
Entrepreneurial ecosystems: Strategies on access to capital, competence, and network

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Abstract: This paper addresses the regional ecosystem dynamics for sustaining a high percentage of young entrepreneurial firms. Extant research holds that young entrepreneurial firms are dependent on access to capital, competence, and networks available in a diverse urban environment to succeed. However, there exists huge variation between the failure rate of young entrepreneurial firms between comparable cities. A comparison across Scandinavian capital cities shows that the survival rate among Oslo based newly founded firms is lower, compared to firms located in Stockholm and Copenhagen. This is paradoxical since this region scores high on several relevant measures, and thus justifies an in-depth qualitative study to reveal how known factors play together to increase start-up firm survival rate. We conducted a strategically sampled embedded case study of 19 start-up firms across 8 different industries, supplemented with 3 interviews with investors, from the Oslo-region. Our findings reveal important mechanisms in interaction across ecosystem stakeholders that can explain start-up firm survival. Based on these findings we identify 21 entrepreneurial needs and provide 11 propositions for further research as well as recommendations for practitioners and policy makers aiming for regional entrepreneurial eco-system development.

Keywords: Capital access, competence access, ecosystem, entrepreneurial strategy, network access, regional development.

1 Introduction

Entrepreneurship refers to the creation of new ventures, as well as the ability to carry out entrepreneurial activity in incumbent firms. Firms are considered to be entrepreneurially oriented when processes, practices and decision-making facilitate opportunity discovery (Covin and Wales 2019 in Hughes et al. 2021). Thus, entrepreneurship is connected to the ability to act based on new business opportunities, and when opportunity-driven activities over time become the driver in value creation.

Due to the importance of industrial renewal, job creation and sustainability transitions, the importance of entrepreneurial activity has received increased attention in

regional development policies. Findings from Norway shows that the share of employment in start-ups increased by 10 per cent in the period from 2005-2016, while employment shares in incumbent firms decreased by 10 per cent (Reve et al. 2019).

The European Regional innovation scoreboard places the Norwegian capital city region as number 17, among the 40 best performing regions in Europe (Regional Innovation Scoreboard, 2021). The RIS index is mapped based on 21 different indicators that map and summarize the innovation capacity of regions. In the case of Oslo, the regions scores relatively well on input factors such as human resources and public R&D expenditure, while the score is relatively low when it comes to output factors such as design applications. In comparison to Oslo, Stockholm is ranked as number one, Helsinki is ranked as number two and Copenhagen is ranked as number four Regional Innovation Scoreboard, 2021).

The Norwegian capital, Oslo, and its surrounding area is therefore an interesting case for some emerging trends relevant as an illustration of a functioning of an entrepreneurial ecosystem. Reve et al. (2019) shows large regional differences in entrepreneurial activity and employment, but reveal that employment growth in start-ups is especially important in the Norwegian capital city, Oslo. At the 10-years mark, more than 57 % of all firms in Oslo were start-ups and they employed more than 35 % of the private sector workforce. The findings indicate that the effect of entrepreneurship to employment in the Norwegian economy generally, and in Oslo particularly, has been under-estimated in earlier research on job creation and employment. Moreover, the findings may indicate an ongoing industrial renewal of the economy.

The Oslo region benefits from a diverse and dynamic economy, and a services-based industrial structure. The region has domestically become a center of gravity for several highly specialized industrial clusters, such as life science, renewable energy, maritime industries, ICT, cultural and creative industries. The Nordic Web (2017) explicitly stated the success for Norwegian start-ups, as 78 investments were made totalling nearly 200 MUSD. Three out of four of these investments occurred in Oslo. Mostly explained by its high level of wealth, strong GDP growth and high human capital scores, European Growth Index places Oslo among the elite cities in Europe (LaSalle Investment Management 2017). Moreover, the Oslo region is ranked as hotspot region for digital and creative industries in Europe (European Cluster Panorama 2016).

