

## Intellectual capital reporting for regional cluster initiatives and networks A tool to support innovation and regional development?

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### 1 INTRODUCTION

Innovation is one of the drivers of regional development. Innovation depends on networking of individuals, companies and public stakeholders at a progressive rate. There is hardly a region or larger city in Europe that does not support networking and collaborative research between firms, universities, research labs and further institutions in a specific sector, branch or field of technology. Although a lot of networking is already being done there are relatively few instruments to help network management, members and stakeholders with the development of their network. Management literature naturally offers a multitude of tools for firms and public organisations. The problem is that they cannot be transferred to networks like cluster initiatives on a one-to-one basis. With their hierarchical structures, and their focus on producing goods and services and an environment of market competition, firms differ from regional networks that focus on exchanging information and generating knowledge.

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Fig. 1: RICARDA Consortium

Most of the networks are knowledge driven and based on the intellectual capital of their members. Even though intellectual capital is an important asset for companies as well as for knowledge intensive cluster initiatives and networks financial statements do not give sufficient information about this asset. That's why intellectual capital reporting (ICR) was introduced in companies. In a joint European project (RICARDA Regional Intellectual Capital Reporting – Development and Application of a Methodology for European Regions) research partners and public agencies involved in cluster-building from four countries (Austria, Germany, Hungary and Sweden)<sup>1</sup> worked on the enhancement of a methodology for intellectual capital reporting in cluster initiatives and networks. The essential part of the project was not only to transfer the intellectual capital reporting process from a company level to a regional level but to adopt the methodology in very different cluster and network contexts, to adapt it - if possible - according to their specific needs and to develop a manual that enables cluster initiatives and networks to conduct an intellectual capital reporting process independently.

The paper focuses on the lessons learnt in the research project. It explains the main features of the intellectual capital reporting methodology for regional cluster initiatives and networks and provides an insight into the outcomes of the project.

### 2 WHY DO COMPANIES WRITE INTELLECTUAL CAPITAL REPORTS?

Intellectual capital is an important asset for companies as well as for knowledge intensive cluster initiatives and networks. But financial statements do not give sufficient information about this asset. That's why intellectual capital reporting was introduced in companies.

A study by the Copenhagen Business School (Mouritsen, Bukh, Marr 2004) provides an insight into the motives of companies to write an intellectual capital report that is easily transferable to cluster initiatives and networks:

- Most of the companies like to show that human resources and knowledge are their most important assets. This - by definition - applies accordingly to knowledge intensive networks.

<sup>1</sup> The foundations of the RICARDA methodology were developed by Dr. Christian Hartmann, Marija Breitfuss and Andreas Niederl, JOANNEUM RESEARCH Forschungsgesellschaft mbH. Pilot Intellectual Capital Reports were prepared by András Grosz (West Hungarian Research Institute); Börje Johansson, Hans Löf, Apostolos Baltzopoulos, Martin Andersson (Kungliga Tekniska högskolan); Christian Hartmann, Marija Breitfuss, Andreas Niederl (Joanneum Research) and Daniel Zwicker-Schwarm, Holger Floeting (Difu). Co-ordination: Daniel Zwicker-Schwarm and Holger Floeting (Difu). The project was funded under the European Communities' Sixth Framework Programme for Research and Technological Development, Priority 1 – Strengthening the foundations of the European Research Area (Contract no. 030097).

- The companies like to show that their organisation is innovative. Innovation is one of the core motivations of cluster building and networking as well.
- Companies like to attract new employees. That is a point where the motivation for intellectual capital reporting of companies and networks may vary.
- Companies like to demonstrate that their organisation is flexible. Organisational matters are key issues for networking organisations as well.
- Companies want to create an understanding for their products and services. On a limited scale this is true for networks as well as managed networks like to communicate their services to already existing and future network members. Beyond that it may also be important to show products and services of the members in a sense of pooling members' competencies.
- Intellectual capital reports should supplement the financial reports of companies as well as networks.
- Companies like to set up a position for themselves with respect to their competitors. The number of cluster initiatives and networks increased significantly in the last years in the studied regions. A competition for knowledge intensive stakeholders, committed actors, advertence and last but not least subsidies evolved. In this environment intellectual capital reports may function as a unique selling proposition.
- Companies even like to attract new and retain existing customers focusing on intellectual capital. Transferred to network organisations this means intellectual capital reporting may support recruiting new members.

