



## Creative Industries

Policy recommendations – promotion of cross-innovation from creative industries

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## **Imprint**

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### **Layout**

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Berlin, 2014

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# 1 Introduction

Creative industries have become a major focus of industrial policy throughout Europe. There are huge expectations put towards this industrial sector as it is expected to contribute to the industrial renewal of the European economy – “In the recent decades the world has been moving at a faster pace. For Europe and other parts of the world, the rapid roll-out of new technologies and increased globalisation has meant a striking shift away from traditional manufacturing towards services and innovation. Factory floors are progressively being replaced by creative communities whose raw material is their ability to imagine, create and innovate. [...] If Europe wants to remain competitive in this changing global environment, it needs to put in place the right conditions for creativity and innovation to flourish in a new entrepreneurial culture. There is a lot of untapped potential in the cultural and creative industries to create growth and jobs.”<sup>1</sup>

In this context the European Commission has launched the “European Creative Industries Alliance (ECIA)” in the autumn of 2011 to improve the integration of creative services, such as design, with traditional manufacturing sectors to add value and enhance the economic performance and robustness of European industry. Although there is agreement that collaboration between the creative industries and traditional industrial sectors results in cross-innovation of new products, services and processes, there is still no proper understanding of the mechanism behind.<sup>2</sup>

Being a member of the European Creative Industry Alliance (ECIA) Samoa – société d’aménagement de la métropole ouest atlantique – Quartier de la Création à Nantes has requested the Institute for Innovation and Technology (iit) to shed more light on the mechanisms that promote cross-innovation. A particular emphasis will be put on the instruments that can be used by local and regional authorities to promote cross-innovation involving both creative industries and traditional industrial sectors.

For this purpose the study presents policy recommendations that in a sense present the “perfect programme” which provide the framework for the development of a “stress test” for existing approaches in terms of whether they already live up to the characteristics of such a “perfect programme”.

Policy recommendations are based on a mapping of case studies on cross-innovation the author were provided with by other projects on cross-innovation.<sup>3</sup> The study also suggests a definition of cross-innovation and discusses what the specific characteristics of creative industries are and what they do mean for policy intervention that aims at facilitating cross-innovation.

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1 European Commission, 2010: Green Paper – Unlocking the potential of cultural and creative industries, COM (2010) 183, p. 2

2 Ibid., p. 17

3 E. g. Long, Paul, 2013: Cross innovation. A report on local best practice, Cross innovation partnership, Interreg IVC project, University of Birmingham

## 2 Defining spillover effects and cross-innovation

Spillover effects and cross-innovation are popular terms in today's innovation policy debate. However, following the debate one cannot help feeling that it is not that clear among the stakeholders in the debate what is actually meant by the two terms and that there is confusion about the difference between these two terms.

The terms **“spillover”** or **“spillover effects”** capture the phenomenon that an incidence or a condition in one particular area has an effect on a different area – or to put it more tangibly: what happens in one industry affects other industries. Spillovers in the context of innovation policy refer to what is being called knowledge spillover. This is eventually nothing else than the exchange of knowledge between individuals that can be a starting point for the development of new products, services and processes. Economists have identified two types of knowledge spillovers that are important for innovation and growth:<sup>4</sup>

- ▶ **“MAR spillovers”**<sup>5</sup> that develop from concentrations of companies in the same industry in a city or region which allows for “knowledge travel” among companies and
- ▶ **“Jacobs spillovers”** that are – in contrast to MAR spillovers – related to the diversity of industries in an area; according to this concept industrially diverse urban environments encourage innovation because it encompasses people with varied backgrounds and interests, thereby facilitating the exchange of ideas among individuals with different perspectives.

Knowledge spillovers can happen through a variety of channels including imitation of innovations, mobility of skilled personnel, reverse engineering, using freely available “open” or public knowledge, infringing of patents, access to international scientific literature, foreign direct investment or communication between R&D personnel.<sup>6</sup> Research demonstrates that whether spillovers take place depends on a number of factors:

- ▶ Existence of technology gaps that encourage lagging companies, regions or countries to learn from their more advanced counterparts;

- ▶ Absorptive capacity of the recipients of knowledge transfer who in order to imitate or utilize spilling over from others need certain capabilities (background knowledge, production experience and skilled personnel) to understand and apply that particular knowledge;
- ▶ Technological congruence facilitates knowledge transfer;
- ▶ Geographic distance plays an important role as knowledge or technology are to a substantial degree local which results in the fact the “amount of knowledge spillovers” is reducing with increasing distance from the knowledge's point of origin.<sup>7</sup>

In a complex environment such as today's global economy that is structured by a confusing network of individual and institutional relationships and communication channels, spillovers take place by coincidence unless they are not governed through interventions.

In recent years the term **cross-innovation** gained more relevance in the debate about spillovers. Although cross-innovation refers to the same phenomenon of mutual fertilization of industries, there is a slight, but important difference. While spillovers describe effects that result from knowledge transfer, cross-innovation leads to spillovers and should be understood as a managed innovation process that facilitates interdisciplinary entanglement of products, services and trends or in other words the entanglement of complementary knowledge (spillovers are not necessarily the result of such a structured approach, they can also happen by coincidence) (Figure 1). This can happen through two ways:

- ▶ Transfer of knowledge and solutions by identifying and communicating analogies between industries or
- ▶ Promotion of cross-industry collaboration.<sup>8</sup>

Cross-innovation is about transferring existing technologies, systems, concepts or general principles from one industry to another industry in order to solve problems or answer questions experienced in that industry. This can happen through technologies, patents, specific knowledge or business models.<sup>9</sup> Cross-innovation is a specific form of open innovation which

4 Carlino, Gerald A., 2001: Knowledge spillovers: cities' role in the new economy, *Business Review*, Q4/2001, p. 18

5 The acronym „MAR” covers the family names of the economists who have developed this theoretical concept: Alfred Marshal, Kenneth Arrow and Paul Romer.

6 Wang, Lili/Meijers, Huub/Szirmai, Adam, 2013: Technological spillovers and industrial growth in Chinese Regions, UNU-MERIT Working Paper Series 2013-044, Maastricht, p. 5

7 Ibid., pp. 8–10

8 Steinle, Andreas/Mijnals, Patrick/Muckenschnabl, Susanne, 2009: Praxis-Guide Cross-Innovations. Wettbewerbsvorteile durch einen branchenübergreifenden Innovationsansatz, Zukunfts-Institut, p. 4

9 Enkel, Ellen/Horváth, Annette, 2010: Mit Cross-Industry-Innovation zu radikalen Neuerungen, in: Ilhi, Ser-han (ed.), 2010: Open Innovation umsetzen. Prozesse, Methoden, Systeme, Kultur, Düsseldorf, pp. 294–295

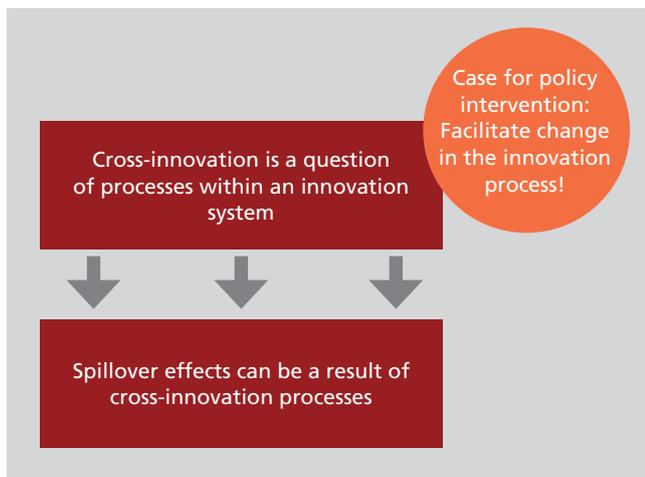


Figure 1: Cross-innovation results in spill-over effects.

means that in order to benefit from this approach companies need to revisit their innovation processes to make sure that both internal and external ideas are considered when developing new products, services and processes.<sup>10</sup> There are two forms of cross-innovation each linked to a specific process:

- ▶ Outside-in process: transfer of solutions or ideas from outside the industry;
- ▶ Inside-out-process: search for novel applications of own ideas and solutions in other industries.<sup>11</sup>

Key barriers to cross-innovation are the identification of other industries and the access to relevant stakeholders in other industries in which either solutions can be sourced for own problems or own solutions can be offered to solve their problems.<sup>12</sup>

In order to promote the processes of cross-innovation and to overcome the barriers to cross-innovation a structured approach is required that changes existing innovation processes both within companies, but also within regional or national systems of innovation. Successful promotion of cross-innovation thus depends on a change of innovation processes. This is the point where there is a case for policy intervention.

