infomineo
BRAINSHORING SERVICES

New city projects

How are new cities planning to integrate technology and sustainability to create a better future?
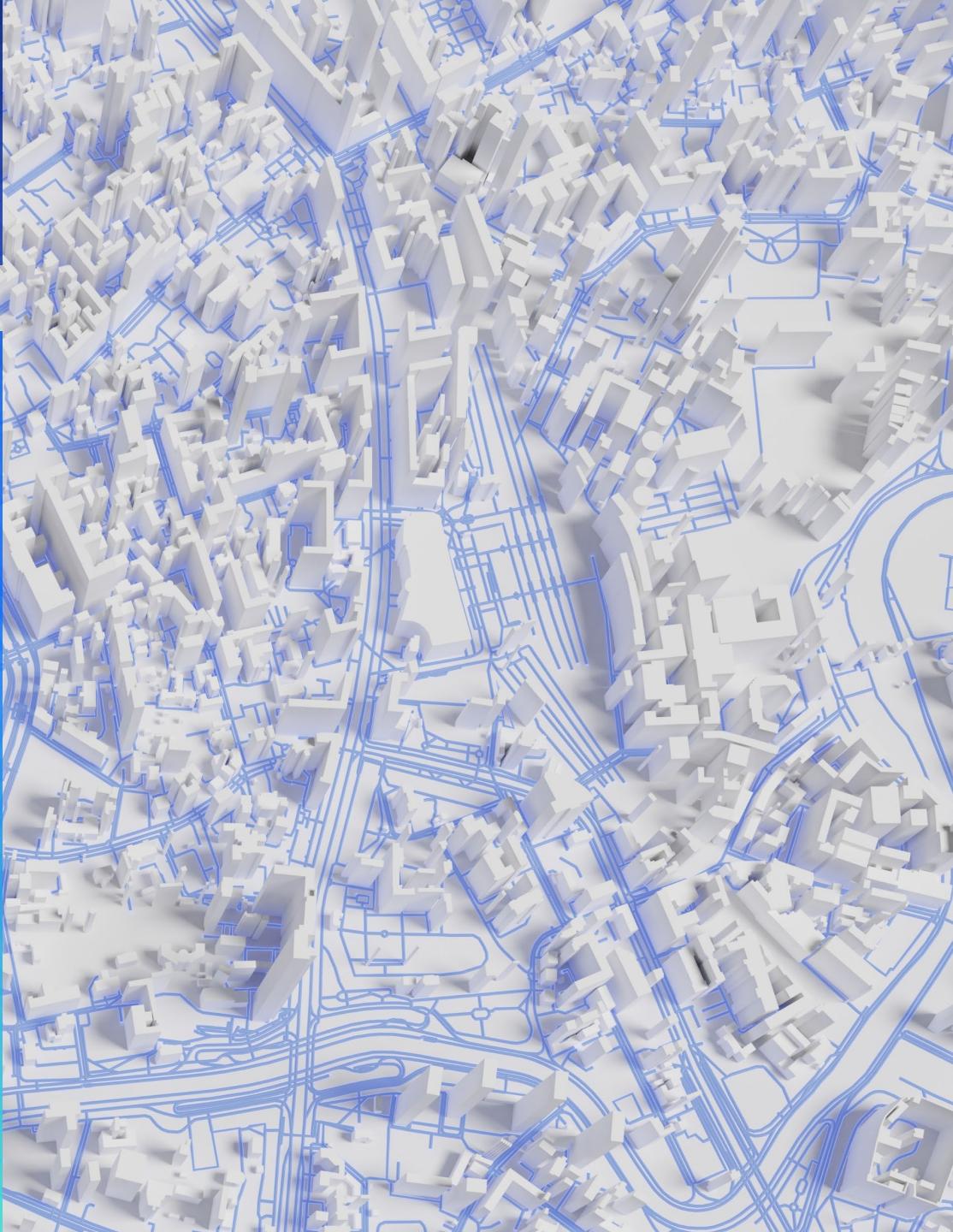
Table of content

Introduction

The last two decades have seen the announcement of an unprecedented number of new master-planned cities being built from the ground up. Some estimates put the number of cities under construction at ~150 worldwide.

Countries involved in new city-building projects that have not necessarily been known historically as points of reference for urban planning innovation, are starting to reposition themselves as leaders in city development and actively sharing their ideas, models, and expertise in building new cities globally. New cities are not only being built by governments; more recently, corporations and billionaires have joined the trend, unveiling plans for the development of new cities that would realize their visions for the future.

The aim of new city projects is to create a self-sufficient urban area that is geographically and administratively independent. New cities are developed for specific purposes and have distinct identities. They are created to provide a clean slate with a variety of opportunities that appeal to the private sector.

