Identifying, controlling, measuring & reporting
Innovative Competence

Abstract
Knowledge Society and *Innovative Competence* are popular terms in these days, which are used in a broad variety of occasions. This paper starts with an explanation from a historical point of view, how the term *Knowledge Society* came about; while an important issue to understand *Innovative Competence* are the aspects of organizational immaterial assets. They are — here is consensus — the key drivers for the organization's problem solving capability and as a causal, for its innovative competence. A detailed review of the *Intellectual Capital* (IC) and the organizational IC management characteristics completes the "Teaching-Part" of this paper. The paper's "News-Part" starts with a review of the two actually most popular tools, which are used to work with organizational immaterial assets: the *Balanced Scorecard* and the *Intangibles Reports*. Since both of them show specific limitations, a new approach is introduced: The *Intellectual Capital Management System* (ICMS) allows to audit knowledge-based organizations in a standard approach, regardless of their size, sector and purpose. The ICMS overcomes the mentioned limitation by delivering harmonised reports. Depending on the nature of the individual organization's knowledge initiatives, the ICMS can be linked to established tools such as the *Knowledge Matrix* (to monitor project work-flows) and/or the *Balanced Scorecard* (to control and measure the project status). The resulting modular tool offers support to all aspects of knowledge work, which are in a context to the management of the organizational *Innovative Competence*: Identifying, controlling, measuring and communicating intangible assets can be performed independently or combined according to the organizations preferences.

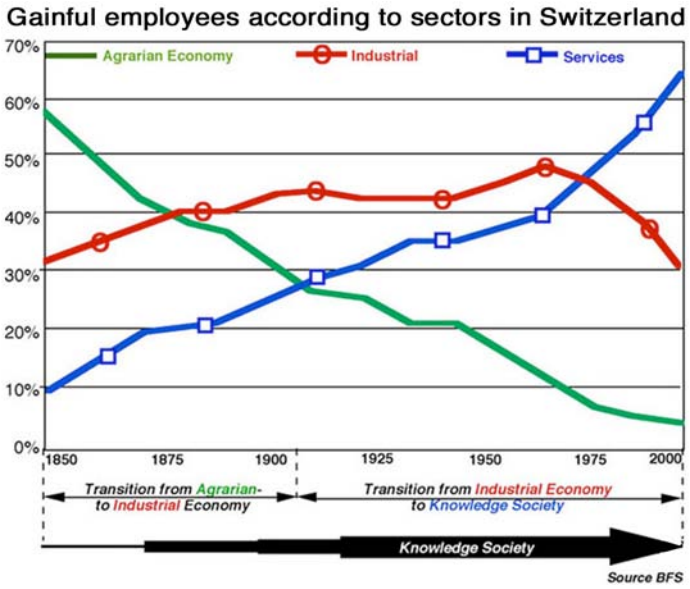
Fundamentals of the Knowledge Society

Introduction [1]

When economic leaders, education experts or politicians discuss the actual challenges of political economics in these days, they use *Knowledge Society* in their standard vocabulary. What is the definition of this term? Stands it for the sustainable, irreversible and radical change, provoked by the global economics? And which impacts have the knowledge towards an encouraging innovation? Whatever the answers to above questions will be, the practice shows, that this structural change influences the operations of knowledge based organizations: The problem-solving competence and the innovation competence are increasingly defined more by the organizational reproduction logic and less by the individual skills. Thus, a *Meta Competence* is required, that allows to extend, distribute, preserve, use and evaluate the existing organizational knowledge and to reflect those processes.

From the Agrarian Economy to the Knowledge Society [2]

In the 19th and 20th centuries changes in the working sectors was a major supposition for the sustainable economic growth. Occupational activities have undergone a complete change since 1850: The dominating position of the agrarian economy and forestry shrunk from 60% to less than 5% in 2000. The industrial sector overtook the agrarian economy in the early 1880s, the service sector at the beginning of the next century. Since then, services grew faster than both, the industrial and agrarian sectors. 1970 the industrial and service sector had approximately the same number of employees, while today about two out of three receive their income from the third sector.



Graph 1: Switzerland's development history is representative for the occupational activities in Western countries

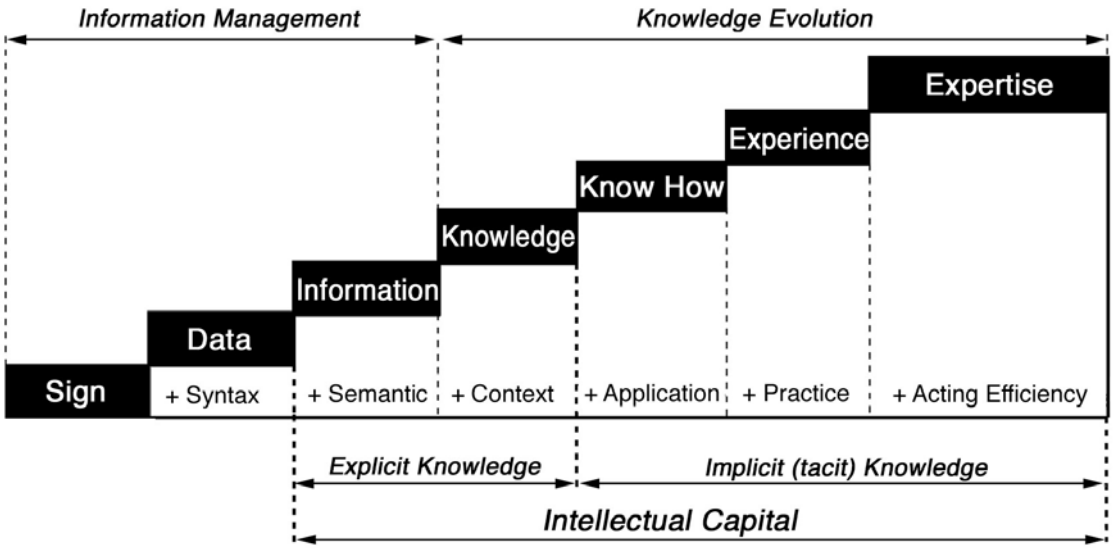
Contribution of Thomas Auer to the «**Service Innovation Yearbook 2010-2011**» edited by the European Commission (Directorate Information Society and Media) ISBN 978-92-79-17351-6

As a conclusion we observe a transition from agrarian economy towards industry in the late 19th century, while the industrial society was replaced by a service society in the late 20th century. At that time the new term *Knowledge Society* was born: Organizational knowledge (= *Intellectual Capital* or *Intangibles*) receives increasingly recognition to be the key factor for innovation competence and thus, as being the most important driver for a sustainable successful economic future.

Information Management versus Knowledge Management [3]

Information can be codified and converted in a systematic language, where IT offers efficient tools: They allow with sophisticated search machines access to all released information within a local or decentralised organization, project teams can act virtually and the work-flow can be monitored constantly, data can be navigated and combined at necessity. On the one hand those are suitable and efficient tools providing the undisputed advantage of high communication speed. On the other hand IT tools are a source of confusion: They identify, document and transfer *information*, but some individuals call those activities *knowledge* management!

