

Knowledge dynamics in moving media in Skåne — Cross-sectoral innovations in game development and film tourism

Margareta Dahlström, Sigrid Hedin and Lise Smed Olsen with contributions from Sara Östberg, Christian Dymén and Anu Henriksson

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Stockholm, Sweden, 2010

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Preface

The following report is a result of work by the Nordregio research team on the *Regional Trajectories to the Knowledge Economy: A Dynamic Model* (EURODITE) project.¹ The EURODITE project runs from September 2005 to August 2010 and is led by the Centre for Urban and Regional Studies (CURS) in the University of Birmingham.

The intention of the EURODITE project is to probe beneath the popular notion of the 'Knowledge Economy' by describing the diversity of learning processes, knowledge dynamics and knowledge trajectories across Europe. It was also intended to examine the assumption that regions and other spatial arrangements, such as 'clusters' or 'milieus', represent coherent units of explanation and intervention in the knowledge field. In addition, the inclusion of four policy-making partners has been important in the project by safeguarding users, influencing the work and developing applied research outcomes.

In the EURODITE project, empirical case studies have been conducted in 22 regions in 13 European countries. As a project partner, Nordregio conducted an empirical case study exploring knowledge dynamics in new media in Skåne, Sweden. Specifically, knowledge dynamics connected to cross-sectoral innovations in game development and film tourism have been investigated. In addition, Nordregio has been active in synthesising all the empirical case studies of EURODITE and the policy work of the entire project. Furthermore, Nordregio has been the leading partner of a Nordic spin-off project named *Regional Trajectories to the Knowledge Economy—Nordic–European comparisons* (REKENE).² In the REKENE project, seven additional regions in Denmark, Finland, Iceland and Sweden have been studied. The same methods and input from contextual research as in the EURODITE project have been utilised to compare Nordic and European regions.

This report mainly covers the empirical case study exploring knowledge dynamics in new media in Skåne. The target readership of this report is practitioners and policymakers as well as academic scholars with an interest in the field. In addition to this report, a number

of papers have been published or are in the pipeline to be published as a result of the EURODITE project. The publications range from articles in scientific journals to pieces orientated towards policymakers and practitioners. Please visit the EURODITE homepage for further information on publications.

A team of Nordregio researchers was involved in the work resulting in this report. Margareta Dahlström was the project manager and was mainly responsible for the field and analysis work. Sigrid Hedin and Lise Smed Olsen worked on the editing and the analysis sections of the report. Sara Östberg was involved in the field-work and in earlier phases of the research. Research and compilation of background information was undertaken by Christian Dymén, mainly on the 'Agent O' firm-level knowledge dynamics, and by Anu Henriksson on sections on the Skåne region and on path dependency. The illustrations in the report were produced by José Sterling.

We would like to thank the interviewees and others in the case study area who have participated in the research by providing information such as background material. This research would not have been possible without their kind participation. We would also like to express our gratitude to the project partners of EURODITE and REKENE for input and discussions through the duration of the projects. Special thanks are due to Laura James, Geert Vissers and Henrik Halkier, with whom we have worked the most closely in the synthesis and policy work throughout the EURODITE empirical research.

Stockholm, March 2010

Margareta Dahlström, Sigrid Hedin and Lise Smed Olsen.

¹ EURODITE is an Integrated Project funded by the European Commission and the Directorate for Research under Priority Seven (Citizens and Governance in a knowledge based society) of the Sixth RTD Framework Programme, contract nr 006187 (CIT3). Read more about the project at (www.eurodite.bham.ac.uk).

² The REKENE project has been financed by Nordic Innovation Centre (NICe) under the focus area 'Innovation Policy' in project number 07058, and participating partners. Read more about the project at (www.nordregio.se/Rekene/).

Executive summary

Objective and framework of the EURODITE project

The main objective of the EURODITE project was to investigate how knowledge is generated, developed and transferred within and among firms or organisations, and their regional contexts. Another objective was to gain a better understanding of how policies may be developed and used to facilitate knowledge dynamics. This in turn can contribute to increased regional competitiveness.

In the project, knowledge was understood as a process. A key concept in the project for investigating how knowledge is generated, developed and transferred has been knowledge dynamics. Empirical research into knowledge dynamics has been conducted based on the building blocks of region, sector, territorial knowledge dynamics and firm-level knowledge dynamics. Territorial knowledge dynamics concern knowledge exchange, networks and interactions among actors. Key actors may include firms, higher education institutions, chambers of commerce and local and regional authorities. The regional level is important, but interaction is not constrained to an administrative region. Knowledge dynamics are multiscale and may include important interactions at great distances. The firm-level knowledge dynamics analysis aims to contribute with greater depth and more detail on knowledge dynamics. The report deals with how knowledge is developed and transferred at a micro level, whether within a firm or an organisation, or between networks of firms or organisations.

In this report, we describe and analyse two territorial knowledge dynamics with accompanying firm-

level knowledge dynamics in the moving media sector in Skåne. In the first, we study knowledge dynamics within computer game development using a micro-level study of the development of the serious game 'Agent O'. In the second, we analyse cross-sectoral knowledge dynamics related to film production and tourism using a micro-level study of the marketing collaboration 'The Film Track'.

Since a broad definition of knowledge has been used, the following different aspects of knowledge have been included in the analysis.

- Knowledge types: analytical, synthetic and symbolic knowledge
- Knowledge phases: exploration, examination and exploitation
- Knowledge processes: cumulative and composite knowledge processes

From a policy perspective, it is important to understand which knowledge types, phases and processes are at play when policy instruments are designed and applied. To achieve a deeper understanding of knowledge interactions, we use three main strands of debate and concepts: first, we use local buzz and global pipelines; second, ideas of path dependency; and third, concepts of regional innovation systems, such as clusters and triple helix. These concepts are explained in chapter 2.

Knowledge anchoring

One approach in the analysis of knowledge dynamics in game development and film tourism in Skåne has been to look at how knowledge flows into the region and how the knowledge is then recirculated. This process is called knowledge anchoring. Knowledge anchoring has been analysed by looking at activities that could be connected to four different channels: namely, 'firm-level interactions', 'acquisition of codified knowledge',

'work-place or job-related mobility', and 'events'. In this analysis, we used results from the other European case studies performed within the EURODITE project to provide a wider perspective on the Skåne cases.

By looking at activities that are more concrete and mechanisms for having an inflow and recirculation of knowledge, it has been shown that processes of buzz and global pipelines are difficult to separate. Instead, we

conclude that the inflow and recirculation of knowledge may occur at the same time and in complex mixes of processes and channels. For example, knowledge anchoring through firm-level interactions takes place through both organised networks and direct interactions between firms. These processes are often influenced by higher education institutions. Acquisition of codified knowledge is not often mentioned explicitly in the case studies. The channel ‘work-place or job-related mobility’ provided examples of people with dual positions: at a university as a lecturer and in a firm. Such mobility strengthens knowledge transfer between academia and the business community. We also see that different kinds of events are an important channel for having an inflow and recycling of knowledge. Public policy has been highly influential in relation to this channel. Funding is available for organising events within regions attracting extra-regional knowledge and for individuals to participate in events outside the region.

Firm-level knowledge dynamics: A deeper understanding of knowledge types, phases and processes

Firm-level knowledge dynamics concern how knowledge is developed and transferred at a micro level, within a firm or an organisation, or within a network. Looking at these knowledge interactions, we can conclude firstly that they have a multiscalar character. Both the firm-level knowledge dynamics studied in Skåne include a combination of knowledge interactions among actors at small and large distances, nationally as well as internationally. The local context is of great importance for game development. However, an extended spatial network with MIT (Massachusetts Institute of Technology) in Boston was crucial in the process of developing the game ‘Agent O’. The knowledge dynamics of ‘The Film Track’ is also characterised by collaboration among three regional attractions and interactions with a mixture of visitors from the local and international markets. The producer–consumer interactions in which these visitors take

part at the attractions represent a phenomenon that is increasingly identified in research on innovation as user-driven innovation.

Furthermore, we conclude that knowledge interactions have a multi-actor character. A variety of actors, ranging from public agencies such as local authority departments and higher education institutions, to individual entrepreneurs, are included in the studied knowledge dynamics. Individuals belong to different networks that are interlinked and overlaid, facilitating knowledge interactions across contexts.

The importance of symbolic knowledge in firm-level knowledge dynamics should be highlighted. This kind of knowledge is often connected with other types of knowledge, such as analytic knowledge, as in the case of the source code needed to develop ‘Agent O’.

The research shows that the knowledge phases—exploration, examination and exploitation—are interlinked and may take place at the same time. The complexity of innovation processes—for instance, in combining different kinds of knowledge and actors—is also evident. This research has shown that the development of an innovation is a non-linear process, although it is often considered a knowledge chain. In the Skåne case studies, this is evident in the interaction between the visitors to Cineteket and those working there. This type of interaction brings knowledge about market demands and contributes to product development. In innovation discourse, such interaction echoes the concept of user-driven innovation. Our case study and results from other EURODITE case studies suggest that this aspect of consumer–producer interaction in the innovation process is highly relevant and worthy of further attention and research.

When it comes to knowledge processes, we have demonstrated that knowledge interactions take place across sectors; for instance, film production and tourism. Composite knowledge is an important dimension of cross-sectoral knowledge interactions, and is a good seed-bed for innovation.

Policies influencing new media at the regional level

The project has conducted a systematic discussion of public policies in relation to knowledge interactions in new media, providing an overview of the characteristics of public policies linked to the new media industry in Skåne, and providing an outlook to two other new media case studies in EURODITE. The analysis has covered organisation, strategy, policy instruments and knowledge impact of public policies influencing the development of new media at the regional level.

In terms of organisation of policies, municipalities have been found to be influential as drivers of economic development initiatives, unlike in the other European case studies.

The strategy of new media policies mainly concerns processes of modernisation and creativity. Policies have been found to support the establishment of regional systems of new media firms built around a combination of cluster strategies and the development

of infrastructure to support the industry, as well as to enhance the attractiveness of the region to extra-regional actors.

Our research shows that symbolic knowledge may have been underestimated in the knowledge economy and innovation discourses. Across the board, many policy instruments within the framework of the knowledge economy have focused on research, scientific knowledge and engineering; i.e., on analytic and synthetic knowledge. In the EUODITE case studies, we can see that symbolic knowledge is important not only in sectors that are high in symbolic

knowledge in the first place, such as new media, but also, for example, in cases related to ICT and Food and drink.

The available resources for policy instruments are mainly financial and organisational. Various funding programmes exist for new media actors, and a number of 'soft' measures in the form of networking initiatives are in place. Examples of public policies that facilitate a combination of analytic and symbolic knowledge are in place in Skåne, with Malmö University, the incubator Minc, and Living Lab New Media as examples of cross-sectoral activities.

Conclusions and main findings

The case studies of game development and film tourism in Skåne illustrate the coexistence of knowledge dynamics within moving media. However, in any region, there is a vast amount of intertwined evolution of knowledge dynamics. The main findings regarding knowledge dynamics from the case studies performed within the EUODITE project can be grouped in the following three key points.

- Cross-sectoral knowledge interactions are innovative and drive product development. Composite knowledge processes drawing on different disciplines and fields of expertise are at the heart of the processes.
- Knowledge interactions are multiscale. All cases of territorial and firm-level knowledge dynamics

include some kind of highly relevant extra-regional knowledge interaction. Actors who are firmly connected to other local and regional actors utilise extra-regional knowledge when needed. Multiscale interactions are supported by policy instruments, ranging from cluster organisations to support for organising and participation in various events.

- Knowledge dynamics include many actors. Knowledge interactions include many types of actors conducting a variety of knowledge interactions. The activities performed by various kinds of actors support the conclusion of combinatorial and cross-sectoral knowledge interactions promoting innovation.

Policy implications

If these are the characteristics of the processes related to knowledge dynamics, then what are the policy implications? In terms of policy considerations, this research clearly shows that 'one size does not fit all'. How will policy actors assist the cross-sectoral, multiscale nature of, and the multiplicity of actors involved in, knowledge dynamics and interactions? To what degree is management of such processes desirable and possible? Brokering, funding and sometimes managing platforms, clusters and network organisations are common policy support measures in this field. This research has shown

that the mechanisms and channels through which actors in regions tap into global knowledge flows are very complex. A multitude of strategies and actions is utilised by firms, higher education institutions and other actors to seek out and to utilise the knowledge needed wherever it is located. Progressive policy actors support such mechanisms and processes in a tailor-made way rather than restricting their focus to supporting region-internal networks and linkages. This is a proactive way of avoiding lock-ins and promoting innovative regional development.

1. Regional trajectories to the knowledge economy—the project

The main objective of the Regional Trajectories to the Knowledge Economy: A Dynamic Model³ project was to investigate how knowledge is generated, developed and transferred within and among firms or organisations and their regional contexts. The reason for exploring the dynamics of knowledge is that a knowledge-based economy is considered vital for competitiveness in the global economy. Knowledge is also considered crucial for innovations. Over the past decade, policies have consequently been developed to encourage knowledge production and innovation to contribute to economic development. This development is strongly related to the strategic goal established at the Lisbon summit ‘that Europe should become the most competitive and dynamic knowledge-based economy in the world,

capable of sustainable economic growth with more and better jobs and greater social cohesion’.⁴ According to the Lisbon Agenda, this was to be achieved by preparing the transition to a knowledge-based economy and society through better policies for the information society and R&D, by stepping up the process of structural reform for competitiveness and innovation and by completing the internal market’.⁵ However, progress has generally been slow in Europe. Despite good intentions, policies are not delivering innovation at the rate that had been hoped. The fact that the goals have not been achieved in 2010 resulted in the launch of the strategy document EUROPE 2020 A European strategy for smart, sustainable and inclusive growth in March 2010.⁶

1.1 Understanding knowledge dynamics

EURODITE is a multidisciplinary project including researchers from economic geography, organisational theory, economics, management theory, business administration, sociology and other disciplines. This means that from a theoretical and conceptual point of view, the project draws from a multitude of academic disciplines and sources. Some of the key concepts are briefly introduced here in Chapter 1. These concepts have formed the starting point for the empirical research in EURODITE. Chapter 2 introduces further academic topics and concepts that were utilised in the analysis of the empirical work in this report.

In the EURODITE project, knowledge was understood as a process, where certain firm competences are used to acquire new, economically useful knowledge. A key concept in the project for investigating how knowledge is generated, developed and transferred has been knowledge dynamics. According to Strambach, the core of knowledge dynamics is that changes in

knowledge are the driving force behind innovation. Knowledge dynamics arise through changes in knowledge itself and in the various ways in which knowledge moves, is transformed and created. A result of knowledge dynamics may be an innovation in, for instance, a new or improved product (good or service), organisation or process.⁷ Specifically, knowledge dynamics are related to interactions of individuals or groups of actors who are directed to learn, seek and diffuse new knowledge, and to apply old and new knowledge in the economy. This may include many activities such as employment of knowledge workers, education, training, consulting and in- and outsourcing.⁸

In the empirical case studies of EURODITE, research into knowledge dynamics has been conducted. The empirical case studies are based on the following building blocks: region, sector, territorial knowledge

⁴The Lisbon European Council 23 and 24 March 2000

⁵The Lisbon European Council 23 and 24 March 2000

⁶European Commission (2010).

⁷Strambach (2008) p. 153-154.

⁸Crevoisier et al (2007) p. 2.

³The project is known as EURODITE, see further in the Preface.

dynamics and firm-level knowledge dynamics, as outlined in Figure 1.1 and discussed below. Better understanding of how knowledge is developed within various sectors and types of businesses, how it is transferred, and the role of regional contexts, such as public actors, higher education institutions and networks of firms, can contribute to insights into how policies may be developed and used to facilitate knowledge dynamics. This in turn can contribute to increased regional competitiveness.

1.1.1 The regional context and knowledge dynamics

The point of departure for selecting an empirical case study was a region. In the EUODITE project, and the spin-off project REKENE,⁹ the aim has been to explore *knowledge dynamics* in selected regions. In EUODITE, 22 regions in 13 countries have been studied; and in REKENE, seven regions in four countries were researched. In this report, we primarily highlight findings from the exploration of knowledge dynamics in Skåne, Sweden, which is the case study conducted by the Nordregio research team. The reason for starting from a region is that the regional level was considered crucial in the development of a more competitive Europe. Increasing attention has been paid to regions as designated sites of innovation and competitiveness in the globalising knowledge-based economy, and there is an extensive body of literature stating that regions are an important source of competitive advantage in the growing global interregional competition.¹⁰ The notion of regional competitiveness gained ground with Porter's *The Competitive Advantage of Nations* (1990).¹¹ The concept of clusters, first coined by Porter, and the development of related concepts, such as industrial districts, innovative milieus, learning regions and regional innovation systems, have all been described as important in relation to competitiveness that extend the boundaries of individual firms but that operate within the boundaries of a (loosely defined) territory.¹² However, in the EUODITE project, as discussed further below, it is assumed that knowledge dynamics are not restricted to bounded territories such as administrative regions. Instead, the assumption is that knowledge interactions stretch across administrative borders but because the regional context appears to play a role in knowledge interactions, for instance, in discussion of policies, a region is used for the empirical case study.

⁹ See further about REKENE in the preface.

¹⁰ See for instance Asheim & Coenen (2005); Boschma (2004) and Visser & Atzema (2008).

¹¹ Porter (1990).

¹² Boschma (2004).

1.1.2 The sectors and knowledge dynamics

In addition to a region, one of the following seven strategic sectors has been a basis for selecting an empirical case study in EUODITE.

- Automotive
- Biotechnology
- New media
- Food and drink
- Information and communication technologies (ICT)
- Knowledge-intensive business services (KIBS)
- Tourism

The seven sectors were chosen because innovation is considered important because of large knowledge content in some of the chosen sectors, such as biotechnology and ICT. In addition, there is an unleashed potential regarding innovation despite high growth rates in some other sectors, such as tourism and food and drink. The sectors include high-, medium- and low-tech companies. An assumption here was that the sectors would represent different kinds of knowledge dynamics in both goods and service production. However, it is important to stress that the predefined sectors were only meant as a basis for the empirical case study. A challenge for sectors in general is that it is a rather static category that does not always fit the complex reality of knowledge dynamics. We see that many innovations and knowledge interactions tend to occur across sectors. This is evident in the empirical case study investigating knowledge dynamics in Skåne.

1.1.3 Territorial and firm-level knowledge dynamics

In empirical case studies, the key approach has been to investigate knowledge dynamics from a territorial and a firm-level perspective.

Territorial knowledge dynamics concern knowledge exchange, networks and interactions among actors from a spatial perspective. Key actors may include firms, higher education institutions, chambers of commerce and local and regional authorities. The spatial focus stresses the importance of the regional level while emphasising that interaction is not constrained to an administrative regional level. In contrast, territorial knowledge dynamics are seen as multiscale and may include important interactions at great distances. Understanding territorial knowledge dynamics requires the probing of issues such as the role of proximity and distance in terms of knowledge interactions and the importance of mobility of different actors and individuals. Special attention is paid to how various

types of policies affect the knowledge dynamics. These policies may stem from the supranational, national, regional or local levels, but it is the way that the policies are realised at the regional level that is in focus.

While the territorial knowledge dynamics provide the context, the *firm-level knowledge dynamics* aim to contribute with depth and more details about knowledge dynamics. Firm-level knowledge dynamics thus concern how knowledge is developed and transferred at a micro level: within a firm or an organisation, or within a network of firms or organisations. The research

framework uses a knowledge biography approach in investigating—or more precisely, tracing—knowledge dynamics starting from a change in product, process or organisation. Key events of knowledge interaction are identified in an attempt to understand the processes and the role of different actors aiming at ‘telling the story’ of the change from idea to implementation. The links between firm-level and territorial knowledge dynamics, for instance, are seen through the interaction among actors.

1.2 Territorial and firm-level knowledge dynamics studied in the Skåne region

In this report, we describe and analyse two territorial knowledge dynamics with accompanying firm-level knowledge dynamics in Skåne. Thus, the report aims to highlight the role and development of knowledge in the regional economy of Skåne. From a Swedish perspective, it is of special interest to examine knowledge dynamics in Skåne because the directly elected regional council, *Region Skåne*, has been appointed to handle regional economic development issues. Sweden has an asymmetrical regional governance structure. For the past 10 years, Region Skåne and the Västra Götaland region have had extensive responsibility for regional development policies. These competencies were taken over from the county administrative boards. Hence, compared with the period before this devolution, and with many other regions in Sweden, Region Skåne has potential to make longer-term strategic decisions about regional development with greater funding to realise the strategies. Findings from the EURODITE and REKENE projects are used in the discussion and analyses of the Skåne empirical case study to contribute to a wider European perspective.

