
Impact appraisal of regional innovation policy measures on automotive industry competitiveness: a search after better practices

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Abstract: The present paper reports on a search after better practices in policy support to enhance the competitiveness of automotive activities on a regional level.

Based on a Europe-wide inventory of such initiatives, an initial long list was drawn up. This long list was reduced on the basis of a number of 'filter criteria', such as preliminary success signals, the presumed causal relationship of the measure *vis-à-vis* industrial competitiveness and the specificity of the measure. The resulting short list was subjected to a more severe evaluation. This consisted notably of gathering verifiable proof of performance and of positive effects sorted by the measures.

In the end, a number of remarkable success cases were identified. However, on the whole, it appeared that only with regard to very few initiatives was it possible to establish a proven track record and/or contrast its positive causal effect on the health and dynamics of regional automotive activities. An important conclusion and implication of the research results is that there is a strong need for more systematic evaluation of the performance of regional initiatives that aim to support the automotive industry.

Keywords: R&D and innovation policies; regional economies; automotive industry; benchmarking; good practices; impact assessment.

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1 Introduction

The automotive industry is big business. According to Eurostat, on a European level, the automotive industry employs some 2.1 million workers in its direct core sectors. If the indirect sectors are included as well, it turns out that – depending on the source and method of estimation – some 6.5 million jobs (CLEPA, 2006) or 12 million workers (EMF, 2005) are dependent on the automotive industry. Moreover, the sector output totals some EUR 700 billion (CLEPA, 2006), which represents approximately 7% of the total manufacturing output in Europe (European Commission, 2005). The automotive industry is also an important export motor within the European economy, making a positive contribution to the European Union (EU)'s trade balance of EUR 33.4 billion in 2003 (ACEA, 2006). Finally, almost 20% of all Research and Development (R&D) in manufacturing is undertaken by the sector (European Commission, 2005). In absolute figures, this means roughly EUR 24 billion, of which half is spent by automotive suppliers (CLEPA, 2006).

But not only from a business perspective is the automotive sector an important industrial sector. It is likewise a sector of immense economic and social importance. Consider, for instance, the large amount of jobs it secures. The sector represents a considerable share of Europe's industrial employment: 7% if one were to take the above-indicated 2.1 million workers and 43% if one were to take the above-indicated 12 million workers as points of reference (ACEA, 2006).

If one would go to the level of specific regions and metropolitan areas within Europe, one sees even more striking indicators for the importance of the sector. For example, in the case of the city region of Stuttgart, the automotive industry represents some 50% of the economic turnover that is generated in the area and its role as an employment provider corresponds to it (IMU & IAW, 2005). Other striking examples of regions with a high dependence on the automotive industry include the area of Alsace-Franche Comté, where 30% of industrial labour is encountered in the automotive industry (INSEE, 2005), the Province of Turin in Northern Italy, where no less than 80 000 persons are employed in the automotive industry (Province of Turin, 2006) and the autonomous communities of Galicia and Castilla y Leon, Spain, where the automotive sector is responsible for some 20% of the industrial Gross Domestic Product (GDP) (Xunta de Galicia, 2006; ADE, 2006).

Hence, policy-makers, certainly those from regions where the automotive industry has a strong presence, have a clear interest in safeguarding the sanity of the automotive industry.

2 Inventorising automotive support initiatives

A supportive policy measure on behalf of regional actors (public ones or representative bodies like federations, clusters and education and research centres) towards the automotive sector is understood as an action or initiative that aims to maintain, sustain or strengthen the automotive industry at the regional level. Such a measure can aim at the improvement of a variety of business functions, like human resources management, logistics, finance, R&D, supplier development, *etc.*

To establish a database on this kind of measures, a quick scan among the European regions that shelter automotive activities was carried out. In particular, the following sources were used to come up with an inventory of automotive support initiatives:

- a survey under the members of the Network of Automotive Regions¹
- a survey under the members of similar automotive network initiatives²
- a survey under the regions that are affiliated with the European Association of Regional Development Agencies (EURADA)
- an examination of an additional number of regions in Europe with a powerful automotive industry base, which are supposedly among in supporting the automotive industry³
- research on the automotive support initiatives throughout Europe that are initiated or running at the regional level (under the responsibility of administrations, industry associations/clusters, EU Framework Programmes or Interregional cooperation programmes of DG Regio of the European Commission (INTERREG) programmes).

This resulted in a broad overview of support measures undertaken throughout Europe by regional actors to support the automotive industry. In total, a long list of some 60 distinctive support initiatives was drawn up, with the measures coming notably from the following thematic areas:

- R&D
- education, training and labour issues
- market access and internationalisation
- logistics/supply chain management
- quality management
- supplier development
- infrastructure
- strategic development
- business intelligence
- investment attraction and incentives.

2.1 Focus on research and development initiatives

In the remainder of the paper we focus on support initiatives that aim to improve the R&D or innovation capacity and potential of automotive business on a regional level.

In the first place, many initiatives from the established long list focus primarily or at least considerably on R&D. No less than 17 out of the 60 detected initiatives had a clear R&D or innovation vocation.

A further reason for focusing on R&D support initiatives is the fact that R&D is seen as an area where public support is indicated and justified. There is now enough consensus on the fact that R&D is one of those activities that cannot be left entirely to the private

sector (Mani, 2002) due to the existence of market failures. This consensus is based on Arrow's argument (1962) that if R&D activities are left entirely to the private market, it will soon lead to underinvestments. The latter is arguably the consequence of the fact that private sector firms fail to recoup the full returns from their investments in R&D owing to difficulties in the appropriation of results, even in spite of the existence of institutional mechanisms, such as patenting, that bestow (temporary) monopolies to technology generators. Economists have attempted to capture this problem by computing the spillover gap of innovations, or in other words the gap between the private and social rates of innovation-related returns. The available empirical estimates of the spillover gap indicate that the desire to underinvest in R&D exists in free market economies such as the USA, Western Europe and Japan (Mani, 2002).

In a similar vein, public interference in R&D activity is justified due to the establishment that enterprises – especially small- and medium-sized ones – cannot follow and keep up with all technological developments. They are often too small to set up and finance economically viable R&D on the level of the individual firm. Additional problems for firms can include a lack of technological capabilities and insufficient technology management.

Furthermore, this is a thematic area that appears to be key to the successful development of companies active in the automotive industry. This applies especially to the supplier segment, where a devolvement of the overall responsibilities from car constructors to suppliers also involves a shift in investments in R&D. The following data serve to illustrate this transfer. For the year 2004, investment in R&D by the top 20 suppliers averaged 4.11% on turnover, which is equal to the average of 4% to 5% spent by the top car manufacturers.⁴ Evidently, if a region wants to support its supplier base in view of increased R&D responsibility, the availability of R&D support measures and facilities are of paramount importance, especially to automotive SMEs that are highly locally based and oriented, and who – contrary to the larger first-tier suppliers who have a more global reach with better possibilities to tap into R&D and education structures anywhere in the world – thrive and depend strongly on regional back-up.

In addition, in today's industry, where a lot is outsourced and – consequently – must be achieved in a network-wise way, R&D and innovation are less and less an individual affair. Instead, it is increasingly becoming a multiparty matter requiring inputs from multiple actors and fine-tuning between them. Therefore, the possibilities with which interorganisational efforts can be coordinated and bundled in a synergetic way matter a lot. Especially since the complexity of many products calls for regular interactions between partners, the ability to articulate such interactions with partners within a reduced perimeter implies clear agglomeration advantages. Proximity makes contact and coordination of competencies and knowledge between partners easier. This means that the relational environment a region can offer is of vital importance for developing, attracting and retaining R&D activities. Consequently, the measures and facilities that underpin multiparty innovation efforts and the interaction dimension of R&D is an area where regions can provide valuable support.

Therefore, it is important that regional engineering services, technology centres and other R&D facilities with high sunk costs can be used on a *quid pro quo* basis and can be shared by multiple users, *i.e.*, because the disposal of such facilities on a 'rent-per-time' basis enables private firms to save on fixed costs and increases their working scope and performance. That way, it offers value to companies – who are not able to carry the corresponding investments individually – at an accessible price. Also, they serve as

cooperation platforms that enhance interaction and coordination between specialised actors to master complex processes. R&D support facilities and services should, therefore, not merely be used to attend individual assignments from separate companies. Especially if they serve multiparty R&D and innovation tasks, they can strengthen the industrial texture and technological potential of a region and, therefore, the competitiveness of the local actors.

In addition, attention for regional R&D support initiatives follows from the recognition that innovation capacity is important for the sanity of regional economies and that R&D policies have a positive influence on this causality (Pedrosa Sanz, 1997).

A final consideration that contributes to a justification of the regional focus on public support to private R&D is that, since the mid-1980s, technology policies have focused strongly on technology transfer for the dissemination of new productive technologies and on eliminating innovation bottlenecks (Heijs, 1999). As a result, technology policy has undergone decentralisation dynamics and obtained a more grassroots character, coming closer to the level of individual firms. This also brings regional technology policy and R&D initiatives more into the picture. In fact, regional technology policy is generally recognised as an indispensable instrument for the support of local industry (Heijs, 1999).

