Sustainability in Context of Knowledge Society and Demography
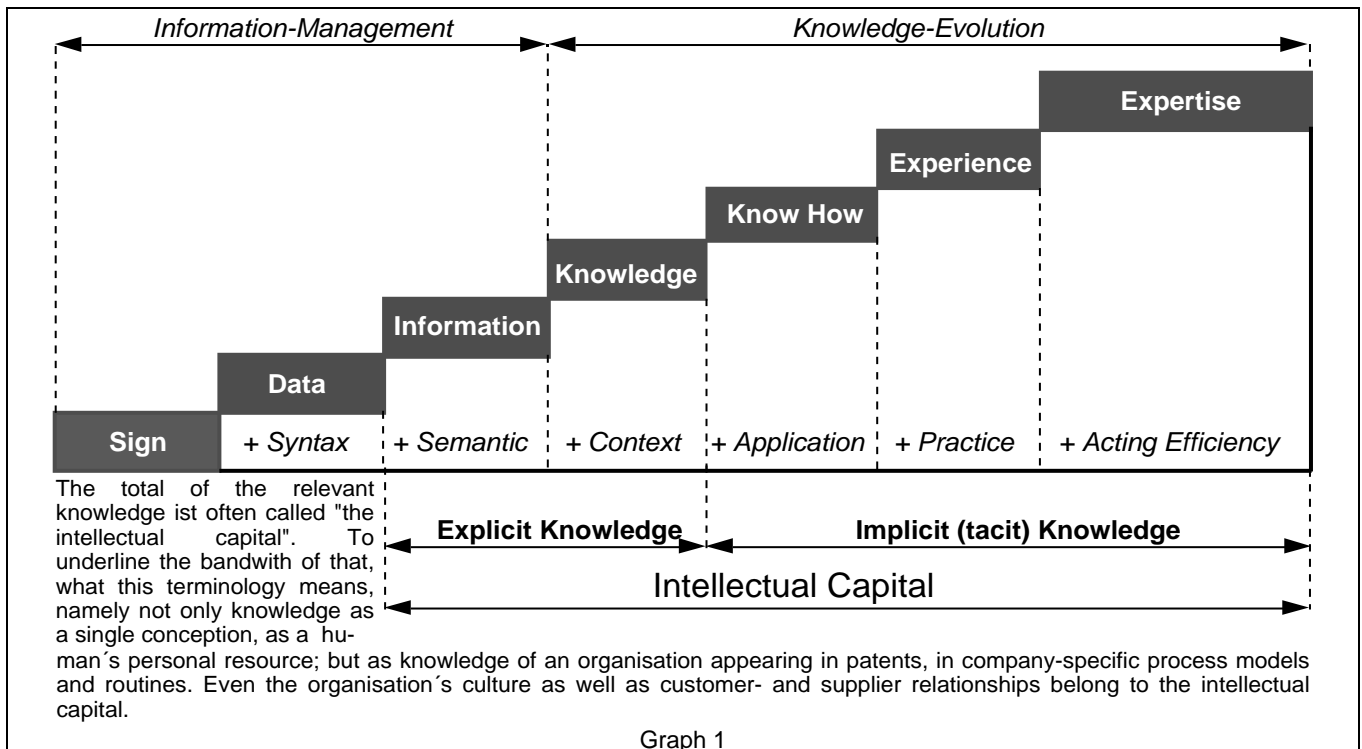
Sustainability reports document ecological, social and economic engagements, how organisations act with internal and external resources. They meet the constantly increasing information demands of stakeholders. The reports are focused on key figures and thus, on hard facts. Astonishing, the most important resource, the "soft fact" knowledge, does not receive the deserved attention despite of the actual demographic development. Why? Is it because knowledge cannot be measured? A derivative application of the balanced scorecard offers an answer to this objection.

