



Quality Enhanced Cluster Management

A New Indicator Based Peer Review Approach for the Mutual Development of Cluster Organisational Excellence

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Table of Contents

1. Preface and Scope	4
2. Summary	8
3. Methodology	10
4. Background and Core Policies	15

1. Preface and Scope

Innovations policy can be considered as one of the major tasks of a national approach to increase the wealth of a domestic economy. It aims at different objectives, like economic growth, full employment, stable prices or positive balance of payments from international trade. Insufficient innovation was recently considered a major cause of Europe's disappointing growth performance.¹ As a consequence, European regions need more innovation and economic growth to catch up with the global challenges. National and regional governments have recognised the potential of regional networks and clusters as a real driver in regional development policy. Many of them have proven a significant contribute to strengthening local economies, creating new jobs and attracting new investors. For this reason many clusters initiatives have been launched. Some countries included clusters policy in national development plans, others pursue regional policy models.

Firstly, clusters are important because they allow companies to be more productive and innovative than they could be in isolation. And secondly, clusters are important because they reduce the barriers to entry for new business creation relative to other locations. As a consequence, clusters and networks have become more and more the focus of public debates, national supporting initiatives, and academic research.

Cluster organisations can be understood as a highly efficient tool within a cluster that provide or channel specialised and customised business support services for the cluster members. Cluster organisations can be defined as the legal entity engineering, steering and managing the clusters, including usually the participation and access to the cluster's premises, facilities and activities.

The organisations that manage clusters may take a variety of forms, including management companies, non-profit associations, universities and public agencies.

Their legal constitution and tasks very often depend on how a cluster has been emerged.

The communication among the clusters members, among others, very much depends upon the clusters manager respectively the clusters organisation is linked to and how he is accepted by the clusters members. There are several entirely different approaches to that being practised in a similar fashion throughout Europe. One approach consists of the cluster manager or the cluster organisation itself is being member of the cluster. In another approach the manager / organisation is no direct member of the clusters, but is entrusted with this responsibility by the cluster members. In a third variant an external service-provider (or business development or funding agency) takes the lead being appointed by a third party (which often funds or initiated the cluster set-up). Figure 1 shows which of these three options dominates in Germany.²

¹ See European Commission (2006f). The Aho report is available at http://ec.europa.eu/invest-in-research/action/2006_ahogroup_en.htm

² About 80 German clusters have been asked about the relation between cluster managers and clusters.

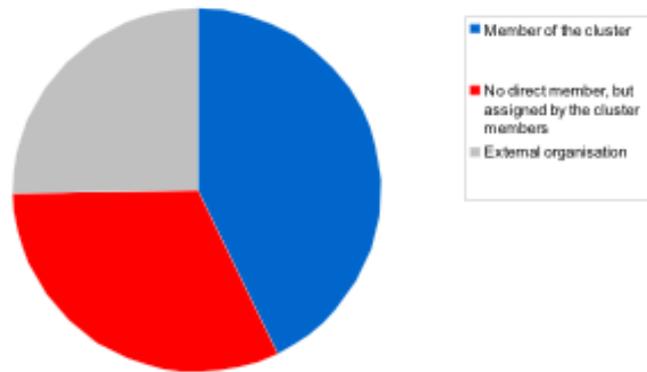


Figure 1: Relation between cluster managers and clusters

Most of the cluster organisations in the EU 15 countries tend to focus more on innovation services and knowledge creation, while in countries still in transition more emphasis is laid on supply chain development, export promotion or simple networking and training. In general cluster organisation offers a broad spectrum of

services and activities, ranging from information provision, networking, stimulating collaborative technology cooperation, enhancing the business environment, human resources upgrading, business development, etc. Figure 2 gives a good survey about common activities and services offered by cluster organisations.³