### 3 WHAT IS INTELLECTUAL CAPITAL REPORTING FOR REGIONAL NETWORKS?

Intellectual capital reporting complements conventional financial reporting. It analyses and assesses the intangible assets of organisations in a structured way. These elements are of specific importance for cluster and network initiatives. Intellectual capital is broken down into three dimensions: human, structural and relational capital. Within the RICARDA methodology, these three dimensions are defined as follows:

- Human capital: The knowledge brought to the network by its member organisations. It includes peoples' skills, experience and abilities. Specific attention is paid to those individuals who are actively involved in network activities.
- Structural capital: The opportunities and instruments that serve the exchange and documentation of knowledge (databases, intellectual property, organisational culture, process organisation, etc.)
- Relational capital: All resources linked to the external relationships of cluster management such as other R&D institutions, networks, non-member firms or policy makers.

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Fig. 2: The process of intellectual capital reporting – basic model

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Fig. 3: Steps in preparing an intellectual capital report

ICRs are prepared in seven steps: from definition of network objectives to the finalization of the report.<sup>2</sup> Intellectual capital reporting is a cyclical process that should be repeated after a certain time.

The first step is the definition of network objectives. At the centre of any regional cluster or network initiative is a common interest of firms, research institutions and policy makers in various networking activities focused on a sector or technology field. But on closer examination, every such network is seen to pursue multiple objectives. Two levels can be distinguished: firstly objectives linked to the concrete activities of the network. The intellectual capital report focuses on these objectives as they can be directly influenced by network activities. A second, more indirect level concerns the benefits for and effects on members or the regional economy. Policy makers that give money expect greater competitiveness and

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<sup>2</sup>The steps in preparing an intellectual capital report based on the RICARDA methodology are explained more detailed in a manual that provides information on process and content (Difu 2007; Difu 2008).

economic growth in the long term. Member firms that participate in activities are ultimately interested in increasing turnover or profits. The network objectives are identified by the working group in a half-day workshop. There is in many cases already ample material that describes a networks' main objectives that can be used, e.g. strategy documents or business plans. For the preparation of this first workshop the network manager compiles this material as an input. In the workshop, participants are invited to comment on the material. This is an opportunity to revise original goals, add new aspects and work towards a jointly accepted set of network objectives.

Intellectual capital includes assets that contribute to the outcome of a network but are not monetary or physical. In the second step of the intellectual capital reporting process these assets are identified by the working group in another half-day workshop. These assets can be broken down into three dimensions: human, structural and relational capital. While the concept and terms of intellectual capital might be new for most participants, breaking down these dimensions into concrete questions will help.

Every individual asset identified in step 2 helps – by definition – to attain one of the network's objectives. In step 3 you have a closer look at these interrelations. One asset might contribute to multiple network objectives. There might be also objectives that are not influenced by intellectual capital. A systematic review of interrelations between all factors of a network's intellectual capital and the various objectives allows assessment of their importance. This exercise is part of the second workshop.

Measuring intellectual capital poses an important problem. Intellectual capital cannot be observed directly. It is, for example, impossible to measure the innovativeness of a network by one single value. But the number of researchers employed or patent applications might be good indications of the level of innovativeness. The task in the fourth step is therefore to find indicators for the assets of intellectual capital and the network objectives identified beforehand. The indicators are identified by the working group in another half-day workshop. This workshop can be combined with the second workshop. There are certain requirements for a good indicator:

- it has to actually represent the intangible asset/network objective (significance),
- its interpretation must remain stable over time and not differ from person to person (reliability),
- data have to allow a unique interpretation (e.g., more is better),
- from a practical point of view the availability of required data is important.

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Fig. 4: Examples for intellectual capital assets

With the definition of indicators, a range of data needs have been formulated. They cover information from individual members and information on the network management level. Information not at hand has to be collected in this step of the intellectual capital reporting process. The source of these data is therefore the network management and a written survey of network member organisations.

When all the required data is available, the current status of the network's intellectual capital assets and goal attainment can be described. This is done in the next step. The indicator values for each asset are presented to the working group. Discussing the data within the group is particularly important, as the assessment of the status quo and the interpretation of data form the basis for any measures resulting from the RICARDA ICR. Workshop participants are asked their opinion on the degree to which the asset in question has been achieved in terms of quantity and quality. A common value for each asset is crucial. Participants are asked to state the reasons for their assessment. This qualitative information is documented.

The final step in the process is to pool the information gathered in a written report. It should contain a characterization of the network and a brief description of the process. A core element of the report is the documentation of the network's intellectual capital.

