#### Rathenau Instituut

# Agrifood, sustainability and entrepreneurial ecosystems: the case of Aarhus-Midtjylland

#### Case study report

#### Part of the ESMEE-project

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This case study report on the agrifood entrepreneurial ecosystem of Aarhus-Midtjylland in Denmark is part of a comparative series of case studies on sustainable entrepreneurship. It is part of the ESMEE-project, that aims to enable societal missions, such as a sustainable agrifood system, through improving entrepreneurial ecosystems. The project is funded by NWO through a Knowledge and Innovation Agenda grant (grant. KICH1.MV01.20.014).

Regional development agencies in the Netherlands are partners in this project. The purpose of this case study is to inform and inspire regional development agencies. It explores how entrepreneurship and entrepreneurial ecosystems relate to and support societal missions and, more broadly, sustainability transitions. The region was selected for its strong entrepreneurial ecosystem, comparable challenges with the Netherlands, and its ambitious sustainability goals.

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#### **Executive Summary**

The Aarhus-Midtjylland case demonstrates that entrepreneurial ecosystems can be supportive in building and nourishing sustainable entrepreneurship in agrifood. The case illustrates how entrepreneurial ecosystems can generate private and public value, through growth and market success as well as by co-enabling system-level learning and transition. Building on and embedded in Danish culture, characterised as high-trust and with a strong can-do mentality, this report offers lessons on governance, collaboration, leadership, and institutional coherence. The case also highlights how entrepreneurial ecosystems can be stimulated, facilitated and supported, both in their longer-term growth efforts and in their efforts to contributing towards societal missions.

The Aarhus-Midtjylland agrifood ecosystem combines a start-up culture, industrial leadership, and a strong research infrastructure. The focal point of the agrifood entrepreneurial ecosystem is the Agro Food Park (AFP), located near the city of Aarhus. The park hosts 105 companies and organisations, including anchor tenants such as Arla Foods Innovation Centre and SEGES Innovation, various start-ups and scale-ups, Aarhus University's Food Science department and incubator Haystack. The AFP plays an important role in system-wide innovation, positioning itself as a model for open, cross-sectoral collaboration in agrifood. Yet the ecosystem stretches beyond the park and includes also other agrifood companies and organisations in close proximity, in and around Aarhus and in Midtjylland. Aarhus University is also a core actor in this ecosystem, contributing substantially through research, talent development, entrepreneurship support, and with a number of interdisciplinary transition-oriented centres, such as CiFOOD, CBIO, iClimate and DIGIT, and Plant2Food.

There are two recent initiatives that together create directionality as well as a conducive institutional and policy framework for sustainable entrepreneurship in agrifood. They focus on reducing emissions, shifting land use, and supporting plant-based and circular innovations. Prime is the recent 2024 *Green TriPartite agreement* between the Danish government and leading industry, agriculture and environmental groups, including Denmark's Nature Conservation Association and the Danish Agriculture & Food Council. The agreement aims at a reduction in greenhouse gas emissions for 1.8 million tonnes of CO<sub>2</sub>-equivalent in 2030 through taking 15% of arable land out of production and turning it into forest land. A second 'lighthouse' initiative is the 2022 *AgriFoodTure* public-private innovation partnership, originally initiated by 300 researchers and experts across Denmark, later endorsed by the Danish government as a leading platform with a common vision for the future for Danish agrifood with the green transition challenge as its core.

Using the entrepreneurial ecosystem framework, the case study finds Aarhus-Midtjylland performs well across key dimensions: formal institutions (e.g. policy, governance), informal institutions (social networks and culture), physical infrastructure (e.g. port, logistics, AFP), demand (e.g. sustainability-conscious consumers), support services (e.g. incubators, accelerators), knowledge and talent (e.g. Aarhus University), leadership (e.g. cluster organisations), and finance. Leadership is distributed across

public and private actors, including Arla Foods Innovation Centre, SEGES Innovation, the Agro Food Park, public-private partnerships, such as the Food and Bio Cluster Denmark and AgriFoodTure (the two having recently merged), Aarhus University, as well as regional authorities and the municipality of Aarhus. At the same time, the region faces all the inherent challenges and dilemmas that new future directions and systems change pose: between incremental and disruptive innovation, between central, top-down control and local bottom-up experimentation, and between sustainability ambitions and continuity as exemplified by vested interests in agrifood.

Based on this study, other regions may benefit from the following lessons:

- Building a science-business park, such as the AgroFoodPark can be highly beneficial for stimulating agrifood entrepreneurship. This park strengthens a community feel that stretches beyond its perimeter. A physical space where people from different (types) of organisations meet contributes to trust and confidence, which are necessary to embark on transformative pathways towards a sustainable agriculture.
- Preventing societal backlash from transformative change is important. Cooperation
  and coherence in the direction of change is paramount. Providing clear direction
  not only for innovators, but also for consumers and business customers helps. As
  an example, Denmark is also an international recognised forerunner in culinary
  initiatives that play a broader role in changing food demand, consumption
  behaviour and preferences.
- Having sufficient support services, such as incubators, network organisations and
  entrepreneurship support, is conducive for sustainable entrepreneurship. Especially
  useful are organisations that can act as a legitimate intermediary between the
  national level of policymaking and regional activities. In the Aarhus region, an
  example is the Food and Bio Cluster Denmark, a national organisation that is
  strongly embedded also in the region, with supportive structures, such as a
  business incubator.
- A strong knowledge base is paramount. Having a clear sectoral, thematic or market-focus attracts and boosts knowledge in the region. Therefore, it is useful to include knowledge organisations in the development of a transformative agenda for the region.
- Leadership is crucial, but can be distributed, especially if that fits with informal
  institutions such as high trust and a cooperative spirit and tradition. Having private
  leadership is crucial, as long as it has a long term, societally embedded vision. The
  corporate governance structure in Denmark (foundation ownership) enables
  legitimate private leadership on societal challenges.

#### 1. Introduction

Where do entrepreneurship and sustainability transitions meet? How can the two strengthen and reinforce each other? And, more specifically, what is needed to create, support and facilitate thriving sustainable entrepreneurial ecosystems (SEEs)? This case study on the agrifood entrepreneurial ecosystem of Aarhus-Midtjylland, Denmark, explores how entrepreneurship and entrepreneurial ecosystems support societal missions¹ and – broader and more encompassing – the green sustainability transition. The Aarhus-Midtjylland case's main focus in this study is on how innovation, sustainability and entrepreneurship in agrifood relate and combine, and how, at a more systemic level, entrepreneurial ecosystems can be conducive and instrumental in realising societal missions. Based on this, the ultimate goal of this case study is to highlight how entrepreneurial ecosystems can be stimulated, facilitated and supported, both in their longer-term growth efforts and in their efforts to contributing towards societal missions.

We address and analyse the role and potential of entrepreneurship and the entrepreneurial ecosystems in which companies, more specifically start-ups and scale-ups, operate, thrive, and create – private and societal – value. But we also look at how entrepreneurs are supported, facilitated and equipped in their endeavour to create value, from an entrepreneurial and ecosystem point-of-view and from a (public and private) funding and law and regulation point-of-view. Creating value means creating the 'right' innovation(s) and business case(s) to successfully enter markets, to grow and to stay in business. But creating value in the context of societal missions and sustainability transitions also means being able to create a product, service or process that is instrumental in and effectively contributes to the mission at hand, thereby coenabling as it were the transition and have an adequate fit with the needed system changes that together make up for the system transition sought for. One could even argue that the activity of experimenting and innovating itself, with the chance of failing, is also adding value, as in doing so it contributes to a collective learning process at individual ànd system level.

#### Project context and overall goal of the case study

This study is part of a concise series of case studies in which we look at two different system transitions: the food and agriculture transition, and the energy and clean-tech transition. We focus on regional-specific entrepreneurial ecosystems, with Aarhus-Midtjylland (DK), Graz (AT) and Cambridge and East of England (EN) as regional locus and focus. The case studies are part of a broader five-year project with similar

The term mission goes back to the concept of mission-oriented innovation policy (Mazzucato, 2016; OECD, 2022), framing missions as an effective way to (re)formulate policies enabling them to contribute to finding solutions in response to societal challenges. Mission-oriented innovation policies are part of a wider set of system(ic) transition policies. The term transition used here refers to and is used in the sustainability transitions literature that holds that, as Köhler et al. (2019: 2) aptly summarise, "many environmental problems, such as climate change, loss of biodiversity and resource depletion comprise grand societal challenges, (..) and are brought about by unsustainable consumption and production patterns in socio-technical systems such as electricity, heat, buildings, mobility and agro-food. These problems cannot be addressed by incremental improvements and technological fixes, but require radical shifts to new kinds of socio-technical systems, shifts which are called 'sustainability transitions'." Sustainability transitions entail profound changes in dominant institutions, practices, technologies, policies, lifestyles and thinking (see EEA, 2019: 7).

objectives in the Netherlands, though bigger in size and aimed at a broader set of regions both inside and outside The Netherlands, and implemented together with Utrecht University, The Hague University of Applied Sciences, and the Dutch Regional Development Agencies.

The international case studies are meant to offer a rich variety of experiences and practices, good but also bad (where applicable), in response to three leading related research questions: 1) how do innovation, sustainability and entrepreneurship in agrifood relate, combine, and contribute towards agrifood sustainability; 2) how can the combination of innovation, sustainability and entrepreneurship in agrifood can be facilitated, incentivised and supported with public but also private means (instruments/actions & strategies, but also governance); and 3) how, at a more systemic level, can entrepreneurial ecosystems in agrifood be conducive and instrumental in attaining societal missions?

Learning and reflecting are part and parcel of this comparative international case study adventure. But not as a "l'art pour l'art" exercise. The experiences, practices and lessons we describe also constitute a way to critically reflect upon our own (regional and national) agenda and the way entrepreneurs and entrepreneurial ecosystems can grow and prosper and at the same time contribute to dedicated missions and the longer-term transition in agrifood. It provides us with ideas and a benchmark and mirror for reflection to rethink ongoing initiatives, activities and efforts and where necessary change and reinforce them to create a more sustainable agrifood system. This not only holds for ecosystem intermediaries (such as the regional development agencies) or policymakers, but also for entrepreneurs and other ecosystem stakeholders.

#### Analytical approach and case study selection

The paper takes a micro-meso perspective to the broader question of how the sustainability transition in agrifood can be driven and 'propelled' by entrepreneurial activity, by creating innovations and by establishing viable business cases with sustainability impact. Micro-meso means taking both a company (read also: entrepreneur, innovator, intermediary) and an ecosystem (read also: cluster) level perspective. We remain relatively agnostic in this paper about the directionality question of where we as society are heading for with the agrifood transition. Not all roads lead to Rome though. Yet the variety of available options (roads) to meet sustainability goals is abundant, ranging from predominantly plant- and protein-based solutions to a shift to a more organic and regenerative food system. And being selective about, but certainly not ignoring technological innovations: automation, robotisation, and AI can help the sustainability transition, and so can lighter and more soil-friendly equipment, hyperlocal weather predictions, and carbon-free mobility and storage. Just to mention a few of the opportunities that lie ahead of us. The report highlights a number of appealing examples in the Danish case, as inspiration as to what can be achieved and as invitation to others to follow. The results are based on a combination of desk research and face-to-face interviews (see annex 1) most of which were taken during a field visit to Aarhus in April 2025.

The Aarhus-Midtjylland case was selected based on several criteria: a strong entrepreneurial ecosystem, strong ambitions with regard to sustainability, similar challenges with regards to agrifood, as well as similar cultural, social and economic contextual characteristics as the Netherlands in order to increase comparability, credible reflection on solutions and conditions that might work elsewhere, and – broader - learning potential. It should be emphasised that the Aarhus-Midtjylland case is unique and that transferability options – "copy-pasting" – of ideas, instruments and strategies are limited. The insights and lessons that follow from this study should be looked at as mere inspiration and early proof of how entrepreneurship and entrepreneurial ecosystems can contribute to missions and sustainability transitions.

In terms of strength of its entrepreneurial ecosystem, the Aarhus-Midtjylland region belongs to the highest scoring ecosystems in Europe, if one excludes Europe's capital cities (Leendertse et al., 2022; European Commission; 2024; StartupBlink, 2025). Its overall strength stems from a conducive business environment, leadership, and a strong knowledge base.<sup>2</sup> Furthermore, Denmark in general, and the Aarhus-Midtjylland region in particular, have strong ambitions with regards to the sustainable food transition. For example, the city of Aarhus, the main urban centre in the region, has the ambition to become a CO2-neutral urban society by 2030 (City of Aarhus, 2021). In the same Climate Action Plan, the city also commits to climate-friendly local agriculture, that has significantly reduced greenhouse gas emissions (25%). Also the regional government, Region Midtjylland, envisions a future in which "the green transition creates value and becomes a significant driver of the development of our region to the benefit of citizens and employees" (Central Denmark Region, 2021).

With regards to the similarities, the Aarhus-Midtjylland case is also a strong option. Denmark is not only culturally, socially and economically similar to the Netherlands, but also in the challenges it faces regarding its agricultural and food system. This includes the reducing of its CO<sub>2</sub> and nitrogen (over)load, lowering its chemicals' use and (humane and biodiversity) impact in agrifood production, and in redressing its manure surplus, amongst others. And, as important, in getting the system as a whole on a more sustainable and future-resilient path. In all these respects, except for the last as we will see, the two countries have similar characteristics and have a lot in common. This might also mean that we can learn much more than we think from one another, for instance in how we approach societal challenges, look for opportunities and seek for solutions for change. But before we will come to that first, a little more still on the similarities and, undeniably also, the differences between the two countries.

Although the Netherlands is by a factor 2.86 almost three times as large economically, in terms of GDP per capita the two countries are well comparable, with 66.420 euro

<sup>2</sup> Leendertse et al. (2022) measure a high score for formal institutions, measured by the quality of government and the ease of doing business are especially high in this region, a high score on leadership, which is measured by the number of coordinators in large, European research and innovation projects, and a high score on new knowledge, measured by R&D expenditure.

(DK) against 63.030 euro (NL) respectively (Eurostat figures 2024). Stark are also the differences, most striking the differences in population (5.9 million (DK) against 18.0 million (NL) inhabitants) and in population density difference (141.6 (DK) versus 526.0 (NL) people per square kilometre (Eurostat, 2023 figures)). Denmark is slightly bigger in terms of land size than the Netherlands, with a total area of 42,925 km2 (DK) against 37,377 (NL) km2, of which notably (!) 3.8% (DK) and 13.3% (NL) is water and wetlands (Eurostat 2018 figures). But the countries show large differences in land cover, in cropland (47.7% (DK) against 23.0% (NL) of the land cover area), grassland (19.7% (DK) against 34.2% (NL) and woodland coverage (21.9% (DK) against 16.8% (NL).³ Both countries are large in agrifood and both are net food exporters. In 2024 Denmark had in total 28,234 farms with an average farm size of 76ha, against 48,500 farms in the Netherlands and an average size of 32ha. Denmark has approximately 3,800 dairy farmers and about 5,000 pig farms (producing 28 million pigs), against 13,900 dairy farms and 3,000 pig farms in the Netherlands. About 10% of farming land is organic in Denmark, against 4% in the Netherlands.