New cities are testing grounds for new technologies and planning techniques, and they symbolize an ambition to create new ways of life. When looking at new cities, there are two guiding principles for these projects that can be clearly observed: sustainability and technology. In this report, we explore the common aspects in which sustainability and technology are being embedded in new city projects and highlight some examples of applications that are planned or being piloted.

Methodology (1/4)

Objectives of the report:
New city projects are promoting the idea of a smarter and more sustainable future. While there is no universal definition for new cities, the purpose of this report is to explore the common aspects in which new city projects plan to embed technology and sustainability, the potential opportunities created, and the challenges they might face.

Main themes covered:
This report examines how new cities are using sustainable design and technology solutions to address the challenges faced by existing cities. The most common themes where sustainability and technology are key drivers in new cities include mobility, smart and sustainable buildings, healthcare and well-being, safety and security, and circularity.

Examples covered:
To identify common themes across cities, we selected a sample of 12 cities in different countries. As many of these projects are still underway, the level of information available on these cities varies considerably. While all cities were considered in the selection of themes for this report and in the overview of the different sections, we have presented only selected examples that provide sufficient detail on the application of the different themes. For example, NEOM is featured extensively in this report given the ambitious scale of the project and the level of detail provided about the city's initiatives, as well as its overall goals and objectives.

Methodology (2/4)

NEOM

Area: 26,500 Km²   **Target population: 2 million by 2030**   **Project cost: $500 billion**   **Completion date: 2025**   **Location: Saudi Arabia**

NEOM is a $500 billion mega-city project founded by Crown Prince Mohammed bin Salman. It is currently being built on the Red Sea in northwest Saudi Arabia. It is marketed as a new model for sustainable living, working, and prospering.

Telosa

Area: 607 Km²   **Target population: 5 million**   **Project cost: $400 billion**   **Completion date: 2030**   **Location Km: USA**

Telosa is a proposed smart-city project in the US by Marc Lore. The city will be sustainable, contain eco-friendly buildings constructed from scratch, and spread across the Southwest desert. Its location is yet to be decided from different options (including Nevada, Idaho, Arizona, and Texas).

Masdar City

Area: 6 Km²   **Target population: 50,000**   **Project cost: $20 billion**   **Completion date: 2025**   **Location: UAE**

Masdar City is a smart city project in Abu Dhabi and is currently being built by Masdar, a subsidiary of Mubadala Development Company. It is a pioneer in sustainability and a hub for research and development.

Busan Eco-Delta City

Area: 11.77 Km²   **Target population: 76,000**   **Project cost: $4.23 billion**   **Completion date: 2023**   **Location: South Korea**

Busan Eco Delta City is a Korean smart city designed to be an experimental ground for the testing and development of new technology instead of just implementing existing technology. The city is constructed by the Korean government along with K-Water, a Korean company specialized in smart water technologies.

Sources: Press search, city websites

Methodology (3/4)

Oceanix Busan

Area: 0.63 Km²   **Target population: 12,000**   **Project cost: $200 billion**   **Completion date: 2025**   **Location: South Korea**

Oceanix Busan is a floating smart city project developed by Oceanix, a company specialized in the design and construction of floating cities. It is the world's first prototype floating city and aims to provide breakthrough technology for coastal cities facing severe land shortages that are compounded by climatic threats.

Woven City

Area: 0.708 Km²   **Target population: 2,000**   **Project cost: -**   **Completion date: -**   **Location: Japan**

Woven City is a test course for mobility built to create the basis for the future fabric of life. The city is being constructed at the base of Mount Fuji by Toyota, a Japanese multinational automotive manufacturer. The city aims to use low-impact technology and reduce the need to travel.

BiodiverCity

Area: 18.21 Km²   **Target population: 15,000 to 18,000**   **Project cost: -**   **Completion date: -**   **Location: Malaysia**

BiodiverCity is an archipelago city across from the island of Penang to be built by BIG (Bjarke Ingels Group), a group of architects based in Copenhagen and New York. The city will include three artificial islands built off the shore of Penang Island.

The Orbit

Area: 3.7 Km²   **Target population: 150,000**   **Project cost: -**   **Completion date: -**   **Location Km: Canada**

The Orbit is a future Canadian smart city in Innisfil built by Partisans, a Toronto-based architectural studio. It is a community focused on environmental sustainability, innovative streets and infrastructure, social interaction, health and wellness, etc.

Sources: Press search, city websites

Methodology (4/4)

Smart Forest City

Area: 5.57 Km²   **Target population: 130,000**   **Project cost: -**   **Completion date: -**   **Location: Mexico**

Smart Forest City is a new forest city in Cancun based on the design concept of an open and international city inspired by the values of technological innovation and environmental quality. It is a botanical garden within a contemporary city.

Chengdu Future City

Area: 4.6 Km²   **Target population: -**   **Project cost: -**   **Completion date: 2023**   **Location: China**

Chengdu Future City is a car-free masterplan for the capital of China's Sichuan Province, designed by architecture studio OMA to focus on the site's existing geography and topography.

Maldives Floating City

Area: 2 Km²   **Target population: 20,000**   **Project cost: -**   **Completion date: 2027**   **Location: Maldives**

Maldives Floating City is a project to build a series of hexagonal-shaped floating structures in the Maldives, where no cars will be permitted, only bicycles and electric noise-free buggies and scooters.

Amaravati

Area: 217 Km²   **Target population: 3.5 million**   **Project cost: $6.5 billion**   **Completion date: 2029**   **Location: India**

Amaravati is a planned and smart city located on the banks of the Krishna River. The project is divided into 3 phases, the last of which will be completed in 2029. The city is the capital of Andhra Pradesh, a state in India.

Sources: Press search, city websites

Executive summary (1/2)

Mobility

- New cities aim to provide citizens with easy access to key amenities (15-minute cities) and services while promoting active mobility
- For longer trips, new cities are embracing sustainable solutions to reduce emissions (electric mobility), traffic, and accidents (autonomous vehicles and air mobility)

Smart and sustainable buildings

- To optimize energy use, buildings in new cities will be built to be smart (using smart meters, building management systems, etc.) and sustainable (using more sustainable construction materials and powered by renewable energy)
- They also aim to improve the quality of life of their citizens by introducing smart homes that allow them to monitor and control their security systems, appliances, lighting, etc.
- Assistive robots are also part of the plan to help residents with daily tasks and monitor their health

Healthcare & Wellbeing

Through the use of advanced technologies and digital tools, new cities will not only be able to treat residents (virtual consultations and real-time diagnosis), but also help prevent disease (advanced monitoring technologies and analytics).

Executive summary (2/2)

Safety and security

Ensuring public safety is key to any thriving community. That's why new cities are looking to reduce major crime rates (crime prediction), mitigate disaster risks (early-warning systems), and protect residents' data (building cybersecurity expertise).

Focus on circularity

New cities aim to solve many of the existing environmental challenges that have serious long-term implications, such as water scarcity (water conservation and wastewater treatment), food insecurity (smart agriculture, gene-editing technologies), and waste (recycling organic waste and adopting zero-waste policies).

How are new cities integrating sustainability and technology?

Mobility

Growing populations and inefficient transport systems in cities are leading to increased congestion. Inadequate transport systems are also a significant driver of poor health and environmental issues, from emissions to road accidents.

New cities are aiming to rethink mobility. New urban planning concepts, such as the "15-minute city," promote compact environments and provide citizens with easy access to services, reducing the need to travel.

New cities are also centering sustainable mobility solutions like electric vehicles, autonomous vehicles, and air mobility that reduce traffic and congestion as well as traffic accidents while lowering emissions.

These innovative technologies aim to enhance the overall quality of life of the residents by reducing travel times, improving air quality, and increasing safety levels.

Sources: *Press search*

New cities are designed to have all necessary amenities within a 15-minute walking or cycling distance

15-minute city

New city projects are designed with a focus on proximity. They aim to **ensure direct access** for all residents **to essential city services** like education, healthcare, shopping, and green spaces within a 15-minute walk or cycle from their homes, reducing the need to travel. This design concept promotes active mobility, and focuses on creating accessible, sustainable, and resilient spaces that enhance the quality of life.

Telosa promises to be a 15-minute city

Telosa is purposefully designed to make everything the city has to offer easily accessible within **"15-minute" communities by walking, biking, or utilizing autonomous vehicles**. People will spend more time connecting with their communities and getting out in the natural environment.
Basic services such as schools, hospitals, and work centers will be located within walking or cycling distance from home, **eliminating residents' dependence on motor vehicles and reducing commuting times.**

NEOM is designed with accessibility in mind, promoting active mobility

NEOM is shifting away from cars and roads toward people and green spaces. The city's pedestrian-first design ensures that **key amenities in each neighborhood will be easily accessible within a short distance**, reducing the reliance on cars and prioritizing active mobility, including walking and cycling. This design aims to enhance the community's overall health and well-being.

Mobility in new cities is centered around electric vehicles to reduce emissions and improve air quality

Electric Vehicles

Sustainable **urban mobility** is at the center of new city projects. New cities plan to phase out traditional transportation concepts by introducing smart and sustainable transportation infrastructure. These plans include shifting public transportation fleets to less polluting **electric vehicles** and promoting public transit ridership over the use of private vehicles.

Masdar City bases its transportation strategy on electric-powered vehicles

Masdar city's transportation strategy emphasizes sustainable transportation. To support its mission, the city has been introducing sustainable mobility solutions through commercial and pilot projects, including its **EV** pilot project for a rapid charging station that was aimed to measure the efficiency of rapid charger technology in the region's harsh climate conditions. The rapid charger has made it possible for EV batteries to be charged up to 80% in around 30 minutes. The city has also introduced its Eco-Bus, a 100% **electric bus** for community and city applications. Its technology allows for lower energy consumption through the use of a water-cooling system that optimizes battery life and efficiency.

NEOM aims to be a pioneer in electric urban mobility

NEOM aims to fully integrate **electro-mobility solutions**. Its high-speed transit will connect all neighborhoods, aiming to ease long-distance travel. The city is also piloting shared autonomous and electric shuttles for on-demand urban passenger mobility. Micro mobility systems, including electric bikes and scooters, will also be trialed.
NEOM is also aiming to increase the use of electric and fuel cell in shipping to improve the efficiency and sustainability of marine operations. With its ecologically sensitive coastal waters in mind, the city aims to take the lead in developing emission-free water-borne mobility.

Sources: *Bloomberg "The World's First Car-Free Communities", city websites, press search*

Autonomous vehicles are a key component of the future of mobility in new cities, enhancing road safety and commute time and quality

Autonomous vehicles

Autonomous, zero-emissions vehicles are expected to be a disruptive force in transport and delivery in new cities. They will have major benefits, including **reducing traffic** and freeing up space for pedestrians and communal areas. Autonomous vehicles can also have a major impact on **safety** by reducing accidents due to human error. Furthermore, they are expected to reduce **commute times** as well as improve the overall commute experience.

Woven City's plan includes several pathways, one of which is dedicated to autonomous vehicles to facilitate mobility.

Woven City plans to replace outdated transportation concepts with a flexible network of streets dedicated to various mobility speeds. On the surface of the city, there will be three distinct pathways. One is dedicated to **autonomous cars** and Toyota's e-Palette BEVs; another is for micro mobility including bicycles, scooters, and other modes of personal transport, including Toyota's i-Walk; and a third is for pedestrians. Underground, there will be a network for the **autonomous delivery** of goods. The e-Palette, an autonomous BEV, will be used for shared transportation, delivery, and mobile retail.

Autonomous public shuttles use smart technologies for maximum security and efficiency in Masdar City

Masdar City has been working on integrating autonomous vehicles into its mobility network. The city launched its **Personal Rapid Transit** (PRT) system back in 2010, which consists of automated, electric-powered, single-cabin vehicles. The underground vehicles use sensors to locate magnets embedded in the ground, which assist vehicle navigation and ensure the pathway is clear. In 2018, the city deployed above ground **autonomous shuttles** through its partnership with NAVYA, a specialist in the autonomous vehicle market.

Sources: Toyota, Woven, "How Autonomous Vehicles will Reshape the Urban Landscape" (2019), city websites, press search

New cities are integrating air mobility solutions to reduce traffic congestion, accidents, and emissions
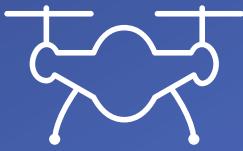
Air mobility

New city projects are looking into **air mobility** for efficient and sustainable transportation. **Passenger and delivery drones** are expected to contribute to facilitating transport and delivery in new cities. Urban air mobility has the potential to minimize congestion and accidents, as well as carbon emissions.

NEOM plans to integrate air taxis to facilitate mobility

NEOM established a joint venture company with Volocopter to design and implement a **public vertical mobility system**. It will be the only operator of initial public transit routes across the city, enabling an open electric Vertical Take-Off and Landing ecosystem. NEOM and Volocopter are planning to make concepts such as **air taxis and vertical logistics services** a reality for the city's residents.

NEOM is also using artificial intelligence to develop autonomous taxi drones. These drones detect the exact location of residents and estimate traffic to the desired destination, reducing the unproductive time spent waiting for taxis.

Telosa focuses on vertical mobility for public transportation, deliveries, and maintenance

Telosa aims to integrate **vertical mobility** as an integral design consideration to rapidly **connect neighborhoods, mobility station centers, and airports with electric vertical take-off and landing vehicles (eVTOLS).** However, separate transportation networks of drone ports, elevators, and other means will facilitate maintenance and deliveries.

Telosa is partnering with Archer, a company that commercializes electric vertical take-off and landing aircraft, to design and develop **eVTOL aircraft** for use in urban air mobility. These aircraft can carry four passengers for 60 miles at speeds of up to 150 mph with minimal noise.