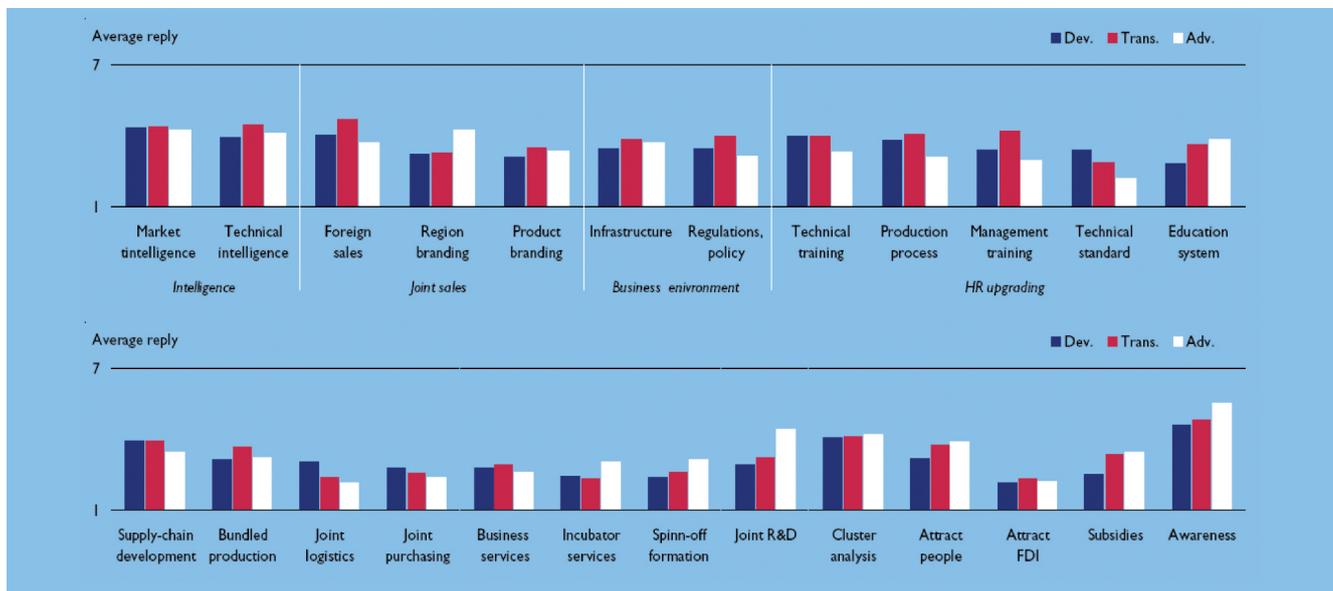


Figure 2: Activities performed by cluster initiatives³

As a consequence, most cluster initiatives organised by cluster organisations have a significant positive impact on the cluster members they serve. Since cluster organisations and managers play a decisive role in providing specialised services and added values, the level of their quality and professionalism matters.

Especially in those cases, when the regional innovation potential is weak or the cluster is still in an embryonic phase, the capability and performance of cluster organisation staff or the cluster management is extremely important.

³ Source: Ketels; Lindquist & Sölvell (2006) Cluster Initiatives in Developing and Transition Economies, 1st ed., May 2006, Center for Strategy and Competitiveness, Stockholm.

The challenge is to improve the excellence of cluster organisations and cluster outputs based on the given framework conditions, using available resources and to improve the support to firms in the framework of clusters. The promotion of high quality standards of cluster-related activities, services, added values as well as a further professionalization of overall cluster management could be one of main approaches to make the cluster management more efficient and to increase the impact on the competitiveness of the scientific and industrial members.

Since clusters are very divers and follow different objectives, this quality related approach requires a voluntary framework, which is on one side very flexible and not connected with administrative or bureaucratic hurdles. On the other side it may not constrict the actors or appear arbitrarily. Cluster and cluster initiatives bear a range of potential benefits that may be realised better through co-operative practice-, experience- and knowledge exchange between cluster managers or cluster organisation being in charge with the overall management of a certain cluster.

Our QUALITY ENHANCED CLUSTER MANAGEMENT (QECM) approach acknowledges these considerations and tested an approach that is based on two pillars:

- ▶ mutual understanding about quality criteria and indicators, adopted from a proven flexible quality management model - rather than about seemingly good or best practices,
- ▶ “friendly” review and consulting in between cluster organisations and managers, in confidentiality and based on facts – rather than formal evaluations or PR influenced good practice presentations.

The adoption of jointly agreed quality criteria and indicators as well as harmonised and transparent quality management practices by cluster organisations could have an impact at regional level facilitating at the same time the possibility of transnational co-operation in the longer term. In distinction to the rather formal

and inflexible ISO 9000 series models, the chosen EFQM® Excellence Quality Management Model and its RADAR assessment scheme offer a good frame for this cause.

The following paper documents the new approach for QUALITY ENHANCED CLUSTER MANAGEMENT, which results of the feasibility study “IMQ NET”, carried out in between autumn 2006 and early 2008. It was the objective of the study to develop and test an effectively structured methodology for good practice exchange in between innovation supporting initiatives. The study was financed by the EC – DG Enterprise and Industry. Coordinated by VDI/VDE IT, 15 expert advisors from European technology support programmes actively contributed within the IMQ NET project to the design of the methodology and performed its pilot case. VDI/VDE-IT, together with the Institute for Innovation and Technology Berlin (iit), then, in a second step, adopted the outcomes specifically for cluster management purposes. This was mainly done due to the considerable interest of clusters in Germany to increase their output performance. The methodology of the QUALITY ENHANCED CLUSTER MANAGEMENT was successfully tested since late 2007.

