How to Ensure the Quality and Reliability of Intellectual Capital Statements?

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Abstract: To gain competitive advantage in Europe, it is vital for small and medium sized enterprises (SMEs) to utilise knowledge efficiently and to tap into full innovation potential. Reporting those intangible assets systematically to customers, partners, investors or creditors has become a critical success factor. Thus, managing "intellectual capital" (IC) becomes increasingly important for future-oriented organisations. Conventional balance sheets and controlling instruments are not sufficient any more, because intangible assets are not considered. The collective research project "Intellectual Capital Statement – Made in Europe" considers national experiences and the current state-of-the-art on measuring IC and will establish a European ICS guideline for implementing Intellectual Capital Statements (ICS). The ICS is an instrument to assess, develop and report an organisation's IC, to monitor critical success factors systematically, and to support strategic management decisions (cf. Mertins, Will 2007).For customers, investors and especially creditors, after receiving an ICS, one of the first things that usually comes into their mind is: Is this information "reliable"? To ensure a high quality level of ICS and to be accepted by, for instance, the financial market, it is important to have a neutral third party who certifies the reliability of the document. Learning from the experiences of ISO 9001 certification, assessment for the European Excellence Award and of financial audits, an ICS audit methodology has been developed. The ICS audit verifies the conformity with the European guideline respective ICS implementation process and the completeness of the ICS content. Furthermore, it will check whether the content is plausible, verifiable and representative for the company. To ensure sustainability, the auditor will get a picture of whether the ICS content is communicated and the stated actions for improvements are in progress or already realised. The main focus of this paper is to demonstrate how to ensure the quality and reliability of IC reporting and how to promote the sustainable realisation of actions by ICS audits.

Keywords: Intellectual capital, intellectual capital statement, quality management, audit methodology, knowledge management, SME European commission/research

1. Introduction

There is a need for managing intellectual capital, since the effective utilisation of knowledge and innovation potential often results in competitive advantage. Furthermore, reporting those intangible assets systematically to customers, partners and investors, as well as creditors has become a critical success factor (cf. Mertins, Alwert, Will 2006). Conventional balance sheets and controlling instruments are not sufficient any more, because intangible assets are not considered so far.

Currently, the reports about intellectual capital are varied in structure and content (cf. Alwert 2006). Resulting from increased interest in managing and reporting of IC, stakeholders such as creditors or investors will receive more and more IC reports of totally different qualities - from very trustworthy to not at all believable.

The project "Intellectual Capital Statement – Made in Europe" aims to establish a European ICS guideline for implementing Intellectual Capital Statements (cf. Alwert, Bornemann, Kivikas 2004) including basic contents of ICS for external reporting. However, how could, for instance, a creditor know whether the ICS on his table was conducted according to this guideline?

In response to this problem, the InCaS project also deals with the question of sustainable quality assurance of ICS. Learning from quality management audits and financial audits, a statement is trustworthy when:

- A review has been conducted, with a methodology which ensures the reliability of the statement and
- The review has been conducted by a neutral authority, whose opinion a, for instance, creditor trusts

To meet these challenges, a methodology called "ICS auditing" has been developed and is based on the knowledge gained in quality and financial auditing and assessment according to the model of the European Foundation of Quality Management (cf. EFQM 2007a).

This paper shows the preliminary result of this research work within the InCaS project.

Objectives of ICS auditing are:

- to ensure the reliability of ICS so that the partners (e.g. creditors, investors) will consider this information as an important input for their rating decisions,
- to establish the reputation of ICS as a trustworthy document,
- to consolidate the ICS as a valuable management tool, since greater acceptance by stakeholder will trigger further use of the method,
- to ensure the proper application of the European ICS guidelines,
- to encourage sustainable usage of ICS as an internal management tool by checking the progress of realisation measures,
- to facilitate ICS comparability by promoting completeness of ICS and
- to assure the quality of ICS in Europe.