## 3 Specific characteristics of creative industries

### 3.1 What are creative industries?

The European Commission defines creative industries as “industries which use culture as an input and have a cultural dimension, although their outputs are mainly functional. They include architecture and design, which integrate creative elements into wider processes, as well as subsectors such as graphic design, fashion design or advertising.”

To be differentiated from this are cultural industries including industries that are “producing and distributing goods or services which at the time they are developed are considered to have a specific attribute, use or purpose which embodies or conveys cultural expressions, irrespective of the commercial value they may have. Besides the traditional arts sectors (performing arts, visual arts, cultural heritage – including the public sector), they

include film, DVD and video, television and radio, video games, new media, music, books and press. This concept is defined in relation to cultural expressions in the context of the 2005 UNESCO Convention on the protection and promotion of the diversity of cultural expressions.”<sup>13</sup>

According to a definition of the Conference of German Ministers of Economic Affairs “culture and creative industries comprise of all cultural and creative enterprises that are mainly market-oriented and deal with the creation, production, distribution and/or dissemination through the media of cultural/creative goods and services.”<sup>14</sup> They include eleven core branches: music industry, book market, art market, film industry, broadcasting industry, performing arts market, design industry, architectural market and press market.<sup>15</sup> Similar categorisations are used in other European countries, e. g. Austria.<sup>16</sup>

<sup>10</sup> For an introduction to the concept of open innovation see Chesbrough, Henry, 2006: Open innovation. The new imperative for creating and profiting from technology, Boston, i. e. p. XXIV

<sup>11</sup> Enkel, Ellen/Horváth, Annette, 2010, p. 295

<sup>12</sup> Enkel, Ellen/Horváth, Annette, 2010, p. 297

<sup>13</sup> European Commission, 2010: Green Paper – Unlocking the potential of cultural and creative industries, COM (2010) 183, pp. 5-6

<sup>14</sup> Söndermann, Michael/Backes, Christoph/Arndt, Olaf/Brünink, 2009: Cultural and creative industries in Germany – defining the common characteristics of the heterogenous core branches of the “cultural industries” from a macro-economic perspective, study commissioned by the Federal Ministry of Economy and Technology, p. 20

<sup>15</sup> Ibid., p. 21

<sup>16</sup> Creativ Wirtschaft Austria, Wirtschaftskammer Österreich, 2013: Fünfter Österreichischer Kreativwirtschaftsbericht, Wien, p. 139

Common to all definitions is that cultural and creative industries are considered as market-oriented and that they are an integral part of the economy. Like any other industry the creative sector has its

specific characteristics, but in terms of economic logic it functions the same way. This provides the opportunity to collaborate along similar value chains (Figure 2) which supports cross-innovation.

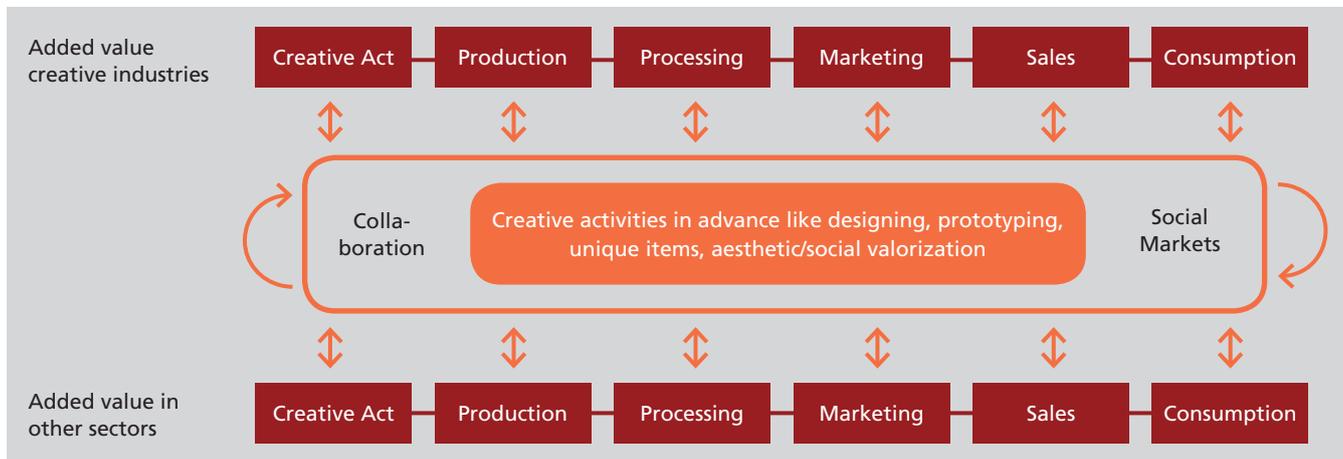


Figure 2: Value chain characteristics of creative industries (Fraunhofer ISI, 2012).

### 3.2 What are the specific characteristics of creative industries and what do they mean for policy intervention that aims at facilitating cross-innovation?

Research has shown that creative industries differ to large extent from traditional industrial sectors. There is no one size-fits-all picture of the creative industries as its individual branches are very heterogeneous in terms of company structures, turnover, employment, markets, distribution channels and business models.<sup>17</sup> Common to creative industries is that the economic relevance of micro enterprises is much higher than in other industry sectors. In Germany more than two third of the enterprises are “lone wolves” and nine out of ten companies have less than ten employees;<sup>18</sup> a similar pattern can be established for creative industries in other European countries, e.g. Austria.<sup>19</sup>

Another difference to traditional industrial sectors is to be seen in the low capital intensity which in conjunction with the heterogeneity of markets results in low market entry barriers and high start-up dynamism. However, this effect is countered by an insufficient availability of capital that inhibits growth of

enterprises because investments in market development and research and development cannot be made. As a consequence human capital is of prime importance to economic success.<sup>20</sup>

Another key feature is the specific spatial dimension of creative industries. A recent Austrian analysis demonstrates that although creative industries can be increasingly found in rural areas, they are still closely linked with urban areas. Depending on their location in rural and urban areas both branches and company characteristics differ.<sup>21</sup>

Creative industries are very much open to collaboration along the entire value chain. They are also very much customer- and service-oriented which helps to access internal innovation processes of suppliers and clients. This contributes to spillovers to and cross-innovation between other branches within the creative industries and to other industrial sectors.<sup>22</sup> But spillovers or cross-innovation are not that easy to initiate across the entire economy as the following findings show: A 2012 survey of German creative industries has highlighted that companies in creative industries feature high innovation intensities (more than 85% of companies have introduced new products or services to the market within the last three years)<sup>23</sup>, but they have limited

17 Prognos/Fraunhofer ISI, 2012: Die Kultur- und Kreativwirtschaft in der gesamtwirtschaftlichen Wertschöpfungskette – Wirkungsketten, Innovationskraft, Potenziale, study commissioned by the German Federal Ministry of Economy and Technology, p. 10

18 Ibid., p. 46

19 Creativ Wirtschafts Austria, Wirtschaftskammer Österreich, 2013, p. 31

20 Prognos/Fraunhofer ISI, 2012, p. 10

21 Creativ Wirtschafts Austria, Wirtschaftskammer Österreich, 2013, pp. 12 and 89

22 Prognos/Fraunhofer ISI, 2012, pp. 12-13

contacts with (potential) clients from traditional industries such as the manufacturing industry. Clients of creative industries are predominantly households, public administration or from the sectors of education, health, construction and tourism (Table 1).

The comparatively weak relationships between creative industries and traditional industrial sector suggest a potential for innovation. Key to unlocking this potential is that “new approaches, techniques and thought processes develop in traditional industries. This requires both knowledge of the actors and their offers and a corresponding openness towards these.”<sup>24</sup> But it is not only that the potential clients in traditional industries have to shift their minds, a change of thinking is also required from the creative industry. Creative entrepreneurs are still very much focussed on social and cultural values. Communication and networking across these borders between the creative and traditional industry sector is required to facilitate mutual understanding. Creative entrepreneurs need to be encouraged to think and act economically.<sup>25</sup> This means nothing else that a common mental basis for collaboration needs to be established.

There is a lively debate throughout Europe how to “unlock the potential of cultural and creative industries” – as the European Commission’s Green Paper of 2010 is titled. There is consensus that creative industries are a specific industrial sector with specific needs of assistance both in terms of access to funding (both private and public investments) and business development.<sup>26</sup> There is also consensus that the promotion

of spillovers and cross-innovation are important key elements on the policy agenda. But in the first place it is not about the implementation of innovation voucher schemes as suggested in the European Commission’s Green Paper.<sup>27</sup> This is definitely an important instrument which is a powerful tool if there is already a mental basis for collaboration between creative industries and traditional industrial sectors. Today’s challenge for policy making is to create the mental basis for collaboration. This is confirmed by practitioners who claim – being asked why cross-innovation is not happening – that there is “a myriad of challenges – from entrenched cultural and language barriers between the disciplines to practical issues such as a lack of contact, proximity and opportunities to work together. It was acknowledged that not everyone wants to work in mixed teams and that it requires the ability to step outside domain expertise, appreciate the role of other disciplines and to develop new skills such as teamwork, empathy, listening and communication skills”.<sup>28</sup> Complimentary effects following the entanglement of complementary knowledge of creative industries and companies from other are either the result of collaboration along their value chains, jointly used innovation platforms and intersectoral mobility of skilled labour.<sup>29</sup> The establishment of contacts is vital not only for nurturing the mental basis for collaboration, but also from a very practical point of view: without contacts there are no ideas, no projects and no effects that develop from cross-sector collaboration. Thus, networking the creative industry with traditional industry and vice versa should be at the core of each programme that aims at facilitating cross-innovation.

### Customer structure of creative industries: other industrial sectors

Private households, public administration	Education, health and construction	Tourism	Financial services, wholesale/retail, electronics/IT, machinery/vehicles, textiles/paper/wood, furniture	R&D and business services, transport, chemicals, plastics, food and materials
> 25 %	21 – 25 %	16 – 20 %	11 – 15 %	1 – 10 %

Table 1: Customer structure of creative industries: other industrial sectors (Prognos/Fraunhofer ISI, 2012, p. 65)

23 Ibid., p. 51

24 Ibid., p. 79

25 Heinze, Rolf G./Hoose, Fabian, 2012: Handlungsempfehlungen zur Förderung der Kreativwirtschaft, WISO-direkt - Analysen und Konzepte zur Wirtschafts- und Sozialpolitik, Friedrich-Ebert-Stiftung Berlin, p. 2

26 E.g. European Commission, 2010: Green paper – Unlocking the potential of cultural and creative industries; Mundelius, Marko, 2009: Braucht die Kultur- und Kreativwirtschaft eine industriepolitische Förderung?, Friedrich-Ebert-Stiftung, Schriftenreihe Moderne Industriepolitik, No. 4/2009, Berlin; Backes, Christoph, 2010: Finanzierung in der Kultur- und Kreativwirtschaft zwischen Marktversagen, Mikro- und Makrofinanzierung und Weissmann, Bernd, 2010: Herausforderungen – Entwicklungslinien und Erwartungen, Federal Ministry of Economy and Technology, Papiere zur Allgemeinen Wirtschaftspolitik, Workshop Finanzierung: Instrumente und Vergabepaxis im Fokus der Kultur- und Kreativwirtschaft, 22. Juni 2010 im Japan Center, Frankfurt/Main

27 European Commission, 2010: Green Paper – Unlocking the potential of cultural and creative industries, COM(2010) 183, p. 19

28 Belgrave, Jesse, 2012: Short study on cross innovation. Cross innovation partnership, Interreg IVC project, University of Birmingham, p. 7

29 Prognos/Fraunhofer ISI, 2012, p. 10

## 4 Mapping examples of successful cross-innovation

### 4.1 Rationale of mapping

Preceding definition of cross-innovation describes cross-innovation as transfer of knowledge between industries through promotion of cross-industry collaboration. It can either occur in the context of an outside-in process (ideas and solution are transferred from outside the industry) or an inside-out process (in form of a search for novel applications of own ideas and solutions in other industries).

So far, so good, but: what are the actual mechanisms that govern cross-innovation? Looking at companies that make proportionately greater use of services from the creative industries, one can find that they perform significantly better on innovation. Although the specific mechanisms by which this occurs are not yet well documented, it seems that creative innovation services provided by CCI are inputs to innovative activities by other enterprises and organisations in the broader economy, thereby helping to address behavioural failures, such as risk aversion, status quo bias and myopia.<sup>30</sup>

There is no clear-cut-answer to the question which button needs to be pressed to make cross-innovation happen. A survey among “cross-innovation practitioners” revealed a broad range of possible instruments demonstrating that the blueprint for cross-innovation facilitation is not yet there: the array of instruments is ranging from government-funded programmes to catalyse cross-sector collaborations such as incentives for traditional businesses to experiment with creative or the facilitation of networks to the identification of “intermediaries” – heavily networked individuals that understand the language of business and creativity – who can broker contacts and initiate cross-sector activities.<sup>31</sup>

And also worth to note: Although participants in the survey were positive about the potential benefits of cross-innovation and able to cite anecdotal examples most acknowledged that there is a lack of evidence about the impact of cross-innovation.<sup>32</sup>

In order to take step towards identifying the specific mechanisms behind and to get a better understanding of the governmental interventions that create results, cases of cross-innovation were analysed in the context of this study project in two dimensions:

- 1) Whether the observed cross-innovation was triggered in the context of an individual project or the result of a broader networking approach.
- 2) Analysis focussed also on the question whether the phenomenon observed is actual cross-innovation following the definition applied by this study or rather a mere cross-sector provision of a service. According to a recent analysis of case studies the manner in which cross-innovation has often been interpreted may appear to be little more than a description of services provided by one sector – web designers for instance – for those in another.<sup>33</sup>

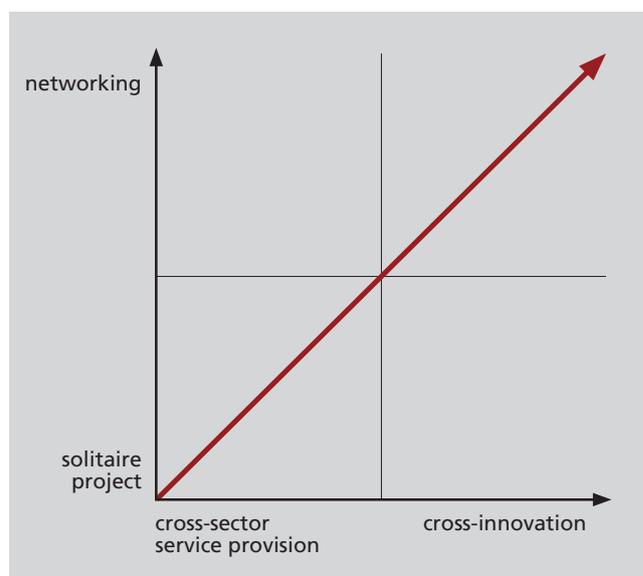


Figure 3: Analysis matrix

Coming from the systemic perspective of innovation analysis the hypothesis applied in this study is that successful cross-innovation depends ultimately on a re-networking or connection respectively of existing elements of and actors in the innovation system. Authors of this study expect that given the fact that cross-innovation depends ultimately on such a rearrangement, actual cases of cross-innovation are rather the result of networking than of individual projects: the more networking the more cross-innovation. The two dimensions of analysis can be “mapped” into a matrix that allows for structuring the cases (Figure 3).

30 European Commission, 2010, p. 17

31 Belgrave, Jesse, 2012, p. 7

32 Ibid., p. 6

33 Long, Paul, 2013: Cross innovation. A report on local best practice, Cross innovation partnership, Interreg IVC project, University of Birmingham, p. 48

## 4.2 Analysis of cases

Analysis used already existing case descriptions from different sources – for an overview of cases see Table 2.<sup>34</sup> Collection of data was done through desk research only as the budget of this project did not allow for a thorough revisiting of the cases by additional surveys or expert interviews. This would have been definitely useful as – quoting Paul Long's conclusion

for his case study report – “the cases studies are couched in rather promotional terms. While this offers an encouraging tone to ideas of cross-innovation there is a need for details from these examples, and elsewhere, about things that have not worked, about misunderstanding, frustrations, barriers to cross-innovation, cultural parameters and dead ends. Negative examples have an equal part to play in determining advice and planning for future policy and this is a signal absence”.<sup>35</sup>

Case		
1. TED – Brokerage	15. Luckywaste	29. The Architecture Creative Cluster of Palácio Sinel de Cordes
2. Spaces: FabLabs	16. John Altmann Cookies	30. Edison
3. Smart Finance: Kickstarter	17. Bee Urban	31. Festival Madas Infekcija – Fashion Infection
4. Space Makers – Culture-led innovation	18. Street Musician's Day	32. Garage 48
5. Fits.me Virtual Fitting Room	19. Native Instruments	33. Creaticity
6. Lukáš Bellada	20. Slamp and Leading Light	34. Stockholm School of Entrepreneurship (SSES)
7. Digital Life Sciences and the Maverick Television Consortium	21. Tallinn Creative Incubator	35. Netzwerk Gründen
8. HE-STEM Interactive Multi-Touch Table	22. EnLabs	36. Planet Modulor
9. SmartGateCargo The Game	23. Design2	37. Club Consult
10. Sampad	24. Beepart	38. Design Transfer Bonus
11. The Golden Square	25. Fluxus Ministry	39. Lisbon Municipality
12. Smart Vilnius	26. Kolonien	40. Officina Innovazione
13. MILES	27. Start Up Lisboa	41. EU1 TV Platform
14. The CulturApp	28. Forno do Tijolo Fab Lab LX and co-working space	42. Innovativ Kultur

Table 2: Overview of cases that were used for mapping analysis

34 Belgrave, Jesse, 2012: Short study on cross Innovation. Cross innovation partnership, Interreg IVC pro-ject, University of Birmingham (cases 1-4); Long, Paul, 2013: Cross innovation. A report on local best practice, Cross innovation partnership, Interreg IVC project, University of Birmingham (cases 5-42)

35 Long, Paul, 2013, p. 50

The hypothesis that successful cross-innovation depends on networking rather than on the initiation of “solitaire” projects was confirmed through the mapping of the cases (Figure 4). This is not to say that cross-innovation cannot be triggered through isolated projects, but it is more likely to happen the more networking opportunities are provided. Networking can happen through different mechanisms or instruments

respectively. The examples presented in the case studies that give an account of cross-innovation have a strong networking component. In these examples networking happens either through the establishment of company networks, incubation, scouting, financial support for pilot projects that cover both creative industries and traditional industrial sectors or cross-industry conferences and fairs.

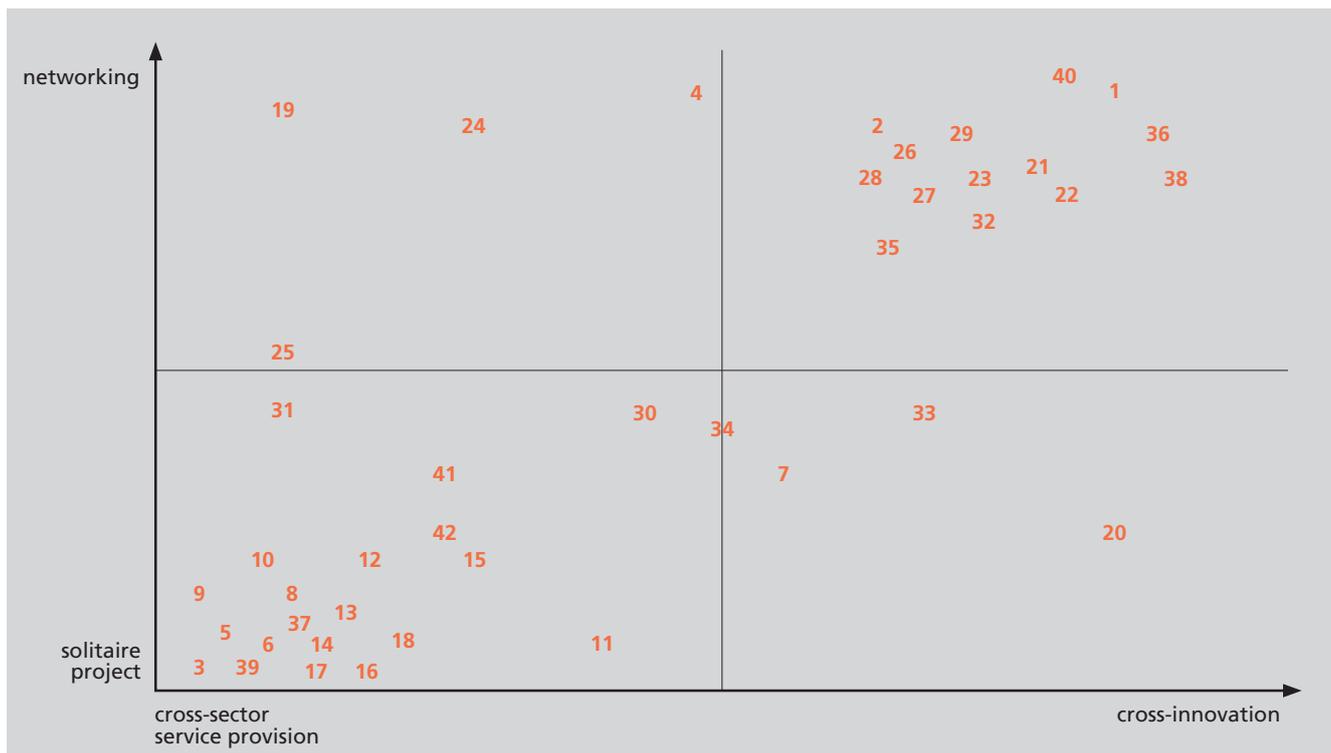


Figure 4: Case study analysis – mapping what works

## 5 Policy recommendations: Transfer of ideas across industry boundaries or how to funnel ideas into other industries

Analysis of the case studies confirms the underlying hypothesis of the study: the more networking the more cross-innovation. But networking is only one chapter of the story of successful programme intervention supporting cross-innovation. It is also about knowing where the knowledge is as “knowledge flows are invisible; they leave no paper trail by which they can be measured and tracked”.<sup>36</sup> Only if you know where the knowledge is you can network it, thus industry analysis is a first step. As European competitiveness on the global market cannot be maintained by nursing or renewing existing industries only, but also by developing new industries – or to introduce a new buzz word of innovation policy: emerging industries – industry analysis

should be a forecast analysis. Further key elements of successful programme intervention supporting cross-innovation should be incubators and supporting instruments for projects such as innovation vouchers.