All in all, then, there is sufficient reason to focus on R&D initiatives that aim to underpin the innovation and research capacity of regional automotive complexes. In the following, we assess the efficacy of a number of regional instruments that aim to stimulate R&D activities and to capitalise on R&D results.

3 Identification of better practice candidates

In furtherance to the long listing of the supportive initiatives for the automotive industry, this study focused on identifying true good practices. For this, a selection ('short list') of support measures was established, which was subsequently submitted to critical evaluation and deeper analysis. The eventual aim of this exercise was to detect the regional practices that set standards or can serve as benchmarks for other regions that want to provide support for automotive R&D ventures as well.

As such, the search after better practices can be categorised as a 'benchmarking exercise'.⁵

Benchmarking envisages the systematic comparison of an organisation's⁶ business practices and standards against the best in its class in order to create new and improved business practices and standards that lead to a better product or service.

Benchmarking typically involves a number of steps. The first step is to define on which activities, procedures or action lines an organisation wants to focus. This is typically in areas where the organisation senses a need to improve or in areas where there is a need to offer a specific service or product and the organisation in question currently has nothing on offer. The next step is to find out which comparable organisations excel in these areas and who the leaders are. Usually, there are one or two organisations that set the standard in the field of action under consideration. Once it has been possible to define which organisations are leaders in their area, it is necessary to study and evaluate their practices in comparison to the practices of the own organisation procedures, activities and results. Afterwards, the necessary changes can be contemplated.

The purpose of benchmarking is not always to adopt the same practices as the leading peer, but to adapt benchmarking findings to the particular needs of the organisation and the audience it services. It is not a one-size-fits-all methodology, but rather, an ongoing process. Indeed, once new and improved systems are in place, it is necessary to re-evaluate them from time to time to ensure that they still produce the best outcomes and services.

Take note that it can also be argued that it is not absolutely necessary to identify a sector's leader in order to come to good or best practices in one's own organisation. Instead, it is also possible to introduce improvements and come to good practices by simply sharing knowledge of and experiences on a specific topic with an arbitrary set of peer organisations. The mere exchange of structured information between equals leads to introspection and, as a result, it allows an organisation to reflect on what can be learned from others for their own benefit.

But what is important under all circumstances when conducting a benchmarking exercise is that the activities and results of the organisations to be compared are in some way measured and registered (in a more or less codified and/or quantitative way) and that these results can be reported or communicated in a comprehensive way. Otherwise, the basis for comparison, learning, evaluation and benchmarking easily becomes ramshackle.

Although its roots lie in the manufacturing industry, benchmarking has become a management tool that is frequently employed in policy circles as well. Here also, the search for and benchmarking of good policy examples is a much-practiced activity. In this regard, myriad policy projects and consortia exist throughout Europe (ACcelerating the Establishment of clusters and company NETworks (ACENET), Innovating Regions in Europe (IRE), STrengthening the Regional INNOvation Profile (STRINNOP), InnoDreiländereck, etc.).

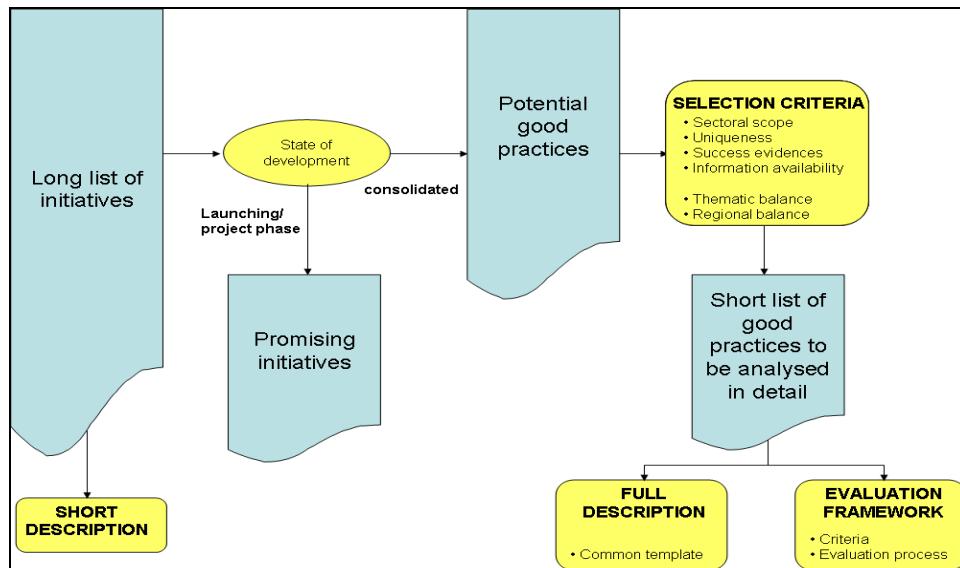
However, in general, the screening of so-called good or best practices is done in a rather superficial way and without too much methodological rigour. This also follows from the fact that policy evaluation is an area that is underdeveloped in Europe (INNO Appraisal, 2008). Moreover, it is also typical to find overviews of so-called best practices without any justification for labelling them as such. In fact, it seems that the mere existence of specific initiatives is sometimes enough for it to be presented as best practices in one area or another (see, e.g., DG Enterprise, 2001; ACENET, 2003; Technologie- und Gründerzentrum Bautzen GmbH, 2004). All in all, it often appears that the ones that market themselves in the best way obtain the highest chance of being spotted and labelled as 'best practices' (Tödtling, 2001).

In the present exercise, the attempt was to detect true good practices by means of a more critical and more transparent evaluation process. For this, we went through a number of stages. In the following paragraphs, we go deeper into on each of them and their outcomes.

3.1 Coming from a long list to a short list

The following figure summarises the overall methodology that was applied to come from a long list to a short list of better practices to be analysed in greater detail.

Figure 1 Filtering good practice candidates from a long list of automotive support initiatives
(see online version for colours)



3.1.1 First filter: the state of development of the support initiatives

The initial long list included the initiatives with different levels of maturity. As a consequence, the degree of development of the initiatives was used as a first filter, as it influences the evaluation possibilities of a practice. In line with the former, the initiatives were characterised using the following development categories:

- projected initiatives – the initiatives that are still in their definition or launching phase. No practical results are available yet, only expectations
- in process – the initiatives that have recently been launched and, thus, only offer initial and mid-term results. A full assessment of their results is not possible yet
- consolidated initiatives – the well-established initiatives with an ample track record, suitable for a full assessment of value and success. Also, the initiatives that have concluded fall into this category.

In order to be able to evaluate decently whether an initiative is a better practice or not, the emphasis in selecting better practice candidates from the long list is placed on consolidated initiatives. Because only on consolidated initiatives, some sort of “summative or judgmental evaluation” (Parsons, 1999) can be conducted. Summative evaluation attempts to measure how the policy, programme or project has actually impacted on the problems or issues it was supposed to address. In other words, it seeks to arrive at an estimate of the net and gross effects of the intervention. This entails essentially a comparative mode of inquiry: comparing, for example, the situation before and after the project’s implementation.

3.1.2 Second filter: selection criteria

To further reduce the short list of better practice candidates, the subsequent group of consolidated support initiatives was screened on the basis of the following 2 sets of criteria.

Preliminary assessment criteria

Preliminary assessment criteria are the standards that help to judge whether the respective measures under consideration seem worth submitting to a more serious test. This step was deemed necessary due to limited research resources. This filtering is necessarily rationality-bound and reliant on expert judgement, as it is done prior to the full investigation of the individual support measures. It is notably based on analyst perception and interpretation of intelligence at hand on each initiative with regard to the following issues:

- uniqueness – the degree of singularity or novelty of a support initiative
- success signals – indications of the successes and achievements of the initiatives according to publicly consultable sources
- information availability – the existence of and access to the necessary intelligence to be able to judge the performance of a measure.

Characterisation criteria

Characterisation criteria are related to the intrinsic features of the support initiatives and the scope or width of the measures and their objectives. They judge support measures notably in terms of the systems and assets underlying the regional automotive industry on which they aim to have a positive impact. *In concreto*, it is assumed that support measures can have an impact on the regional automotive industry through one or more of the following levers:

- improve Original Equipment Manufacturer (OEM) plants' competitiveness (including favourable conditions to keep OEM activities in the region or attract new ones)
- improve the competitiveness of the regional supplier base
- improve the regional supply chain's logistics
- improve market access on behalf of the actors from the region, *e.g.*, the extension and diversification of the geographical and sectoral market scope
- facilitate and improve cooperation and networking between regional automotive agents
- broaden and/or improve the availability of regional automotive support infrastructures
- enhance the region's position in future high added-value areas.

In addition to the characterisation criterion that deals with impact categories, the measures were also screened and selected on their ‘sectoral scope’, *i.e.*, distinguishing between the support initiatives that specifically target the automotive industry and those with a more horizontal approach (not aimed exclusively at the automotive industry).