2. Existing auditing approaches

For developing a methodology for the verification of ICS, three common auditing approaches are partially applicable and have been considered in detail. The main basis for the consideration are:

- for quality management systems the "ISO 19011:2002 - Guidelines for quality and/or environmental management systems auditing" (cf. ISO 2002),
- for EFQM application for European Excellence Award the "Guidelines for the Excellence Award Applicants" (cf. EFQM 2007),
- for financial auditing the German guideline "IDW PS 201 Rechnungslegungs- und Prüfungsgrundsätze für die Abschlussprüfung" (cf. IDW 2006).

Table 1 shows similarities and differences between the three common auditing approaches and the ICS auditing approach.

Table 1: Comparison of ICS auditing and other auditing approaches

Aspect of ICS auditing	Auditing of quality management systems (cf. ISO 2002)	Financial Auditing (cf. IDW 2006)	EFQM application for European Excellence Award (cf. EFQM 2003a, 2003b, 2007b)
Purpose: verification of document	different	similar	different
Review of self assessment	different	different	similar
Procedure: Audit application with the possibility of rejection	similar (reject applying organisation, if the documentation shows serious nonconformities)	different	different (strict admission rule: organisations have to score at least 500 points)
Procedure: Document Review	similar	different (much more detailed)	different (assessors rate the organisation on a scale from 0 to 1000 points based on the submitted document)
Use of scoring matrix for assessment results	different	different	similar
Audit follow-up with the opportunity for second document check or follow-up audit	similar	different	different
Audit certificate to be attached to the document	similar / different (certificate can be attached to the quality manual)	similar	different (EFQM submission document is usually not used for external communication)

3. Preliminary results - ICS auditing concept

Ensuring the authenticity of ICS is important for establishing the reputation of ICS as a trustworthy document. Thus, an effective tool to provide adequate information needs to be implemented. Conducting audits is an appropriate approach to achieve the goal, because it ensures that the auditors receive sufficient information and draw proper conclusions. In order to do so, one needs to adhere to audit principles. The ISO 19011 specifies the principles in reference to both the auditor as well the audit itself. The three main areas related to auditors are:

- ethical behaviour – the auditor must be professional and treat the information collected in confidence,
- accurate demonstration – the auditor must give clear and factual statements,
- professional due diligence – the auditor must be well prepared for his tasks.

The principles of audit itself regarding:

- independence and objectivity of the audit conclusions as well as
- systematic proceeding which ensures reproducible conclusions. Audits are based on a convention of random sampling. Thus, the audit findings are verifiable.

The ICS audit will target several types of groups with different views or objectives:

- organisation, which wants to use their ICS for external reporting (e.g. communication to creditor),
- organisation, which established and implemented their ICS without external consultation and
- organisation, which wants to verify their ICS from an external view (cf. ISO 2002).

The recommended time for carrying out an ICS audit is approximately one month after the ICS completion. The duration of the audit depends on the size, complexity and number of locations of the organisation to be audited (auditee). In general on-site audit should last approximately one day but the duration increases with the number of locations.

3.1 ICS auditor

According to ISO 19011 confidence in and reliance on the audit process depends on the competence of those conducting the audit. This competence is based on the demonstration of the personal attributes and ability to apply the knowledge and skills for ICS auditing gained through education, training and work experience.

ICS auditors should possess such personal attributes to enable them to act in accordance with the principles of auditing (cf. previous chapter).

ICS auditors should have knowledge and skills in the following areas:

- Audit principles, procedures and techniques: to enable the auditor to apply those appropriate to different audits and ensure that audits are conducted in a consistent and systematic manner.
- European ICS guideline: to enable the auditor to comprehend the scope of the audit and apply audit criteria.

ICS auditors should have the following education, work experience, training and audit experience:

- They should have completed an education sufficient to acquire the knowledge and skills described above.
- They should have work experience that contributes to the development of the knowledge and skills.
- Part of the work experience should be in a position where the activities undertaken contribute to the development of knowledge and skills in general management and/or financial management.
- They should have completed auditor training that contributes to the development of the knowledge and skills described above.
- They should have conducted several ICS implementations as ICS trainers.

Auditors should maintain and demonstrate their auditing ability through regular participation in ICS audits (cf. ISO 2002). The Fraunhofer Technology Academy offers ICS audits and training courses for ICS trainers and ICS auditors in cooperation with Fraunhofer IPK.