However, several young entrepreneurial companies face challenges in the business development process. OECD (2018) studies entrepreneurial performance across regions in Western Scandinavia. The analysis shows that the three-year survival rate amongst enterprises located in the Oslo was respectively 32 percent, while the same survival rate across enterprises in Western Scandinavia was 52 percent. The relatively low survival rates for enterprises are explained from a variety of perspectives, including the functioning of the capital market. More specifically, OECD (2018) indicate that higher survival rate in the Swedish part of Western Scandinavia may be related to better support system, such as access to finance, public support scheme and procurement, and international orientation among entrepreneurial companies.

In 2017, the Capital Access Commission was appointed by the Norwegian government to examine Norwegian businesses' access to capital. The overall conclusion from the commission's first report is that the Norwegian capital market overall is working well (NOU 2018:5). Therefore it is plausible to assume that access to a well-functioning capital market is not sufficient to explain the relative lower survival rate in this region compared to other northern European regions. Moreover, extant theory suggests that the

interplay between basic conditions of access also to other resources such as competence and network is only limitedly understood in relation to access to capital. Hence, there is a need for a deeper understanding of the qualitative dimensions of the conditions for entrepreneurship in the Oslo region, with particular emphasis on early phases of business development and the availability of access to capital, competence, and networks to young entrepreneurial firms to explain survival and success of start-ups in this region.

Consequently, this paper presents a case study of young and entrepreneurial start-ups, located in the Oslo region to qualitatively assess factors involved in the initial start-up phase that can explain success and survival, by addressing the following research question: *What characterizes start-up companies' experiences with access to capital, competence, and network?* The data for the presented study was gathered through semi-structured interviews with nineteen entrepreneurs in the region. In addition, three supplementary interviews were conducted with investors.

The next section provides the theoretical and conceptual background for the study, while the third section present the research strategy and fourth the results. The final section presents a preliminary concluding discussion from the study, suggesting propositions for further research and summarizing main lessons for practitioners working on a system-level with strengthening the infrastructure for entrepreneurship.

2 Theoretical and conceptual background

That entrepreneurship is a driver for industrial transformation and economic development is established wisdom. The entrepreneurship process is characterised as spatial and uneven, and often a result of the interaction between individual attributes and the surrounding environment (Stam 2010). Stam (2010, pp. 141) depict that “entrepreneurs are not the lonely heroes that change the economy on their own, nor are they determined by their environment. They often reproduce their structural conditions, but they are also entrepreneurial because they transform these structures”. Consequently, extant theory emphasises the entrepreneurship eco-system surroundings as important for the performance of young entrepreneurial firms, with particular emphasis on the access of important resources, such as capital, competence, and network, within that ecosystem.

The role of the eco-system for a young entrepreneurial firm

The term *ecosystem* refers to the broader social, institutional and economic conditions that affect the entrepreneurial capacity of cities and regions, as well as the relationships between key stakeholders involved in entrepreneurial activities (Aulet and Murray (2013). The relationship between access to important resources and entrepreneurial activities have been addressed for a long time. Looking back to the seminal work of Schumpeter, he broadly defined innovation as the recombination of existing and novel resources (Schumpeter 1934/1936). A key issue related to recombining resources are processes of opportunity identification and resource mobilization (European Commission 2016, Sørensen 2003; Stuart and Sørensen, 2007 in Stam. 2010).

Moreover, Schumpeter identifies two patterns of innovation activities, ‘creative destruction’ and ‘creative accumulation’ (Schumpeter, 1934; 1942). The first describes the entry of new entrepreneurs and companies that arise from new opportunities in terms of markets and technology. Entrepreneurs enter an industry with new ideas and

innovations which challenge established companies, and disrupt current ways of producing, organizing, and distributing goods and services (Breschi et al., 2000). The second pattern refers to the capacity of established companies to create barriers to new entrepreneurs and companies by continuously accumulating firm-specific knowledge and refining advanced organizational routines. While ‘creative destruction’ implies the radical recombination of knowledge, ‘creative accumulation’ refers to incremental changes. Duranton and Puga (2001) introduce the notion ‘nursery city’ to reflect those firms and industries grow out of new market opportunities available in cities. Thus, entrepreneurs do not choose to locate their firm in certain cities, but entrepreneurship grow out of opportunities existing in certain spaces.