In the end, the short list of good practice candidates was notably drawn up on the basis of the following requirements:

- state of development – consolidated projects
- uniqueness – the initiatives that involve innovative approaches and schemes are preferred to those that are commonly used
- success signals – the initiatives that report higher levels of success are the preferred ones
- impact on the regional automotive industry – the initiatives that appear to contribute in a positive and significant way to (an) aspect(s) considered critical for the regional automotive industry’s performance and sustainability are favoured
- sectoral scope – the initiatives that address the automotive industry in particular are preferred than those with a multisectoral scope.

3.2 Short-listed automotive support initiatives with regard to research and development

In the end, four different regional support measures in the area of R&D were retained as good practice candidates. For the sake of anonymity, these are presented under the following codified names:

- TechCentre
- EngineeringCentre
- Innovation Projects Programme
- Innovation Centres Programme.

In the following sections, we present the rationale behind the applied assessment framework, as well as in-depth evaluations of all four good practice candidates.

4 Evaluation framework

In order to conduct a thorough examination of the R&D initiatives that were short-listed as good practice candidates, attempts were made to assess and measure their value and degree of success more objectively. For this, contact was established with the responsible of the initiatives in question and considerable efforts were made to obtain relevant intelligence and data in order to draw up a fair judgement on the initiatives at stake.

In this regard, it was especially important to consult various sources of information and documentation that concern the initiatives’ performance. Not in the least because a large part of the easily accessible information is material that serves for marketing

purposes and has been elaborated by the promoters of the initiatives themselves. Based on such material, an objective view and judgement on the initiatives' real utility and efficiency is easily blurred.⁷

Although evaluating impacts always involves values and qualitative information and can seldomly be conducted in a completely objective and fully quantitative manner (Parsons, 1999), ample precautions were taken to secure that the evaluations would be as fair as possible.

Apart from the necessity to obtain more accurate information on the initiatives' outcomes, also a coherent evaluation framework is also necessary in order to come to sound judgements on the merits of each initiative and base the evaluation of the respective initiatives on a shared framework for analysis. Therefore, for the present evaluation exercise an evaluation framework was designed that allows the assessment of the better practice candidates in a systematic and uniform way. For the sake of employability of the framework outside the automotive realm, and taking into consideration the diversity of initiatives to be examined, the evaluation criteria used in the framework are necessarily generic.

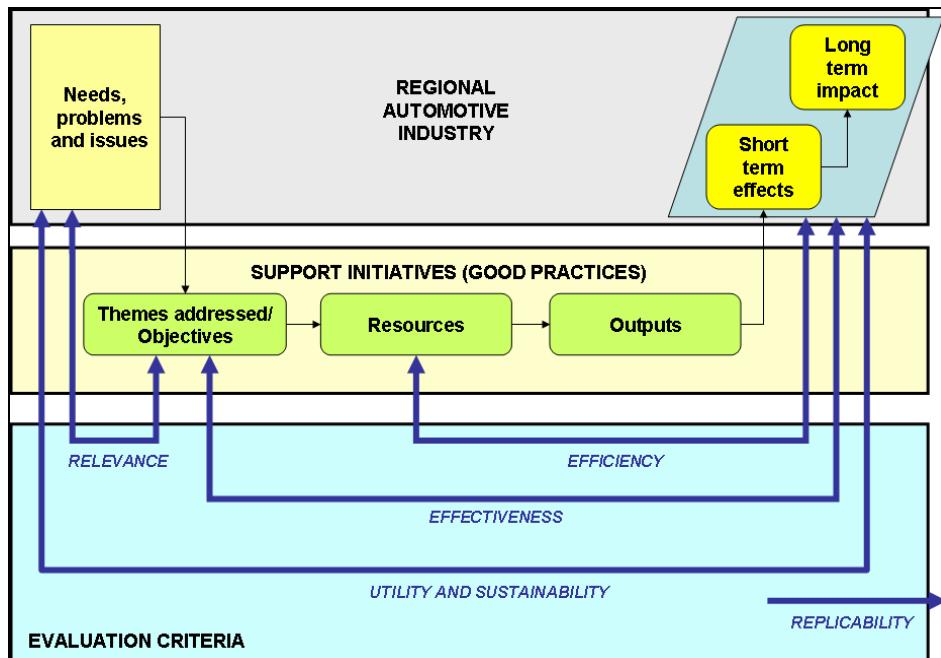
In addition, we intentionally sought the evaluation framework to align with evaluation schemes in vigour for similar purposes, like *ex post* project assessments. Especially as regards the criteria that are typically applied for project evaluations, because this enhances the comparability of appraisals between different projects and initiatives. Therefore, the proposed evaluation framework aligns with EU guidelines for project and programme evaluation.⁸ In the spirit of the EU guidelines, a support initiative *vis-à-vis* the automotive industry can be seen as a system intervention and the impacts of such an intervention should be assessed and measured according to the following parameters:

- 1 *relevance* – to what extent is the intervention relevant in view of the needs and problems of the targeted system?⁹
- 2 *effectiveness* – efficacy in terms of the progress made towards the attainment of predetermined objectives (output rationality), including a causality assessment
- 3 *efficiency* – in addition to ascertaining whether an intervention has attained its objectives or not, it must also be assessed on the basis of how much it has cost to attain them
- 4 *wider impacts* – this refers to the side-effects, positive or negative, which an intervention produces apart from the (non-)attainment of the presupposed goals, either for the targeted system or society at large. It also entails aspects of 'behavioural additionality': differences in firm behaviour resulting from government intervention (Georghiou, 2003)
- 5 *sustainability*:
 - to what extent can the positive changes that result from the intervention be expected to last after the initiative concludes or when beneficiaries are no longer supported? A longevity assessment provides the basis for evaluating how sustainable the effects of an intervention are

- to what extent can the intervention be upheld without public funding? Whereas many support initiatives depend on public money, the benefits are supposed to end up largely in private hands. Therefore, an assessment of the willingness to pay on behalf of private beneficiaries (stated or revealed) is a complementary manner of evaluating the sustainability of an intervention.¹⁰
- 6 *replicability* – can the initiative be rehearsed and imitated with ease in another setting and/or locality?

Figure 2 portrays in a synthesised way the framework for analysis that follows from the above-exposed examination rationale and the corresponding evaluation criteria.

Figure 2 The building blocks of the evaluation framework to assess good practice candidates (see online version for colours)



As can be seen in Figure 2, the overall needs on the level of the automotive industry in a particular region to which a support initiative should contribute serve as the starting point of the evaluations (see the upper layer). The second layer corresponds to the initiatives themselves and deals with their design (thematic focus and objectives) and implementation (resources and outputs). The third layer refers to the operational evaluation criteria presented previously. This allows to relate the elements from the two layers above and to assess the performance of their interrelations.

In the following tables, we present the support measure-specific assessments according to the criteria outlined before.

Table 1 The evaluation of good practice candidates

Name of initiative	Innovation centres programme	Innovation projects programme	TechCentre	Engineering Centre
Objectives of initiative	<p>Regarding the objectives, a distinction should be made between the Programme as such and the Centres that follow from it.</p> <p>As for the Programme, its main aim is to set up and develop Centres that help bundle regional competencies (support network formation) with regard to technologies that are relevant for the regional economy's future, such as: fuel cell technology, mechatronics, technical textiles, telematics and mobile computing network, virtual reality/dimension, etc.</p> <p>As for the individual Centres that are mounted, they have the following objectives:</p> <ul style="list-style-type: none"> • In a more generic sense, they serve as a platform where companies, universities and research facilities can meet and exchange ideas on selected topics and technologies. That way, they enhance the building up of expertise and competitiveness, and of economic development in the region as a whole. Also, they should contribute to the maintenance and increase of the region's appeal as a business location. <p>In more operational terms and in terms of service targets, the Centres' objectives are as follows:</p> <ul style="list-style-type: none"> • offer scientific expertise as a paid service at preferred terms for members, associates and participating firms • canvass services for all participants • provide shared public relations work • shorten innovation cycles • increase the number of marketable products that are created by cutting-edge research • mediate for members in international cooperative actions and generate (inter)national cooperation projects. 	<p>The key objectives of the Innovation Projects Programme are to facilitate:</p> <ul style="list-style-type: none"> • the exchange and sharing of knowledge, facilities and resources between universities and companies • career development for graduates via company-based experience • interaction between businesses and universities or research organisations. <p>On behalf of the participants, the goals are similar and can be summarised as follows:</p> <ul style="list-style-type: none"> • for companies: increase profits and gain market position • for academic institutions: increase relevance to business • for graduates: acquire work experience and employment opportunities. 	<p>The main objective is to increase the competitiveness of the regional automotive sector via the provision of advanced technological solutions, the appropriation and transfer of related technologies and the strengthening of companies' orientation towards technological development and research and innovation.</p> <p>TechCentre's mission can be further broken down into four basic goals:</p> <ol style="list-style-type: none"> 1 to provide automotive companies with efficient services that respond to their (present/future) requirements 2 to develop the necessary in-house capabilities 3 to serve as a point of reference and guide regarding state-of-the-art technological development and innovation 4 to improve the technological capacity of the integrants of the host region's automotive sector. 	<p>The goal of the engineering and testing facilities of the Centre is to strengthen the innovation and product development potential of the automotive suppliers in the host region.</p> <p>It also aims to contribute to the formation of technology-specific or component-specific clusters and their (commercial) perspectives.</p> <p>On a more strategic level, the Engineering Centre attempts to enable firms to cope with the following trends:</p> <ul style="list-style-type: none"> • the transfer of product development tasks and responsibilities from vehicle constructors to their suppliers • the shortening of the development time of a vehicle (and, thus, of their underlying parts and functions) • the increasing complexity of product development and the exposure to ever-increasing demands in terms of ecology, quality, reliability, safety, cost and weight • and thereby enhance the competitive position of the vehicle supplier industry in its host region on a European and global level.