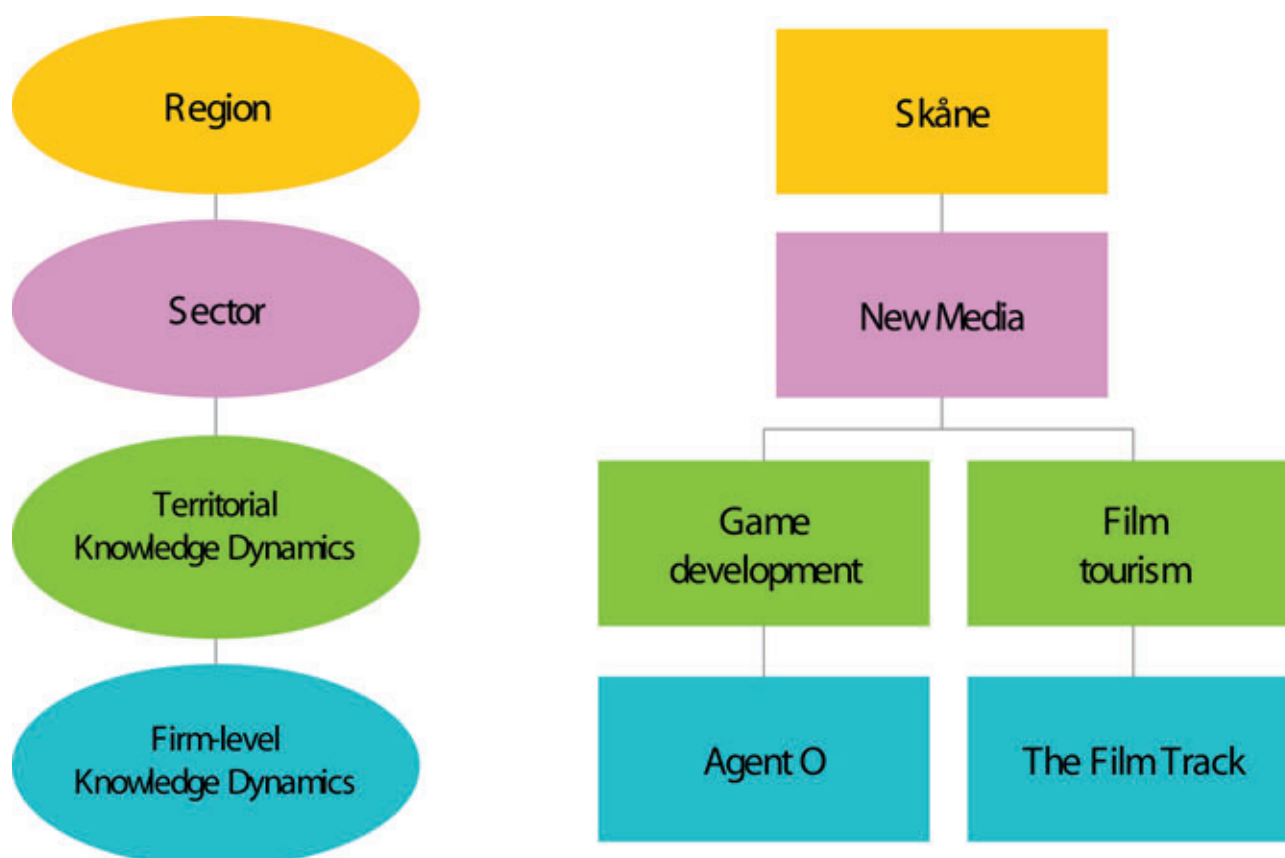
The territorial knowledge dynamics studied in Skåne begin with the EURODITE new media sector. In the Skåne case study, it is most appropriate to focus the study on ‘moving media’.¹³ The first example of territorial knowledge dynamics focuses on the increasing interconnectedness among moving media actors in Skåne, which contributes to growth in computer game development. The attached firm-level knowledge dynamics study the development of the serious game ‘Agent O’.

The second example of territorial knowledge dynamics focuses on the increasing interconnectedness among actors related to film production and those related to tourism in Skåne, which contributes to the development of film tourism in the region. The attached firm-level knowledge dynamics deal with the development of Film Spåret (The Film Track), a collaboration aimed at joint marketing of attractions connected to film production in Skåne.

An illustration of how the empirical case study conducted in Skåne fits the EURODITE framework, including the elements of region, sector, territorial and firm-level knowledge dynamics, is displayed in Figure 1.1.

¹³ See further section 3.2.

Figure 1.1 *Structure of empirical research in EURODITE and the studied territorial and firm-level knowledge dynamics in the Skåne region*



1.3 How the study was conducted

The aim of studying knowledge dynamics is to unravel the processes of knowledge interactions and to identify types of actors involved in the processes. An essential part of the research is based on interviews with key informants,¹⁴ mainly conducted face-to-face during field-work, but in some cases via telephone, and in one case using only email. Because the research deals with interactions and networks among different actors and is particularly aimed at identifying knowledge exchange and development, it would not have been possible to discover so much about such processes in any other way. Furthermore, we are interested in where the different actors are located. An advantage of this method is that these issues may be broached and discussed with actors involved in knowledge interactions. At the same time, it means that we became very dependent on the information from the interviewees, and it could be difficult to verify information and to maintain a distance from the informants. Although we have attempted to speak with different actors and to obtain several people's views, it is important to remember that we obtained 'stories' and had to handle our information as such. In

addition to the interviews, information was gathered through the reading of policy documents, reports, academic literature and Internet homepages.

At the heart of the firm-level case studies are the so-called 'knowledge biographies' in firms and organisations. The 'knowledge biography' method is an innovative approach providing a deeper understanding of knowledge dynamics in firms and regions. We have traced the development of a product, service or goods that have been developed. Interviews have been used to obtain basic information about the space and time dimensions of knowledge dynamics. What important knowledge interactions have occurred to develop the product? Who were the actors? Where were they located? What type of knowledge did they contribute? All information was gathered through semi-structured interviews and from home pages or documents. The 'knowledge biography' method can capture the diversity of the social environment of a firm or organisation and can identify knowledge flows as well as obtaining information about partners inside and outside it.

We would like to stress that both the territorial and firm-level knowledge dynamics were studied over a

¹⁴ A list of interviewees is provided under 'References'.

particular period. We examined knowledge interactions that occurred in the past and over a limited time period. The empirical field-work began in May 2007. In the case of the knowledge dynamics in game development in Skåne, the empirical research was completed in May 2008. In the case of knowledge dynamics in film tourism in Skåne, the empirical research continued until September 2008. Since then, only a few updates have been made. Furthermore, it is important to stress that all interviews were conducted before the global financial crisis began in autumn 2008. Conditions would most

likely have been different if the interviews had been conducted after September 2008. For instance, most companies faced a lack of labour when the interviews were performed.

The aim of the case studies has not been to map all actors and all knowledge interactions completely. This would not be possible. Moreover, it is important to remember that knowledge dynamics are ongoing processes, and therefore the processes that we have captured should be seen as 'snapshots' covering the time periods of the empirical research.

1.4 Disposition of report

After this introduction to the project, we turn in Chapter 2 to a presentation of the conceptual framework employed in the project. Some key debates that have been considered in the analysis of the empirical findings will also be presented. Chapter 3 consists of a description of the regional context of Skåne, the sectors that are studied and brief summaries of the territorial and firm-level knowledge dynamics that form our empirical case study. Following this descriptive chapter, a deeper analysis of the territorial knowledge dynamics will be conducted in Chapter 4. A special focus of this analysis is the question of how extra-regional knowledge is accessed and recirculated within the region, and how it is anchored. Chapter 5 concerns firm-level knowledge dynamics analysed in relation to the elements of knowledge types, phases and processes. In addition, emphasis is placed on the role of geographical distance

and proximity within knowledge dynamics. A systematic discussion of public policies in relation to knowledge interactions in new media is conducted in Chapter 6. Here the policies concerning these issues in Skåne are discussed in relation to the two other case studies of new media in EUROTITE. Finally, in Chapter 7, we conclude with some reflections on our in-depth studies of knowledge dynamics and a brief discussion of policy implications of the study.

To aid the reader of the report, we have assembled a list of abbreviations, which can be found in Appendix 1. For Swedish names of actors and institutions, we have used their English names if there is an official translation. If not, the Swedish name is used. The first time the name is mentioned, an English translation is provided.

2. Key concepts and issues in knowledge dynamics from a territorial perspective

The aim of the EURODITE project is to investigate how knowledge is generated, developed and transferred within and between firms or organisations and their regional contexts. Consequently, territorial aspects of innovations in general and knowledge interactions in particular are scrutinised. In this chapter, we first address some key concepts regarding knowledge types, phases and processes that have been used in the EURODITE

project. In addition, we refer to some key issues in knowledge interactions from a territorial perspective. This literature deals with specific interactions among actors and policies to support knowledge interactions of various kinds. Central concepts of the debates include local buzz and global pipelines, path dependency, clusters, regional innovation systems and triple helix.

2.1 Key concepts used in the EURODITE project

To study territorial and firm-level knowledge dynamics, we need to address further elements that are important for a deeper understanding of knowledge dynamics and interactions. These elements constituted the key framework for the empirical case studies of EURODITE.

2.1.1 Knowledge dynamics and knowledge types

As mentioned above, knowledge has been understood as a process that uses given firm competences to appropriate new economically useful knowledge. Because this is a rather broad definition of knowledge, it is necessary to distinguish between different types of knowledge that may be encountered in the empirical case studies. This was considered important because knowledge develops from various fields and sets of players, and integration of different kinds of knowledge is needed for innovation.

For knowledge types, the point of departure in EURODITE was the discussion of analytical, synthetic and symbolic knowledge.¹⁵ In EURODITE, these concepts were operationalised to guide the empirical work in the following manner. *Analytical knowledge* is understood as research-based knowledge, primarily

¹⁵ There is an increasing academic literature dealing with this issue, and references can be made to many researchers. See for example the discussion in James et al (2010a). A useful starting point can be Asheim et al (2007).

developed through scientific exploration. *Synthetic knowledge* was considered a result of a secondary-stage combination of analytical and (perhaps) of symbolic knowledge. For instance, engineering knowledge is said to be synthetic because it derives from application as well as from original (scientific) research. *Symbolic knowledge* relates to knowledge about representation. For example, the ‘styling’ of a product, organisation or process in a way that may convey an image that appeals to certain consumers. It may also include knowledge that contributes to the development of a brand symbolising certain characteristics of a product. Furthermore, how to develop, manage and protect this abstract quality can be described as symbolic knowledge.¹⁶ In research into knowledge, a distinction is often made between tacit and codified knowledge. In the EURODITE project, this distinction was important for investigating whether and how the transfer of different types of knowledge varies; for instance, in relation to geographical distance and proximity. The operationalisation of this distinction was as follows. *Codified knowledge* has been understood as knowledge that can be represented in writing or another kind of digital or analogue format. Therefore, codified knowledge can be transmitted to others who are prepared to make sufficient investments—for instance, in time or money—and can absorb and utilise it. Codified knowledge can be transferred without a requirement for geographic proximity among actors.

¹⁶ EURODITE (2007)

However, for it to be absorbed and used, ‘cognitive or relational proximity’ may be necessary.¹⁷

In contrast to codified knowledge, *tacit knowledge* is understood as knowledge that largely comes from practice and is embodied in people.¹⁸ Asheim *et al.* state that tacit knowledge is difficult to codify because it is articulated ‘through practical skills and cannot be reduced to numbers, graphs, maps, diagrams, texts, formulas, etc.’¹⁹ They argue that face-to-face contacts or ‘buzz’ are consequently important for a transfer of tacit knowledge. This will be elaborated further in Chapter 4.

However, it is not possible to separate tacit and codified knowledge entirely, because they usually coexist. In practice, tacit knowledge is, for instance, often necessary to understand codified knowledge. An example is that laboratory results can be codified, but in experimentation, there are many subtleties of method that are known to the experimenters. This is unique to them and is the value added they retain.²⁰

2.1.2 Knowledge dynamics and knowledge phases

To understand the complexity of firm-level knowledge dynamics, it was necessary to distinguish various knowledge phases. Here a distinction is made among the phases of exploration, examination and exploitation. However, it is important to stress that knowledge dynamics seldom entail a linear process. This means that innovations are rarely developed in a research laboratory, tested and then applied in a market. Instead, the development may take place in various phases at the same time, and there may be loops between these phases. This may be related to the increased number of interactions between producers and the end-users. However, by examining knowledge dynamics considering these phases, more knowledge on how the phases are connected and the loops between them was achieved and thereby hopefully contributed to a deeper understanding of the mechanisms of knowledge dynamics. We also investigate whether different types of actors tend to be more active in some phases. From

a policy perspective, it is relevant to the kinds of phases for which policy instruments are designed and applied.

The *exploration phase* is often described as the first step in a knowledge chain. This phase is characterised by the action of searching for new knowledge or maintaining and developing existing knowledge. The phase may include scientific knowledge but does not necessarily do so. An example where scientific knowledge is not included may be searching for upstream or downstream collaborators or competitors as an exploration process that may lead to new knowledge. The *examination phase* was understood as a testing phase where the veracity and applicability of the knowledge is considered. Here an example is subjecting a potential new therapeutic method to clinical trials. Another example might be stress testing of a new material or component. Finally, the *exploitation phase* can be seen as the ‘selling’ or ‘using’ phase where knowledge is put to use. This may be for financial return but may also, as in academia, be for status, position or recognition.²¹

2.1.3 Knowledge dynamics and knowledge processes

As stated above, the point of departure for the EURODITE project is that knowledge is about processes. It has also been mentioned in the discussion about the sectors that innovations tend to take place across sectors and across academic disciplines. To investigate this dimension further, a distinction was made between cumulative and composite knowledge processes when we studied knowledge dynamics empirically. A *cumulative process* is where new knowledge builds upon, and depends directly on, existing knowledge within the same field or discipline. An example is a scientific discovery that adds to previous discovery. Thus, the ‘body of knowledge’ is increased. A *composite process* comprises and depends upon several disciplines or functional areas of knowledge. These might include various sources of analytical or science-based knowledge.²² It is thus typical for the process of generating composite knowledge that different and basically separated knowledge stocks are brought together. However, each knowledge stock may be anchored in a cumulative knowledge process.²³

¹⁷ EURODITE (2007). Such proximities can for example relate to factors such as the shared understanding between people working within the same discipline.

¹⁸ EURODITE (2007)

¹⁹ Asheim *et al* (2007) p. 655.

²⁰ EURODITE (2007)

²¹ EURODITE (2007)

²² EURODITE (2007)

²³ Strambach & Stockhorst (2010)

2.2 Key debates for understanding knowledge dynamics from a territorial perspective²⁴

There is a vast body of literature available on the role of the regional context for territorial dimensions of innovations and knowledge interactions. Below, some key issues that we have used as a framework for the findings of the empirical case study are described. The first issue concerns local buzz and global pipeline. This includes both the importance of the regional context for knowledge interactions and interactions with actors at remote locations. The second issue concerns the concept of path dependency and the role of history and institutional setting in knowledge interactions and regional development. The final issue elaborates on the development of the concepts of regional innovation systems, clusters and the triple helix approach now being applied in various policy instruments aiming at supporting knowledge development and transfer.

2.2.1 Local buzz and global pipelines—a way of understanding territorial knowledge interactions

To achieve a deeper understanding of knowledge interactions from a territorial perspective, the concepts of *local buzz* and *global pipelines* have been applied. These concepts have been developed to show how knowledge interactions among actors at the local or regional level are combined with interactions with actors at a more distant level. Consequently, the model is intended to explain the role of both inter-regional and extra-regional interactions. In this discussion, we find references to the relation of territorial dimensions to a variety of knowledge types; for instance, analytical, synthetic and symbolic as well as tacit and codified knowledge.

According to Bathelt,²⁵ buzz can be understood as information, knowledge and inspiration that circulate among the actors of a cluster. The buzz may consist of specific information flows, knowledge transfers and continuous updates that take place in both organised and spontaneous meetings. Bathelt argues that buzz is based on the co-location within a region of many firms in one value chain that share face-to-face interactions on a regular basis. Thus, buzz can be defined as the non-deliberate acquisition of knowledge through interaction, in contrast to more deliberate actions such as monitoring of competitors, sharing of knowledge

among suppliers and customers, and collaboration on specific projects.

To avoid negative 'lock-in' in a region, local buzz may be combined with extra-regional linkages or 'pipelines'. These global pipelines may, for instance, offer access to new knowledge about markets or technologies. By looking at the development of new knowledge in the Boston biotechnology industry, it could be concluded that new knowledge was developed based on both local and regional interactions, and extra-regional and international partnership and networks.²⁶ Global pipelines have been used for describing the channels of knowledge flow between regions located in different parts of the world. Compared with local buzz, the knowledge transfer through global pipelines may be seen as more structured and explicit.²⁷

The concepts of local buzz and global pipelines have been criticised because precise understanding of the mechanisms by which actors in, for instance, a cluster gain access to knowledge at different spatial scales is missing.²⁸ There have been additional nuances regarding buzz. According to Asheim *et al.*,²⁹ buzz cannot simply be translated as face-to-face communication. Instead, face-to-face communication is above all related to transfer of tacit knowledge, while buzz is important for symbolic knowledge. It has also been demonstrated that buzz cannot be regarded as unplanned and unstructured. Instead, it can be seen as a planned process performed by a number of actors in different stages of innovation processes.³⁰ The characteristics of knowledge interactions are consequently not so distinct that they could be considered typical of local buzz or global pipelines. The same kind of interactions may take place regardless of where an actor is located. In this discussion, Boschma's distinction of five kinds of proximity (cognitive, organisational, social, institutional and geographical) may be used to understand the roles of different kinds of proximities. Physical proximity may facilitate learning or knowledge exchange but is not a necessity. Instead, the role of other kinds of proximities may be more important for knowledge interactions. These can be that the interacting people have a disciplinary proximity due to their professional training, or social proximity due to trust.³¹

²⁴ These key debates have been further elaborated in James *et al* (2010a) and (2010b).

²⁵ Bathelt (2007).

²⁶ Owen-Smith & Powell (2004).

²⁷ Bathelt (2007).

²⁸ Tripp *et al* (2009).

²⁹ Asheim *et al* (2007).

³⁰ Moodysson (2008).

³¹ Boschma (2005).

2.2.2 Path dependency and knowledge dynamics

The concept of path dependency is often associated with the statements ‘history matters’³² or ‘the past influences the future’. However, the concept can be broadened further; for example, to include the concept of lock-in. Regional development paths arise not only from historical legacy in a deterministic manner but also as an interrelation, or co-evolution, with local structures and human action.³³ Thus, both time and space form a development path, but history influences the possible options and probable outcomes of policies and strategies for developing new growth paths.³⁴ Variations in endogenous factors form the basis of development. Interaction with actors inside and outside a region is necessary for cumulative knowledge dynamics and learning to take place. Path dependency is strengthened by these self-reinforcing elements and structures that ‘lock-in’ certain pathways of development. In addition, exogenous factors such as changes in the global economy continuously alter the development of regions.

A successful regional development process is characterised by learning processes that moderate the development path. The processes of emergence or regeneration of a path can be initiated at the micro level in the following ways. The push factor may be novelty; for instance, in the form of new sectors or clusters, self-renewal, or diversification development and new development areas.³⁵

A process of negative path dependency, or lock-in, makes it difficult to introduce changes, perhaps because options to change have become limited. These lock-ins can be divided into functional, cognitive, and political forms. The *functional lock-in* refers to dominant working methods that do not permit new ways of doing things or allow upgrading and enhancement of existing industries. The networks are closed, and established coalitions block the widening of the existing knowledge and innovation base. *Cognitive lock-in* refers to an inflexible use of discourse and view of regional development actors who concentrate on sustaining the existing system. *Political lock-in* refers to political administrative coalitions that wish to remain in their positions and are unable to introduce changes in their working environment. Negative lock-in is a potential consequence of path dependency; however, it is not unavoidable.³⁶

2.2.3 Regional innovation systems, clusters and triple helix

Regional innovation systems and *clusters* are concepts concerning territorial innovation that have gained particular attention from both academia and policy-makers. The concepts are closely related, but as Asheim *et al.* stress, there are also distinct differences between the concepts.³⁷ Clusters can be defined as ‘a concentration of “interdependent” firms within the same or adjacent industrial sectors in a small geographical area’, whereas regional innovation systems can be described as ‘interacting knowledge generation and exploitation subsystems linked to global, national and other regional subsystems’. Clusters and regional innovation systems can coexist in the same territory. However, from a policy perspective, the sector-specific nature of clusters and the more generic sector orientation of regional innovation systems are significant.

The regional innovation system can be described as the institutional infrastructure supporting innovation in regional production. Thus, a regional innovation system involves two subsectors of actors actively engaged in interactive learning:³⁸ (1) the regional production structure or knowledge exploitation subsystem consisting mainly of firms, often displaying clustering tendencies, and (2) the regional supportive infrastructure or knowledge generation subsystem, consisting of such institutions as public and private research laboratories, universities and colleges, technology transfer agencies, and vocational training organisations. Moreover, the institutional context— i.e., norms, trust and routines— is significant for interactive learning, which informs innovation systems. An innovation system involves a systems perspective, which is the recombination of the economic dynamics of the market, the dynamics of knowledge-based innovation, and governance. The systems perspective that is used to inform innovation systems can be applied at different levels of governance, and can thereby be evident at national and regional levels, and in dynamic models such as the triple helix of university–industry–government relations.³⁹

According to the triple helix approach, strong relationships among universities, firms and government agencies are crucial in encouraging innovation within regions. In earlier phases of the triple helix thinking, there was a strong focus on natural sciences and technology transfer. Science parks and incubators are examples of the infrastructure that is often part of public policies supporting triple helix knowledge transfers.⁴⁰

³² David (1985).

³³ Bassani & Dosi (2001).

³⁴ Boschma (2004).

³⁵ Martin & Sunley (2006).

³⁶ Martin & Sunley (2006).

³⁷ Asheim & Coenen (2005).

³⁸ Asheim & Coenen (2005), p. 1177.

³⁹ Cooke & Leydesdorff (2006).

⁴⁰ Etzkowitz (2002).

Other examples include funding to link universities and firms in knowledge sharing and development.⁴¹ Technical and natural sciences still dominate triple helix thinking. However, in line with a move within innovation policies from a focus on technological innovations to a broader innovation concept including services innovation, triple helix thinking too has become more widely used than its previous narrow focus on

technology. More recently, it has, in some cases, become shorthand for almost any strategy that focuses on knowledge interaction for development, innovation and growth where all three spheres of industry, universities and government are active. An example of this is the Swedish Governmental Agency for Innovation Systems (VINNOVA).⁴²

2.3 Concluding comments

To summarise, in this chapter, we have presented and discussed some of the key concepts used as a starting point for the empirical case study. We have also introduced the key issues to which we refer in placing the empirical case studies in a broader theoretical framework. The following chapter includes

an introduction to the regional context of Skåne as well as brief summaries of the territorial and firm-level knowledge dynamics studied. In Chapters 4, 5 and 6, we return to the key concepts and issues in the analysis of the empirical findings of the studies of territorial and firm-level knowledge dynamics.