Research in economic geography suggests that the geographical concentration of people, firms, and industries promotes the exchange of tacit, specific, and context-dependent elements of knowledge. Tacit knowledge is difficult to exchange over long distances, which provides incentives for firms to concentrate in certain spaces to access spatially sticky knowledge (Gertler, 2003). Geographic proximity may also increase the likelihood of serendipitous meetings, and to develop social relationships that facilitate the exchange of ideas and knowledge (Agrawal et al., 2006). For long, knowledge-exchange and learning opportunities arising from geographic proximity were depicted as being ‘in the air’ and exchanged implicitly as ‘local buzz’. Still, this view of tacit knowledge being shared rather implicitly and informally between firms and industries has been criticized. Business relationships are purpose-built and tend to extend beyond the region (Trippel et al., 2009; Fitjar and Rodríguez-Pose, 2017).

Access to competence, capital and network in the entrepreneurial eco-system

The Oslo region has experienced a remarkable transformation over the past decades. Many changes have occurred in response to the sectorial and industrial shifts of the economy. The manufacturing sector reached its peak in the mid-1960s, with 25 percent of total employment. In 2011, less than 5 percent of all employees worked in manufacturing. Services-producing sectors, such as finance, insurance and real estate have exhibited strong growth, accounting for 5 percent of total employment in the 1970s and 24 percent in 2011. Information and communication, health and social services, accommodation, food services and personal services have also experienced a strong and steady growth during recent years. The capital city region has become a post-industrial city (Wessel 2016).

Nationally, Oslo performs well on indicators such as employment growth, educational level and knowledge-intensive services production and employment. Cities in general have important advantages that promote entrepreneurship. First, population density has been found to positively affect entrepreneurship. Benefits arising from high population density include the relative ease of access to customers, as well as inputs (labor, capital, suppliers) required to produce goods or services (Stam 2010). Second, the risk of starting a business in cities is also, relatively speaking, lower because of the abundant employment opportunities, which function as a buffer for the entrepreneur if the business fails.

More generally, serendipitous meetings are more likely to occur in cities than in less densely populated areas. Being located in a city may improve the likelihood of getting into contact with individuals who are more skilled in the same or related knowledge domains. The ability to learn is a prerequisite for innovation. Learning from skilled peers

stimulates human capital accumulation in urban environments (Glaeser 1999) and might lead to the creation and recognition of opportunities and capabilities for entrepreneurship. This human capital effect is further strengthened by the relatively high concentration of universities and research centers in urban areas. Yet, entrepreneurial ecosystems in urban areas may function quite differently from ecosystems in less densely populated areas.

Oslo has received increasing importance as location for entrepreneurial activity in recent years. The city has a rapidly growing entrepreneurship scene and is an interesting case for shedding light on strategic aspects of entrepreneurship. However, there remains a knowledge gap and understanding of the qualitative dimensions regarding challenges and opportunities that entrepreneurs face, in particular related to access to competence, capital and network.

3 Research design and method

The research for this article was conducted through a case study (Yin 1984) among young entrepreneurial companies located in the Norwegian capital city region, Oslo. In total nineteen interviews were gathered among entrepreneurs and three interviews were gathered among investors. The informants were selected based on strategic sampling, to gain qualitative insight into the functioning of the ecosystem, with a particular emphasis on the mechanisms in the capital market, access to competence and network ties of the start-ups. The semi-structured interviews were guided by an interview guide that included 24 questions about the background of the entrepreneur and the firm, experiences from the business development process, funding, and network and future perspectives. The interview-guide deployed in the interviews with the three investors also included questions about the investor's investments, and their viewpoints related to the functioning of the capital market, competence and areas for matching entrepreneurs and investors.

The research design and data gathering were conducted as part of the Oslo region's participation in the MIT Regional Entrepreneurship Acceleration Programme (MIT REAP). The context of start-ups from this region is particularly relevant to inform our research ambition since all firms have professional experience with searching for entrepreneurial opportunities and being embedded in the same regional ecosystem. The investigation was conducted as part of action phase One in the MIT REAP program. In this phase of the program the focus was placed on interaction between entrepreneurs and investors. The data was gathered in January and February 2019, and the preliminary findings was presented on MIT REAP stakeholder seminar in April 2019.

