Are urban innovation districts the future of healthy, smart and sustainable living?

In the 2030 Agenda for Sustainable Development, the United Nations defined a framework of seventeen goals aimed at designing and implementing a "shared blueprint for peace and prosperity for people and the planet, now and in the future." One of the goals is to design sustainable cities and communities, to achieve more inclusive and sustainable urbanisation, reduce the environmental impact of cities and create affordable and sustainable transportation systems. Together with leading experts in the field – Kari Eik (USC), Jacques van Dinteren (IADP) and Paul Jansen (IADP) – we explored this trend and looked at best practices worldwide and their impact on innovation districts and campuses in the Netherlands.

"We need to take care of our cities."

"In the future, eighty per cent of people will live in cities", says Kari Eik, initiator of the USC (United Smart Cities), a global UN initiative for urban development and smart cities. "That's why we need to take care of our cities." In many parts of the world, there is a trend towards infill development rather than expansion on the outskirts of cities. This usually involves using existing industrial sites to develop a combination of living and working. Sustainable and smart."

"Never talk about Smart Cities without talking about sustainability. They always go hand in hand", she says. "How can a city be smart without being sustainable? We want to do something for future generations. Cities need to be intelligent, smart and sustainable. The UN defines a smart city as "an innovative city that applies information and communications technology together with other means to improve the quality of life, efficiency of urban services and competitiveness, and to meet the needs of current and future generations on economic, social, environmental and cultural aspects."

Kari: "Throughout history, Smart Cities have always been very much linked to technology. However, it depends on where you are and what stage your city is in. We have three levels of innovation, Economy, Environment and Culture of the local community. So it's very broad. Technology is an enabler. Digitalisation plays an important role in all areas. We also have 12 categories. Five of them are at the top: energy efficiency, mobility, transportation, security and housing, engagement and health. They are all interlinked. We don't want to think in silos anymore."

Productive cities
Intensive mixing of living and working can also be a means of renewing neighbourhoods or

districts. Importantly, productive cities also mix social classes. Productive cities mark a return to how cities were developed centuries ago, but with significantly less pollution and safety risks.

"Many European cities have been redeveloping so-called 'brownfield sites' for decades - a strategy of urban densification rather than urban sprawl. In Germany, for example, Vauban, a car-free, child-friendly district of Freiburg, was built on the site of a former military base. In Austria, Vienna's huge new urban district, Seestadt Aspern, is being built on the site of the former Aspern airport." Brownfield sites are often infill locations with existing transportation and utility infrastructure. Redevelopment on infill sites can use vacant buildings, parking lots or other underutilised sites for new facilities, homes and businesses. But it is not just about infill. A more recent development is that of innovation districts. These involve the transformation of an existing city district into a mixed-use area. Here, innovative companies play a leading role.

Jacques van Dinteren, president of the Nijmegen-based Innovation Area Development Partnership (IADP), is involved in these developments: "One of the reasons for the emergence of this concept is that a centrally located city district with good public transport, many facilities, attractive housing and a pleasant living environment appeals to the young generation. More so than a monofunctional science park located on the edge of town. For local governments, this raises the question of whether there is enough potential to develop an innovation district; and as such, a project will have to meet strict conditions."

Innovation districts in the Netherlands
Following this line of thought, it is not surprising that many plans for innovation districts have

recently been announced in the Netherlands. "Yes, it is true", says Paul Jansen (vice president of the IADP). "And this is quite remarkable because, in other countries, we see comparatively fewer initiatives. An innovation district should not be used as an excuse for urban transformation. Such a district is, first and foremost, about socio-economic renewal. After that, urban renewal can be a prerequisite."

The Netherlands faces major challenges in the coming years: regional economic recovery is key. In addition, a million new homes will have to be built, while at the same time meeting the 2030 climate targets (in terms of energy transition, CO2 reduction, other mobility). Moreover, suppose that by 2050 Dutch cities decide to densify inner-city areas instead of expanding outwards. In this case, according to research by Ecorys, this will generate more than € 1.2 billion in added social value. We looked at three Dutch cities to find out how they are shaping and designing their cities and how innovation districts and campuses are sometimes catalysing this development.