Sources: city websites, press search

Smart and sustainable buildings

A smart-built environment is an integral part of new city projects, where the design of buildings and the technology applied in individual homes will reflect positively on the environment as well as the satisfaction of the residents.

New cities are rethinking building design, focusing on green buildings that can reduce or eliminate negative impacts on our climate and natural environment during design, construction, and operation. They use innovative green energy solutions, including solar panels and photovoltaics, on the roofs of the buildings. They are also designed to monitor and minimize energy consumption.

Smart home automation systems are also part of the new cities' plans. These systems will allow remote monitoring and control of security systems and smart appliances. Technologies such as assistive robots are also being tested in new cities to help residents with daily tasks and monitor their health.

Sources: Deloitte "Smart and Sustainable Buildings and Infrastructure", press search

New cities will consist of smart and sustainable buildings to optimize energy use

Smart and sustainable buildings

New city buildings will be **green by design**. Not only will these buildings be built with sustainable and ethical materials, but they will also be designed to be **energy efficient**. These buildings will be powered by renewable energy and will use sensors to optimize energy use and eliminate inefficiencies.

Masdar City aims to reduce energy consumption through innovative construction techniques

Masdar City aims to **reduce energy consumption** to maximize efficiency, through insulation techniques, low-energy lighting specifications, optimization of natural light, the use of smart appliances and meters, and building management systems that interact with the city's overall smart grid. Solar thermal and geothermal cooling techniques will also be implemented throughout the city to reduce the need for electric air conditioning.

Oceanix Busan uses sustainable materials and energy to reach new levels of sustainability

Oceanix Busan's floating platforms will be accompanied by dozens of productive outposts with **photovoltaic panels and greenhouses** that can expand and contract over time based on the needs of the city of Busan. The platform's buildings will be made of lightweight, more sustainable materials such as timber and bamboo.

Sources: city websites, press search

Connected smart homes facilitate residents' daily tasks and improve their quality of life

Smart homes

New cities are integrating smart homes, which are equipped with appliances and devices, that can be controlled remotely via cell phones or other electronic devices. Smart homes allow users to monitor and control home security systems and appliances such as refrigerators, as well as air conditioning, heating, and lighting. Additionally, with technological advances in voice control and artificial intelligence, intelligent assistants can also be used to **facilitate daily tasks**. Smart home technology offer homeowners safety, efficiency, and cost savings.

Busan Eco Delta City will use AI-based bots to offer comfort and convenience to its residents

Busan Eco Delta City aims to reduce the time spent on household chores by providing **AI-based bot services to help with daily tasks** such as personal care, accessibility, home education, automated retail, fitness coaching, and more. The time spent on household chores will be gradually reduced thanks to bot services (home care bots, personal care bots, home chef bots, and cleaning bots).

Homes in the city will be equipped with **smart sensors that can detect dangers** and resolve potential problems, and tablets that act as mirrors that can monitor almost every aspect of residents' health, receive suggestions on diet and exercise, and check the weather and daily news.

Busan Eco Delta Smart City will implement a bot sharing program to provide residents with easy access to different types of bots. There will be a special bot platform within the city's operating platform to provide convenience to residents in their daily lives.

Health and well-being

New cities aim to take a more proactive approach to healthcare, focusing more on the well-being of residents through early intervention and prevention. This increased focus on the well-being of residents stems from their ultimate goal of promoting a better quality of life.

Data-enabled, smart healthcare systems are critical to preventing and treating disease and monitoring conditions. Digital devices can take vital signs, securely transmit this data to doctors, and alert patients and doctors when early intervention is needed, to prevent complications and hospitalizations. Using data and analytics, new cities can identify high-risk demographic groups and plan interventions accordingly. Access to treatment can also be enhanced through telemedicine, which can help people take control of their own health.

Smart healthcare has the potential to transform the traditional medical system, making it more efficient, personalized, and convenient.

Sources: *Deloitte "Smart Cities, Smarter Public Health" (2022), press search*

Digital diagnostic tools facilitate access to healthcare and help residents keep track of their health and avoid complications

Digital diagnostic

New cities are focusing on residents' well-being by improving access to healthcare and focusing on **preventative medicine**. Residents can benefit from video consultations, connecting with virtual doctors, to get a real-time diagnosis, facilitating access to treatment. Advanced monitoring technology can help with early detection of health problems, effective intervention, and overall well-being.