Table 1 The evaluation of good practice candidates (continued)

Name of initiative	Innovation centres programme	Innovation projects programme	TechCentre	EngineeringCentre
(Support) services, facilities and/or 'products' offered	'The Innovation Centres, 13 in total, function as integrated business networks and, as such, provide a bridge between business and scientific programmes/research institutes. They act as the 'headquarters' of networks and serve to orchestrate and support the networks' actions. They all have a cross-sectorial vocation, although some of them are of particular interest to the automotive industry, like the fuel cells, mechatronics, technical textiles, telematics and virtual reality/dimension Centres. In general, the Innovation Centres do not set up their own technical infrastructure. If technical infrastructure is needed for specific projects or research activities, the network manager gets in touch with indicated network members and involves them in the assessment of the need to foresee technical infrastructure or putting theirs at the disposal of others. As such, instead of creating new infrastructure, members engage as much as possible in 'facility sharing'. On many occasions, this is advantageous for the facility owner as well. Because facility-sharing improves the occupation degree of the available equipment and thereby enhances cost recovery possibilities. Nevertheless, certain Centres do house some highly advanced physical equipment and a demonstration means allowing SMEs to get access to a specific technology, test it or rent it for a specific time period.'	In the innovation projects programme, universities act as administrative hub for each innovation project (taking on the administrative burden of the partnership) and provide expert knowledge in the demanded field. A senior academic is committed to spend time on the project, working at or with the participating company for half a day per week and acting as a mentor for the graduate ('associate'), who the university allocates full time at the company. In addition, the associate and the senior academic provide a conduit into the greater research resources and facilities of the university. The project partnership, accompanied by the associate assigned to a company, can last up to three years. The associate works and is located at the company, providing vital translation between business and university. Meanwhile, the associate receives management training and may register for a higher degree in business or management.	The services that TechCentre provides cover all aspects that are related to new product development, from their design and conception, manufacture of prototypes and preseries, to the carrying out of validation tests and industrial development. For this, it disposes of an engineering department, a testing department (consisting of various specialised laboratories, e.g., with regard to climate, acoustics, virtual reality, impact assessment, durability, etc.) and a technical office. TechCentre also works on fostering knowledge. To this end, it organises seminars in collaboration with universities and (international) technology Centres, to which it invites recognised experts in the fields that are being covered. Moreover, it participates in international (European) research projects and/or introduces member companies into such projects and schemes.	EngineeringCentre supports its user community's innovation and product development capacity via calculation and testing facilities and via physical infrastructure for integrated design and engineering activities. <i>In concreto</i> , the Centre disposes of: • CAD/CAE hardware and software • Testing hardware and measuring equipment. EngineeringCentre also offers an extensive training, workshop and seminar programme. Furthermore, in terms of knowledge dissemination, the Centre provides independent technological advice and is active in getting clusters of organisations together around projects in which these have a shared interest: 'cluster projects' and 'knowledge transfer projects'. For the latter, EngineeringCentre takes care of the partner search and finding the right expert for a project's needs. In the event that specific expertise or test equipment cannot be offered from among regional or national resources, EngineeringCentre calls on its research capacity and/or knowledge sources from abroad.

Table 1 The evaluation of good practice candidates (continued)

Name of initiative	Innovation centres programme	Innovation projects programme	Tech Centre	Engineering centre
Innovation centres programme	<p>In terms of service provision, the Centres assist their members in all aspects of product and technology development: R&D, production and marketing, as well as commercialisation. This also entails supporting access to (European, national, <i>etc.</i>) funding and programmes, enhancing participation in (EU) research programmes and liaisons with other network initiatives.</p> <p>Alongside technology or product-specific activities, there is a number of other ongoing services that the Centres offer to their affiliates, like organisation of events, education and training.</p>	<p>To get into the saddle, the successfully assessed Innovation Centres were supported with a 2 million euros of funding programme as a financial base for the first three years.</p> <p>In order to support the sustainability of the initiated networks, a formal institutionalisation of the networks was demanded. This included financial commitments of the participating partner institutions (<i>e.g.</i>, annual membership fee), as well as a general network management that focuses on the needs and demands of the network members. Consequently, the 2 million euros initial public funding was followed by about 20 million euros private investments in the Innovation Centres during the next years.</p>	<p>The innovation projects programme has a working budget of €2.25 million and there are currently some 52 innovation projects in progress.</p>	<p>Since its foundation at the start of the 21st century, roughly EUR 25 million have been invested in the Centre (including the construction of the building and site development).</p> <p>The number of technical personnel and engineers has grown to 200 persons.</p> <p>Annual operational expenses: no first-line information disclosed.¹</p>
Costs of initiative in EUR, possibly split into:	<ul style="list-style-type: none"> • annual budgets for operational costs (ongoing expenses) • startup investments in base assets (once-only expenditures) 	<p>After an evaluation of the funding phase at the end of 2002/beginning of 2003, a project-oriented allowance phase was started in the second quarter of 2003, granting a total sum of €250,000 a year for cooperation projects (between 2003 and 2006, there were 60 that applied for regional funding). As of 2007, the available public support increases to €500,000 per year.</p>	<p>For the period of 2002-2007 (six years), the following budget was available:</p> <p>EUR 6 million for operational expenses and EUR 15.5 million to cover investment costs.</p> <p>The operational cost of the Engineering centre is approximately EUR 1 million annually, half of which is covered via private contributions (payments for services, rent of installations, <i>etc.</i>).</p>	

Table 1 The evaluation of good practice candidates (continued)

Name of initiative	Innovation centres programme	Innovation projects programme	TechCentre	EngineeringCentre
Sources of finance (public share/ private share) or revenues (e.g., customer base)	The sources of finance are both public and private. On a whole, there has been a substantial contribution of the private sector in setting up the Centres through investments of some EUR 20 million (versus EUR 2 million 'seed' capital on behalf of the host region's Economic Development Agency). Also, there are annual membership fees, which cover some 50% of the annual operational and project costs of the Centres' activities. This is supplemented by the regional funds for which cooperation projects can apply. All in all, the lion share of finance comes from the private sector.	The main element is a 73% public allowance. The remainder (27%) comes from private contributions. The overall budget per project is some EUR 78,000 (of which roughly three-fourths are financed by the public sector).	The startup investments were fully paid for by public organisations. The funding of operational costs originates from the regional foundation for 'innovation, research and technological development of the automotive industry', which also shelters private resources, and from other regional and national government funding.	<p>The public funding of the Centre comes via regional and provincial government allowances, which also financed the infrastructure and hardware costs of the Centre.</p> <p>Funding is supplemented by private income that is raised via the services and installations that EngineeringCentre has on offer for users who can rent them and pay on a <i>quid pro quo</i> basis.</p> <p>They come from:</p> <ul style="list-style-type: none"> • annual membership fees, varying according to the size and type (company/university) of the member organisation • payments for technology advice • payments for knowledge transfer projects (SMEs pay a 20% allowance and large enterprises, 50% of the costs incurred by knowledge transfer projects) • payments for use of the Centre or ancillary installations. <p>Overall, the Centre depends largely on public funding.</p>

Table 1 The evaluation of good practice candidates (continued)