Table 1 shows descriptive information about the entrepreneur interviewees, indication the start-up maturity as well as which industry it belongs to.

Table 1 Overview informants (entrepreneurs)

<i>Background</i>					<i>Industry</i>							
#	Title	Early phase (0-10 EMP)	Later phase (11-50)	Founding year	ICT / SaaS	Energy	Maritime	Health/welfare	Finance, legal services	Biotech	Retail	Tourism
1	CEO	V		2017						V		
2	CEO	V		2013						V		
3	CEO	V		2016						V		
4	CEO	V		2013				V				
5	CEO		V	2013	V							
6	CTO	V		2015				V				
7	CEO	V		2012				V				
8	CEO	V		2018	V							
9	CEO			2017	V							
10	CEO	V		2016								V
11	CEO	V		2016	V							
12	CEO	V		2016				V				
13	CEO	V		2010				V				
14	CEO	V		2017	V							
15	CFO		V	2007*							V	
16	CEO	V		2015					V			
17	CEO		V	2016						V		
18	CEO		V	2015			V					
19	CDO	V		2017					V			

Table 2 show descriptive information about the investor interviewees indication which industry they aim their investments in as well as the start-up phase their target their investments towards.

Table 2 Overview informants (Investors)

<i>Background</i>					<i>Invests in:</i>				
#	Title	Type	Early phase	Later phase	ICT/SaaS	Energy	Maritime	Health/welfare	Finance, legal services
1	Partner	VC	V		V	V	V	V	V
2	Partner	VC	V		V	V	V	V	V
3	Partner	VC			V				V

The 22 interviews lasted on average 45 minutes all were recorded and transcribed, and the data was analysed by using Nvivo.

In the following section, we present a summary of the main findings from the investigation, with focus on needs and wishes, and recommendations from respectively the entrepreneurs and investors' viewpoints and related to how they experience access to capital, access to competence and access to network within the Oslo capital region.

4 Brief description of empirical findings

The Norwegian capital city, Oslo, has developed a vibrant entrepreneurial ecosystem in recent years. The number of new firm establishments and number of co-working spaces has increased, and the entrepreneurial ecosystem is receiving international attention.

Access to capital

When analyzing the different start-ups, there seems to be different financial strategies. Some choices of strategy can be associated with the particular developmental phase of the firm, but there were also examples of different strategies among firms in the same developmental phase. Moreover, there was a clear dividing line among the entrepreneur's attitude towards 'bootstrapping' versus entrepreneurs who wanted to raise capital as early as possible. Bootstrapping refers to a business development process which is self-driven, where the firm is supposed to grow without external capital input. For those who did not have close dialogue with resource persons/mentors, it seems somewhat random which strategy the entrepreneurs choose.

One informant who had raised capital from investors relatively early on, argued that more start-ups should raise capital earlier in the business development process. She argued that: *"among start-ups, there's a core of entrepreneurs who sit and stay in the middle for a very long time..."*. Moreover, informants argue that it was challenging to establish strategy that has major consequences for the firm's development, including in the face of investors. As one said: *"... the challenge is not to get in touch with an investor, but to find the right match"*. Some pointed out that it is difficult to know and have knowledge about which investors/sources are relevant in different parts of business development. Two informants pointed out that especially the dialogue with international investors was demanding. How should one know whether an offer is good or not, when, for example, companies are valued very differently in Norway vs. abroad and in different international contexts.

Access to competence

In terms of competence, both the team's structure and the investor's expertise/or access to competent capital was highlighted as very important to succeed. Close dialogue, understand what is required. The entrepreneurs expressed the need to get in touch with investors who have ambitions beyond financial gain – investors with networks to interesting markets, technology, product, etc. *"...we want owners who support the company with more than capital. We need someone who can be a door opener to markets that are relevant to us and that contribute with experience and expertise where we need it"*. Moreover, *"... we want investors who have built companies before, who can join the board. The best investors are involved in the company's development"*.