By Thomas Auer (*)

Abstract : There are still no standard rules to set up a sustainability report. Each organisation is free to define the structure and content as it wishes. Ideally a sustainability report combines ecological, social and economic information in a manner, which allows discovering their reciprocal interferences. This paper will focus on an additional important resource: The tacit knowledge of employees, which should be developed in sustainable manner too. How intellectual capital differs from skills, how the demographic-driven loss of knowledge can be avoided and how knowledge can be quantified, is the content of this essay.

Sustainability reports have their source in the ecological reports invented 20 years ago. In addition to the ecological figures, the sustainability reports show the results of social and economical aspects. The socio-economic balance confirms the key figures of the results over a given period. Concerning the future, qualitative and quantitative goals illustrate the organisation's intentions, regarding what the future should bring. The Swiss Cheese manufacturer BAER describes their investment in human capital in these words: "The continuing development of the professional and social skills of our employees shall lead to their personal satisfaction and to outstanding performances"(*1).

What besides skills and social competencies is indispensable to achieve an outstanding performance? A high trusts culture is the primary assumption to promote an individual entrepreneurs thoughts and actions. But the relevant driver is the intellectual capital (Total of the individual tacit knowledge and the organisational explicit knowledge), which is the key for matchless products and innovative power. The knowledge evolution process (*2) helps to understand these knowledge terms (see graph 1).

The total of the relevant knowledge ist often called "the intellectual capital". To underline the bandwith of that, what this terminology means, namely not only knowledge as a single conception, as a human´s personal resource; but as knowledge of an organisation appearing in patents, in company-specific process models and routines. Even the organisation´s culture as well as customer- and supplier relationships belong to the intellectual capital.

Graph 1

Technical aids (e. g. IT) are efficient tools for step 1 - 3. To build up knowledge, information must be put in a specific context. Even for this step IT offers solutions: Artificial intelligence systems produce amazing solutions, but they are limited to particular applications and are not available yet for polyvalent use. To build up, renew or correct actual knowledge, human enlightenment is necessary, since no machine can perform the knowledge evolution process from data to expertise: Remember > observe > discover > understand > combine > conclude etc. are exclusive human competencies.

On the top level of the knowledge stairs these competencies result in experience and expertise. Employees with these attributes belong to the "hard to replace" category. Such knowledge hosts have to be identified first. Then, the organisation is well advised to perform retention programs to keep them, since its their tacit knowledge (*3), which defines the company's core competence and innovative power: *"Knowledge is placed between two ears and not between two modems" Quotation Fredmund Malik* (*4).

• Sustainability requires "Saving of intellectual capital" too!

One of the big challenges of knowledge sustainability (see graph 2) is sneaking towards us: The demographic development of Switzerland shows the famous pill gap, which helped to keep the unemployment rate relatively low. The second remarkable phenomena are the significant birth rate increase after World War II: The babyboomer generation goes actually straight towards retirement.

According to Dr. Thomas Held, "Director Future Switzerland", Switzerland needs to immigrate 200´000 qualified workmen until the year 2010 to keep the necessary resources (*5). What does that mean in context with a knowledge-based sustainability? Knowledge-driven organisations are well advised to discover their knowledge hosts and to analyse the age distribution of their staff. Knowledge hosts are typically long-term employees (and thus, rather elderly). If the company age distribution shows a similar shape to the demographic graph above, it is predictable that a significant number of knowledge hosts will leave the organisation

Graph 2:
Age distribution of Swiss population is characteristic for industrialised countries

taking along their experience and expertise within the coming years. The goal has to be therefore: Saving knowledge, as long as it is accessible!