A qualitative difference between information and knowledge is the fact, that information is punctual, while knowledge presupposes the understanding of coherence. Knowledge creation requires embedded contexts. Even for that IT offers solutions: Expert systems and other artificial intelligence technologies demonstrate amazing results, but they work for specific tasks only and are not (yet) available for polyvalent applications.



Graph 2: Uncovering the pretended IT dependence for knowledge creation

«Knowledge has its place between two ears and not between two modems» Quotation Fredmund Malik

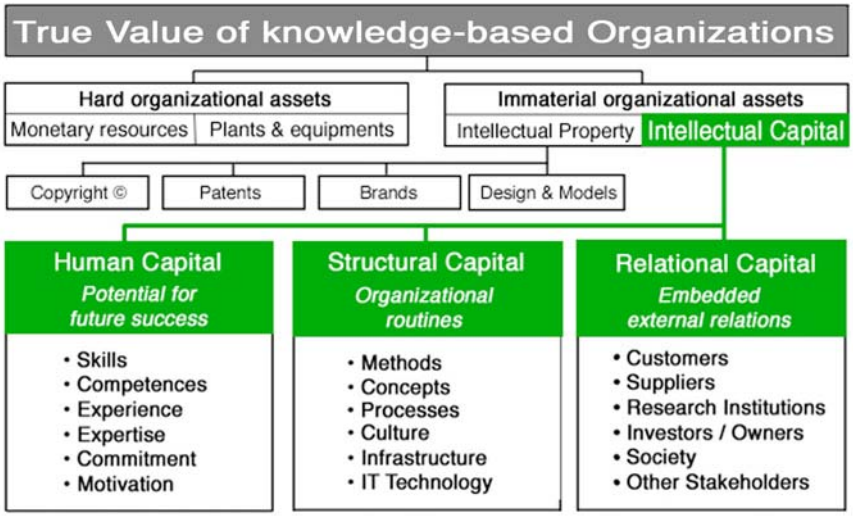
The goals to raise, renew or justify actual knowledge requires human capital, since only humans own the ability to develop information up to expertise. This development depends on human perception and skills: *Remember* > *Recognise* > *Understand* > *Combine* > *Conclude* are human activities of knowledge creation and thus, rather work than "managing": It is individual and organizational working with the *Intellectual Capital*, which embraces to the total of the organizational explicit and tacit knowledge.

A superior goal of knowledge work is the consolidation and further development of the organizational core competencies, which are mostly based on the staff's experience and expertise. Consolidation means in this context to retain identified knowledge hosts and to steer the transfer of their tacit knowledge by using innovative organizational process models. Knowledge creation presupposes a "high-trust-culture", allowing freedom for acting and offering adequate incentives for knowledge sharing.

Conclusion: *Information Management* is a mandatory tool, that allows to convert data into information and to store, distribute and re-find information contents, while *Knowledge Management* is strictly human-driven.

Intellectual Capital (IC)

Intellectual Capital is often described to be the difference between the market- and the booking value of an enterprise. This formula is somehow questionable, since an organization showing a market value below booking value, has certainly not a "negative Intellectual Capital". A better definition might be "IC = expected future economic success". It is undisputed that the Intellectual Capital represents the most important asset of a knowledge-based organization. Intellectual Capital must be converted into knowledge resources to formulate an Intellectual Capital statement. The most common classifications or types of knowledge resources are technologies, processes, stakeholders and (of course) employees. The three components of IC are interactive: The *Human Capital* raises the *Structural Capital*; both together create the *Relational Capital*. The pure presence of resources is not sufficient to create value: for example, there is no correlation between the number of graduates in an organization and its innovative competence.



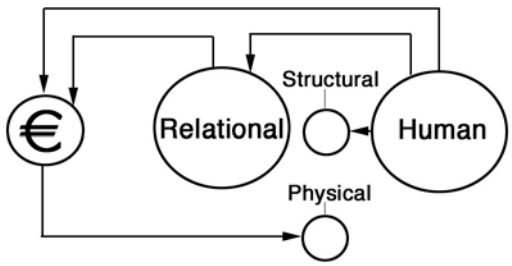
Graph 3: Classical diagram of Intellectual Capital as commonly used in literature

Navigator models revealing value creating resources [4]

The impact of IC transformations on value creation can be assessed and visualised through the Intellectual Capital approach with a "Navigator", a model revealing all the value creating resources (tangible and intangible), their transformations and the relative importance of the resources and transformations for value creation. The claim for a standardised IC evaluation as required by financial markets, can be partly fulfilled by reducing the large number of different organizational structures down to two navigator models, which are valid for services (model X) and industry (model Y).

Model X: Human Centric Navigator [5]

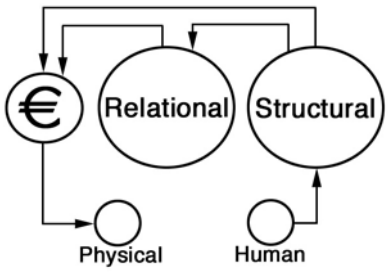
The navigator shows an organization that relies heavily on its human and relational resources. It does need some monetary resources, but hardly any physical or structural resources. This is an organization focused around very knowledgeable and competent individuals who use these attributes to form personal relationships with their clients and to deliver value. The organization survives and thrives thanks to low fixed costs and high billing rates and margin. Typical examples are consulting services and providers of individual products (e. g. software). Some of the money that is earned is used to sustain the relationships with clients and some to maintain and develop the competence of the individual. The quality of the products or services delivered may vary according to who is doing the job.



Graph 4: Human Centric Navigator

Model Y: Structural Centric Navigator [5]

This organization places a much more emphasis on its structural resources and is less dependent on bright individuals. This does not mean that people are not important, but their relative importance is lower. The best people are used to develop processes which are "activated" by less skilled employees. There is more codification and rules and the company may have higher fixed costs and lower margins than a people centric one. Typical here are all kind of manufacturing, the chemical industry and public services. Product quality is more standardised and therefore a more system-focused approach is evident.



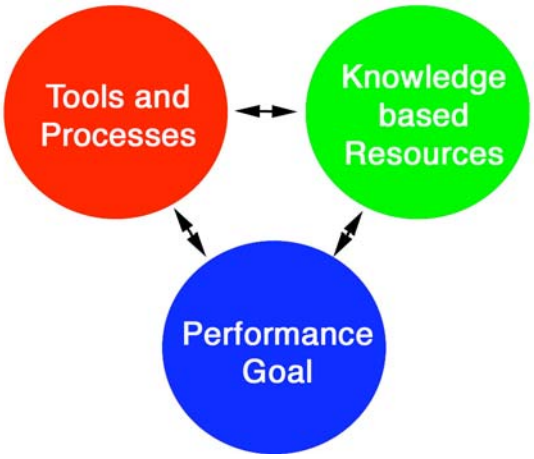
Graph 5: Structural Centric Navigator

The relative importance of the three IC categories shall be considered. Value creating patents and strong brands, for example, may play a major rule in model Y, but have almost no significance for model X organizations. In the human capital of model Y, the identification or retention of the knowledge hosts and the externalisation of their tacit knowledge are a matter of survival. In model X the knowledge hosts are known *per se*, while efficient stakeholder communication and collective knowledge development belong to the most important resource transactions. Depending on the type of organization, different IC aspects dominate. Thus, a generally accepted IC evaluation, as required by the financial markets, cannot be fulfilled or at best partly.