Access to network

Arenas and meeting places for entrepreneurs is often mentioned as important tools for promoting entrepreneurship culture. We talked to the entrepreneurs about their experiences with meeting places. Some claimed that the region did not necessarily lack meeting places, but the meeting places should clarify the value for the entrepreneur and the development of the company. Some were clear that they were oriented about different activities and meeting-points but avoided much of these kinds of activities. Some mentioned that it was important that the meeting place must have a clearer and relevant value for the entrepreneurs. One said that it should be something more than pitching competitions and free pizza. Provide more explicit value to the entrepreneurs, e.g. location for recruiting/interns, new competence, place to get in touch with investor – more informal contact. How to cooperate with public authorities (municipalities) if one wants closer cooperation, develop solutions. As one entrepreneur claimed: *“It’s cool to be there, but it doesn’t come out of it. We’d rather spend our time on other things. Meeting places with concrete purpose and outcomes - I believe in that”*.

Summary of findings

To save space in this short paper format we summarize the findings in Table 3, listing identified needs and wishes for each theme as well as indication at which start up development stage these were identified, and the suggested recommendation discussed with the informants relating to the needs and wishes identified.

Table 3 Summary of findings

Theme	Needs & wishes	Development stage		Recommendations
		Early stage	Later stage	
Capital access	Challenging to raise common equity	V		A portion of public funding should be released before investment capital is required to be raised
	Need to focus more on strategic profiling to access international investors	V	V	
	Relevant and tailored investment arenas, rather than large events. Arenas to meet angel investors	V		Establish investor network for early phase, arena for raising capital to match public funding, i.e., Angel investor summit.
	Governmental seed funding (lead investor) for early phase start-ups in selected industries	V		
	Lack of competence among people considering the applications/firms	V	V	
	Better insight and strategic understanding about company valuation in Norway vs. abroad.	V	V	Better data access regarding national vs. international valuation (i.e. Norwegian CrunchBase).
	Competence to build firm structure and board at an early stage.	V		Network with entrepreneurs at similar stages, related to structure, board and business development processes
	More entrepreneurial education in school from an early age	V		
	Opportunities to co-create products more closely with public sector institutions (e.g. municipalities) Adjusted option agreements (tax-disincentives on employee option programs)	V	V	Simplify public procurement regulations, (and change mindset from 'waterfall' to 'lean' when collaborating with start-ups) Must be simplified and provide incentives and security for the company
	Better understanding of investors' requirements for decision making	V	V	
Policy	Needs to be attractive to venture capital.	V	V	Proven case + clarified IP + ownership + CE
	Make it easier to hire people, also from abroad	V	V	Reduce costs (i.e. Taxation and social security (arbeidsgiveravgift) associated with hiring and keeping employees, also from abroad.
	Better coordination of governmental support, less bureaucracy and reporting	V	V	One place to apply. Decision where to get funded (among all opportunities), and a common set of following up, with a long-term aspect. Easier to focus.
	Public tender is an obstacle	V		Public sector should use start-ups more than today
	Network	V	V	Establish and use your network to be introduced to e.g., Investors. Key persons on board of directors.

5 Concluding discussion

This empirical paper offered a strategically sampled embedded case study of 19 start-up firms across 8 different industries, supplemented with 3 interviews with investors, from the Oslo-region to address the research question: *What characterizes start-up companies' experiences with access to capital, competence, and network?* The study offers a wide range of insights beneficial both for the theory development relating to the relationship between eco-system and young entrepreneurial firms by adding granularity to issue beyond access to capital and addressing access to competence and network. We have mapped start-up firms' experiences in both early and later stage of their development, subsequently we have identified several needs and wishes related to the perceived access to capital, competence as well as access to network, and finally also suggest propositions related to policy on the regional development and emphasis on access to competence and network.

This study provides findings that may indicate and explain some of the qualitative weaknesses of the ecosystem. In terms of access to capital, the entrepreneurs both portrayed their interaction to governmental funding and access to private capital. The finding pointing at the entrepreneurs' interaction with the governmental institutions, indicate that entrepreneurs find it difficult to navigate and understand how governmental funding schemes is organised. A few also pointed at the lack of possibilities to collaborate and receive support over time. The stakeholder relationship between government and the entrepreneurs should be more integrated, and easier to navigate. In terms of interaction with private investors, lack of knowledge and understanding of the investors' perspectives is one main challenge. Thus, better insight into valuation practices, and also trust is an important dimension to develop the ecosystem further. Finally, the findings suggests that network is crucial, but meeting arenas may in some examples be too vague and unclearly defined, and thus the value to the entrepreneurs seems to be weaker. Thus, the further development of networks and targeted meeting arenas may support business development.