To put the strategy of policy or programme intervention simple: a) make knowledge visible through forecast analysis, b) network the knowledge and its bearers in clusters through cluster management organisations and c) nurture cross-sector collaborations through supporting instruments such as innovation vouchers (Figure 5).

36 Krugman, Paul, 1991: Geography and Trade, MIT Press, p. 53



Figure 5: Elements of a programme supporting cross-innovation

The proposed set-up of programme elements is kept very simple by purpose as the policy recommendations are geared towards what can be implemented on a local or regional level. There is no doubt that the eventual success of such a strategy depends also on framework conditions that cannot be influenced by local or regional governments such as the macroeconomic situation or policies or programmes of the national government.

### 5.1 Forecast analysis of emerging industries

Today European industry is undergoing a huge change as a consequence of increasing global competition. Traditional industries are facing increasing competitive pressures in particular from their Asian peers. It is clear that the European economy can maintain its competitive edge only by developing new industries which give birth to new products, services and processes. Consequently, in recent years increasing attention

has been paid by both policy makers and industry on the development of emerging industries. The emergence of new industries is much more than the renewal of traditional industries, but the creation of entirely new value chains across different industrial sectors. These changes also offer opportunities for creative industries as the example of electromobility demonstrates that is described in the following.

Furthermore, the manufacturing industry is undergoing a change in terms of production and service patterns. The so-called “Internet of Things” and the anticipated “Fourth Industrial Revolution” or – as it is referred to in the German debate – “Industry 4.0” offer also huge opportunities for products and services from creative industries both in terms of design and communication.<sup>37</sup>

Which potential for cross-innovation is associated with these two major lines of industrial development demonstrates the example of the development of the electromobility industry in Germany. What started with a mere focus on the development of cars and batteries revealed in recent times to be a much broader pattern of industrial development. Today electromobility is no longer looked on from the perspective of the car industry, but from an angle that includes several industries that yet have not much or no linkages with each other at all. Beside electricity generation and grid infrastructure and of course the car industry it covers also creative industries that play a role when it comes to the development of mobility concepts or even smart homes (Figure 6).

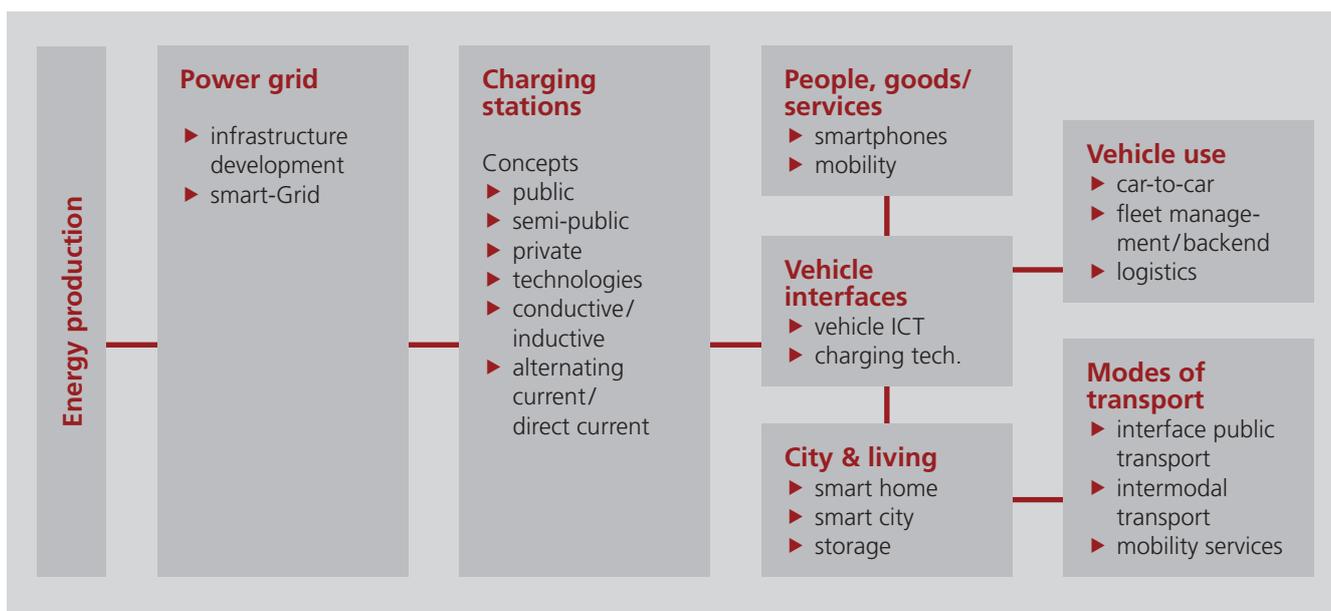


Figure 6: Electromobility is much more than just cars – links to other industries. Source: Fraunhofer Institut für Arbeitswirtschaft und Organisation

37 E. g. Deutsche Bank Research, 2014: Industrie 4.0 – Upgrade des Industriestandorts Deutschland steht bevor; Promotorengruppe Kommunikation der Forschungsunion Wirtschaft – Wissenschaft, 2013: Deutschlands Zukunft als Produktionsstandort sichern Umsetzungsempfehlungen für das Zukunftsprojekt Industrie 4.0, report for the Federal Ministry of Education and Research; see also Federal Ministry of Education and Research: Project of the Future: Industry 4.0, www.bmbf.de/en/19955.php

This development is not limited to Germany. Coming also from the angle of electric mobility the Japanese government is heavily promoting the concept of smart communities which aims at integrating the sectors of energy, transport and mobility, water supply and – very important with regard to creative industries – health, leisure time and modes of communication.<sup>38</sup>

Such kind of industries linkages need to be identified by corresponding analyses. How this can be done in practice shows a recent survey of the Institute for Innovation and Technology (iit) on the hotspots of electromobility industry and its value chain. Based on an analysis of government spending for electromobility projects in the context of different funding programmes the researchers could not only identify the regional “hot spots” of the German electromobility industry, but also and more important the elements of the value chain that are covered by these particular regions. Analysis shows that creative

industries play a role in these value chains; in particular with regard to the development of mobility concepts that aim at attracting traditional car users to new forms of mobility by ICT solutions and design (Figure 7). New value chains are developing which integrate different industries. There is a huge potential for cross-innovation between the traditional car and transport industry and creative industries which yet is not fully tapped into because of a lack of understanding and coordination.<sup>39</sup>

This example shows which potential lies in forecast analysis that aims at identifying emerging industries and the value chain elements where creative industries can easily connect with. Such analysis can be easily implemented even by local and regional authorities that want to strengthen their industry basis by promoting cross-innovation of creative and traditional industries.

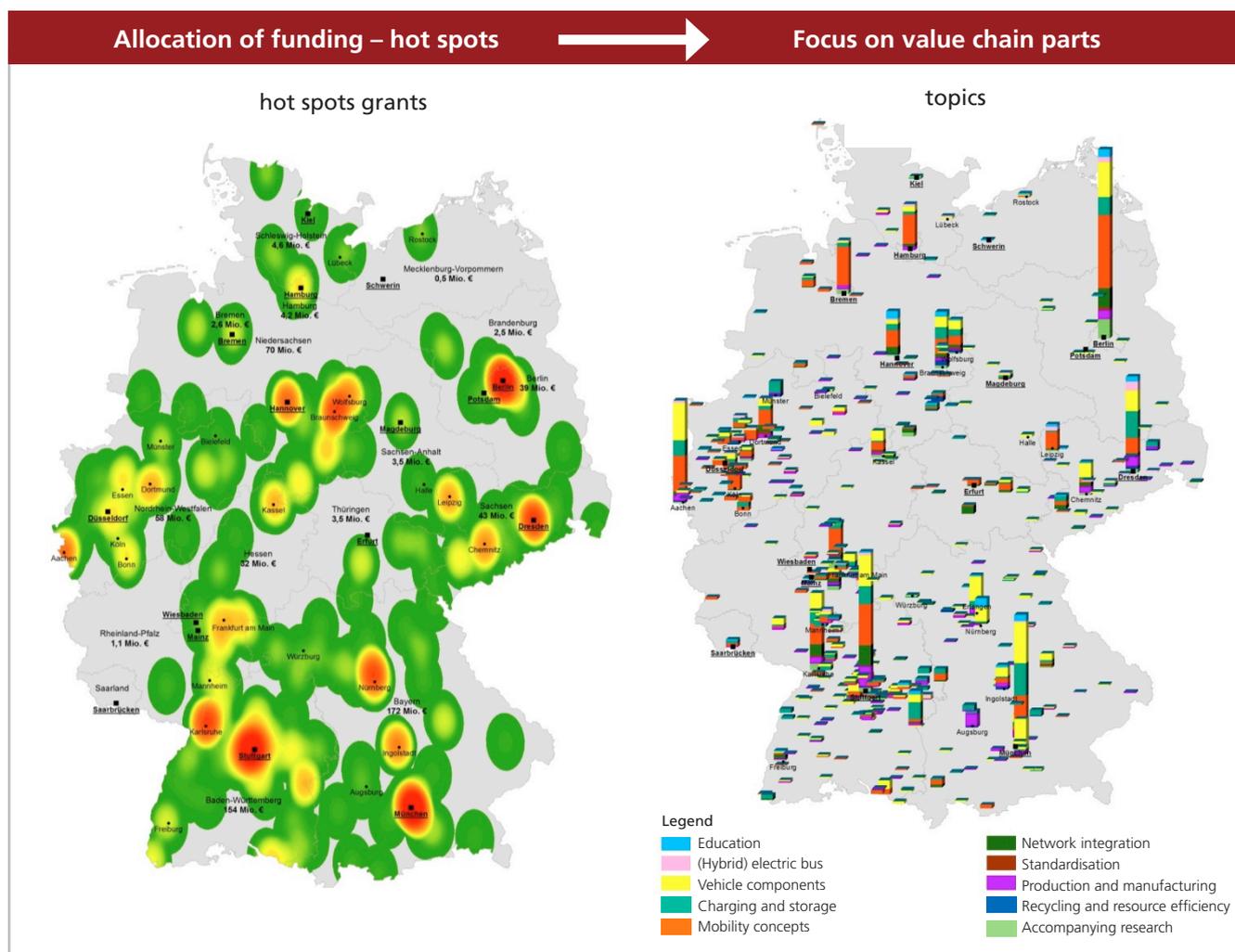


Figure 7: Hot-spots of the German electromobility industry and their value chain characteristics (Institute for Innovation and Technology (iit))

38 Deutsche Industrie- und Handelskammer in Japan/VDI/VE IT, 2013: Trendbericht Elektromobilität Japan, Tokyo/Berlin, p. 72

39 Discussion with cluster managers of the German cluster initiative „e-mobil bw“

## 5.2 Clusters and cluster management organisations: create cross-industry clusters

Clusters are among the fanciest, but also frequently misconceived instruments of industrial policy. Michael E. Porter's famous definition of a cluster as a regional agglomeration of industry<sup>40</sup> is often referred to when policy makers discuss clusters as tools of industrial policy. This is correct, but falls short of the actual nature of the instrument "cluster" as it is used by the more advanced cluster programmes in Europe. The instrument "cluster" rather describes an industrial network that is governed by a cluster management organisation through specific activities following a common strategy agreed upon by the participants in the industrial network. Such clusters/ industrial networks have their specific characteristics depending on their level or status of development. Depending on this they face specific developmental challenges which can be addressed by policy intervention.<sup>41</sup>

Creative industries clusters (understood as industrial networks governed by a cluster management organisation) are not very much different from clusters in traditional industries.<sup>42</sup> More relevant to mention is that they share a commonality with the vast majority of clusters in Europe: they are locked into their own industry with no or very limited outreach to other industries. Yet, even the European economy is facing the challenge to develop new industries by combining different industries and creating new value chains there are only a few examples of clusters that are actually aiming at crossing industry boundaries and "marrying" into other industries. The reason for this is quite clear: there is a "myriad of challenges – from entrenched cultural and language barriers between the disciplines to practical issues such as a lack of contact, proximity and opportunities to work together".<sup>43</sup> Although this quotation is from creative industry practitioners, the very same could be stated by representatives of traditional industries.

In order to overcome the lock-in of both creative industries and traditional industrial sectors into their own industry, one should aim at establishing cross-industry clusters that include both

creative industries and traditional industrial sectors. Such a cross-industry cluster should focus on well-defined emerging new industry sector, such as the electromobility sector introduced in the prior chapter. The new industry sector should be identified through a thorough forecast analysis (see chapter 5.1).

Yet there are only a few cross-industry clusters and none of them has an explicit focus on linking creative industries with traditional industrial sectors. Examples of cross-industry clusters or clusters that are outreaching to other industries than their own one are the German cluster initiatives "Electric Mobility South-West" ([www.emobil-sw.de](http://www.emobil-sw.de)) and "Virtual Dimension Center (VDC) Fellbach" ([www.vdc-fellbach.de](http://www.vdc-fellbach.de)), the Danish cluster initiatives "Innonet Lifestyle Interior & Clothing" ([www.innonetlifestyle.com](http://www.innonetlifestyle.com)) and "Service Platform Denmark" ([www.serviceplatform.dk](http://www.serviceplatform.dk)) as well as the Norwegian Centre of Excellence "NCE Systems Engineering" ([www.nce-se.no](http://www.nce-se.no)). As results from benchmarking projects and quality audits of cluster management organisations (Gold Label of Cluster Management Excellence) of the European Secretariat for Cluster Analysis (ESCA) show creative industry clusters in their vast majority lack a cross-industry perspective. Although many of the cluster managers mention in the benchmarking interviews that they try to get traditional industrial sectors "on board", strategies and activities of these clusters are in most cases not geared toward this objective. If there is cross-industry collaboration it is rather about cross-industry service provision than cross-innovation.<sup>44</sup>

In order to establish successful cross-industry clusters the cluster management organisation should have a well-developed strategy, a service portfolio geared towards the objectives identified in the strategy and should be managed – very important – the right team that brings together knowledge and experiences from different industry backgrounds. The quality criteria for cluster management excellence of the European Cluster Excellence Initiative (ECEI) provide guidance for the development of a cluster management organisation in these terms.<sup>45</sup>

How should the ideal strategy and the ideal service portfolio look like? In terms of strategy it is very important that it is

40 Porter, Michael E., 1990: The competitive advantage of nations, New York, pp. 148-173

41 For an introduction see Christensen, Thomas Alslev/Lämmer-Gamp, Thomas/Meier zu Köcker, Gerd, 2012: Let's make a perfect cluster policy and cluster programme. Smart recommendations for policy makers, Copenhagen/Berlin; see also Dervojeda, Kristina/Nagtegaal/Lengton, Marc/Datta, Peyoush, 2013: Creative Industries. Framework conditions for world-class clusters in emerging industries, Price WaterhouseCoopers, report in the context of the European Cluster Observatory, pp. 60-64

42 Kind, Sonja/Meier zu Köcker, Gerd, 2012: Developing successful creative and cultural clusters. Measuring their outcomes and impacts with new framework tools, study for the European Creative Industries Alliance, pp. 33-54

43 Belgrave, Jesse, 2012: Short study on cross Innovation. Cross innovation partnership, Interreg IVC project, University of Birmingham, p. 7

44 For an overview of creative industry clusters that have yet participated in the benchmarking see [www.cluster-analysis.org/benchmarked-clusters/](http://www.cluster-analysis.org/benchmarked-clusters/) clusterlisting.

45 European Cluster Excellence Initiative (ECEI): The Quality Label for Cluster Organisations (Cluster Management Excellence Label GOLD – Proven for Cluster Excellence). Criteria, Processes, Framework of Implementation, [www.cluster-analysis.org/downloads/130226\\_PublicDocumentforGOLDAssessmentpreparation.pdf](http://www.cluster-analysis.org/downloads/130226_PublicDocumentforGOLDAssessmentpreparation.pdf)

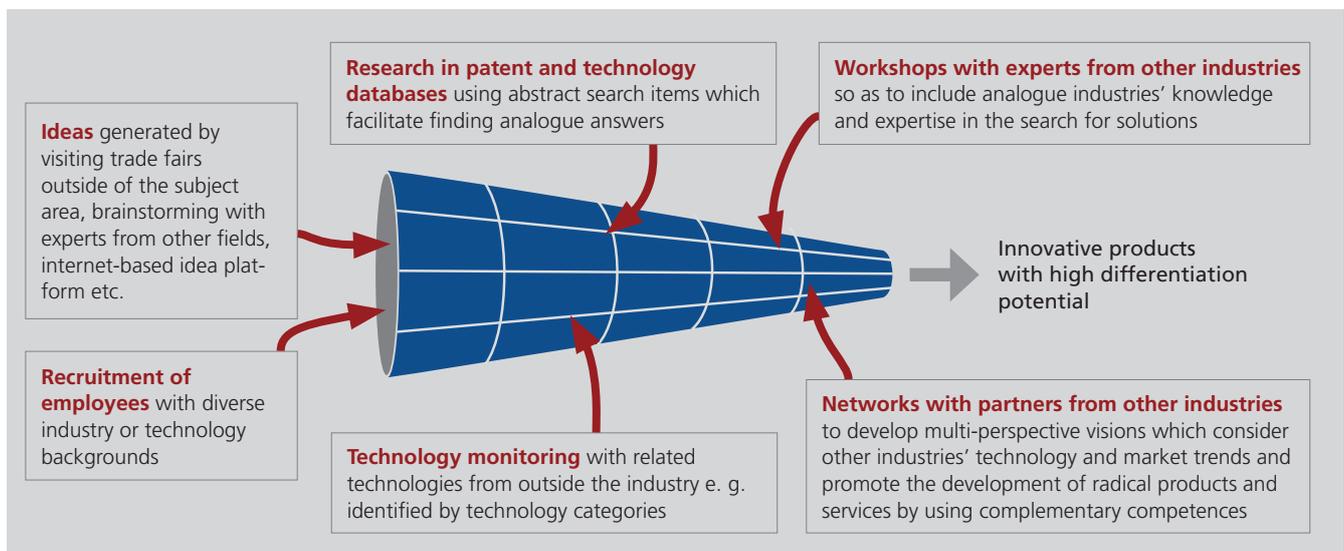


Figure 8: Tools for „narrowing down“ ideas into cross-innovated products and service (based on Enkel, Ellen/Horváth, Annette, 2010, p. 297)

based on a sound analysis that identifies the challenges to be addressed by the cluster and the way they should be addressed. It should also identify the right cluster participants – companies, research institutes or universities and relevant other stakeholders from both industry and public administration. For cross-sector clusters it is of outmost importance that the strategy is based on a sound understanding of the different business models in the different industrial sectors, which requires an analysis of the different value chains and value systems for the existing industrial/technological sectors and the value chain that one wants to develop through a cross-sector cluster – based on the forecast of the emerging industry sector (see chapter 5.1). Strategy should be developed in a comprehensive and open communication process that involves all relevant stakeholders in the cross-sector value chain that is to be developed.

The strategy should be implemented through a set of activities (service portfolio of the cluster management organisation) that is geared to the objectives of the strategy. For the promotion of cross-innovation it is very important to search for ideas and narrow them down to tangible projects. This can be done by means of technology monitoring, patent survey, fair visits, workshops and networking with partners from other industries (Figure 8).<sup>46</sup>

Cluster management organisations are an excellent instrument for such “funnelling”. A study for the Danish Agency for Science and Technology has demonstrated that there are key

impact-relevant services that should be offered by any cluster management organisation in support of activities of cluster participants.<sup>47</sup> It is not about an “either/or” of services, but about the integrated offer of services to commercialise R&D results and thus to trigger innovation-based economic growth. Cluster management organisations that feature such an integration of services are typically based on a strategy that addresses the

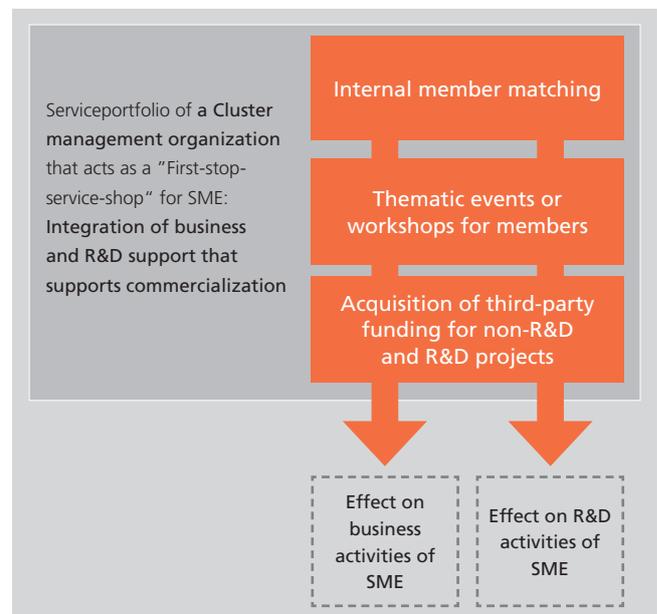


Figure 9: Service portfolio of a cluster management organisation (Christensen, Thomas Alslev/Lämmer-Gamp, Thomas/Meier zu Köcker, Gerd, 2012, p. 34)

<sup>46</sup> Enkel, Ellen/Horváth, Annette, 2010, p. 297

<sup>47</sup> Lämmer-Gamp, Thomas/Nerger, Michael, 2011: Clusters are Individuals – Service Performance of Bavarian and Danish Cluster Management Organisations, NGPExcellence project report for the Danish Agency of Science and Technology (not published) and Christensen/Lämmer-Gamp/Meier zu Köcker, 2011, pp- 33-34; see also Christensen, Thomas Alslev/Lämmer-Gamp, Thomas/Meier zu Köcker, Gerd, 2012, pp. 32-34

support needs of the cluster participants. Figure 9 shows such an integrated portfolio of key impact-relevant services that has an effect on business and R&D activities of SME cluster participants by sequencing services such as internal member matching to bring cluster participants together, organizing workshops or thematic events to further discuss ideas that developed from the matchmaking and apply for funding for projects that are the outcome of workshops or thematic events.