In addition, many organizations refuse to disclose their IC data. They declare them as strategic and secret information, which are reserved for the internal IC management. IC data demonstrate how resource processes contribute to competitive advantage. IC oriented organizations show (somehow legitimate) reservations, since the newly realised advantages might be negated by full IC transparency.

Aspects of knowledge-based organizations

The longer, the more products contain "built-in-intelligence". That means such products are developed, sold and distributed in knowledge-intensive processes. To produce such non-trivial goods, the enterprises transform to knowledge-based organizations. In addition, a meta-competence is required, that allows the further development of the existing knowledge. To optimize those processes, the organizations rely on a systematic knowledge work. The processes are defined in a manner that collects and systemises the knowledge and know-how of all involved parties. Finally, an adequate development of the human resources assures, that the organizations can systematically access all their knowledge potentials to reach the performance goals.



Graph 6: Aspects of knowledge-based Organizations

Graph 6 shows the dominating aspects, which characterise knowledge-based organizations: On the one hand implemented standard processes and tools are the primary presupposition for efficient organizational operations. On the other hand an efficient and sustainable management of the knowledge-based resources optimises the problem-solving capability and thus, the innovative competence. Those aspects interfere reciprocal, what can be monitored and steered by using specific tools.

Graph 7 shows the coherencies between the performance goal, the available knowledge-based resources and the implemented tools and processes. The overlapping segments represent the action fields of the knowledge work. They can be described as follows:

- Standardised tools, processes and procedures
- Socio-technical competence to fulfil the performance goal(s)
- Human and organizational skills, competencies & methods
- Fallow lying knowledge = "sleeping problem solving competence"

Graph 7: Action fields Knowledge Work

It is worth to mention, that the white field (social-technical competence) is the place, where the main part of knowledge work is evident. Depending on the character of a knowledge-based organization, the other overlapping segments contribute to knowledge work in different intensity. Even the yellow segment should receive its adequate attention: In the fast moving knowledge society it is worth to be prepared for new challenges: Full transparency about all available knowledge resources may avoid huge time losses, if new knowledge is instantly needed.

All knowledge-based organizations are faced with the challenge to maintain their immaterial assets in a systematic manner to assure, that the relevant knowledge is identified, preserved, accessible and distributable and new knowledge can be acquired and/or developed.

Actual IC-Management Standards

Balanced Scorecard (BSC)

The values of intangibles can be several times those of physical capital (monetary resources). In addition, the sustainable treatment of this Intellectual Capital (IC) has become the acknowledged key driver for innovation efficiency and thus, for the long-term survival.

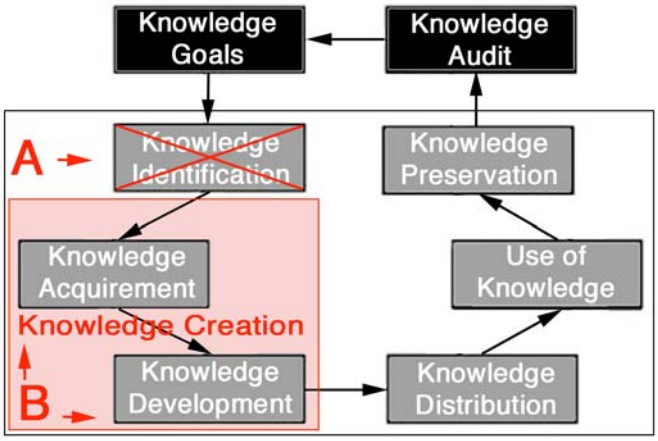
Several tools have been developed to control and measure the knowledge initiatives, whereat the Balanced Scorecard (BSC) has become the widest acceptance. The BSC covers the demand to use perspective parameters instead of relying on past financial reports, when an organization has to be evaluated. It is a steering- and controlling system combining strategic and operative planning. It allows judging an organization from the view of the most important perspectives. Strategic and operative goals and their derivative key performance indicators (KPI´s) describe these perspectives. Norton & Kaplan define four original BSC four perspectives:

- Financial perspective > Behaviour to stakeholders to aim future financial success?
- Customer perspective > Behaviour to customers to realize our visions?
- Internal process perspective > Where do we need to improve to reach our market goals?
- Innovation perspective > Where do we need to improve our change- & growth potentials?

To adapt the BSC for specific inquiries the original four perspectives can be changed and extended according to the defined subject. The flexible architecture makes the BSC to an attractive and versatile tool.

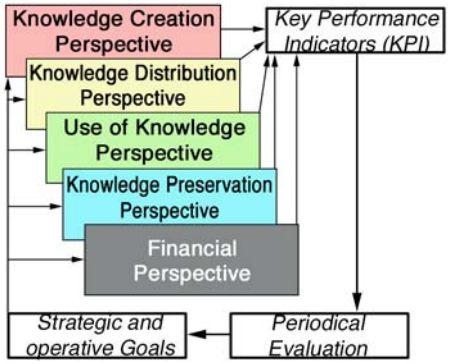
Architecture of a Balanced Scorecard for IC Management [*3]

Using the BSC for knowledge management applications needs an adaptation of the perspectives. Knowledge perspectives are defined according to the knowledge management model introduced by Probst et al. [*6]. This model puts six operative core processes into a co-ordinating frame. On the strategic level this model includes two additional processes: *Knowledge Goals* and *Knowledge Audit* are essential for the BSC application. Strategic goals are the basis for each knowledge perspective. Auditing knowledge is (besides steering) the main reason for the BSC invention. The strategic goals of knowledge work need to be defined for each perspective individually. Each organization has to define its own knowledge strategies, which are products of the superior economic goals. The core process *Knowledge Identification* (A) is not foreseen to act as a perspective, since knowledge transparency is expected as to be at hand in a BSC-based management process. The core processes *Knowledge Acquirement* and *Knowledge Development* are linked resulting in the *Knowledge Creation* perspective (B). Since all knowledge work activities shall impact the success, a financial perspective is added to the knowledge perspectives.



Graph 8: Modified Knowledge Management Model

Thus, the Balanced Scorecard for knowledge work consists of five perspectives:



Graph 9: BSC for Knowledge Management

The four remaining knowledge perspectives are described hereafter:

- Knowledge Creation Perspective
Knowledge Creation is focussed on Knowledge Acquisition and Knowledge Development. This perspective aims at the set up and/or expansion of the organizational knowledge base. Strategies of this perspective deal with the acquirement of external knowledge and the development of the organizational knowledge. Goals of knowledge creation could be the extension of R&D, research co-operations and lesson-learned-programs. Optimising the structure of organizational learning (Think Tanks, Learning Arenas) belongs to this perspective too.