#### 2. The Aarhus-Midtjylland agrifood entrepreneurial ecosystem

### 2.1. Characterisation of the Aarhus-Midtjylland agrifood entrepreneurial ecosystem

The Aarhus-Midtjylland region serves as an important innovation hub for food and agriculture. The core locus and focus of the agrifood entrepreneurial ecosystem and the prime reason for the research in this report is Aarhus's Agro Food Park (AFP). Since 2009 the Agro Food Park has become the driving innovation and growth centre for food in Denmark. Midtjylland (in English labelled the 'Central Denmark Region') and the city Aarhus play also a key role in these ambitions. The park forms the core of a relatively young, compact and successful agrifood cluster, just outside, around but for a part also in the city of Aarhus.

The Aarhus region has emerged as a vibrant hub for agrifood innovation, hosting several start-ups that are making significant strides in the industry. The Aarhus region has several start-up incubators, such as Haystack at the Agro Food Park, and boosts an entrepreneurial culture through Startup Aarhus and The Link, both located at the university campus in the city. In a world-wide comparison, as to date Aarhus counts 177 start-ups<sup>5</sup>, representing about 15% of all Denmark's start-ups, and being the second best start-up ecosystem in Denmark in 2025 (startupblink.com, and Leendertse et al., 2022), ranking 42<sup>nd</sup> in Western Europe, yet having gone down 5 spots in the Western European ranking since 2023. The Midtjylland Region with Aarhus as its capital, moreover, is considered a leader in the 2023 European Regional Innovation

<sup>3</sup> For more comparative statistics, see, e.g., Manure as a resource is driving sustainability and innovation in Sweden and Denmark | Nieuwsbericht | Agroberichten Buitenland. Note that the figures in this reference differ from the figures in the main text which are the most recent figures from Statistics Netherlands and Statistics Denmark. Note that other (industry and market agency) sources report different figures.

<sup>4</sup> Compilation of statistics of several sources, including Netherlands Agriculture Statistics: Market data report 2024; CBS: Agriculture, crops, livestock and land use by farm type. Ditto: dairy cow population slightly down in 2024. Statistics Denmark: farms and agricultural and horticultural labour. Ditto: cropland.

<sup>5</sup> Global Startup Ecosystem Index, see: Startup Ecosystem of Aarhus | StartupBlink

Scoreboard, with scores that have consistently gone up until 2023 (latest figures). In Denmark only Hovedstaden, the Copenhagen region, is performing better.<sup>6</sup>

#### Box 1: The city of Aarhus and the Midtjylland Region

Aarhus, with 355,000 inhabitants the second biggest city in Denmark, is located in on the east coast of the Central Denmark Region (Danish: Midtjylland, or Central Jutland). Aarhus is, like the Dutch city of Rotterdam, one of the 100 European Mission Cities with the goal of becoming climate-neutral by 2030.

The Midtjylland Region is one out of five Danish regions, covering an area of 13,000 square kilometre, which is larger than the provinces of Groningen, Friesland, Drenthe and Overijssel combined, but with less than half its population. Danish regions, as administrative and political entities, are comparable with provinces in the Netherlands, functioning in between the municipality and the state level. The Midtjylland Region is home to 1.3 million people, or 23% of the population in Denmark, as compared to 3.0 million (16.5%) in these four provinces in the Netherlands. The Midtjylland Region has a mission to integrate sustainability in the core of investments, services and daily operations: "The green transition creates value and becomes a significant driver of the development of our region to the benefit of citizens and employees." (Central Denmark Region, 2021). Aarhus is also a notable example of the 'Scandinavian third way' of smart city development, rooted in the Scandinavian tradition of cooperation.

What makes the Aarhus-Midtjylland case particularly interesting is the combination of a vibrant entrepreneurial ecosystem with various start-ups and an already longer trend in society and in business in actively contributing to sustainability goals and seeking solutions to make the agricultural and food system more sustainable and future-resilient. Whereas the Agro Food Park, its companies and the organisations that together make up the park all play a role in realising the park's vision and mission, the significance and impact of the park stretch well beyond its Aarhus-Midtjylland ecosystem boundaries, playing perhaps an even more important role as the catalyst of a structural reconfiguration of the whole Danish agrifood entrepreneurial ecosystem, as we will see later in this report.

### 2.2. The rise, position and role of the Agro Food Park in the Aarhus-Midtjylland agrifood entrepreneurial ecosystem

The Agro Food Park (AFP) is a dedicated agrifood science/business park and a leading food-tech ecosystem. The park was opened in September 2009 and is located within the larger Business Park Skejby in Skejby, a northern suburb of the city of Aarhus. The park currently consists of 105 companies and organisations and a total of around 1,750 employees (figures August 2025). The most recent survey among the Agro Food Park residents, held in February 2023, shows that in terms of composition 58% of the companies on the AFP have 1-5 employees and about 9% have more than 100

<sup>6</sup> European Innovation Scoreboard, see: EIS interactive tool 2024 | Research and Innovation

<sup>7</sup> Figures CBS Statline, end 2024. CBS Regionale kerncijfers Nederland. The four mentioned Dutch provinces together comprise 35.7% of the total surface (including water) of the Netherlands (source: CBS Statline land use figures)

<sup>8</sup> Smart city understood as creating and connecting human and social capital with ICT infrastructure in order to achieve sustainable development (see Baraniewisz- Kotasinska, 2022: 19).

employees, with the remainder of 31% being in the SME-category beyond 5 employees.<sup>9</sup>

The park operates in a mostly private-to-private mode, with private funding playing a dominant role in the further development of the park. The management and development of the park's real estate (buildings) is 100% privately funded and operated, based on lease contracts with the park's residents. With a vision of becoming Europe's leading innovation ecosystem for agrifood towards CO2 neutrality by 2050, it hosts the *Innovation Centre* of the global dairy cooperative corporate *Arla Foods* as well as *SEGES Innovation*, a large private non-profit applied R&D organisation functioning as an events and knowledge platform as well as a digital innovation hub. The park also accommodates laboratories, pilot facilities and test fields to enable research, proper testing, product development and – broader – innovations at large.

Note that although the development of the park has been largely industry-led, its growth cannot be explained by private business effort only. The presence of Aarhus university, at close proximity and since 2019 on the park's premises, is another explanatory factor for its growth, as are the various initiatives and instruments to stimulate, facilitate and promote both entrepreneurship and innovation (see further section 4).

The park hosts a sizeable number of small sustainable start-ups. Although it is beyond the purpose of this study to give an in-depth overview of all relevant and promising ventures on the park's premises, we'll discuss six concrete examples of young companies that have attracted wide public attention and have generated innovations that matter in the green sustainability transition. We subsequently highlight Cordulus, Better Insects, ISI Food protection, Cropup, Agrointelli and PlanetDairy. For other interesting examples, the reader is referred to annex 2.

- Cordulus, originally established in 2015 as Ceptu, has a current estimated staff of 35, and specialises in hyper-local weather data, Al-driven weather predictions and other Al solutions. It develops advanced sensor and monitoring 'weather' solutions to optimize agricultural production and improve on-farm resource efficiency. Products: app, Cordulus Farm Station, Cordulus Roads. In 2022 Cordulus attracted almost 3 million euro in seed investment from Danish Agro and Rockstart, followed by an additional round end of 2024 (same amount).
- Better Insect Solutions (BIS), established in 2022 as part of the Big Dutchmangroup, is a spin-off company from BigDutchman, SKOV and Inno+, and with a small staff, focuses on developing innovative system / turnkey solutions for insect farming, focusing on sustainable protein production for animal feed and agricultural purposes. BIS was involved in the 70 million euro investment project EnormBiofactory (BSFL larvae production) in Hvirring (DK) and FarmInsect (larvae production) in Germany.

<sup>9</sup> Note: percentages refer to the companies that have responded to the survey. The survey response rate was 57% (92 managers and representatives).

- ISI Food Protection ApS, established in 2009, has a staff of 16 employees, and is a centre of expertise for applied food and plant micro-biology. It hosts biolevel safety level L3\* classified laboratories and a food pilot plant. It offers specialised lab services and support for customised food protection strategies. The presence of ISI Food Protection is key to other residents of the AFP such as Arla Foods Innovation Centre, but also other AFP residents. To illustrate this, ISI Food Protection actively contributed to the FishFermPlus project (fermentation technology for fish processing); it also collaborated with start-ups such as Olden Kombucha in pilot projects together with Aarhus University.
- CropUp, established in 2020, is an AI-powered drone platform for farmers, developed by Akson Robotics, employing an estimated 10 people. Through standard RBG drone imagery and AI technology, it can map weeds at plant level, which enables precision spraying, thereby reducing the use of chemicals. It produces spray-maps per terminal (such as John Deere, Amazon, Fendt). According to CropUp, this enables up to 95% chemical load reduction and 80% on average. CropUp works together with agricultural advisors of Agri Nord.
- Agrointelli (Agro Intelligence ApS), established in 2015, has its HQ in Aarhus and subsidiaries in Germany, Poland, Spain and a distribution network in Europe and North-America. It has an estimated 45 employees (source: iirb.org). Agrointelli is an agritech robotics start-up in precision farming, developing intelligent solutions for sustainable farming, including robotic systems that optimise agricultural practices: ROBOTTI platform and ROBOTTI AI robot, a flexible autonomous tool carrier for agriculture and horticulture that can perform tasks like seeding, tillage, spraying and weeding, reducing the usual labour input by 75-85%. Agrointelli has a testing field near the AFP.
- PlanetDairy ApS, established in 2022, is a start-up that develops sustainable dairy alternatives (e.g. hybrid dairy) to traditional dairy products by incorporating plant ingredients and proteins via precision fermentation into dairy. It aims to 'disrupt the cow' and offers sustainable dairy options to flexitarians with lower CO2 emissions (from 20% reduction levels for milk for example to 40+% for cheese), while offering similar taste, nutrition and functionality of conventional dairy products. Recently, in June 2025, just after our field visit to Denmark, PlanetDairy launched a hybrid milk range in the Netherlands, teaming up with Farm Dairy Netherlands and Albert Heijn. It was already active in the Nordics with hybrid cheeses, and aims to scale in the Benelux, Germany and Scandinavia. PlanetDairy currently has eight employees.

The AFP can be seen as the heart and core of the wider Aarhus-Midtjylland agrifood ecosystem, but the size of the park is relatively limited in terms of number of firms or staff involved compared to other science parks, such as Wageningen Campus in the Netherlands. Yet the growth performance and wider impact of the park since its start in 2009 is impressive, not only in terms of number of companies and organisations that the park hosts, but also in terms of anchor companies and overall composition.

Two of those anchor tenants are Arla Foods Innovation Centre and SEGES Innovation. Shortly after the creation of the park, in 2013 the global dairy cooperative Arla Foods decided to relocate its two existing research and innovation facilities and to establish a new central Innovation Centre on the AFP premises. The move meant a boost for the park's credibility and attractiveness for other companies and organisations. The Innovation Centre<sup>10</sup> which serves as Arla's global R&D and innovation hub, started its operations in 2017 and is designed as an open innovation hub. It employs around 150 specialists (scientists, engineers and product developers), working on 30-50 concurrent innovation projects in parallel, ranging from new dairy products, foodservice solutions, lifestyle health, packaging and fresh dairy logistics. 11 It avails of labs, creative spaces and a pilot plant. As from October 2021 Arla Foods also opened Arla Foods Ingredients Innovation Centre, a separate facility based in Videbaek with another 100 scientists and technicians specialising in dairy and whey ingredients. Arla Foods is one of the top-10 largest dairy cooperatives globally with a revenue of 13.8 bn euro and 21,900 employees (figures 2024), and 7,600 farmers in various countries, including about 70 in the Netherlands. Arla invests in climate and nature initiatives, also in the Netherlands, such as the 'Beter voor Natuur & Boer' label, and collaborates with Trees for All and Boerennatuur to boost biodiversity on and around dairy farms.

SEGES Innovation, the first resident on the park and already active on the location before the establishment of the park, is an anchor company and plays a vital role in the park's future development, in fostering interdisciplinary innovation, and in supporting the green sustainability transition. With 450 staff in Aarhus, 40 in Copenhagen and a few at Grønhøj experimental station, SEGES is a major green sustainability innovation driver with various projects targeting climate mitigation, biodiversity, animal welfare and resource optimisation. It hosts a digital innovation hub with 170 staff developing software, databases and tools for farmers and food companies. SEGES also acts as an events and knowledge platform. SEGES is actively involved in plant-based protein chain development, promoting locally grown plant proteins, inter alia providing Life Cycle Analysis (LCA) and cultivation advice, developing traceability and climate-smart tools, including the digital platform TraceIT. SEGES also promotes nature-inclusive farming and operates the 'Nature Check'-initiative training consultants to assess farms, enhance biodiversity and support farms in meeting green finance criteria.

The Agro Food Park can be seen as a hub as well as a 'preferred' network, with a professional two-headed management and several activities organised on a regular basis to inform its staff but also to boost the interaction between the staff working in the park. The premises itself have been designed by international design studio William McDonough and partners, together with 3XN/GXN architects from Copenhagen. As part of its design and make-up, several clusters and campuses were visited as food for thought and inspiration, such as Wageningen Food Valley and the High Tech Campus Eindhoven, but also other leading European science business parks. The design of the

<sup>10</sup> The realisation of Arla Foods's new innovation centre effectively meant a merger of the two existing Arla innovation centres, one in Denmark and one in Sweden. The relocation to Aarhus held for both centres.

<sup>11</sup> Source: Arla and DairyReporter.com respectively

Agro Food Park builds on three primary spatial and landscape concepts, notably 'The Strip', 'The Plazas' and 'The Lawn' that each have their own function and relationship to urbanity and food culture.<sup>12</sup>

A recent February 2023 survey by the park management, among the management of companies and organisations present at the park provides an appreciative insight in the range of network activities that are organised together: "around 50% of respondents place some or high value on the professional events, such as drop-in meetings, Food, Trends & Sustainability and Career Day. We put a lot of effort into organising events for the employees in Agro Food Park, as we know it is important to establish connections and networks between employees and companies. We are pleased that the respondents also think so. The same goes for the quarterly social events and the quarterly Friday bar on Thursdays. Around 50% of respondents find these events somewhat or very important." <sup>13</sup>

While the Agro Food Park has shown a steady growth since 2009, it has also evolved and started to 'encompass' new sectors, such as health technology and green energy. 'Creating sustainable solutions for the Danish and the global industry' is and remains the core ambition of the Agro Food Park. Part of its expansion plan looks into the possibilities to use part of the 100-hectare area around the Park for renewable energy production. An extension towards nearby Skejby and the Aarhus University Hospital is being looked into, with the tentative name of 'Climate, Health and Food system Valley' (see, e.g. Agro Food Park 2025a: 34-35). Skejby hosts a number of large companies (e.g. Vestas), the innovation cluster Incuba and also Aarhus city hospital.

