*SUMMARY OF PROCEEDINGS*

# POLICY FOR HIGH-TECH CLUSTERS : LESSONS FROM CAMBRIDGE, UK

OECD-GEN Webinar

30 March 2021

## The issue:

This webinar discussed policy support for high-tech clusters. It identified some of the success factors driving the development of the Cambridge cluster in the UK, which has had extraordinary recent success in generating research-based start-up and scale-up enterprises, including 20 locally-produced "unicorns". It put this in the light of some of the big challenges for high-tech clusters around the world, including the experiences of high-tech cluster development in Waterloo, Canada, and New York, USA.

The webinar aimed to address the following issues:

1. What is it that leads the success in Cambridge – is it culture, finance, the university, the path created by past successes?
2. Is it something that can be copied?
3. What problems does success bring?

## 1. Context and policy options

**Prof. Nicholas S. Vonortas, Director, Institute for International Science & Technology Policy, The George Washington University, USA** provided a brief overview of recent research findings on regional innovation systems and entrepreneurship. He noted that innovation activity is **not uniformly or randomly distributed across geographical landscapes** and that **the tendency toward spatial concentration has become more marked over time**. Spatial concentration reflects the importance of tacit knowledge in innovation and the increased importance of knowledge exchange interactions. He introduced several framework conditions for successful entrepreneurial ecosystems: culture and norms (trust, safety); physical infrastructure and amenities; formal institutions (administrative services and regulatory framework); information technologies and the internet; and, the melting pot index (technology, talent, tolerance – immigrants and gender).

Professor Vonortas also briefly outlined his recent work on entrepreneurial ecosystems and high-tech clusters in the Brazilian State of Sao Paulo. His 2018 paper "On the location of knowledge-intensive entrepreneurship in developing countries: lessons from Sao Paulo, Brazil" sought to identify common development factors for entrepreneurial ecosystems. In a forthcoming paper entitled "Ecosystems of entrepreneurship: configurations and critical dimensions", Professor Vonortas addressed the following questions:

- Are there different configurations of vectors of factors that shape successful entrepreneurial ecosystems?
- Can we identify these configurations and the key "ingredients" of these combinations?

He concluded by noting that the work shows that **research universities, knowledge-intensive jobs** and **entrepreneurial finance and credit** are three factors that seem to be absolutely necessary as precursors for innovative entrepreneurship in a high-tech cluster.

**Dr. Jonathan Potter, Head of the Entrepreneurship Policy and Analysis Unit, CFE, OECD** presented the key messages of the recent OECD report on Local Entrepreneurship Ecosystems and Emerging Industries: Case Study of Cambridgeshire and Peterborough, United Kingdom. Cambridge

has had extraordinary recent success in generating innovative start-ups since the 1960s, with some 20 unicorns created since its beginning. Cambridge is a city of 120 000 inhabitants located within the Golden Triangle (i.e. London, Oxford and Cambridge). It has a high concentration of scale-up enterprises (900 in 2017) and 4 700 knowledge-intensive firms with 60 000 employees overall. Key sectors for the Cambridge cluster are ICT and life sciences in particular, but advanced manufacturing and agri-tech are also important.

He argued that the **Cambridge cluster has largely evolved in a bottom-up manner** rather than as an outcome of a deliberate government cluster policy. He identified seven growth drivers for the Cambridge cluster: a major **knowledge and talent anchor** (University of Cambridge); strong **commercialisation** of University research (science parks and incubators); **entrepreneurial finance** (investors and venture capital); **entrepreneurial culture** (spin outs from the University and other local start-ups); **entrepreneurial networks** (collaborations and information exchange amongst firms and with the University); **ecosystem leaders** (some key serial entrepreneurs committed to the development of the cluster); and, attraction of further **knowledge and talent anchors** alongside the University (international inward investors such as Microsoft and Astr Zeneca).

He also discussed four key challenges now faced by the Cambridge cluster in maintaining its development: **congestion** which has emerged because population and employment growth has not been matched by housing and transport infrastructure growth; **uneven regional development** within the broader Cambridgeshire and Peterborough region, with areas outside the city of Cambridge lagging behind economically and not well linked to the cluster; constraints in accessing **talented labour**, reflecting international competition for key skills like data scientists and the impacts of Brexit on immigration; and a limited **public sector role in ecosystem leadership**. He identified policy recommendations to address the constraints, with an emphasis on expanding cluster activities and networks to the immediate region surrounding Cambridge, and providing public sector support to cluster management organisations to expand their operations.

**Professor Helen Lawton Smith, Birkbeck, University of London** introduced and moderated a panel discussion on policy issues for high-tech cluster development at local, regional and national levels in a range of countries.

**Ms Anne Bermonte, Assistant Deputy Minister, Ontario Government, Canada**

Ms. Bermonte briefly presented an overview of the Canadian province of Ontario. The population is largely concentrated in the southern part of the province where three large IT clusters have developed: Ottawa, Toronto and Kitchener-Waterloo Area. Ontario's top strategic sectors are life sciences, advanced manufacturing (automotive sector), ICT, agri-tech and mining (northern Ontario). The province has successfully attracted talent to Ontario, with research universities playing a fundamental role. She identified challenges facing high-tech cluster development including supporting enterprise scale-up, retaining successful scale-ups in the province, including by providing adequate finance, and strengthening intellectual property capacity in firms coming out of the university system and regional entrepreneurial ecosystem. Although Ontario has 17 Regional Innovation Centres and a range of incubators and accelerators, the depth of networks and support to scale-ups appears to be weaker than in Cambridge.

