the initial workshops further act as facilitators in the implementation of the model.

THE BENEFITS USING THE GERMAN MODEL IN REGIONAL IC REPORTING: THE EXAMPLE OF IC REPORTING OF THE GERMAN ORTENAU REGION

In the course of the practical implementation of the IC report in companies and institutions following the guidelines, there were several relations built to existing local or regional topics. The first important relation to such regional subject is constituted by identifying the relational capital of the companies in a region. In a regional innovation system, most of the companies exercise intense interactions with other regional institutions. In the sequel you find some cases in which companies are influenced by or have an influence on regional concerns:

- Dependency on the regional labour market and the available workforce (in quantity and quality);
- Dependency on natural resources (water and material for production, or e.g. landscape for tourism, etc.);
- Dependency on the regional infrastructure like possibilities of transportation and communication, availability and transport of energy, etc.;
- Existence of a home market for the products and services. Interaction with customers and suppliers;
- Interaction with institutions like research institutes, universities, trade organizations, banks, etc.

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An existing situation of a region with its infrastructure, its resources and its institutions can largely be defined as its *relational* capital.

The ultimate impulse for using the German IC reporting model for regional IC reporting was motivated through the IC report which a regional association in "industry and trade" as well as a "regional development organization" already had produced for themselves. These two types of organizations are natural part of the infrastructure of a region, or, with other words, they are typically part of the *structural* capital of a region.

With such experience in mind we took the attempt to transfer the German model for IC reporting also to be applied to region.

In 2008, an economic development organization, the "Wirtschaftsregion Ortenau Offenburg" (WRO)[51] showed interest to develop a model regional IC report for the region they are engaged for.

This prosperous region is located in Baden-Württemberg, South-West of Germany, between the cities of Karlsruhe in the North and Freiburg in the South and opposite to Strasbourg in France in the West. All three territories located North, South and West of the Ortenau, are famous for their universities, their research institutions and innovative companies. The economic development organization (WRO) of the Ortenau wanted to present the IC of the region in contrast mainly to its famous neighbouring regions first hand in Germany in the North (Karlsruhe) and South (Freiburg).

This regional IC project had a set of different objectives, which were, to:

- Present the IC of the region of Ortenau/ Offenburg in contrast to the neighbouring regions;

[51] See http://www.wro.de/?L=2

- Test the German IC reporting model for its applicability also for regions;
- Find an optimal form for describing the IC of a region;
- Develop a better insight into a region beyond statistical data and to test if the IC report can describe the region "better" than only by statistical data.

The project was initiated and financed by the WRO. The main idea was to take advantage of the participative approach the "*Wissensbilanz* – Made in Germany" methodology imposes. This requirement needs to integrate many different and even divergent perspectives of those perceiving "their" region as a whole and presenting it beyond dry statistical reports.

The participants in the workshops, being major constitutional elements of the IC reporting process, were from bodies having responsibilities or function in/ as: economy, politics, labour unions, economic development organizations, research institutions, education (schools and universities).

The process of the IC report followed the guidelines of "IC Reporting – Made in Germany" which it is roughly explained in the sequel.

In order to gain an initial and sound insight into the characteristics of the region to be analysed, we started in the workshops with a closer look into the existing statistical data using it as initial information.

The key results of this pilot project were:

- The German IC reporting model can be used without relevant restrictions also for regional IC reporting;
- The IC report provides a much richer picture of a region than can only be presented through statistical data. Main reason is that the IC report also answers the question if the existing resources will be sufficient for achieving the future goals of the region;

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- In first line the participants got also a much deeper insight in the strengths and weaknesses of the region. Based on the cross-impact analysis as part of the process, they got a richer understanding of the interrelations between the different dimensions and its elements. They acquired a more complete if not holistic view on their home region;
- The acceptance of the results was much higher than acquired by other analytical methods, not the least because the results were generated by the citizens on their own.

This successfully finalized pilot project of a regional IC report following the German IC reporting model was published by a report[52] which serves as a model IC report for a region.

FURTHER METHODOLOGICAL ASPECTS

When applying the IC reporting to organizations which are identified with important constitutional subjects in any regional development process, it is obvious that qualifying such agencies through an IC reporting process will also induce a new momentum in regional development strategies.

In a latter part of this chapter we will discuss how a (knowledge) region should be defined by to getting useful results out of the IC report.

The classical version of an IC report elaborates on three different kinds of capital:

- The *human capital* describes all the knowledge of the people, their attitudes, their values and their motivation to share their knowledge;
- The *structural capital* describes all this knowledge of the people or the human capital that found its way into different kinds of

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[52] See http://www.nagel-ollegen.de/sites/default/files/Wissenbilanz_Ortenau.pdf

structures. These structures could be ways of communication, the special arrangement of software and hardware but also the shared values, the culture of the organization;

- The third kind of capital describes the *relational capital* of an organization. These are the customers, the financing organizations, all administrative organizations but also research organizations.