⁴¹ Benner & Sandström (2002).

⁴² James *et al* (2010b)

3. Knowledge dynamics in moving media in Skåne

In this chapter, the empirical case studies conducted in Skåne are described. The analysis of the case studies follows in Chapters 4, 5 and 6. The chapter provides an overview of the different focus areas of the EURODITE project, which involve: region, sector, territorial and firm-level knowledge dynamics (see Figure 1.1). First, the region of Skåne is briefly introduced to provide a context for the case study. Secondly, the characteristics of the new media sector are provided, focusing on its moving media subsector, which is at the centre of

this study. Following this contextual background, the empirical case studies are introduced. These consist of two sets of territorial knowledge dynamics with linked micro cases of firm-level knowledge dynamics. The first case study involves territorial knowledge dynamics in game development with a micro case study of the development of the serious game Agent O. The second case study deals with film tourism with a micro-level case study of a marketing collaboration among three tourist attractions in the region: The Film Track.

3.1 The Skåne region

The Skåne region is based in the southernmost part of Sweden. Its area is approximately 11,000 km². Skåne is surrounded by sea on three sides, and to the west of the region, across the narrow strait of Öresund, is the capital region of Denmark (see Figure 3.1). The number of inhabitants in Skåne is over 1.2 million, which accounts for approximately 13% of the Swedish population. The population is growing faster than the average in Sweden, mainly because of immigration.⁴³

There are 33 municipalities in Skåne, and 90% of the population live in urban communities. The largest cities are located in the western part of the region: Malmö with over 294,000 inhabitants, Helsingborg with 128,000 and Lund with 110,000.⁴⁴

The early economic structure of Skåne was based on natural resources such as agricultural products and limestone, and from the 19th century also on the textile industry and engineering, especially in the coastal cities of Malmö, Landskrona and Helsingborg. Lund has one of the oldest universities in Sweden and is a traditional academic centre. The industrial production and engineering underwent a thorough economic restructuring from the 1960s to the 1990s. The service sector started to grow during the 1970s. New sectors, such as IT and medical technology, started to develop gradually in the 1980s. In 2000, the economic and social settings of Skåne were changed profoundly

when the road and rail bridge to Denmark was opened. Skåne is far from the Swedish capital city Stockholm (approximately 600 km), but the distance to the Danish capital Copenhagen over the Öresund Sound is only a few kilometres. However, because of an earlier transport bottleneck, the connections in both passenger and goods transport between these cities were limited. Together, the Skåne and Copenhagen metropolitan regions form the cross-border region of Öresund. The region has 3.6 million inhabitants.⁴⁵

After a strong agricultural and industrial history, Skåne is at present characterised by a private and public service sector economy. Large and medium-sized companies provide the major source of private employment, often in transnational firms. Small firms in particular operate in farming, business-to-business services and trade. The public sector is a large employer, not least within the higher education and health sectors. Research and development and education account for 12% of the region's employment. In line with the general pattern in Western economies, there has been a decline in employment in primary and secondary industries and a growth in the service sector. The number of business start-ups per 1,000 inhabitants is higher than the national average in Skåne but clearly lower than in Stockholm County.⁴⁶

⁴³ SCB (2009).

⁴⁴ SCB (2009).

⁴⁵ Karppi & Takkala (2007).

⁴⁶ Skåne-Blekinge län (2007).

Figure 3.1. Overview of the Skåne region



The large intraregional differences within the Skåne region are significant. At the subregional level, the economies are quite different, as is the settlement pattern and the infrastructural links with neighbouring economies. The manufacturing industry of south-western Skåne has an employment profile that is high in both knowledge and research and development. When manufacturing industries are classified into the four categories of labour intensive, capital intensive, knowledge intensive and R&D intensive, this part of Skåne scores slightly higher than the national average on the two latter categories. In 2003, one-third of the employees in the manufacturing industry of this subregion worked in knowledge-intensive production (national average 31%) and 15% worked in R&D-intensive production (national average 14%). An important difference between these two categories is that the latter has a high share of employees with a PhD. The gross regional product/employment is particularly high in South-west Skåne, where the main cities of Malmö and Lund are located. The annual growth is also high in this subregion.⁴⁷

3.1.1 Regional development and cross-border collaboration

The Skåne region has a regional council with a directly elected body. It has been a Swedish pilot region where the competences at the county council level (mainly health care and regional transport) have been extended to include regional development with a focus on economic development. This competence was transferred from the County Administrative Board. The competences of Region Skåne also include a mandate to represent Skåne internationally; for example, within cross-border collaboration. The main reason for the pilot was to increase the efficiency of administration and development, and to develop a stronger democratic base among various actors in the region. The fact that the region holds this responsibility under a directly elected body is important with regard to the regions' opportunities to develop and implement regional development strategies. In 2009, this system was made permanent.

Cross-border co-operation has an important role in regional institutional settings, and political and practical co-operation is managed by several development institutions. Region Skåne and its neighbouring region

⁴⁷ Skåne-Blekinge län (2007) p. 17.

to the north-east, Blekinge, form a NUTS 2 unit. They collaborate with regard to EU Structural Funds and have produced a joint programme. The current programme (2007–2013) concentrates on innovation and renewal, accessibility, and city regions.⁴⁸ Both the national and the regional authorities are active in the Öresund Network, and they have established a service for integration, Öresunddirect. Öresund Science Region was established for academic and private business research. There is a co-operation network for the following fields: the life science cluster (Medicon Valley Academy), the Öresund IT Academy, the Food Network, the Environment Academy, Öresund Logistics, Öresund Design and the regional university structure (Öresundsuniversitet). After an INTERREG project, an organisation for film development—the Öresund Film Commission—was also established. The main challenge is that the region is part of the EU but not the EMU, and there is no single currency in the area. There is also a need to harmonise different laws and social regulations such as taxation and social insurance. The area is, however, a platform for local and regional innovations because of the institutional richness with a co-operative atmosphere.

Skåne's regional development programme in 2004–2008 was focused on two growth areas: the business community and research and development. In terms of the strategy for the business community, the region aimed to support the development and promotion of clusters; to build networks with other regions nationally and internationally; to design a risk capital fund for Skåne; to streamline the consultancy

firms and to support new and existing business owners, especially women; to strengthen the promotion of Skåne as a place to visit and invest; and to strengthen technological transfer and development of competences in mature businesses. Within the growth area of research and development, the regional development programme aimed to build support for larger ventures in research and development in Skåne and the region of Öresund; to develop innovation systems with the purpose of transferring research results into products and businesses; to establish meeting places in the region to support the university's and university colleges' co-operation with the local community; and to promote commercialisation of research results; for example, through supporting patenting as well as advancing knowledge about patent and marketing strategies. Furthermore, the programme emphasised the importance of co-operating across sectors to increase learning.⁴⁹

Another important policy programme is the Regional Structural Funds Programme 2007–2013. The focus areas include innovative environments, which particularly aim at developing clusters by supporting cluster processes and actors. The moving media industry is mentioned as an upcoming cluster in the programme and has since been developed further as discussed in section 3.3.⁵⁰ The Structural Funds Programme is developed within the framework of the national strategy for regional competitiveness, entrepreneurship and employment 2007–2013.

⁴⁸ Tillväxtverket (2010).

⁴⁹ Region Skåne (2004).

⁵⁰ Skåne-Blekinge län (2007).

3.2 The new media 'sector'

New media is a growing sector in the knowledge-based economy, and it has increasingly become a focus of regional economic development strategies. The advent of new media was triggered by the advance of communication and information technologies that have changed the way media content is offered, assessed, owned and controlled. New media, like traditional media, is concerned with the transmission of information and knowledge but through new channels, new forms and new contexts. It therefore represents a convergence of telecommunications, computing and traditional media. Some authors suggest that it is problematic to classify new media as a distinct industrial sector, especially because of its overlap with traditional media, and that therefore it should rather be referred to as a common technological platform comprising different sectors. Examples of subsectors are wireless services, computer games and animation and interactive television and radio. New media is different from traditional media in three main ways: (1) the diversification of media forms, contents and channels, (2) the personalisation of media content, and (3) a shift from consumption to production.⁵¹

3.2.1 Moving media in Skåne

The difficulties with identifying new media as a sector also become clear when attempts are made to define new media in terms of statistical classifications. In this report, we use a classification made for the purpose of the development of a strategic programme for *moving media* in Skåne and Blekinge.⁵² In the strategic work with moving media in these regions, it is defined as 'content production within film, TV, computer games and mobile platforms'. In this report, we will focus on 'moving media' rather than 'new media' because the former is the terminology used for the strategic work in Skåne.

By defining moving media as a 'subsector', an attempt has been made to capture a specific group of firms and individuals focusing on 'symbolic' knowledge.⁵³ On the basis of employment figures, it is a very limited subsector. In 2005, it employed approximately 5,100 individuals in Skåne, or 1% of employment. The majority of people working in moving media in 2005 were men. This gender division was, however, within the bracket that is normally considered acceptable in terms of gender segregation. Men made up 59% of employment in moving media in Skåne, and women

41%.⁵⁴ Despite its small size, the subsector is interesting because moving media companies and individuals interact with companies and institutions belonging to other sectors; e.g., ICT and tourism (as displayed in the firm-level knowledge dynamics). This cross-sectoral interaction where moving media firms are involved contributes to innovation and value added in several sectors. Furthermore, moving media is a growth sector in Skåne. The growth builds on existing actors—e.g., the regional film production centre Film i Skåne (*Film in Skåne*) in Ystad—and a growing and thriving sector of companies in mobile user interface and computer games.⁵⁵ Moreover, Skåne holds the third largest pool of film workers in Sweden. A study of film production in Sweden from a film worker perspective indicated that there were around 295 film workers in the region in 2006. This is about 11% of all film workers in the country.⁵⁶

This report provides a study of film tourism in Skåne, which begins with the moving media sector; more specifically, film production. The basis of film tourism in Skåne is film production activities; hence, moving media is the primary sector, but some background information on the tourism sector is also needed for the case study. The definition of the tourism sector is widely discussed. It is a complex set of activities including many components. Tourists are people travelling away from home, either staying at least one night or crossing an international border. However, both tourists and local residents are users of tourism and leisure services such as transport, catering, attractions and scenic sites. Furthermore, in recent years, tourism has often been included in the concept of the experience economy. This concept may be linked to the objective of the purchase of a service; i.e., the experience, which is undoubtedly important for many of these activities. However, the same tourism services may be bought for different reasons by business tourists who may have travelled because of commitments other than their wish to encounter individual experiences. Halkier defines the tourism sector in an inclusive way as 'those private or public providers of services or infrastructure involved in facilitating [all] these activities'.⁵⁷

This report focuses on the production and provision of the services. Private tourists, business tourists and local residents using facilities for leisure and/or educational reasons all utilise film tourism products in Skåne. The film tourism territorial knowledge dynamics

⁵¹ Staines & Collinge (forthcoming).

⁵² Palo *et al* (2008).

⁵³ Different knowledge types, such as 'symbolic' knowledge, is further discussed in chapter 2.1. 1.

⁵⁴ Palo *et al* (2008).

⁵⁵ Dahlström & Hermelin (2008).

⁵⁶ Dahlström & Hermelin (2007).

⁵⁷ Halkier (forthcoming).

are also based on the new media sector; in this case, activities related to film production and activities in Skåne. Films shot in Skåne have influenced tourists to visit the region both for the sake of exploring the actual film stories and because the images of the region in the films have contributed to the decision to visit the region as a tourist. Both these types of tourists can be called

‘film tourists’, and this is the meaning of the word in this report. However, the narrow meaning of the word focuses on those who wish to ‘re-live’ the films or visit attractions associated with the films,⁵⁸ and these types of focus are more important with regard to the firm-level knowledge dynamics.

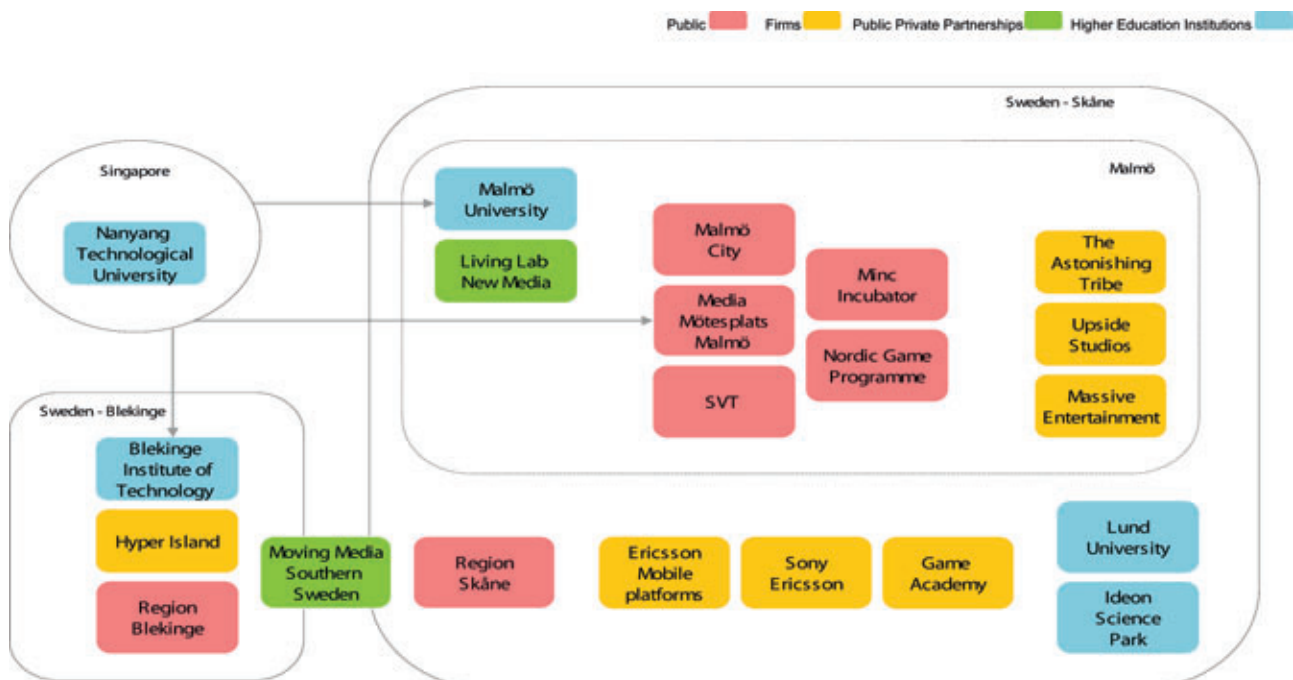
3.3 Knowledge dynamics in game development in Skåne

This section explores territorial knowledge dynamics in the knowledge interaction among actors in the field of game development in Skåne inside and outside the region. As discussed in Chapter 1, the purpose of studying knowledge dynamics is to identify important actors and processes of knowledge interactions among these actors. The aim is not to map all knowledge interactions within game development in Skåne. As knowledge dynamics are ongoing processes, it is important to point out that the actors mentioned in this section represent key actors in game development, particularly during the study period of May 2007 to May 2008. Since that period, only a few updates have been made as indicated at the end of section 3.3.1. Figure 3.2 therefore represents a snapshot of some key actors in the game development territorial knowledge dynamics in our study. There are clearly other actors in the knowledge dynamics.⁵⁹

3.3.1 Territorial knowledge dynamics in game development

Over the past decade, the region of Skåne, centred on the Malmö–Lund conurbation, has experienced extensive growth in the moving media industry. The development that has taken place in moving media represents both continuity and change. Moving media are closely related to the ICT and media industries, and in Skåne, there is a relatively long tradition in both these sectors. Thus, Malmö has a tradition for ‘old’ media with the presence of newspapers and various types of publishers, while Lund is a historical university town and has a strong ICT sector with Sony Ericsson and Ericsson Mobile Platforms as major players based there. The Faculty of Engineering at Lund University and Ideon Science Park are also important players in ICT. The various actors introduced in this section are illustrated in Figure 3.2.

Figure 3.2 Examples of key actors in game development in Skåne



⁵⁸ Dahlström (2008).

⁵⁹ See further discussion on how the study was carried out in chapter 1.3.

The establishment of Malmö University in 1998 has been influential on the subsequent growth of the moving media industry in Skåne. The university was established with a particular interdisciplinary profile that to a large extent removes the traditional borders between academic disciplines, in relation to both education and research. The development of moving media has especially been influenced by the Department of Art, Culture and Communication (known as K3: *Konst, Kultur och Kommunikation*). In addition to Malmö University, other knowledge institutions in Skåne and the neighbouring region of Blekinge have been influential in forming a strong education and research environment for moving media actors. Thus, the Faculty of Engineering at Lund University is strong in the area of ICT, and the Department of Interaction and System Design at the Blekinge Institute of Technology is significant because of its bachelor's degree in digital games. Further education institutions relevant to game development are the Game Academy in Malmö,⁶⁰ which is run by the private education firm Hermods, and the Hyper Island institution in Karlskrona in the Blekinge region. Both institutions run advanced vocational education and training programmes.

In 2003, the incubator Minc was established next door to Malmö University, in the area Västra Hamnen, with new media as one of its focus areas. Minc focuses on providing support for the commercialisation of innovative business ideas, some of which are conceived at Malmö University. The incubator is owned by the City of Malmö. In 2004, with the recognition of the increasing activity in new media in Skåne, the national platform organisation, Media Mötesplats Malmö (MMM) (*meeting place for media actors*) was established in the same building as Minc. It was funded by the national agency, the Knowledge Foundation (*KK-stiftelsen*), Region Skåne and the City of Malmö. MMM activities and services involved, among others, competence, business development and exchange of knowledge and ideas among new media actors nationally and internationally. MMM has participated in various collaborative projects with new media actors in other parts of Sweden as well as internationally. An example of one of MMM's projects is its co-operation with Nanyang Technological University and other actors in Singapore. In the autumn of 2008, a workshop was organised in Singapore based on projects conducted at Malmö University and Blekinge Institute of Technology. The aim of the project was to create a platform for facilitating collaboration in research and business for interactive digital media.

The Nordic Game Programme is an initiative funded by the Nordic Council of Ministers during the period 2006–2013. The programme is managed

from the same building in Västra Hamnen where Minc and MMM are also based. The programme provides financial support for Nordic game developers and promotes internationalisation of Nordic firms; for example, through providing funding for participation in international events such as the Game Developer conference in San Francisco and Game Connection in Lyon. Moreover, the national public service broadcaster SVT is also based in Västra Hamnen.

At the time the empirical research was carried out, the largest game development company in Malmö, and one of the largest in Sweden, was Massive Entertainment, which was established in 1997. The company produces interactive entertainment software. Massive Entertainment has been acquired twice by multinational corporations, and in 2008, it was owned by Ubisoft. Another game development firm in Malmö is Upside Studios, established in 2001. It engaged in larger projects; for example, for the Swedish public television company SVT, focusing on the development of serious games for children. Upside was closed in the summer of 2009, after this study was concluded. The Astonishing Tribe (TAT) was founded in 2002 by six men, four of whom had studied together at Lund University. This firm offers software technology and design services.

As part of the 2007–2013 EU Structural Funds programme for Skåne and Blekinge, a cluster initiative was initiated in 2008 to support networking and collaborative projects in the moving media industry in Skåne and Blekinge. This initiative was called Moving Media Southern Sweden (MMSS).

Figure (3.2) illustrates the actors in moving media and more specifically in the game development industry in Skåne, and examples of their extra-regional knowledge interaction in 2007–2008. In conjunction with this, one should note that the knowledge interaction with Nanyang Technological University is provided as an example. In practice, the knowledge institutions, firms and public authorities have many additional knowledge interactions with various international partners. The firms in the figure are examples. More firms involved with game development exist in Skåne.

Since the case studies were concluded in 2008, the activities in the moving media industry have continued to develop. As of 1 January 2010, MMSS and MMM merged into one initiative called Media Evolution,⁶¹ through which activities such as conferences and networking events, and facilitation of competence and business development for new media firms continues. Media Evolution will also continue the development of 'Moving Media City', which is the planned centre for the moving media cluster in Västra Hamnen. During 2010, the facilities of 'Moving Media City' will be constructed and, according to the time plan, will be ready by the end

⁶⁰ In August 2009, Game Academy changed names to Game Assembly.

⁶¹ <http://www.mediaevolution.se/om-media-evolution/bakgrund/>

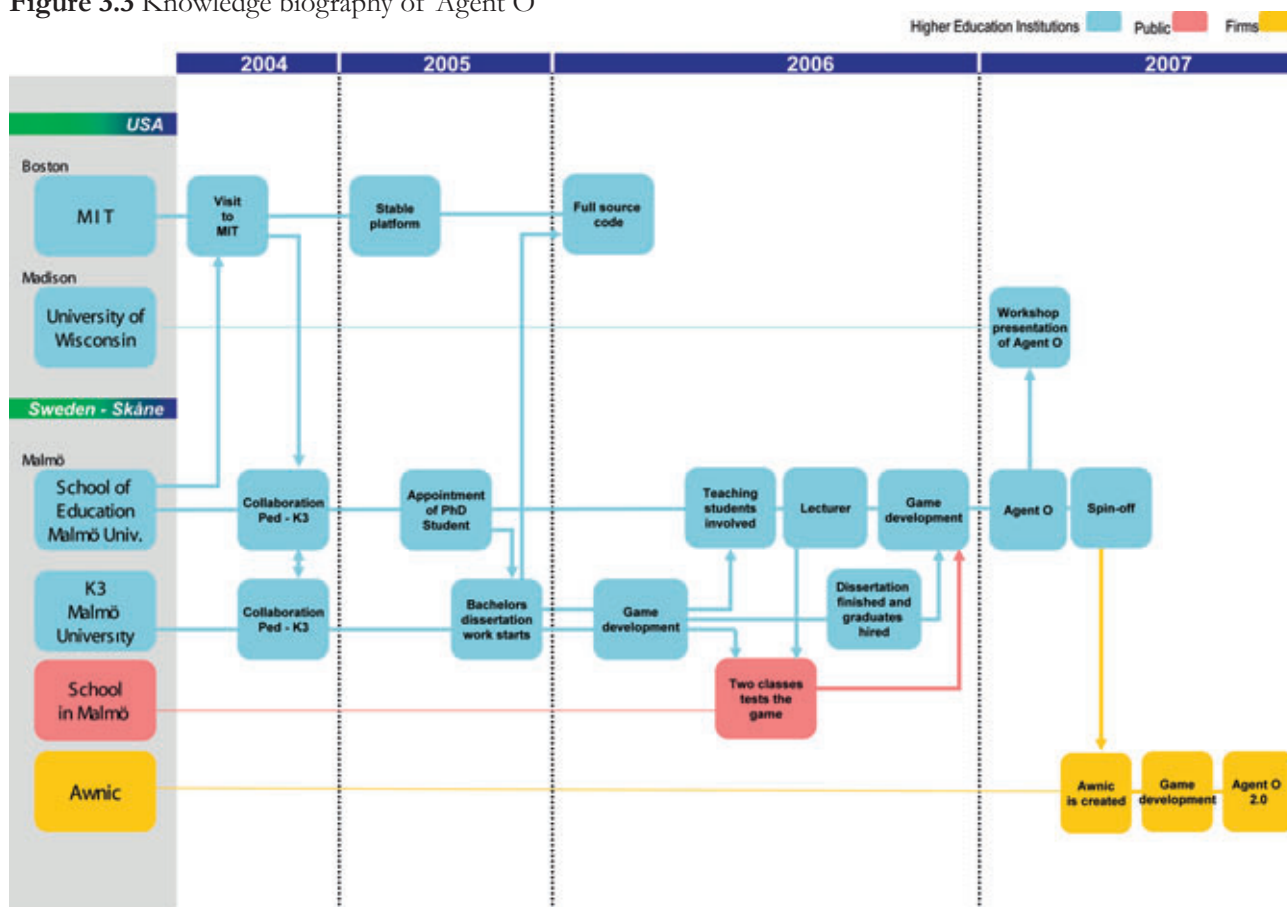
of the year to provide space for 200–300 workstations for actors in the new media industry.⁶²

3.3.2 Firm-level knowledge dynamics: development of the 'Agent O' game

This section explores a case of firm-level knowledge dynamics⁶³ in game development in Skåne. The development of the computer game 'Agent O' has been selected as a case study in firm-level knowledge dynamics because of the involvement of different actors within the region and internationally. Thus, the development of the game illustrates an example of knowledge interaction between two departments at Malmö

University—K3 and the School of Education—and it emphasises the importance of knowledge interaction with extra-regional actors, which in this case particularly involves the Massachusetts Institute of Technology (MIT). The 'story' of the knowledge dynamics resulting in Agent O is told below. Figure 3.3 gives an overview of key interactions between different actors during this process. The figure schematically provides the positions of these actors and interactions in time and space. The story begins when PhD student Patrik Bergman first had the idea to develop the game in 2004, and it ends when the firm Awnic was formed and the development of Agent O 2.0 was almost finished in the autumn of 2007.

Figure 3.3 Knowledge biography of Agent O



The serious game Agent O was developed during the period 2004–2007. It is a so-called 'Augmented Reality Outdoor GPS'-based game intended for educational purposes in courses on sustainable development, chemistry and technology. 'Agent O' explores the consequences of Agent Orange (a defoliant chemical) used by the USA during the Vietnam War. In the game, the same chemical is used in the production of

gelatine, which makes both people and dogs sick. The pupils who play the game have to co-operate to find the cause of the illness. There are three stages in Agent O. First, the game is introduced in the classroom, where the mystery is introduced to the pupils through a film that provides the necessary information to begin. Afterwards, the game is played outdoors, and finally there is a concluding session in the classroom.⁶⁴

⁶² <http://www.mmmalmo.se/projekt.aspx>

⁶³ See further discussion on what a firm level knowledge dynamics is in chapter 1.1.3.

⁶⁴ <http://www.awnic.se/>

The idea and start-up phase

The development of Agent O was initiated by Patrik Bergman, a PhD student at the School of Education at Malmö University. Bergman was involved in various serious game development projects, in co-operation with his PhD supervisor Gunilla Svingby. In parallel with his involvement in projects, Bergman was searching for new knowledge to identify strong researchers in the field of developing serious games for mobile platforms and hand-held PDAs (Personal Digital Assistants). At this time, MIT was one of the strongest actors in the field. In January 2004, Bergman travelled to MIT and came into contact with Professor Eric Klopfer, who works with hand-held augmented reality simulations. Klopfer introduced the serious game 'Environmental Detectives', which was played on a PDA, to Bergman. They discussed how this game could be developed further and how serious games could be used in Sweden. The contact between Bergman and Klopfer led to the initiation of collaboration between MIT and the Malmö University School of Education. Today Klopfer is part of the academic network of Malmö University, and he sometimes lectures at the university.

During the period 2004–2005, MIT created the source code for the game, to be developed by Malmö University. In September 2005, Gunilla Svingby employed a new PhD student, Elisabet M. Nilsson, who took over a game development project from Bergman that would later become Agent O. At that time, Svingby was contacted by department K3 and asked whether she had a project that students at K3 could develop in connection with their bachelor dissertation. Encouraged by Svingby, Nilsson provided the three students Daniel Karlsson, Festim Zhuta and Christopher Fergusson at K3 with the 'Environmental Detectives' game. The objective of the involvement of the students at K3 was to make it more user friendly.

Product development and establishment of Awnic

In 2006, the students at K3 continued to develop the game. They received the final source code from MIT

and came into contact with four students at the School of Education who had previously developed a script for a serious game. Through this connection, the K3 students gained knowledge from the students who were experienced in developing pedagogical aspects of serious games. As part of the bachelor dissertation of the K3 students, the game was tested by two school classes. In this connection, Sverker Aasa at the School of Education became involved. His role was to ensure that Agent O was harmonised with the curricula and to ensure the usefulness of the game for educational purposes. After graduation in June 2006, Daniel Karlsson, Festim Zhuta and Christopher Fergusson were employed as freelancers by Gunilla Svingby to develop Agent O further on behalf of Malmö University. The three graduates were interested in starting their own business and therefore contacted the information centre concerning business start-ups at the University. This process, which one year later led to the establishment of their own firm, was supported by Svingby.

The three colleagues finalised the updating of the game during the autumn of 2006; however, the game was considered to be too linear. By the end of 2006, the game was suspended because of a lack of research funding. In July 2007, Sverker Aasa and Elisabeth M. Nilsson participated in a workshop at the University of Wisconsin, where they presented Agent O. This provided a useful opportunity to present the game and to receive comments, to test other games and to network with other serious game developers.

In the autumn of 2007, the linear approach of the game was abandoned, as Daniel Karlsson, Festim Zhuta and Christopher Fergusson formed the firm Awnic and became the owners of the game. The game was retested and made more interactive. This version of the game is called Agent O 2.0. In 2008, as this study was carried out, the game had almost been finalised.

Future plans of Awnic are to develop new applications for mobile platforms, using Agent O to showcase how such platforms are used. One aim is to develop applications that are more applicable to private firms and easier to commercialise.⁶⁵

⁶⁵ <http://www.awnic.se/>

3.4 Knowledge dynamics in film tourism in Skåne

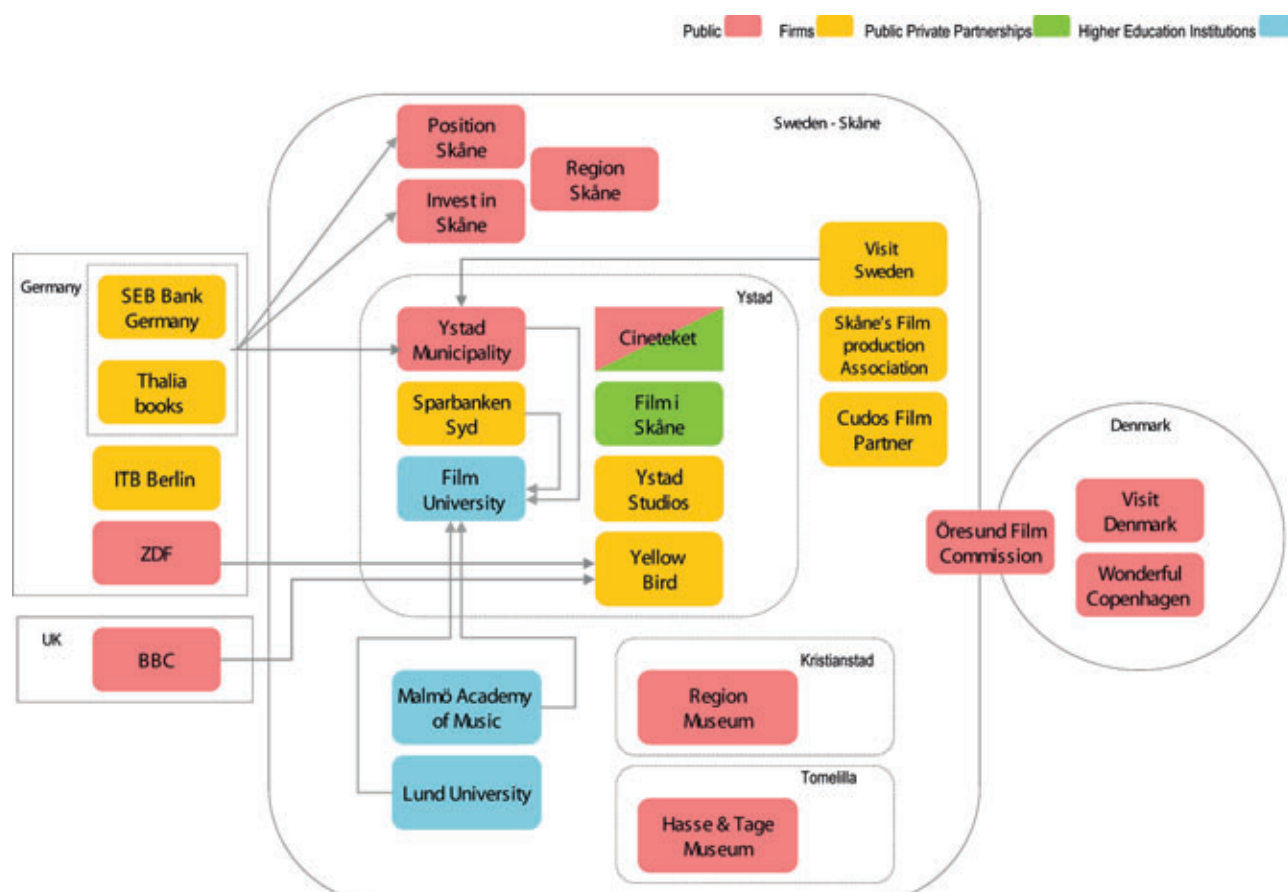
This section explores territorial knowledge dynamics among actors in the field of film tourism in Skåne, inside and outside the region. As discussed in Chapter 1, the intention of studying knowledge dynamics is to identify important actors and processes of knowledge interactions among them rather than to map all knowledge interactions within film tourism in Skåne. Because knowledge dynamics are ongoing processes, it is important to point out that the actors mentioned in this section represent examples of key actors in film tourism, particularly during the period when the study was carried out from May 2007 to September 2008. After that period, only a few updates have been made as indicated at the end of section 3.4.1. Figure 3.4 therefore represents a snapshot illustration of some key actors in

the film tourism territorial knowledge dynamics in our study. There are clearly other actors in such knowledge dynamics.⁶⁶

3.4.1 Territorial knowledge dynamics in film tourism

Film tourism is a growth area in Skåne, and it has developed particularly as a response to the popularity of the books and films by Henning Mankell about Inspector Wallander of Ystad's police department, which are centred on the town of Ystad in Skåne. A number of actors and activities are involved in the development of film tourism. The various actors introduced in this section are illustrated in Figure 3.4.

Figure 3.4 Examples of key actors in film tourism in Skåne



⁶⁶ See further discussion on how the study was carried out in chapter 1.3.

One of the key actors in terms of attracting film production to Skåne is the regional production centre Film i Skåne (*Film in Skåne*). It was formed as an association in 1995. Since 2001, Film i Skåne has been a limited company owned by an association. It is active in the production of feature films, TV drama series, short films and documentaries in addition to media pedagogic film-related activities particularly focusing on children and young people. The Regional Film Fund, which is managed by Film i Skåne, provides conditional funding, which means that film teams that receive funding are required to shoot films in the region and to employ staff in the region. The film production activities are financially supported by public funding from national, regional and local levels. Some of the funds for the Regional Film Fund come from the national-level cultural policy, which distributes funds to Film i Skåne. The Region distributes funds to the film fund from both its cultural and economic development budgets. The public funding from the local level mainly stems from the Municipality of Ystad. At the regional and local levels, the financial support is particularly motivated from an economic development perspective to support the development of the film sector in the region.⁶⁷

The municipality of Ystad is a significant actor with regard to film production and film tourism. A key event in their work in relation to film production was the decision to support the first Wallander film project, which began in 2003.⁶⁸ Since then, the municipality has worked in various ways to support film production and film tourism; for example, through training programmes and initiatives to facilitate film shooting in the area.⁶⁹ Moreover, the Municipality of Ystad has initiated the Ystad-Österlen Film Fund to which individuals, firms and organisations can contribute funds. The municipality donates SEK 1 million annually to the fund.

Tourism in Skåne is a marketing company that promotes tourism in Skåne. The purpose of the company is to contribute to increasing growth in the region through increasing the number of visitors and developing the region as a tourist destination. Tourism in Skåne is a publicly owned company. Together with Invest in Skåne and Event in Skåne, it is part of Business Region Skåne, which in turn is owned by the region of Skåne (85%) and the municipalities of Skåne (15%). There is also increased cross-border collaboration through the Öresund region involving Visit Denmark and Wonderful Copenhagen on the Danish side.

The tourism office of the Municipality of Ystad in co-operation with the publicly owned organisation Tourism in Skåne is actively working to attract film tourists to the region. A specific example is a campaign

in the German market linked with the screening of the Wallander films on the TV channel ARD at Christmas 2006. Ystad's tourism office, Tourism in Skåne's fore runner Position Skåne and Visit Sweden collaborated with the German book-shop chain Thalia in the Berlin and Hamburg areas. The collaboration also included the German SEB bank. Based on market research, a leaflet was produced and circulated with key newspaper supplements, as well as in book-shops and banks. There was also a competition linked with the campaign. Press campaigns were linked with the activities, and the Wallander tourism team was present at the major ITB tourism fair in Berlin in 2007. Follow-up research has shown a substantial increase in German tourists in Skåne, particularly in Ystad.

The local savings bank Sparbanken Syd plays an important role. It is active in the economic development of Ystad and the surrounding area, and provided funding for the very first Wallander project in 2003. The bank has continued to support film production through the Ystad-Österlen Film Fund, to which it makes an annual contribution of SEK 1 million, the same amount as the Municipality of Ystad.

The Öresund Film Commission has been established as a non-profit organisation including Skåne and the greater Copenhagen region in Denmark to promote the Öresund region as an attractive location for shooting films. It was initiated as an INTERREG project, and it is now run by public authorities on both sides of the sound. The Öresund Film Commission provides services free of charge for film teams that wish to shoot films in the region.

A number of different film production companies are based in Skåne. The association *Skånska Filmproducentföreningen* (Film Production Association in Skåne) represents 16 film production companies based in the region. These companies span the entire spectrum of film productions: short films, documentaries, features and animated films. Some are also involved in producing advertisements and music videos.⁷⁰

Other production companies are not part of the film production association. One of these is Yellow Bird, which is the largest film production company in Skåne. Yellow Bird was founded in 2002 by the Danish producer Ole Søndberg, the Swedish writer Henning Mankell and Mankell's agent Lars Björkman. The company was established in Ystad with the objective of focusing on projects that were more comprehensive than one film at a time to collaborate and co-produce with international broadcasters. Yellow Bird started by producing 13 films based on Mankell's books (and new scripts) about Inspector Wallander. This project was conducted as a co-production with film production and TV companies

⁶⁷ Dahlström & Hermelin (2008).

⁶⁸ Dahlström *et al* (2005).

⁶⁹ Dahlström (2008).

⁷⁰ <http://www.producentforeningen.se/>

in several countries, including ZDF in Germany. Yellow Bird has been involved in co-productions with the BBC on three British Wallander films.

The film production facility Ystad Studios has been established with public support. Adjacent to Ystad Studios, the film experience centre Cineteket was established in Ystad in 2006 as a project run by the municipality. It is now a public–private partnership between the municipality and CUDOS Filmpartner AB. CUDOS Filmpartner is a firm that deals with strategic projects associated with films, tourism and the environment. Cineteket's exhibition is owned by the municipality of Ystad, but it was established and is run by CUDOS Filmpartner. The firm runs Cineteket as a business within the framework of what is called 'social entrepreneurship', and one of its goals is to develop film tourism in the region through product development, events and service innovations. Cineteket attracts visitors ranging from private tourists to schools and educational institutions and private firms and organisations, and it serves as a meeting place for actors in the film industry.

In the autumn of 2008, two master's programmes run by the University of Lund and the Malmö Academy of Music were initiated under the name of the Film University: one in film production and the other in composition of film music. The programmes are located at the former army barracks area in Ystad where Film i Skåne, Ystad Studios and Cineteket are located. The programmes are funded by the Municipality of Ystad and Sparbanken Syd.⁷¹

Outside Ystad, there are other institutions within film tourism in Skåne. The Hasse & Tage museum in Tomelilla is a museum of 15 m² that displays the film-making and production of shows, books and radio programmes of the two multifaceted Swedish artists Hasse Alfredsson and Tage Danielsson in an interactive manner. The small museum, which only accommodates eight people at a time, was opened in 2006. The Region Museum in Kristianstad was founded in 1957 and works as a regional knowledge and resource centre. The museum consists of a variety of exhibitions, such as the Film Museum, which is a studio in which the very first Swedish feature films were produced.

A permanent exhibition about films in Skåne was opened in 2006.

Figure 3.4 illustrates the actors involved in film tourism in Skåne and examples of their extra-regional knowledge interaction in 2007–2008. In practice, the firms, organisations and public authorities may have many additional knowledge interactions with various international partners. The firms that are depicted in the figure serve as examples. Further film-related firms are based in Skåne.

Since the case studies were concluded in 2008, the knowledge dynamics of film tourism in Skåne have continued to develop. Ystad Municipality has, for example, employed a film coordinator who works with partners in the area to develop Ystad as a film-friendly place. An important framework for this work is the 'Film as a growth engine' project, which is partly funded by the EU.⁷²

3.4.2 Firm-level knowledge dynamics: The Film Track

This section explores a case of firm-level knowledge dynamics⁷³ in film tourism in Skåne. 'The Film Track' involves marketing collaboration among three film tourism attractions in eastern Skåne. Moreover, it provides an example of service innovation in the tourism sector, which is generally considered a 'low knowledge' sector.⁷⁴ A further important aspect of this case study is that it exemplifies the importance of the knowledge about marketing for innovation. This type of knowledge is often ignored in relation to studies of aspects of the knowledge economy.

The 'story' of the knowledge dynamics of The Film Track is told below. Figure 3.5 provides an overview of key interactions among various actors during this process. The figure displays the positions of these actors and interactions in time and space. The story begins in early 2006, when Ronny Jönsson at the Region Museum in Kristianstad, the Tourism Department of Tomelilla Municipality and Anna Maris that was engaged by Ystad Municipality to develop what became Cineteket, began to discuss collaboration in marketing. The story finishes when this study was concluded in late summer 2008.