NEOM provides its residents with real-time assessments through the support of virtual physicians

NEOM's healthcare ecosystem will offer holistic patient care, using high-end technologies to ensure full integration between medical specializations and access to patients' health records. NEOM developed an advanced medical system called Dr.NEOM to **collect health data** for the residents and **predict their health problems** to help avoid complications. This system can also connect residents to **virtual physicians** for real-time assessments and offer **digital twins**, which are virtual models that mirror residents' biometrics and health data, alerting them to any potential threats and helping them keep track of their health.

Busan Eco-Delta City will monitor its residents' health data at its telemedicine Wellness Center

Residents at Busan Eco-Delta city will have access to the latest technology that allows them to take care of their health through **telemedicine**. The Wellness Center is a healthcare facility located inside Busan's community center, where residents can input their information and have it forwarded to a doctor at a hospital for monitoring. Patients will also have access to **video consultations** with doctors inside a quiet room, and a nurse from the hospital will be on-site in case of emergencies.

Health & research centers will be using the latest innovative technologies to improve residents' quality of life

Health & research centers

New cities aim to provide a healthy lifestyle for their residents by developing an innovative, **research-based** healthcare system. This includes building health centers (hospitals, wellness centers, etc.) and medical research centers (testing laboratories, R&D centers, etc.) that integrate knowledge about physical and mental well-being.

NEOM plans to establish several advanced health centers

NEOM plans to develop a range of **specialized institutions** to cater to specific needs. The city plans to put in place a number of mostly **robotic advanced health centers**. There will also be medical sanctuaries, where people can take care of their spiritual health by doing meditation or yoga or getting a full diagnosis. Additionally, the NEOM general hospital will include specialized centers of excellence that focus on key areas: musculoskeletal, diabetes, and personalized preventative care. These centers will be digitally connected worldwide.

Safety and security

Public safety is key to the residents' peace of mind and overall quality of life. New cities are investing in technologies that would enhance public safety, from crime prediction to early warning systems for natural disasters and fire, as well as cybersecurity.

Digital tools are revolutionizing urban policing. Crime prediction, for example, has the potential to significantly reduce the occurrence of major crimes. Emergency response is also a key focus of new city projects, which plan to set up systems to provide early warning of fires and natural disasters such as floods and earthquakes. This gives residents and governments time to plan ahead and prevent economic and human losses.

Finally, the data-driven nature of new city projects makes cybersecurity vulnerabilities particularly concerning. Developing defense mechanisms by developing cybersecurity expertise and staying abreast of the constantly evolving threat environment is essential to protecting residents' data.

Sources: Deloitte "Smart City Safety and Security", press search

infomineo

New cities are focusing on crime reduction and optimizing response time by deploying crime prediction techniques

Crime prediction

New cities aim to keep their residents **safe** by reducing crime rates and optimizing response times. New cities are using technology to help predict crime. They are also investing in smart surveillance systems that can help detect crimes and alert law enforcement to crimes in progress, allowing for fast response times. These technologies can reduce crime incidents and reduce the time needed to keep the city safe.

Busan Eco Delta City aims to reduce its crime rate by at least 25%

Busan Eco Delta City aims to make residents' lives safer by reducing the rate of major crimes (including assaults, robberies, and homicides) in the city by at least 25%. To help achieve its goals, the city is focusing on **crime prediction** using deep learning and surveillance systems with CCTVs, smart streetlights, drones, and bots. These smart solutions aim to reduce the time spent on crime prevention and keeping the city safe, as well as optimize the process of detection and resource deployment.

Sources: *city websites, press search*

New cities are implementing early warning systems to build emergency resilience and protect their residents

Early warning systems

Early warning systems are an important component of **disaster risk reduction** in new cities. These systems generate timely warnings that allow citizens threatened by a hazard to act in sufficient time and take their precautions to protect themselves and prevent economic and human losses.

Busan Eco Delta City implements early warning systems for natural disasters

Busan Eco Delta City is implementing several disaster prevention systems to protect its citizens from natural disasters such as floods, earthquakes, and fires and to improve the city's resilience to emergencies. The city has installed precipitation radars connected to a water management data platform to forecast potential flooding up to 6 hours in advance. It also has a 100% early fire response time of 5 minutes, using MaaS (Mobility as a Service) based on digital-twin technology. The alert system aims to minimize the time emergency vehicles spend in traffic by providing the optimal route based on real-time road conditions.

Busan Eco Delta City has also built a tsunami and earthquake early warning system using sensors installed on submarine communication cables and earthquake monitoring equipment to reduce the early warning time to 20 seconds or less.

New cities are working on developing their cybersecurity systems and expertise to stay ahead of cyber threats

Cybersecurity

In new cities, buildings, roads, and vehicles are monitored by smart technology tools that collect and share information. This hyper-connectivity and digitization present a variety of **cyber risks**. New cities need to prepare by taking precautions and building cybersecurity systems that protect data, transactions, and devices. They also need to stay ahead of these threats by developing their cybersecurity expertise and constantly monitoring for new threats.