To guide further research these insights are condensed into propositions. The insights also have managerial and policy implications

Proposition for further research

Based on the explorative study we suggest 11 propositions for further research. Related to access to capital, competence, and network we suggest:

- P 1 Access to increase public funding prior to investment capital increase start-up survival rate.
- P 2 Participation in investor networks for early phase, i.e., Angel investor summit, as an arena for raising capital to match public funding increasing start-up survival rate.
- P 3 Access to data regarding national vs. international valuation (i.e. Norwegian CrunchBase) increase start-up survival rate.

- P 4 Participation in network with entrepreneurs at similar stages, related to structure, board and business development processes increase start-up survival rate.
- P 5 Access to perceived relevant competence within the region increase start-up survival rate.
- P 5 Simplified public procurement regulations (and change mindset from ‘waterfall’ to ‘lean’ when collaborating with start-ups) increase start-up survival rate.
- P 6 Simplified public procurement regulations providing incentives and security for the company increase start-up survival rate.
- P 7 The start-ups ability to provide a proven case, clarified IP, clear ownership and CE increase start-up survival rate.
- P 8 Regional financial incentives (i.e. reduced taxation and social security tax, associated with hiring and keeping employees, also from abroad, increase start-up survival rate.
- P 9 Simplification of publicly available funding opportunities with a single point of contact, common set of following up criterion, emphasising a long-term increase start-up survival rate.
- P 10 Increased awareness in public sector to use start-up services increase start-up survival rate.
- P 11 Provision to start-ups of available network of e.g., investors or key board resource increase start-up survival rate.

Managerial implications

The study also reveals important insights for practice. Access to capital, competence and network is crucial to succeed as an entrepreneur. Based on the findings, we suggest stronger support to the entrepreneurs in the region, related to strengthening commercial understanding, premises for governmental collaboration, as well as how to better understand micro-level mechanisms in the capital market, nationally and internationally.

Policy implications

The Oslo region is location for a vibrant and dynamic ecosystem that struggle with the survival of start-ups compared to other comparable urban areas in the Nordic region. This study reveal how the Oslo entrepreneurial ecosystem is strong on input factors, but weaker in terms of output. Thus, the ecosystem needs to be further strengthened, to unleash the innovation potential of the region and better facilitate the economic transition and job creation. Regional innovation policies should therefore pay more attention to the needs of the entrepreneurs.

Limitations and further research

This study is limited by a rather narrow ecosystem perspective, where mainly the linkages and perspectives of the entrepreneurs and investors are analysed. Further research should emphasis also linkages between other stakeholders in the ecosystem, as well as test the relevance of the propositions in other geographic contexts. A comparative case study to other Nordic capital cities could be a next step onward.

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References and Notes

- Aulet, B. and F. Murray (2013). A Tale of Two Entrepreneurs: Understanding Differences in the Types of Entrepreneurship in the Economy. *T. E. M. K. Foundation*. Massachusetts, Martin Trust Center for MIT Entrepreneurship
- Aarstad, J., Kvitastein, O. A. and S.-E. Jakobsen (2016), ‘Related and unrelated variety as regional drivers of enterprise productivity and innovation: A multilevel study’, *Research Policy*, 45, 844-856.
- Agrawal, A., I. Cockburn and J. McHale (2006), ‘Gone but not forgotten: knowledge flows, labor mobility, and enduring social relationships’, *Journal of Economic Geography*, 6, 571-591.
- Breschi, S., F. Malerba and L. Orsenigo (2000), ‘Technological Regimes and Schumpeterian Patterns of Innovation’, *The Economic Journal*, 110, 388-410
- Covin, J. G., & Wales, W. J. (2019). Crafting High-Impact Entrepreneurial Orientation Research: Some Suggested Guidelines. *Entrepreneurship Theory and Practice*, 43(1), 3–18. <https://doi.org/10.1177/1042258718773181>
- Dahl, M. S. and C. Ø. R. Pedersen (2004), ‘Knowledge flows through informal contacts in industrial clusters: myth or reality?’, *Research Policy*, 33, 1673-1686.
- de Groot, H. L. F., J. Poot and M. J. Smit (2009) ‘Agglomeration externalities, innovation and regional growth: theoretical perspectives and meta-analysis’, in R. Capello and P. Nijkamp (eds) (2009), *Handbook of Regional Growth and Development Theories*, Cheltenham, UK: Edward Elgar, 256-281.
- Duranton, G. and D. Puga (2001), ‘Nursery Cities: Urban Diversity, Process Innovation, and the Life Cycle of Products’, *American Economic Review*, 91, 1454-1477
- European Cluster Panorama (2016), *The European Commission*, https://clustercollaboration.eu/sites/default/files/news_attachment/2016-12-01-cluster-panorama-2016.pdf
- Fitjar, R. D. and A. Rodríguez-Pose (2017), ‘Nothing is in the Air’, *Growth and Change*, 48, 22-39.
- Frenken, K., F. van Oort and T. Verburg (2007), ‘Relate variety, unrelated variety and regional economic growth’, *Regional Studies*, 41, 685-697.