Name of initiative	Innovation centres programme	Innovation projects programme	TechCentre	EngineeringCentre
Relevance	<p>In the future, a company's competitiveness will depend largely upon the access to assets and knowledge governed by third parties. Therefore, a company's willingness to cooperate with other companies, universities and/or research facilities becomes very important. As a consequence, regional competence Centres and networks form important tools for localising economic development and sustaining companies' competitiveness.</p> <p>This is especially the case if such Centres foster cooperation between companies, and collaboration of firms with universities and research establishments.</p> <p>By bringing together companies, universities and research establishments with complementary knowledge in specific fields of technology, the Innovation Centres under consideration help identify, network, retain and develop expertise in the region.</p> <p>Although the Centres serve a generic industrial purpose, the benefits are especially channelled to the automotive industry, since it embodies an important part of the industrial texture of the region in question.</p>	<p>The host area diagnosed that much more needs to be done to persuade businesses of the economic benefits to be gained from innovation and of working in collaboration with university departments to achieve this goal. This applies especially to SMEs. Also, it appears that companies do not have the time or capacity to find out which research departments at universities are doing work that is relevant to their needs. This problem also applies especially to SMEs.</p> <p>Similarly, it was established that SMEs' labour force is often underskilled in many fields, SMEs are often unfamiliar with existing (public) support possibilities, e.g., regarding R&D and training and that they lack the time to trace the eventual possibilities in this field.</p> <p>On the other hand, it was also diagnosed that academia often lack a feeling for business and commercial reality and fall short in terms of giving an applied vocation to their projects.</p> <p>In addition, for academia, there is a growing need to consider alternative sources of income, next to internal university research and education.</p>	<p>The automotive business is the most important industrial sector to the host region of TechCentre. To sustain this position, in the late 1990s, the regional automotive sector recognised the need to set up a technological Centre to back up the sector's innovation activities. Consequently, at the start of the new millennium, TechCentre was inaugurated.</p> <p>Its relevance is deemed by the necessity to strengthen the industrial economy in regions with an important automotive sector. Furthermore, its importance follows from the fact that its host region previously lacked technological Centres and structures of this kind. In fact, before the creation of TechCentre, automotive companies from the host region went to other Centres in distant locations for technological services.</p>	<p>EngineeringCentre derives its relevancy and usefulness from the fact that it allows private automotive companies to make use of high-end technology and design and testing means at a reduced cost without having to invest in these means. Meanwhile, it strengthens its users' innovation and product development capacity.</p> <p>It also facilitates the access to and cost efficient use of R&D infrastructure, enabling firms to keep or develop a competitive edge.</p> <p>Also, the training services, cluster projects, knowledge transfer projects and technological advice are highly meaningful, as they allow firms to keep up with the state-of-the-art in an industrial environment that is under constant change. In this context, there is an evident time and cost strain on individual companies that have a clear interest in being able to rely on collective structures that support them technology, capability and knowledge-wise.</p> <p>The latter is also an important relevance rationale behind EngineeringCentre's role in cluster or network formation. Enhancing interfirm contact among automotive companies and contact between automotive companies and nonbusiness organisations with a relevance to the automotive industry (e.g., nonprofit research and education Centres) fosters the exchange of knowledge and experiences and contributes to seizing technological and commercial opportunities.</p> <p>In line with the former, EngineeringCentre's relevance also stems from the fact that the future of the automotive industry lies increasingly in knowledge and technology-intensive activities and activities that require joint (multi-organisation) development actions.</p>

Table 1 The evaluation of good practice candidates (continued)

Name of initiative	Innovation centres programme	Innovation projects programme	TechCentre	EngineeringCentre
Effectiveness	<p>Regarding effectiveness, it is necessary to distinguish between the Programme and the Centres that are created through it.</p> <p>The Programme certainly produced the intended effects, since 13 Centres were established that proved their viability in the mean time and embarked on a growth path.</p> <p>The latter also indicates that the functioning of the Centres is effective. In this regard, the following observations in relation to their effectiveness can be forwarded.</p> <p>First, the regional approach allows a sustainable and feasible management of the Centres and their affiliate networks, e.g., the Centres target a compact-sized service area with a high density of know-how regarding a specialist technology field to meet the respective thematic foci of the membership populations. Due to the small geographical scale on which the Centres work, they are also able to take regional specificities into account, achieve company-driven networking with short lines and quick connections between the affiliates.</p> <p>Second, under the part of the present table that is devoted to 'Objectives of initiative' (see above), a number of operational targets for the Centres has been forwarded. Although it is not possible to establish to what extent the Centres comply with them, it is possible to make a (partial) judgement on their effectiveness based on the following information.</p>	<p>In view of the objectives that the participants pursue, the following achievements can be highlighted.</p> <p>SMEs obtain:</p> <ul style="list-style-type: none"> • technological and economic benefits • access to specialist knowledge, assistance and equipment • broadening of skill set and an increase in the skills of existing staff. <p>In more quantitative terms, the following SME benefits have been registered:</p> <ul style="list-style-type: none"> • company profits due to innovation projects are up to quadruple of the overall costs and up to tenfold of SME contribution • approximately 77% of the participating companies establish intellectual property agreements with their academic partners and 22% expect to gain a commercial benefit from the application of those intellectual property agreements 	<p>An assessment of TechCentre's effectiveness causes problems in view of its rather strategically formulated objectives. Also, no systematic reporting on goal achievements is available. As a consequence, judgements have to be based largely on stated evidence and not on revealed proof. The following is an overview of such evidence.</p> <p>Since its foundation, there has been a growing number of clients using TechCentre's services. At the outset, it had less than ten customers and nowadays, this figure has multiplied +/- eightfold. In a similar vein, the turnover figure has grown exponentially over the past years, which also indicates that the Centre responds to the demands of the user population. Also, the fact that expansion plans are underway illustrates that there is a growing demand after the services that the Centre develops and that it clearly fills a need. Similarly, the fact that most of TechCentre's income (83%) comes from projects that stem from private customer assignments indicates that the Centre is clearly market-led and oriented.</p>	<p>The services that are offered in order to achieve the goals that EngineeringCentre has (expand innovation and product development capacity, on the one hand, and increase the competitiveness of the companies that are based in its host region, on the other hand), offer the best yardstick to evaluate whether the initiative is effective or not.</p> <p>In the first five years of existence, EngineeringCentre issued 176 technological advices, 59 knowledge transfer projects were concluded and 14 cluster projects were put in motion. In addition, private income from the Centre's services and assets mounted to some EUR 0.5 million per year in the latest years.</p> <p>It is, of course, plausible to assume that the services and facilities on offer contribute to and impact in a positive way the previously indicated objectives. However, systematic or anecdotal proof of this is not available. As a matter of fact, the advices, knowledge transfer and cluster projects are means (not ends) in themselves. Their metrics reveal little about the effects they produce (like achieved innovations, cost savings or commercial achievements).</p>

Table 1 The evaluation of good practice candidates (continued)

Name of initiative	Innovation centres programme	Innovation projects programme	TechCentre	Engineering Centre
In order to guarantee the high sustainability and proven marketability of the centres, the Economic Development Agency of the initiating region provides an allowance that only covers part of the needed finances to set up and run the Centres. Consequently, all Centres have to come up with additional ('own') money sources. Evidently, these supplementary resources would only be brought in by the affiliates (via annual fees, payments for and revenues from project activities, offered services, etc.) if the Centres lived up to the members' expectations.	<ul style="list-style-type: none"> • a total of 52% of the participating companies witness an increase in the overall value of their company around 66% experience increased sales • about 42% experience higher profitability • approximately 60% break through into new markets • a total of 47% increase their quality levels • around 58% improve their operational performance. <p>Now, member payments (via annual fees, for services provided, for projects conducted, etc.) not only provide an important financial basis for the Centres, but also put pressure on cluster management regarding 'return on investment': the members want to see that their membership fees are 'worth their money'. Generally speaking, if the Centre's manager is not successful and the members (especially large companies and SMEs) see no benefit, they will quit their membership. So to speak, the development of the membership figures (see hereafter) is a powerful indicator for the sustainability of a Centre and the benefits it provides.</p>	<p>Another indicator of effectiveness is the establishment that innovation projects developed at the Centre lead, for almost all TechCentre's customers, to an increase in the latter's turnover figures. Nevertheless, it should also be acknowledged that it is very difficult to attribute an increase in the turnover growth at customer companies to the innovations achieved with support from TechCentre.</p> <p>Given the lack of member turnover measurement user satisfaction. An (indirect) way of measuring effectiveness is through the measurement user satisfaction.</p> <p>Regarding the origin of TechCentre's clientele, although most companies come from the region where the Centre itself is established, there is also clientele from neighbouring regions and countries, including some from more remote regions and countries. The latter indicates that the Centre is considered competitive and offers unique possibilities, even from the viewpoint of companies from outside its host region.</p>	<p>In this regard, the little evidence made available about performance and/or objectives are output indicators (e.g., number of company visits, technological advices, knowledge transfer projects, cluster projects and innovation enhancing actions), rather than true performance or effect indicators.</p> <p>An (indirect) way of measuring effectiveness is through the measurement user satisfaction.</p> <p>Over the past years, the number of member companies has grown steadily from 70 five years ago to 155 paying members at present.</p>	

Table 1 The evaluation of good practice candidates (continued)

Name of initiative	Innovation centres programme	Innovation projects programme	TechCentre	EngineeringCentre
This financing and governance procedure' guarantees that there are internal checks and balances that provide guidance to the Centres to be and remain successful. In fact, the autoregulation on success creates a sort of survival-of-the-fittest process, through which only the successful Centres can stay alive. In order to guide this survival or shake-out process, at the end of the 1st phase (end of 2002/beginning of 2003), an evaluation was conducted in order to assess the progress achieved within the different Centres, analyse the strengths and weaknesses and provide recommendations for upcoming actions.	Universities obtain: <ul style="list-style-type: none">• exposure to commercial challenges• the possibility to communicate the value and relevance of academic research to industry• valuable real-life technical insights• input for academic research, teaching and publications. The following quantitative achievements have been measured: <ul style="list-style-type: none">• on average, each project leads to the publication of a research paper and another article and then subsequently generates another four research projects. A couple of Centres were dissolved therupon, but the ones that came out as good still stand firm today and appear to have a healthy future. Moreover, a formal evaluation of the Centres was conducted in 2002/2003 to assess user satisfaction. Regarding the results that this yielded, we focus on the Centres with a specific relevance to the automotive industry, i.e., the fuel cells, mechatronics, technical textiles, telematics and virtual reality/dimension Centres.	Finally, the Centre covers nearly all the technological needs of the regional automotive sector by means of its offers in technological R&D technological services, innovation and training activities. As such, the Centre's design is very suitable for reaching its main objectives: supporting the regional automotive industry in its constant search for a high degree of competitiveness and technological development.	To measure user satisfaction, in 2005, an enquiry regarding the quality of service provisioning on behalf of and cooperation with EngineeringCentre was held among members, with the following results. On a scale of 1–5 (5 being the maximum score), the average for the various evaluated quality dimensions was a '4 minus'. Regarding the effects that the use of cooperation with EngineeringCentre sorted for the member companies (in terms of contributing to innovation activities, liaisoning with relevant third parties, creating new business opportunities, etc.), the outcome was more mixed. It was, e.g., good in terms of adding to the innovation capacity, but more discrete in terms of creating business opportunities and improving competitiveness.	The figure of 155 members can be considered quite a success, given that the main automotive federation of the host country where the Centre is situated calculated that the country in question shelters some 215 companies that can (but not necessarily do) supply to the automotive industry. This means that almost 75% of the captive population felt sufficiently attracted to the initiative to become a member. On the other hand, the amount of affiliates may not be all that telling, as the membership fee is rather low and does not form a barrier for entry.

Table 1 The evaluation of good practice candidates (continued)

Name of initiative	Innovation centres programme	Innovation projects programme	TechCentre	EngineeringCentre
Another indicator of user satisfaction is the evolution of membership numbers. In all cases, there has been a steady growth of memberships. This includes the technical textile Centre, which underwent a strong growth after the evolution exercise was carried out jumping from +/- 40 in 2003 to 60 in 2006. Something has apparently changed for the better at this Centre. Regarding the affiliates of the Centres, it is also noteworthy that some Centres have foreign organisations as their members. This shows the advantages and unity the Centres also offer to foreign and extraregional actors.	Regarding value-for-money, whilst the investment is not insignificant, the cost for the participating SME is still below the level required to add a graduate to the company payroll.	Finally, according to monitoring activities by EngineeringCentre itself, the waiting time for member companies to make use of its facilities is short to members, indicating that the dimension of the Centre is adequate for its utilisation, which contributes to effective service provisioning.		
A final proxy for effectiveness is turnover and the number of projects initiated. In this regard, all automotive-related Centres are undergoing significant growth.	Regarding the programme, efficiency can be measured both from a public and private perspective.	Being a formula that manifestly provides good value-for-money for all involved, it was assessed through a mid-term evaluation whether efficiency improvements can be achieved.	Also on this topic, a real assessment is problematic in view of the rather strategically formulated objectives for the Centre and the absence of monitoring on achievements.	In furtherance to the problems of measuring effectiveness, it is likewise difficult to say something founded about the degree with which results are achieved in an economic and goal-directed way. To start with, if the output objectives are outperformed in reality and there is a more or less fixed budget available (or at least from public side the allowance is previously determined), one can argue that the initiative is working efficiently. But in the absence of true performance and effect (or 'outcome') indicators to assess the results, judging efficiency becomes a more tricky business. For instance, the EngineeringCentre has no sight on turnover additionality for members due to making use of the Centre

Table 1 The evaluation of good practice candidates (continued)

Name of initiative	Innovation centres programme	Innovation projects programme	TechCentre	EngineeringCentre
The self-financing degree of the Innovation Centres is a good indicator for the former. To start with, next to the €2 million of seed capital the region provided, the user community demonstrated a substantial willingness to invest in the Centres on its own behalf. No less than €20 million were invested on behalf of the members.	<ul style="list-style-type: none"> the approval of partnerships and setting up contracts involves too much administration: administrative prepartnership preparations are too cumbersome the partnership length is not always in accordance with a commercial window of opportunity : it is often too lengthy. <p>Consequently, administrative ameliorations have been pursued notably in terms of project duration and the speed of response to applications. This is well received by SMEs. Proposals can now be submitted at any time and are (dis)approved within seven working days. Clarity on the grant is then shed within two weeks time.</p> <p>Regarding sustainability, one objection that could be made is that the share of private contribution ought to be subject to an increase. Not only from a viewpoint of fair financing, but also to enhance the longevity of the initiative and to make it less vulnerable to possible public spending cutbacks or to a change in political priorities.</p>	<p>It appears that private income covers 50% of the operational costs, but does not make up for (part of) the amortisations on or investment in infrastructure and hardware.</p> <p>Consequently, the balance between the facilities and services provided (means) and the results obtained (ends) is largely upheld by public funding.</p> <p>A final positive note on TechCentre's efficiency is the fact that it has established collaboration agreements with other technological Centres in order to avoid the redundancy of means and expenses. This also enables the respective Centres to exchange customers and expand their client horizons. Moreover, an alliance policy reinforces the technological level of TechCentre and means the permanent upgrading of its research team.</p> <p>In all, the sustainability of the Centre's hardware and infrastructure is highly contingent on public backup and this appears to be a quasistructural feature of the initiative. As the services provide good value-for-money, there ought to be a possibility to charge more from the private users. At present, however, no signs of heading in that direction are visible.</p>	<p>Also, by means of the self-financing ratio of the Centre, assessing efficiency can lead to both positive and less positive judgements. On the one hand, if the self-financing degree of the Centre is roughly 50%, one can point at the fact that this is significantly above the threshold that the lead public funding entity imposes on it. On the other hand, if 50% of the costs are covered by private contributions, it still means that half of the costs are borne by the public sector. In fact, if a low private contribution threshold is applied as a benchmark, it insinuates satisfying behaviour, i.e., an underutilisation of the available assets and services (perhaps fostered by a discrete need for external innovation support on behalf of the captive population) or a heavy subsidising of the utilisation of the available infrastructure and the rendered services.</p> <p>The sustainability of the Centre's hardware and infrastructure is highly contingent on public investment and this appears to be a quasistructural feature of the initiative. Regarding service provisioning, the public-private cost split is 50-50. As the services provide good value-for-money, there ought to be a possibility to charge more from the private users and also to recover part of the sunk costs from private parties. At present, signs of heading in that direction are not visible.</p>	

Table 1 The evaluation of good practice candidates (continued)

Name of initiative	Innovation centres programme	Innovation projects programme	TechCentre	EngineeringCentre
Wider impacts	<p>The most noteworthy side-effects of the programme and the Centres are the following.</p> <p>Through the emphasis on fostering interfirm cooperation not only with natural counterparts, but also with competitors and equals, collaboration between competing companies increasingly takes place. This helps to overcome going-it-alone strategies where cooperation is more indicated and it reduces rivalry in situations when this would turn out to be counterproductive.</p> <p>Another fruit of the clustering and collaboration patterns that are becoming institutionalised is that intercompany access is facilitated. In practice, this means that, on the one hand, it is easier for SMEs to learn from and market their products and services to new clients (notably large companies). On the other hand, it enables large companies to tap into the knowledge and capabilities base of small and innovative companies.</p> <p>A further potential side effect that the Centres produce through cross-linking business with academia and public actors is that universities and public institutions become more responsive to industry needs (<i>e.g.</i>, through more applied research at universities).</p>	<p>Apart from the positive results for the directly involved parties, there are also positive returns for the wider society and the sponsoring governments, <i>e.g.</i>:</p> <ul style="list-style-type: none"> • three new jobs are created from each project • each €1 million of government funds invested generates €3 million in additional profits. <p>A further side effect from the projects is that often, the benefits spread beyond the scope of the project itself.</p> <p>Another plus value of the Innovation Project Programmes is that they provide a seemingly sustainable model for managing the transfer of knowledge between those involved in education and research, on the one hand, and those wishing to innovate in industry and business, on the other hand. Also, from the annual monitoring activities on project outcomes, it appears that the improvements that the projects lead to at the company level are genuinely sustainable.</p>	<p>The Centre has not only had positive side effects for the regional automotive industry and its technological development, in general. It has also had positive side effects for the automotive companies from other regions where the facilities and services provided by TechCentre are not available.</p> <p>As far as the wider impacts are concerned, another aspect is that part of the know-how obtained at the Centre from automotive R&D can also be used for other sectors. This underpins both the Centre's diversification possibilities and the potential to strengthen the host region's industrial economy not only via the automotive sector, but also via other branches. In the first place this concerns the aeronautical and the energy sector.</p> <p>Moreover, the assistance in R&D activities that is now offered via TechCentre reduces the need for locally-based firms to go abroad for such activities and/or to delocalise completely. As such, it contributes to anchoring the sector and, in particular the more high-end activities <i>in situ</i>. In this regard, the Centre has contributed significantly to the settlement of new automotive companies in the area.</p>	<p>EngineeringCentre has certainly contributed to the raising of the ability of companies to identify and establish relationships with adequate partners. In fact, it lowers the search and marketing costs of many service and product providers as EngineeringCentre membership increases their visibility. As such, it materialises the proximity advantages for companies.</p> <p>To a certain extent, the former also lowers the need for delocalisation in international perspective. The fact that the Centre can act as a catalyst for member companies' expansion of local clientele portfolio reduces the immediate need to settle abroad or look for distant (complementary) partnerships.</p> <p>In a similar vein, by making the different actors from the sector more visible and mapping the whole sector, EngineeringCentre reveals the available technological knowledge and skills <i>in situ</i>. This allows determining which competences are lacking or are underdeveloped and see how these can be developed or attracted.</p> <p>A further external impact of EngineeringCentre's functioning is that the action line 'cluster projects' stipulates that several companies should work together around a specific innovation or R&D project. This directly contributes to the networking and cooperation among business actors, which can further solidify the sector fundamentals <i>in situ</i>.</p> <p>EngineeringCentre is also open to organisations from outside the host region. Moreover, it participates in cross-border training and knowledge exchange initiatives. Also, if necessary, it sources specific expertise or test equipment from abroad. As such, it contributes to an opening up and internationalisation of its host region's automotive, although the international profile of the initiative is not too outspoken.</p>

