

# Feeding MegaCities



## White Paper about export chances for data-driven urban farming systems in MegaCities

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## Export chances for data-driven urban farming systems in MegaCities

By Annemieke Roobeek, 10 July 2018

We can boost the Dutch export policy to the next level. Forget about the traditional trading missions. Do not focus only on exporting as many Dutch products as possible. Instead, engage in exporting intelligent system-based solutions with high added value. Join in on the realization of the Sustainable Development Goals (SDG's) and show the world that our unique knowledge of production processes and digital growth systems can locally feed billions of people in MegaCities, with healthy, fresh produce. Let us create cross-sectoral consortia with strong and innovative players. Let us set out with concrete, tangible pilots of vertical horticulture in MegaCities and let us begin to write a new chapter in a highly successful story of how a tiny country can feed the growing population of MegaCities in the world.

The Netherlands will continue to export cheese, flowers and tomatoes. The Dutch are almost unbeatable if it comes to efficiency in dairy, horticulture and floriculture production, distribution and logistics. We master the world in terms of world exports of flowers and fresh produce. However, to remain forefront runners, companies and the Dutch policy makers have to revise the medium and long term export strategy. There is a mind-shift necessary in thinking from high quality, mass products to high tech production systems. The innovation power of the Dutch export will have to be centred around smart, sustainable and data-driven production systems for growth systems in hybrid models combining indoor farming, urban farming and vertical farming for fast growing cities with millions of inhabitants. In these green tech production systems, the Dutch century-old knowledge on cultivation techniques lays encaptured. Digitisation of information on deep knowledge of seed cultivation and growth techniques in greenhouses is input for locally adjustable digital recipes for growing fresh produce in indoor circumstances. The recipes are part of an integrated green tech system that can remotely control indoor climate, humidity, lightning etc. This kind of advanced integrated systems will give the Dutch export a higher added value.



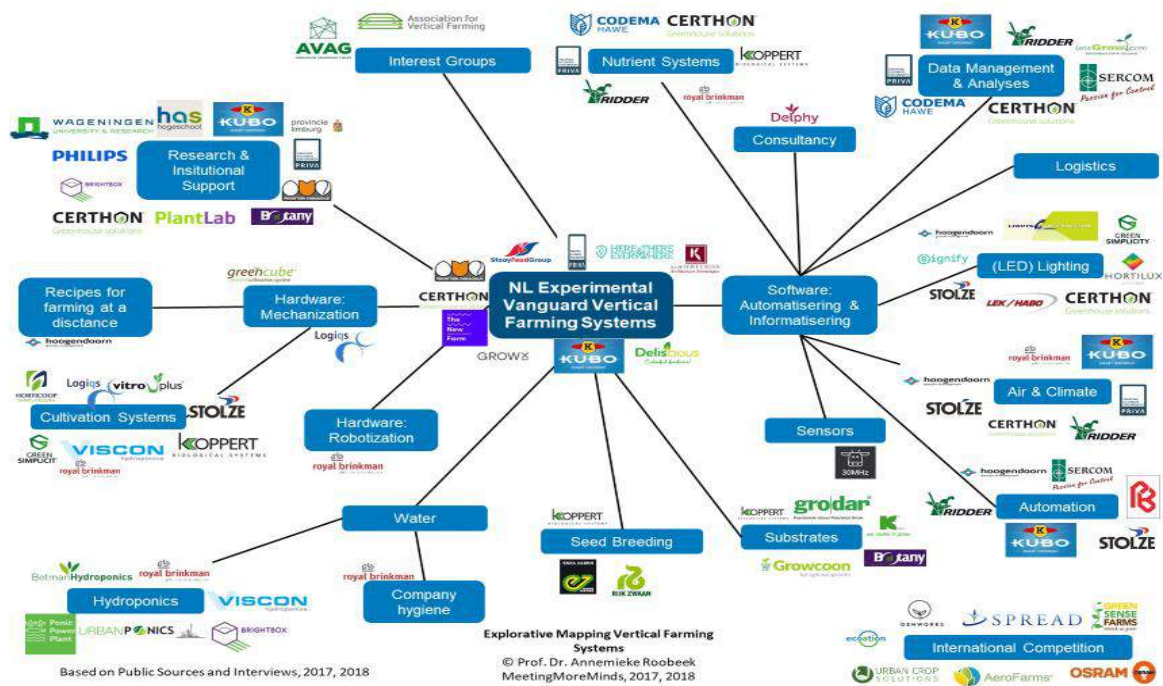
Therefore, if we organize ourselves in a smart way in ecosystems where we compete and collaborate with key players to reach a next level of excellence, we can develop new business models based on lease and maintenance contracts. This will ensure a long-lasting flow of high standing employment opportunities at specialised businesses in the Netherlands and for valuable work at collaborating parties in the MegaCities. The export policy and the sector-overarching innovation policy combined, are particularly suitable to become the instrument to speed up the transformation of the economic base of our country from mass products to smart systems.

Following this path, the Dutch export package will become more balanced in the coming years. A necessary impulse will be given to the delivery of added value with a lower ecological footprint. We will be less sensitive to the global competition of mass products and price fluctuations in the world trade. Furthermore, the Dutch export supports the vitality and productivity of the urban population

in MegaCities by being actively involved in sustainable food strategies and the digital support of green tech systems. It adds to the base for economic growth and social stability. Here and there.