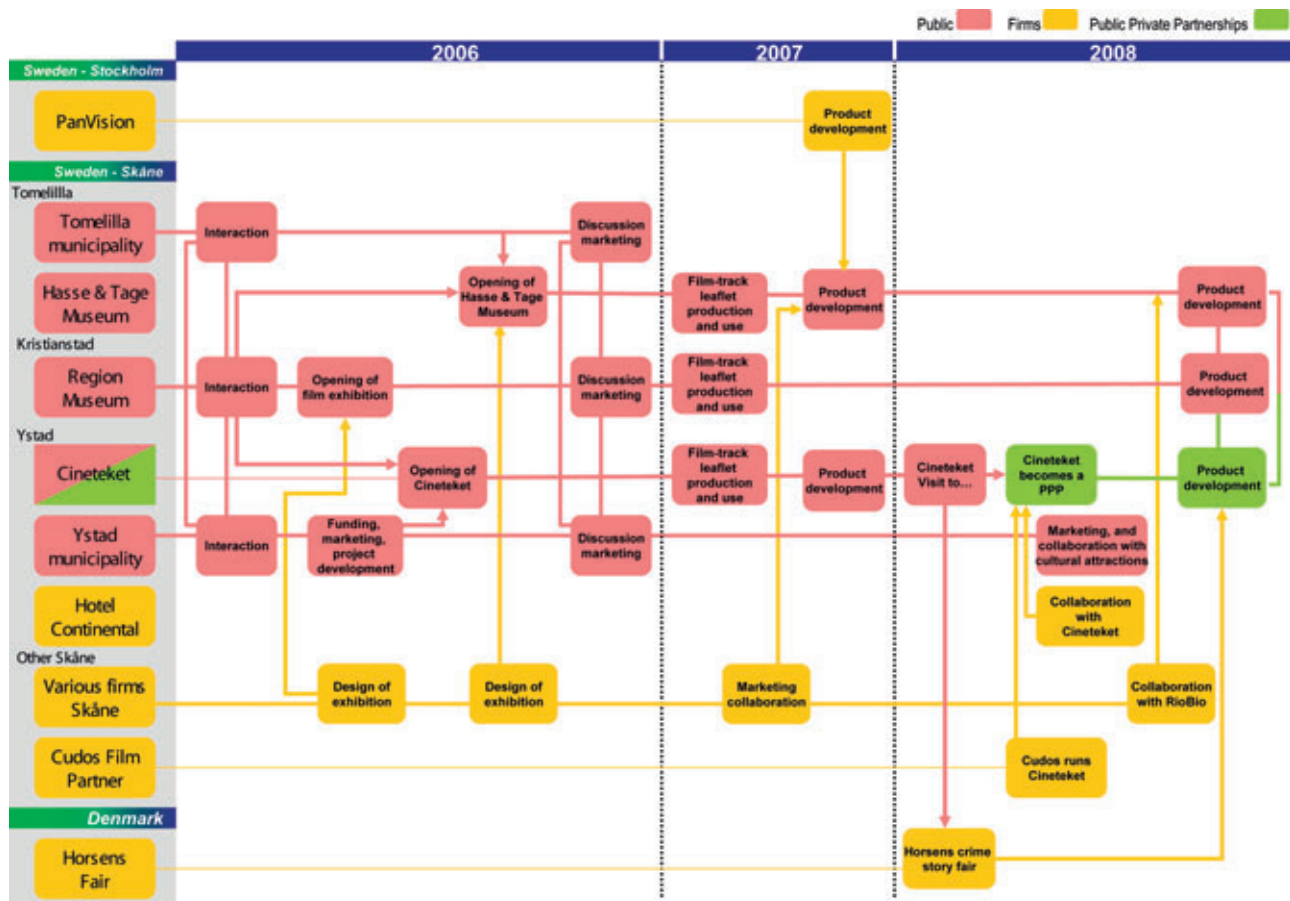
⁷² <http://ystad.se/>

⁷³ See further discussion on what a firm level knowledge dynamics is in chapter 1.1.3.

⁷⁴ Halkier (forthcoming).

⁷¹ <http://ystad.se/>

Figure 3.5 Knowledge biography of The Film Track



Establishing contact and producing a leaflet

The circumstances at the outset of the collaboration were characterised by different situations for the three attractions involved: the Region Museum, the Hasse & Tage Museum and Cineteket. The Region Museum is an established museum and cultural institution in Kristianstad. Because of its separate Film Museum, it already had a special interest in film, and the idea of developing a permanent exhibition about films in Skåne was linked to that. The Region Museum is a foundation owned by the Municipality of Kristianstad. Independently, in Tomelilla, there were ideas of developing an attraction linked with Hasse & Tage. The initiative came from Hasse Alfredsson himself and the local authority, which together wanted to do something to exhibit the duo and their activities. The museum is owned by the Municipality of Tomelilla. In the case of Cineteket, the Municipality of Ystad was interested in developing a film attraction because of the demand from tourists who arrived and wanted exhibits and experiences related to the Wallander films. This had previously started with tourists arriving after having read the books, wishing to follow in the footsteps of Wallander, and seeing the places where he lived and dined. Cineteket was initiated as a project run by the Municipality of Ystad, but it is now run by CUDOS

Filmpartner in a public–private partnership.

In 2006, Ronny Jönsson was involved with the development of the exhibition 'Skåne and Film' at the Region Museum. Jönsson is well informed about film production in Skåne and has an extensive network in this regard. He was therefore engaged by Tomelilla Municipality in relation to the development of the Hasse & Tage Museum. In collaboration with Hasse Alfredsson, he helped to select the film episodes to be used in the exhibition. Because of his knowledge of films in Skåne, Jönsson was also contacted by Anna Maris, employed as project leader by the Municipality of Ystad, who was working on the development of Cineteket. The three parties discussed the advantages of a potential marketing collaboration. The three attractions all opened during the spring and summer of 2006. In December 2006, Johanna Lindvall from the Municipality of Tomelilla became project leader of the Hasse & Tage museum. She joined the ongoing discussions between the three attractions. Finally, in the beginning of 2007, The Film Track leaflet, promoting the three attractions, was produced, funded by Region Skåne. The leaflet was mainly targeted at schools and was intended to draw people to the attractions outside the tourist season.

Product development and development of a 'Film Track brand'

During 2007, the new tourist attractions sought to develop their products further. For the Hasse & Tage Museum, it was important to develop further activities for visitors because of the small size of the museum and the limited number of visitors it can host at a time. Therefore, the museum developed a map that indicated locations significant to Hasse & Tage films and other activities in Tomelilla, which tourists could explore in addition to the museum. During this period, the museum also initiated a collaboration with the Stockholm-based PAN Vision, which is the distributor of the DVD box collection of the Hasse & Tage shows. The first boxes distributed included a leaflet about the museum, and a 2-for-1 ticket. Another marketing collaboration was started by the regional public transport company Skånetrafiken, for both 2006 and 2007, which involved a reduced entrance fee to the museum for people travelling with the company. Another marketing opportunity in 2007 was the acceptance of the museum in Svenskt Kulturarv (Swedish Cultural Heritage), which is a membership organisation for Swedish museums and other historical and cultural visitor attractions. The museum is now visible on the organisation's website and in its magazines, which are distributed throughout the country.

Throughout 2007 and until May 2008, when the firm CUDOS Filmpartner, owned by Anna Maris, was awarded a five-year contract to run Cineteket, the development of the attraction was limited because of its project-based nature and the fact that it was run by the municipality. Cineteket was further developed in 2008–2009. A film gallery was established in the building next to Cineteket, hosting temporary exhibitions and a small cinema. Cineteket exhibits the sets in which the Wallander films were shot using the props from the films donated by the film production company Yellow Bird. Additionally, guided tours of the 'police station' are provided by an actual police officer from Ystad

police. Ideas about how to develop the police station props and activities around this were generated by a visit by staff from Cineteket to a crime stories fair in Horsens, Denmark in April 2008. Various guided tours are organised for different target groups. An example of a marketing collaboration is between Cineteket and the local Hotel Continental, which for conferences offers a limousine service to take visitors from the hotel to Cineteket for a guided tour. Similarly, Cineteket organises 'film safaris' in limousines where selected films are shown in combination with a picnic at famous film locations in the region. Several further activities have been developed in relation to Cineteket.

Because of the uncertainty surrounding the status of Cineteket, further development after The Film Track leaflet was postponed until the summer of 2008. Discussions among the parties continued. They were interested in placing signs at the film locations in the region to support the maps produced by the attractions. In conjunction with this, discussions to introduce different types of 'self-guided' tours with the help of maps and MP3s were initiated. Such activities were planned by The 'Film Track' team as this study was concluded in 2008. In this way, The Film Track will expand its activities to include a wider target group with a wide variety of tourists.

Since the case study work finished in the autumn of 2008, the marketing collaboration and product development of The Film Track and the three attractions has continued. An example of this is the new 'Ateljé 1' exhibition, which opened on October 2009 in the Film Museum part of the Region Museum in Kristianstad. This exhibition focuses on the early phases of Swedish film history 1905–1929. The Hasse & Tage Museum has begun guided bus tours of film locations in the region, and Hasse Alfredsson himself provides recorded commentary on the bus. At the Cineteket, the interactive film exhibition has been totally remade, and a film gallery has opened.

3.5 Concluding comments

Before moving on to analyse the territorial and firm-level case studies about game development and film tourism in Skåne in greater depth in the following two chapters, a few closing comments can be made.

Linking back to the contextual background of the Skåne region and of the new media sector, it is worth noticing the 'roots' in the Skåne economy that exist for both game development and film tourism. The recent dynamic interactions and developments have grown from an established 'old media' sector; for example,

of publishers, newspapers, film production and also board games. In addition, the tourism sector is a well-established and developed industry with a long history in Skåne. The developments of game development and film tourism therefore represent both continuity and change. They show the ability of different actors to collaborate in new and innovative ways to create new business opportunities. A path dependency has been used and a lock-in avoided due to the actors' capacity to change.

It is also interesting that the two different territorial knowledge dynamics, although partly overlapping—for example, through actors active in both these dynamics being involved in the same platform or cluster organisations—have very different compositions. The higher education institutions are important for both territorial knowledge dynamics but are particularly strong with regard to that of game development, where

they are the key actor in the firm-level knowledge dynamics. The territorial knowledge dynamics of film tourism include higher education institutions, but they play a more limited role in this case. With regard to the firm-level knowledge dynamics of The Film Track, the higher education institutions are not involved at all. This may be explained by its knowledge focus being on marketing knowledge.

4. Anchoring knowledge in Skåne from a wider European perspective

This chapter provides an analysis of knowledge anchoring in the two forms of knowledge dynamics studied in Skåne. Throughout the analysis, examples from other European and Nordic case studies conducted in the EUODITE and REKENE projects, respectively, are included⁷⁵ to provide a deeper insight into the diversity of factors that influence anchoring of knowledge in regions.

Territorial knowledge dynamics concern knowledge exchange, networks and interactions among actors inside and outside the Skåne region. There are many key actors involved in such knowledge interactions; for example, firms, higher education institutions, and local and regional authorities. The regional level is important for several reasons. Many of the actors are located within the region, where the close proximity facilitates interactions. Furthermore, the regional level is important because of the responsibilities of the regional administration, not least in relation to regional development and growth. However, it is also essential to remember that territorial knowledge dynamics include knowledge interactions over great distances outside the region. Precisely the combinations of knowledge interactions inside and outside the region are at the heart of territorial knowledge dynamics. Regions should therefore not be seen as 'closed containers'.⁷⁶

Case studies of both game development and film tourism are complex and characterised by interrelated and overlaying networks. There is no doubt that the international territorial relations are of great importance, just as local interactions are imperative. The mix of large, international ICT companies with SMEs and incubator start-ups in the broad ICT, new media, moving images and cultural sectors are of great importance for territorial knowledge dynamics. The mobilisation of this asset is also illustrated in MMSS⁷⁷, which offers meeting places for people working in moving media. Such meeting places and platforms are important assets for the exchange of ideas and experiences among local people and those who visit from elsewhere. They are

also crucial in terms of networking and finding partners for new projects.

Within the territorial knowledge dynamics of game development, international interactions are important both in the context of the universities and for the game development firms that act in a global arena. Meeting places for moving media actors and fairs are significant here. The study also shows that the increasing number of entrepreneurial small, medium-sized and large firms in Skåne are key agents in the territorial knowledge dynamics. Small and medium-sized firms are often flexible, but they suffer from limited resources. Collaboration is a way of dealing with this. Many smaller and larger firms within game development are involved in international knowledge interactions through their business relationships and contracts.

Within the territorial knowledge dynamics of film tourism, two particular elements of international interaction are essential. The first is the international character of film production itself, where the many international co-productions generate film teams composed of people from a variety of countries. The screening of these international co-productions, in turn, attracts visitors from different countries. These visitors bring a second important international interaction: their demands contribute to product development among tourism actors. Both a developed and growing tourism sector and a film sector are crucial for the further development of the territorial knowledge dynamics. The networking of firms within the tourism sector improves the possibilities for knowledge transfers and intensifying of product development in film tourism.

We now further discuss knowledge anchoring within the territorial knowledge dynamics of game development and film tourism. In the following sections, the processes by which knowledge from outside Skåne comes into the region and is recirculated among actors are discussed. Some reflections on knowledge anchoring processes in other case studies in the EUODITE and REKENE projects are also presented.

⁷⁵ See further information on these projects in chapter 1 and Appendix 2 and 3.

⁷⁶ For further discussions of the concept of territorial knowledge dynamics, see chapter 1.1.3.

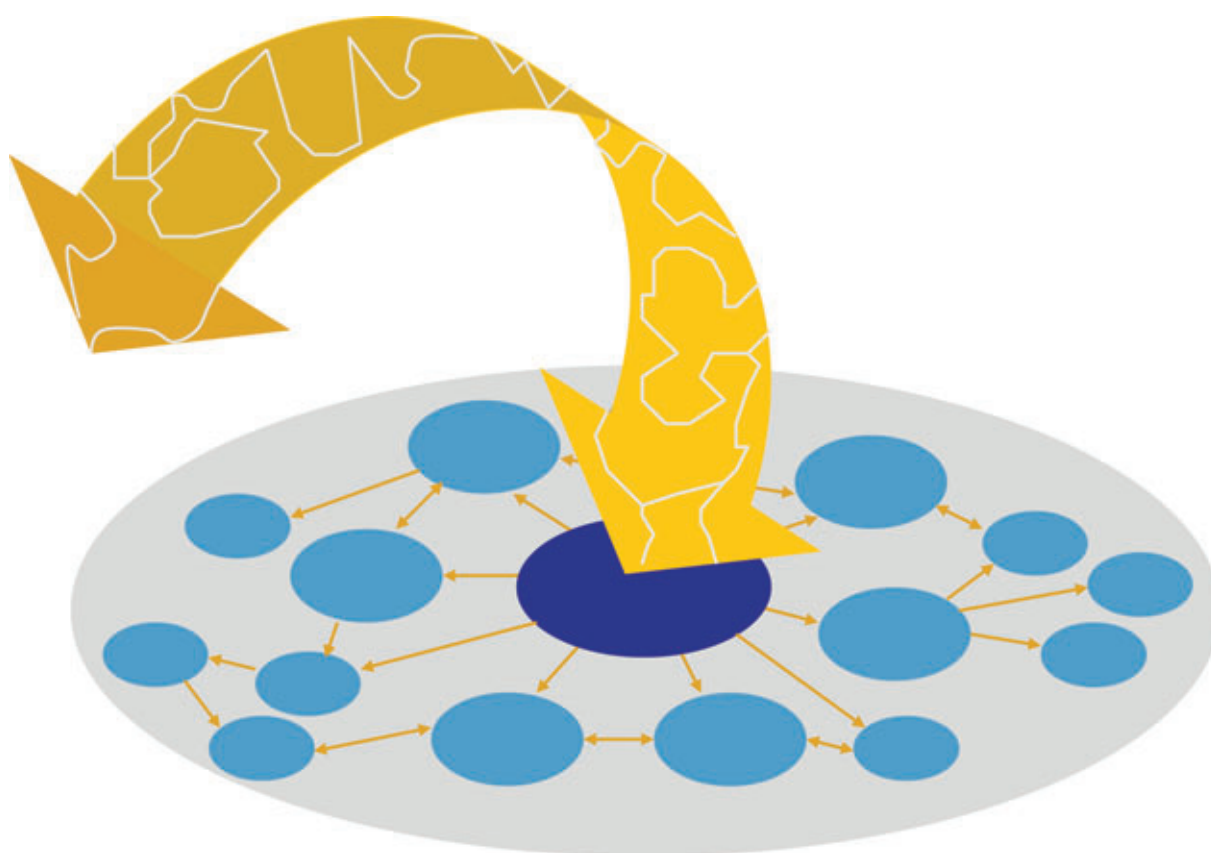
⁷⁷ Now Media Evolution (see section 3.3.1).

4.1 Knowledge anchoring and territorial knowledge dynamics—inflow and recirculation of knowledge⁷⁸

In this part of the chapter, the most important findings of the territorial knowledge dynamics and knowledge anchoring are presented and discussed. The point of departure for the analysis is how knowledge flows into a region and how the knowledge is recirculated within it. We call the processes of accessing extra-regional knowledge and the subsequent recirculation of this knowledge *anchoring*. Anchoring refers to knowledge coming from outside a region, somehow ‘sinking in’

and being recirculated within the region. Recirculation of knowledge means the processes by which knowledge is used by firms and institutions within a region other than the firm or organisation that found or adopted the knowledge from an external source. Recirculation may include using the accessed extra-regional knowledge to develop new knowledge, or recombining it with existing knowledge, as well as general diffusion within a region.⁷⁹ The processes are illustrated in Figure 4.1.

Figure 4.1. Anchoring of knowledge



Source: James *et al.* 2010a

Figure 4.1 shows the inflow of knowledge into a region and its subsequent recirculation within it. We make no assumptions about the length of time between knowledge entering the region and its being recirculated. This may happen immediately or over a number of years.⁸⁰ The arrow symbolising knowledge that comes into the region points in two directions. This represents

⁷⁸ The framework of the chapter is based on the work performed within EUODITE working package 7 resulting in the James *et al* (2010a).

⁷⁹ James *et al* (2010a).

⁸⁰ If there is no recirculation, then there is no anchoring of knowledge.

the fact that extra-regional knowledge can be accessed both from within the region and by travelling outside the region; for example, to attend a conference or fair. The patterns on the arrow signify that knowledge can come in through a multitude of different actions or processes, a point discussed in greater detail below. The dark blue central circle is a receptor node for the extra-regional knowledge. This is typically a firm or a higher education institution that initially receives the knowledge. The light blue circles represent other firms or institutions located within a region (the bounded shaded area) among which the knowledge is recirculated.

We suggest that there are three common ways in which knowledge comes into a region. First, it may be embodied in people who temporarily or permanently move there from elsewhere. Second, it may be acquired when people leave the region—for example, to take part in a conference—and bring new knowledge with them when they return. Third, it may come into a region without any physical movement of people in codified form; for example, in a book, a patent or via the Internet.

We argue that recirculation of the knowledge outside the receptor node in the region is a necessary

criterion of the anchoring process. Hence, recirculation involves many interactions among various actors in a region. This might be the relatively simple or static diffusion of the ‘new’ knowledge or may involve more interactive relations and learning processes in which two or more parties collaborate to recombine the new knowledge in some way. This is where the territorial knowledge dynamics become important. Where rich knowledge interactions among various types of actors are in place, there is a greater chance for recirculation of new knowledge.

4.2 Channels for inflow and recirculation of knowledge

The complex relations within the two territorial knowledge dynamics studied in Skåne include a multitude of mechanisms and processes by which extra-regional knowledge is accessed and recirculated. The schematic overview of some key actors in the territorial knowledge dynamics illustrated in Figures 3.2 and 3.4 in Chapter 3 cannot represent all these processes. Below is an attempt to discuss these processes, analytically organised under four anchoring channels.

In the work on analysing the territorial knowledge dynamics in the EURODITE and REKENE projects, the following four channels of anchoring were identified.⁸¹

- Firm-level interactions
- Work-place or job-related mobility
- Acquisition of codified knowledge⁸²
- Events

There may be other channels or mechanisms at work with regard to inflow and recirculation of

knowledge, but these four were the ones identified in the empirical material. We would also like to stress that knowledge anchoring is a multidimensional and multiscalar process. By this, we mean that knowledge inflow and recirculation often do not take place through only one channel or one activity. In addition, actors from several geographical levels are involved. Knowledge can enter through one channel and then be recirculated through another, or it can enter or be circulated through a combination of channels or activities. A channel can also be used for both inflow and recirculation of knowledge. We recognise that there is some overlap among these channels, but we argue that they should be considered separately for analytical purposes because each channel has some special features.

We have tried to streamline the analysis in each channel below. However, there are overlaps and links between inflow and recirculation of knowledge mechanisms through different channels. We therefore provide pointers and cross-references among the types of channels to highlight such links.

4.3 Knowledge anchoring through firm-level interactions

The channel firm-level interactions includes interactions among, for instance, organisations, and various higher education institutions in addition to firms. A decisive part of this channel is that the individuals that interact do this in their capacity as employees in a firm, organisation

or knowledge institution. In other cases, individuals may interact in manners that are guided by their own agenda; for example, when they are freelancers. We can see a distinction between unmediated and mediated interactions at the firm level. Examples of unmediated

⁸¹ James *et al* (2010a).

⁸² For a definition of ‘codified knowledge’, see chapter 2.1.

firm-level interactions are supplier–buyer relationships and technological alliances between firms. An example of mediated firm-level interactions occurs when, for instance, consulting firms are involved in knowledge interactions. These consulting firms are often known as knowledge-intensive business services firms, or KIBS. Other important examples of mediated firm-level interactions are various types of cluster management organisations, networks and platform organisations where policy actors often play an important role.

Firm-level networks are common within the moving media sector because it includes many specialised firms and freelancers in addition to large firms and other actors. The market structure in new media is characterised by increasing demand for new and innovative media content and applications, rapid turn-over of technological developments and high levels of uncertainty. The firms in the new media sector thus have to explore new sources of knowledge while exploiting the existing knowledge stock from different platforms, disciplines and sectors. Their challenge is to strike a balance between specialising in core knowledge areas and searching for new products and processes. It is consequently vital for small firms to co-operate with other actors. The external knowledge base offers new ideas and expertise on strategic information, tacit knowledge and know-how, and is just as important as technological knowledge.⁸³

4.3.1 The role of networks and direct interactions between firms

As mentioned above, networking is very common in new media because individual firms are usually forced to concentrate on their core competencies. Their products and services, however, require a combination of knowledge from a range of disciplines.⁸⁴ Many of the networks described in the various territorial knowledge dynamics studied in the EURODITE project are within a region and confined to a single sector. It can also be concluded that so-called ‘planned’ or formalised networks are often accompanied by institutions such as a technology centre, a science park, a training and research institute or a dedicated university department. As in other empirical case studies in the EURODITE project, we have not seen a large firm function as an important receptor node for inflow of knowledge or as a hub for a network in the Skåne case studies.⁸⁵

In contrast to the general findings in EURODITE, we find examples of networks covering more than a single sector in some of the territorial knowledge dynamics studied in the REKENE project; for instance, the KIBS-ICT cross-sectoral case in

Stockholm (Sweden) and the KIBS-ICT-new media case in Åland (Finland). Moreover, in game development in Skåne, some networks integrate firms from both new media and ICT, and companies of varying sizes interact with contacts at the university and participate in networking activities through, for example, Media Mötesplats Malmö (MMM), Malmö incubator (Minc) and later Moving Media Southern Sweden and Media Evolution. Such meeting places and networks, which are described further in Chapter 3, are important in terms of supporting the recirculation of knowledge in moving media and facilitating anchoring of knowledge through new projects and collaborations. In the analysis of anchoring processes in the EURODITE project, there were also some examples of cross-sectoral cases in relation to new technology networks. Such examples are found in the development of nanotechnology in the Veneto region (Italy) and photonics and laser technology in Aquitaine (France).