- Knowledge Distribution Perspective
This perspective deals with the optimal knowledge distribution and the procedures assuring the distribution. Besides adequate tools like Intranet and/or GroupWare, transfer of best practices, incentive systems and the individual's skills management belong to this perspective.

- Use of Knowledge Perspective
This perspective deals with a productive use of organizational knowledge. Strategies of this perspective focus on the access of expert knowledge by using knowledge maps, yellow pages or expert directories. In addition methods and processes shall be developed, which support the use of new knowledge. Tools are incentive programs or an optimised infrastructure allowing an exchange of ideas and experiences.

- Knowledge Preservation Perspective
Knowledge Preservation means durable memorisation of the relevant knowledge. Goals in this perspective are the electronically data acquisition, the indication and categorisation of the available knowledge as well as the separation of obsolete knowledge. Knowledge preservation is especially laboriously when dealing with tacit knowledge, which is a human property. In this context, knowledge preservation requires to isolate tacit expertise from individuals, as long as they are available.

Definition of knowledge goals; determining strategies
The deciding step for running a BSC application is the serious determination of knowledge goals. This gives a direction to the learning processes and makes it possible to measure success and/or failure of knowledge work. Knowledge goals are deviated from the overall organizational goals and cannot be evaluated for themselves: rather they are a deliberate supplementary to the common planning activities. Thus, the organizational strategic goals lead to normative, strategic and operative knowledge goals, where the strategic and operative knowledge goals are essential for the BSC.

Indicators of the knowledge perspectives
The knowledge goals serve to define key performance indicators (KPI's). KPI's include metric sizes, measuring intervals, owners, sources of data etc. In the phase of goal setting, the focus is typically concentrated on a single KPI and therefore isolated from the entire coherence. This requires, that after completing the single KPI's definition, the dependencies of all KPI’s need to be evaluated: causes and effects, interference's etc. are subjects to be investigated.

Balanced Scorecard for knowledge initiatives: Quo vadis?
The BSC derivate for KM is an excellent tool to steer, control and measure knowledge initiatives. Since its use is extremely specific for the applying organization, it is — and will remain to be — an internal instrument that cannot be used for other purposes such as intangibles reports and other stakeholder communications.

Intangibles Report [6]

For about 15 years, embedded relational stakeholder groups ask increasingly for information about the set-up of the Intellectual Capital (divided in human, structural and relational resources) and about the initiatives to maintain the IC in a sustainable manner. For scientific organizations, the subject of interest is the ratio between public investments and the resulting research performances, while for profit-oriented organizations the insight in the development of future-securing initiatives and consequently, the innovative ability is the subject of interest.

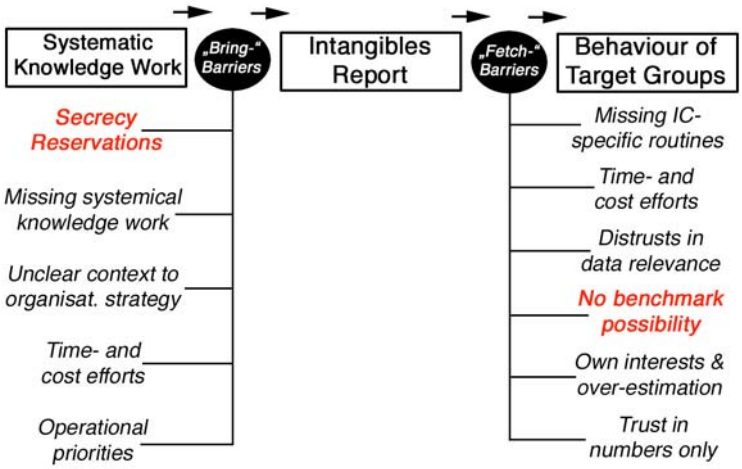
These requirements are answered by *Intangibles Reports*. On one hand, they show the relations between organizational goals, processes, the Intellectual Capital and the success of knowledge-based organizations. On the other hand, *Intangibles Reports* generate in addition key figures for strategic decisions. These indicators include often-sensitive information. Thus, they are mainly reserved for internal use only. Target groups of *Intangibles Reports* can be separated in internal and external groups. Internally, this covers mainly the strategic management, while the *Intangibles Reports* for external communications aim toward carriers of scientific institutions, owners & investors, potential employees, suppliers, customers and partners.

Pioneer of *Intangibles Reports* was the Swedish financial firm Skandia. This company started 1995 to add to its conventional annual reports an *Intangibles Report*, which became famous with the name *Skandia Navigator*. In Germany, the ministry of economy and labour (BMWA) launched an initiative to promote *Intangibles Reports* as a strategic tool to acquire, measure and present immaterial assets for German middle-class organizations. In Austria, a new law obliges all universities to publish annual *Intangibles Reports*. Even national and international accounting standards (IAS 38, DRS 12, IFRS, Basle II) recommend annexing immaterial assets to conventional annual reports.

Nevertheless, the Intangible Report is actually not more but a good intention: Between its indisputable potential and its effective impact is a significant gap! The reason for this is a missing standardisation that allows benchmark capability. Even the question, which qualitative criteria contain substantial information, cannot be answered in general due to the different knowledge processes: Each organization has to define for itself, what their equitable knowledge resources are, which should be developed and maintained in a sustainable manner. Therefore, interpreting non-standardised *Intangibles Reports* requires a deep understanding about the management of the immaterial assets and is extremely time-consuming.

Typical Barriers in Intangibles Report Projects [7 & 8]

Considering the reporting organization as being a supplier of information and the target groups as being information receiver, we can observe typical barriers on both sides. They even influence reciprocal.



Graph 10: Typical Barriers in Intangibles Report Projects

Bring-Barriers: On the "bring-side" the four barriers from bottom up are typical for a poor or non-existing knowledge-based organizational culture, while *Secrecy Reservations* is a true barrier: many organizations refuse to disclose their IC data. They declare them as strategic and secret information, which are reserved for the internal IC management. IC data demonstrate, how resource processes contribute to competitive advantage. IC oriented organizations show (somehow legitimate) reservations, since the newly realised advantages might be negated by full IC transparency.

Fetch-Barriers: On the "fetch-side" all barriers (except the missing benchmark capability) are influenced by the *Not-Invented-Here-Syndrome* and could be resolved, if the receiver acknowledges the value of systematic knowledge work and acts accordingly. No *benchmark capability* is a true barrier too, since depending on the type of organizational knowledge work, different IC aspects dominate. Thus, a generally accepted IC evaluation, as required by the financial markets, cannot be fulfilled or at best partly: The impossibility of comparing IC data in a standardised and benchmarked manner requires an alternative IC evaluation.