In some cases two versions might be advisable: a full version containing all data for internal use and an abbreviated version for external distribution.

#### 4 SETTING OF THE RICARDA PILOT CLUSTERS

The RICARDA project mainly focused on institutionalised cluster initiatives and networks with a formal cluster management organisation that are supposed to contribute to objectives on a regional level.

Nevertheless the RICARDA project tested the intellectual capital reporting methodology also in an industrial district with no clear membership structures but an established organisation responsible for common infrastructure provision like the KISTA Science City (Stockholm).

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Fig. 5: Typology of regional cluster and network initiatives

In general, the formation of clusters leads to the generation of positive externalities and thus enhances the long-term competitiveness of the member companies. This is a major motivation for cluster policy on the regional but also on a companies' level. The intellectual capital reporting process requires committed participants to be successful because it is not only based on hard facts but also on discussions and joint assessment.

Even concentrating on clusters and networks with formal management organisations, cluster can still vary considerably. Therefore the RICARDA sample included very different pilot clusters and networks like

- R&D networks focusing on pre-competitive R&D projects and joint R&D infrastructure like the Polymer Competence Center in Leoben (Styria) as well as
- SME oriented technology transfer and demonstration networks like the Virtual Dimension Center in Fellbach (Stuttgart Region) or
- managed clusters like the Pannon Automotive Cluster PANNAC in West Transdanubia that focuses on the regionalization of value chains.

The RICARDA project focused on knowledge intensive networks that are defined by the fact that increased knowledge diffusion and enhanced knowledge creation are crucial factors for network members to participate and to contribute to network activities. Hence the methodology developed within RICARDA should be applicable for the preparation of an intellectual capital report for all knowledge intensive and institutionalised networks. The method allows for different contexts of application by giving a flexible guideline and different examples how to adapt the method to specific needs. Nevertheless it can only include hints based on empirical evidence in the pilot clusters. This means that not all possible line-ups are covered. It may be necessary to modify the proposed steps of the intellectual capital reporting process and to create new procedures that fit in better.

## 5 IMPROVING THE METHODOLOGY BY PILOT APPLICATIONS

### 5.1 Demarcation

Cluster initiatives and networks consist of different organisations that are interrelated via a network management but also via joint projects. However, these members also have relations with organisations that are not members of the network, but possibly influence the performance of cluster members and thus the network as a whole. In contrast to a company, the external frontier of a cluster or network is fuzzy. Nevertheless the preparation of an intellectual capital report for a cluster or network requires a working definition of an external frontier. The external frontiers defined within the RICARDA framework are: the network considered consists of all member organisations plus the formal network management. These are the organisations that have exclusively access to some of the services offered within the network (which in turn is the motivation for them to pay member fees). This may lead to an exclusion of important external relations. In some pilot regions of the RICARDA project this problem was tried to overcome partly by introducing intellectual capital factors like “the sound embedding of a network into the regional, national and European innovation system” or the “cooperation with other cluster organizations and networks” in the “relational capital” chapters of the intellectual capital reports including interrelations of the formal network management with external organisations, if external stakeholders have been of high importance for the network operations. But generally, the intellectual capital report includes all interactions between network members, and all interactions between network members and the network management. Interrelations of network member organisations with external organisations are not included, as it is not possible to distinguish between those that have an effect on the network and those that are solely relevant for the member organisation.

Analysing knowledge intensive cluster initiatives and networks requires considering all network members, irrespective of their location. This means the results of an intellectual capital report of cluster initiatives are not mandatory regional. Nevertheless the networks contribute to regional policy objectives. The regional implications of the intellectual capital reporting results may vary.

## 5.2 Use of intellectual capital reports

In general the preparation of an intellectual capital report emanates from objectives and the awareness that knowledge contributes to their achievement. Intellectual capital reports monitor the development of and the outcomes from knowledge resources. As knowledge itself is intangible, knowledge resources are identified. They allow to monitor and to evaluate stocks of knowledge, their development and contribution to the strategic objectives identified. Internally, intellectual capital reports can act as management tools that contribute to achieving strategic objectives. It is not possible to use intellectual capital reports as external evaluation tools, as the process of intellectual capital reporting requires the extensive involvement of network member organisations.

Externally, intellectual capital reports can function as communication tools. Therefore the internal and the external version of the intellectual capital report may differ. For knowledge intensive networks the intellectual capital report might not only provide useful information for the network's management but also for the regional policy authorities. An intellectual capital report is prepared when awareness has risen that knowledge resources contribute to strategic objectives and that these knowledge resources have to be dealt similar with financial resources.