This approach of describing the IC of an organization could as well be used to describe the IC of a region or country or a nation.

The idea behind this concept is that there are regions which are more attractive because of their "higher" IC than of the others. If one region manages its IC better than other regions do, it will have a competitive advantage.

Another reason for using the methods of IC reporting for regions is that one part of the method which will be described in sequel, the so called cross-impact analysis, was frequently applied in order to describe the factors which have major impact effects in regional development.

The conceptual framework of the method and the structured way of working, as well as the possibility to integrate different stakeholders is an important aspect and success factor in any regional development process.

Moreover, the IC report constitutes a meta-model which can be used for different topics and questions, as are:

- What are the advantages in IC of the region, what are the immaterial advantages of the region?
- With given goals what are the most important impact factors to reach these goals?
- If we improve some elements of the IC of a region, what are possible improvements?
- What is the IC *profile* of a region?

- In the cross impact matrix which will be developed in an IC reporting project: what are the best actions to take in order to improve the IC?
- There are many approaches for regional development. Why is IC reporting an appropriate and good approach for regional development?
- What are the advantages of this approach?

As much as the method being discussed in the sequel, which is the method of "*Wissensbilanz* – Made in Germany" the answers on these questions are:

- The generated IC report gives an insight/ intrinsic view of the region to be profiled;
- The IC report helps the participants who engage in the development of such report to understand the complex cross-impact relationships (represented in a matrix) and reveals the elements which have the most influence in this system of regional interdependencies;
- IC reporting as discussed here is a method requiring participation of officials, citizens and representatives of interest groups. To create an IC report for regions according to the following method requires relevant insight knowledge from local experts and interest groups. This is one guarantee for the acceptance of the results;
- The IC report for regions is also a method for integrating divergent views. In addition, the IC report allows integrating different complementary aspects in regional development. It is suggested to combine the IC report with information as regional statistical data (in the case of Romania e.g. taken from Holeab and Curaj, 2013), regional development plans and/ or regional development programs, and ongoing regional activities intended to improve the wealth of the region.

IC reporting for regions also allows reflecting the implicit complexity when dealing with regional development. Many

concepts/ models/ methods may be well founded in a scientific sense, but most of them ignore such complexity which often leads to questionable results and recommendations. By using and discussing a cross-impact matrix which expose cause-effect chains, participants of the workshops acquire a deep understanding of the dependencies of regional development and impact elements.

Compared to other methods in regional development, the IC report for regions as is presented here requires less time to end up with profound results. Depending on the availability of the participants an IC report can be completed within a period of two or three months.

A second argument for applying IC reporting to regions which includes cause-impact analysis is the possibility to construct and analyse cause-effect chains. This method allows providing useful predictions of possible outcomes of any proposed action.

In summary and after the practical experience of the authors, IC reporting is an excellent way to use its results for any regional strategy planning process. This holds specifically for Romania and its regions, since these became subjects of federal developments only recently.

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The participatory process of establishing an IC Report for regions

IC reporting according to the model of "*Wissensbilanz* – Made in Germany" as well as according to the INCAS (project having spun off from it), is a process-based methodology. This process is made of a series of workshops with a specific, well selected variety of participants, including the collection of regional statistical data and identifying the best indicators which can be argued also in quantitative terms.

IC reporting following the "*Wissensbilanz* – Made in Germany" methodology consists of an analytical process which leads to the description of the IC profile of the region and exposes its most important impact factors.

PREPARATIONS

When planning to establish an IC reporting *process* for a region, the first and most important step is to find an owner for this project who is interested in the results and who has the power and is willing to pay for the cost of this exercise.

IC reporting for regions is a workshop-based methodology. This aspect implies that there must be somebody responsible who prepares these workshops.

In a first step an organization team is needed who prepares the different workshops as well as a moderator who guides the participants through the different workshops applying methods and tools as known from knowledge management. The moderator should be qualified in applying such methods. He/ she can also be part of the organization team.

To get insightful results already during the process it is necessary to describe the objectives of the IC report very clearly. In the case of an IC report for regions also a clear description of the region in its structures and projects shall be made available at the beginning.

The question of the best fitting definition of the region will be answered from the "back end" of the completed process, i.e. from its results. At the end it is important to have people and organizations which are decided to take responsibility on the proposed resulting tasks and to manage to transfer them into implementing action. Therefore, when starting to describe and to delimit the region to be analysed, there should always some organizations be nominated which have a high interest in the results an which can be expected to engage in implementing the proposed tasks. The area of influence of these organizations will contribute to find a proper definition of what makes the region special in IC terms. Without allocating such responsibility for task implementations, at the end the results will be taken as interesting, but the chance of getting them into action is low.

As a rule of experience we must state, that the definition of a region as a research subject to become a knowledge region should be defined according to the domain of influence of the organizations and institutions actively participation in the process of IC reporting.

It is recommendable to better define a smaller region with clear responsibilities of one or more institutions for regional development, than to identify a large region without such clear responsibilities for improving regional growth.

A second import aspect deals with the goal of the IC reporting project and, more important, the goals for the region. It is most helpful to have an existing regional development plan or at least a set of goals which the region wants to be achieved over a given period. This requirement is important because in one section in

applying the IC method it will be elaborated if the discussed elements found in the IC reporting project will support the set of goals already envisaged.

According to our experience in most cases there does not exist a clearly formulated strategic vision of the region to be analysed. However, if there is no strategic vision or no strategic development plan, the methodology then must be used to develop such foresight. In this case it is sufficient to redefine respectively add some aspects of the methodology.

WORKSHOPS PARTICIPANTS AND FACILITATORS

As mentioned at the beginning of this paragraph, the IC reporting for regions is a workshop-based methodology. Therefore it is essential to choose appropriate participants for the workshops.

Firstly to say, an IC-moderator should prepare, organize and moderate the series of workshops for creating the report. When using the methodology of IC reporting for the first time, it is helpful to make use of a moderator who has experience with this kind of practice.

For very practical reasons, first one series of workshops with up to at most 20 participants needs to be planned. If there is more time available or if there are more participants interested in taking part, recommendation is to run different workshop series at the end of which the results of the different workshop groups shall be compared and converged.

The circle of possible participants depends on different criteria:

- What shall be the main question or topic of the IC report?
- Who are the "customers" of the IC report or which are possible promoters?
- Who, for sure, will available during the workshop period?

- Who is interested in participating in the workshop?

It is helpful and contributes to the validity to have different perspectives represented in a regional IC report. Typical participants would be:

- Members of regional development organizations;
- Politicians which are responsible for the regional development;
- Members of social parties;
- Participants from different education organizations (schools, universities, etc.);
- Representatives from the economy of the main branches of the region
- Representatives from the church;
- Representatives from tourism;
- Representatives who deal with environmental.

With the invitation to the workshops a short introduction to the goal of the workshops must be given. In a best case an introduction event or workshop shall be run in order to present the methodology and the purpose of the IC report in a condensed and motivating way.

WORKSHOPS TEMPLATE

As mentioned before, creating a regional IC report should contain a series of workshops with competent stakeholders of the region.

In the following section we will describe a template of a complete program of creating an IC report for regions through workshops.

The usual number of workshops until a report can be closed is three to five. This number depends on the availability of the participants, i.e. is a matter of meeting planning and coordination.

Between the workshops the interval should be not be longer than 2 to 3 weeks. Experience shows that after a longer pause more time needs to be invested in the review of the previous workshop.

INTRODUCTION TO THE WORKSHOP SERIES

The first item in the agenda of the workshop series is an introduction of the methodology of IC reporting in a survey. In most cases, not all participants are familiar with the subject of IC and especially not with the specific methodology applied.

The introduction shall give an answer to questions like the following:

- What is the concept of IC in general?
- What are the main elements of the methodology for regions?
- What is the aim of the project or of the workshops? What are the expected results?
- Which are the dates of the workshops? Is there is additional time necessary for the participants to prepare information for the workshops?

DISCUSSING THE STRATEGY OF THE REGION TO BE ANALYSED

After a first introduction to the methodology of IC reporting for regions, sufficient time must be spend on discussing the strategy.

If there are already some strategic ideas and/ or a vision of the region on its future or if a development plan exists, the content of such document should always be the founding information for all subsequent discussions. It is advisable to deliver these documents to the participants before the first discussion.

In a first step the group is invited to have a closer look to the founding document/ s and then shall discuss the following questions referring to these documents:

- What is the current position of the region according to other comparable regions (strengths and weaknesses, as suggested

in a SWOT analysis)? Comparable regions could be a direct neighbouring region or it could also be a region with comparable structure, size, or problems:

- If we talk about strengths and weaknesses of regions there is normally no absolute measurement possible. In most cases the strengths and weaknesses are defined in difference to other regions. There it is important to find to the right comparison.
- If there are no clear statements about the strengths and weaknesses, the group will find further interesting aspects to this question in the course of the following process steps, i.e. the answer to this question then can easily be derived from the results of the finalized IC reporting process.

- What are the future challenges of the region? In the sequel you will find some examples of challenges to which the IC report shall find answers:
  - Increasing the competitiveness of the region on a regional, national and international level and to make it more attractive for people to live and visit the region (tourism) and for companies and other organizations to settle;
  - Dealing with demographic challenges (age structure of the region)
  - Dealing with national and global challenges;
  - Increasing the wealth of the region and establishing better living standards for the citizens.
- What are the competitive advantages of the region or the major strengths of the region?
  - A proposal for an action plan should be based on existing strengths and advantages, because it would be difficult and needs too much time to develop strategic strengths from scratch. In most cases it is even not possible because the advantages are based on natural resources like a special landscape or the historic locations of the region. I.e. the

- strategic vision must be based on existing elements due for improvement;
- In case this can't be analysed in an early phase, it will be answered using the results of the regional IC report at the end.

- Does the region already have a concrete action plan about what to do over the next three, five or ten years?
  - Regional development in general and within this process the explicit development of IC is a midterm to long term activity. After all experience, there is nearly no chance to observe results in less than three years.
- What are the main fields of actions? Is there a broad variety of topics covered by the action plan or is it restricted to one or few topics?
  - Regional development plans usually should cover a broad variety of action fields because all dimensions are related to each other. E.g. it is not possible to increase the number of companies in a region if there is not the proper sustaining infrastructure or if not enough well educated workforce is available. One advantage of an IC report is that it covers a variety of different topics and that it analyses the interconnection and dependencies between these topics or action fields (see later paragraph about "cross-impact-analysis")
- Is there a priority of the actions mentioned?
- Since the resources for regional development are always limited on the one side, and taking into account the multiple relations between the different topics on the other part, it is essential to set a clear priority of the different actions for change. The IC report also shows which the most effective action fields are to start with in order to reach the best impact towards the given aims. The priorities are to be decided according to restrictions in time, or according to restricted financial resources or with respect to other bottlenecks.

- Is there a linkage or an interconnection between the different actions?
  - Regional development is a complex issue. This means that there are many different action fields and different players which have a variety of weaker and stronger interconnection between the elements and which are changing over time. To deliver helpful recommendations it is necessary to understand this complexity. Actions plans without taking into account the complex interrelationships will be a waste of time and money.

A good reasonably good regional development plan and/ or strategic vision should at least the following questions:

- What is the current situation of the region with an honest picture of its strengths and weaknesses?
- What are the main challenges for the region?
- What are the main institutions and organizations who can contribute to a development of the region?
- What are the goals which should be achieved in which period?
- What are the measurements to check the achievements during the development/ change process?
- What shall be the goals of the project and the regional development strategy?

If there is a strategic vision at hand all the participants should be informed about such vision or the development plan before in order to have the possibility to start as learned participants.

It is highly recommendable to authorize one person who is in a position to explain the content of the strategic/ development document to the participants.

IN CASE THERE IS NO VISION AND/ OR STRATEGY FOR THE REGIONAL DEVELOPMENT

As mentioned at the beginning of this chapter, the IC methodology can also be used to develop from a non-existing foresight a strategic vision for a region. In this case, the group of

participants starts with establishing the IC report following the given method; the strategic vision will merge "bottom-up" from the analysis and discussion.

THE MAJOR STEPS FOR DISCOVERING THE CAUSE-IMPACT CHAINS

Workshop 1: Step 1 (after the general discussion of the strategic questions): Starting with collecting and describing the main impact elements:

After the star-up discussion about the strategy and/ or the vision of the region, the group of participants begins to collect and to describe the elements which have an impact influence to the strategy or vision of the region.

The method offers a variety of impact elements. The impact elements – we also may call them impact factors – can be derived from different subjects that have an important influence to the strategic vision of the region.

These impact factors or elements which can cluster into the following groups: Political and societal capital; Human capital; Structural capital; Relational or market capital; Innovation capital.

These cluster headlines in a first instance may help to give a rough orientation in order to find and categorize the impact elements. The clusters and their meaning shall be explained in the general introduction of the methodology or as an introduction to this section of the workshop.

This workshop starts with the general question: "What are main impact elements in the above clusters which, according to the participants, have an important influence to achieve the vision or the strategy of the region?"

The method to collect the inputs is by a brainstorming session. The brainstorming can be done be every participant individually or in the group or in a mixed mode.

The brainstorming session should not continue longer than 30-45 minutes in order to catch inputs which are evidently of prime concern.

During the brainstorming no time shall be devoted for discussing the individual elements, rather than to get them assembled.

After this initial brainstorming session the moderator of the workshop attempts to cluster all introduced elements into the above mentioned cluster "boxes", involving the group members. By experience during this clustering process short discussions are raised about each single element, mainly because there are normally some elements which have the same semantic meaning and will be compiled into one.

The result of this clustering process should not be any more than maximum 30 elements. With more than 25 elements the subsequent steps will take too much time to process. All elements must be distinct in their meaning to each other, since otherwise it will become difficult in the further process of analysis to draw a clear picture.

In a final step of this working section the group aims at formulating a clear definition of each of the identified elements.

The clear and precise definition of every element is essential for the subsequent steps in the workshop process. The definition should describe the impact element/ factor clear and to a level of detail so that its meaning is clear for everybody, even when the group meets again after some weeks! By experience it is worthwhile to spend sufficient time for a clear semantic definition of each impact element.

At the end of this part of the workshop, every participant should receive the description of the elements in print/ electronic version for preparing the next steps.

Step 2: Evaluating the impact factors:

The collection and definition of impact elements is followed by a "qualification" of every single impact element identifying its role and importance for a future change/ improvement process?

This characterization and classification of each of the impact factors is done along the following three dimensions:

- *Quantity*: Is the quantitative weight of this impact element heavy enough at the moment of the discussion in order to reach the given goals of the region?
- *Quality*: Is the qualitative nature of this impact factor at the moment of the discussion relevant enough to contribute to reach the identified (or assumed) goals of the region?
- *Systematic*: Is the process of dealing with this impact factor understood well enough so that it can be systematically structured and designed in order to reach the goals of the region?

Working along these three dimensions provides a better understanding generating a more complete picture of the impacts elements/ factors. This exercise is a precondition to end up with a defined and precise action plan for change/ improvement at the end.

The evaluation in each of the three dimensions is done roughly in three scales: *good* (= green = 3 Points), *sufficient* (=yellow = 2 Point), and *not enough* (=red = 1 Point). An extensive example is further provided:

EXAMPLE: impact element = "number of (innovative) companies in the region"[53]

Element (e1): number of (innovative) companies in the region.

Definition: The number of companies with innovative products or service is a main element and a value driver for the future and the wealth of the region. Innovative companies are necessary to employ the workforce of the region during the next years. There products must be innovative not only in the own country but worldwide to be able to pay good salaries.

Dimension	Question	Answer

[53] The impact element and its definition is the result of the previous workshop.

Quantity	Are there (in quantitative terms) "enough" innovative companies in the region to reach the goals?	2 = sufficient (yellow)
Quality	Is the quality of the companies (e.g. by their innovative power) high enough to reach the goals of the region?	2 = sufficient (yellow)
Systematic	Is there a systematic approach for attracting new innovative companies?	1 = not enough (red)

The meaning of the example result: For today there are enough many innovative companies in the region, but not for achieving the future goals and requirements (only 2=yellow). The quality of the companies and the innovativeness of their products is not really sufficient to conform to future requirements. The main problem is that there exists no systematic approach for the time being to improve the situation.

It is recommended to add the remarks and the reasoning from this evaluation to the conclusive evaluation of each dimension. These remarks later will support the definition of the resulting action plan to be as concrete as possible.

After evaluating all impact elements a matrix of all elements in all of the three dimensions will result as follows:

	quantity	quality	systematic	Sum per element
e1	2	2	1	5
e2	2	1	1	4
e3	3	2	1	6
Sum per Dimension	7	5	4	

The sum per element gives you an indication which elements are already in support of the strategy/ the vision of the region and which elements are not.

The evaluation of each element according to the three dimensions should always be done according to the so far discussed strategy or vision of the region. Even elements which are considered to be good by today can be evaluated as "not sufficient" for the future of the region.

(In case there is no strategy to be referred to, this step nevertheless may be performed in an "intuitive" mode)

The sum per dimension gives you an indication which dimension is already contributing to the explicit (or implicitly "felt") strategy or vision of the region and which dimension needs be strengthened.

Table 7: Methodological example of evaluating the impact factors in respect to the regional strategy or vision.

Step 3: The Cross-Impact-analysis:

The analysis of the three dimensions over the whole collection of selected impact elements provide a first impression about possible domains calling for action, but they do not yet demonstrate the whole picture.

By experience from many project it can be stated that there groups have a strong tendency to focus on elements which have two or more yellow or red markings.

But when evaluating every element on its own without taking into account the interconnection/ interrelation between the elements, this evaluation does not give an impression about the mutual impact of these elements on other elements.

In general, two kinds of elements can be identified:

1. "*Active elements*": they have a relatively big influence on many other elements. Changing these factors in terms of strengthening the results in strong influence also on other elements. These elements turn out to be of interest when the action plan is compiled.
2. "*Passive elements*": these elements have less influence on others, but they are influenced by many others. In practice it is difficult to improve them by direct measures. For constituting an action plan, these elements are of minor interest.

Workshop2:

To identify the active and passive elements to be considered for a regional IC report a next follow-up workshop will dedicated to perform a so called cross-impact analysis over all elements/ factors.

In a first step you need to compile a matrix in both dimensions of all and same elements (in the case of the example: element 1 – element 3):

	e1	e2	e3	
e1				
e2				
e3				

In a second step the group in a group discussion evaluates every relation between each element according to the following rules:

1. x = elements have no influence on themselves per definition;
2. 0 = there is no influence/ relation between these two elements;
3. 1 = there is a weak influence/ relation between these two elements;
4. 2 = there is a strong influence/ relation these two elements.