Intangibles Reports: Quo vadis?

The breakthrough of *Intangibles Reports* depends on the elimination of the listed barriers. The presupposition to reach this is the acceptance of the knowledge society's challenges. First of all a knowledge based culture is mandatory. Here, the top management is obliged to translate normative knowledge goals into action. The acceptance of external target groups (especially investors) depends mainly on the comparability of the report's contents. Thus, the architecture of an *Intangibles Report* needs to be the same for each type of reporting organization, regardless of their scientific, profit- or non-profit goals. Accurate external benchmarking (Systematic comparison one's own abilities with the competition's performance) fails due to the variety of organizational structures, with their corresponding variety of knowledge work and their refusal to publish sensitive IC data.

Therefore a measurement- & communication tool is required, which enables a high degree of standardisation and maintains the necessary privacy. New thinking is needed and new processes must be adopted to define standardised IC measurements and its communication.

Thinking different: The Intellectual Capital Management System [7]

Learning from History

Like others, the author of this paper believed too some time ago, that an overall valid indicator metrics might be possible for Intangibles Reports. After a classical lesson learnt he finally found an alternative, but practicable solution:

In the early nineties a group of leading quality managers, representing multinational firms, tried to figure out, how product quality can be measured and benchmarked. After days of discussions they realised, that this is a non-realistic goal: The conclusion was, that a meaningful standardised indicator metric catalogue for product quality couldn't be raised, even not for comparable organizations. On the one hand, the reporting organizations might loose competitive advantages by disclosing sensitive data; on the other hand it is obvious, that a necessary and sufficient product quality cannot be standardised for the wide range of products and services.

The quality managers were looking for an alternative solution and they found a different approach: Not the resulting product quality (WHAT is the output), but the way to get quality (HOW it's done) shall be evaluated. In other words quality assurance is measured by assessing the instruments, processes and procedures implemented to reach quality. This was the birth of the in-between established ISO-9000.

Architecture of the Intellectual Capital Management System (ICMS-15649)

What works for quality assurance, should be fine for the intellectual capital management too. The impossibility of comparing IC data in a standardised and benchmarked manner requires an alternative IC evaluation. An *Intellectual Capital Management System* (ICMS-15649) covering all components of the Intellectual Capital. The ICMS evaluates processes and tools according to a defined framework that includes all components of the Intellectual Capital.

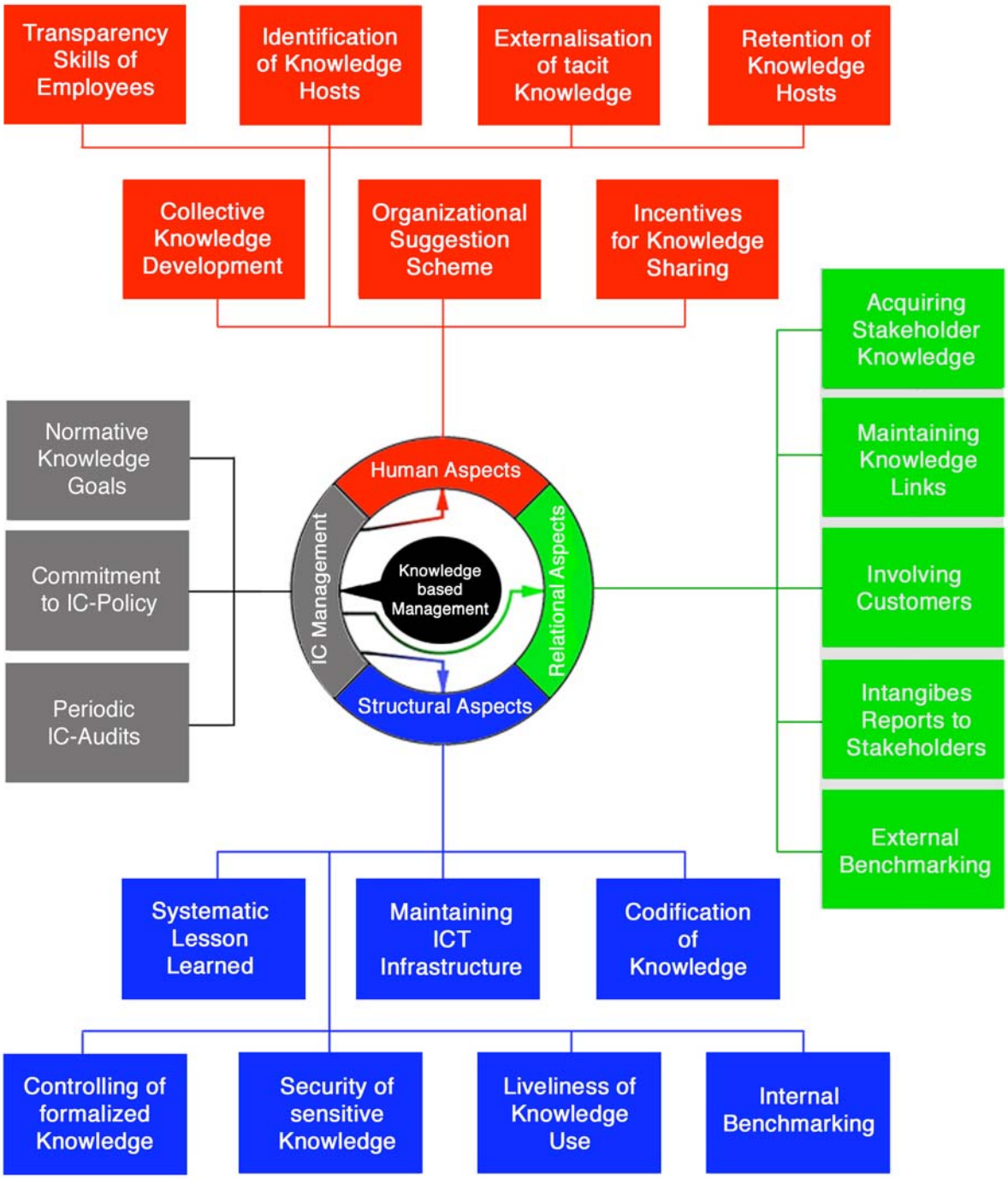
IC-Management: Formulation of normative knowledge goals, declaration of a knowledge policy and performing IC-Audits		
Human Capital Evaluation of implemented tools and processes for the sustainable treatment of human resources: • Skills • Competencies • Experience • Expertise • Commitment • Motivation	**Structural Capital** Evaluation of implemented tools and processes for the sustainable treatment of structural resources: • Methods • Concepts • Processes • Culture • Infrastructure • Info-Technology	**Relational Capital** Evaluation of implemented tools and processes for the sustainable treatment of relational resources: • Customers • Suppliers • Research Institutions • Investors • Society • Other Stakeholder

Graph 11: Architecture of ICMS-15649

The IC audit comprises human, instrumental and organizational aspects, described in 58 concrete requirements. In difference to ISO-9000 the ICMS-15649 uses a different reporting form: Instead of a "digital judgement" (Requirement fulfilled YES/NO?) the ICMS looks, how good the requirements are fulfilled: A taxonomy, that uses "best possible fulfilment" as a reference, allows harmonised comparisons of knowledge-based organizations, regardless of their sizes and the sectors. The idea behind the ICMS approach is to offer objective comparisons, how good the audited organizations are prepared for the challenges offered by the knowledge society. The reporting forms don't show the outcome of knowledge initiatives; they reflect the "organizational fitness" for problem solving, innovative ability — and as a causal — for economic survival.