Table 1 The evaluation of good practice candidates (continued)

Name of initiative	Innovation centres programme	Innovation projects programme	TechCentre	EngineeringCentre
Replicability	<p>It is difficult to imagine that so many highly specialised Centres can be sustainable in an average region of a reduced size. The principle behind their founding as such: asking the market what kind of thematic areas and/or technologies they wish to create support and exchange structures for is certainly repeatable. Afterwards, making such structures sustainable, which requires cooperation and willingness to contribute financially, is less evident.</p> <p>What also stands out is the fact that the functioning and achievements of both the Programme and the Centres are monitored in a decent way and the financing structure is also well thought through. These may not be the most difficult parts in the management of a project, but still, they need to be taken care of to safeguard project performance and a fair public-private financing structure.</p>	<p>The local-for-local focus of the regional programme variant lends itself to other geographically focused initiatives. For example, groups of universities in EU regions could apply to their own sources of regional funding a plan to use this methodology and implement their own systems to support local businesses. It is plausible that both the national and regional governments will support the cost-effective use of university resources by setting up similar programmes as the ones reviewed here.</p> <p>The programme is, in itself, quite easy to replicate. However, the crux lies in the capacity of quickly finding the right persons (associates and supervisors) to put on each project. This is a skill or capacity that may take some time to develop.</p>	<p>The first requirement is to get the necessary funding, which is not self-evident and typically subject to political and budgeting priorities. A second requirement is to design a viable business plan, rendering unique selling propositions to the Centre <i>vis-à-vis</i> the (geographical) scope of clients it targets to service. Nowadays, the technological offer of a Centre must be specialised in one technological line of action or another. Otherwise, a high self-financing degree will not be feasible.</p> <p>Consequently, a Centre like TechCentre can technically be replicated, but the possibilities to be successful are little if there is an overlap with similar Centres that operate on the same (geographical and technological) captive markets.</p>	<p>In itself, the EngineeringCentre can be replicated quite easily. But when mounting something similar, it is especially important to map the test and engineering needs of the targeted audience via a market survey. Certain facilities will be useful in all places, but in addition to those, there may also be assay possibilities that are especially relevant to a specific locality's automotive community due to its specialisation in certain niches or functionalities. This also allows it to create a certain unity and attract customers from abroad who cannot find the same possibilities at home.</p> <p>A market survey annex feasibility study should also find out whether there are similar assay Centres with whom the initiative would have to compete and which may limit its clientele potential. A feasibility study is also necessary to ascertain the rentability of the initiative, as high sunk costs will be involved. Evidently, mobilising the necessary capital is also an important issue. It can be understood, though, that if the outlooks that are based on a market and feasibility study are positive and a sound business plan is made up subsequently, assuring capital becomes plausible.</p>

Notes: ¹ If one departs from a staff of 200 persons which, on average, will have a cost (including social security, pension allowances and working means, *etc.*) of EUR 50,000 a year; one arrives at some EUR 10 million a year. If one would then say that the overhead/administrative cost is 10% of this, the outcome is a total operational cost of EUR 11 million annually.

5 Synthesis of results

Arguably, all of the reviewed candidates can be characterised as good practices. All four demonstrate very interesting strengths, with a more or less documented and revealed proof of this. As such, all four deserve a follow-up from other regions that want to do something similar.

In general, the common denominators behind the good practices seem to be that they are strongly market-led and market-oriented and that they enjoy institutional backup for the mobilisation and organisation of resources (*e.g.*, from market actors or capital providers with similar interests to start and fund an initiative) and to overcome the possible sources of market failure (by providing countervailing powers in case of adversity). Also, the crux behind getting things started and achieving success often lie in organisational and financial engineering, via public-private partnerships in management and a shared funding of initiatives.

A particular strength of the Innovation Centres Programme is the fact that the private sector pays more than in its equal share in the financing of the initiative's hardware and operational costs. In spite of the fact that public funding is precisely intended to overcome the market failures regarding business functions like R&D and technological innovation, this support measure shows that an adequate combination of public and private interests can spark sizeable private funding and make the private sector take the lead, both organisationally and financially, leading to self-sustaining regional innovation infrastructures.

5.1 *Interpractice comparisons*

With regard to two of the four innovation support measures, it is indicative and relevant to draw up comparisons, as they are quite similar. This is the case for TechCentre and EngineeringCentre. The other two initiatives (Innovation Projects Programme and Innovation Centres Programme) are insufficiently comparable to draw up additional comparisons.

Although TechCentre and EngineeringCentre both have their own identity and goals and have not been shaped by means of the same mould, some reflections and comparisons on their respective functioning and performing can be formulated, *i.e.*, on the following issues:

- the growth path that centres underwent in terms of the turnover from private assignments and staff employment
- international exposure and activities
- the width/versatility of the services and infrastructure offered.

In relation to the first issue, TechCentre underwent a much steeper growth path than EngineeringCentre. Already in its first year, it reached a turnover figure based on company assignments that is higher than what EngineeringCentre achieved in its third operational year. This is all the more remarkable, as the pool of companies that TechCentre works for is smaller than the captive market of EngineeringCentre. It is difficult to speculate on the explanations behind this. One could hypothesise that a

considerable share of the member companies of EngineeringCentre are branch plants of foreign multinationals that do not have a lot of R&D mandates and, therefore, do not engage a lot in innovation activities. Hence, the discrete turnover figure and staff quantity at EngineeringCentre. But the host region of TechCentre is not an innovation hotspot either and many of the companies that make use of this centre are also subsidiaries of (foreign) multinationals.

In terms of international exposure, both centres count among their user population a considerable share of foreign-owned clients, although only few companies truly come from abroad to make use of the centres' facilities and services. In this regard, TechCentre appears to be more successful in gaining business from foreign clients and achieving airplay among the companies abroad. Also, in terms of the participation in international research projects and cooperation and exchange relationships with other technology centres, TechCentre has a much more pronounced profile than EngineeringCentre.

Regarding engineering and the test facilities and services on offer, it turns out that TechCentre provides a longer list of possibilities than EngineeringCentre.

All in all, on the one hand, it remains difficult to assess the efficiency of the centres in terms of cost versus outcome and effects (*e.g.*, due to a lack of cost structure information and a lack of transparency on how much the public sector has to add on top of what is obtained from private company servicing). On the other hand, it is clear that TechCentre – based on its turnover from private assignments – must be of significant importance to the regional supplier community in supporting their R&D activities. With regard to EngineeringCentre, this is less clear, as its turnover figure arguably makes up for only a small share of the total expenses that its member community spends on R&D activities. In the event that the discrete turnover figure of EngineeringCentre is due to low user fees, its role *vis-à-vis* the total R&D activity of its user community would, in reality, be more important. But this would then also go against a fair *quid pro quo* exploitation (and public-private financing) of the centre. To go deeper into this matter, one ought to dispose of the data on the total expenses on R&D by the respective user communities and on the user fees that are charged by the respective centres for all kinds of services and facilities provided. Also, it would be necessary to know how much turnover is actually obtained from R&D support and from, *e.g.*, training services.

At first sight, TechCentre has served as a catalyst for regional R&D activities and/or has succeeded in agglomerising such activities, thereby making visible the increasing importance of R&D in today's automotive sector. In the case of EngineeringCentre, this has been made clear to a much smaller extent.

6 Discussion

Although the research exercise on which we report in this paper has resulted in the identification of a number of good practices, the truth is that establishing proof of good practice is a difficult matter.