**Mr. Lucien Vijverberg, Ministry of Economic Affairs and Climate Policy, Netherlands**

Mr. Vijverberg indicated that the Netherlands has several clusters primarily in the tech and agriculture sectors and has published a national strategy to strengthen ecosystems for research, innovation and entrepreneurship. He stressed the importance of a holistic policy view, funding, and networking within ecosystems (domestically and internationally). More recently, the national strategy has increased its emphasis on promoting an entrepreneurial culture within universities and advancing start-up skills as well scaling up start-ups.

**Mr. Justin Kreamer, Senior Vice President, New York City Economic Development Corporation, USA**

Mr. Kreamer indicated that the tech sector has grown in the last 10 years or so, employing some 350 000 people in New York City, helping to diversify the economy. The City has put in place a range of infrastructure and investments to support entrepreneurs such as co-working spaces and accelerators. Support has also been given to key sectors where New York City can be competitive, including traditional sectors (e.g. fashion, finance, and advanced manufacturing) and new sectors (e.g. life sciences, cyber security and urban tech). He discussed the importance of taking a whole of society approach to developing tech clusters, to achieve greater inclusivity across the population. Inclusivity strategies include workforce development and affordable training, accelerators for people of different population groups, and developing the education curriculum to help integrate tech. Mr. Kreamer also noted how the high-tech sector continued to grow during the COVID-19 pandemic due largely to tech adaptations and rapid digitalisation efforts.

**Mr. Ronan Lenihan, IDA Ireland, Ireland**

Mr. Lenihan provided a brief overview of strategic clusters in Ireland targeted by the investment promotion (IDA Ireland) and Enterprise Ireland, including in ICT, biomedical, financial services, engineering and manufacturing. Over the last few years, Ireland has developed a more systemic approach to cluster development through a national cluster policy. Enterprise Ireland has funded 12 regional clusters with cluster managers and IDA Ireland supports a national cluster called Cyber Ireland. He also highlighted a new 5-year plan that aims to establish 4 new clusters by 2024 using similar strategies developed for the first formal national cluster. He identified some essential factors for cluster policy success based on the Irish experience. The key ingredients for a cluster should be present including some critical mass, distinct opportunities and identified challenges which the cluster actors intend to address. A specialist cluster manager is important for co-ordination. Seed funding from certain agencies is very important to help cluster organisations launch and subsequently find sustained funding in the future. Availability of talent is a further key success factor. He highlighted that the attractiveness of Ireland for international talent has played a crucial role in transforming the workforce in the last 15-20 years and encouraging cluster growth.

**Dr. Marta Mackiewicz, Chief Specialist, Department of Innovation, Ministry of Development, Labour and Technology, Poland**

Dr. Mackiewicz highlighted the importance of the establishment and operation of advisory bodies for cluster policies. In Poland, this includes the Council of Key National Clusters, the Working Group on Cluster Policy, and the Cluster Policy Team which is comprised of representatives of regional self-governments. These advisory bodies help to create the tailored cluster policy and specific instruments that meet the needs of cluster managers. She also highlighted the key role of active platforms for co-operation, like the Polish Cluster Association, which brings together cluster managers from across Poland. This association allows for rapid interactions between cluster managers and companies, improving coordination and the ability to find funding opportunities for developing clusters. Currently, Poland has 15 Key National Clusters all of which can apply for funding and access dedicated instruments to help with specific issues like internationalisation. She concluded that cluster policy in Poland employs a selection system to identify clusters that are of the greatest importance for the Polish economy and maximise returns on investment.

**The discussion** uncovered additional details about key performance indicators (KPI) for cluster policy. Generally, growth metrics used include number of jobs created and number of firms formed, but there is growing interest in geographic and social indicators. The discussion included the need to have tailored made approaches to clusters which could slightly change which KPIs are used. In addition, there were questions about relationships between research universities and the private sector. Professor Vonortas explained that research finds a positive relationship between universities and private enterprises and more projects between the two groups would be beneficial. Dr. Mackiewicz highlighted the importance of private enterprise funding for research in universities. Participants were also keen to discuss the need for cluster development policies that focus on inclusivity and equity. To improve access to ecosystems and develop sustainable cluster growth, policies should be adapted to engage more fully under-represented groups.

## 3. Key takeaway policy messages

**Dr. Jonathan Potter, Head of the Entrepreneurship Policy and Analysis Unit, CFE, OECD** concluded that **finance, skills and networks are necessary factors** for developing high-tech clusters. Furthermore, inclusiveness is an important issue in cluster policy that has not yet been widely addressed. Policies for both **network development and skills development are key tools for inclusiveness** as they help integrate more people into the hub. It is important to consider how these tools could be used in cluster policy going forward.

### Read More

The OECD has produced extensive work on entrepreneurship policy, including policies and programmes that support clusters and entrepreneurial ecosystems. Recent reports include the following:

- Local entrepreneurship ecosystems and emerging industries: Case study of Cambridgeshire and Peterborough, United Kingdom
- Local entrepreneurship ecosystems and emerging industries: Case study of Coventry and Warwickshire, United Kingdom
- Local entrepreneurship ecosystems and emerging industries: Case Study of Mazowieckie, Poland
- Local entrepreneurship ecosystems and emerging industries: Case study of Pomorskie, Poland
- OECD iLibrary | Local entrepreneurship ecosystems and emerging industries: Case study of Malopolskie, Poland

GEN has developed a compendium of entrepreneurship policies and programmes to help policymakers, advisors and opinion leaders to learn from international experience:

- Atlas: GEN's Research + Policy Portal

## OECD contacts

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## GEN contacts

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