In the following, the structure and process of the QECM approach is explained more detailed. The expected impact is seen in a more efficient use of public resources and stronger orientation and professionalization of cluster organisations. Respectively, they would contribute to higher quality of cluster management and better services and outputs provided to the cluster members. The actions are supposed to facilitate mutual learning and reaching excellence, furthermore to create more and better contacts among cluster managers being involved in this process.

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2. Summary

Good practices often suffer from a lack of relevance outside their initial context of use – and the benefit of participation in good practice exchange is to be found mostly in the discussion with professionals with similar tasks.

It was the objective of the IMQ NET feasibility study to develop and test an effective methodology for good practice exchange. Practices should be related to measurable objectives and exchange should focus on the improvement of individual practices in individual contexts of Initiatives.

Continuous improvement methodologies and quality management concepts are recognised drivers for individual organisational innovation. They are common in European innovation initiatives/organisations. This at least is the result of a survey carried out by VDI/VDE-IT in 2007: A majority of the answering sample claimed to apply comprehensive quality management systems to their organisations. QECM Management is based on the idea to combine proven quality management and continuous improvement methodologies with a methodology for mutual review and consulting.

Methodology in brief

In order to implement a QECM, at the very beginning, cluster managers from 5 - 7 cluster organisations constitute a QECM peer group, whereas the cluster may differ in terms of size, development, ages, members structure, etc. These representatives then (alone or supported by a moderator)

- ▶ develop and document a common understanding of “high quality” of their work related to the management or co-ordination of clusters – specified in a specific cluster management criteria catalogue adopted from the EFQM model
- ▶ have the capability to evaluate management practices according to the EFQM Model, (or acquire it in dedicated training courses)
- ▶ began the utilization of the RADAR© assessment method of the EFQM© approach for major parts of their respective individual initiatives/organisations
- ▶ open their individual clusters or cluster initiatives to peer reviews with regard to core cluster management aspects and results of their work

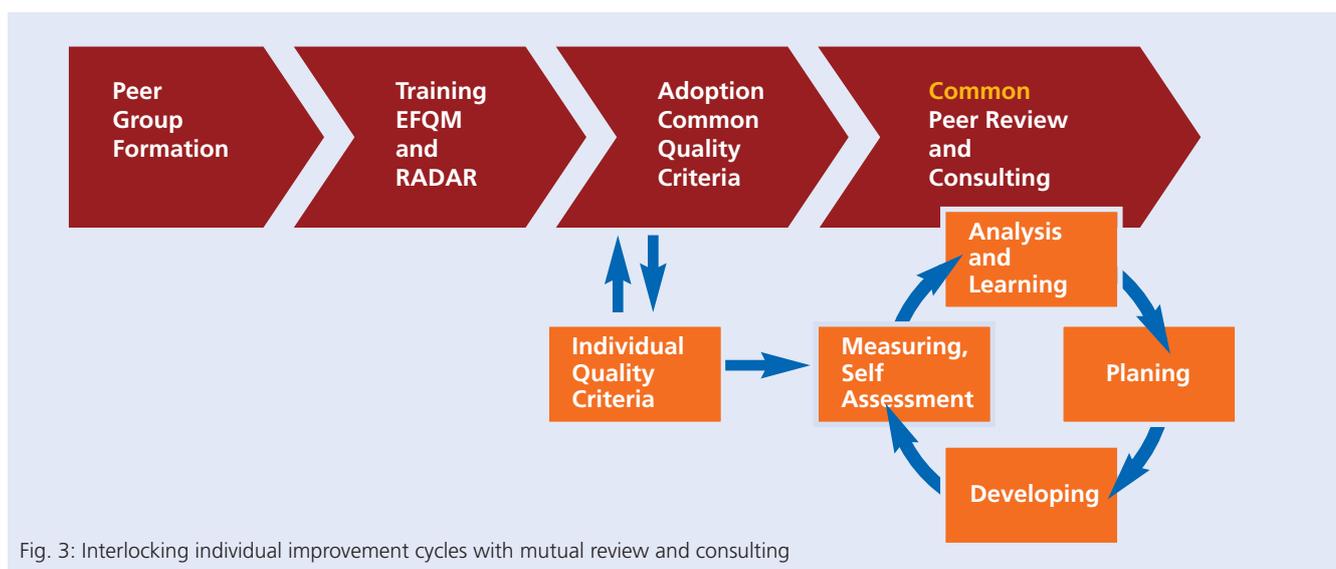


Fig. 3: Interlocking individual improvement cycles with mutual review and consulting

- ▶ consult each other in the core aspects of their cluster management

Core elements of the methodology are (s. Figure 3):

- ▶ The main concern of the approach is governance and the improvement of individual clusters organisers, but single practices may serve as “good practices”.
- ▶ The focal point is on potentials for improvement – indicating that rather the opposite of “good practices” is discussed.
- ▶ The mutual review and consultation is meant to be “friendly”, to be performed in trust, inbetween business acquaintances and in confidentiality.
- ▶ Confidentiality in the process of reciprocal consulting is of high importance and the peer groups of cluster managers shall work together over long periods of times.
- ▶ QECM utilises the EFQM© excellence model. The generic catalogue of quality criteria and indicators is tailored to the typical requirements of the clusters or cluster managers. This documents a common understanding of possibly applicable result- and enabler-quality criteria for technology funding programmes. For their assessment, the RADAR© scoring matrix⁵ is used.
- ▶ Assessment and analysis are based on facts. For QECM users it is inevitable to define measurable results, to assign management approaches to objectives, and to measure results.