NOTE: What the ICMS does, what it costs, which time consumption it requires and which added value you can expect, is documented in the ICMS factsheet:
www.hrm-auer.ch/downloads/ICMS-Factsheet_E.pdf

Framework of IC Management, evaluated by ICMS-15649



Graph 12: IC Management Framework

For the three IC categories and the IC management, a total of 58 requirements are derivates from the organizational knowledge work. In general, each reporting organization is asked to respond to all requirements, since every knowledge-based organization does already something for each of the IC components, even when this doesn't run under the knowledge management label. However, it is thinkable, that specific requirements have no relevance in fact. In such a case the reporting organization is asked to conclusively show and explain the non-relevance. This proceeding has the added values, that it becomes visible, which knowledge-based initiatives are subjects to be optimised and/or need to be managed in a more systematic approach.

NOTE: What the ICMS does, what it costs, which time consumption it requires and which added value you can expect, is documented in the ICMS factsheet:
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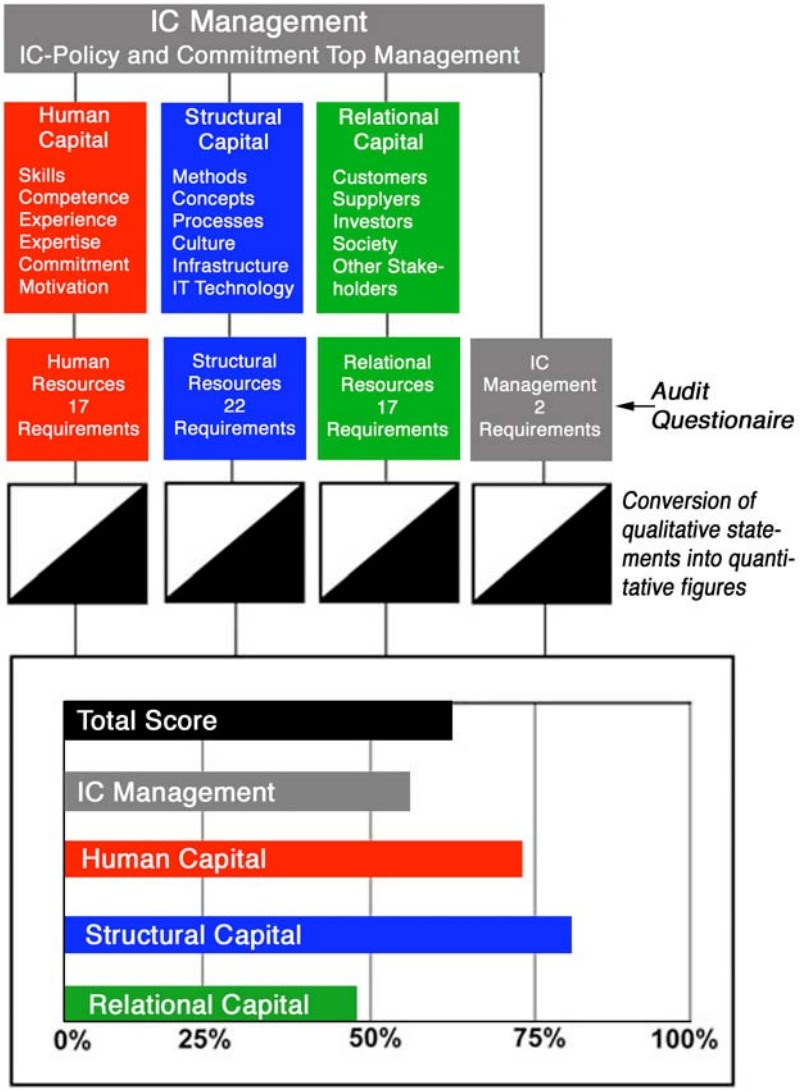
IC Audit Procedure



Graph 13: IC Audit Procedure

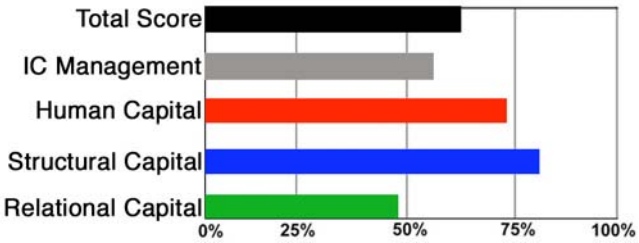
The organization to be audited receives five days before the audit date a guideline, which contains all 58 requirements. Where specific terms might lead to misunderstandings, the requirements are discussed by presenting a range of possible answers. As a countermove the auditor receives a company profile containing the performance goal(s), an organizational chart and documented operation procedures. Facts about the headcount and the staff age distribution complete the necessary information for the auditor's preparation. During the audit, a temporal presence of an accompaniment, familiar with the organizational operations, is in a timeframe of 4 – 6 hours a presupposition. Where necessary, specialised staff (HRM, IT, organizational development) is involved too. The quality claim of the audit requires, that the statements — wherever possible — can be verified by insight in the according documentation.

Generally the audited organization is obliged to respond to all of the 58 requirements. Of course it is possible, that specific requirements do not show any relevance for the audited organization. In such cases the organization is asked to give valid reasons. For example it makes sense, that in an IT company with an age distribution of 21 – 42 years a possible knowledge loss due to the demographic facts (babyboomers effect) has no relevance. After the audit the auditor raises a detailed report within 72 hours. This report describes the status quo, where the organization with its maintenance of the so-called most important resource stands. Disclosed weak points, standing in opposition to the performance goals, are discussed in detail. The report is supplemented by a summary, showing the audit key information on one single page. At the hand over of the report, the audit results are presented at site. Disclosed weak points are discussed and proposals for its remedy are presented. It is then the management's decision, whether remedy actions will be taken or not.

Final Report and Taxonomy [9]

The final report includes all ICMS requirements, where provable non-relevant items are not subjects of the evaluation. The report shows separately the individual scores of the three IC categories and of IC management. They are weighted according to the organization's structure and performance goal, allowing calculating a total score. The results are shown as bar diagrams, which are used as benchmark in reference to an optimal reachable score. To get transparency, how the results were obtained, the individual results of the IC categories and the IC management are shown individually. This allows disclosing, in which IC category significant deficits in knowledge work are evident.