- Gertler, M. S. (2003), 'Tacit knowledge and the economic geography of context, or The undefinable tacitness of being (there)', *Journal of Economic Geography*, 3, 75-99.
- Glaeser, E. L., H. D. Kallal, J. A. Scheinkman and A. Shleifer (1992), 'Growth in Cities', *Journal of Political Economy*, 100, 1126-1152.
- Hughes, M., Hughes, P., Morgan, R. E., Hodgkinson, I. R., & Lee, Y. (2021). Strategic entrepreneurship behaviour and the innovation ambidexterity of young technology-based firms in incubators. *International Small Business Journal*, 39(3), 202–227. <https://doi.org/10.1177/0266242620943776>
- LaSalle Investment Management (2017). *European Regional Economic Growth Index*.
- Ministry of Local Government and Modernisation (2016). *Regionale utviklingstrekk 2016. Report*. Oslo.
- OECD (2018), OECD Territorial Reviews: The Megaregion of Western Scandinavia, *OECD Territorial Reviews*, OECD Publishing, Paris, <https://doi.org/10.1787/9789264290679-en>.
- Porter, M. E. (1995). The competitive advantage of the inner city. *Harvard Business Review*. May-June 1995. Available at: [competitive-advantage-of-inner-city.pdf](https://www.hbs.edu/competitive-advantage-of-inner-city.pdf) (uc.edu)
- Regional innovation scoreboard (2018). The European Commission, https://research-and-innovation.ec.europa.eu/statistics/performance-indicators/regional-innovation-scoreboard_en
- Reve T., A. Sasson og M. Nordkvelde (2019). *The State of Norwegian Entrepreneurship*.
- NOU (2018). Kapital i omstillingens tid. Kapittel 3 Kapitalmarkedet i Oslo
- Rutten, R. and F. Boekema (2012), 'From Learning Region to Learning in a Socio-spatial Context', *Regional Studies*, 46, 981-992.
- Schumpeter, J. A. (1942), *Capitalism, Socialism and Democracy*, New York: Harper and Brothers.
- Schumpeter, J. A. (1934), *The Theory of Economic Development*. Cambridge, MA: Harvard Economic Studies.
- Stam, E. (2010). "Entrepreneurship, evolution and geography." In *The Handbook of Evolutionary Economic Geography*, Boschma, R. and R. Martin (Eds.). Edward Elgar Publishing Limited. Cheltenham.
- The European Commission, (2016), *EntreComp: The European Entrepreneurship Competence Framework*
<https://ec.europa.eu/social/main.jsp?catId=738&langId=en&pubId=8201&furtherPublish=yes>
- Trippel, M., Tödting, F. and L. Lengauer (2009), 'Knowledge Sourcing Beyond Buzz and Pipelines: Evidence from the Vienna Software Sector', *Economic Geography*, 85, 443-462.
- Wessel, T. (2016). "Economic segregation in Oslo: Polarisation as a contingent outcome." In *Socio-Economic Segregation in European Capital Cities: East meets West*. Routledge. New York.