Expected Impact

The expected impact of the utilisation of the QECM approach can be divided into four aspects:

- ▶ Common understanding of good management of types of clusters and cluster initiatives – and a long term alignment of practices, where appropriate.⁶
- ▶ Improvement of the management and operational quality of individual clusters and cluster initiatives.
- ▶ Enhancement of the management competency of the involved quality cluster managers in their specific service sector
- ▶ Ministries and financiers, evaluators and other stakeholders of clusters and cluster initiatives may consider participation in QECM as a quality indicator.

⁵ RADAR© is the Acronym for the EFQM scoring and assessment matrix, it stands for **R**esults **A**pproach **D**eployment **A**ssessment and **R**eview

⁶ This is a step towards a rational base for mutual recognition and co-operation operational and strategic matters. Scale and Scope effects may then be realised.

3. Methodology



Fig. 4: Reciprocal peer review and consulting process

The main elements of the methodology presented here are described in Figure 4. In the centre of all activities is the reciprocal peer review and mutual consulting process.

Individual QM systems

It is understood that QECM participants utilise a quality management system for their participating cluster or cluster initiative, preferably, the EFQM© Model. It is vital though, that they fulfil the following criteria:

- ▶ objectives are specified in a scalable way
- ▶ approaches are documented and linked to intended results
- ▶ results are measured
- ▶ cause-result interactions in between approaches and results are named

Participating cluster managers are requested to undertake a self assessment as preparation for the QECM-Workshop of the programme/initiative/organisation, preferably the participants are familiar with the EFQM and RADAR approach.⁷ The indicators or quality criteria to be used during the self assessment are to be generated form the EFQM© Model. It is strongly recommended to use a neutral moderator (like iit or VDI/VDE-IT) who may have such indicators available and adopt them according to the specific needs of the peer group.

The peer review is usually done periodically in a systematic way through cluster managers or organisations that intend or already have installed QM systems (Figure 5). But, for QM starters or those who want to change to a comprehensive model, self assessment according to the EFQM© Model is the predominant method to start.

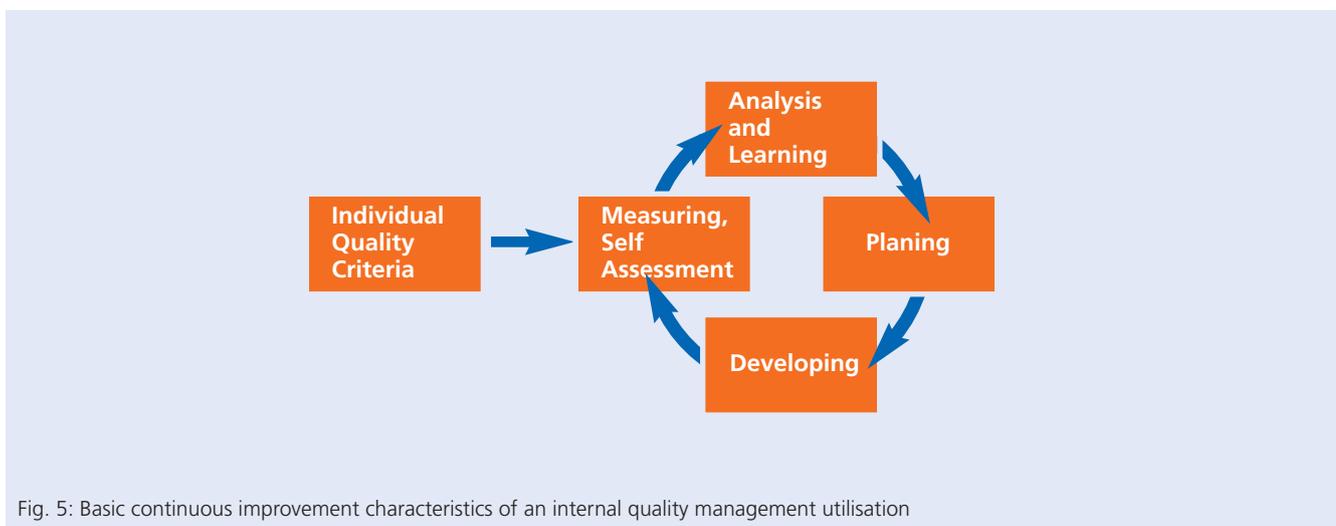


Fig. 5: Basic continuous improvement characteristics of an internal quality management utilisation

⁷ The EFQM organisation proposes different methods for self assessment. Guidelines are available from there.