## 5.3 Defining objectives

The intellectual capital reporting process may differ between clusters and networks according to their specific stage of development. Cluster initiatives are not static. They are changing continuously and have to change to stay successful. A growing membership, for example, does not only change the size of the network. It also affects the interaction in the network. New members might also articulate new ideas and needs etc. Hence it might be helpful to discuss and define the stage of development of the cluster or network in the first step of the intellectual capital reporting process.

## 5.4 Intellectual capital assets

In the pilot application it proved to be difficult to cover the identification of objectives without going into the issues of the present or future "quality" of fulfilment of certain objectives. Nevertheless, limiting the discussion to the scope defined in the schedule of the intellectual capital reporting process is essential. In some pilot regions it was also experienced that it became difficult to agree upon common objectives in a cluster environment where stakeholders have very different objectives or different perspectives concerning intellectual capital reporting like in industrial district like settings.

## 5.5 Workshops

Intellectual capital reporting is team work. Network members give and assess information. Their input is decisive for the quality of the process and its outcome. Therefore the whole process is based on workshops. Workshops are reasonable and productive but very time consuming for a working group consisting of people with a very limited time budget. Nevertheless a discussion process is essential to draw an intellectual capital report. Particularly for younger clusters and networks holding the first workshop on intellectual capital reporting was difficult. High interest in strategic discussion ensured, a high participation rate in the first workshops, but the process to draw an intellectual capital report can only partially provide a platform for this kind of discussions. Fundamental discussions on strategic issues make it difficult to be on schedule. Considering the specific conditions of younger networks that didn't have the chance to discuss general strategic questions of network development in extenso before the start of the intellectual capital reporting process, we suggest that a preliminary discussion on general issues should precede the intellectual capital reporting process to make it easier to focus on intellectual capital report relevant issues in the first workshop.

## 5.6 Motivating People

That leads to a fundamental problem of the intellectual capital reporting process: Motivating people to participate actively in a discussion process that leads to an intellectual capital report even on corporate level

is very difficult because the benefit of an intellectual capital report for the individual user often becomes not clear until the intellectual capital reporting process has started. In the hierarchy of objectives network objectives often have a low rank, individual and corporate objectives are considered to be more important. Showing best practices of intellectual capital reports on network level to exemplify the benefits of that tool may be helpful for future applications of intellectual capital reports. One of the direct benefits might be a chance to compare the own involvement in the cluster initiative or network with average data in order “to get more out of it” in the future.

Good structured workshops are a prerequisite for a successful intellectual capital reporting process. In very early stages of the intellectual capital reporting process in some pilot clusters workshop participants disapproved meetings that give the impression of being “unstructured” at first sight. To avoid this impression the agenda should be structured a bit more. It might even be useful to give incentives for attending the workshops: E.g. in the German pilot scheme the date of the workshop was linked with the annual summer party of the network.

### **5.7 Checking requirements first**

There are many benefits of intellectual capital reports for cluster initiatives and networks: they provide new insights for management and members. They generate useful information for decision makers and serve as communication tools. But of course questions of costs arise that should be considered. There are some requirements for a successful intellectual capital reporting process that should be checked first. This includes:

- institutionalized network (management, membership),
- required time resources of the network management and members to participate in the process (workshops, provision of information) – additional funds for external moderation,
- readiness of network management and members to engage in the process,
- openness for (internal) disclosure and discussion of results.

### **5.8 Ensuring legitimacy**

Another challenge of intellectual capital reporting is to provide legitimate results of the process. In the first German pilot cluster workshop the question has been raised by working group members how to achieve legitimacy to “decide” on the number and relative priority of objectives. Because of a broad participation and the presence of all stakeholder groups it was not a problem to find a solution. The results of the workshop have been reinforced by sending them to all network members in order to include their suggestions after the event. Nevertheless the legitimacy issue is still a challenge especially when only few group members are involved.

## **6 LESSONS LEARNT**

An intellectual capital report of a regional cluster or network initiative can fulfil different functions for network management, members, external stakeholders and the general public. It might be used as information tool to give the management and network members information on the stock and state of a network’s intellectual capital. It might support strategy development. The reports show the contribution of intellectual capital to network objectives and indicate measures for improvement. It focuses on policy learning by offering stakeholders (politics, public administration) valuable insights into the structures that have often been publicly funded. Last but not least intellectual capital reports can help illustrate and communicate the various benefits of regional cluster and network initiatives as a public relations tool.