Such quantified score graphs allow overall benchmark comparisons between audited organizations, but they don't reflect, how the results came about. To achieve this, the statements to each of the 58 requirements are commented separately. All disclosed weak points are discussed individually and recommendations are given to correct them.



Graph 14: Quantified Scores for all IC Categories

Example out of the requirement catalogue, paragraph lesson learned (LL)

- *Requirement 2:*
  The organization secures the implementation of LL in project procedures
- *Statement of the audited organization:*
  At the weekly management meetings, disagreeable surprises in project procedures are discussed and entered in the minutes.
- *Recommendation for weak point correction:*
  Integration of an institutionalised lesson learned into the project organization guidelines: documentation according to the sequence «what did we expect?» > «what happens in reality?» > «How did we solve the problem?». Those findings including the names of the involved employees shall be stored in the organizational content system. In future projects such information might prevent huge time losses, even before the project starts.

Graph 15: Sample of a detailed weak point statement

A side product of the audits is the internal *best practice disclosure*, which allows transparency of isolated solutions that are worth to be imitated by the whole organization. This is an additional benefit, especially for decentralised or multidivisional organizations.

The ICMS: Quo vadis?

It is undisputable that an efficient IC management supports an organization's innovative competence. And it generates and preserves market advantages, which are hard to copy. Another fact is, that stakeholders (especial investors) have discovered the intellectual capital as valuation criteria. They ask for an external tool that allows comparisons of knowledge-based organizations, regardless of their sizes or sectors. Indicator-driven tools don't fulfil this requirement, since they are too much specific for the reporting organizations. In other words classical tools like the BSC and Intangibles Reports are useful for the internal IC management. But it's impossible to define an indicator set, which is suitable for all knowledge-based organizations. The ICMS delivers harmonised results allowing benchmark comparisons, that one can interpret with a moderate understanding of immaterial resource processes. The limitation of the ICMS approach is its usability as a tool to analyse a systematic knowledge work and to report the findings. But, in contrast to the above-mentioned classical tools, it doesn't deliver indicators serving as steering factors for the internal IC management. To combine internal IC management (identification, steering and measuring IC) with stakeholder communication, a modular system is required, which offers adapted solutions to individual priorities in knowledge work. The next paragraph describes such a modular configuration.

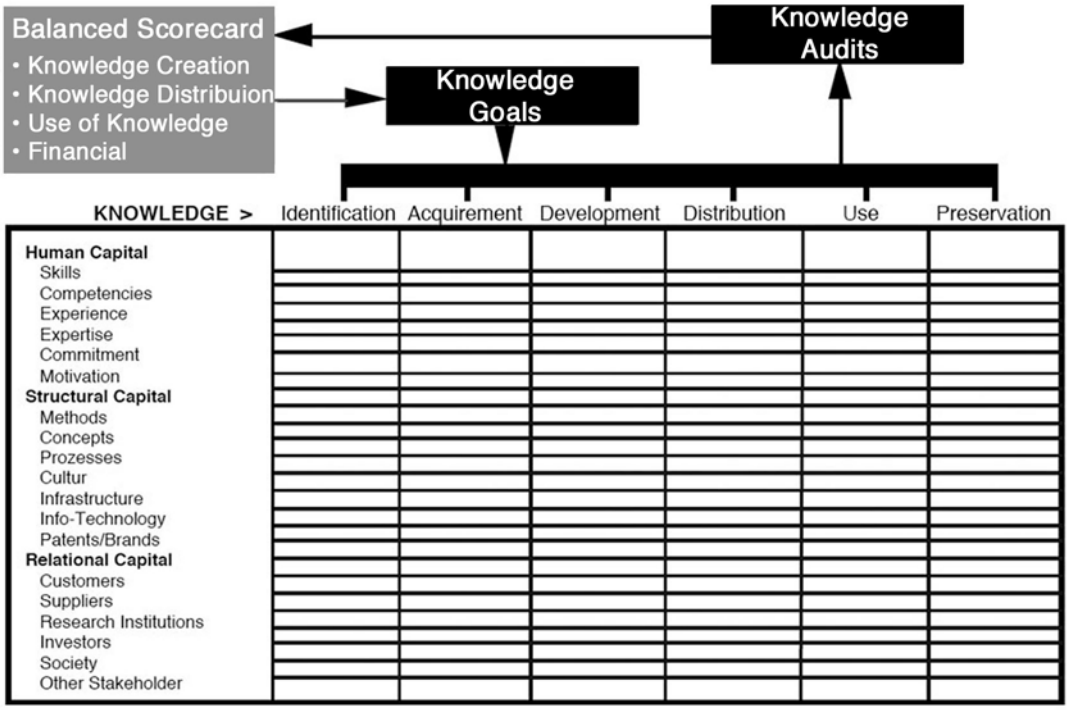
NOTE: What the ICMS does, what it costs, which time consumption it requires and which added value you can expect, is documented in the ICMS factsheet:
www.hrm-auer.ch/downloads/ICMS-Factsheet_E.pdf

Looking for the Egg of Columbus: A modular framework, adaptable to individual needs

Working with (or managing of) the resource knowledge is full of facets. Depending on, what the main goals of knowledge initiatives are, an individual stand-alone tool may be sufficient or a combined application of several tools can be a necessity. A systematic approach, that embraces identifying, controlling, measuring & reporting intellectual capital, requires a modular framework, which offers single or combined use of the different tools.

The Knowledge Matrix [9]

A matrix is the heart piece of the modular system. It ties the components of the Intellectual Capital with the operative components of Probst's knowledge management model.



Graph 16: Knowledge Matrix

Launched knowledge initiatives are described in the intersections of the involved IC resource and the activated operative component. Example: Customer knowledge shall be collected systematically. The intersection will be between the "IC resource customers" (Relational Capital) and the operative component *knowledge acquirement*. Depending on the complexity of knowledge based initiatives it may thinkable that several resources and operative processes are involved. In the example above it might be thinkable, that the operative component *knowledge identification* is involved too. The content of the corresponding intersection fields embraces the nature and the goal of the knowledge initiative, its actual status, the project owner, remarks and, where appropriate, the dedicated indicators.