#### The agrifood entrepreneurial ecosystem beyond the Agro Food Park

While the Agro Food Park is clearly important for the agrifood entrepreneurial ecosystem, the ecosystem extends well beyond its borders. The wider Aarhus-Midtjylland ecosystem also includes companies in close vicinity of the park such as AarhusKarlshamn (AAK) (with the previous Aarhus Oliefabrik, a global supplier of plantbased oils for food, cosmetics and pharma, located south of Aarhus,) JBT Marel, a large Canadian-Icelandic global manufacturer of machinery, software, automated and robotics systems for food processing (in northern Aarhus), Danish Crown (a cooperative and one of the world's biggest meat processing companies, with its HQ located in Randers, 35km north of Aarhus), and on Midtjylland but somewhat further away companies such as KMC (Kartoffelmelcentralen), the cooperative manufacturer of potato-based ingredients (located in Brande, 80km west of Aarhus) and Vestjyllands Andel, a cooperative SME manufacturer of compound animal feed and a wholesale supplier of grains, seeds, feed, and fertilizers (located in Ringkøbing, at the opposite coast, 135km westward). Apart from incumbent firms, the regional ecosystem also hosts a number of innovative start-ups such as Aarhus Protein (a start-up manufacturer of plant-based proteins, located in the harbour area), Nocla (a leading producer of naturally fermented umami paste, located about 20km outside Aarhus) and Decameal

<sup>12</sup> See website of the architect.

<sup>13</sup> See website of the park.

(a sustainable crab-based food start-up founded at the Haystack incubator at the Agrofoodpark by two Aarhus University graduates, and now mainly located in Grindsted, about 110km from Aarhus, with a production facility).

### 2.3. The position and role of Aarhus University in the Aarhus-Midtjylland agrifood entrepreneurial ecosystem

Aarhus University is an important player in the agrifood entrepreneurial ecosystem. On the Agro Food Park, the university established its Food Science Department, counting around 150 staff. Outside the park, the university has a rich and relevant variety of departments and research institutes and interdisciplinary hubs and platforms, located at the university's campus, the city and other Midtjylland locations Viborg/Foulum (focusing on, among others, Animal Sciences), Herning, and Emdrup (vicinity of Copenhagen).

#### Campus Aarhus University and other locations for research and training

Aarhus University altogether has around 8,500 staff of which 4,500 academic, and 32,650 students enrolled of which almost 3,800 foreign students. It has 5,700 graduates and 6,800 students admitted to Bachelor's programmes, and altogether almost 1,900 PhD students. The university is an important hub for creating, channelling and mobilising knowledge for research and innovation, creating and developing new technologies, and understanding the impact of human behaviour on different aspects of life and planet earth, up to and including (path)ways for behavioural and societal change. And in delivering young talent to the Danish society and economy, including the part of the workforce that is active in the Aarhus agrifood entrepreneurial ecosystem. Stimulating entrepreneurship among its students and its staff is a task that the university has taken up firmly over recent years. The Kitchen, the main incubator facility of the university, in one of the initiatives that stimulates and supports student-founded start-ups (see for more Box 4).

Aarhus University's Food Sciences department is, with 9,000 m2 of laboratories, teaching facilities, greenhouses and office space, a key player at the park. The Food Sciences department partly relocated from other locations in the country and covers various disciplines ranging from crop sciences, horticulture and fruit to food and nutrition, molecular sciences, food technology and biology. As former head Michelle Williams put it in March 2018 "The Department will become a part of the ecosystem in Agro Food Park and will be able to contribute with relevant expertise to a broad range of challenges in the entire value chain for the Danish food industry. There will only be a few places in Europe where this seamless connection can exist between research competence and the industry." 15

As mentioned, the university's departments, institutes and other facilities are not only located in and around Aarhus, but spread over various locations in Jylland and even further (see figure 1, below), including a recently established new campus in Viborg (AU

<sup>14</sup> For figures, see Annual reports 2023 and 2024.

<sup>15</sup> Strengthening of Danish food industry.

Viborg) that opened in the summer of 2024. Campus Viborg is expected to "become a new centre for training the specialised workforce of the future within animals, plants, food and green transition." (Aarhus University 2025: 14). The Viborg campus and the relocation of, e.g., the Food Sciences department to the AFP, is – as the university puts it – "part of Aarhus University's contribution to the political agreement on the relocation of university programmes across Denmark from June 2021". The new campus will also serve to strengthen business collaboration and entrepreneurship in collaboration with Viborg Municipality and Agro Business Park (Aarhus University, 2024: 13).



Figure 1: Aarhus University's research, education and training locations

Explanation: in red cities with research and training facilities. In white: research activities only. Source: Aarhus University Annual Report 2024 (in Danish).

Apart from research and education, the five faculties at Aarhus University all provide, to varying degrees, research-based consultancy as an essential part of the university's contribution to creating value for society, with the Technical faculty being the largest, with a contract of 380 DKK million with the Ministry of Food, Agriculture and Fisheries and the Ministry of Environment and Equality (Aarhus University, 2025: 20).

#### Aarhus University and industry collaboration, patents and inventions

The university has kept track of its technological and economic output. While the budget involved with industry collaboration and the number of projects with industry have steadily gone up over the last 5 years (see table 1), the overall number of external project, as well as the number of patents and reported inventions has roughly stayed the same. This illustrates the stronger emphasis on industry collaboration and entrepreneurship.

Table 1: Patents, inventions and collaboration with industry established by Aarhus University

Year	2024	2023	2022	2021	2020
Number of patents filed	25	26	32	17	28
Number of reported inventions	62	58	75	69	72
Number of projects with industry	3,378	3,047	3,225	2,710	2,616
Number of external projects	5,796	5,038	5,862	5,138	5,045
Financial scope of collaboration with business (DKK million)	1,412	1,166	1,143	962	831

Source: AU Annual report 2024, p. 25.

### Aarhus University: thematic and interdisciplinary centres, platforms and collaborative programmes for sustainability

Aarhus University has created a number of initiatives as well as interdisciplinary thematic research centres in response to the sustainability challenges and more specifically the green sustainability transition. Built on a traditional university structure with mainly disciplinary departments, there are eight interdisciplinary thematic research centres. We shortly describe four of the centres:

- CiFOOD, Aarhus University Centre for Innovative Food Research focuses on innovation and sustainable solutions in agrifood, taking consumer behaviour and consumer needs as its point of departure with the purpose of creating sustainable foods and sustainable consumption practices and purposeful healthy lifestyles.
   CiFOOD describes itself as "a one stop shop for research and talent development to deliver climate friendly innovative food solutions" and also has a role in fostering knowledge transfer from the universities to start-ups and in providing innovation support, mentoring and talent.<sup>17</sup>
- CBIO Aarhus University Centre for Circular Bioeconomy<sup>18</sup> is an interdisciplinary research and innovation centre, "(..) a thriving network organisation, (..) bring(ing) together academic and entrepreneurial minds to carry out world-class research and development within biobased and circular bioeconomic production systems."
- iCLIMATE Aarhus University Interdisciplinary Centre for Climate Change<sup>19</sup>
  "(..) facilitates new interdisciplinary ideas and projects that aim to study climate processes and feedbacks, climate change and human-climate interactions; understand impacts and risks; support adaptation decisions and enable transition of society to sustainability in the face of large-scale changes ahead."

<sup>16</sup> Circular bioeconomy, materials, water, digitalisation, food, climate, and Arctic research

<sup>17</sup> Website CiFOOD

<sup>18</sup> Website CBIO

<sup>19</sup> Website iClimate

• DIGIT - Aarhus University Centre for Digitalisation, Big Data and Data
Analytics.<sup>20</sup> DIGIT combines basic and applied research in mathematics, computer science and engineering with a focus on global digital development.

Aarhus University also operates an **Open Innovation in Science (OIS) platform** on plant-based food systems, called **Plant2Food**. funded by external grants from the Novo Nordisk Foundation. An important feature of the OIS platform is its open and patent-free collaboration model (see Aarhus University 2025: 19).

Furthermore, the university has initiated or is participating in many more initiatives nationally and internationally. These include a pan-Danish collaboration centre, called START - Centre for Sustainable Agrifood Systems, which focuses on strategic cross-disciplinary research, policy dialogues and community development.<sup>21</sup> Aarhus University, together with Food & Bio Cluster Denmark, also participates in EIT Food. And there is Food Citylab, that fosters the connection with local communities on getting food systems ready for the future through research and innovation.<sup>22</sup> For more on these initiatives, see annex 4.

## 2.4. The Aarhus-Midtjylland entrepreneurial ecosystem and the Agro Food Park vis-à-vis Dutch Foodvalley and Wageningen Campus: where do they meet, where do they differ?

The Aarhus-Midtjylland ecosystem and the Dutch Regio Foodvalley are similar in that they both represent thriving ecosystems with strong science business parks and leading universities in agrifood. Whereas agrifood is in the core of both, they differ in size (economically, spatially) as well as in the scope and breadth of their research, innovation and business activities/portfolio. The focus on the green sustainability transition might be assessed as being stronger present in the Aarhus-Midtjylland case with the Agro Food Park as frontrunner. Yet especially Wageningen Campus with a lead role for Wageningen University, as integral part and core of Foodvalley, have been catching up here lately.

The Agro Food Park is small compared to the Wageningen Campus. Wageningen Campus is also more strongly integrated from a university-business (public-private) point of view than the Agro Food Park. Although the Agro Food Park hosts as from November 2019 the Food Sciences department of Aarhus University, it is predominantly a 'private-to-private' innovation hub and business park where public policy interventions play a more limited role, making it more comparable, e.g., to the Dutch High Tech Campus Eindhoven (HTCE). This also holds for its professional park management and its open innovation character. The park's management but also its further development and construction are fully private, also in financial terms. Admission of new enterprises to the park is strict and limited, and up to assessment and judgement by the park's two-headed management and the board park in the background. The park management runs the office rentals, supports the companies' network and is responsible for the

<sup>20</sup> Website DIGIT

<sup>21</sup> Website START

<sup>22</sup> Website New Food Citylab in Denmark

(area) development of the park. The park also boasts ample opportunities for knowledge exchange between campus residents, including theme lunches, specific events and well-thought of open spaces and flex meeting rooms where people can meet, discuss and spar. In all these aspects as well as its daily operation the park very much resembles the open innovation High Tech Campus Eindhoven, even though its size, composition and sector orientation differ markedly.

The Agro Food Park incorporates features and ideas that are reminiscent of both the Wageningen Campus and the High Tech Campus Eindhoven, both in its design and its daily park life, but made these into an original and unique Danish blend. Note that only slightly more than 15 years have passed between the conceptualisation of the first plans for the park and its current state with 105 enterprises and organisations. Its relatively young age made that before its inception it was possible to take stock of and make the best possible use of successful open innovation campus experiences and practices, both across Europe and world-wide.

### 3. The agriculture and food sector and sustainability in Denmark: between ambition and getting there

For the lead questions of this case study 'Where do entrepreneurship and sustainability transitions meet?', 'How can the two strengthen and reinforce each other?' and 'What is needed to create, support and facilitate thriving sustainable entrepreneurial ecosystems (SEEs)?' in the Aarhus-Midtjylland case, it is relevant and necessary to take a deeper look into how Denmark deals with sustainability in agrifood and whether and how the system transition in agriculture and food takes shape.

This section discusses two major initiatives that are crucial in the green sustainability transition and shape also the context and the boundaries within which change takes place. It addresses the issue of directionality in transitional change and also deals with incentives for change for entrepreneurs, for farmers but also for manufacturers of various products and services in the various food and bioresources value chains. The first, and also most recent initiative we discuss is the *Green TriPartite* (Grøn Trepart), a major country-wide agreement agreed in 2024 to radically cut agricultural emissions and invest in nature. The second initiative we highlight is *AgriFoodTure*, an encompassing independent mission-based public-private innovation partnership initiated in 2022 that aims to accelerate Denmark's green transition in agriculture, food and land use.

These two initiatives constitute an important part of the conducive context and the future direction for the agrifood entrepreneurial ecosystem in the Aarhus-Midtjylland region, but also for agrifood in Denmark as a whole. This section provides a picture of these initiatives, while the next section discusses how this context affects sustainable entrepreneurship.

#### 3.1. Green TriPartite: a major breakthrough towards a green transition<sup>23</sup>

A recent landmark agreement is the Green TriPartite to cut agricultural carbon emissions and restore nature. The Green TriPartite agreement was struck on 24 June 2024 between the Danish government and leading industry, agriculture and environmental groups, including Denmark's Nature Conservation Association and the Danish Agriculture & Food Council. Green TriPartite foresees taking 15% of arable land out of production and turning it into forest land. Overall 10% of Denmark's land area will be converted to nature and forests with 1 billion trees to be planted.<sup>24</sup>

#### Box 2: Main goals and measures of the 2024 Green TriPartite agreement

- Reductions in greenhouse gas emissions for 1.8 million tonnes of CO2e in 2030 (and potential for up to 2.6 million tons), which means closing the shortfall concerning the national 2030 climate target of reducing emissions by 70%.
- A CO2e tax on emissions. The CO2e tax applies to livestock, peatland, liming, and F-gases, along with subsidies for reducing fertilizer use and biochar storage. The tax will be DKK 300 per ton CO2e in 2030 increasing to DKK 750 per tonnes of CO2e in 2035 with a floor deduction of 60%. The effective tax will amount to DKK 120 (€16) per ton in 2030 rising to DKK 300 (€40) per tonne in 2035.
- Return of proceeds to the industry: The proceeds from the livestock tax in 2030-31 are returned as a transition support pool to support the green transition of the industry. Handling of the proceeds will be revisited in 2032.
- Establishment of a new *Danish Green Land Fund* of DKK 40 billion (€5.36 billion), of which DKK 30 billion (€4 billion) to be set aside for the conversion of 140,000 ha carbonrich lowland soils including fringe peripheral areas and 250,000 ha of new forest.
- A target of at least 20% protected nature. The construction of 80,000 ha of private virgin forest, 20,000 ha of state forest and the removal of low-lying land will increase the extent of protected nature considerably.
- Setting up a subsidy scheme of just over DKK 10 billion (€1.34 billion) until 2045 for the production and storage of biochar through pyrolysis.
- Paradigm shift in the nitrogen effort, where land conversion is the main engine to achieve the goals of the EU's water framework directive.
- Fee reductions for slaughterhouses amounting to DKK 45 million annually starting in 2029, as well as setting aside a pool for upskilling of DKK 100 million over the period 2027-30.
- Agreement on the need to speed up the development and maturation of new climate technologies and initiatives, and that the reduction effects of these must be documented as soon as possible so they can be counted in the national emissions inventory.