It is not only about networking, workshop facilitation and project development – cluster management organisation should also host cross-sector incubators. In contrast to the majority of existing incubators which focus on one single industry such cross-sector incubators should actively connect creative industry start-ups with companies from traditional industrial sectors by providing not only networking services but also other business support resources and services that are required to communicate and work with traditional industrial sectors. As Figure 10 demonstrates business development through consulting and coaching of entrepreneurs and other services/activities such as incubation is already an important element of the service portfolio of creative cluster management organisations, but still not – as indicated above – sufficiently tailored forwards cross-sectoral innovation.

### 5.3 Supporting instruments

It is common sense that due to their specific nature creative industries require specific support through programmes or even an industrial policy geared towards creative industries.<sup>48</sup> It is also true that the solution does not lie in clusters and cluster management organisations alone, although they are key with regard to bridging the communication gap between the creative and traditional industries: a communication gap that results in the non-perception of how the potential creative industries can contribute to innovation and value-chain development in traditional industries.<sup>49</sup> But what is to be done once the communication gap has been bridged by a cross-industry cluster? A recent study concludes that priorities for action in this regard are – besides raising awareness of the innovation potential of creative industries – a) the improvement of access to innovation funding and b) the facilitation of business development processes of creative industries.<sup>50</sup>

How can this be put into action? Some reflections:

There are various accounts of financial schemes or instruments that successfully support the development of viable businesses or business models in the creative industries, such as seed

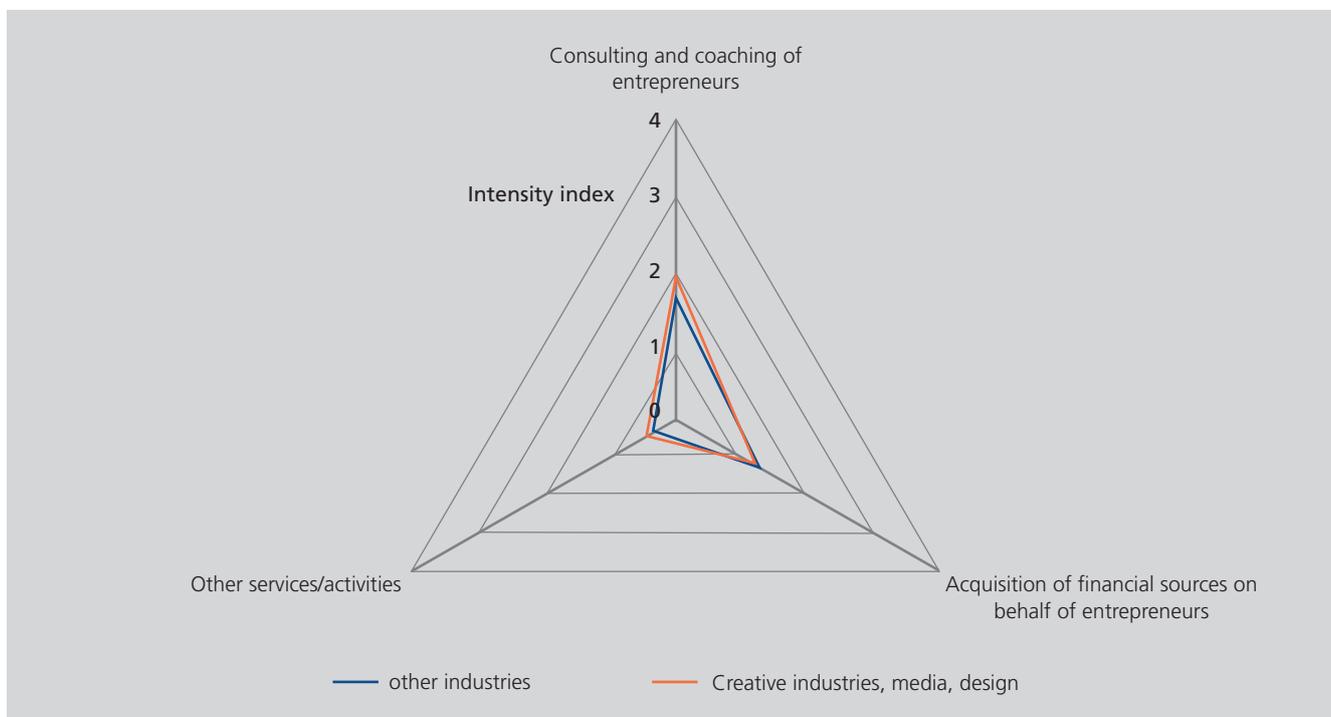


Figure 10: Business development through consulting and coaching of entrepreneurs and other services/activities such as incubation (benchmarking date of the European Secretariat for Cluster Analysis, 2014, n = 28 cluster organisations from creative industries, media and design and n = 83 cluster organisations from various industrial sectors)

48 Mundelius, Marko, 2009

49 Prognos/Fraunhofer ISI, 2012, pp. 148-149

50 Ibid., p. 152

and venture capital schemes or even crowdfunding.<sup>51</sup> While these instruments appear to be in most cases rather lacking a cross-industry focus, **innovation vouchers** are promising instruments to facilitate cross-industry collaboration and thus cross-innovation. The idea of innovation vouchers is to – as it is put by a UK programme – “encourage businesses to look outside their network for new knowledge”.<sup>52</sup> There is no doubt that such schemes create the intended results in terms of creating new products, services and processes through cooperation among companies or companies and research institutions/universities that have not cooperated until then.<sup>53</sup> However, in terms of cross-innovation such innovation voucher schemes obviously create results only if the “look outside the network” means that one is looking beyond the networks of his very own industry.

Cross-innovation through innovation vouchers would therefore only work if the two that should collaborate know of each other. Therefore, **information campaigns** of local or regional authorities that are informed by forecast analysis are an important instrument to inform relevant stakeholders about the benefit of “looking beyond the boundaries of the industry”. Only if you knew your potential partner you can take action.

**Industry-to-industry dialogues** are another important tool in the tool box of supporting instruments. Once stakeholders became interested in others on the other side of the industry boundary it is time to establish a platform for the exchange and development of ideas for cross-industry projects. A good example for such a platform is the recent conference “CREATIVE. HEALTH” organised by the German cluster organization CREATIVE.NRW.<sup>54</sup>

Another important element of supporting instruments is **business coaching and advice** for the small creative industries’ companies whose staff either lacks the “cultural proximity” to traditional industries or does not have the knowledge how to set up and run a company. This includes also the issue of how to secure intellectual property from a cross-industry collaboration.<sup>55</sup>

The supporting instruments can be implemented either by a cluster organisation as part of its service portfolio or by a regional development agency. As there are already numerous programmes available that include such supporting instruments, there is no need to reinvent the wheel. Existing programmes should therefore be identified and used in the context of the implementation of the strategy.

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52 See Technology Innovation Board, Innovation Voucher Scheme, [www.innovateuk.org/-/innovation-vouchers](http://www.innovateuk.org/-/innovation-vouchers)

53 E. g. Cornet, Maarten/Vroomen, Björn/van der Steeg, Marc, 2006: Do innovation vouchers help SMEs to cross the bridge towards science?, CPB Netherlands Bureau for Economic Policy Analysis, The Hague and Technopolis Group: Policy instruments for regional innovation, innovation vouchers, Brussels

54 For an introduction to the conference see <http://creative.boros-dev.de/creative-health/programm.html>

55 Mundelius, Marco, 2009, pp. 23-25

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