A general conclusion from the EURODITE case studies is that there are few examples of national and regional cross-border knowledge interactions related to networks or direct interactions between firms. If mentioned, it is often in connection with higher education institutions that are involved in cross-border collaborations.⁸⁶ In the territorial knowledge dynamics covered within the REKENE projects, we see more multiscale networking interactions; for instance, the case studies in Stockholm and Åland mentioned above. Also, in the territorial knowledge dynamics studied in Skåne, there are international networking activities through conferences and fairs such as the Nordic Game Conference in Malmö, which are discussed under the anchoring channel events in section 4.6. Interaction and networking in Skåne thus include game development firms, other types of firms, universities, and various international, national, regional and local initiatives related to moving media.

Among the REKENE case studies, there are some examples of knowledge anchoring through direct interactions between firms. There is, for instance, intra-regional co-operation between engineering firms in Akureyri (Iceland) and ICT firms in Värmland (Sweden). There are also examples of knowledge anchoring through this channel in Skåne. The Yellow Bird production company collaborates directly with broadcasters from several countries including ZDF in Germany and BBC in the UK. Another example is the participation of the local savings bank Sparbanken Syd in the film activities in the Ystad area. The bank is active in the economic development of Ystad and the surrounding area, and it invested in the very first Wallander project in 2003. This was important not only in terms of the economic contribution to the project

⁸³ Staines & Collinge (forthcoming).

⁸⁴ Staines & Collinge (forthcoming).

⁸⁵ James *et al* (2010a).

⁸⁶ James *et al* (2010a).

but also because of its symbolic value. The fact that the bank decided to invest in this project gave it a kind of quality approval that made it easier to generate further funding. The bank has continued to support film production through a new film fund, where it makes an annual contribution of SEK 1 million, the same amount as Ystad municipality.

4.3.2 The role of higher education institutions and R&D infrastructure

In both the EURODITE and REKENE case studies, it is often seen that higher education institutions act as receptor nodes of knowledge and are members of networks where they often are assigned the role of network coordinators. In the past decade, this role has been manifested in many policy instruments including a triple helix approach (see section 2.2.3).

An interesting role that higher education institutions play in the development of knowledge in a region is seen in the reports covering the regions of Veneto (Italy), Centro (Portugal) and Aquitaine (France). In these places, higher education institutions have been particularly involved in the introduction of a domain of knowledge (nanotechnology, biotechnology and photonics, respectively) that has been new to the region in terms of economic activity.⁸⁷ The role can also be seen in game development in Skåne, as despite their connection with 'old' media activities, game development can be seen as an emerging domain of knowledge in the regional context of Skåne. Over the past decade, the game development education and funding in Skåne has been well developed both in entertainment and serious games according to the SWOT analysis for the MMSS project. However, not all of these education opportunities are to be found within higher education institutions. According to this analysis, a supply of good education and training, and established strong research environments are among the important strengths in Skåne.⁸⁸ These assets may contribute to the possibilities for anchoring knowledge in the region. In terms of policy, Region Skåne has played an important role as a broker and facilitator in connecting important players such as higher education institutions with each other and with other actors in the region and further afield.

There are also examples of interaction between R&D infrastructure and the local civil society through so-called Living Labs. The K3 Department at Malmö University has a research project where ordinary people are asked to participate in the research including user trials in Living Labs. VINNOVA co-funds the Living Lab New Media in Malmö (Malmö University) and Living Lab Öresund IT Academy. These aim at improving the

capacity of firms and institutions to collaborate with users to develop competitive IT-based services and products. Living Labs are arenas for innovation based in a strong research and innovation milieu where users, researchers, firms and institutions meet. Living Labs can be seen as a user-focused research method to experience, create, test and develop new services and products. The Living Lab New Media is run in collaboration with an arts association called Inkonst and a number of firms; for example, TAT and Scandvision. These knowledge dynamics are similar to those described by Strambach regarding knowledge-intensive business services. Exploration and examination⁸⁹ take place simultaneously and in project-based interaction between consumers and producers. This type of knowledge interaction is also discussed in scientific literature.⁹⁰

In Skåne, there has been an absence of major higher education institutions of importance for film production. Recently, master's programmes in film production and composition of film music have been established in Ystad. In a study of the territorial knowledge dynamics in film production in Bavaria (Germany), it is stressed that the higher educational facility plays an important role in developing competitive film production in the region, both in educating people in subjects related to film production as well as in forming networks, which is important for bringing actors together.⁹¹ The relative shortage of a major higher education institution in the field of film production in Skåne may be seen as a disadvantage. On the other hand, some education and training facilities are available in the Skåne region, although the most advanced professionals in film, such as directors, script-writers and photographers, tend to be educated in key national or international institutions.⁹² It can also be argued that the emphasis in film production in the Skåne region is on using rather than generating knowledge. A key issue within film production is that learning to a large extent takes place in projects. This means that there is both an exchange of knowledge and a generation of new knowledge within film projects. Here it is worth mentioning the regional and local policies that have played a role in Skåne. The conditioning of funding from the regional film funds with demands to hire local and regional staff on film projects has facilitated knowledge inflow, recirculation and development of film projects.⁹³ There is a link to the direct interactions among firms such as Yellow Bird, ZDF and the BBC mentioned above. Such collaboration will facilitate learning and anchoring of knowledge through mixed film teams with staff from the various firms.

⁸⁹ These concepts are further discussed in chapter 2.1.2.

⁹⁰ Strambach (2008).

⁹¹ James *et al* (2010a).

⁹² Dahlström & Hermelin (2007).

⁹³ Dahlström *et al* (2005).

⁸⁷ James *et al* (2010a).

⁸⁸ MMSS (2008).

4.4 Knowledge anchoring through the acquisition of codified knowledge

Another way that knowledge can become anchored is through the acquisition of codified knowledge. This anchoring channel deals with the process of obtaining access to knowledge through, for instance, browsing the Internet and reading publications such as scientific journals or trade magazines. In the EURODITE project, codified knowledge is understood as knowledge that has been captured or represented in writing or some other digital or analogue format. It can be transmitted to others who, with sufficient investment (in time or money), can absorb and utilise it. Another activity that involves the acquisition of codified knowledge is the buying of licences, which then are further developed to be commercialised.

The acquisition of codified knowledge is not frequently mentioned in the Skåne case studies. One reason may be that activities that are associated with this channel are taken for granted to such an extent that they are generally not explicitly highlighted. When examining the territorial knowledge dynamics in the EURODITE and REKENE cases, we notice the same pattern. Examples of acquisition of codified knowledge mentioned in the EURODITE case studies have dealt

with accessing of standards, protocols and scientific findings. This was the situation in the ICT case study in the Bratislava region (Slovakia), that of nanotechnology in Veneto region (Italy) and the food and drink case study in Bornholm (Denmark). In addition, there were some examples of purchases of licences that were further developed into a product in the case of biotechnology in Bavaria (Germany) and game development in the West Midlands (the UK). It is also in connection with this kind of activity that we have found an example of acquisition of codified knowledge in game development in Skåne. This is the case of the acquisition of the source code that was needed to develop further the serious game Agent O. Malmö University accessed this extra-regional knowledge through a person working at the Massachusetts Institute of Technology (MIT). Interestingly, no money was involved in this transfer. The reason for this type of knowledge transfer could be that it was seen as part of developing long-term collaboration for the benefit of both parties rather than as a straightforward business transaction. However, in this case, we have no evidence regarding the reason for a non-monetary knowledge transfer.

4.5 Knowledge anchoring through work-place or job-related mobility

The channel of work-place and job-related mobility includes ways in which knowledge flows in and is recirculated by individuals who are self-employed, workers or students. Examples of activities connected to this channel are people moving to the region, movement of employees within an organisation with outlets or offices in different places, establishment of a branch plant by a firm, business trips by employees (but see also section 4.6 on events) and consultants working for a few days or for a longer period.

Several interviewees in our research have mentioned that one of the reasons for staying in Malmö is that they enjoy living in the city region, both in terms of its assets for good quality-of-life factors and with regard to the opportunities and multifaceted aspects of game development and moving media.⁹⁴ Field-work has revealed a buzz within moving media in the

region. As discussed in Chapter 2.2.1, the role of buzz in knowledge interactions is highlighted in the research literature.⁹⁵ In a case study of game development in the West Midlands (in the UK), both the presence of two large computer game development firms and the further development of small developers around these two firms have created an environment that attracted people from other part of the UK, such as London and the South-east.⁹⁶ A similar development, but on a smaller scale, can be seen in Skåne.

In Skåne, the combination of good quality-of-life factors and buzz in moving media provide the dual asset of helping to retain people with the qualifications and experiences needed in the region, and attracting people interested in working in moving media to move to the region. A positive aspect of moving media in the region that was mentioned by several interviewees is the opportunity to combine working in a firm and

⁹⁴ For further discussions about the role of quality of life factors and regional development in the knowledge economy, see Reardon (2009)

⁹⁵ Asheim *et al* (2007). See also chapter 2.2.1.

⁹⁶ James *et al* (2010a)

being involved in teaching and research at the university. We will return to this below. These assets of the city region are an important aspect of the anchoring of knowledge in an activity where mobility in various ways is important. An interesting example of a proactive initiative to attract people to the region is the cluster organisation Veneto Nanotech ScPA (Italy). It organises an annual competition for business plans, where the winner is offered starting capital and opportunities for offices in a science park. In addition, immigration of international talented researchers is encouraged through the funding of short-term fellowships.⁹⁷

Important factors for attracting film productions to Skåne include the regional film fund managed by Film i Skåne, the more recent subregional film fund, and the facilities for film production; for example, Ystad studios. Access to Film i Skåne's film fund is conditional and includes demands about employing staff living in the region when shooting the film. Training programmes for film workers have been implemented to augment the regional supply of skilled film workers.⁹⁸ However, a key way to learn different tasks in film work is through taking part in film productions. Film projects are very complex and involve a large number of occupations and functions. Some projects include over 100 people, but in some cases, the same person can perform several functions within the project. By stating that film projects that are co-funded by the film fund must employ regional staff, continuous learning and development of the local stock of film workers is secured. Film workers not only learn from each other while working on film projects but also obtain the networks necessary for finding a job on another project. Film work is totally project based, and the shooting of the film is a short part of the life of a film project.⁹⁹ Making funding conditional on employing regional staff and supporting the training of film workers can be seen as examples of anchoring knowledge in the very mobile world of film work.

In some of the EURODITE case studies, it is obvious that freelancers and consultants are important carriers of knowledge. This role can be seen across sectors; for instance, in the automotive sector connected to knowledge-intensive business services in the West Midlands (the UK) and South-east Lower Saxony (Germany). These freelancers are mostly highly paid and work internationally. As in the case of freelancers working in game development firms in the West Midlands, many of the film workers in film production in Skåne are freelancers who are not well paid.¹⁰⁰ The international co-production of films, which

is increasingly the norm, and the pattern in the major film projects in Ystad generate film production teams that are built by people from many places. Film teams consist of people from many places and countries, and in Skåne, the proximity to the capital region of Denmark is particularly noticeable in the film teams. Film workers from Skåne also work in film productions taking place in other film regions in Sweden and overseas.¹⁰¹

Because of the increasing degree of international co-production, the film teams tend to be assembled by people from different countries who come together for each production. The knowledge interaction therefore includes a mix of learning taking place in close proximity and involving learning from further afield because the film team is gathered in the same film location in Ystad and the surrounding area. This is another example of how buzz interaction is important for knowledge interactions in moving media in Skåne.¹⁰²

The knowledge biography of Agent O described in Chapter 3 can be interpreted as a case where mobility within international academia has played an important role through the interactions between Malmö University and MIT, and the workshop at the University of Wisconsin. The possibility for the students of Malmö University to continue developing Agent O, first as freelancers and later in the form of a spin-off company, can be seen as a way to anchor knowledge that is exchanged and developed through this mobility.

There are examples of inflow and recirculation of knowledge through the same people being involved in different functions with different actors in the same locality. Some people who lecture and conduct research at K3 in Malmö University are also running their own businesses based on the incubator Minc. The importance of multiple roles—for instance, teaching or performing research at university in combination with having other work or one's own firm—is a frequently mentioned phenomenon in the EURODITE and REKENE case studies. The way that education is organised in the business-oriented University of Malmö includes work practice placements in firms. In this way, students in interactive design at K3 have had placements in game development firms. An example of this is a student who had a placement in a Malmö-based game development company and later started a game development firm based in the incubator Minc. The placement of students in businesses is frequently mentioned in the REKENE reports; for instance, in the Oulu South region (Finland) and Värmland (Sweden) case studies.

⁹⁷James *et al* (2010a).

⁹⁸Dahlström *et al* (2005).

⁹⁹Dahlström & Hermelin (2007).

¹⁰⁰James *et al* (2010a) and Dahlström *et al* (2007).

¹⁰¹Dahlström & Hermelin (2007) and Dahlström *et al* (2007).

¹⁰²Asheim *et al* (2007). See also chapter 2.2.1.

4.6 Knowledge anchoring through events

Another way of tapping into extra-regional knowledge and recirculating knowledge within the region is through different types of events. By ‘event’, we mean an organised and temporary event of some sort—for example, a fair, conference, seminar or a study tour—in which people meet physically and interact. Extra-regional knowledge can be accessed either through people from the region travelling outside the region to attend events and bringing the knowledge home, or through the organising of events within the region, which brings knowledge to the region through presenters and participants in the event.

Events are by definition arenas for recirculation of knowledge. Compared with ordinary meetings, events are characterised by the fact that people would not otherwise meet or be brought together. Consequently, expected as well as unexpected knowledge interactions can take place. As examples of expected knowledge interactions lectures, presentations and sales spiel can be mentioned,¹⁰³ while informal, sometimes unexpected, knowledge interactions take place through, for instance, mingling. Relying on the academic literature as discussed briefly in Chapter 2.2.1, we would argue that events are characterised by the coexistence of intertwined buzz and pipelines.¹⁰⁴ Another feature of events is that they combine tacit and codified knowledge exchange through interaction among individuals and the availability of published material.

In several of the other EURODITE and REKENE case studies, we have found examples of public actors, networks and industrial organisations that are involved in organising and/or providing funding for different kinds of events. Policy instruments often contribute by providing co-funding events or providing financial support to facilitate attendance by firms or individuals. The role of various private and public actors and public funding in organising events can also be seen in the game development case study in Skåne. The introduction of the Nordic Game Programme, funded by the Nordic Council of Ministers, to support game development in the Nordic market, has increased opportunities for game developers in Skåne and elsewhere in the Nordic countries to develop products for the home market. The programme supports knowledge anchoring through funding the ‘Nordic Game’ annual conference in Malmö, which attracts over 1,000 delegates from around the world. The importance of organising such an event in a region is that it attracts

participants from around the world. Another example is the case study of photonics in Aquitaine (France). Here the ‘Invest in Photonics’ event is claimed to be a unique way for local actors to access worldwide dispersed knowledge about new market tendencies rapidly. In addition, it facilitates business opportunities with both internal and extra-regional actors.¹⁰⁵

The Nordic Game Programme has also facilitated the participation of game developers in Skåne in international fairs and conferences, thereby expanding their networks and knowledge exchange geographically, and has contributed to knowledge anchoring. A concrete example is that public funding through the Nordic Game Programme has been made available for game developers in Skåne to attend international fairs and conferences such as the ‘Game Developer’ conference in San Francisco and ‘Game Connection’ in Lyon. The opportunity for individuals within game development to use regional funding to attend fairs and conventions and to travel to potential markets is also mentioned in the game development case study in the West Midlands (the UK). Regional public co-funding, and co-funding from the Structural Funds, has also been made available through the platform for cluster development, MMSS, which has co-financed the ‘Nordic Lounge’ at the Electronic Entertainment Expo in Los Angeles to help moving media firms from Skåne to market themselves and to find collaboration partners and investors. These are clear examples of the scope for policy to support anchoring of knowledge within moving media.

There are further examples of events supporting knowledge anchoring within moving media in Skåne. In addition to being a film attraction, Cineteket hosts events for people in the industry. Once a month, a ‘movie breakfast’ is organised, where people in the film industry meet to network and to exchange information about what is going on with regard to films in Ystad. Ystad municipality also works very actively with stimulating and facilitating for film productions. Movie nights are organised for people in the industry, film and media students, and others who are interested. These are examples of how Ystad municipality and Cineteket act to mobilise and anchor knowledge with regard to film production and film tourism.

Also within the territorial knowledge dynamics of film tourism in the region, there are examples of combinations of proximity and distance knowledge interactions. Visitors come to the film attractions from far afield, and their demands generate product development in these attractions. Those working in the attractions themselves travel to other attractions and

¹⁰³ In connection with such activities codified knowledge may also be acquired. Compare section 4.4 discussing anchoring of knowledge through codified knowledge.

¹⁰⁴ Bathelt (2007) and Owen-Smith & Powell (2004).

¹⁰⁵ James *et al* (2010a).

to fairs to learn and recombine knowledge to continue product development at home. An interesting cross-over between the film tourism and film production in Ystad is how knowledge exchange and anchoring can take place via the meetings at Cineteket and those organised by Ystad municipality as part of their film-friendly strategy.

Based on some of the case studies in the EURODITE project, we have also seen that the tourism sector offers examples of how, when events function as a channel for knowledge anchoring, which include visiting attractions, there is a tight interaction between consumers and producers. The tourist as a consumer is exemplified in the North Rhine, Westphalia (Germany) case where sports events and the Love Parade include activities for consumer–producer interactions resulting in such benefits as new knowledge about market demands. In the Skåne case, studying new knowledge

is, for instance, generated in the interaction with visitors at Cineteket. An important group of visitors come from Germany, and although the interaction takes place at the attraction, it can be seen as an example of distance interaction. To generate new knowledge and to develop the film tourism product, it is necessary to have the capacity to understand both the language and the context of the visitors. Also, the connection between selling an experience and knowledge development can be seen in the food and drink case study in Region Zealand (Denmark) in the REKENE project. There micro firms producing food and drink have begun to sell the experience of observing the production of food and drink as a kind of ‘edutainment’. The immediate feedback from the consumers during such an event generates new knowledge about the user demand for the producers.

4.7 Concluding comments

We have defined anchoring as knowledge coming from outside a region, which somehow ‘sinks in’ and is recirculated within the region. Recirculation of knowledge means the processes by which knowledge is used by firms and institutions within a region other than the one that acquired the knowledge from an external source. Knowledge anchoring has been analysed according to four different ‘channels’.

Knowledge anchoring through firm-level interactions has been found to take place through both organised networks and direct interactions between firms, and to be influenced by the role of higher education institutions and R&D infrastructure. Examples of organised networks in many cases result from partially publicly funded regional cluster initiatives that establish cluster or platform organisations either within one sector or with cross-sectoral focus; for example, in ICT and new media firms.

Acquisition of codified knowledge is not often mentioned explicitly in case studies. This may be because this type of knowledge anchoring is more or less taken for granted. However, in the cases where acquisition of codified knowledge is highlighted, these studies refer to the acquisition of licences that are afterwards developed into products.

The channel ‘work-place or job-related mobility’ has demonstrated several regional examples of the influence of multinationals that play a role in attracting knowledge workers. Moreover, especially in the Nordic case studies, examples were found of people with dual positions, at a university as a lecturer and in a firm. This indicates a form of mobility that strengthens knowledge transfer between academia and the business community.

5. Knowledge dynamics and interactions seen from a firm-level perspective

Firm-level knowledge dynamics concern how knowledge is developed and transferred at a micro level, within a firm or an organisation, or within a network. By studying knowledge interactions at this level, it is possible to obtain greater depth and detail about knowledge dynamics than is the case at the level of territorial knowledge dynamics. The links between firm-level and territorial knowledge dynamics are often seen through the interactions of actors involved at both levels.

As discussed in Chapter 1, the reasons for exploring the dynamics of knowledge are that a knowledge-based economy is considered vital for competitiveness in the global economy and that knowledge is crucial for innovations. By studying the knowledge dynamics, processes of knowledge interactions can be unravelled. The types of actors involved in the processes become

clear, and a better understanding of how the knowledge interactions actually take place can be achieved.

The EURODITE project concerns the geography of the knowledge interactions and the actors involved in these. Furthermore, the project looks analytically at knowledge from different perspectives. As discussed in section 2.1, it is recognised that there are different types, phases and processes of knowledge. In this chapter, the firm-level dynamics in Skåne are studied. The cases of Agent O and of The Film Track are analysed against this analytical framework. We explore whether the research using this framework brings any further understanding of various aspects of knowledge dynamics. Brief comparisons with the findings from the research into firm-level knowledge dynamics from the other Nordic case studies in the REKENE project¹⁰⁶ are also made.¹⁰⁷

5.1 Geographic distance of knowledge interactions

Interaction within moving media tends to take place among major urban areas, and this can be seen in the firm-level knowledge dynamics in Skåne. However, particularly in relation to the knowledge dynamics in film tourism, interactions among smaller towns and rural areas are significant. In both game development and film tourism knowledge dynamics, local interactions are highly important, at the same time as international interactions are very clear.

The local context is of great importance for game development. An important venue for the development of Agent O was the School of Education and the School of Arts and Communication (K3) at Malmö University. This is thus an example of interactions among actors facilitated by proximity. However, the development of Agent O shows that critical knowledge (here the source code) was not produced at the local or regional level. In this instance, an extended spatial network with

MIT in Boston was needed. This co-operation resulted in MIT providing the Environmental Detective game and later the source code, which was essential for the development of Agent O. Distant interaction in the shape of participation in a workshop at the University of Wisconsin was also valued as an important contribution to the development of Agent O. Proximity learning was critical in terms of the development of the game, in which two departments at Malmö University were involved, and in terms of the testing of the game at a local school. It is interesting to note that a combination of close and distant knowledge interactions was necessary for the successful development of the game. Contact with the distant actor, MIT, was made after a deliberate search for a strong milieu regarding serious games.