Sources: Denmark announces historic tripartite agreement to cut agricultural carbon emissions and restore nature; Danish Agriculture; Danish Government plans to introduce a new agriculture CO2 tax | EY - Global

#### **Green TriPartite - preceding steps**

In 2020, Denmark passed the **National Climate Law**, committing the country to reduce its GHG emissions by 70% in 2030, using 1990 as the baseline year. Additionally, a sub-target of 50-54% by 2025 and a net zero target for 2050 are specified in the law. In 2021, a broad political agreement was reached on the **Green Transition of Danish Agriculture** recognising that the agricultural sector required special attention for Denmark to achieve net zero by 2050. This agreement specified that the Agriculture Forestry and Other Land Use sector is required to cut GHG emissions by 55-65% in 2030 compared to 1990. The agreement also specified that the agricultural sector must reduce nitrogen run-off by 10,800 tons by 2027 to deliver on the EU Water Framework Directive.<sup>25</sup>

Climate Partnership for Food and Agriculture. To achieve the 70% reduction in greenhouse gas emissions by 2030 and net-zero emissions by 2050, Denmark has established 14 climate partnerships in various business sectors. In a November 2019 press statement, the Prime Minister's Office of Mette Frederiksen launched the partnerships, pointing out that: "(w)e must solve the climate challenge together. In respect of our unique, strong, Danish model of society. Every part of our society must contribute to achieve the government's ambitious climate goals. I know that people with different interests can find common solutions if they want and if they come together. This is the public spirit demonstrated by companies and organisations every single day. They take responsibility for the community they are part of. I am pleased and proud of the 13 climate partnerships we present, each with strong, competent business leaders at the head of the table. Together we can show the world that Denmark is both green, competitive and solidary." (...) "the Danish business community has a central role in the green transition and with the climate partnerships, the government wants to work closely with the business community on how to contribute to solving the climate challenges."26

One of these public-private partnerships is the **Climate Partnership on Food and Agriculture**<sup>27</sup> that formulated and recommended 22 climate actions that together would imply, if followed up by the Danish Government and Parliament, a climate impact of 62 per cent by 2030 (i.e. a reduction of approximately 12.6 million tonnes CO<sub>2</sub>). At the same time, the partnership's analyses show that Denmark, through further research in the food field, is likely to reduce its climate impact by a further 10 percentage points, corresponding to an overall gain of 72 per cent. Overall, by following the proposals, Denmark can realise substantial gains in terms of achieving the sector's own goal of a climate-neutral industry by 2050": "We endeavour to secure an industry that continues

<sup>25</sup> See: Paving the Way for Agriculture Emission Reductions – the Danish case | CONCITO

<sup>26</sup> Quote, see: 13 climate partnerships will support the Danish government in reaching the green targets

<sup>27</sup> See: Climate Partnerships 2030. The Climate Partnership includes the Ministry of Food, Agriculture and Fisheries of Denmark, the only public partner, as well as the following private partners: Danish Agriculture & Food Council SEGES Okologisk Landsforening Think tank Frej Danish Forest Association Danish Dairy Board Danish Food and Drink Federation Danish Chamber of Commerce Danish Aquaculture Danish Brewers' Association Stop Wasting Food movement Denmark Arrhus University Technical University of Denmark University of Copenhagen Arla Foods Agrointelli Animal Nutritution DLG Carlsberg Chr. Hansen Daka Danish Agro Orkla Foods Denmark Nature Energy Schulstad Trade Union NNF Trade Union 3F.

to have a large and competitive food, agriculture, aquaculture and forestry sector that delivers great value to Denmark in terms of employment, income, welfare and export earnings. Simultaneously, the industry contributes to the global climate transition".<sup>28</sup>

Action Plan for plant-based foods. Another, smaller, but also targeted preceding step was the launch of the Action Plan for plant-based foods in October 2023, a pioneering government-funded plan to promote plant-based foods (MFAF, 2023). The action plan has three main goals: 1) to enhance demand (increased consumption of plant-based foods both in Denmark and abroad), 2) to increase production and availability of plant-based food products, and 3) to foster cooperation between stakeholders across the food system (scientists, farmers, chefs, nutrition experts, and others). Key in the plan is the Plant-Based Food Grant, a funding mechanism designed to support projects along the plant-based food sector, ranging from research to product development and market expansion. The grants are operational during the period 2023–2030, with an initial budget of DKK 675 million, and an additional DKK 420 million in 2024, the funding exceeds DKK 1 billion (€130 million).

Denmark builds on a long tradition of sustainability and organic farming and has a relatively high share of consumers buying organic and 'green' products (Daugbjerg and Schvartzman, 2022). Organic food had a total retail share of 13% in 2020. The sustainability ambitions in food and agriculture should be seen against the background of the Danish agrifood sector being a significant exporter, contributing approximately 22% to Denmark's total goods exports, worth €27 billion (figures 2022). It is a leading exporter of pork, fish and dairy products, sixth-largest exporter worldwide of fishmeal and fourth-largest of fish oil.

#### **Green TriPartite passed by Danish Parliament**

On 18 November 2024, broad political agreement was reached on Green TriPartite, getting support from the Socialist People's Party, Conservatives, Liberal Alliance, and the Social Liberal Party, as well as the Danish Government. The plan allocates DKK 43 billion (€5.8 billion, at the June 4, 2025 exchange rate) to purchase farmland for conversion, with forests expanding by 250,000 hectares (618,000 acres) and another 140,000 hectares (346,000 acres) of low-lying, climate-damaging soils being repurposed for nature, thus transforming Denmark's land use, and advancing its efforts in biodiversity, climate action, and water quality. The political agreement came after months of negotiations between the government and the Danish Parliament.<sup>29</sup> According to Jeppe Bruus, Denmark's Minister for Green Transition "Danish nature will be changed in a way not seen since the drainage of wetlands in 1864. Denmark will become the first country in the world to introduce a CO2e tax on agriculture. And with the new agreement, we are launching an ambitious nitrogen reduction effort to ensure the return of fish to our coasts and fjords."<sup>30</sup> As Lars Aagaard, Denmark's Minister for Climate, Energy and Utilities put it: "Now we are creating the necessary green

<sup>28</sup> See: Food and agriculture – Climate Partnerships 2030

<sup>29</sup> See also: Gemeenschapszin ligt aan basis van Deens landbouwakkoord - Nieuwe Oogst (in Dutch).

<sup>30</sup> See: Cutting agriculture emissions and restoring nature: Discover Denmark's historic tripartite agreement

transformation in agriculture, and for the first time, the path to our 2030 climate goals is fully laid out. We stand united behind a solid agreement on a CO<sub>2</sub> tax for agriculture. There is still much work ahead, and we have not yet crossed the finish line. Agriculture must and will transition, and now there is clarity on direction and investments. This is green action that works. The agreement is a milestone, deeply rooted both in Parliament and among stakeholders and organizations. This is Denmark at its best."31

A cornerstone of the agreement is the reduction of nitrogen pollution, which has significantly impacted Danish waters. By integrating sustainable land use practices, the plan aims to restore life in fjords and coastal ecosystems, meeting nitrogen reduction targets aligned with neighbouring countries. The CO₂e tax will be on livestock emissions, an initiative aimed to reduce greenhouse gas emissions by up to 2.6 million tonnes by 2030. The Green TriPartite efforts align with Denmark's broader climate targets, advancing the green transition within agriculture. "The plan prioritises maintaining a competitive agricultural sector, investing €1.34 billion in pyrolysis technology and the development of climate-friendly practices. Efforts will focus on enabling high-tech, resource-efficient farming while safeguarding jobs and exports. A cross-sectoral growth plan will support the agriculture and food sectors, ensuring they remain key contributors to Denmark's economy and sustainability goals."

The Green Tripartite Plan aims to restore nature and improve water quality, by establishing 250,000 hectares of new forest and converting 140,000 hectares of low-lying farmland into natural areas. The agreement sets out to improve biodiversity and create habitats like heathlands, meadows, and wetlands. To drive the transition, the plan introduces local Green Tripartite Councils and coastal water councils across Denmark, ensuring a collaborative approach to planning and implementing land use changes. These councils will involve local stakeholders, including municipalities, agricultural organisations, and environmental groups. The plan includes the establishment of six new national nature parks, increasing the total to 21 by 2030. It will also include an urban national nature park at Kalvebod Fælled, enhancing access to green spaces near Copenhagen. In marine areas, €10.72 million is allocated to restore habitats in Øresund and Lillebælt, creating two new marine nature parks. These initiatives aim to support biodiversity and revive marine ecosystems through measures such as creating stone reefs.

The agreement has been struck under the December 2022 'SVM' coalition government, that reminds Dutch readers in terms of its composition and policies of the two Dutch 'purple' coalition governments during the period 1994-2002. There was a slight fear that Denmark would follow the Dutch example in not being able to strike an agreement (cf. the failed Dutch 'Landbouwakkoord' of 2023). But agreement was reached with further preparations and negotiations to implement the agreement at regional level now under way (stage 2).

The main socio-economic effects, as estimated by the government, include a reduction in agricultural production and employment due to the introduction of the CO2e tax on livestock. By 2030, the agricultural sector is expected to see a 4% decline in production and a loss of 1,500 jobs, rising to 6% and 1,950 jobs by 2035. It is also estimated that there will be price increases for meat and dairy products, with beef seeing a rise of 2% by 2030 and 4% by 2035.<sup>32</sup>

Notably Aarhus University provided research-based advice to the Svarer Committee that formed the basis for the subsequent negotiations that led to the Green Tripartite agreement. In total, more than 370 scientific reports, research reports and scientific advisory reports contributed to the decision-making, including knowledge about the marine environment and oxygen depletion, biodiversity and air pollution urban biodiversity and air pollution, new and sustainable foods, greenhouse gas mitigation measures in agriculture, but also animal welfare animal welfare and milk quality when agriculture has to add feed (see Aarhus University 2025: 20).

#### 3.2. AgriFoodTure

AgriFoodTure is an independent mission-based public-private innovation partnership that aims to accelerate Denmark's green transition in agriculture, food and land use. AgriFoodTure, as a mission formally established in April 2022, started as the outcome of a joint roadmap, written and submitted in April 2021 by around 300 researchers and experts from all Danish universities and several research institutions in the Danish food cluster, and enabled by an Innomission 3 call of Innovation Fund Denmark. Although AgriFoodTure - a contraction of the words agriculture, food and future - does not directly resort under the Danish Ministry of Food, Agriculture and Fisheries, there exists a close collaboration between the two.

The AgriFoodTure partnership unites universities, knowledge and innovation institutes, SMEs and large national and international companies, civil society actors and the authorities in a common vision for the Danish agricultural and food production. AgriFoodTure's ambition is to be the leading platform for initiating new partnerships and cross-cutting collaborations with actors from the entire value chain.

#### Box 3: AgriFoodTure: its goals, vision, implementation and evolution since 2021

In its 2021 White Paper, AgriFoodTure identifies the green transition challenge as follows: "Meeting the combined challenges of climate change, biodiversity loss, and land-system change requires for actors and agencies in the agri-food complex to rethink, redeploy, and reinvent instruments and mechanisms of governance at all scales, local to global to orchestrate farreaching green transitions (or transformations) of its socio-technical and socio-ecological systems."

The White Paper observes that "Denmark has a unique potential to become an important leader within the green transition of agriculture, land use and food clusters. This demands development and implementation through disruptive innovative solutions." The research and innovation

agenda proposed by AgriFoodTure identifies *four major tracks and additional crosscutting aspects* in order to bridge knowledge gaps, each of the tracks forming a solid basis for establishing strong and dedicated partnerships, to create solutions that will enable reaching the national and global 2030 and 2050 missions and goals:

- A: Land use and management
- B: Animal-based food production
- C: Plant-based food production
- D: Biotechnology-based food production and alternative protein sources.

AgriFoodTure's vision is to position Denmark as leader for innovative, disruptive solutions that enable the green transition of the agri-food system and contribute to:

- a 70% reduction in greenhouse gas emissions in Denmark by 2030 and net-zero emissions by 2050
- protecting the environment and supporting Danish nature and biodiversity
- increasing the competitiveness of Danish business and industry.

AgriFoodTure works with competitive calls for projects. In April 2022 AgriFoodTure was granted an Innovation Fund Denmark subsidy of DKK 201 million, the first of four mission-based green research and innovation partnerships established by the fund. As per 2025, more than 60 partners had joined the partnership, up from 41 in 2022. In 2022, AgriFoodTure granted funding for 11 projects with a total budget of DKK 50 million, followed by a second call (DKK 75 million) in 2023 and a third call for projects in 2024 (45 million DKK). To illustrate the funding themes, the 2024 calls were about 'Social Solutions for Sustainable Agri-Food Systems' and 'Cutting-edge Research and Innovation with High Potential for a Sustainable Agri-Food System.' To further illustrate the innovative character of AgriFoodTure: in April 2025 AgriFoodTure and the Dutch TopSector Roadmap Food, Health & Living Environment launched a joint call 'Driving Sustainable Health and Nutrition – Innovations in Plant-Rich Foods and Consumer Engagement' to stimulate and support collaborative R&I-projects between Danish and Dutch partners, with a total budget of €5.5 million. (AgriFoodTure; 2021)

#### Oncoming merger of AgriFoodTure and Food & Bio Cluster Denmark

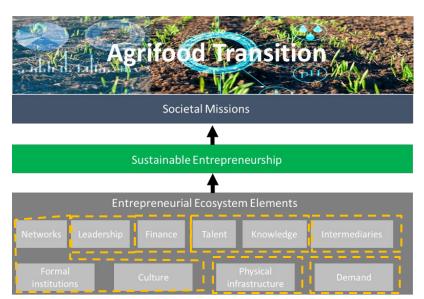
In March 2025 AgriFoodTure and Food & Bio Cluster Denmark decided that a merger between the two associations would be to the mutual benefit of both, giving "Danish innovation in food and bioresources a single voice and a common strategic direction, and it is the Boards' conviction that a merger will have a greater impact on the most important agendas and will strengthen Danish companies' innovation opportunities both in Denmark and internationally." The merger will take effect in the course of 2025. According to board members Sandra Irene Jørgensen and Anders M. Klöcker "(a) merger of the two associations will strengthen innovation and cross-functional cooperation in the Danish food cluster for the benefit of both small, medium-sized and large companies as well as Danish society. The ambition is that innovation in the cluster helps to secure Denmark's global position in the global vanguard within the development of solutions that address climate, environmental and biodiversity challenges and promote health and nutrition". 33

Given the dominance of large enterprises and retailers in the city-region's food system, creating room for innovation initiatives is increasingly important for the municipality. Aarhus aims to empower all inhabitants to play a more active role in the city-region's food system and to ensure the actual implementation of improvement measures with a long-term perspective by involving local policymakers.

### 4. Aarhus-Midtjylland agrifood entrepreneurial ecosystem and its role in fostering sustainable entrepreneurship

In this section, we draw on the entrepreneurial ecosystem (EE) literature to develop a deeper and more systematic understanding of the agrifood entrepreneurial ecosystem in the Aarhus-Midtjylland region. We discuss various elements of the ecosystem and how they relate to sustainable entrepreneurship. The section shows that many conditions in the Aarhus-Midtjylland region are in place to foster sustainable entrepreneurship. Based on this analysis, we also identify lessons that may be relevant for other regions.