Accordingly, for cluster representatives being interested in participation, it is not necessary to have a QM system in place already, but they have to be committed to start deploying it in due time, regarding the minimum requirements above.

Participating cluster organisations or cluster initiatives – Peer Group Formation

Interested parties in QECM constitute their participation by naming one cluster or cluster initiative that is the subject to individual quality management (see below) and reciprocal peer review and consulting.⁸ Each cluster sends one committed core member (preferably the cluster manager) and one deputy (Figure 6). For the reason of trust and confidentiality it is



Fig. 6: Peer group formation: Managers with similar responsibilities for similar tasks – on different hierarchy and management levels

strongly advised to maintain continuity of participation whenever possible. The matchmaking of interested parties is usually undertaken by the parties themselves, e.g. during or followed by an EFQM training session. It can also be provided by facilitators, like VDI/VE-IT or iit

Constitution and development of peer groups for reciprocal consulting

Peer groups are informal circles of 3-5 cluster managers or quality managers. They constitute themselves on a voluntary base. It is understood that the participation in this peer group implies the discussion of management matters, that the participation is intended to last for several years.

Each member should have the following skills or practical experiences:

- ▶ a cluster or cluster initiative of similar type is in place or planned at the cluster manager's organisation
- ▶ there is considerable impact on the management of the cluster or cluster initiative
- ▶ he/she is trained or has fundamental knowledge of the EFQM© approach (could alternately be conducted after the constitution of the group)
- ▶ he/she has signed the confidentiality agreement in between the peer group members

It is strongly recommended (but not mandatory) that the process is, at least at the beginning, moderated or co-ordinated by an experienced third body, which is familiar with the EFQM© Model as well as with cluster matters (like the iit or VDI/VE-IT). His main job is to build trust and confidentiality among the group members as well as guides them during the first phases.

The QECM Workshop cycle

The core cycle of the QECM approach consists of a series of workshops, to be held at the locations of the peer group members' respective clusters (Figure 7). It is the purpose of the single workshop to present the management practice and the results of the self assessment of the hosting cluster (initiative) to the

⁸ The QUALITY ENHANCED CLUSTER MANAGEMENT approach is based on the thesis that programmes are units with distinctive objectives, results and processes and thus may well be subject to Quality Management in a reasonable way. Nevertheless, whole organisations may participate (according to this thesis: a number of programmes, plus coordination)

visiting peer group members. The host's cluster (initiative) is reviewed and consulted by the visiting peer group members from the other cluster (initiatives). All cluster managers are hosting at least one workshop every year. The number of workshops depends on the number of participants in the peer group. These workshops are prepared and hosted by the hosting peer group member.

The QECM workshop

The QECM Workshop takes place at the site of the hosting cluster organisation. Attendants are the peer group members, a top management representative of the hosting cluster (initiative) and a limited number of additional relevant experts or managers from the hosting cluster (if of interest and agreed by the peer group members).