1. Utrecht: shared transportation and biodiversity

Several brownfield redevelopments are underway in the city of Utrecht, particularly the proposed car-free Merwedekanaal district, built on an island of derelict factories, is one to watch. It will include large area of green and open space; schools, kindergartens, sports facilities, commercial and retail space, and 6,000 residential units of various types, including social housing. All buildings will be highly energy efficient. The planners are also focusing on biodiversity and on connecting the neighbourhood to the wider region through cycling, walking and public transportation.

Merwedekanaal will house 12,000 people on a 60-acre site in the south-west of Utrecht, with an emphasis on walking and cycling and public transportation linking to all parts of the Netherlands. A fleet of shared cars and bicycles will be available to all residents. Instead of one (or more) car per household, there will soon be one car for every three households on the streets.

2. Rotterdam: the city of change

Another good example of a comprehensive approach is the city of Rotterdam. It is currently undergoing a massive change in spatial planning policy. This is based on the recognition that status quo planning is preventing the kind of rapid urban change we need to meet the UN cli-

mate goals. As a result, Rotterdam is taking steps to ensure rapid transformations in mobility, housing, industrial sites, open space and climate protection in the coming years. Important trends at play are the ageing population, the emergence of a network society, the digital transition, the increase in circularity and related climate change and the mobility and energy transition. Rotterdam is using its reinvention as a selling point by calling itself the City of Change.

3. Nijmegen: working and living in a healthy and future-proof environment

Under the banner "Old city, young vibe", several thousand new homes will be built in Nijmegen over the next twenty years, with the focus on the Winkelsteeg district. The aim is to transform the area, which is currently dominated by businesses, into a healthy, vibrant and sustainable place to live and work. This will mean, among other things, the arrival of 3,000 additional jobs, 4,000 homes and various facilities.

The construction of 500 temporary social housing units in Nijmegen is about to start. On the edge of the new district, along the existing canal that connects the Meuse and Waal rivers, a new waterfront will be created with housing, businesses and hospitality. The plans also include plenty of space for greenery and sports. The green public space will also provide better water retention. This will help prevent flooding during heavy rainfall and excessive heat during long periods of drought. Climate adaptation is taken into account in the design of the buildings and the green and water structure. One way of doing this is to ensure that water is retained in the ground as long as possible and that heat stress is avoided as much as possible. Green spaces mean space for flora and fauna, contributing to to improved biodiversity in the area and more green in the living and working environment.

The ambition is to transform Winkelsteeg from a business park into a working, living and leisure area. Nijmegen alderman Noël Vergunst, responsible for urban development said: "A few years ago, we agreed on an environmental vision for Nijmegen. It states that we expect Nijmegen to grow. This land is needed for employment and housing. But at the same time, we should also accommodate growth within the city limits. We tried to find space within Nijmegen and saw that a lot of space in Winkelsteeg was not yet used to its full potential. This gave us the idea of combining living and working in Winkelsteeg."

Sketches of the Winkelsteeg area, Nijmegen, The Netherlands

Throwback: Winy Maas about Noviotech Campus and Nijmegen

In an interview with Pulse last year, world-renowned architect and urban planner Winy Maas shared his vision of living, working and leisure in cities and how, in his eyes, they physically belong together. He is an advocate of business and industry within the city. "If you can do that within the city, it helps to reduce mobility. The campus in Nijmegen hooks into this painting in a number of ways. First, by improving the station at that location, you provide better public transportation. This allows for densification, mixing and greening. We mainly look at the inner-city

buildings and how we can make them suitable for densification." He continues: "I am an advocate of industry within cities. We have to work hard to make industrial processes such that you can live above or next to them. And that without nuisance from noise, waste or explosion hazards."

Read the interview with Winy Maas in the previous edition of Pulse.Magazine: