

Value Creation with Creative Industries Cross-overs in the Netherlands

Frits Dirk Jan GROTENHUIS



**Frits GROTENHUIS, Independent Strategy Consultant,
the Netherlands**

Frits Grotenhuis is an independent strategy consultant and management author. He was involved for more than ten years in the development of the topsector creative industries in the Netherlands, amongst others as interim director of the topconsortium for knowledge and innovation TKI CLICKNL. Frits Grotenhuis obtained his PhD degree from the University of Groningen in collaboration with Eindhoven University of Technology, Waseda University in Tokyo, and the Dutch multinational Philips. Over the past fifteen years, Frits has published over fifty articles, books, and columns. Contact: frits@grotenhuisadviseert.nl

ABSTRACT

Over the years many studies have been published on different aspects of cultural and creative industries. However, few have focused on the value of creative industries for other economic sectors or societal domains. Insights and empirical results are lacking. Using a policy perspective, this paper describes four cross-overs in the Netherlands in the retail, smart industry, healthcare, and energy sectors. Based on these four cases, a model based on three phases in the development of cross-overs is proposed. Finally, guidelines for organizing cross-overs between creative industries and other sectors are offered. Future studies could further elaborate on the development of cross-over activities in different economic and societal sectors. Statistical evidence is needed to further enhance cross-overs and to demonstrate the creative industries' leverage for innovation.

Keywords: Value creation, Cross-over development, Creative industries

1. INTRODUCTION

Creative industries have grown in importance over the past two decades. In the United Kingdom, the Department of Culture, Media and Sports (DCMS) in 1998 estimated that the economic value of the creative industries represented around GBP 60 billion (US\$76 billion), or 5% of the GDP. The 2016 estimates (DCMS, 2016) indicate that the economic value of creative industries in the UK equals around GBP 84 billion pounds (US\$107 billion). There is a global trend of rapid, sustained growth in the creative industries, according to the United Nations Creative Economy Report 2013 (UN/UNDP/UNESCO, 2013).

Policy makers worldwide have slowly embraced this relatively new concept since Richard Florida highlighted the rise of the creative class in the USA (Florida, 2002). Researchers found their way in public policies and strategic plans in the development of creative industries on the city and regional levels (Foord, 2009). Over the past decade, hundreds of studies in the area of creative industries, cultural industries, and creative economy have been published.

Several authors have provided overviews of previous studies of cultural and creative industries. Cho et al. (2016) examined fifteen years of research in cultural and creative industries. They conclude that business, economy, and geography are the top three research areas. Their insights can help policy makers in developing creative hot spots. Chuluunbaatar et al. (2013) provided an overview of authors, topics, and methods. However, they conclude that many cultural and creative industries studies are 'imbalanced and scattered'.

Furthermore, the relationship between creative industries and 'growth' remains controversial. Potts and Cuningham (2008) compared four models of the creative industries and related them to traditional economic growth models. Outcomes, however, are mixed. Marco-Serrano

et al. (2014) discuss the relationship between economic growth and cultural and creative industries. They investigated regional European data over the period 1999-2008 and conclude there is "a significant feedback (bidirectional causality) between the per capita GDP and employment intensity in the cultural and creative industries" (p. 1).

Creative industries as a sector has been recognized as a rapidly growing part of the economy. However, the value represented by creative industries is still under discussion: economic value in terms of employment within creative industries, or culture and creativity generating value for society and the economy, or value creation for other sectors, 'cross-overs'. Empirical evidence is lacking and insight into cross-overs is limited, though their potential appears to be large.

This paper focuses on the added value of creative industries to other economic sectors and societal domains (creative industries cross-overs), illustrated by four cross-over activities in the Netherlands. The paper first introduces creative industries development and policy making in the Netherlands, followed by four concrete cross-over activities in retail, smart industry, the energy and the health sector, initiated by the top consortium for knowledge and innovation, TKI CLICKNL, part of the Dutch topsector Creative Industries. Finally, this paper proposes a three-phase model for cross-over development and concludes with lessons learned from these four cases. Based on the insights provided, implications for further research are proposed.

2. CREATIVE INDUSTRIES AND POLICY MAKING IN THE NETHERLANDS

Using Florida's definition, the creative class encompasses almost 47%, or excluding technicians, around 30% of the Dutch workforce (Florida, 2009). According to common measures, creative industries in the Netherlands account for 2% of

the Gross Net Product, although representing almost 10% of all enterprises in the Netherlands (Grotenhuis, 2015). One of the key characteristics of creative industries is the large volume of small and medium-sized enterprises.

In 2004 Florida also investigated the creative class in European countries (Florida & Tinagli, 2004). The Netherlands scored among the top three, based upon Florida's measures on Talent, Technology, and Tolerance. More recent statistics confirm the previous numbers: the creative industries in the Netherlands grew 3.7% over the period 2011-2013 (Davis, 2015), the second fastest in Europe.

Dutch creative industries have been recognized internationally, mainly under the brand of 'Dutch Design'. Architect Remco Koolhaas, designers Daan Roosegaarde (studio Roosegaarde) and Marcel Wanders, and dance idol Duncon Stutterheim (ID&T) are famous abroad. Further back in time, the Netherlands has bred famous cultural entrepreneurs such as Vincent van Gogh and Rembrandt van Rijn.

Within the Netherlands, in 2004 Creative Industries was appointed as one of the key economic areas (Innovation platform, 2009). Thus, creative industries have been stimulated by the government and specific policy measures have been developed for creative industries. These policy measures were centered around five action lines: making active connections, improving financial conditions for small and medium-sized enterprises, improving conditions of intellectual property rights, intensifying internationalisation, and furthering professionalize cultural management.

Throughout the Netherlands many initiatives have started over the past decade. New organizations and platforms, as well as new research and innovation programs, were initiated between 2004 and 2010. Before 2004, the creative industries as a sector in itself was not institutionalized, nor was it organized in a way that could substantially contribute to the economy.

Some of these new initiatives have resulted into strong and sustainable organizations and infrastructures. These include the Dutch Federation for Creative Industries, representing small- and medium-sized enterprises. Some networks with knowledge institutes and private parties continue in diverse large-scale research programs. Others have faded away or merged with other organizations over time.

In 2004 the Dutch Organization for Scientific Research began a research program for Cultural Heritage, as a subsector of the creative industries. Other large-scale research funding became available from the Dutch gas incomes: in 2007 a research program for Games and ICT, named 'GATE'¹, was initiated. Another research program for creative industries with a strong focus on design, named 'CRISP'², was launched in 2011. Further, a third large research program on ICT, named 'COMMIT'³, was initiated in 2011. ICT is a strong driver and enabler for innovation in creative industries.

In 2010 an innovation program, named 'Value of Creation'⁴, was proposed for creative industries, with a specific focus on cross-overs to other sectors. The aim was to develop solutions for societal challenges where creative industries can add economic and societal value. This program could not begin because of the formation of a new Cabinet and a new Minister of Economic Affairs. Parts of the proposed cross-over innovation program have been embedded in the 'topsector Creative Industries'.

3. FROM 'KEY-AREA' TO 'TOPSECTOR'

The new Minister of Economic Affairs in 2011 appointed a 'topteam' to address topics of internationalization, knowledge, and innovation, cross-overs, and financial/fiscal issues. Innovation policy in the Netherlands changed from 'key-areas' to nine 'topsectors', including Creative Industries. The ideas and ambitions around an innovation program about cross-overs found a new foothold with the topsector Creative Industries.

¹ GATE, Game Research for Training and Entertainment, is a research programme for ICT and gaming (<http://gate.gameresearch.nl/>)

² CRISP, or Creative Industry Scientific Programme, is a consortium of scientific and industrial partners focusing on Dutch design sector and creative industries (<http://selemca.camera-vu.nl/about.html>)

³ COMMIT is a public-private ICT research community on culture, agriculture, and healthcare (<http://www.commit-nl.nl>)

⁴ More on Value of Creation programme: <https://www.slideshare.net/IIPCreate/waarde-van-creatie-innovatieprogramma>

Concerning the topic of knowledge and innovation within creative industries, a topconsortium for knowledge and innovation (abbreviated 'TKI') was founded by the topsector: 'TKI CLICKNL'. The 'TKI CLICKNL'⁵ represents six different subsectors of Dutch creative industries regarding knowledge and innovation, or research and development. These subsectors are: design, games, media and ICT, built environment, cultural heritage, and fashion. All of these subsectors have been organized around independent networks consisting of knowledge institutes, creative organizations, and private partners.

The TKI CLICKNL supports and enables research and development for Dutch Creative Industries. Every two years a knowledge and innovation contract is signed between the topteam Creative Industries, Ministry of Economic Affairs, and Ministry of Education, Culture and Science, the Dutch Organization for Scientific Research, and other parties. The knowledge and innovation contract Creative Industries encompasses different instruments for research and development with a value of about €40 million (US\$45 million) for the period 2016-2017, including matching from private partners in consortia.

These instruments vary from enabling fundamental research to applied- and experimental research. Further, instruments are tailor-made for specific subsectors such as the design disciplines, which have a different research background and methodology than other disciplines. Private partners are required to match between 20 to 30% of the total research budget in these projects, in order to ensure social relevance and commitment.

In addition to instruments to stimulate research, generic instruments for valorization purposes were developed. In this way the development of knowledge and insights into new concepts and prototypes can be supported. Examples of such instruments are innovation vouchers (organiza-

tions can use a voucher to address knowledge institutes with research questions about new products, processes or services), 'demonstrator' (funding to develop a proof of principle), and 'take-off' (feasibility studies and loans for early-stage financing).

As a result, over the years many new initiatives have arisen, and existing infrastructure has been strengthened. The creative industries sector has become stronger and better organized. Further, insights are growing and evidence is about the value of creative industries for other sectors is increasingly recognized. The Ministries of Economic Affairs and Education, Culture and Science work actively together in supporting creative industries, believing that this sector plays a growing role in solving global challenges (Van Erp et al., 2014). Cross-overs are key in this respect, highlighted in the publication by the Ministry of Education, Culture, and Science:

At first, Dutch government policy focused on promoting the sector's growth, expressed in terms of employment, turnover and added value. Gradually, however, the focus is shifting to the broader social and economic significance of the creative industries. The aim is now to encourage partnerships between the creative industries and other sectors, i.e. crossovers. Viewed from this perspective, the importance of the creative industries lies more in offering new prospects and encouraging innovation in other sectors than in the industry's own growth" (Van Erp et al., 2014, p. 16).

In 2014, the Netherlands hosted the 6th Asia-Europe Meeting (ASEM). ASEM is an Asian-European intergovernmental forum, which addresses "political, economic and socio-cultural issues of common concern" (ASEF, 2014). The major topic of this meeting was 'enabling cross-overs', which amongst others resulted in a publication with different cross-over good practices in the creative industries.

⁵ More information on TKI CLICKNL: <http://www.clicknl.nl/>

4. CROSS-OVER ACTIVITIES

Within the topsector Creative Industries, the topconsortium for knowledge and innovation TKI CLICKNL has initiated and supported the development of four specific cross-overs of creative industries to four different sectors in the Netherlands: (1) Smart retail, (2) Smart industry, (3) Health, and (4) Energy. These sectors were selected because of their direct relevance.

3.1 Smart Retail

The cross-over Smart Retail focuses on the future of shopping. As a result of the economic crisis, a globalizing economy and the rise of Internet shopping, the retail sector is experiencing a major shift. Many classic shops have gone bankrupt in recent years, some of them older than 100 years. This has implications for the shopping experience of consumers in villages and cities. Despite internet shopping, there will always be demand for classic shops, but not in the old-fashioned way.

The retail sector should innovate with a stronger focus on the demands of consumers. This relates to location (e.g. city centers, or at public spaces such as railway stations), the architecture of buildings and the shops, and interactive displays, yet also to the smart fitting of clothes with the help of a smart mirror that measures your size.

This is where the creative sector can come in and can add value both in the design of such kinds of shops, and in the redesign of the shopping experience with the help of creative methods such as 'outside-in' instead of 'inside-out' (Day & Moorman, 2010). This means that the customer ('outside-in') is placed central, instead of the organization ('inside-out'), from the growing belief that insights about customers orientations, needs, and experience are the key to success.

Quartermasters⁶ appointed by the TKI CLICKNL, first investigated the current situation in research

and development within the retail sector in 2014 and 2015. At the end of 2014 the national platform 'The New Shopping Street' was launched, with TKI CLICKNL as one of the core partners.

Second, a basis for a national research agenda aligning different knowledge institutes in this area was developed in 2015. In 2015 and 2016, the first research projects were begun. One of these projects studies sharing of data in shopping areas, investigating how to develop an open data platform and ecosystem. Another project explores merging the offline and online worlds of retail.

Alignment with other initiatives is important but challenging given the scattered landscape of organizations. The platform "The New Shopping Street" is also connected with the National Retail Agenda (2015) of the Ministry of Economic Affairs. This Retail Agenda, amongst others, aims at fifty regional 'Retail Deals' in order to stimulate the retail sector and experiment with (de)regulation. Further at the regional level, several collaborations have been initiated by TKI CLICKNL. For example, the city of The Hague launched a Retail Lab⁷ in 2016. The coming years will show whether these initiatives and alignment at the national level can be sustainable.

3.2 Smart Industry

Smart Industry is a recent movement in Europe, initiated in Germany as the fourth industrial revolution in 2011: 'industrie 4.0'. This revolution focusses on the impact (the fusion of) new technologies that turn around classic industrial processes, such as ICT, 3D printing, robotics, and nanotechnology.

The role of the creative industries in smart industries is to strategically rethink the design process behind manufacturing, exploring how to integrate the human perspective and consumer demands, or how to ensure ease of use for consumers. Another example of how the creative industries can play a role is gaining broad acceptance for new products and services

⁶ Quartermasters are people with knowledge and a relevant network in a specific domain who investigate the national landscape (including key-organizations and initiatives), organize a national network, build strategic agenda, and initiate pilot projects.

⁷ Retail Lab is an initiative that experiments with new retail concepts, based on good practices. For more information: <http://retaillab.com/en/>

in relation to complex technologies, intrusive technologies, or ethical matters such as privacy.

The topsector Creative Industries works together with the topsector High Tech Systems and Materials in this perspective. Together they initiated so-called innovation brokers that try to match small- and medium-sized enterprises in creative industries and organizations in the smart industry domain.

Within the smart industry agenda, “field labs” are used to experiment with new technologies and application areas. One of these field labs initiated by creative industries organizations is called UPPS, an abbreviation for Ultra-Personalized Products and Services⁸. Examples of projects are 3D printed wrist orthoses for healthcare design and virtual sizing for fashion purposes.

In 2015 a quartermaker has investigated possible projects at the cross-over between the two topsectors Creative Industries and High Tech Systems and Materials. In 2015 and 2016 several workshops and meetings have been organized. Furthermore, further explorations for collaboration and the initial pilot projects have commenced. In 2017, new perspectives for sustainable growth should be created.

3.3 Create Health

The past years the social and economic costs of health and well-being have risen exponentially. This is because people are living longer and longer, but also because of inefficient and ineffective processes in care, cure, and prevention. Create Health is an initiative between the topsector Creative Industries, the topsector Life sciences and Health, and center of expertise U Create⁹. By joining forces, new processes and solutions can be developed in order to improve healthy living.

Especially in *prevention*, stimulating, and enabling a healthy lifestyle, large social and economic

benefits are expected. E-health solutions can support people in prevention and adopting a healthy lifestyle. Measuring and coaching mechanisms are improving every day, especially with better technologies, new methods, and the ongoing growth of big data resulting in more accurate coaching feedback to individuals.

People who live longer and healthier are happier and have lower care and cure costs. In *cure*, creative industries can play a role. For instance, they can design a child-friendly environment where medical analysis can be processed in a more efficient, effective, and emotionally friendly manner for young patients.

In *care*, considering how to enable people with a de-generative disease, such as dementia, to live longer in their own homes instead of being moved to care centres. People can be stimulated with games and (digital) applications of cultural heritage for memory training. Further, they may be facilitated and enabled by ICT and digital media so they can remain in direct contact with friends and family. This cross-over has resulted already in a research program on this topic with different projects: ‘FIT’ and ‘Little Red Riding Hood’ (‘Roodkapje’ in Dutch). The FIT project¹⁰ investigates a variety of supporting instruments for people with dementia, and provides an overview of these instruments in relation to different stadia and contexts. The Roodkapje project¹¹ is a game about how individuals can live longer and more happily and healthily in their own environment.

The aim of this cross-over is to gain new insights and knowledge and to improve implementation of new concepts for prevention, cure, and care. Creative industries can play an important role in developing new products and services for the end-user (or patient), whether for prevention (e.g. consumer), care (e.g. nurse), or cure (e.g. doctor, patient). Further, creative methods can improve health processes resulting in direct lower costs and higher acceptance

⁸ Ultra-Personalized Products and Services (UPPS) is a fieldlab that aims at stimulating innovation in the Dutch manufacturing in personalized products in fashion, health, and sports. For more information: <http://www.upps.nl/en/>

⁹ U Create is a center of expertise that aims at supporting innovation in the cross-over creative industries and health & well-being. For more information: <https://ucreate-weconnect.nl>

¹⁰ More on FIT project: <http://www.clicknl.nl/blog/fit-passende-ondersteuning-voor-het-langer-thuis-wonen-met-dementie/>

¹¹ More on Roodkapje project: <http://www.clicknl.nl/blog/roodkapje-gelukkig-en-gezond-oud-worden-in-je-eigen-omgeving-2/>

rates. Examples of project implementation include the Philips KittenScanner¹².

This cross-over is relatively successful so far. In 2013, a first investigation was conducted by a quatermaker from TKI CLICKNL. In 2014 a close collaboration has started between the topsector Creative Industries and the topsector Life Sciences and Health. Center of Expertise U Create plays an important role as a third party in the coalition enabling project management and continuation of networking and matchmaking activities for the research calls.

At the end of 2015 the first joint research program was begun, funded by both TKI CLICKNL and TKI Health Holland (the topconsortium for knowledge and innovation from the topsector Life Sciences and Health). Further, in 2017 another joint call for new research projects was sent out. In 2017 efforts are underway to develop a strategic roadmap together with the three partners, based on a thorough field consultation, aiming at a long-term perspective.

3.4 Create Energy

Create Energy is a collaboration between the topsector Creative Industries, the topsector Energy, five large cities in the Netherlands (Amsterdam, Arnhem, Enschede, Eindhoven, and Groningen) and the Ministry of Economic Affairs. The ambition of this 'Green Deal Smart Energy Cities' is to realize at least 100,000 energy-neutral houses. After the end of 2013, and quatermaking in 2015-2015, twelve pilot projects began in 2015 and 2016 in the five participating cities.

The role of the creative industries here is exploring how to influence consumer behavior. This can be realized by smart homes, providing feedback on usage of energy. Other methods are related to smart design and architecture of houses. Primarily concepts of gamification, service design, co-creation and design thinking are being used to nudge consumer behavior towards energy efficient usage.

In order to implement this cross-over, the 'creative producers' act as brokers to bring together different

stakeholders, including creative industries, in the realization of energy-neutral homes. Next to smart solutions, creative methods such as gamification and service design are key in cross-over success. In the twelve pilot projects, within the context of a large program, creative producers have delivered valuable contributions despite a limited budget.

The challenge in the beginning of 2017 is how to proceed, within the context of the larger program of the Green Deal, and find new (financial) ways to continue the mutually beneficial collaboration.

5. THE CROSS-OVER MODEL AND LESSONS LEARNED

Based on these four cross-over cases, a three-phase model is introduced. Furthermore, despite the variety in cross-overs, generic lessons may be drawn.

5.1 Cross-over Model

In the development of these four cross-overs, three major phases can be discerned. These phases are based upon the generic characteristics from the four cross-overs as described. Each phase knows different activities and conditions for 'success' (as a stepping stone to the next phase). Furthermore, it is possible that cross-over activities have no perspective in the longer run and end somewhere in (between the) phase one or phase two.

The three phases together represent a preliminary cross-over model (Figure 1). Finally, the cross-overs

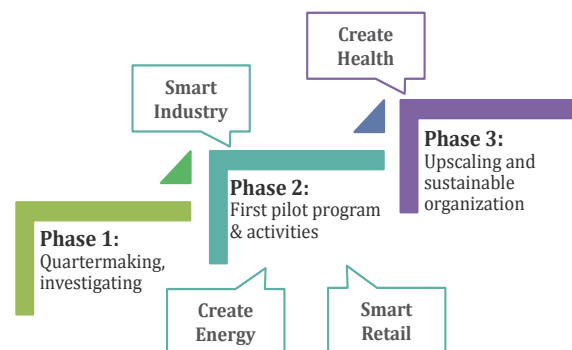


Figure 1. The Cross-over model
Source: Author's original work

¹² Philips KittenScanner is a small-scale scanner accompanied by animations designed to playfully educate children about MRI and CT scanning process. More on the project: <https://www.90yearsofdesign.philips.com/article/30>

are positioned in the figure along the three phases. The cross-over model consists of three phases:

- (1) Phase 1: Feasibility study and initial activities. This phase is about investigating the current status ('as is situation') versus the desired ('to be') situation. A quartermaster investigates options and feasibility of collaboration and builds on a network. The first phase is successful (ready for phase two) when this has resulted into a realistic plan for a pilot program with first activities, including initial commitments from the proposed program partners. All four cross-overs mentioned in this paper have actually reached at least the beginning of phase two.
- (2) Phase 2: First pilot research program and joint development activities. In this phase 'the proof of the pudding is in the eating': are the initial activities a joint success? After the first activities, the quartermaster works on possibilities for structural financing and organization of the cross-over initiative. Initial projects are launched. To be successful in this phase and reach further to phase three, partners should share the same vision for continuation and upscaling, but also enable funding. In the four cases above, the cross-over Create Energy has not yet been able to create a (financial) perspective to continue to phase three. The Smart Industry cross-over projects have been continued under the 'UPPS' umbrella thus far, but a more sustainable perspective is needed for phase three. In Smart Retail, projects and first collaborations with retail labs are already running. For these three cross-overs the coming years will have to show their potential in realistic perspectives.
- (3) Phase 3: Upscaling of the cross-over (program) and realizing a sustainable organization: when the conditions and commitments of desired partners are met, and previous collaboration has been successful, the initiative can grow fast. The challenge in phase three is to organize a sustainable

infrastructure and financial possibilities for the cross-over, which can last over the years. This should be based upon a solid vision and shared strategic agenda. Only the cross-over Create Health has passed phase two to early stage phase three. The coming years will prove whether this cross-over is successful over a longer period of time.

5.2 Discussion and Insights

These four case studies offer several lessons for initiating and managing cross-overs.

(1) Implementation strategies

Developing cross-overs is tailor-made: every cross-over has different characteristics depending on context and ambitions. This makes it impossible to design a 'one-size fits all' strategy, though more generic strategies can be applied.

Cross-overs know two sides of the same coin: both coordination activities (such as workshops), as well as building projects (as part of a research program) are important pillars for a successful cross-over. On the one hand, developing projects is crucial in order to gain insights and build on new knowledge. On the other hand, coordination activities remain necessary to build a solid network and shared agenda.

The phasing for each cross-over also depends on the context and initial goals. For example, the Create Health cross-over involved a strong combination of research projects and coordination activities was very fruitful.

(2) Research activities

Research activities should be co-funded by private partners to ensure both relevance and (market) commitment. If this commitment is lacking, the initiative will be less sustainable. In addition to research projects, the smart retail cross-over makes use of co-funding constructions such as the platform The New Shopping Street.