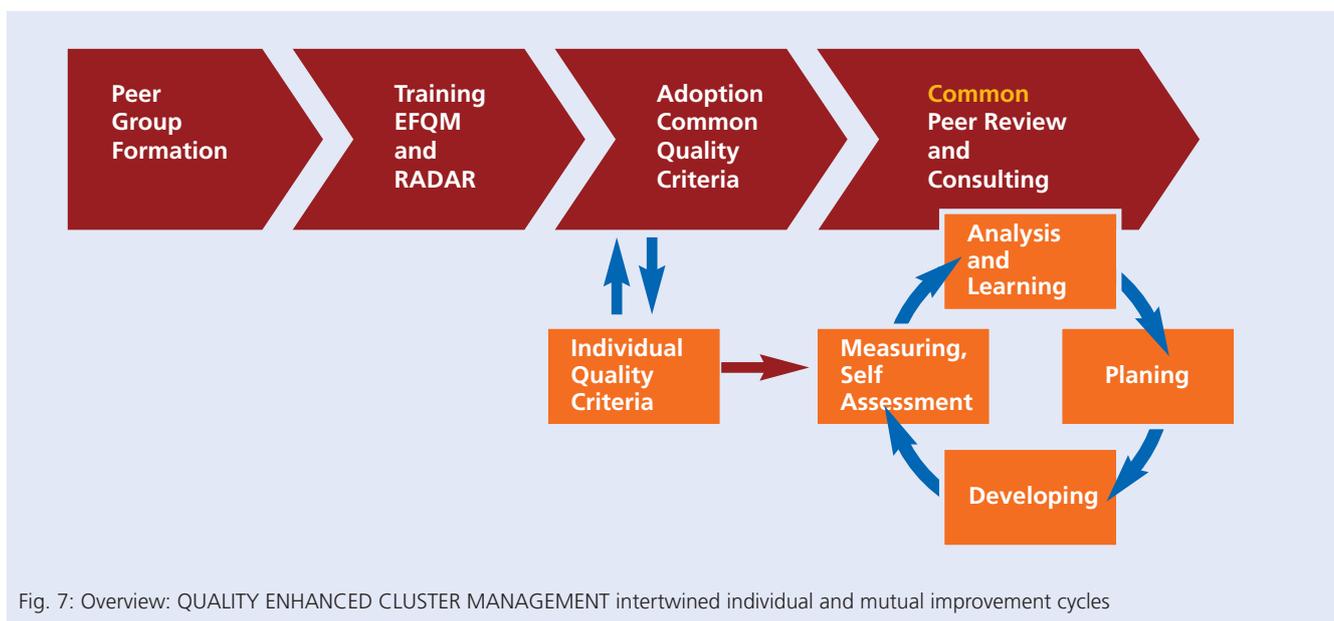


Fig. 7: Overview: QUALITY ENHANCED CLUSTER MANAGEMENT intertwined individual and mutual improvement cycles

Preparation of a QECM workshop

Participating cluster managers are requested to undertake a self assessment as preparation for the QECM Workshop⁹ (see above). The indicators against which the self assessment have to be done will be agreed before. A brief document with the main findings with regard to the criteria groups (approaches, results, assessment, improvement plans) shall be elaborated. It shall be sent to the visiting peer group members in time. Besides, additional general information about the cluster shall be sent to all peer group members.

The QECM Workshop is chaired by the hosting cluster manager. If it has been agreed by all the peer group members to run the peer assessment strictly according to the EFQM approach, a certified EFQM lead assessor is determined to assure the correctness of the process and the completeness of the documentation.

After opening the workshop a more detailed presentations of the peer group member of the hosting cluster (initiative), with regard to

- ▶ the cluster presentation (aims, objectives, member structure, outputs, main activities in the past, etc.)
- ▶ the QM-system applied to improve the performance and regional impact of the cluster (initiative)

⁹ or at least 5 of them in the first yearly cycle. The "red strings" or "fundamental concepts" structuring approaches may be used to group EFQM criterion group presentation and discussion.

- ▶ a short summary of the self assessment findings
- ▶ the fact base and the results of the self assessment with regard to the 9 quality criteria categories.⁹

is given.

The visiting peer group members assess and review the practices of the hosting cluster, in a first step individually during or directly after the presentation of the topics, followed by a joint discussion and experience exchange among the members.

In the break before the evening, the individual findings are refined (“homework”). In an informal (evening) session the individual results and improvement possibilities are discussed. In the following morning session, joint recommendations are discussed and compiled by all peer group members. The lead assessor will present the main findings and recommendations to a top management representative in a final roundup session. The QECM Workshops usually last from late morning to late morning / lunch of the following day.

Documentation of a QECM workshop

Brief minutes are prepared (participants list, a documentation who presented which topic of the agenda) by the hosting programme, basically to document the proper execution of the standard agenda and the participation of the peer group members. Additional, but confidential documentation are:

- ▶ The presentations of the hosting programme
- ▶ The collection of the individual assessment sheets and
- ▶ the consensus discussion results (joint recommendation presentation, usually in .ppt format for easier use by all peers).

4. Quality Management and Clusters

Quality Management as an approach?

Quality Management (QM) is a term defined differently, but in any case it comprises a **family of methodologies or tools** directed at **continuous improvement** of organisations, or subunits thereof. Some models intend to cover systematically whole organisations or some of its units. Some tools focus on specific aspects – e.g. Six Sigma or Quality Circles.

According to the “PORCH” study¹⁰ of the DG Enterprise and Industry, the use of “Total” Quality Management and concepts directed at continuous improvement are considered to be of high positive impact on

- ▶ the increase of quality
- ▶ the innovation ability
- ▶ the reduction of costs

Quality Management (QM) systems are widely and successfully applied to continuously improve the management and operational quality of companies and services.

The QM models, the tools used for continuous improvement as well as the design and management of clusters vary, e.g. due to different regional innovation systems or different political as well as or micro-economic framework conditions the clusters are operating in. On the other hand, most cluster initiatives use similar instruments to achieve similar objectives. Consequently, there is a high potential for clusters to be improved by utilising each others expertise.

We already do all this in our periodic evaluation!

Yes, it looks like it – on the first view. And in fact, some of the QECM quality criteria are quite similar to the common criteria used for evaluations.