NEOM plans to test a cognitive city quantum security system against cyber-attacks

NEOM has signed an agreement to build and test a cognitive city quantum security system capable of defending against **cyber-attacks** to protect the personal data of its residents. This system aims to protect all users, transactions, devices, and data in cognitive cities and is specifically designed to defend cognitive cities against cyber-attacks. This system will be tested on NEOM, and if successful, it will be exported to other cognitive cities around the world, providing billions of users with a highly secure means to authenticate, identify, and secure all forms of devices while fully guaranteeing their privacy.

Circularity

The concept of circularity refers to the reuse and recycling of resources to create a closed-loop system that minimizes resource use, pollution, waste, and carbon emissions.

Circular economy principles provide an opportunity to recognize and capture the full value of water. New city projects are being designed with innovative technologies to address water scarcity and other challenges through water conservation, wastewater treatment, etc.

As circularity promotes better use of resources, especially given the water scarcity and climate change challenges, minimizing the resources (water and energy) required for food production is a key focus area for new cities. New cities are focusing on developing resilient food systems using smart and sustainable solutions to grow, process, transport, and distribute food while ensuring easy access to healthy food for residents.

A circular economy relies on waste management solutions. New cities develop smart solutions for sustainable waste management and create an efficient waste industry by recycling organic waste or adopting zero-waste policies.

Sources: *UNCTAD "Circular economy can help stem biodiversity loss" (2022), press search*

infomineo

New cities focus on reducing and reusing water, realizing the importance of preserving water sources

Water

New cities are using innovative technologies to monitor and reduce **water consumption**. Water scarcity is one of the biggest issues facing cities. This is especially true for new cities being built in desert areas. New city projects are focusing on water reuse and recycling to conserve local water sources.

Telosa is aiming to create a drought-resistant water system

Telosa aims to ensure a diverse and clean water supply by using capture and storage systems. Water will be distributed efficiently through smart metering and innovative approaches to leak detection. The city is aiming to **capture and recycle** water for multiple uses, minimizing demand on the region's natural water sources.

Masdar City aims to reduce, recycle, and reuse water

Masdar City has ambitious and comprehensive **water management** plans, including reducing water consumption, recycling gray water, and reducing water leakage. To improve water efficiency, the city is introducing smart water meters, water tariffs, and efficient micro-irrigation. The city also plans to harvest rainwater and use desalination technology to tap water from the nearby Persian Gulf. All wastewater in Masdar City will be recycled through a bioreactor and used for landscaping and agriculture. The city is also piloting a project to extract water from the atmosphere.

Sources: city websites, press search

New cities are reducing, repurposing, and recycling waste to enhance circularity and sustainability

Waste

New cities are developing comprehensive **waste management** strategies that emphasize waste reduction. They are focusing on creating more circular models that encourage the reuse and recycling of materials to reduce resource and energy demands and recover value from waste.

Waste will be transported, reused, and recycled in Masdar City

Masdar City plans to reduce waste through an **easy-to-use recycling program** implemented throughout the city. Waste is mainly divided into three streams: dry recyclables, wet recyclables , and residuals. These streams of recyclables will have easily accessible depositories integrated into every building in Masdar, making recycling second nature. A fourth stream will collect hazardous materials such as batteries and medical waste. The waste streams will be collected and transported to recycling facilities, and wet organic waste will be composted for landscaping and agricultural use.

Telosa will rely on smart technologies to reduce waste in the city

Telosa will deploy artificial intelligence, 3D printing, and advanced monitors and sensors to improve service delivery and reduce waste. The city will also feature an underground movement system to safely and cleanly transport waste and other goods.

Sources: city websites, press search

New cities prioritize circularity and local food production, recognizing the challenges climate change poses to agricultural systems.

Food

New city projects aim to be **self-sufficient**, highlighting the importance of local food production. As climate change poses a threat to agricultural systems in general, creating a sustainable food system that can withstand challenging environments is essential for new cities. New city projects focus on minimizing water and energy use through **regenerative and smart agriculture**. They also prioritize circularity, ensuring that their food systems reuse and minimize waste.

NEOM will experiment with sustainable and innovative technologies for food security

NEOM aims to demonstrate how regions with challenging environmental conditions can become independent and self-sufficient in terms of their food supply. The city plans to use **regenerative and technologically advanced agriculture** to create a sustainable, climate-resilient food system. The city will also strive to minimize food waste and maximize the conversion of organic waste into agricultural inputs. This is especially important in a desert environment, where organic matter should be considered a precious resource. The city is also experimenting with **gene-editing technologies** to modify new species or varieties of plants that are drought-adapted or salt-tolerant. NEOM will also use biotechnology to promote responsible and sustainable **aquaculture**. Genomic intervention technologies in hatcheries will accelerate productivity while preserving the marine ecosystem.