3.2 ICS auditing process

A number of basic activities are common among most audits such as auditing quality management systems. Several activities are undertaken before the on-site audit, some during the on-site audit, and others after the fieldwork has been completed.

An overview of the audit process illustrates figure 1. It specifies the respective audit procedures which can be divided into five phases.

The ICS auditing process begins with one initial point and end with two possible outcomes, depending on the audit result. The individual phases will be introduced separately in the following.

3.2.1 Phase 1 – audit application

The ICS auditing process starts with an audit application. The organisation completes an application form and submits it to the auditor. Subsequently, the ICS and other documents are required by the auditor for the document check.

3.2.2 Phase 2 – document check

Prior to the on-site audit, the ICS and other documents of the auditee are checked to determine the conformity of the ICS with the audit criteria. The document check may include documents such as:
- accompanying documentation during the ICS implementation (e.g. documentation in the ICS Toolbox),
- previous ICS,
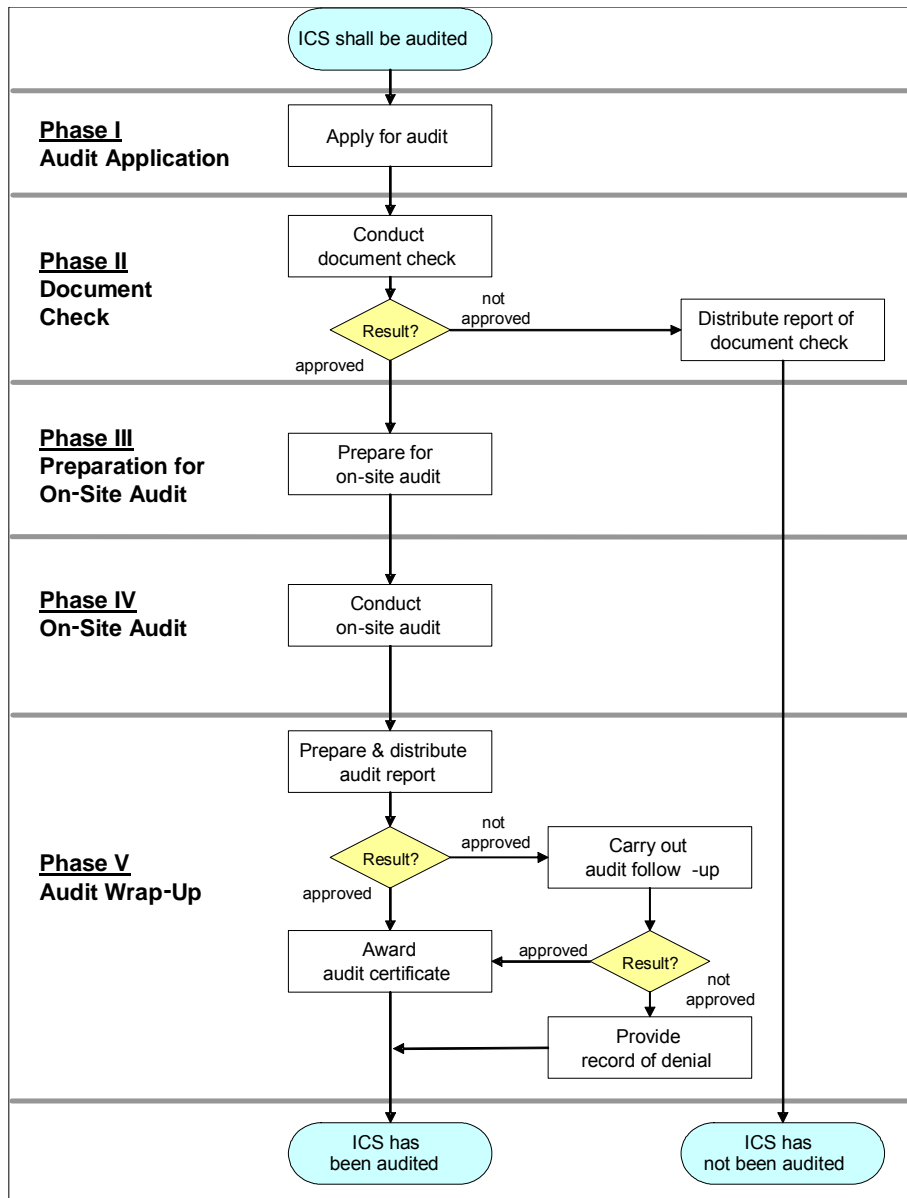- previous audit reports and
- financial reports.