But there are differences compared to a typical programme evaluation:

- ▶ Quality Management is primarily an internal management approach. It offers the possibility to set individual priorities for improvements by the management, which may or may not coincide with prevailing evaluators’ opinions.
- ▶ Quality management approaches are part of the (daily) management processes. Internal approaches to detect and realise improvement possibilities are interlinked with external QECM peer review and consulting. Resources for improvement are used more intensively by involving the executing professionals/employees. This offers possibilities for quick and unbureaucratic improvements.¹¹
- ▶ QECM bases on the confidentiality of all who take part in the peer groups. This confidentiality is necessary to discuss problems that no cluster manager would like to read about in evaluation reports, and maybe not even the ministry that ordered the evaluation.

The rational choice of the EFQM© model

The authors spent significant efforts to realise a structured reciprocal peer review and consulting methodology. On the one hand, a proven model needed to be chosen that allowed an adoption to specific objectives and intended results of clusters and cluster initiatives in general. On the other hand it needed to have the potential for the use for individual clusters or cluster initiatives. Moreover, the methodology needed to be designed suitable for peer review and consulting in between clusters and cluster initiatives.¹²

Concerning comprehensive models, two of them are widespread: The ISO 9000 series Management Quality

¹⁰ Armbruster, H.; Kirner, E., Lay, G. et al.; Patterns of organisational change in European Industry (PORCH); Karlsruhe 2006

¹¹ Before an external evaluator identifies, documents, reports, discusses problems in an evaluation report, they can already be solved. In this way, this type of problems will never make it into an evaluation report.

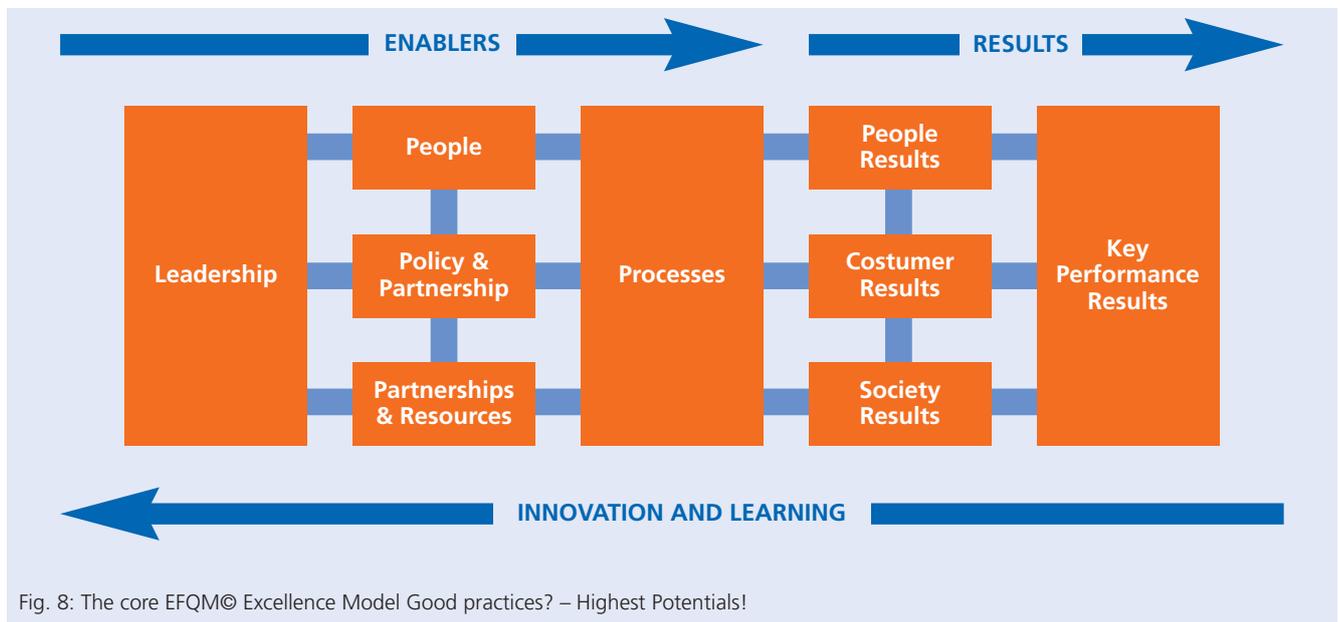


Fig. 8: The core EFQM® Excellence Model Good practices? – Highest Potentials!

Models and the EFQM® Excellence Model of the European Foundation for Quality Management (Figure 8). Both models are far too complex to be presented in detail here.

As a result of many intensive discussions among European experts and the expert advisory group of the IMQ NET project, the EFQM® model was considered to fit best to the purposes of QECM since it has its very flexibility concerning the conformance to the specifics of clusters and cluster initiatives. This approach is very likely to be regarded within the next cluster call within the 7th Framework Programme of the European Commission.