It is generally accepted that the transfer of tacit knowledge cannot work without interactions. Typical occasions for interactions within an organisation are coffee corners, sport clubs, weekend events etc. On higher level interactions can be controlled by phaseout- coaching- and mentoring-programs.
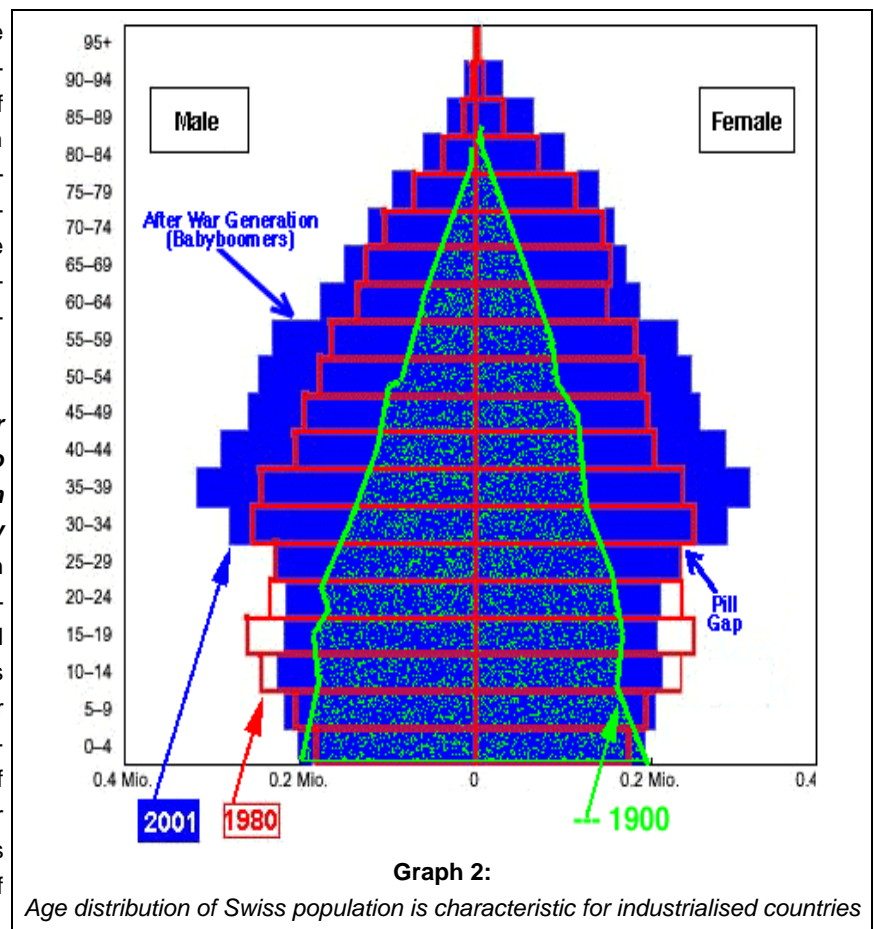
• Controlled transfer of tacit knowledge

To improve the systematic transfer of tacit knowledge the process models SET (*Swissair Experience Transfer*) (*6) and KEEP (*Know How-, Expertise- & Experience-Preservation)* (*7) have been developed. In these models knowledge networks are implemented in both organisation and operations. These knowledge networks consist of identified knowledge hosts (seniors) and up-and-coming managers (juniors): *state of the art cognitive knowledge* goes from the junior to the senior; *organisational (tacit) knowledge* goes from the senior to the junior. The big challenge in such process models is to make sure, that a reciprocal learning happens and that the team members involved show the necessary social competence. In addition such models have an impact on management development: The modified organisation leads to a new working quality which generates new perspectives. The success of new models depends on the acceptance of a knowledge-based culture: The effective goal of a knowledge transfer is to isolate tacit knowledge from individuals. Therefore, to set up a knowledge transfer model is a small problem: The big challenge is to dismantle existing barriers and goal conflicts. Finally knowledge work should be evaluated periodically. Since knowledge is not measurable, an accurate performance indicator system is required. A deviate balanced scorecard serves for both, goal determination and controlling of knowledge work.

• Using the Balanced Score Card (BSC) to measure knowledge work (*8)

The BSC covers the demand to use perspective parameters instead of relying on past financial reports when an organisation has to be evaluated. It is a steering- and controlling system combining strategic and operative planning. It allows judging an organisation from the view of the most important perspectives. Strategic and operative goals and their derivative key performance indicators (KIP´s) describe these perspectives. Norton & Kaplan (*9) define four perspectives:

- the financial perspective
- the customer perspective
- the internal process perspective
- the innovation perspective

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.