Figure 1: ICS auditing process

Furthermore, the auditor has to verify that the ICS is suitably appropriate. The proper usage of terms and concepts as well as the coherence within the ICS are important aspects in the document check.

An audit application can also be rejected if the document check identifies too many discrepancies in the ICS or is found to be inadequate. Reasons for rejection can be: definitions of IC factors were not clearly understood by the organisation or basic issues in the implementation procedure could not be adjusted by a corrective action. In this situation, the application cannot be approved and a report of the document check will be distributed.

3.2.3 Phase 3 – preparation for on-site audit

A sound planning and preparation is fundamental for an audit which gives the auditee the highest benefit. Once the auditor has gained a thorough understanding of the auditee and its documents, the on-site audit need to be prepared.

Preparing the audit plan
Soon after the audit date has been fixed, the auditor determines a representative cross-section of employees to be interviewed and document this information together with the audit content and the organisational matters (duration, location etc.) in an audit plan. The audit plan will inform the auditee about the audit execution and will help to ensure that the appropriate people are available on the audit day.

Preparing work documents

Based on the result of the document check, the auditor identifies the priority topics for the audit. Thus, the auditor prepares work documents as necessary for reference and for recording audit proceedings. Work documents may include:

- checklists,
- scoring matrixes, and
- forms for recording information such as supporting evidence, audit findings and records of meetings.

3.2.4 Phase 4 – on-site audit

The on-site audit itself consists of an opening meeting, the interviews, assessment time for the auditor and a closing meeting. At the end of the audit, the auditee will receive the audit conclusion including positive findings, recommendations and agreed corrective actions if necessary.

Conducting the opening meeting

An opening meeting is held with the auditee's executives with the main function

- to confirm the audit plan,
- to give a brief introduction of how the audit will be undertaken and
- to provide an opportunity for the auditee to ask questions (cf. ISO 2002).

Collecting and verifying information

The auditor collects information relevant for ensuring ICS' credibility by appropriate sampling and records it. Both the content of the ICS and the ICS implementation process are subject of the audit. Audit evidences are only information that is provable, such as records, statements of fact confirmed by many people. Audit conclusions shall only the reached based on the audit evidences. Since the audit evidences are based on samples, there is always a factor of uncertainty in auditing. The means by which the auditor collects data fall into three broad categories:

- interviewing,
- observation of activities and
- review of documents (cf. ISO 2002).

The Quality-Quantity-Systematic Management (QQS) assessment is an evaluation of IC factors carried out during the ICS implementation by questioning a project team. The evaluation is conducted regarding the dimensions quantity, quality, and systematic. The QQS results show the status quo of each IC factor in respect to strengths and weaknesses and are visualized in the ICS (cf. figure 2).
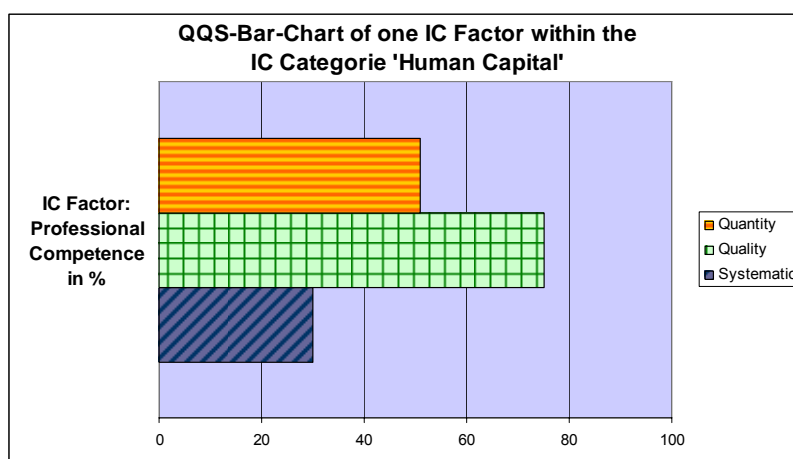

