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Knowledge-Based Innovation

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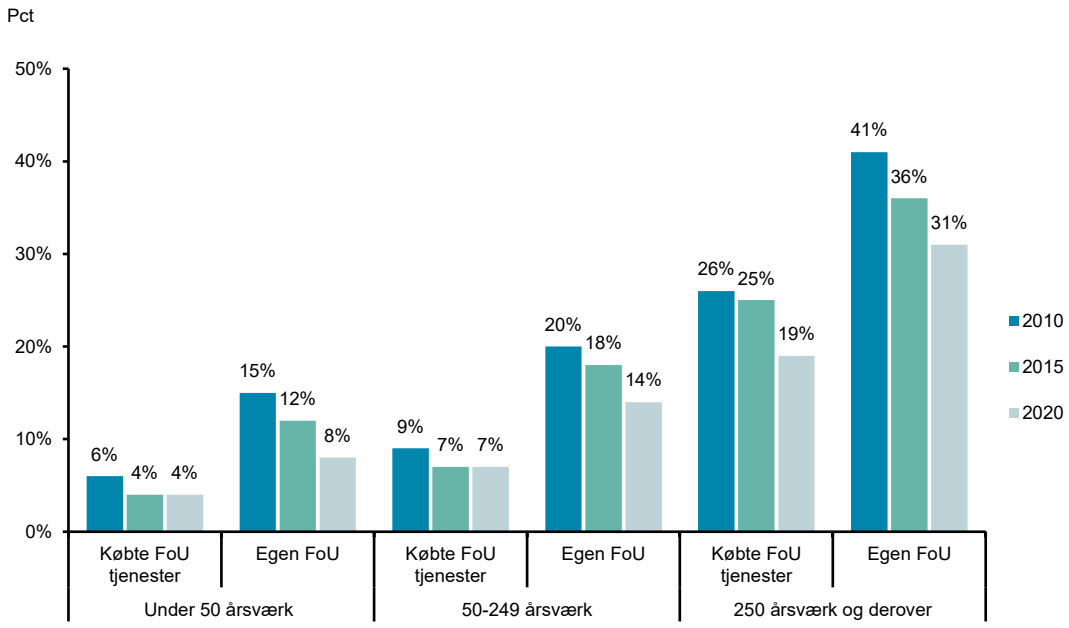
Despite Denmark's high ranking in international measurements of innovation, several recent analyses and reports point to a need for increased political attention to the conditions for knowledge-based innovation in Denmark. In 2019, an international review of the Danish innovation system was published, highlighting several significant issues and possible improvements. The same year, DFiR published a report on innovation-ready SMEs, which pointed out the need to target political instruments towards individual companies' innovation capacity. In the spring of 2022, the Reform Commission delivered overall recommendations for tech transfer, and most recently, DFiR, in its 2021 annual report, presented an analysis pointing out challenges in the knowledge balance of Danish businesses compared to foreign ones.

Politically, knowledge-based innovation can be supported by strengthening the access of innovation environments to research and development cooperation (R&D), further education of employees, economic incentives for investments in R&D (e.g., access to capital or establishment of public funds), and stimulating the demand for innovative products and solutions through public procurement or regulation. Many of these political instruments have been employed over the years to strengthen the degree of innovation in Danish society. Nevertheless, the proportion of companies choosing either to invest in their own research and development or to purchase research and development services has decreased in Denmark over the last decade. At the same time, total business investments in research and development have increased over the same period. However, this increase has not kept pace with the general growth in the Danish GDP. The ability and capacity of businesses to conduct research and development are increasingly concentrated in fewer, typically large companies.

This development may reflect a growing tendency that it requires a certain capacity and financial scope to effectively conduct R&D. The remaining layer of typically smaller companies tends more to imitate other companies' new inventions and innovations, as pointed out in a recent DEA report. [1]. DFiR views the trend of a declining proportion of investment-ready companies as worrying, considering the



Proportion of Companies Investing in Either Their Own R&D or Purchasing R&D Services in the Period 2010-2020. Source: Statistics Denmark

diversity in the growth layer that needs to deliver solutions to the current and future challenges facing our society. Therefore, DFiR has chosen to investigate the conditions for innovation in small and medium-sized enterprises (SMEs) as the first analysis project in the Knowledge-Based Innovation analysis program.

Innovative SMEs – Wealthy and Robust Societies Have Smart Companies

The analysis project "Innovative SMEs – Wealthy and Robust Societies Have Smart Companies" will be conducted in 2023 and is based on the conclusions from the DFiR report "Innovation-Ready Companies (IMVs) – A New Target Group for Innovation Promotion Efforts" (2019)[2]. It is estimated that there are 25-35,000 companies in Denmark that can be classified as potential innovation-ready companies (IMVs). These are companies that could be expected to benefit from the available instruments in the innovation system but for various reasons do not currently make use of the system.

From Research to Development and Innovation

Initially, a literature study will examine the relationship between companies' investment in research and development and subsequent innovations and economic growth. The focus will be on uncovering the existing scientific consensus on the factors that influence the investment rate in SMEs, with a focus on the role that public programs for promoting innovation play.

De-Globalization Trend Will Change the Playing Field for Danish SMEs and Place New Demands on Their Innovation Capacity. Therefore, it is important to map the potentials of improving their framework conditions.

Potential Analysis

A central part of the innovation promotion system in Denmark has since 2003 been centered around innovation networks and cluster organizations. In 2021, the number of clusters was reduced to a total of 14 within the national strongholds and emerging strongholds identified by the Danish Business Promotion Board in the strategy "Business Promotion in Denmark 2020-2023". In the potential analysis, DFiR wants to investigate the reach of the national cluster effort within each of the identified strongholds, based on the activities of the clusters during the first two years of their existence. Does the cluster effort reach all potentially innovation-ready companies within a certain industry, and are there specific industries and strongholds where there is untapped potential for increased innovation capacity?

Segmentation Analysis

The purpose of the segmentation analysis is to map the user profiles for the companies that interacted with the innovation promotion system in the period 2016-2021.

Based on DFiR's conclusions (2019) regarding 25-35,000 companies that are potentially innovation-ready, the segmentation analysis will seek to identify the parameters that are decisive for interaction with the public innovation promotion system. By definition, potentially innovation-ready companies do not interact with the innovation promotion system, and therefore, the segmentation analysis will focus on the group of companies that have varying degrees of interaction with the system to examine which factors are particularly decisive for a company's decision to use the innovation promotion system.

The analysis will therefore focus on expanding the understanding of three specific groups of user profiles:

- Continuous user: Companies that have continuously used the innovation promotion system every year or every other year over the analyzed period.
- Sporadic user: Companies that have repeatedly used the innovation promotion system over the analysis period but cannot be characterized as continuous users.
- Former user: Companies that have only used the innovation promotion system once over the analyzed period.

Read More

The results of DFiR's analysis program should contribute to the debate on knowledge-based innovation and uncover the scope for future political efforts. Read more about the analysis program on the project homepage here.

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[1] DEA 2022: Virksomheders produktinnovationer og produktivitet – DEA

[1] https://ufm.dk/forskning-og-innovation/rad-og-udvalg/danmarks-forsknings-og-innovationspolitiske-rad/publikationer/artikler/2019-01-25-imver-ny-malgruppe-for-innovationsfremmeindsatsen.pdf