The basic premise of the EE framework is that productive entrepreneurship depends on various contextual preconditions. The EE is broadly defined as "all the interdependent actors and factors that enable and constrain entrepreneurship within a particular territory" (Stam and Van de Ven, 2021: 809). These include resources such as knowledge, funding, and networks, as well as broader institutional conditions, such as formal institutions and cultural norms. It is possible to distinguish institutional arrangements, which are typically more static, from the more dynamic resource-related factors (Stam and Van de Ven, 2021: 809).



Figuur 2 Entrepreneurial Ecosystem framework, in relation to sustainable entrepreneurship and societal missions for the green sustainability transition

Based on the literature, we argue that the EE perspective is equally relevant for understanding sustainable entrepreneurship (Leendertse and Van Rijnsoever, 2025).

Where these elements shape entrepreneurship in general, they also influence which forms of sustainable entrepreneurship emerge. For example, a CO<sub>2</sub>-emission tax, an example of a formal institution, can help to enable sustainable business models. In turn, sustainable entrepreneurship can contribute to the achievement of societal missions in the agrifood sector.

This section explores how the findings from our case study fit into this framework and what insights can be drawn. To do this, we systematically examine each element of the ecosystem in the Aarhus-Midtjylland region, building on insights from previous sections. As one of the central aims of this casestudy is to distil lessons for other regions, we explicitly touch on what stands out and could work elsewhere, such as in the Dutch context.

The framework is used both to complete the picture of the Aarhus-Midtjylland EE and to identify potential blind spots. The framework is hence used both as a toolkit of what constitutes an entrepreneurial ecosystem and, at the same time, as a checklist ('mirror') of what already works well and where improvements could still be made. So what is actually happening and actively done in relation to the different elements and what might be lacking, and what could be of use for other ecosystem building actors, elsewhere.<sup>34</sup>

For the purpose of this case study, we have reorganised the ten elements of the entrepreneurial ecosystem framework into the following groups: institutions, physical infrastructure, consumer and business demand, support services, knowledge and talent, leadership and finance.

#### 4.1. Institutional arrangements: formal institutions, culture and social networks

#### What do we mean with institutions, culture and social networks?

Formal and informal institutions relate to the 'rules of the game' that shape behaviour and decision-making. Formal institutions include laws, regulations, and policy frameworks, while informal institutions refer broadly to what we call 'culture'. Social networks refer to how entrepreneurs and other actors interact, to acquire knowledge, labour and capital. Together these framework conditions affect what kind of resources are available and thereby how entrepreneurship and innovation take form and shape (Stam and Van der Ven, 2021). Institutions influence not only the rate of entrepreneurship but also its character – including whether entrepreneurship is sustainable.

To understand how to foster sustainable entrepreneurship in the agrifood transition, we focus on three sets of institutions: institutions related to sustainability, agrifood (meaning

<sup>34</sup> Although replication ('copy-paste') is not something one would like to recommend, as each ecosystem is unique and is functioning in a unique institutional, political, social and economic context and background, there might be insightful and meaningful practices and strategic instruments that provide ideas and inspiration for other regions across Europe.

food and bioresources) and entrepreneurship. Note that institutions of a region are strongly embedded in country institutions. Where relevant, we will therefore also refer to national-level dynamics that shape the institutional environment in the Aarhus-Midtjylland region.

#### State-of-play

In general, Denmark can be characterised as an open, high-trust society. There is a cooperative spirit in tackling challenges and pursuing opportunities. Denmark in general has strong sustainability ambitions. Sustainability ambitions in Denmark have been extensively discussed above, and include achieving a 70% reduction in greenhouse gas emissions in Denmark by 2030, net-zero emissions by 2050 and circular economy ambitions of the region. Not only formal institutions point towards a commitment to sustainability. Sustainable practices appear to be strongly developed and established in Danish tradition and culture.

The Aarhus-Midtjylland region has a strong background in agrifood. The cooperative spirit in society and in the agrifood domain reveals itself through a high share of cooperatives, to which farmers supply their products (e.g. milk) and at the same time co-own the food processing business (e.g. Arla Foods). This way of organisation and the accompanying mindset makes system-level collaboration and long-term commitment to common agreed company and societal goals more feasible, both of which are crucial for food system change. The cooperative mindset that is prevalent in agriculture and society at large also acts as an enabler of community-driven food innovation, such as alternative ownership models of food production (e.g., collective urban farming, decentralised food hubs). Also, ecosystem actors are very well connected in networks, as we have discussed above. Some of these networks are local-regional, such as at the AFP, some are national, such as the Food and Bio Cluster Denmark and Food Nation Denmark (based in Copenhagen, serving as a communication and marketing organisation for Danish business and Danish innovation, promoting and showcasing notable achievements outside Denmark). Others are international, such as EIT Food. The strong agrifood sector in the region might, however, also lead to barriers for sustainable entrepreneurship. After all, sustainable business models may compete or otherwise interfere with existing business models. The strength of the agrifood sector and the power and influence that accrues from it might lead to a resistance to change.

In relation to entrepreneurship and innovation, Denmark has strong, conducive institutions.<sup>35</sup> The Danish have a 'can-do' mentality and design-thinking is widely spread and present. Noteworthy, there is a high share of businesses that are 'steward-owned', meaning that the ownership of a company lies with a group of 'stewards' (founders, employees, stakeholders) who are committed to the company's (longer term) mission and have voting rights but cannot sell or extract value for personal gain from it (contrary of shareholder ownership). Steward-owned businesses prioritise long-term purpose and

mission over profit. Profits are usually reinvested and used to serve its mission. In Denmark, it is also referred to as 'foundation ownership'. <sup>36</sup> Also, the ease of doing business in Denmark is rated highly, ranking 4<sup>th</sup> in the world. <sup>37</sup> In the light of these institutions with regards to entrepreneurship and despite the importance of small and medium-sized enterprises in the Danish economy and its strong institutions, enterprise creation is not high in Denmark. The birth rate of enterprises with 10+ employees is significantly lower than the EU average. <sup>38</sup> Whether this also inhibits sustainability transitions, is not evident. <sup>39</sup>

#### Take-aways and lessons to be learned

Denmark in general and the Aarhus-Midtjylland region more specifically seem to have many of the necessary institutions in place to foster sustainable entrepreneurship in the agrifood sector. This set of institutions is expected to bring forward many, if not all necessary resources for sustainable entrepreneurship, which we will discuss below.

At the same time, these strong institutions could also create resistance to change. The strength and cohesion of the existing agrifood system may lead to institutional lock-in, where entrenched interests, norms of consensus, and dense networks reduce the space for disruptive innovation. Whether and to what extend this resistance to change actually materialised is difficult to determine in a general sense. While some interviewees did see the tension between the strong cooperative business culture and the introduction of disruptive innovations through entrepreneurship, other argued that the two in fact can go very well hand in hand. Some transition pathways more explicitly challenge existing business models, such as the use of plant-based protein sources in the 'dairy' industry. However, other transition pathways, such as precision farming, these tensions materialise much less.

Note that the institutional arrangements include typically factors that are deeply rooted in culture and society and are not easily changed. It is therefore difficult to draw direct lessons at this level. Rather, lessons for other regions are formulated when discussing other elements of the EE-framework.

#### 4.2. Physical infrastructure

#### What do we mean with physical infrastructure?

In the end, entrepreneurship takes place in the physical world and as such relies on physical infrastructure. This section is about the physical aspects in the region of which entrepreneurs make use, such as roads, railways, internet, ports, energy infrastructure, buildings, land, etc. In the agrifood sector, physical infrastructure is obviously important, as its often voluminous products need to be transported locally, nationally as well as internationally. The competition for space can be an important driver for innovation and

<sup>36</sup> See white paper on purpose economy

<sup>37</sup> See website

<sup>38</sup> European Innovation Index, Country report Denmark 2024

<sup>39</sup> Other important sources of innovation and societal change are intrapreneurship (entrepreneurial behavior by employees, business development by extant firms and initiatives by government.

entrepreneurship. However, this entrepreneurship and innovation also need space, which is already limited.

#### State-of-play

In general, Aarhus is well-connected. It is home to the largest port of Denmark, including an Agrifood Logistics Hub. The port is vital for exporting Danish agricultural products and importing raw materials for food production. Aarhus has a small airport, and the airports of Aalborg and Billund are not far away. In Denmark, household internet access is above 95%, ranking among the highest in the world. There is a good local public transport network in and around the city of Aarhus, with a good connection to the Agro Food Park. The region has ample physical space for agriculture and business. This is important because the agrifood sector is strongly connected to land and physical resources and products. Sustainable entrepreneurship, even if it leads to lesser use of resources, will also be tied to land use, physical footprints, and as such needs space—both in early-stage innovation and entrepreneurship (experimentation, testing) as well as when businesses are scaling up. As such, the Green Tripartite agreement, initiating a change in land use and thereby limiting the space for some forms of agriculture and broadening the space for alternative land use.

If we zoom in on the Agro Food Park, it provides entrepreneurs with a unique set of physical infrastructure(s). The park also fosters connections between businesses and the university, offering shared facilities. It plans to expand the park over the years in multiple phases. It pays considerable attention to the availability of space for experimentation and expansion, together with the municipality. At the same time, there is also a struggle for space that has become increasingly apparent in the talks with the municipality over the preservation of a nature park bordering the AFP. How to balance the value of stimulating sustainable entrepreneurship in the business park with the value of preserving a nature and wildlife corridor between the city and the countryside?

#### Take-aways and lessons to be learned

The physical infrastructure in the region appears conducive to sustainable entrepreneurship. As we have seen, there is competition on land use, not only at a local scale, around the AFP, but also in the wider region. As of yet, the Danes are able to overcome these tensions, as we have seen with the Green TriPartite agreement. It will be interesting to follow how these trade-offs will be handled.

#### Lessons for other regions:

Building the AFP has turned out as a success to stimulate agrifood
entrepreneurship and innovation. The AFP also helps strengthening a community
feel created at the AFP and beyond, tying in to the institutions, as discussed above.
A similar initiative could work in other regions, if carefully embedded in local
institutions. Or, when a similar park is already in place, it could learn from specific
elements, such as the m3-concept and the business selection processes, the
primarily private business logic, and the physical layout and design of the park.

#### 4.3. Demand

#### What do we mean with demand?

Demand refers to consumers and clients and relates to the extent to which they are willing and able to buy the goods, services, or processes (e.g., machinery, equipment, digital tools) that entrepreneurs supply to the market. A distinction can be made between intermediate demand (i.e. demand from other businesses, within and outside the value chain) and final consumer demand. Both types are important for the success and scaling of entrepreneurial initiatives.

In the context of sustainability and green sustainability, demand plays an important role. Even if new products and services offer clear environmental benefits, they still need demand, i.e. clients and consumers willing and able to adopt and buy them. For many entrepreneurs working on innovative or disruptive solutions, demand is the final test of whether their product can make it to the market. Prototyping, testing, and a market launch with proper attention for marketing and sales are part and parcel of the steps towards market introduction. Yet, they are no guarantees for successful market uptake, especially when innovation are more radical and consumers have limited knowledge about them. Moreover, the innovations required for a sustainable transition do not always result in clear consumer benefits, but rather in limiting environmental or climate damage, which some consumers do but other consumers do not directly value.

#### State-of-play

As noted earlier, Danes strongly value sustainability, organic food, (close) local or regional origin, and healthy, high-quality ingredients. These are all favourable preconditions for relatively high potential demand for sustainable food and food solutions. This cultural mindset is supportive for the creation of sustainable entrepreneurship in the Aarhus-Midtjylland region. After all, culture and beliefs influence not only consumer behaviour but also attitudes within the business community. Potential demand for sustainable products is likely higher here than elsewhere, providing market incentives to drive innovation towards more sustainable goods and services.

Denmark also promotes innovation in the gastronomic sector, aiming to shift perceptions and preferences around diets. This is pursued through culinary initiatives recognised by the Michelin Guide. While these efforts are mainly initiated and concentrated in Copenhagen, they resonate across the country. Yet it is not clear to what measurable extent they stimulate innovation and entrepreneurship in regions beyond Copenhagen.

At the same time, the shift towards sustainable food consumption is gradual and needs time. Although sustainability is deeply embedded in Danish culture, dairy and meat consumption remain high, along with their associated emissions. Radically changing demand, such as a widespread shift to a plant-based diet or more stringent climate

ambitions, currently seems unfeasible, as some entrepreneurial actors noted in interviews. On the one hand some respondents observed that the transition towards a sustainable future is underway but progressing too slowly. Others, on the other hand, indicated that there is very limited support for 'normal' innovation and entrepreneurship, since most support focuses exclusively on sustainability, leaving a significant portion of businesses behind and misses out on incremental efficiency gains and the profitability of a large group of businesses, which in turn creates economic surpluses to invest in transitions. Moreover, innovation and entrepreneurship towards the green transition not always requires a change in consumer behaviour, such as precision agriculture and other innovation that reduce natural resource inputs. Nevertheless, these innovations at first often come at increased costs.

#### Take-aways and lessons to be learned

Denmark's strong cultural values around sustainability, support promising demand for sustainable entrepreneurship. Yet, shifts towards sustainable diets are slow, and with the price of a sustainable diet being relatively high, the Danes appear hesitant to spend more just because a product is more sustainable. At the same time, innovation support often excludes many businesses and not all innovations towards more sustainable agriculture require diet-change.

Overall, it appears that cooperation and coherence are more important than the speed of the transition. Societal change is often slow, especially regarding people's diets and the agrifood sector. If sustainable demand is pushed beyond society's readiness, it could undermine broader support for sustainability transitions. Strengthening sustainable entrepreneurship requires balancing transition speed with societal readiness (see also leadership, below).

#### Lesson for other regions

 A slow but steady path towards sustainability may at first sight be insufficient to deal with current challenges with regards to climate change and the environment. However, a gradual pathway may enable progress while preventing backlash, which is also becoming visible in different parts of the world.<sup>40</sup>

#### 4.4. Support services

#### What do we mean with support services?

Support services are provided by intermediaries and support organizations that help lower entry barriers for entrepreneurs and enhance the overall functioning of the entrepreneurial ecosystem. These services include business essentials such as legal, accounting, financial, and consulting advice. Entrepreneurial training and mentoring are often offered through incubators and accelerator programmes. Additionally, intermediaries play a crucial role in brokering and bridging the supply and demand of key resources like knowledge, capital, and talent.

When it comes to sustainable entrepreneurship, some support services are specifically tailored to address its specific challenges. These targeted services help entrepreneurs to connect with sustainable investors or offer particular sustainability-relevant resources.<sup>41</sup>

#### State-of-play

As we have seen above, the Aarhus-Midtjylland region is home to a variety of support organisations, playing various intermediary and supportive roles in the ecosystem. These support organisations regularly coordinate their activities and roles in the ecosystem. Together, they form a rich and professional support structure for entrepreneurship, that is generally appreciated by the entrepreneurs in the region. Some of the support is organised specifically around agrifood such as *Food and Bio Cluster Denmark (FBCD)* and the AFP's incubator *Haystack* (operated by the FBCD and paid by a fee raised by the park). But there is also more general, non-agrifood specific support, such as Startup Aarhus.