A range of research activities can be used, from fundamental to applied, and experimental or lab-based research. This will depend on the needs and requirements of the cross-over partners, but also from societal and private parties involved in research projects.

Creative methods play an important role in the success of new product and service development, using service design, user-centric design, gamification, and design thinking. The Create Energy cross-over is a strong illustration of making use of user-centric design and gamification methods to stimulate energy-efficient behavior.

(3) Coordination

Coordinating activities need to be organized. In first instance a quartermaker can be appointed who also investigates the feasibility of a new cross-over. Later onwards, this may be a program manager who builds a strategic agenda, and coordinates different projects in addition to other networking activities.

Coordination activities can consist of matchmaking, workshops, feasibility studies, networkactivities, or developing a concept of basic principles. This is important to develop and strengthen the cross-over network.

(4) Cross-over funding

After the opportunity and joint ambitions, seed money is needed to get things started (phase one). More funding is needed to get things going (phase two) with pilot projects and coordinating activities. Structural funding and matching (a solid business model) is needed to be successful in the long run (phase three).

Partners should both invest in the cross-over. In the four cross-overs, initial funding from TKI CLICKNL enabled phase one, but in phase two co-funding was really necessary. In this way the cross-over proves to be a mutual ambition, enabling the initiative to further flourish.

(5) Other key factors

Other relevant factors for successful cross-overs are legitimization (such as a scattered landscape),

and an opportunity to collaborate and align with existing organizations and infrastructures (such as other topsectors). Furthermore, differences in ways of working should be dealt with in order to smooth the collaboration.

Making use of existing organizations and infrastructures, where possible, is strongly desirable for an efficient and effective organization. In this way coordination becomes embedded and thus more sustainable. The Smart Industry cross-projects fit well under the umbrella of the UPPS fieldlab, aligning with the national smart industry agenda; the Smart Retail cross-over was aligned with the national Retail agenda. The Create Energy and Create Health cross-overs collaborate with the topsector Energy and Life Sciences and Health.

Finally, communication is another important factor. Meetings, presentations and workshops at events help in creating a regional or national platform and thus attract other interested parties. A website, brochures and logo all support the cross-over initiative.

6. CONCLUSION

Within the Netherlands, nine topsectors are prioritized to strengthen the economic infrastructure and development. The topsector Creative Industries is one of these topsectors. Creative industries in itself represents a direct economic value. Further, creative industries represent an indirect value which has the potential to multiply the direct economic value of other sectors.

The four cross-over examples in this paper, initiated by TKI CLICKNL, illustrate ways in which creative industries can add value. Based on these cross-over experiences, a cross-over model has been proposed with three phases: (1) Quartermaking and investigating, (2) First pilot program and activities, and (3) Upscaling and sustainable organization. Furthermore, the lessons learned have been described as generic guidelines or 'good practices' for future cross-overs which should take into

consideration a cross-over strategy in relation to research projects, coordination activities, funding and other insights such as making use of existing infrastructures, and finally communication. Future studies could further elaborate on this model and the three phases for cross-over development.

Many other cross-overs between creative industries and social challenges can be imagined, from safety and mobility to pollution and education. Creative industries are strong in applying 'creative methods'. These include visualization techniques to turn big data into information for healthcare, or gamification principles to change behavior in order to stimulate energy-efficient living.

Creative industries have potential for further growth as a sector in itself, as well as adding value to other sectors. By adding value to other sectors, creating cross-overs, upscaling becomes possible for creative industries. In this way, creative industries can become the backbone of a creative economy. Attention to the economic value of creative industries to other sectors has been growing slowly in recent years. Future studies could further elaborate on the development of cross-overs in different economic sectors and societal domains than health, energy, smart industry and smart retail. Statistical evidence is needed to further enhance cross-overs and demonstrate the creative industries' leverage for innovation.

ACKNOWLEDGMENTS

The author would like to thank the topteam creative industries as well as the boardmembers of the topconsortium for knowledge and innovation TKI CLICKNL for their support in the development of cross-overs. A special thank you to Jann de Waal.

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