¹⁰⁶ See further about the REKENE project in section 1.1.1 of this report.

¹⁰⁷ A list of the case studies in REKENE is included in Appendix 3.

Game development and moving media development in Skåne consequently benefit from knowledge interaction ranging from interaction at very close proximity to long distance at an intercontinental scale. Close-proximity knowledge interactions particularly take place among actors in Västra Hamnen in Malmö, in the University, in Minc, in MMM, in the Nordic Game Programme, and within a slightly wider community within the city, in firms like Massive Entertainment, Upside Studios and TAT. There are also firms with offices in several countries, such as TAT.

However, the firm-level knowledge dynamics studied highlight the finding that new critical knowledge is developed within networks of circulation and anchoring. Exchange of embrained knowledge takes place both in Malmö and, for example, at MIT and at a conference at the University of Wisconsin. Actors from Malmö have travelled to interact, and the key person at MIT has visited Malmö to give lectures. *Mobility* is therefore crucial and has been funded through research grants. The anchoring of knowledge at Malmö University and later the spin-off company Awnic was facilitated by the multidisciplinary and business-oriented character of Malmö University.

It can be said that Malmö, the third largest city in Sweden, has acted as a node for knowledge circulation. Mobility in terms of international interaction such as contacts and visits by lecturers and researchers in universities to exchange knowledge and to participate in conferences and workshops is encouraged by Swedish research policies. It is an important evaluation factor when research councils are selecting research proposals to fund. In the case of Agent O, funding through research grants facilitated interactions with MIT and participation in a workshop at the University of Wisconsin.

With regard to the issue of geographical distance and knowledge interactions, the knowledge biography of The Film Track is characterised by collaboration among three regional attractions. Two of them, the Hasse & Tage Museum and Cineteket, are located in the neighbouring municipalities of Tomelilla and Ystad, respectively. The third attraction, the Region Museum in Kristianstad, is about 80 kilometres away. There are also examples of more distant interactions, such as the visit by two members of staff from the Cineteket to the crime story fair in Horsens in Denmark, and the marketing collaboration between the Hasse & Tage Museum and the PAN Vision company based in Stockholm.

The most important geographical aspects of the knowledge interactions regarding The Film Track are, however, the visitors to the three attractions. Concerning customers or visitors, the local markets are very important. This includes visitors such as the local population and schools, as well as, to an increasing degree, firms taking part in corporate events at Cineteket. The domestic Swedish tourism market is also important, and this includes visitors from all over the country who have travelled to Skåne for holidays, meetings or business tourism that may also include a visit to, or an event at, one of the attractions. With regard to the international market, the German market is very important for Cineteket. These visitors travel from a greater distance, although it is a close market in terms of the international scale. Preliminary indications in 2009 show an increase in the number of British visitors that may be related to the screening of the three BBC-produced Wallander films in late 2008. The demand from the tourists is a driver of product development at Cineteket.

The producer–consumer interactions that these visitors take part in at the attractions represent a phenomenon that is increasingly identified in research on innovation. Through interactions among visitors, the producers obtain invaluable knowledge about their markets and demand that leads to further product development. The concept that is increasingly used in the literature to highlight the importance of the interaction between consumer and producer and its role in innovation is user-driven innovation.

Both firm-level knowledge dynamics studied in Skåne include a combination of knowledge interactions at small and large distances. The Skåne region is important for knowledge interactions, but the region should by no means be seen as a closed container. Important knowledge interactions take place among actors inside and outside the region, both nationally and internationally. This pattern of a combination of important intra-regional and extra-regional knowledge interactions is also present in the seven Nordic knowledge dynamics studied in the REKENE project. These case studies provide evidence from other sectors, such as information and communication technology and knowledge-intensive business services, that regional knowledge interactions are linked with knowledge interactions at great distances when necessary. Actors within the regions have actively sought out knowledge where it has been needed, and have connected with it.

5.2 Types of actors involved in the knowledge interactions

A key characteristic of knowledge dynamics and interactions in moving media in Skåne is the importance of all the different networks in which individuals are involved and how these networks interlink and are overlaid. Another significant feature of the knowledge interactions is the meeting places, networks and platforms where different actors can meet and interact both physically and through other means. These meetings are facilitated through actors ranging from Region Skåne to Cineteket and are supported with funding contributions from local, regional, national and EU sources in various constellations.

The overall picture of the firm-level knowledge dynamics about game development is a network of individuals that is connected to the School of Education and the School of Culture, Arts and Communication (K3) at Malmö University. A professor acted as a broker and facilitator, because she had financial means and an interest in initiating the project and has been continuously involved; for example, through financing further development of Agent O. However, the development of Agent O was in the hands of the three final-year bachelor's students who later started the firm Awnic, where the further development of Agent O now is based. Two PhD students were also of crucial importance in the knowledge biography. In addition, another person at the School of Education was central to testing the game in schools and providing input on adapting the game to the curriculum. Finally, a professor at MIT in Boston had a crucial role, particularly in relation to the first game platform and the source code. He is also part of the Malmö University network and has, for example, lectured at the university.

The knowledge dynamics of Agent O clearly show the great potential for innovation within networked higher education institutions. It is also clear that in addition to the entrepreneurialism and commitment of the individuals in the knowledge dynamics, there is a context and framework that facilitates commercialisation from the innovation to spin-off to a private firm.

The Film Track knowledge biography is also characterised by the network nature of collaborations and knowledge interactions. Almost all interactions take place within the network of the three attractions, Cineteket, the Hasse & Tage Museum, and the Region Museum, and the overlying networks of the key individuals in these attractions, particularly those of the main people at the Region Museum and at Cineteket. Marketing collaboration and product development are very important to small businesses and activities.

Each attraction stands to gain from collaboration by attracting a larger number of visitors. The main people at Cineteket and at the Region Museum stress the importance of their large networks, in that they utilise in a number of methods in their work. The key person at the Region Museum has worked there since the early 1980s, and his network, particularly within the area of film in the region, has therefore been built over a long time. The main person at Cineteket, on the other hand, utilises the network that she developed when she lived in the UK, and since she moved to Skåne, she has extended it to include individuals and actors in the region. A specific example of how these networks are drawn upon is when the exhibition designer for 'Skåne and film' at the Region Museum was found and recruited from within the network. The graphic designer that was needed at Cineteket was also recruited from within the network, where both key people had worked at the film production team of 'Frostbites' in Ystad. Another crucial actor in the network is the tourism department of Ystad municipality. The collaborations and knowledge interactions deal with themes such as knowledge of exhibitions, different types of tourists, product development and marketing.

Market knowledge and product development are at the heart of the knowledge dynamics of The Film Track. It is interesting to note that types of knowledge other than those in the Agent O case also mean that a variety of actors are involved in the knowledge dynamics. For the knowledge dynamics of Agent O, crucial knowledge was generated in the universities, while essential knowledge for the dynamics of The Film Track was generated through business activities and in interactions with local authorities. In both cases, public actors have therefore played important roles in knowledge dynamics.

The mix of types of actors involved in the firm-level knowledge dynamics of Agent O and The Film Track is representative of firm-level knowledge dynamics in the REKENE case studies too. All these case studies have complex mixes of actors within their knowledge dynamics, but the types of actors emphasised vary somewhat. In all cases, public sector actors are involved, which indicates that there is scope for policy strategies and initiatives within knowledge dynamics. Higher education institutions are important public actors in many but not all cases. Local and regional authorities are also involved in knowledge dynamics at the firm level. Furthermore, because firm-level knowledge dynamics offer opportunities to study

knowledge interactions at a detailed level, it is also clear in both the Skåne and REKENE cases that personal contacts and networks are crucially important. This fact also links to the issue of transfer of tacit knowledge and

knowledge sharing in general. Personal knowledge of people within the networks facilitates such knowledge sharing through a certain level of trust.

5.3 Knowledge types represented in knowledge interactions

In this section, we briefly analyse the knowledge types represented in the dynamics of Agent O and The Film Track. As discussed further in Chapter 2.1.1, EURODITE has used the analytical distinction of three different types of knowledge; *Analytical knowledge* or research-based knowledge, *Synthetic knowledge* or 'engineering-type knowledge' derived from the application of research, and *Symbolic knowledge* that relates to representation such as the 'styling' and marketing of a product.¹⁰⁸ There is an increasing body of academic literature dealing with these knowledge types, but in the following short analysis, we utilise two main sources that also research knowledge phases.¹⁰⁹

Symbolic knowledge is highly relevant to the moving media sector, particularly regarding the content side. This type of knowledge deals with ideas, symbols and socially constructed commodities.¹¹⁰ Interaction with users and consumers is therefore of great importance to symbolic knowledge. With regard to analytical knowledge, this type of knowledge interaction was crucial with MIT in the Agent O case. This interaction provided access to the first game and later to a stable platform and the full source code for the game.

In terms of knowledge types, the development of Agent O mainly relied on a combination of synthetic and symbolic knowledge throughout the entire project. There are several examples of synthetic knowledge where 'innovation takes place mainly through the application of existing knowledge or through the new combination of knowledge'.¹¹¹ Use of the first Environmental Detectives game in new ways was an example of this. Symbolic knowledge was also crucial for the development of Agent O. An important aspect of symbolic knowledge is 'learning through interaction in the professional community, learning from youth/

street culture'.¹¹² Examples of symbolic knowledge in the case of Agent O are therefore when the game was tested by pupils in schools and when the game scene was redeveloped to take place in the local area of Västra Hamnen in Malmö.

The entire knowledge biography of The Film Track is characterised by symbolic knowledge. A more detailed description of symbolic knowledge states that it 'relates to the aesthetic attributes of products, to the creation of designs and images, and to the economic use of various cultural artefacts'.¹¹³ This clearly relates to the world of exhibitions, museums and attractions. However, the use of synthetic knowledge also appears throughout the knowledge dynamics of The Film Track. Aspects of synthetic knowledge include interactive learning with users,¹¹⁴ something that links directly with the demand-led product development at Cineteket generated by the interactions between the visitors and the staff of the attraction.

The importance of symbolic knowledge for the firm-level knowledge dynamics of Agent O and The Film Track is stressed above. It is perhaps not surprising that these knowledge dynamics have strong symbolic knowledge content because they are played out in the moving media sector where the proportion of symbolic knowledge is high. However, in all the seven REKENE cases, the importance of symbolic knowledge in firm-level knowledge dynamics was clearly stressed. In many cases, symbolic knowledge is of importance in relation to marketing, a knowledge area that can be underestimated in knowledge economy thinking. Yet there were also examples of the importance of symbolic knowledge in relation to very technical firm-level knowledge dynamics, that of the licences gaming operator in Åland.

¹⁰⁸ EURODITE (2007).

¹⁰⁹ The two sources that we chiefly use are: Asheim *et al* (2007) and Strambach (2008).

¹¹⁰ Strambach (2008) p. 158.

¹¹¹ Strambach (2008) p. 157.

¹¹² Asheim *et al* (2007) p. 661.

¹¹³ Asheim *et al* (2007) p. 664.

¹¹⁴ Asheim *et al* (2007) p. 661.

5.4 Knowledge phases in the knowledge interactions

In this section, we briefly analyse the knowledge phases that are represented in the knowledge dynamics of Agent O and The Film Track. As discussed further in Chapter 2.1.2, EURODITE has used the analytical distinction of three phases of knowledge: exploration, examination and exploitation. However, it is important to stress that knowledge dynamics seldom entail a linear process. Instead, the development may take place in different phases at the same time, and there may be loops between the phases. The *exploration phase* is characterised by the action of searching for new knowledge. The phase may include scientific knowledge but not necessarily. The *examination phase* is understood as a testing phase. An example might be stress testing of a new material or component. Finally, the *exploitation phase* can be seen as the ‘selling’ or ‘using’ phase in which knowledge is put to use. This may be for financial return but may also, as in academia, be for status, position or recognition.¹¹⁵

In terms of knowledge phases, the development of Agent O mainly displays examples of exploration and examination. The project begins as part of a university study. The driver to find new economic opportunities was not the starting point but the element of ‘discovery’ as part of the research process. The first drive may be seen as research drive. Exploration can also be a process ‘of finding new economic opportunities to profit from these’.¹¹⁶ When the bachelor’s students became involved in the project, it can be argued that they were partly driven by the ‘economic opportunities’ factor because they were interested in starting a business after graduation. This can be seen as an example of an entrepreneurial drive. The knowledge phase examination represents ‘testing, experimentation and validation activities ... aimed at improving the knowledge content with regard to its appropriateness for commercial value added’.¹¹⁷ Different versions of the game were tested several times followed by amendments to improve the game.

The workshop activity at the University of Wisconsin can also be seen as an example of examination. The phases of the development of Agent O that form these knowledge dynamics represent a continuous interaction between exploration and examination. At the very end of the knowledge biography, the game is being prepared for the market, and at this stage, the third knowledge phase of exploitation is beginning to appear.

The early stages of The Film Track knowledge dynamics were characterised mainly by exploration but in a different way from the research-based exploration phase of Agent O. Exploration remains important throughout knowledge dynamics because it relates to constant interaction with visitors to remain familiar with their desired experiences. This can be seen as a form of market research that can be seen as a combination of exploration and symbolic knowledge.¹¹⁸ Examination and exploitation come into the knowledge biography at a fairly early stage in connection with the opening of the first exhibition. When visitors visit an exhibition, it is an example of exploitation, but it can also be seen as examination in the sense that the exhibition producers obtain a ‘test’ of their product. Hence, in The Film Track, there is a constant overlap of the knowledge phases of exploration, examination and exploitation.

It is very clear in the firm-level knowledge dynamics of both Agent O and The Film Track that the three knowledge phases are interlinked and cannot be seen as a linear process starting with examination. This is also clear in the seven forms of firm-level knowledge dynamics of REKENE. All these cases included aspects of all three knowledge phases, and there were loops, spirals and overlaps among the three. The details that concern studies of firm-level knowledge dynamics clearly shed light on the complexity of these phases and highlight the fact that the processes are far from linear.

¹¹⁵ EURODITE (2007).

¹¹⁶ Strambach (2008) p. 160.

¹¹⁷ Strambach (2008) p. 160.

¹¹⁸ Strambach (2008) p. 161.

5.5 Knowledge processes in the knowledge interactions

In this section, we briefly analyse the knowledge processes that are represented in the knowledge dynamics of Agent O and The Film Track. As discussed further in Chapter 2.1.3, EURODITE has used an analytical distinction of knowledge processes: *cumulative* and *composite* knowledge. *Cumulative knowledge* is where new knowledge builds and depends directly upon existing knowledge within the same field of discipline. *Composite knowledge* depends upon several disciplines or functional areas of knowledge.¹¹⁹ Typical of the generation process of composite knowledge is thus that diverse and basically separate knowledge stocks are brought together. However, each knowledge stock may be rooted in a cumulative knowledge process.¹²⁰ It is argued that the capacity to develop and to utilise composite knowledge is a good seed bed for innovation.

The firm-level knowledge dynamics of both Agent O and The Film Track are characterised by composite knowledge dynamics. In fact, the essence of moving media is related to composite knowledge dynamics, and this is also the reason for focusing on this sector despite its limited share of employment in Skåne as pointed out in Chapter 3. Moving media interact with a number of different other sectors in the economy

and contribute to the generation of new knowledge and new products in terms of both goods and services. The connections between moving media and ICT are very clear, and we have highlighted the connections between moving media and tourism. The game development firm-level knowledge dynamics of the serious Agent O game also highlight the interaction between moving media and education. This is a growing field with interesting potential in a variety of ways. An example mentioned by one of the interviewees was the use of serious games in health education for people who cannot read. The interviewee was referring to a research proposal dealing with applications where serious games could be used to inform illiterate people about safe sex in countries seriously affected by HIV and AIDS.

Both cumulative and composite knowledge were also present in the REKENE firm-level knowledge dynamics. It seems there may be stages in the knowledge dynamics that are more characterised by cumulative knowledge processes while others are characterised by composite knowledge interactions where complementary knowledge is needed to develop the goods or service further.

5.6 Concluding comments

By examining how knowledge is developed and transferred from a micro-level perspective, more details of knowledge interactions have been provided. Regarding geographical distance, we can conclude that knowledge interactions have a multiscale character, because we see a combination of important contacts among actors inside and outside the region in the knowledge biographies.

We can also conclude that knowledge interactions have a multi-actor character. A variety of actors, ranging from public actors such as local authority departments and higher education institutions to individual entrepreneurs, are included in the studied knowledge biographies. We also see that individuals belong to different networks that are interlinked and overlaid, which may facilitate knowledge interactions across contexts. The same person can also have multiple

roles in the knowledge dynamics; for example, by both lecturing at a university and running a business.

Regarding knowledge types, we have shown the importance of symbolic knowledge in the knowledge biographies. Furthermore, this kind of knowledge is often connected with other types of knowledge, such as analytic knowledge as in the case of the source code needed to develop Agent O.

By using a knowledge biography method, we also conclude that the different knowledge phases are interlinked and may take place at the same time. The complexity of innovation processes—for instance, in combining different kinds of knowledge and actors as well as their non-linear character—is also highlighted.

It has also been demonstrated that knowledge interactions take place across sectors—however, in various degrees—because complementary knowledge

¹¹⁹ EURODITE (2007).

¹²⁰ Strambach & Stockhorst (2010)

has in all cases been needed to develop the goods and services. Composite knowledge is an important dimension of cross-sectoral knowledge interactions.

We may further conclude that policy instruments play a role in knowledge interactions. In the next chapter, we examine more closely the role that policies

play in the development of activities connected to new and moving media in Skåne. We also compare the policy landscape of importance for new media in Skåne with the policy instruments that have been displayed in the two other EURODITE case studies, beginning with the new media sector.

6. Policies influencing new media in Skåne—a European outlook

Public policies of importance for knowledge interactions have been discussed in relation to regional context, sector, and territorial and firm-level knowledge dynamics in respective chapters of this report. In this chapter, a systematic discussion of public policies in relation to knowledge interactions in new media is conducted. An overview of the characteristics of public policies linked to the new media industry in Skåne is provided. An overview of the two other new media case studies in EURODITE is provided to show how public policies are enacted in other European regions. One of these studies

was conducted in the West Midlands region in the UK and focused on game development, while the other case study involves Bavaria in Germany and its activities in film production. This chapter does not cover all aspects of public policies influencing new media; however, it is intended to provide a view into current policy patterns and indicate similarities and differences between the regions that have been studied. The structure of this chapter is based on the key dimensions for policies played out at the regional level in Europe as introduced by Halkier.¹²¹

Table 6.1. Key dimensions of public policy at the regional level

<i>Dimension</i>	<i>Subdimensions</i>	<i>Variables</i>
Organisation	Geographical coverage Political influence	Complete / partial / absent Direct / arm's length / diffuse
Strategy	General direction of change Target institutions Target capabilities	Expansion / duplication / modernisation / creativity Individuals / firms & organisations / system Hardware / software / orgware
Policy instruments	Resources Rules	Authority / information / finance / organisation Mandatory / conditional / voluntary
Knowledge impact	Knowledge types Knowledge phases	Analytical / synthetic / symbolic Exploration / examination / exploitation

Sources: Reworked on the basis of Halkier 2006, Chapter 3, and Cooke 2005.

As illustrated in Table 6.1, the *organisation* of regional policy is significant in terms of the geographical location of potential beneficiaries and the extent to which politicians can influence policy-making. The regional development *strategy* is crucial in terms of the general direction of change; that is, which institutions are supposed to change and with regard to what capabilities. *Policy instruments* refer to the methods used to make it attractive for policy targets to behave in line with public policy priorities by providing access to particular resources. Finally, the *knowledge impact* of policies can be evaluated in terms of the economic purpose of knowledge activities and the nature of the knowledge involved.¹²² The introduction of the two-dimensional model, involving knowledge types and knowledge phases,¹²³ includes a wider perspective than the traditional focus on natural-science-based

R&D to include more creative forms of knowledge. Combinations of science-based and creative knowledge can be important to the economic success of individual firms and regions.

Before initiating this analysis, the main characteristics of policies identified in the new media case studies are briefly introduced. It is evident that public funding programmes for networking, business development and R&D activities are prevalent with regard to game development both in Skåne and in the West Midlands. These funding opportunities are in line with the characteristics of the new media industry and game developers, which need to adapt rapidly to changing technologies through measures such as R&D activities, business development and knowledge sharing through networking.¹²⁴ As with game development, public funding programmes for film production are

¹²¹ Halkier (forthcoming).

¹²² Halkier (forthcoming).

¹²³ Asheim & Coenen (2005) and Cooke (2005).

¹²⁴ Staines & Collinge (forthcoming).

represented in both Skåne and Bavaria, mainly targeting funding for film production.

Development of infrastructure as a result of public policy was evident in the three case studies. For moving media and game development, this entails the establishment of incubators in proximity to universities to support business start-ups. With regard to film production, as part of the regional cluster strategy in Bavaria for film production, a film centre has been built including facilities that provide office space and services to business start-ups in the industry. Development of infrastructure in terms of film production has also entailed the establishment of film production studios. Moreover, the establishment of meeting venues for actors in moving media, game development and film production was evident in the studies conducted in Skåne, the West Midlands and Bavaria.

Higher education programmes exist in the case study regions for moving media, game development and

film production. As discussed in Chapter 3 in the case of such programmes in Skåne, it is not only state funding of higher education institutions enacted at the regional level that contributes to these education opportunities. Funding has also come from the municipality of Ystad and Sparbanken Syd for the two master's programmes at the 'Film University' in Ystad.