The AFP is an important hub with many support functions and organisations. The park is a private entity, with income from rent, and expenditure for park management, maintenance and development. The aim of the park is not growth per se (even though there are many requests by organisations to locate to the park), but to create a thriving ecosystem in which various support services are drawn towards the park and the whole is greater than the sum of its parts. Through active networking events, the tenants of the park meet each other. Start-ups enjoy several advantages from being located on the park, such as credibility and access to resources.

One of the other main organisations stimulating entrepreneurship is Aarhus University (see further Box 4). Additionally, the business support centre of the region, *Erhvervshus Midtjylland* (the regional business hub) provides assistance to entrepreneurs. At this hub, about 30 business developers offer three types of support: free sparring, a large network to draw on, and guidance to funding sources. They claim to help over 4000 businesses per year.<sup>42</sup> The hub offers several services directed at sustainability, such as a sustainability check (a tool that helps to measure the sustainability of your business), sustainability reporting, and advice on the green transition. Finally, *Invest in Denmark* is a hub for innovation, offering support to foreign companies that are looking to invest in Denmark. It has an office at the AFP. Sustainability is seldom a hard selection criterion, but usually incorporated in the work of the support organisations. For example, the regional business hub is essentially for all entrepreneurs, but it does run specific sustainability programmes. Also the AFP does house several sustainable businesses, but not all.

<sup>42</sup> See: Lær os at kende | Erhvervshus Midtjylland

#### Box 4: Entrepreneurship and innovation initiatives at Aarhus University

From 2020 onwards, Aarhus University stepped up its efforts to promote entrepreneurship and innovation. We describe a range of activities that can be considered important support services in the EE (Aarhus University, 2024: 14; 19).

The Kitchen is the main incubator facility of the university, to stimulate and support entrepreneurship. It held workshops and events, some with players from the entrepreneurial ecosystem at and around Aarhus University. In 2023, 105 workshops were held, with almost 2,000 participants in total. The ambition is to strengthen the diversity of the entrepreneurial environment at and around Aarhus University. In 2023 and 2024, the *Grundfos Awards* were held, a pitch competition for young start-ups.

Further, the University organises a student entrepreneurship office, particularly focussed at food-related entrepreneurship. It is called *Food eHub* and offers mentorship, monthly meetings, networking opportunities and support for finding funding.<sup>43</sup> It is located at the AFP.

A significant part of Aarhus University's collaboration with players in the innovation ecosystem takes place through "*The Link*", which is a collaboration between the university, Central Denmark Region, the City of Aarhus, large and small companies, incubators and investors.<sup>44</sup>

Collaborating with investors is seen by the university as key for entrepreneurship, in helping promising start-ups and spinouts to take their next step. In 2023, DKK 127 million (17 million euro) was invested in 97 start-ups and spinouts that had been affiliated with The Kitchen or other AU entrepreneurship hubs. This is a significant improvement compared with 2022, when a total of DKK 61 million (8.2 million euro) was invested in 85 start-ups and spinouts.

Aarhus University operates *Plant2Food*, an Open Innovation Science (OIS) collaboration platform within the green transition towards plant-based diets (Aarhus University, 2024: 17-18).

In 2024, the *AU Distinguished Senior Innovator programme* was launched. Seven researchers from all five faculties have been appointed to participate in the programme, which runs until 2029. The programme's purpose is "to strengthen the innovation culture broadly at the university and to bring more research-based entrepreneurs and more innovative solutions out of the university."

Also important in terms of innovation entrepreneurship is the *AU Life Science Hub*. The hub offers modern facilities and advanced laboratories and is located in the University City at the Department of Molecular Biology and Genetics. Here, spin-out companies within all life science areas can rent space and gain access to including research infrastructure.

<sup>43</sup> See the following websites of the food department and the food ehub.

<sup>44</sup> In 2023, The Link held an event called Aarhus Town Hall in both spring and autumn, gathering startups, investors and players from the entrepreneurial ecosystem. The Link also organised "Diversity Week" for the first time to promote a broader understanding of entrepreneurship – an initiative that will be repeated in 2024.

A very different, but important development is the creation of new opportunities for lifelong learning. With *AU Cetera*, Aarhus University and *Aarhus University Research Foundation* (*AUFF*) established a new course organisation in mid-2024. It is designed to offer a wide range of short, flexible courses in areas such as digitalisation, technology, sustainability, green transition and management.

#### Take-aways and lessons to be learned

The EE shows a vibrant and well-coordinated support system for entrepreneurship, with a range of intermediary organisations providing services such as mentoring, training, incubation, and funding access. The AFP serves as a central hub, drawing in businesses and support services through its facilities, events, and network effects, while also offering credibility benefits to start-ups. Although sustainability is not always a hard selection criterion, it is often integrated into programmes and practices. Aarhus University plays a vital role in support services for the EE. Together, these structures create a solid foundation for fostering sustainable entrepreneurship in the region.

#### Some lessons for other regions:

- Regular dialogue between support actors contributes to a strong and coherent support environment. It matters less who provides which service, as long as all key support functions are in place. This requires a shared understanding of the needs of the entrepreneurial ecosystem.
- The Agro Food Park operates as a private organisation. While this may reduce direct government influence, it allows for a more independent and potentially sustainable business model, which can strengthen long-term continuity and flexibility.
- Initiatives such as *Startup Aarhus* and *The Link* contribute to cultivating entrepreneurship, with some tailoring to the anticipated green transition. However, it depends on the directionality of the transition and the system changes that it requires, among others, to be able to discuss the type(s) of entrepreneurship that best fits the transition at hand. In the Netherlands, the idea of a 'modern' start-up and scale-up entrepreneurial culture is more widespread. Yet it remains unclear which approach is more effective in and has a better 'fit' with changing and advancing the much wider *system transition* that underlies the concept of a green transition.
- Organisations like AgriFoodTure and Food & Bio Cluster Denmark play an
  important role in supporting innovation through targeted funding, mission-driven
  programmes, and network building. These efforts are closely linked to the existing
  agrifood industry, but there is currently no dedicated network focused specifically
  on sustainable agrifood entrepreneurship.

#### 4.5. Knowledge and talent

#### What do we mean with knowledge and talent?

Knowledge is an important resource for entrepreneurship. Public research at university and public research institutes, as well as private research organisations contribute to the availability of relevant knowledge. Talent refers to human capital, skills and cognitive abilities of people in the region.

Sustainable entrepreneurship may benefit from specific knowledge on new sustainable technologies as well as existing knowledge on sustainable ways of living and working. Entrepreneurial activities also benefit from entrepreneurial knowledge and business skills.

#### State-of-play

Denmark in general has a highly skilled workforce, scoring among the highest in Europe, and a strong knowledge-based economy. Over the last two decades, the Aarhus region has made a serious step in attracting foreign talent, both for business and the university. Worth mentioning is the Aarhus International School that houses about 800 students that follow the IB educational system. The recruitment firm FoodJobs Nordic also plays an active role. Together with two other similar firms a recruitment network has been created that shares databases and enables to more effectively bring talent to the Aarhus region.

Previous sections have already shown that Aarhus University contributes significantly to the available talent pool and knowledge in the region. While the total number of staff and students in agrifood is modest in comparison with, for example, the Wageningen campus, there is a strong knowledge base in agriculture and food sciences and technology, but also in life sciences and biotech as well as, e.g., in data sciences (AI, digital, mathematics). Based on this knowledge base, we see innovative developments in precision farming<sup>45</sup>, bio-solutions<sup>46</sup>, and the protein transition<sup>47</sup>. Additionally, the Danish Technological Institute (DTI) contributes to this knowledge base and the application of knowledge, thereby supporting overall innovation and business development.

SEGES Innovation, a private non-profit research and innovation firm, has also an important role in generating and disseminating knowledge in the region. A main source of funding for SEGES is the levies that are paid by the sector. Many of the projects that SEGES does, are commissioned by the sector, which ensures an interest in and demand for the outcomes of the research projects and the chance for knowledge transfer. One of the projects SEGES did was to develop a 'Nature Check', together with the sector, which helps farmers to identify high value areas for nature at their farms,

 $<sup>45\,\,</sup>$  See the start-up Cordulus, the data-science department at the university, and FBCD.

<sup>46</sup> These are solutions that are made from biological resources and substitute less sustainable products.

<sup>47</sup> See the AgriFoodTure roadmap, the start-up PlanetDairy, and insects scale-up, Better Insect Solution

which in turn helps with reporting on environmental, social, and governance performance and in some cases can increase yields.<sup>48</sup>

#### Take-aways and lessons to be learned

Denmark, and the Aarhus-Midtjylland region in particular, benefits from a highly skilled workforce and a strong knowledge-based economy. The university plays a central role in supplying talent and expertise. A broad knowledge base supports innovation in areas like precision farming, bio-solutions, and the protein transition. In addition to academic research, applied knowledge institutions like the Danish Technological Institute (DTI) and SEGES Innovation contribute significantly to translating knowledge into practice.

#### Lessons for other regions

- The Aarhus-Midtjylland ecosystem has a clear focus and profile on agrifood, which helps building a relevant knowledge base. As the region can be considered a forerunner in this field, other regions benefit from and should pay attention to the knowledge-based developments in the field of biosolutions, precision farming and the protein transition.
- The role of the university, with its many hubs and centres is crucial. By being (partly) located at the AFP, the connection with business can be made.

#### 4.6. Leadership

#### What do we mean with leadership?

Leadership provides guidance for and direction of collective action. In an entrepreneurial agrifood ecosystem, this often comes from visible individuals or institutions – formally or informally – who influence entrepreneurial activities. Leadership can be concentrated in a few key actors or distributed more broadly, particularly through public-private collaboration. It shapes the ecosystem's shared vision, coordinates initiatives, and helps align the efforts of diverse stakeholders.

In the context of sustainable entrepreneurship, leadership is essential for driving systemic change. It helps set the agenda for sustainability within the EE, mobilising actors around societal missions. Effective leadership not only coordinates resources and builds trust among partners, but also reduces uncertainty by signalling commitment and direction.

#### State-of-play

In the Aarhus-Midtjylland region, leadership comes from groups of different actors. The previous sections showed that the Food & Bio Cluster Denmark (FBCD) and AgriFoodTure, who are recently merged, aim to give Danish agrifood innovation a direction, also with regards to sustainability. Their missions, along with the *Green Tripartite Agreement* between government, research, and industry, set important strategic frameworks.

Arla Foods, headquartered in the region, also serves as a leader. Its Innovation Centre acts as a benchmark for research and development, setting high standards for innovation execution. Also, Arla is a cooperative of many farmers, which adds to the leadership role it plays in the sector towards sustainability.

While this leadership has helped the region, and Denmark as a whole, to be directed towards a path of sustainability, the ecosystem as such leans toward enhancing existing systems through efficiency and incrementally improving sustainability. The question is whether these steps will lead to a deeper transformation. Cultural openness to collaboration, experimentation, and responsibility may lead to more radical, systemic change.

Transformation takes more than strategy. While the region is still rooted in dominant agrifood models, leadership from research and policy actors is pushing toward more transformative, regenerative approaches. How to align more leadership on more transformative change with existing structures and a cooperative spirit? (see the next section for a further discussion on this topic).

#### Take-aways and lessons to be learned

Leadership is distributed, which fits with informal institutions such as high trust and cooperative spirit. Multiple actors can guide an ecosystem if aligned through common goals and cooperative frameworks, such as the Green Tripartite Agreement, the merger of the FBCD and AgriFoodTure and private sector leadership, coming from firms like Arla Foods but also SEGES Innovation.

#### Lessons for other regions:

- The Green Tripartite Agreement signals a lesson at the national level, showing that system change and broad societal agreement can be reached and actions towards system change can be set in motion in a democratic system. It appears that the Danes stay true to their cooperative spirit and mindset, even when things get more complex and system transitions are called for where bold decisions and steps are needed. The combination of a national dialogue on sustainability, specific missions on agrifood, and regional hubs, such as the AFP mediate the multi-level governance challenge that is inherent to transitions.
- Private leadership is crucial. SEGES innovation, which was the initiator of the AFP, has shown pivotal leadership by creating the AFP and supporting its development beyond the direct benefit of the firm. Made possible by steward or foundation owned firms, private actors show long term commitment to the transition needed in the agrifood domain.
- On the level of sustainability, the AFP does not explicitly judge or guide
  entrepreneurship with regards to sustainability. This means that the park is home to
  various forms of business, arguably ranging from very sustainable to not
  particularly sustainable. The park sees this not as its task to prioritise on this
  dimension: it mainly looks for business synergies between the companies present.

## 4.7. Finance

#### What do we mean with finance?

Finance is needed to support entrepreneurial and innovation activities. This financing (funding) can be private, public, or a blend of both. External financing is often needed to bridge the so-called 'valleys of death', i.e. the critical phases between costly research and early development efforts, and the later stages of establishing a start-up and its growth towards a scale-up, including production, distribution, sales, marketing, and other operations. The eventual net benefits of innovation and firm creation, whether in the form of turnover, profit, employment, or broader societal value as exemplified by welfare and well-being, accrue to both entrepreneurs, employees and society.

In the case of sustainable entrepreneurship, this also means that entrepreneurial activities are expected to contribute to more than growth and profit and generate societal benefits as well. This means that the firm (whether a start-up, scale-up or SME), and/or the product, service, or process it introduces, creates value from a sustainability perspective. Some of these societal benefits can be incentivised and internalised by tax and other policy instruments (e.g. prohibition or a CO<sub>2</sub> tax). The funding of this form of entrepreneurship therefore requires investors that are able to observe and seize investment opportunities in the light of such policy developments. Alternatively, some investors may prioritise societal value from an impact investment perspective. They are willing to accept sub-optimal financial returns, from a philosophy to 'do good'.

### State-of-play

Denmark has a broad availability, variety and access to funding for entrepreneurs, innovation and research, from both public and private sources.

Public funds include the *Innovation Fund Denmark* (IFD) (Innovationsfonden), established in 2014, and the *Green Development and Demonstration Programme*. Innovation Fund Denmark has an annual budget of DKK 2 billion (almost €266 million). It funds four *InnoMissions*,<sup>49</sup> large-scale, mission-oriented innovation partnerships. Innomission number 3 on Climate- and Environment-Friendly Agriculture and Food Productions (official name) is the *AgriFoodTure* mission. A small scale grant is offered by the university incubator, *The Kitchen*. It is called AU Launch, and it is a grant for start-up or spinout projects based on academia to help them demonstrate the commercial potential of their research or idea.

The IFD also operates three major grant schemes: *Innobooster* (between DKK 0.05-5 million) for innovative SMEs and start-ups), *Innoexplorer* (between DKK 0.05-1.5 million) for short-term commercialisation-aimed academic projects, and *Grand Solutions* (up to DKK 40 million, or 5.4 million euro) for large-scale collaboration. Annually another

<sup>49</sup> The other InnoMissions are: Green Fuels for Transport and Industry; Capture and Storage or Use of CO2; Circular Economy with a Focus on Plastics and Textiles.

yearly DKK 200 million (almost 27 million euro) is allocated to European (e.g. Horizon Europe, Eurostars) and international (e.g. Nordic) collaboration.