The work with a catalogue of cluster specific quality indicators, as used here, may not only serve continuous improvement. It is also a suitable tool for the design of future cluster initiatives, to specify objectives, to assign priorities to management topics, and to guide the design of processes and resources for future initiatives. The QECM as well as the benchmarking of or between clusters very much stimulate mutual learning and improving among clusters. Those companies and institutions using the EFQM® Excellence Model show a

better long-term performance with regard to impact indicators (growth, profitability) than those in their respective business sectors that do not utilise it.¹³ This is also an advantage which may not be underestimated that the EFQM® model already has proven its advantages in practice and is a well established and recognised quality approach, even if it may appear new in the cluster context.

Good practices? – Highest potentials!

Good practices are exchanged throughout the cluster community and become more and more common. Benchmarking of clusters is another approach for mutual learning (from the best). A comprehensive approach with more than 60 indicators has been set up by the Agency Competence Networks Germany. Without doubt, there is a lot to learn from the experience and practices of clusters or cluster initiatives with similar tasks.

Quality Management models focus on improvement of individual practices and the EFQM® model is heavily based on the critical discussion of individual practices. Improvement potentials are considered to be the path to

¹² Comprehensive information on the EFQM® Excellence model in general is available via www.efqm.org

¹³ ORGANISATIONAL EXCELLENCE STRATEGIES & IMPROVED FINANCIAL PERFORMANCE, Centre of Quality Excellence, the University of Leicester, Copyright 2005 EFQM and BQF.

excellence - and the grade of excellence of current practices is rather a side-note than the focus. Moreover, the EFQM© model is based on the presumption that the intended results shall be caused by management approaches. These relate usually to individual circumstances.

The flexibility of the QECM was demonstrated in pilot cases. The tests went very well because of the guideline character of the non binding criteria in the criteria catalogue

Confidentiality and trust in small closed peer groups

It is the intention to discuss the worst problems rather than success stories. This requires both courage and trust in between the involved parties. The peer groups shall maintain continuity over several years concerning its participants as well as the actions conducted. QECM imposes strict confidentiality within the peer groups, verified through the signature of non-disclosure agreements by all participants.

The catalogue of quality criteria needs an adoption to specific requirements of the clusters, since they typically considerably differ in term of structure, objectives, output, etc. Core elements of a catalogue of quality criteria for clusters have been developed so far, but need individually be adopted according to the specific needs of the peer assessment groups of the cluster managers involved. Nevertheless, the EFQM© model is quite flexible to this respect, but few of the basic EFQM© quality statements were altered. The existing statements were supplemented by exemplary statements on how these basic quality criteria may be realised in clusters and cluster initiatives.

For the individual use, the criteria need to be further selected and/or adopted to a cluster's objectives, its stakeholders and relevant external conditions, its size, speed and rhythm of change, etc.

Common generic EFQM© assessment scheme – The RADAR© matrix

The EFQM© Model offers an assessment scheme, the so called RADAR Scheme (Results - Approach - Deployment - Assessment and Review). It is a tool for the assessment of practices as well as the achievement of results and the planning of improvements.

It may be used for the assessment of individual cluster organisations or cluster initiatives. It is used here also for mutual peer reviews and assessments. Training in the use of the scheme is widely available (also offered by the authors organisations iit and VDI/VDE-IT).

Figures and facts

Following the EFQM© fundamental concept of "Management by Processes and Facts", QECM peer reviews and consulting requires a distinctive and detailed specification of objectives, measurements of results, and specified cause-result relations. Discussions shall be based on facts.

Effort

The (additional) effort for the individual improvement processes depends on the extent to which continuous improvement and quality management are already practised.

The effort for the external peer group formation, training and adoption of the EFQM© excellence model may cause app. 3-4 personweeks in the initial year plus 5-10 days trainer/consultant-cost, for subsequent years 2-3 weeks per partner per year.

Terms used:**Cluster initiatives**

Cluster initiatives are organised efforts to increase the growth and competitiveness of a cluster within a region, involving cluster firms, government and/or the research community.¹⁴

IMQ NET

The Innovation Initiatives Quality Management Network. The basic approach presented in this paper was originally developed within the IMQ-NET, managed by VDI/VDE-IT. The QECM approach is based on the findings of the IMQ NET.

SRPRC

Structured Reciprocal Peer Review and Consulting. The core activity of the QECM process, starting with the documentation of the self assessment, including the friendly review and consulting of a single hosting cluster.

Hosting Peer

The person responsible for the cluster that is subject to an onsite QECM.

Visiting Peer

The persons visiting a hosting peer, responsible to review and consult a TSP.

¹⁴ Sölvell et. al., 2003, Cluster Initiative Greenbook).