• Steering and controlling knowledge work

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 (*10). This model puts six operative core processes into a co-ordinating frame (see Graph 3). 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 organisation 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).
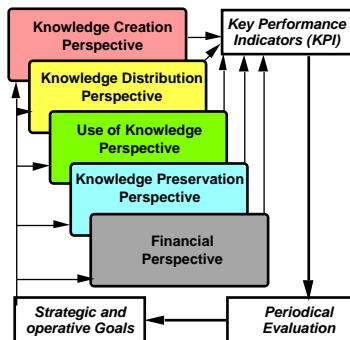

Source: *WISSEN MANAGEN* Probst et al; ISBN 3-409-39317-X
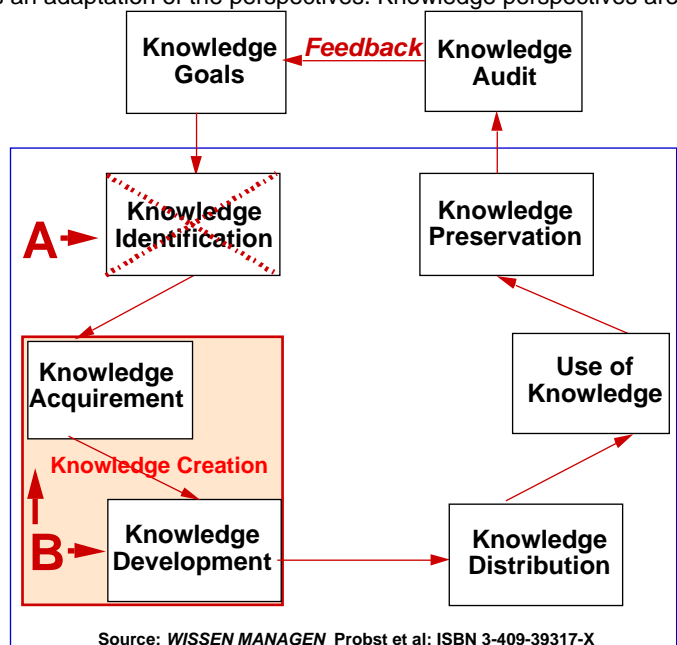
Graph 3: Modified Knowledge Management Model

Since all knowledge work activities shall impact the success, a financial perspective is added to the knowledge perspectives. Thus, the BSC for knowledge work consists of five perspectives. *The four remaining knowledge perspectives are described hereafter:*

Graph 4

- 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 organisational knowledge base. Strategies of this perspective deal with the acquirement of external knowledge and the development of the organisational knowledge. Operative actions can be the set up of strategic alliances, the purchase of knowledge products or headhunting experts. Goals of knowledge creation could be the extension of R&D, research co-operations and lesson-learned-programs. Optimising the structure of organisational 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 skill management belong to this perspective.

- Use of Knowledge Perspective

This perspective deals with a productive use of organisational knowledge. Strategies of this perspective focus on the access of expert knowledge 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 laborious when dealing with tacit knowledge, which is human property. In this context knowledge preservation requires to isolate tacit knowledge from individuals, as long as they are available.

• Definition of knowledge goals; determining strategies

The deciding step to raise a BSC 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 organisational goals and cannot be evaluated for itself: rather they are a deliberate supplementary to the common planning activities. Thus, the organisational 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 their dependencies need to be evaluated: causes and effects, interference's etc. are subjects to be investigated.

Discussion

Intellectual capital is mostly accepted as being THE important organisational resource(*11). Nevertheless it appears in sustainability reports at best in the social section declaring the employee skills training. But intellectual capital is an economic factor, having a direct impact on the organisation's core competencies: Know how and innovative potential is based on experience and expertise of employees and therefore a human capital of individuals. On the one hand identified knowledge hosts can be kept within the organisation by offering monetary and/or immaterial incentives. On the other hand the loss of knowledge is predictable by the demographic development. Thus, it is strongly recommended to place intellectual capital as a key factor in sustainability efforts, especially since the "soft factor" knowledge is measurable by an accurate indicator system.

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