Basically, the method for intellectual capital reporting for cluster initiatives and networks that was proposed and tested in the four pilot regions of RICARDA was considered as a useful tool for strategy development, monitoring and reporting not only by the participating managers but also by the network managers who attended the regional round tables that accompanied the empirical work in the pilot clusters.

Experiences from the RICARDA pilot application and the discussion with other network managers showed that the participation of network members is crucial but difficult. There is a relatively low involvement in programming networking activities in many cluster initiatives and networks.

Hence the network management has to put lots of effort in convincing the members to start an intellectual capital reporting process. In the RICARDA pilot clusters, the network management and the network members were prepared to participate in the process. Nevertheless some pilot clusters showed only a relatively small number of participating members in general, in some pilot clusters the high number of participants in the first workshop declined during the process. Therefore, a strong motivation of network members is an essential requirement for a successful intellectual capital reporting process.

Due to reasons of limited time and budget, most pilot clusters only had a single version of the intellectual capital report per network. But it was noticed that it might be helpful to have different reports for different target groups (management, public and politicians) because the cluster and network initiatives have to address specific information demands of different groups.

One of the RICARDA objectives was to adapt the methodology of intellectual capital reporting from a company level to a network level in a way that it might be used not only in the pilot regions but in other cluster initiatives and networks as well. The discussion with managers of other cluster initiatives and networks revealed that the RICARDA methodology of ICR was considered as transferable and potentially helpful for steering and communication purposes of other networks in general. But limited personal time budgets of key players interfere with a regular participation in the intellectual capital reporting process – which is necessary for valid results and legitimate ratings. The network managers asked for measures that help to increase the commitment of the network members to the different steps of the intellectual capital reporting process. In that discussion it was suggested to combine the workshops with other important network events.

Even if the intellectual capital reporting process is a discussion and communication task, it is primarily a data collection and assessment process. And even if data is already available at the network management level, there is still some collection work to do on the members' level. In doing so, data collection can be difficult especially in big companies. Therefore the practitioners demanded “down-to-earth” solutions to limit time and effort for the written survey for each member. This is relatively easy to do if existing data is examined carefully and data collection is limited to a necessary set of indicators to close the gap in network's knowledge.

Basically, the intellectual capital reporting process is adaptable to other cluster initiatives and networks even though there is adjustment work to do. The method has to be adapted to the specific type of cluster initiative and network. The experiences in the RICARDA pilot networks showed that research driven networks rather accept a scientific approach with a complex set of objectives and indicators than SME or market driven networks which prefer more pragmatic intellectual capital reports.

Finally there was a special German problem with the uninspiring German term „Wissensbilanz“. It seems to conflict with the aim to popularise the method. In fact it has its pros and cons. On the one hand it makes clear that an intellectual capital report adds important information that is not included in the common balance sheets. Therefore intellectual capital reports and balance sheets complement each other. Otherwise the German term “Wissensbilanz” more than the English term “intellectual capital report” suggests that it is only based on data and figures. But one of the strength of intellectual capital reporting for cluster initiatives and networks based on the RICARDA method is that it consists of measurable facts but it also can contain different illustration facilities like good practices, success stories, testimonials of members concerning network activities etc.

The results of the intellectual capital reports produced in the RICARDA project indicate that such reports can contribute to improving cluster and networking schemes and – to a lesser extent – more strategic priorities and knowledge goals in regional RTD policy. It became clear that intellectual capital reports and their results mainly address the programme monitoring stage. Here complementary information about intangible assets can add to the standard type set of monitoring indicators. This could improve the quality of information available to programming authorities. Information on intangibles could also play a limited role in an ex-post evaluation – but additional data would be needed for impact assessment. RTD policy priorities in general are based on the identification of regional strengths and patterns of specialisation. Intellectual capital reports can provide data complementary to surveys addressing regional driving factors in innovation processes. Thus intellectual capital reports can support the discussion process finding a regional consensus on functional priorities. The potentials for policy learning seem to be most promising where several networks within a

region produce intellectual capital reports. The development of such an intellectual capital reporting-based policy-learning framework would allow policy makers to identify cross-cluster needs and priorities and to improve aspects of the regional innovation system.

There is still a need for action but in place of more theoretical research more practical experience is needed. This requires not only inquisitive researchers and (certainly) funding but primarily cluster initiatives and networks that are willing to engage in a process that can offer many benefits for knowledge intensive organisations because it focuses on their main assets. But it also requires strong commitment and a bit of eagerness for experiment.

## 7 REFERENCES

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