Internationalisation activities are also supported for game development, which takes place in the form of funding opportunities for participation in international conferences, other events and trade missions to potential game development markets. This is supported in the West Midlands by national trade organisations. Moreover, new media events are hosted by the case study regions to attract participants and presenters from other regions. In Skåne, the annual Nordic Game event is organised by the Nordic Council of Ministers' Nordic Game Programme. Further information about the organisation of events can be found in Chapter 4.

6.1 Organisation of public policies enacted at the regional level

Based on the EURODITE case studies, the organisation of public policy linked with new media involves some public funding from the EU and national programmes, but in every case, it is co-financed by regional and/or local authorities. In the film production cases, in both Skåne and Bavaria, regional public organisations manage the distribution of national funds for film production at the regional level. The political influence in the West Midlands and Bavaria has mainly involved regional development agencies, while local authorities are not stressed as important actors in these case studies. In Skåne, on the other hand, both Region Skåne and a number of municipalities have demonstrated

political influence. Examples of how the local level has influenced policy-making are the establishment and ownership of the incubator Minc by Malmö City, the establishment of a local film fund in Ystad-Österlen, and the number of initiatives related to 'The Film Track' adopted by the municipalities of Ystad, Tomelilla and Kristianstad. The importance of the local authorities in Skåne relates to the strength of this level of public administration in Sweden, unlike in the UK, and carries a remit to work with economic development. In Germany, local authorities also have an opportunity to work with economic development, but examples of this were not found in the EURODITE case study.

6.2 Strategy

The general direction of change for regional public policy is divided into four main categories: expansion, duplication, modernisation and creativity.¹²⁵ Expansion involves seeking a greater volume of activity within existing firms, while duplication implies a greater volume of activity through the creation or attraction of new firms. Both of these types of strategies are visible to some extent in policies linked with new media; for

example, through support for business development and the establishment of incubators to create new firms. The policies would, however, seem to be mainly targeted at modernisation and creativity. Modernisation involves activities within existing firms to help them become more competitive through investment in new technologies, R&D and inter-firm networking resulting in new products or production processes. Creativity refers to the encouragement of new types of economic

¹²⁵ Halkier (forthcoming).

activity within new firms either through incoming, local investors or spin-offs from existing firms.

In terms of target institutions, distinction is made among individuals, firms and organisations, and the system. The case studies have indicated that the system is in focus in terms of new media. Thus, in Skåne, in collaboration with the neighbouring Region of Blekinge, and as part of the regional Structural Funds Programme, a cluster strategy has been developed around new media. The main initiative is Moving Media Southern Sweden (MMSS), and another cluster initiative is funded by the national level Media Mötesplats Malmö (MMM). In 2010, MMSS and MMM merged in the Media Evolution initiative, which continues the development of the industry, and which is furthermore developing a physical hub in Malmö to focus on moving media.¹²⁶ In the West Midlands, the system is also the focus of policies, because the regional development agency aims to develop a cluster around serious game development. This has, for example, resulted in the establishment of the Serious Games Institute, which functions as an incubator and is located in proximity to Coventry University. Similarly, the regional development authority of Bavaria aims to develop a film production cluster, which is one of the focus areas of its regional development strategy. Through the regions' development of different

new media clusters/systems, public policy initiatives target the development of individuals, firms and organisations in the industry.

Target capabilities of public policies distinguish among hardware, software and orgware. As described above, the new media case studies provide many examples of hardware in the development of infrastructure. Software refers to the development of individuals and firms, such as in the form of training and education. Taking as an example opportunity for higher education, which is evident in all case study regions, it is notable that the Munich Academy for Television and Film was established in the 1960s. The education opportunities at the academy entail people developing informal networks during their studies that they later use in their professional lives in the region. The higher education programmes related to film production in Skåne were initiated in 2008.¹²⁷ With time, the education opportunities may have a similar influence in Skåne in terms of facilitating an informal network among film professionals in the region. Finally, orgware, which refers to the development of professional networks and cluster organisations, has also been targeted in Skåne. In conjunction with this, one can again point to the policy initiatives MMSS and MMM¹²⁸ as examples of cluster organizations.

6.3 Policy instruments

Policy instruments used to induce change among targeted economic actors combine resources and rules to make actors behave in ways conducive to policy goals. Different types of resources are made available under generally stringent conditions.¹²⁹ Conditional rules have been shown to be the most widespread in the new media case studies, often in combination with resources in the form of financial or organisational support. An

example of conditional rules for access to finance is the provision of funding for film teams shooting in Skåne and Bavaria on the condition that local people are employed as project staff. Organisational resources refer to 'soft' measures such as networking initiatives that exist in Skåne; for example, as part of MMSS and MMM¹³⁰. The use of mandatory rules and authority has not been evident in the new media case studies.

¹²⁶ Further described in Chapter 3.

¹²⁷ Further described in Chapter 3.

¹²⁸ Later merged to Media Evolution (see section 3.3.1).

¹²⁹ Halkier (forthcoming).

¹³⁰ Later merged to Media Evolution (see section 3.3.1).

6.4 Knowledge impact

The knowledge implications of public policy are a central concern in the EURODITE project. In this connection, Halkier¹³¹ distinguishes between the types of knowledge involved and the nature of knowledge production processes. The nature of knowledge production processes refers to the knowledge phases of exploration, examination and exploitation.¹³² All three knowledge phases would seem to be reflected in policies linked with new media. The exploration phase involves searching for new knowledge or maintaining and developing existing knowledge. In this regard, the case studies provide examples of funding opportunities for participation in international conferences, other events and trade missions, which, as mentioned in Chapter 4, provide an opportunity to search for new knowledge and new knowledge interaction partners. The examination phase is a testing phase where the applicability of the knowledge is considered. Examples of policy support for examination involve the establishment of incubators and support for entrepreneurs, as well as funding for R&D collaboration. The exploitation phase is the one where knowledge is applied or commercialised. An example of exploitation of knowledge in terms of new media-related policies is the organising of events in areas of which the regions in question have specific knowledge. Thus, Bavaria hosts three annual film-related events, and Skåne hosts the annual Nordic Game conference organised by the Nordic Game Programme. Another example is the support for commercialisation of new knowledge, often generated at universities, in incubators.

Knowledge types distinguish between analytical, synthetic and symbolic knowledge.¹³³ In conjunction

with this, the different economic sectors studied in EURODITE have demonstrated a general focus on analytical and synthetic knowledge in the design of public policies, whereas symbolic knowledge tends to be neglected, which consequently risks neglecting the consumption side of knowledge.¹³⁴ A study of policies on new media has not revealed a lack of focus on symbolic knowledge. As discussed in Chapter 5, this may be because new media is a sector with high symbolic knowledge content.

With reference to Chapter 3 and the introduction to the development of the Agent O game, the interdisciplinary profile of Malmö University proved useful in the combination of analytical knowledge in the form of scientific research and symbolic knowledge, which involved developing the game according to the preferences of the consumers/users. In this case, it involved collaboration between the School of Education and K3 at Malmö University. Further initiatives related to developing a moving media cluster in Skåne involve a cross-sectoral perspective; for example, between ICT, media and design, which is evident in the focus areas of the incubator Minc,¹³⁵ and the proximity of the Moving Media City physical hub to Malmö University. The combination of analytical knowledge and symbolic knowledge is also present in the interaction between R&D infrastructure and the local civil society through Living Lab New Media in Malmö. This activity is run by an arts association called Inkonst and a number of firms—for example, TAT and Scandvision—and in collaboration with the K3 Department at Malmö University. The initiative is co-funded by VINNOVA.

6.5 Concluding comments

This chapter has studied the organisation, strategy, policy instruments and knowledge impact of public policies influencing new media. The organisation of policy is mainly centred at the regional level. In the case of Skåne, however, different municipalities have also been shown to be influential as drivers of economic development initiatives.

The strategy of new media policies mainly concerns processes of modernisation and creativity. Policies have been found to support the establishment of regional systems comprising new media firms. Systems in the case study regions are built around a combination of cluster strategies and the development of infrastructure to support the industry and to enhance the attractiveness of the region to extra-regional actors.

¹³¹ Halkier (forthcoming).

¹³² See further in chapter 2.1.2.

¹³³ Further described in chapter 2.

¹³⁴ Halkier (forthcoming).

¹³⁵ <http://minc.se/>

7. Regional Trajectories to the Knowledge Economy – the Conclusions

As mentioned in the introduction, the main question of the EURODITE project was to investigate how knowledge is generated, developed and transferred within firms or organisations and between firms or organisations and their regional contexts. In the

following chapter, we briefly highlight and discuss the main outcomes of the empirical case studies investigating territorial and firm-level knowledge dynamics connected to moving media in Skåne as well as some of the overall findings revealed by the EURODITE project.

7.1 In-depth studies of knowledge dynamics

By performing empirical case studies investigating territorial and firm-level knowledge dynamics, it has been possible to get a more detailed understanding of how knowledge interactions take place. The case studies of game development and film tourism in Skåne illustrate the coexistence of such knowledge dynamics in relation to the same sector of moving media. Different knowledge dynamics in the same region vary according to, for instance, the actors involved, the application of policy instruments and the importance of different knowledge types. Our case study only involved two forms of knowledge dynamics. In any region, there is a vast amount of intertwined evolving knowledge dynamics.

By looking at knowledge interactions from the territorial and firm-level perspective, we can also contribute to the debate about local buzz and global pipelines. In the empirical case study, it has been shown that these processes are difficult to separate. By further exploring ‘knowledge anchoring’, we can conclude that both the inflow and recirculation of knowledge may occur at the same time and in complex mixes of processes and channels.

Drawing from the findings of the firm-level knowledge dynamics, we can see that symbolic knowledge may have been underestimated in the

knowledge economy and innovation discourses. So far, many of the policy instruments have focused on research, scientific knowledge and engineering, and consequently on analytical and synthetic knowledge. In empirical case studies, we can see that symbolic knowledge is important not only in sectors that are high in symbolic knowledge in the first place, such as new media, but also, for example, in cases related to ICT.

Looking at the different knowledge phases, it is also demonstrated that the development of an innovation is not a linear process, although it is often considered a knowledge chain. In the empirical case studies, it has been shown that the exploration, examination and exploitation phases can take place at the same time. This is seen, for instance, in the interaction between the visitors to Cineteket and those working there. This type of interaction brings knowledge about market demands and contributes to product development. In the innovation discourse, such interaction echoes the concept of user-driven innovation, which is a fairly recent focus in this field. Our case study and results from other EURODITE case studies suggest that this aspect of consumer–producer interactions in the innovation process is highly relevant and worthy of further attention and research.

7.2 Knowledge interactions across sectors, scales and actors

To summarise the key findings of the empirical case studies in Skåne, and drawing from the EUODITE and REKENE case studies, we see the following key characteristics of knowledge interactions.

- *A cross-sectoral dimension:* The case studies confirm that cross-sectoral knowledge interactions are innovative and drive product development. Composite knowledge processes drawing on different disciplines and fields of expertise are at the heart of the processes.
- *A multiscale character:* In the case studies, it is evident that a region is not a closed container. On the contrary, knowledge interactions are multiscale. All cases of territorial and firm-level knowledge dynamics include some kind of highly relevant extra-regional knowledge interactions.

Many of the case studies are also characterised by active searches for these extra-regional knowledge interactions. This indicates that even actors who are firmly connected to other local and regional actors utilise extra-regional knowledge when needed. We have also seen that multiscale interactions are actively supported by some policy instruments, ranging from the cluster organisations to support for organisations or participation in various events.

- *A 'multi-actor' character:* Regarding knowledge interactions, we can also conclude that they include many types of actors conducting a variety of knowledge interactions. The activities performed by various kinds of actors support the conclusion of combinatorial and cross-sectoral knowledge interactions.

7.3 Policy implications of the knowledge dynamics studied

The EUODITE project began with the Lisbon Agenda stating 'that Europe should become the most competitive and dynamic knowledge-based economy in the world'.¹³⁶ This grand goal was to be achieved by preparing the transition to a knowledge-based economy and society through better policies for the information society and R&D, as well as by stepping up the process of structural reform for competitiveness and innovation and by completing the internal market.¹³⁷ EUODITE picked up this challenge by researching knowledge dynamics in great detail, aiming to deliver scientific knowledge as well as input to policy-making in the field. When EUODITE concluded, the Lisbon Agenda was replaced by a new strategy: Europe 2020. In this document, it is stated that smart growth in the development of an economy based on knowledge and innovation is still a key priority of the European Union because this is a key driver of future growth.

In the Europe 2020 strategy,¹³⁸ it is also mentioned that 'one size does not fit all' in terms of policies supporting the knowledge economy. However, investing in research and development, innovation, education and resource-efficient technologies are also

mentioned as benefiting traditional sectors in rural areas as well as highly skilled service economies. Important measures mentioned are improvements in the quality of education and research performance as well as promotion of innovation and knowledge transfer. The promotion of developing innovative ideas into new products or services is stressed as especially important. A combination of entrepreneurship, finance, and a focus on user needs and market opportunities is needed. Clearly, the Lisbon Agenda is carried through to this new strategy document.

We conclude that EUODITE research, particularly because of its in-depth qualitative approach to unravelling the details of knowledge interactions, is capable of delivering important input in relation to both the old Lisbon Agenda and its successor, Europe 2020. In this context, we would like to highlight a few issues of policy considerations that clearly indicate that, indeed, 'one size does not fit all'.

How will policy actors assist the cross-sectoral, multiscale nature of, and the multiplicity of actors involved in, knowledge dynamics and interactions? To what degree is management of such processes desirable

¹³⁶ The Lisbon European Council 23 and 24 March 2000.

¹³⁷ The Lisbon European Council 23 and 24 March 2000.

¹³⁸ European Commission (2010) p. 9.

and possible? Policy support through brokering, funding and sometimes management of platforms, clusters and network organisations are common measures in this field. What is the way forward? Can platform organisations continue to move further towards more cross-sectoral, perhaps cross-cluster initiatives? How can the trend towards increasing multiscalar knowledge interactions be further supported by policy initiatives? How can multi-actor interactions evolve further from various aspects of the triple helix to those including users, consumers and civil society? Examples of these progressive ways of conducting policy are present in the case studies in Skåne and in the wider EUROTITE and REKENE projects.

How can policies support the inflow and recirculation of knowledge? We have seen that the mechanisms and channels through which actors in regions tap into global knowledge flows are very complex. A multitude of strategies and actions are utilised by firms, higher education institutions and other actors to seek out and to utilise the knowledge needed wherever it is located. Progressive policy actors support such mechanisms and processes in a tailored way rather than restricting their focus to supporting region-internal networks and linkages. This is a proactive way of avoiding lock-ins and promoting innovative regional development.

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Appendix 1 List of Abbreviations

ARD	Consortium of public-law broadcasting institutions of the Federal Republic of Germany
BBC	British Broadcasting Corporation, public service broadcaster in the United Kingdom
HEI	Higher Education Institutions
ICT	Information and communication technologies
INTERREG	Interregional collaboration programme funded by the EU
K3	The Department of Art, Culture and Communication (known as K3: Konst, Kultur och Kommunikation), Malmö University
KIBS	Knowledge intensive business services
MIT	Massachusetts Institute of Technology
MMM	Media Mötesplats Malmö (meeting place for media actors)
MMSS	Moving Media Southern Sweden
NUTS	Nomenclature of Territorial Units for Statistics
PDA	Personal Digital Assistant, a mobile device which may function as a for instance personal information manager
PPP	Public-private partnership
SME	Small and medium sized enterprises
SVT	Sveriges Television, Swedish public service television company
SWOT	Strengths, Weaknesses, Opportunities and Threats – an analysis and planning tool
TAT	The Astonishing Tribe, a software technology and design company
VINNOVA	Swedish Governmental Agency for Innovation Systems
ZDF	Zweites Deutsches Fernsehen, public service broadcaster in Germany

Appendix 2 EURODITE Case Study Reports¹ (Territorial knowledge dynamics) analysed

Case study region	Primary sector(s)	Authors
Antalya, Turkey	Tourism	Ali Dulupçu, M., Sezgin, A., Demirel, O., Cevher, E., Gökhan, O., Sungur, O., Çiftlikli, B. & Göçen, S.
Aquitaine, France	Photonics & Food and Drink	C. Carrincazeaux, C., Gaschet, F. & Becue, M.
Baden-Württemberg, Germany	KIBS/Automotive	Strambach, S., Stockhorst, J. & Sandmüller, M.
Bavaria, Germany	Biotechnology & New Media	Kaiser, R. Liecke, M. & Kripp, M.
Bornholm, Denmark	Food and Drink	Manniche, J., Topsø Larsen, K. & Petersen, T.
Bratislava, Slovakia	ICT	Pastor, R. , Rehak, S. & Suranova, J.
Centro, Portugal	Biotechnology	Vale, M., Carvalho, L. & Silva, S.
North Jutland, Denmark	Tourism	Halkier, H. & Berg Schmidt, P.
North Rhine Westphalia, Germany	Tourism	Butzin, A. & Widmaier, B.
NorthWest Switzerland	New Media/Tourism	Jeannerat, H., Kebir, L. & Crevoisier, O.
Skåne, Sweden	New Media/Tourism	Dahlström, M., Östberg, S., Dymén, C., Hedin, S., Henriksson, S. & Smed Olsen, L.
Slovenia	ICT	Stanovnik, P. & Murovec, N.
Southeast Lower Saxony, Germany	Automotive	Blöcker, A. & Jürgens, U.
Västra Götaland, Sweden	Automotive	Larsson, A.
Venice, Italy	Nanotechnology	Finotto, V.
Wageningen, the Netherlands	Biotechnology	Vissers, G.
West Midlands, United Kingdom	Automotive & New Media	MacNeill, S., James, L., Collinge, C. & Staines, A.

¹ Not all 22 case study reports were used in the analysis.

Appendix 3 REKENE Case Study Reports (Territorial and firm level knowledge dynamics) analysed

Primary sector	Secondary sector (if appropriate)	Regional case study	Title Territorial knowledge dynamics report	Title Firm level knowledge dynamics report	Author(s)	E-mail
KIBS		Akureyri, Iceland	Geothermal harnessing for electricity production in Iceland and the Akureyri region N-Iceland	Development of geothermal drilling technology for electricity production. The case of Iceland Drilling	Hjalti Jóhannesson	hjalti@unak.is
KIBS	ICT & New Media	Åland, Finland	A Small Island Region Riding the Waves in Computer and Technical Services	Crossbreeding Entertainment at Sea and the Digital Gaming World - The Case of Licensed Gaming Operators	Katarina Fellman	katarina.fellman@asub.ax
New Media		East Sweden, Sweden	New Media, East Sweden	New Media Meeting	Josefina Syssner	josefina.syssner@isv.liu.se
ICT		Oulu South, Finland	Creating ICT based innovation in traditional machinery	PC-free control system of forest harvester with remote control possibilities	Harri Jokela, Eija-Riitta Niinikoski, Ari Saine	harri.jokela@oulu.fi eija-riitta.niinikoski@oulu.fi
ICT		Värmland, Sweden	ICT in SERVItch: The case of Värmland	Serving food in 21st century – from restaurants to the kitchens - The case of Matglädje	Samuel Petros Sebhatu	samuel.sebhatu@kau.se
KIBS	ICT	Stockholm, Sweden	ICT in KIBS - Composite knowledge for development of Medtech	INTERSECTIONS & KNOWLEDGE DYNAMICS OF MEDTECH AND KIBS - The Case of Zenicor ECG	Lukas Smas, Brita Hermelin	lukas.smas@humangeo.su.se brita.hermelin@humangeo.su.se
Food and Drink		Zealand, Denmark	From Standardized Mass Production to Experience Economy and New Micro Mode of Production	Small Producers – Local Based	Lene Ekholm Petersen, Henrik Toft Jensen	ekholm@ruc.dk hti@ruc.dk

Margareta Dahlström, Sigrid Hedin and Lise Smed Olsen with contributions from Sara Östberg, Christian Dymén and Anu Henriksson

Knowledge dynamics in moving media in Skåne — Cross-sectoral innovations in game development and film tourism

This report is a result of the project *Regional Trajectories to the Knowledge Economy: A Dynamic Model* (EURODITE). The main objective of the EURODITE project was to investigate *knowledge dynamics*; that is, how knowledge is generated, developed and transferred within and among firms or organisations, and their regional contexts.

Empirical research on knowledge dynamics has been based on the building blocks of region, sector, and both territorial and firm-level knowledge. *Territorial knowledge dynamics* concern knowledge exchange, networks and interactions among actors across territories, both internal and extra-regional. *Firm-level knowledge dynamics* contributes a deeper understanding of knowledge dynamics by studying the interactions within a firm or organisation and between firms or organisations that result in an innovation; for instance, a new or improved product.

This report includes the description and analysis of two sets of territorial knowledge dynamics with accompanying firm-level knowledge dynamics in the moving media sector in the Skåne region of Sweden. The first case study looks at knowledge dynamics within computer game development and a micro-level study of the development of the serious game 'Agent O'. The second case study elaborates on the knowledge dynamics related to film production and tourism with a micro-level study of the marketing collaboration 'The Film Track'. In addition, these case studies have been placed in a wider European perspective by comparing them with the other case studies performed within the project.

It is clear from the project's case studies that knowledge dynamics are multiscalar and include important interactions at great distances. We conclude that cross-sectoral knowledge interactions are seed-beds for innovation and drive product development. Finally, knowledge interactions include many types of actors conducting a variety of knowledge interactions.

In any region, there is a vast amount of intertwined evolution of knowledge dynamics. A multitude of strategies and actions is utilised by firms, higher education institutions and other actors to seek out and to utilise the knowledge needed wherever it is located. Tailor-made and progressive policy support of such processes is needed to avoid lock-ins and promote innovative regional development

The report aims at policymakers and practitioners within economic development work, business organisations, chambers of commerce, the higher education sector, and researchers of knowledge dynamics, innovation, regional development and policy.



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