Figure 2: QQS result of the example IC factor "professional competence"

The purpose of the QQS cross-check during the audit is to find out whether the QQS results in the ICS are representative for the company. The auditor has to ensure that the sample of people who will be interviewed for the QQS cross-check is representative for the company. The interview procedure is similar to the one at the QQS assessment workshop within the ICS implementation (cf. Figure 3). By getting the reasons for the

interviewees' rating results, the auditor can assess whether the employees agree with the QQS result in the ICS.

Figure 3: Screenshot of the QQS cross-check interface

The auditor evaluates the audit evidence against the audit criteria and decides on either conformity or nonconformity with audit criteria. After the collection of information, the auditor devotes a few hours at the end of the audit to evaluate and finalize these audit findings. The auditor confirms that there is sufficient data to support all findings, identifies trends in findings that may be more significant than the individual deficiencies, and summarizes each finding in a way that most clearly conveys its significance.

Conducting the closing meeting
At the closing meeting the auditor presents and communicates the audit findings and conclusions in a comprehensive and accessible manner for the auditee. Corrective actions, if appropriate, have to be agreed upon by the organisation and follow-up actions have to be arranged. Furthermore, auditor's recommendations and positive statements are pointed out at the closing meeting.

3.2.5 Phase 5 – audit wrap-up

Preparing and distributing the audit report
At the conclusion of the ICS audit, the findings are to be documented in an audit report. Its purpose is to identify areas or sections which do not conform to the European ICS guideline. In addition, the auditor has to affirm the veracity of the statement and the plausibility of the content.

The audit report should include the following:
- Initial point and audit environment
- Assessment of the ICS
    - Business Model
    - Status quo of Intellectual Capital
    - Development of Intellectual Capital
- Results of the appraisal

- ▪ Further proceedings / arrangements
  - Corrective action
  - Potentials for improvements / recommendations
  - Positive statements
- ▪ Conclusion

After the ICS audit report has been prepared and approved, it will be distributed to appropriate parties of the organisation, such as the top management, for follow-up action if necessary.

Conducting audit follow-up
Subsequent to the audit itself, a follow-up audit with corrective actions must occur if the audit report indicates the need. Priority is given to those findings that the auditor felt was fundamental and these items are the first to be addressed and resolved by the auditee within an agreed timeframe. The auditee should keep the auditor informed of the status of these corrective actions. A final step in the overall audit process is the verification of completion and effectiveness of corrective action.

Awarding / denying audit certificate
Depending on the results of the audit report and, if required, the verification of corrective actions, an audit certificate will be awarded. If the auditor raises no objections, he/she will grant a certificate, which the organisation may use as a testament that its ICS is authentic and reliable. On the other hand, if the auditor finds, for example, open issues or items in his/her assessment, that could not be eliminated by corrective actions or could not be approved, he/she may deny the certificate, subject to a detailed explanatory report.

3.3 ICS audit criteria

The audit criteria provide the means, on which the auditor generates the audit findings. The fundamental of the ICS audit is the ICS guideline regarding the basic structure and elements of an ICS as well as the ICS implementation process. Audit criteria for ICS auditing are: completeness, plausibility, verifiability, representativeness and sustainability. Table 2 presents the three assessment phases and the audit criteria to be examined in each phase.