What are the potential challenges for new cities?

Challenges

Financing a new city project and attracting new residents are two of the major challenges facing new cities

Project funding

A major challenge in building new cities from the ground up is cash flow. New cities require significant investments in very basic infrastructure (electricity, roads, telecommunications, water, etc.) that we take for granted. These investments also increase exponentially with the expected population size, as some of these cities aim to attract millions of residents.

However, national governments can choose to invest in these projects without looking for an immediate profit, as these projects serve larger, long-term purposes and are part of their vision. These can range from economic benefits to political goals.

Attracting residents

Another challenge is attracting residents, especially in the early stages of a project. After all, human capital is what determines the wealth of the city. Even if the city offers better infrastructure and services, building community is essential to making these cities livable. Even if people are willing to move, finding decent jobs in these new cities may not be easy.

However, as investment begins to flow, jobs will eventually follow. Governments may also decide to invest in projects to create employment opportunities.

Sources: Deloitte "Funding and financing strategies for smart cities", press search

Challenges

A successful new city is one that is inclusive of all groups of people and protects its residents' privacy

Privacy concerns

Privacy is also a challenge in new cities. As new cities rely on data to enhance residents' experiences, cameras and sensors are installed throughout the city to collect data. However, this data can also be used to track citizens and invade their privacy.

Cities must take steps to ensure that data is collected responsibly and used ethically. This includes having clear policies about how data is collected and used, as well as ensuring that citizens are informed about how their data is being used. Cities also need to store data securely to prevent unauthorized access.

Social inclusivity

New cities need to be designed to serve citizens at all socio-economic levels, not just as a mechanism for generating profit. It is important that new cities involve and consider all groups of people, not just the affluent and technologically savvy. The aim should be to bring people together, rather than divide them based on education levels or even income.

Sources: press search

What opportunities do new cities present?

Opportunities

While new city projects require significant initial investment, countries implementing these projects are expected to witness high economic growth

Economic development

A key driver in the development of new cities is attracting investment, increasing employment, and shaping the economy:

Increased Investment: New city projects are designed to be ideal business and investment environments that are considered more flexible than the rest of the country to attract capital and cater to foreign and national interests with favorable legislation and tax incentives.
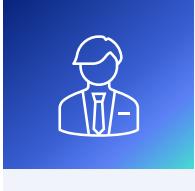
Job creation: While technologies will eliminate some jobs, such as administrative and field jobs, new employment opportunities are also likely to arise. As new city projects are built purposefully to become business hubs, the increase in the number of companies choosing to set up operations in new cities will contribute to increasing job opportunities

Testing new strategies: These development strategies are intended to leapfrog economic growth by boosting the competitiveness of specific sectors. New cities can also be part of larger national strategies of economic diversification and foster competitive "knowledge economies", particularly in preparation for a post-oil future.

Sources: press search

Opportunities

New cities are planning to attract residents by offering a better quality of life

Quality of life

New cities promise a better quality of life for their residents. That is why new city projects are built from the ground up with an emphasis on several quality of life dimensions:

Efficiency: New cities are designed with a better architectural and mobility master plan, emphasizing convenience and accessibility to all amenities to reduce commute times and improve the quality of life for all residents.

Environmental quality: New cities purposefully include more green spaces and landscapes, providing several public recreational facilities for residents, tenants, and visitors to enjoy. They are also focusing on reducing emissions and improving air quality through energy efficiency measures and sustainable mobility solutions.

Safety: New cities are planning to adopt technological solutions to protect their people from crime and keep the streets safe. This promotes immeasurable benefits, including the residents' peace of mind, which in turn improves happiness and productivity.

Health: New cities are focusing on facilitating access to healthcare through technology, making healthcare more accessible and equitable. They are also taking a more proactive approach to healthcare, focusing on prevention. The physical, mental, and overall wellbeing of residents will be taken into consideration to be able to provide holistic and tailored care.

Sources: press search

Conclusion

New cities are the future of urban development. They are designed to be smart and sustainable. They are also designed with quality of life and community in mind.

Building a new city from the ground up is a project that comes with its benefits as well as its challenges. Some of the perceived challenges include finding ways to finance these projects to complete the project according to their vision, as well as attracting residents especially during the early stages of development.

On the other hand, new cities offer a variety of opportunities to implement disruptive technologies and new strategies that they're not able to apply in existing cities. They can also create a better quality of life to ensure the prosperity and well-being of future generations.

infomineo