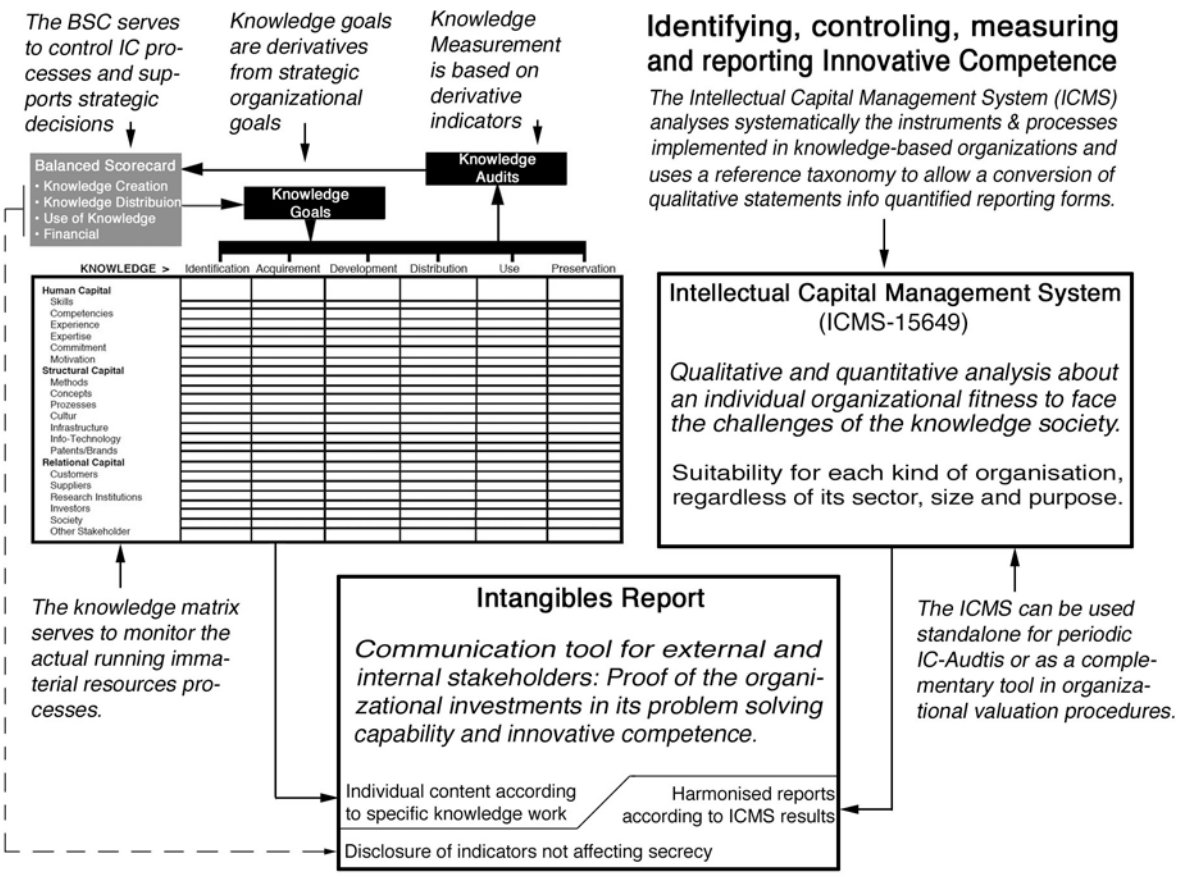
The modular Framework

Graph 17 shows different IC tools, which can be applied either separately or in a linked configuration, depending on the purpose of knowledge work and/or on the aspired degree of detailed information in the intangibles report.

Each of the below tools can run for itself, systemising the knowledge-based processes. Or the tools can be linked according to the goals and the desired reporting form of the organizational knowledge initiatives. The modular system offers the following combinations with the according different characteristics:

• *Knowledge Matrix + BSC*
An efficient approach to identify, control and measure knowledge initiatives, but limited to internal use only. > No stakeholder communication suitability.

• *Knowledge Matrix + Intangibles Report*
"Light version" of an intangibles report: generates extremely organization-specific content, which is hard to interpret. > No benchmark ability.



Graph 17: Framework of IC Tools

• *Knowledge Matrix + BSC + Intangibles Report*
Architecture of the most of the actual published intangibles reports. Characteristics and limitations of this approach are described in paragraph 2.2. Intangibles Report. > Its main disadvantage is the very limited benchmark ability.

• *Knowledge Matrix + BSC + ICMS + Intangibles Report*
Complete tool set for a sustainable knowledge work and its reporting to internal and external stakeholders. > Harmonised ICMS results allow a benchmarking of different organizations.

• *Knowledge Matrix + ICMS*
Complete IC audit tool, that allows long term monitoring of the knowledge work. Recommendable for decentralised or multidivisional organizations to perform a meaningful internal benchmarking and/or best practices studies; see paragraph 3.3. Case Study: ICMS Application in a Public Administration.
> Harmonised ICMS results offer benchmark ability.

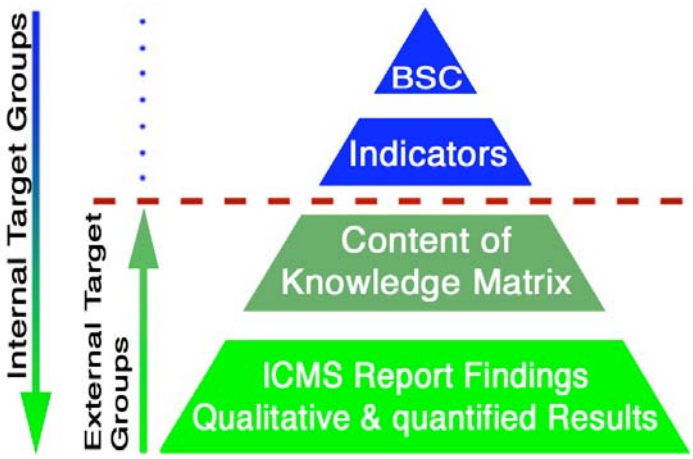
Reporting the Outcome of Knowledge Initiatives [7]

As mentioned earlier, *Intangibles Reports* serve external and internal target groups. Here it is worth to demarcate the content of information for the different target groups. That means, the reporting organization has to consider the degree of detailed information in context with the claim of target groups:

- Is our communication aiming towards our target groups?
- What do we intend to show?
- How much can we disclose internal information without cannibalising our market advantages?

Graph 18 shows the intangibles report's information content for both, the external and internal target groups. Simply said, external groups receive an impression, WHAT (knowledge matrix content and ICMS findings) is done, while internal groups get additional information about the HOW (insight in BSC data and used key performance indicators). Of course it's thinkable, that selected external target groups (e. g. investors, owners) get access to these sensible data too.

It is undisputed that there is an increasing interest in intangibles by stakeholders (especially by financial analysts). They are asking for a standardised IC benchmark tool. This produces a conflict of interest: *Secrecy of IC Data vs. Stakeholder Communication* and the challenge to set up a *standardised benchmark for different knowledge work*. This requires a conjoint measurement system that fulfils the demands of all concerned parties. These challenges answers the introduced reporting form: External target groups get insight in actual running knowledge initiatives and their proceedings (content of knowledge matrix), while the requirements of an Intellectual Capital Management System disclose, which established processes and tools are implemented for the sustainable treatment of intangibles. The plausibility of the statements can be judged by their reciprocal correlation. For internal target groups, the generated indicators are embedded in the value adding chain, serving as steering parameters for strategic decisions. This is an additional benefit for reporting organisations: The systematic management of intangibles depends on its periodic measurement. Otherwise, the future development of the most important resource is a product of hazard and/or depends on the good intention of individuals.



Graph 18: Content of information for target groups

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The author's complete bibliography is available from www.hrm-auer.ch/downloads/Biblio_TA.pdf

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