Table 2: Overview of the audit assessment scheme

Phase Title	Basis of the Audit	Audit Object	Audit Criteria	Result
Document Check	ICS guideline, Requirements regarding: ICS implementation process structure, basis IC factors and basic indicators for external reporting	Main material ICS: structure, IC factors, IC indicators Application document: ICS implementation process Supporting material Content of the Toolbox Other documents	correct ICS implementation process, so the result would be of high quality completeness of the ICS content plausibility of the ICS content	decision about denying or continuing the audit issues to be addressed at the on-site audit In case of nonconformity: corrective actions
QQS Cross-Check		ICS: QQS assessment results	representativeness of the QQS result for the company	issues to be addressed at the on-site audit In case of nonconformity: corrective actions
On-Site Audit	ICS guideline, Requirements regarding: ICS implementation process ICS for external reporting	ICS Answers of the interviewee Evidence shown at the audit	completeness of the ICS content plausibility of the ICS content verifiability of the ICS content sustainability of the ICS	decision about providing audit certificate or record of denial In case of nonconformity: corrective actions

The audit scheme serves as a general guide and helps the auditor to track and assess the audit objects regarding the audit criteria. The generated results are used again as a basis for the assessment in the next phase. To track and assess the findings in the document check and on-site audit, the auditor uses a scoring matrix, as illustrated below. Based on the criterion complete, plausible and evidential the auditor reviews the ICS and implementation procedure. He verifies the conformity against the ICS requirements and marks them afterwards. In addition, necessary corrective actions can be targeted and formulated in the matrix.

Table 3: Scoring matrix

Criterion	Finding*	Criterion	Finding*	Criterion	Finding*	Score	Corrective action
complete	yes	plausible	yes	Evidential	comprehensive evidence	🙂	
					some evidence	😐	
					no evidence or anecdotal	🙁	
					no		🙁
	no						🙁

Legend							
Score	Explanation	Score	Explanation	Score	Explanation	*Finding	Please √ the appropriate finding
🙂	Conformity with the requirement	😐	Partial conformity with the requirement	🙁	Nonconfor-mity with the requirement		

After the QQS cross-check is conducted by the organisation, the auditor analyses the results with the QQS cross-check scoring matrix. Table 4 is used in the third phase to check whether the ICS is representative for the organisation and whether the ICS content is communicated.

Table 4: QQS cross-check scoring matrix

Criterion	Finding*	Score	Corrective action
representative	yes	🙂	
	no	🙁	

Legend							
Score	Explanation	Score	Explanation	Score	Explanation	*Finding	Please √ the appropriate finding
🙂	Conformity with the requirement	😐	Partial conformity with the requirement	🙁	Nonconformity with the requirement		

Like the scoring matrix for the document check and on-site audit, the auditor indicates his opinion of the cross-check results and suggests potential corrective actions. The sustainability matrix is an additional tool to be used at on-site audit. It verifies the sustainability of the communicated ICS content and stated actions for improvement. However, compared to the ICS content the measures of current or previous ICS actions give no statement about the quality of the ICS. The measures exhibit only the current or previous status of actions and provide information for the organisation. An example for a sustainability matrix illustrates the table 5.

Table 5: Sustainability matrix

Criterion	Audit object	Finding (Please √ the appropriate box)		Corrective action
sustainable	Content of the ICS	Is understood by <u>all</u> employees	□	
		Is understood by <u>most</u> of the employees	□	
		Is <u>not</u> understood by <u>most</u> of the employees	□	
	Measures in the current ICS	Are planned	□	
		Are in realisation	□	
		Are already realised	□	
	Measures in the previous ICS	Are planned	□	
		Are in realisation	□	
		Are already realised	□	

The auditor has to use different tools, like the above-mentioned matrix, to generate and afterwards assess these findings in an appropriate and provable manner.

4. Discussion

The main purpose of the method "ICS auditing" is to ensure the quality of ICS. Besides this objective, the method may cause several potentially negative and positive impacts. These will be discussed in this chapter, starting with the some potential negative impacts.

Employees could be offended by an audit as an additional examination of their work
It is important to address this concern by ensuring a good qualification of ICS auditors. An audit should be a constructive discussion about intellectual capital, strength and areas of improvement of the organisation. The employees must not have the feeling of being examined. The ICS audit will give the company the information, whether their ICS is representative and of high quality. In case non-conformities have been detected, the company has the opportunity to update the ICS according to the agreed corrective actions.