To reach this, collaboration is necessary of Dutch parties in new cross-sectoral ecosystems. In those ecosystems we envision parties from the greenhouse sector, the ornamental flower industry, IT, light- and climate technology sector, engineering firms, the financial sector and urban planners. This idea is already gaining ground in the greenhouse horticulture sector and the ornamental flower industry. More and more chain parties are realizing the advantages of collaborating with various parties, from both inside and outside of their sector. This is shown by means of the export policy, and the revenue model connected to it. Collaborating on the long-term generates more value than competing will on the short-term. Furthermore, collaborating in ecosystems enables these parties to work together on bigger, more complex challenges. One could see them as living laboratories, in which real time innovations are being tested.

Scaling-up and accelerating are necessary to develop new markets with innovative concepts, such as vertical farming and advanced greentech growth systems in greenhouses and buildings in MegaCities. In 2030 there will be 5 billion people living in cities, of which most people are located in metropolises of more than a million people. Many parties see this as a challenge, and numerous experiments are taking place worldwide. Even the big tech companies such as Amazon, Microsoft, GE, Fujitsu and IBM are looking at food as a growth market. Our country is the only country in the world which can make the transition to a Silicon Valley for urban farming systems in the timespan of a few years, based on its century-old knowledge on cultivation techniques such as, for example, in the greenhouse horticulture sector and the ornamental flower industry. In recent FAO reports it is made clear that there will be an increase in the demand for fresh, sustainably produced food in MegaCities in the coming decades. No country is better capable and equipped to deal with this than the Netherlands.

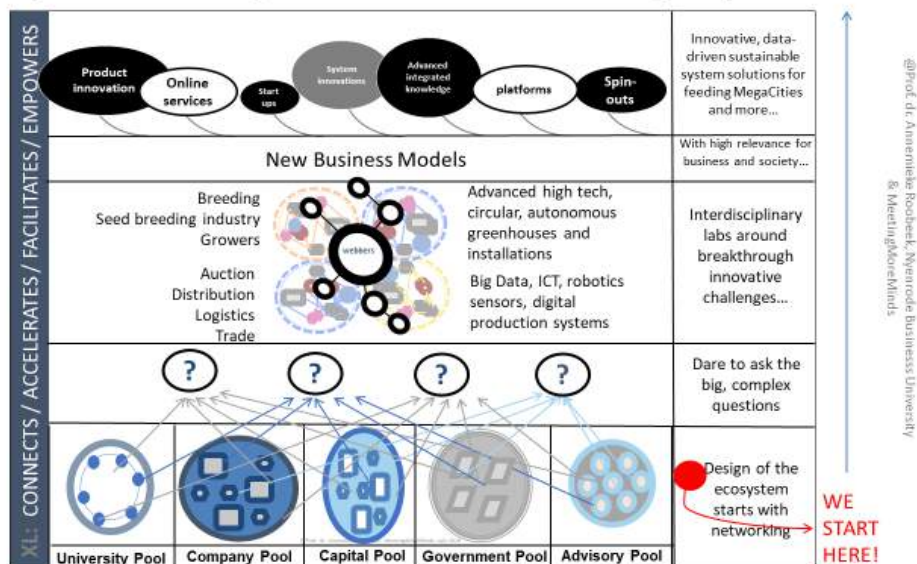


But organizing new production systems is not the complete answer yet. This new approach to our export policy also requires a modern form of economic diplomacy focused on majors, city councils,

city planners and urban NGO's. It demands public-private collaboration, a long-term commitment and a systematic approach. For the integration of the fresh food production in MegaCities, in vertical greenhouses or with large scale food cultivation without sunlight, innovative knowledge and production coalitions are needed. Suitable examples for these coalitions are urban planners, specialists focused on realizing smart cities and city distribution, people with marketing expertise for local supermarkets, restaurants and urban healthcare services. Moreover, system integrators, software specialists, independent webbers, programmers and Big Data companies will all have a binding strength in the ecosystem.

The Netherlands' unique asset is that it already has all elements necessary for sustainable urban farming systems in MegaCities. However, its export policy as a whole needs to be organized differently, and that will go beyond the scope of the traditional policy instruments, (top)sectors, institutes and interest groups. An ecosystem, as an organisational principle, is the best platform to bring together varying parties. Investing in these organisational innovations will pay off as innovations will take off quicker and standards will arise that are mutually coordinated and agreed upon.

## Ecosystem design for Urban Farming Systems



But even then, networking with networks will not take place by itself. Super networkers, also called 'Webbers' are needed for this. Connectors that have an overview, that link parties to each other, that make sure the partnerships stay productive, that inspire to engage in innovative projects and keep the spirits high within the ecosystem. This is necessary as solely building a networking ecosystem will not be sufficient. It is also about the bigger picture and reaching the goal, to make Feeding MegaCities more concrete.

Export policy that values the SDG's highly, while at the same time making SDG's more concrete, will create a good reputation for our country, our companies and our knowledge institutions. This is very valuable for a small country in a world in which technology multinationals increasingly dominate the world economy. These multinationals such as Amazon, Google and Microsoft see opportunities and seize them. If we do not act fast, they will buy our knowledge and we will be left behind. Instead of fragmentating our knowledge, we should act quickly and look beyond our own individual entrepreneurship and collaborate so we can work on bigger challenges together. The overall reward for all parties will only be bigger.



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