Several reasons exist for this.

First of all, the cooperation of the responsible of an initiative is a requisite to get a decent view of the initiative as such and for analysts to be potentially able to make a fair judgement on an initiative's achievements. Such cooperation was not always obtained,

e.g., due to reasons of confidentiality, lack of data, lack of monitoring activity and of documentation of the results, etc. In addition, we perceived a general lack of policy evaluation, the overmarketing of initiatives, the lack of clarity and/or a too-broad mission for a measure, the inaccessibility of measures due to their extensive and/or overarching character, etc.

In this regard, the final set of better practice candidates we came up with is to a certain extent a biased one. Notably because the pre-selection of short-listed initiatives was done on the basis of available information on achievements of the initiatives that were on the long list. As a consequence, initiatives with a less apparent track record may not have been considered, although they may have turned out to be 'hidden jewels'. This thought is strengthened as it also became very clear that certain initiatives we did examine were likewise guilty of 'over-marketing'.

For another reason, our list will be biased to a certain extent, as in general, we encountered a much stronger commitment to collaborate in the benchmarking exercise among the partners of the Network of Automotive Regions than among outsiders.

As a consequence, promising initiatives with regard to which it was impossible to reveal the track record can still be good practices, in spite of a lack of openness or further investigation. Second, in order to come up with a performance assessment of the initiatives, the monitoring of the progress, effectiveness and fulfilment of objectives needs to take place. This is something that is only seldomly done. In addition, in the event that one encounters evaluation material, this is normally some sort of auto-evaluation. Very rarely do external parties appear to be in charge of carrying out evaluation activities.

The former obstructed, also from a process point of view, the possibility to seriously evaluate the merits and achievements of initiatives.

With regard to most of the initiatives that we were able to evaluate, little information was (made) available that allows for a systematic evaluation of true performance, effects and outcomes. Some numerical information and hard evidence was retrieved here and there, but to a considerable level, the performance evaluation had to be based on stated evidence. This makes the evaluation of performance extremely difficult. Also, most performance indicators retrieved and measurement of performance on such indicators were output thresholds, rather than outcome and effect benchmarks. Moreover, frequently, these performance indicators and objective marks are rather vaguely and strategically formulated, obstructing the possibility of conducting a performance evaluation that makes sense. The operationalisation of the objectives and performance indicators left a lot to be desired across the board. Also, the general lack of *ex ante* characterisations makes the evaluation mission even more difficult.

Consequently, only with regard to very few initiatives, it was possible to establish a proven track record and contrast their positive causal effect on the health and dynamics of regional automotive activities. In general, it is difficult to establish one-on-one causalities between the actions and services that are put in motion under a specific initiative, on the one hand, and the registered effects and achieved objectives, on the other hand. Normally, a lot of intervening variables are in play.

7 Conclusions

Throughout Europe, many examples of public and public-private initiatives to support the automotive industry can be found. Such initiatives focus on the many different needs of the private actors that pertain to the automotive industry (*e.g.*, logistics, training, research, the implementation of new information and communication technologies).

Establishing proof of the effectiveness, value and efficiency of these initiatives is not self-evident and forms an important (and pending) assignment in most cases. Especially as most information that is easily available on the lion share of initiatives has more of a marketing character than anything else, it is unsuitable for serious evaluation exercises. With regard to four automotive support initiatives, we have been able to gather sufficient and more or less neutral information to make fair judgements on their performance. But this was far from a simple task. Not in the least because systematic and periodical evaluations of support initiatives on behalf of their responsible or funding parties to draw up such assessments are not undertaken. And this in spite of the fact that evaluation is a vital element in the cycle of policy and project preparation-implementation-appraisal. This also hampers the possibility of (mid-term) adjustments.

A limitation to our research outcomes is that the support measures that were considered were all undertaken on the level of regions. However, also on the national level, R&D support initiatives exist, but these were not reviewed. Still, these can be of great importance to companies as well. It can be, therefore, that the specific regional scope of this research made that valuable R&D support measures, albeit from a national level, remained under the radar. At first sight, however, national programmes and centres appear to have more of a framework character, have a less strong grassroots character and are less targeted to specific sectoral and localised needs. See, for instance, France's Fonds de Compétitivité des Entreprises, which attempts to support collaborative applied research between public centres and private companies.

By all means, the different initiatives that have been analysed in the present paper certainly provide inspiration and learning food for many policy-makers and business actors with a stake in the automotive industry across Europe.

8 Managerial and policy implications

An important implication of the research results is that there is a strong need for a more systematic evaluation of the impacts and performance of policy support initiatives for the automotive industry. The relevance of such monitoring should not be underestimated or put aside by simply arguing that monitoring consumes scarce resources.

In fact, from an industry perspective, the perspective of the responsible of an innovation support initiative, a taxpayer perspective, a policy practitioner perspective and an analyst perspective, monitoring is of vital importance. Only with feedback on and measurement of an initiative's performance can it be judged whether it is worthwhile, provides good value for money and/or can be improved.

In this regard, one can argue that support initiatives are not a goal in themselves. Therefore, one should not get obsessed with issues like self-financing degrees (as treated under the efficiency criterion). The main goal of support initiatives is to serve the interests and goals of their user populations (*hence*, the importance of the effectiveness criterion and a proper measurement of the initiatives' results in this regard). Nonetheless,

an efficient use of the available means is indeed an indicator of good practice, just like self-financing performance is an indicator of market acceptance and market willingness to (co-)finance an initiative. Also, it allows to assess whether the costs are:

- proportional to the results they deliver
- fairly shared among the stakeholders in view of the benefits the initiative produces for the involved parties.

Consequently, cost-efficiency evaluations and value-for-money audits of support initiatives are more than legitimate actions.

Furthermore, for the sake of research exercises as the one we reported on in this paper, one can only identify good practices if material is available on the multiple initiatives to be compared. That is also the only way that organisations (or regions, in this case) that decide to embark on a benchmarking journey are able to compare the functioning of their own initiatives with that of the others. In order to become a true learning organisation or, for that matter, a learning region, systematic project evaluation and monitoring is also essential.

In order for a summative evaluation of (policy support) projects that attempt to measure the impacts an initiative has on a set of targeted problems or issues, to be feasible, *i.e.*, to be able to really compare the situation before and after implementation, the following data and yardsticks are necessary:

- the description or characterisation of the *ex ante* situation (the ‘point zero’ situation): *e.g.*, in the case of a technology centre; where did companies go for technology support prior to the creation of the centre and/or what was the degree of innovation activities at the company level prior to the creation of the centre (or was there no innovation activity and did the centre itself spur such activity)?
- the establishment of input indicators
- the formulation of measurable performance criteria (cf. Specific, Measurable, Acceptable, Realistic and Time-bound or SMART) for the initiative, with an emphasis on the effect and outcome indicators¹¹ instead of output indicators¹²
- the monitoring of the initiative’s achievements and functioning *vis-à-vis* the performance criteria.

Without such metering, the impacts of any support initiative are doomed to be inassessable.

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Notes

- 1 The Network of Automotive Regions consists of the following entities: from Belgium – the province of Limburg, the city of Genk, the province of East-Flanders and the province of Antwerp; from the Netherlands – the province of Limburg; from the UK – the region of Luton/East England; from Germany – the city region of Stuttgart; from France – the region of Pays du Montbéliard/Franche-Comté/Alsace; from Italy – the province of Turin and the region of Lombardia; from Spain – the autonomous communities of Castilla y Leon and of Galicia.
- 2 That is, Network of European Automotive Competence (NEAC) and Autonet.
- 3 The notable regions are South Sweden, Bayern, Upper Austria, Styria, the Basque Country, Nord Pas-de-Calais and Wales.
The initiatives in Eastern Europe were also reviewed, but it appeared that most of the measures there are concerned with attracting foreign investments and, also, that the undertaking of full-fledged measures at the regional level is less developed than in Western Europe.

- 4 4.11% according to PriceWaterhouseCoopers (2005) and 5.4% according to Little (2005).
- 5 The term ‘benchmark’ can be defined as the point of reference from which everything else is measured.
- 6 Or ‘a region’, for this matter.
- 7 See also Mariussen (2001) on the difficulty of assessing the outcomes of regional initiatives with regard to the development of the automotive industry.
- 8 See ‘Evaluating EU activities. A practical guide for the Commission Services, July 2004’ and ‘Study on indicators for monitoring for transnational and interregional cooperation programmes, June 2006’.
- 9 Although relevance may appear to be a superfluous item as it follows from the issues that were discussed under the previous heading ‘Focus on R&D initiatives’, every regional automotive industry still has its own needs or voids that underpin the particular relevance of an initiative. Therefore, revealing those voids and needs adds value.
- 10 For reasons of reporting convenience, we report on the efficiency and sustainability in an integrated way; see the following tables.
- 11 Like the number of achieved/marketed innovations by client companies or the turnover growth of client companies related to innovations that are achieved with support/contribution from a technology centre.
- 12 Like the number of companies attended or the quantity of company visits.