The influence can be positive as well as negative. We talk about a positive influence when improving one element also improves the other element. In such a case the number for describing the strength of the influence is followed by a (+). We identify a negative influence when improving one element has a negative effect the other element. Then a (-) is marked behind the number.

It is recommended to start at the first line and then proceed line by line:

	e1	e2	e3	
e1	X	1.	2.	
e2	3.	X	4.	
e3	5.	6.	X	

The time for this evaluation process is mainly influenced by the number of elements.

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In case 20 impact elements have been selected there are 20 x 20 – 20 = 380 (!) influence relationships to be discussed.

For the evaluation of the elements the following questions have to be debated:

1. Is there an influence of element (e2) on element (e1) and is it weak or strong?
2. Is there an influence of element (e3) on element (e1) and is it weak or strong?
3. Is there an influence of element (e1) on element (e2) and is it weak or strong? (Etc.)

After this evaluation process in our example one may get the following picture:

	e1	e2	e3	Active sum
e1	X	0	1(-)	1 (-1)
e2	2(+)	X	1(-)	3 (+1,-1)
e3	2(+)	1(+)	X	3 (+2)
Passive sum	4 (+2)	1 (+1)	2 (-2)	

The so called "active sum" is the sum per line, while the "passive sum" is the sum per column.

The higher the active sum is, the more influence has this element in the regional development system. These elements are called active elements.

The higher the passive sum is the more influence will receive the element from other elements. These elements are called passive elements.

Recommendation is to document the discussion about the evaluation process per influencing element. This information will support the compilation of the resuming action plan also in detail.

REFERENCE DATA FOR IDENTIFYING A REGIONAL STRATEGY IN A LARGER CONTEXT

As pointed out in the first chapter of this Blueprint, there exist many sources for data and quantitative indicators by which

reference information can be drawn for the region under consideration. In addition to the publications of the national institutes for statistics there are international bodies offering reference information such as Eurostat, World Bank, World Economic Forum, IMD (Yearbook service), etc.

The big question, however, in a working setting is how to find the right statistical data for the IC reporting.

Looking for the right indicators should be done in two different ways. The first one is to collect data from the mentioned sources after the definition of the impact elements has been finished and before the evaluation process begins. This possibility allows to match and to compare the "self-made" evaluation of elements with statistical data taken from external sources. In many cases the statistical data are not as refined as needed for the evaluation process.

One disadvantage in this approach is that many statistical data have to be imported also for elements which turn out not to be very important in the subsequent evaluation process.

A second option is to research for the related indicators in external databases after the evaluation process is completed and a clear tendency in the main value drivers for the region become evident.

Recommendation therefore is to look for indicators after the evaluation process has been completed, thus avoiding unnecessary effort.

Step 4: Generating and interpreting the results:

There are three selection tactics for researching indicators which will become relevant for the IC reporting, related to the impact elements/ factors as found by the cross-impact analysis:

- Indicators for elements with a high impact on other elements;
- Indicators for elements with a high negative impact on other elements;
- Indicators relevant for the three evaluation dimensions (quantity, quality, systematic).

INTERPRETATION OF THE FINDINGS SO FAR

The first interpretation of the results usually not performed by the group, rather than prepared by the moderator.

A first step is to interpret the resuming cross-impact analysis picture. Elements with a high active sum and a high number of positive impacts are candidates to be transferred into the future action plans (in our example: e3). Elements with a high active sum and a number of negative impacts must raise special attention.

When interpreting the results of the IC reporting the results of the two different evaluation dimensions need to be compiled into one matrix.

To the left you put the results of the evaluation of the three dimensions, first as an average of all three values. For example for e1 with the values (quantity=2; quality=2; systematic =1. Average is calculated to 5: 3 = 1,666). The scale shall go from zero to 3 (+1 for a space in the right) in steps of 0,5.

The scale of the upper scale theoretically depends on the number of elements (in our example case three) multiplied with the maximum number per evaluation in the cross impact analysis which is 2. Our scale could go to a maximum of 6 but in reality the maximum will be always be lower because normally not all elements have the maximum impact.

If there was no clear strategy or vision at the beginning of the workshops there is the possibility to derive a regional development strategy out of the results of the picture produced so far. The cross-impact-analysis is the most important part for deriving a strategy. The elements with a very high active sum (in relation to their passive sum) are good value drivers for an action plan and for creating the strategy in terms of concrete steps for the region.

INTEGRATING RESULTS AND DEVELOPING AN ACTION PLAN

Workshop 3: Presenting the results within the workshop group:

After the results have been prepared by the moderator, a final workshop with the participants shall be conducted, in which the results are presented and discussed.

The results should be adopted as the result worked out by the group. This involvement increases the acceptance of the results and gives them more authority also to outsiders.

Step 5: Creation of the action plan:

Any serious action plan should consist of at least the following elements:

- Describing the actions in mist concrete terms;
- Describing the clear outcome of each action, which should be measurable or be made visible;
- A clear and defined responsibility for every single action (Who is in charge of managing this concrete action?);
- A realistic schedule during which the action should be finished.

Without fulfilling these minimum requirements, likely most of the proposed actions will remain paperwork.

To create an action plan during or after an IC reporting process could make it necessary to involve additional persons in this phase of the workshop. To fix the responsibilities and the schedule requires involvement of persons who will be made responsible for every single action.

In most cases the action plan resuming from the IC report is a proposal of the working group as a whole. Each individual action needs to be refined by the person who takes responsibility to get it implemented.

PUBLISHING THE REGIONAL IC REPORT

Step 6: Presenting the results to third parties:

As the last step of an IC reporting process for a region, a presentation of the results as gained by the working group shall be presented to a broader audience.

This presentation could be completed in form of a written report which is the common way of publishing the results of an IC Reporting project. In addition, a presentation event/ conference can mark the end of such project.

The written report, i.e. the Regional IC Report should contain the following elements, which also provide a rough table of contents for its structure:

- Description of the general methodology of IC reporting and of the workshops;
- Short description of the participants' group;
- Description of the underlying or composed strategy or vision;
- Description of the results from the analytical process ;
- Interpretation of the results;
- The resuming action plan – for recommendation or for implementation.

CONCLUSIONS

IC reporting in its project instantiation is not a completely new methodology. It is rather a combination of existing and proven methodologies combined in a well-structured framework.

Through the presented participative way of developing a "picture of the future" for the region in view, the results are highly well accepted not only be the participants in the workshops, but also by external recipients of the results. The quality of the results depends on the knowledge of the participants of the workshops in the details and in their different competences, however, by experience, usually is much higher than produced by many other alternative methods.

The detailed results of an IC report allow to derive a precise and concrete action plan the purpose of which is to increase the future wealth of a region – in economic and non-economic intangible terms (such as satisfaction, happiness, etc.).

When starting such projects in a series, the first workshops shall be run by an experienced moderator who demonstrates how to guide the working group through the series of subsequent workshops and steps.

An additional advantage of IC reporting in the version as discussed in this chapter is the possibility offered to regions not yet having a vision or strategic plan to derive a strategy for their regional development based on the results of the workshops. The IC report therefore can be used also as a tool for strategy building.

Matching the results from a workshop series with indicators from third sources allows to combine soft facts as identified in the group sessions with hard quantitative data.

RECOMMENDATIONS TOWARDS THE IMPLEMENTATION OF A 1ST IC REPORT FOR ROMANIA

The authors of this Blueprint claim that their contributions cover both the historic and the current discussion in IC Reporting. They also elaborate that there exists not yet a consolidate "theory" as a foundation of IC, first hand understood as a complement to traditional capital theory as exist in economy and economics.

This insight is confirmed by the fact, that the authors discuss several options of framework models for IC reporting, trying to reflect the latest development in national IC reporting and mapping them into compound new framework models. This discussion is not concluded in suggesting one specific model for a future Romanian IC Report, but provides sufficient background

to take such decision once Romania would go for an own national IC Report and with this decision to design an adapted model.

The first chapter starts from the basic assumption that Knowledge Economy constitutes a new economic philosophy leading to a "new economy" founded on new paradigms potentially leading to a new theory of economy. The question not answered by the authors, however, is if this new model will still be "bound" to economy only, or if it will involve further aspects as meanwhile are addressed in multi- to transdisciplinary research by also including politics, culture, art, psychology, behaviour, brain processes, etc.

One rationale to insert an article on "Public Value" in the first part of discourse in this Blueprint was motivated not the least because a strong statement was articulated in the first section, that only industry/ economy is creating value and that IC value is a new form of economic value; the inserted article takes the complementary if not opposite position, that public institutions by their services are creating value, although these may not be valued in monetary terms. The two positions make transparent that when it comes to the basics of definition what IC value is, the discourse is neither convergent nor conclusive.

In order to give a concrete example of what the format, structure and content of an IC report on national level can be, the authors suggest adapting the model of the IC Report which was developed by and for the State of Israel. The rough structure derived from this model report for a Romanian IC Report would be:

1. An IC analysis, i.e. an identification of the "state of knowledge" and the competitive knowledge advantages of Romania, mainly using data from trusted sources as World Bank, OECD, World Economic Forum, IMD's Yearbook or NIC data (as published by C. Lin, P. Stahle and L. Edvinsson). On

national level, as much as available data as e.g. form the office of statistics or from research results as published by Holeab and Curaj (2013).

2. A survey on government programmes, usually in support of R&D, technology development, funding of science and in support of universities, which contribute to an IC/ knowledge (political) strategy of the country. In the case of Romania, this would be fed by ministries and agencies in charge of science, research and education.
3. Presentations of examples of successful companies and company clusters, thus demonstrating, how a national knowledge policy potentially resumes in concrete instantiations of competitive advantage. This presumes that knowledge politics transformed into knowledge policy decisions then is translated into a concrete IC strategy and into subsequent actions implementing such strategy.

The authors want to point out, that in IC reporting the underlying, abstract framework models may be independent form the size and level of the subject and scope to be IC analysed, but in practice no "one size (i.e. one concrete model) fits it all".

In other words: A national IC report has a different structure, size and data basis than a regional IC report. Its construction and production will be a combination of "top down analysis" and compilations from "bottom-up" analysed results.

In contrast, a regional IC Report is a bottom-up compilation resulting in or soliciting a regional development strategy, worked out in a participatory process, involving citizens, interest groups and members of the regional innovation networks and clusters, knowledgeable in regional specialities and foundations, thus representing the "genetics" of the region to be IC analysed.

This division between top-down for the national report and bottom-up for regional instantiations motivated the authors to devote one chapter to explain how such bottom-up development

of an IC report on regional level works in practice. By experience, the main benefit of organizing a process as described – structured in workshops and well defined steps – is that the respective region (or city) going through this process will convergent find its "strategic picture" plus the subsequent implementation steps directed for the further beneficial development of the region (or municipality).

The reference framework model which is used in all contributions referring to practical application of IC reporting is the quasi "standard model", as was "invented" in the late 1990s in Austria and then further applied in larger number of cases in Germany ("Wissensbilanz – Made in Germany") and Europe (InCAS project). This model is proposing to structure an IC analysis and IC report along four dimensions:

1. Vision, mission and strategy;
2. The potential and resources to turn strategy into results, i.e. the intangible;
3. Capital structured into human, relational and structural capital;
4. The key processes to be implemented and to be managed for achieving strategic goals, outputs, outcomes and impacts.

In (strategic) knowledge management and IC reporting a multitude of methods have been introduced in the discussion, as in this Blueprint are explored in the first chapter. The authors do not favour apodictically one model only; moreover, in Figure 11 the authors have integrated many of the complementary concepts and models mapping them into the so called "Koch – Schneider – Leitner 'Standard Model'" (Koch 2000).

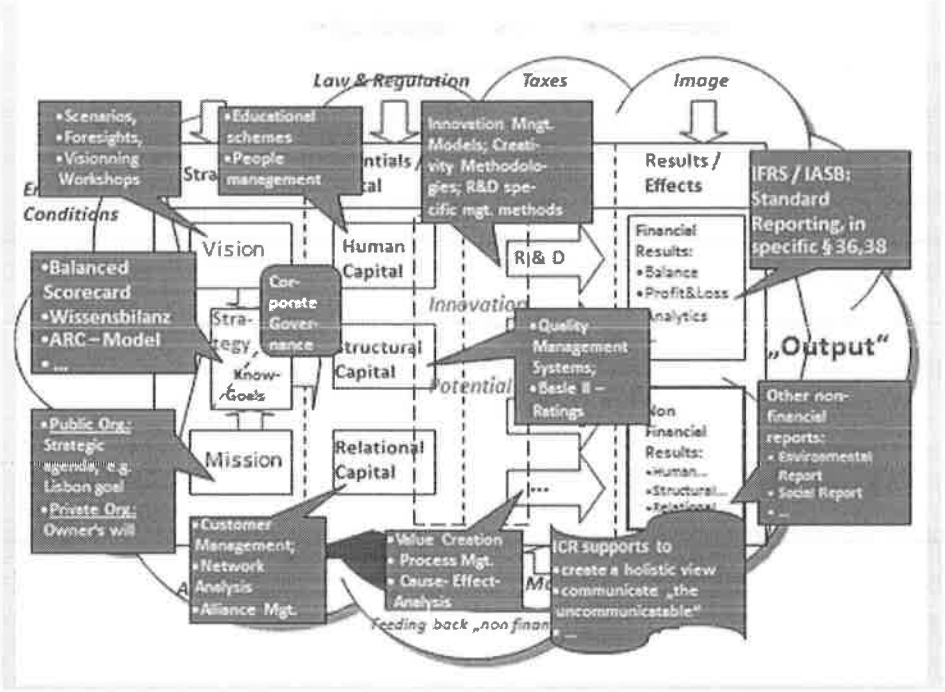

Figure 11. Associating different (knowledge) management concepts and practices to the "standard model" of IC reporting

Source: G. Koch in the RICARDIS report 2006

Over many years of working with such methods in practice, we came to the insight that the basic scheme of four dimensions of the framework provides a meta-model which has the potential to integrate several methods and aspects known from theories and models in management since long.

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