The ministry of agriculture and fisheries also operates the Plant-Based Food Fund. The Grant was allocated 675 million DKK (€90 million)for a period from 2023 to 2030. Additional funds (420 million DKK) were allocated, more recently. The purpose of the Grant is "to ensure Denmark's leading position in the production and development of plant-based foods—and to ensure that many more of these foods end up on the plates of Danish consumers".<sup>50</sup>

The Export and Investment Fund of Denmark (EIFO) is a state-owned financial institution. It funds innovative projects in Denmark and throughout most of the globe.<sup>51</sup> It has special programmes on facilitating 'the green transition'. However, it is mainly focused at energy (wind energy, carbon capture, hydrogen) and less on agrifood.

Innovation Fund Denmark closely aligns with NextGenerationEU (NGEU)(the EU's post-COVID-19 recovery plan) funding and is connected to European networks such as ERA-NET and EUREKA, and Eurostars (innovative MSE support). The Green Development and Demonstration Programme is funded by the Ministry of Food, Agriculture, and Fisheries. It funds green and innovative projects across the Danish agrifood sector. Typical investments range from € 0.1-2 million in grants.

Public *European* funding, especially in support of research, development and innovation (R&D&I), also finds its way into Denmark and the region, mainly under the header of *Horizon Europe*. <sup>52</sup> The EIT is particularly relevant for agrifood in the Aarhus region, as Aarhus University is part of the *EIT Food initiative*, with instruments such as the Seedbed <sup>53</sup> and innovation prizes. See Annex 3 for additional information on EIT Food.

Another relevant part of Horizon Europe are the *EU Missions*, a set of measures to achieve bold, inspirational and measurable goals within a set timeframe. There are 5 main mission areas as part of Horizon Europe, one being the EU Mission *A Soil Deal for Europe*. The EU Missions form a new policy approach that aims to address large societal challenges by providing concrete solutions, with a focus on research and innovation, citizen engagement, and cross-sectoral collaboration.

An important part of the funding landscape consists of private funding. This is illustrated by the fact that the Agro Food Park is a fully privately-invested and operated business

<sup>50</sup> See the website of the Plant-Based Food Grant

<sup>51</sup> See website

<sup>52</sup> The R&I framework programme Horizon Europe consists of three main pillars: Pillar I, Excellent Science, with the work programmes European Research Council, Maria Sklodowska-Curie and Research Infrastructures), Pillar II, Global Challenges and European Competitiveness, organised as consortium-based research in collaborative projects and institutionalised partnerships, structured in seven broad clusters (i.e. thematic domains) and the Joint Research Centre work programme, and Pillar III, Innovative Europe, (with the work programmes European Innovation Council, European innovation ecosystems, and also covering the European Institute of Innovation and Technology (EIT)). Horizon Europe also has a horizontal component, Widening participation and strengthening the European Research Area (ERA) with participation programmes (e.g. twinning) and ERA policy support.

<sup>53</sup> The EIT FOOD Seedbed Programme, through the Aarhus University Seedbed Hub, provides to start-ups located in ScandinaviaTraining. See https://food.au.dk/entrepreneurship

park. *Private capital investment* in the region has a clear impact and consists of for profit and non-for-profit capital investment.

Key players are the Novo Nordisk Foundation (NNF) and the Lundbeck Foundation, which are very active in the Aarhus-Midtjylland region and invest both in fundamental and applied research across the country and in various domains, including agrifood. The NNF supports climate-friendly agriculture (precision farming, regenerative practices), biosolutions (e.g. enzymes, microbes), alternative proteins (fermentation-based, plant-based innovation) and green life sciences. They do that through funding of R&I, capacity building and talent development. One concrete example in the Aarhus-Midtjylland region in agrifood is the *NNF challenge centre N2CROP* at Aarhus University. It is an international hub for legume research and innovation doing research into sustainable food production based on biological nitrogen fixation. Another example is the previously mentioned mission-based *Plant2Food OIS platform*, a public-private open innovation platform to accelerate the development of sustainable plant-based foods.

Further, *Heartland* is a private, for-profit investor based in Aarhus, which invests in fashion, retail and technology, sustainability and business innovation, renewables, nature conservation, education, and property sectors. It is notable that these private funds have a clear long-term, patient strategy, and as such they are in the position to invest in sustainability.

These various forms of finance find their way towards sustainable entrepreneurship. The start-up Decameal illustrates how several funds and forms of support come together in the growth of a sustainable food start-up.

**Example: Decameal** is a sustainable crab-based food start-up founded by two Aarhus University graduates. The company emerged from a university project and has since received investment from the Dutch accelerator Rockstart. The founders credit the support from Aarhus University, the Innovation Fund Denmark, and Food & Bio Cluster Denmark for their growth. Their work, supported by Rockstart, aims to scale their sustainable protein production while having a positive ecological impact.

### Take-aways and lessons to be learned

Denmark offers a diverse and well-integrated funding landscape for innovation and entrepreneurship, combining public, private, and EU-level support. Key public actors include *Innovation Fund Denmark* and the *Green Development and Demonstration Programme*, with mission-driven initiatives targeting sustainable agrifood. Private funders like the *Novo Nordisk Foundation* and *Heartland* add long-term capital for sustainable innovation. This mix of funding channels enables promising start-ups, such as *Decameal*, to grow. Overall, Denmark's blended financing ecosystem is well-positioned to support sustainable entrepreneurship, particularly in the green sustainability transition. A critical note would be that due to the richness of possibilities

and opportunities, the landscape could be hard to navigate for small and medium-sized enterprises.

#### Lessons:

• The role of 'patient' private capital in Denmark and the Aarhus-Midtjylland region is noteworthy. Denmark avails of various family-owned companies ('family businesses') and foundations of large companies, often cooperatives, with a longer-term horizon and an agenda that has a wider focus than short-term turnover and profits only. Both have been investing in the search for solutions for societal challenges, mainly through research, development and innovation for sustainability, through grants and through the establishment of independent platforms, based on or collaborating with university centres/labs, enabling transformational innovation and entrepreneurship.

# 5. Sustainable entrepreneurship and sustainable entrepreneurial ecosystems – how do societal missions and transformative change and entrepreneurship add up?

The previous section explored the conditions for sustainable entrepreneurship as we have observed them in the Aarhus-Midtjylland region. However, it is not evident how sustainable entrepreneurship adds up and contributes to societal missions and transformative change. This section therefore explores the role of sustainable entrepreneurship in addressing societal missions and what this means for building entrepreneurial ecosystems. Based on this case study, we highlight the diversity of sustainable entrepreneurship, its implications for sustainable entrepreneurial ecosystems, and the take-aways for building sustainable entrepreneurial ecosystems elsewhere.

### Various co-existing forms of sustainable entrepreneurship

The Aarhus-Midtjylland region is home to various forms of sustainable entrepreneurship. No single business can single-handedly achieve a societal mission. Rather societal change needs a variety of sustainable entrepreneurship and other activities, in addition to and also beyond entrepreneurship. Analytically, we distinguish two types of sustainable entrepreneurship, that illustrate the range:<sup>54</sup>

1. Incremental 'within system' improvement. These entrepreneurs work within existing food production and distribution systems, aiming to gradually enhance sustainability. They apply technical or non-technical innovations, such as more efficient and less harmful farming practices (e.g. by reducing chemical inputs), introducing digital tools to improve the production, storage, transport and distribution of food products, or changing the production of processed foods (e.g. less sugar, less salt, other healthy/healthier ingredients) without requiring a major overhaul in agrifood practices, regulatory practices or (other) systemic societal shifts. As a result, these entrepreneurs fit in rather seamlessly in existing value chains, and their innovations find their way to the market, to incumbents and

- consumers. Examples of entrepreneurs working along these line of reasoning include Arla Foods, SEGES, Cordulus, and ISI Food Protection.
- 2. Radical 'beyond system' disruption. These entrepreneurs aim to contribute to food system change in a more radical way, by introducing novel goods, services and practices with a radically reduced ecological footprint and with practices led by a different rationale and underlying system-concept than today's mainstream farm and food practices. Organic agriculture, regenerative agriculture, plant-based processed foods but also radical novel sustainable equipment and machinery designed/based on circular economy principles belong in this category, just like radical new ways to alter and 'reconfigure' consumption practices. Their innovations tend to be more radical, challenge dominant practices, structures, norms and behaviours. Examples in the Aarhus-Midtjylland region that resemble this type include PlanetDairy and Decameal.

We would argue that because of its complexity and uncertainty, working towards societal missions is essentially a learning process and requires space for trial and error. Therefore, the variety of sustainable entrepreneurship is helpful in exploring different pathways towards achieving societal missions.

Two distinct sustainable businesses, PlanetDairy and Arla Foods, illustrate the co-existence and interaction between different types of sustainable entrepreneurship. PlanetDairy, a company that has the ambition to significantly decrease the environmental burden of dairy products, can be seen as a spin-out from Arla, a large dairy cooperative. While on the one hand, PlanetDairy uses animal-based dairy as feedstock and as such can be seen as a customer of Arla, it complements it with plant-based dairy and act as a competitor on the consumer market. While Arla is reducing the environmental footprint of dairy gradually with its farmers, at a large scale, PlanetDairy tries to cut emissions significantly from the start, but starts very small at first. This suggests that there is a role to be played by different forms of sustainable entrepreneurship in the ecosystem.

# Implications for building sustainable entrepreneurial ecosystems (SEE) for societal missions

Different sustainable entrepreneurs co-exist, but require specific conditions within the entrepreneurial ecosystem. While the incremental 'within system' improvement type of sustainable entrepreneurship can to a large degree build on generic ecosystem strengths, the radical 'beyond system' disruption type may require a different entrepreneurial ecosystem, with particular actors, a different mindset and a specific set of rules. Creating and sustaining such more radical and disruptive forms of innovation is complex and difficult, as they usually require much more than 'just' inventing and launching a new product or process, including substantive changes in the way the value chain is arranged and sourced.

Building on the lessons from the previous section, we close this case study report with some implications and lessons for building SEE's that do not 'just' foster sustainable entrepreneurship, but are also geared to realising societal missions. This implies a mix of conditions for bottom-up initiatives and top-down guidance, that was quite visible in the case study (see section 2 and 3, respectively).

- The Aarhus- Midtjylland region provides ample services and facilities for a variety of sustainable entrepreneurship to emerge. The Agro Food Park plays a pivotal role in concentrating and stimulating the availability of resources, such as finance, talent and space. The park itself primarily offers physical resources and associated services. However, the AFP also channels national and international resources towards the region, through the presence of multinationals, a university, an incubator chain, and national triple helix organisations. As a private initiative and because of its inherent strengths and popularity, the AFP can be quite selective towards which organisations are admitted to the park. In this way, it can pay attention to the added value of a particular tenant for the broader community of organisations present. Also outside of the AFP we have encountered various services and facilities for start-ups.
- The Aarhus University provides knowledge, talent, incubator and platform services and other resources supporting the entrepreneurial ecosystem. Because the research is strongly oriented towards sustainability, also as part of its early and deliberate university strategy and vision (see annex 4 for more detail), it helps and stimulates entrepreneurs to move in that direction. The university plays an important role, also by focussing on sustainable food research. Additionally, the university has strengthened its effort in stimulating an entrepreneurial culture. It also has spread its activities in a spatial sense, which the Danish government required the university to do so. Its move to the AFP, but also developments in other locations, such as the new Viborg campus, are also meant to increase entrepreneurship and university-business collaboration.
- The Aarhus-Midtjylland region (and Denmark more broadly) has a specific entrepreneurial culture. There is a lot of private initiative, including the AFP, the role of SEGES Innovation in developing the park, the leadership of the AgriFoodTure mission, but also the presence of steward-ownership and the leadership that foundation-owned multinationals, both with a longer-term horizon, show in long term research for societal missions. In addition, the region has a well-connected and supportive ecosystem in terms of instruments and facilities, organised by public or private actors, such as Startup Aarhus, the Regional Business Hub, and incubators such as Haystack and The Kitchen.
- Zooming out, the region also benefits from broader top-down institutional
  arrangements of the Green TriPartite Agreement and the AgriFoodTure mission,
  building on the 2019 Climate Partnership for Food and Agriculture. This serves as a
  guiding framework, also realising institutional change: different rules and laws that
  make sustainable entrepreneurship more attractive and create space also for more
  disruptive innovators.

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### Annex 1. List of interviewees

- Søren Madsen, Community manager, Agro Food Park management
- Paul Cornillon, Co-founder and chief R&D officer, PlanetDairy (start-up) (and board member Food & Bio Cluster Denmark)
- Anne Louise Dannesboe Nielsen, Head of Department, Department of Food Science, FOOD Department Unit, Aarhus University
- Ivar Ravn, Direktør for Digital og Digitalisering, SEGES Innovation
- Mette Haugaard, Head of Corporate-Startup Collaboration, The Link
- Lisa Mejlvang Lindgaard, Business developer, The Kitchen
- Jeppe Dorup Olesen, Chief innovation officer, Aarhus University
- Elena Sørensen Skytte, Innovation Manager, Haystack & Danish Food and BioCluster
- Andreas Buch Moeller, Scientific Partnerships, Arla Foods Innovation Centre
- Ulf Andersen, Chief Scientist, Food Sciences, Arla Foods Innovation Centre
- Elisabeth Gade Nielsen, Business developer, Erhvervshus Midtjylland, Aarhus
- Pia Schildknecht Taylor, Business developer, Erhvervshus Midtjylland, Aarhus
- Zheng Guo, Professor Biological and Chemical Engineering, Industrial
   Biotechnology & iFood, Aarhus University Centre for Innovative Food Research
- Inger Stokkink, Dutch journalist, living / based in Aarhus since 2010
- Renske Nijland, Agricultural team, Embassy of the Kingdom of the Netherlands, Copenhagen.