QQS assessment workshop and QQS cross-check, do companies have to the same thing twice?
The answer is a clear "no". The purpose of QQS assessment workshop is to assess IC factors and discuss the strengths and weaknesses in the project team. Based on this information, among others, measures can be developed. Fewer people – just the ICS project team – are involved. The purpose of QQS cross-check is to get a representative assessment result for re-checking whether the QQS result in the ICS is correct. For the QQS cross-check, a lot more employees are involved. Because ICS communicates information about strategic objectives and IC factors beforehand, the duration needed for the QQS cross-check is minimized.

Apart from these impacts, possible positive impacts which can arise are:
- Result of an employee attitude survey, identification of an internal opinion
- Every employee can issue his own assessment and advance a statement
- Enhancement of motivation, because employee's opinion has an impact on the organisation
- Comprehensive interview increase higher identity with the ICS content
- Greater motivation in the implementation of the measures, because all employees contributed to the development of measures
- Communication of the ICS results is guaranteed
- Possible better credit rating by financial institutions
- Useful advice of strengths and opportunities by external experts
- External audit increase significance of the ICS
- Assurance, that relevant evidence are kept accessible
- Assurance, that important decisions are based on reliable sources
- Potentially detailed analysis possible through QQS check (e.g. sectoral evaluation and reporting)
- Consequent link between objectives, strategy and measures

- ICS audit assures a high quality of proven and certified IC statements, so that the methodology of the intellectual capital is taken seriously by the financial market
- Financial institutions receive additional information of the organisation through the audit certificate

5. Conclusion

The ICS audit methodology offers an approach based on basic principles of ISO 9001 certification (cf. ISO 2000), financial audit and European Excellence Award approach, which are accepted and already commonly used. Stakeholder such as a creditor can be sure a certified ICS has been audited by a neutral third party regarding:

- completeness,
- plausibility,
- verifiability,
- representativeness and
- sustainability.

The next steps for the methodology are the discussion, refinement and realisation at some pilot SME sites within the InCaS project. The result of the ICS audits will additionally contribute valuable information for the improvement of ICS.

In Germany, experiences with the described method for ICS auditing have already been gained in cooperation with Fraunhofer Technology Academy. The Fraunhofer-Gesellschaft as a non-profit organisation provides ICS audits and will include the results of this research work into the further development.

References

Alwert, K. (2006) Wissensbilanzen für mittelständische Organisationen, Fraunhofer IRB Verlag, Stuttgart

Alwert, K. and Bornemann, M. and Kivikas, M. (2004) I*ntellectual Capital Statement – Made in Germany. Guideline,* [online], Federal Ministry of Economics and Technology Berlin, http://www.bmwi.de/Navigation/Technologie-und-Energie/Informations-gesellschaft/tagung-wissensbilanz,did=41128.html

EFQM (2003a) Assessoren Bewertungsbuch –Version für Unternehmen, EFQM Publications

EFQM (2003b) Submission Writers Handbook, Edition 5

EFQM (2007a) European Foundation for Quality Management [online] http://www.efqm.org

EFQM (2007b) Guidelines for the Excellence Award Applicants

EN ISO 19011:2002 (2002) Guideline for quality and/or environmental management systems auditing

EN ISO 9001:2000 (2000) Quality Management Systems - Requirements

IDW PS 201 (2006) Rechnungslegungs- und Prüfungsgrundsätze für die Abschlussprüfung, in: WPg 2006, pp. 850 ff., No. 13/2006, 18.05.2006

Mertins, K.; Alwert, K.; Will, M. (2006) "Measuring Intellectual Capital in European SME", *Proceedings of I-KNOW '06, 6th International Conference on Knowledge Management*, published by Tochtermann, K.; Maurer, H., Graz, Austria, pp 21-25

Mertins, K.; Will, M. (2007) "A Consistent Assessment of Intellectual Capital in SMEs. InCaS: Intellectual Capital Statement – Made in Europe", Paper read at the 8th European Conference on Knowledge Management, Barcelona, Spain

Ratliff, R. L., Wallace, W. A., Loebbecke, J., McFarland, W. G. (1997) *Internal Auditing. Principles and Techniques*, 2nd edition. The Institute of Internal Auditors, Altamonte Springs

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