# Annex 2. Companies and organisations making up the Aarhus-Midtjylland agrifood entrepreneurial ecosystem – a selective overview

# Companies and organisations located at the Agro Food Park

- Arla Foods Innovation Centre, of Arla Foods, the prime Danish-Swedish
  multinational cooperative company and one of the world's largest dairy companies,
  specialising in producing and marketing high-quality dairy products with a focus on
  sustainability and innovation.
- **SEGES Innovation** is a Danish agricultural knowledge and innovation centre that develops sustainable solutions and provides research-based advisory services to improve sustainable farming practices, food production, and environmental management. SEGES Innovation is located at the Agro Food Park (headquarters) and has branches in Copenhagen and Karup J.
- Cordulus delivers hyper-local weather data and AI solutions. It develops advanced sensor and monitoring solutions weather station solutions and AI-powered weather analytics to optimize agricultural production and improve resource efficiency. (start-up, staff: 33 (2023). The company is partially owned by Danish Agro, one of Scandinavia's largest conglomerates. In 2024 Cordulus got a DKK 22 million investment from the Danish Pajbjerg Foundation to expand its weather solutions in new markets. (Sources: Cordulus Company Pitchbook 2024; TechSavvy; search on ChatGPT)

- Better Insect Solutions is a company that develops innovative solutions for insect farming, focusing on sustainable protein production for animal feed and agricultural purposes.
- **ISI Food Protection** is the centre of expertise for applied food and plant microbiology. It has biolevel safety level 3\* classified laboratories and a food pilot plant. It offers specialised lab services and support for customised food protection strategies. The presence of ISI Food Protection is key to other residents of the Agro Food Park such as Arla Foods Innovation Centre.
- Akson Robotics and CropUp. Akson Robotics is specialised in integrating Deep Learning, Al and machine learning in real world solutions through robots, drones and other IT-systems. CropUp is Akson Robotics' Software as a Service (SaaS) platform that helps farmers and agronomists to reduce the amount of chemicals in the field through precision farming, using drone imagery.
- PlanetDairy is a start-up that develops hybrid dairy alternatives to traditional dairy
  products by incorporating plant ingredients and proteins from fermentation into
  dairy, to 'disrupt the cow' and offer sustainable dairy options.
- **Farm To Plate** is a U.S. company that recently joined Agro Food Park to leverage its network for advancing farm-to-table solutions, emphasizing local and sustainable food systems. Farm to plate is a comprehensive real-time food track and trace solution for transparency and safety in the food supply chain.
- **SKOV** is a company that provides climate solutions, farm management and digital value chain services for animal production worldwide.
- **AgroIntelli** is an agritech robotics start-up in precision farming, developing intelligent solutions for sustainable farming, including robotic systems that optimize agricultural practices: ROBOTTI platform and ROBOTTI AI robot. Agrointelli has a testing field near the Agro Food Park.
- The International Starch Institute is a family-owned company specialised in turnkey factories worldwide for manufacturing starch and downstream products (starches, sweeteners). It has its headquarters on the Agro Food Park.
- **Danish Technology Institute** (DTI) is an independent research and development institute that provides technological solutions, consultancy, and testing services to support innovation and growth across industries, including the agrifood sector. Its Center of Agriculture and Digitalization is located at the Agro Food Park.
- Food & Bio Cluster Denmark is the national cluster organisation for the Danish food and bioresources. The cluster is a unifying platform for knowledge-based innovation, collaboration and growth. It has its headquarters at the Agro Food Park and also hosts and runs agri and food incubator Haystack.
- Innovationscenter for o/kologisk Landbrug, or the Innovation Centre for Organic Farming, is the centre for developing organic, sustainable farming in Denmark. The centre works in a holistic and interdisciplinary manner, based on the four global organic principles (health, ecology, fairness and care) and the UN's 17 SDG's.
- Landbrug & Føldevarer, or the Danish Agriculture & Food Council, is the business organisation for the Danish agriculture, food and agro-industry. A majority of L&F-members from both the food industry and farmers are located in Jutland. L&F's head office is at Axelborg in Copenhagen. L&F has offices at the Agro Food

- Park. L&F has also a **Sektor for Ø/kologi ('Organic Sector')**, dedicated to organic food and farming and representing the professional interests of the organic farmers in Denmark.
- Mejeriforeningen, or the Danish Dairy Board, is the Danish dairies' industry
  organisation, with experts on milk, dairy products, food safety and nutrition, offering
  various services to its members. It represents the interests of its members
  politically and commercially.

# Examples of companies and organisations located outside the Agro Food Park, in and around Aarhus and vicinity

- JBT Marel is a global leader in food processing solutions, providing advanced equipment, software, and services for the poultry, meat, and fish industries to enhance efficiency, quality, and sustainability. Located in the northern part of Aarhus at less than 4km from the Agro Food Park.
- Nocla is a foodtech start-up that recently acquired Nordic Koji Co., a leading producer of naturally fermented umami paste, expanding its footprint in the fermented food sector. Located about 20km outside Aarhus.
- Decameal is a sustainable crab-based food start-up founded by two Aarhus
   University graduates. Decameal is located in Grindsted, about 110km from Aarhus.
- **Healthycrop.world ApS** is a spin-out from Aarhus University specializing in developing agricultural crops naturally resistant to fungal infections, reducing the need for fungicides and minimizing crop contamination. It seems to not be located in the area anymore. Its location is no longer on Midtjylland, but on Sjælland.
- **Lyras**, based in Aalborg, is a company that develops sustainable, non-thermal UV-based pasteurisation technology for the dairy and beverage industries, reducing energy and water consumption.
- GEA Liquid Technologies A/S, located in Skanderborg (near Aarhus), is a company specialising in advanced process technology solutions for liquid processing in the food, beverage, and dairy industries.

### Annex 3. Aarhus and EIT Food

### EIT Food, one of the KIC's of the EIT

Both Aarhus University and Food & Bio Cluster Denmark are a member of EIT Food<sup>55</sup>. Aarhus University actively participates in various EIT Food Initiatives, including the EIT in Food Science.

EIT Food is Europe's leading food innovation initiative, working to make the food system more sustainable, healthy and trusted. As one of the nine *Knowledge and Innovation Communities* (KIC's) of the European Institute of Innovation & Technology, EIT Food focuses on the future of our food system. The EIT is an independent EU body set up in 2008 to drive innovation and entrepreneurship across Europe. EIT Food, established in 2016, is made up of a consortium of key industry players, start-ups,

research centres and universities from across Europe. EIT Food has **three missions**: a Net Zero Food system, Healthier Lives through Food, and Fully Transparant, Resilient and Fair Food Supply (cf. EIT Food Business Plan 2023-2025).

According to Benoit Buntinx, Director of Business Creation, EIT Food: "With Aarhus University as our new partner, we have been able to strengthen our connection with the Nordics. The region's status as a hub for food innovation makes it the perfect choice to host the competition and further our mission to foster entrepreneurship in the agrifood space."

According to the *EIT Food 2025 Factsheet* ...: "EIT Food was launched with the mission to build a future-fit food system that produces healthy and sustainable food for all. Through tailored business creation and acceleration programmes, EIT Food creates and scales agrifood start-ups to bring new technologies and products to market. It equips entrepreneurs, agrifood professionals and future change-makers with the skills to transform the food system through its entrepreneurial education programmes including international master's degrees and shorter courses. Additionally, EIT Food commercialises innovative ideas by supporting innovation-driven research." "The EIT Food network comprised 329 partners and had 21 offices established across Europe at the end of 2024."

"EIT Food powers impactful agrifood start-ups and innovators at every stage of their journey—from training and education to business propositions, market and tech validation and commercial scaling. EIT Food EIT Food is a Knowledge and Innovation Community established by the European Institute of Innovation and Technology (EIT) in 2016. The EIT is Europe's largest innovation ecosystem offering education, innovation and business creation services to solve global challenges. Partnering with EIT Food allows us to leverage our cutting-edge research in sustainable agriculture and food security to tackle real-world challenges. This collaboration is essential for driving innovation and fostering a more sustainable food system. Since 2018, its innovation, business creation and acceleration programmes have created or supported almost 1600 start-ups. Entrepreneurs and ventures backed by EIT Food have brought a total of 174 new innovations to market."

EIT Food's Entrepreneurship programme **RisingFoodStars** serves as an umbrella for high potential agrifood start-ups and scale-ups, and supports and nurtures a select group of young companies. The EIT also funds the **EIT Regional Innovation Scheme** and the **EIT Community Initiatives**, which include innovation activities jointly implemented with other KICs.

# Annex 4. Aarhus University and the green sustainability transition

Aarhus University has **several relevant departments** that contribute in finding solutions in response to the sustainability challenge and the green transition. These include, among others, the departments of Agroecology, Animal Science,

Environmental Science, Geoscience, iNano, Molecular Biology and Genetics, Centre for Quantitative Genetics and Genomics (QGG), Ecoscience, Business Development and Technology, Law, Business Management, Economics and Economics, Bio and Chemical Engineering, Computer Science, Chemistry, Maths and Mathematics, and Mechanics and Manufacturing. Apart from the interdisciplinary research centres already mentioned in section 2.3, there is a number of other initiatives that contribute to the green sustainability.

Plant2Food - Open Innovation in Science (OIS) platform plant-based food systems. Aarhus University operates two OIS platforms, one in plant-based food systems (Plant2Food), the other in drug discovery and diagnostics (ODIN). Both platforms are funded by external grants from the Novo Nordisk Foundation. An important feature of the OIS platform is its open and patent-free collaboration model. As the Annual Report 2024 explains "(t)he model aims to create value from the part of university research that is typically not subject to invention notifications or licensing agreements, but which constitutes an important knowledge base for the development of new products, processes and services. The model involves companies and university researchers co-creating pre-competitive research projects and sharing the results openly with the outside world, so that the new knowledge benefits as many as possible. The open results cannot be patented in themselves, but everyone is free to build on them and protect any commercial applications thereof." (Aarhus University 2025: 19).

START - Centre for Sustainable Agrifood Systems. 56 START is a joint platform for collaboration between all Danish universities for strategic interdisciplinary research related to the green system transition, on the initiative of Aarhus University. AU's START activities received a university grant of DKK 20 million for the period 2022-25. Since its launch in March 2022, START has established 10 cross-disciplinary research hubs, where more than 250 faculty from Danish universities engage in cross-disciplinary activities. START has developed a broader community and has engaged in policy dialogues with position papers and visits to Brussels. START works "across disciplines on integrative, inclusive and interdisciplinary topics and challenges". START is based on a distributed governance model operated by the START Steering Committee under a rotation chair principal (deans, directors and alike) of the eight universities. START was founded by the united Danish Universities and represents Aarhus University (AU) which also acts as its secretariat, the Technical University of Denmark (DTU), University of Copenhagen (KU), Aalborg University (AAU), Copenhagen Business School (CBS), IT University of Copenhagen (ITU), Roskilde University (RUC) and the University of Southern Denmark (SDU).

**Preferred European research partnerships.** In 2024, the university's research centres expanded their strategic network and now have preferred collaboration agreements in green research with two European research institutions: Wageningen University

University and Research (WUR) and the French Institut National de Recherche pour l'agriculture, l'alimentation et l'environment (INRAE). (Aarhus University, 2025).

**Food Citylab**. Under the FIT4FOOD2030 initiative Aarhus University (Dept. of Food Science and CiFOOD) together with the City of Aarhus, Agro Food Park and the Midtjylland Region have established a Food Lab. The **Aarhus FOOD LAB for citizen engagement** that started in 2020 is coordinated by Aarhus University and the Food Science department and fosters the connection with local communities on getting food systems ready for the future through research and innovation. <sup>57</sup> The FIT4FOOD2030 **City Labs** and **Food Labs** bring together policy makers, researchers, educators and citizens from all walks of life, to work on their visions of FOOD 2030, and consider concrete actions on how to get there. An important objective is to develop and pilot hands-on (in)formal training of students, researchers and professionals. <sup>58</sup>

**European collaborative research** The Horizon Europe framework programme is the most important international source of external research funding for Aarhus University. This especially holds for the Pillar I ERC Excellence Programme and for Horizon Pillar II research and collaboration projects. Pillar II also counts various Danish business partners. Since the start of the framework programme, Aarhus University has funded 321 projects with a total budget of almost DKK 1.32 billion which put it on the 16th place of all organisations that have received funding from Horizon Europe (Aarhus University 2025: 15).

## Aarhus University Strategy 2020-2025, sustainability and entrepreneurship<sup>59</sup>

The strategy's look at AU's vision, mission, entrepreneurship and sustainability "Aarhus University's academic portfolio is broad-ranging, from the classic university disciplines of the humanities, natural sciences, social sciences, health sciences and theology to business and engineering, educational theory and practice and the **environmental and agricultural sciences**. This breadth gives the university a unique opportunity to combine strong disciplines in the creation of research breakthroughs, and to establish close collaboration with many sectors to the benefit of society as a whole." (page 6)

"Aarhus University's vision is to be a research-intensive university that aspires to the highest international quality and excels in creating value through knowledge, new insights and collaboration, in addition to facilitating connections between Denmark and the world. Aarhus University's vision for 2025 will be realised through a focus on the following strategic commitments:

- Generating knowledge and research breakthroughs through free, independent research of the highest international quality
- Research-based degree programmes of the highest international quality

<sup>57</sup> New Food Citylab in Denmark

<sup>58</sup> City Labs and Food Labs - FIT4FOOD2030

<sup>59</sup> The Strategy 2020-2025 will expire this year. The new Strategy 2030 is expected by spring 2025.

- Performing impartial public sector consultancy services of the highest international quality
- Encouraging the university's students, graduates and researchers to bring their knowledge into play in order to shape the society of the future
- Contributing to international collaboration, global engagement and the solution of major societal challenges through interdisciplinary research collaboration
- Generating innovation in established public and private sector companies and start-ups through collaboration, both internally and with external partners
- Intensifying the exchange of talents and knowledge, locally, nationally and globally." (page 10)

"Democracy and **sustainability** are central themes in the university's vision for 2025. One of the university's tasks is to contribute to a democracy in which opinions are debated and decisions are made on an informed basis and on the background of the latest knowledge. One of the greatest challenges facing society is the **transition to sustainable development**. **Here the university's task is to contribute solutions through research, education and collaboration**. The ongoing digital transformation will also have a decisive impact on society in coming years. Here as well, the university must contribute both to driving development and studying its effects on society." (page 10)

Aarhus University will significantly strengthen its contribution to the development and welfare of society as a whole during the strategy period. To this end, the university's goal is to increase its:

- Collaboration with external parties
- Contribution to a knowledge-based democracy.

### Collaboration with external parties

Sub-goal: More projects in collaboration with business and industry, the public sector, private foundations and civil society

The university will increase collaboration with external parties during the strategy period, and will invite them to collaborate more closely. In these collaborations, the university will safeguard freedom of research to ensure that the research performed in collaboration with external parties is impartial, to the benefit of society. The entire range of the university's disciplines must be brought into play in these external collaborations in order to increase their competitiveness and knowledge. In addition, the university will increase its involvement with civil society, particularly in relation to acknowledging the extensive volunteerism of its students. For many years the university has worked closely with Aarhus University Hospital and the other hospitals in Central Denmark Region. These collaborations have made crucial contributions to the high level of health science research and education at the university, both in research and in education, and have also brought important benefits to society. The university wants to develop this collaboration further, in addition to establishing more spinout companies in collaboration with the university hospital.

# Sub-goal: More innovation and entrepreneurship

Conditions for entrepreneurship must be improved, and students' interest in this area must be stimulated to give them better opportunities to translate their ideas into concrete spinout companies and to develop entrepreneurship skills. **The long-term ambition is to establish an extensive ecosystem for entrepreneurship and spinout companies at and around the university**." (page 34) Source: Aarhus University (2019) Aarhus University Strategy 2020-2025.

In 2024 the board adopted a revised masterplan, Campus 3.0, including the university's activities in Aarhus around the University Park, University City and Katrinebjerg. The aim is "to create a coherent campus that simultaneously strengthens academic synergies, promotes a vibrant university environment and optimises land use." (Aarhus University, 2024: 14).

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