Smart Land

from Smart City ⟶ to a city actively working toward the improvement of the quality of life of its dwellers

Smart Land
(how to build) a sustainable, smart and inclusive land

By Federico Della Puppa and Roberto Masiero

Who is it intended for

Addressed to politicians, administrators, stakeholders, professional societies, as well as organizations, associations, and citizens, this manifesto aims to promote a new approach toward development, grounded on quality of life not only within city boundaries, but also around open lands

What does Smart Land mean

A Smart Land is a land area where outreach and shared policies improve both the competitiveness and the attractiveness of the territory, with a specific view to social cohesion, dissemination of knowledge, growth of creativity. Smart Land also implies an outlook on accessibility, freedom of transfer, user-friendliness of the environment (from its historical and architectural features, to its urban and broad-based ones). Finally, Smart Land accounts for both the quality of landscape and the life of residents

Circles on the landscape collage: Citizenship, Energy, Economy, Mobility, Development, Skills, Identity, Landscape

---

Citizenship

Within a Smart Land citizenship becomes active, as forms of grassroots involvement and sharing of development plans match a new interaction and integration modality between administrators and social forces, be them stakeholders, groups, associations, or private citizens

This entails the complete enforcement of the deed of subsidiarity, envisaged by the Italian Constitution, which demands that, with regard to the public assets, decisions made by institutions and administrators are to be shared on a social base. Today this can be easily achieved thanks to digital technologies. Said decisions are to be assessed in reason of their inclusiveness: indeed, on no account residents are to be envisaged as valets.

Actions:
• residents are to partake in the dissemination of knowledge and information, against a framework of long-life learning achieved through new technologies and the implementation of widespread information networks, as well as actions aimed to promote a solid IT literacy

• cultural, social, as well as ethnic integration is to be promoted, both within and between generations. This is to be achieved through cultural interchange and promotion of actions toward active citizenship, involving resident associations, social groups, and private individuals.

• conditions are to be devised that aim at the promotion of social cohesion and involvement, removing social, cultural and physical hindrances that prevent residents from a complete accessibility.

Development

Across a smart land, development is achieved through the implementation of a network of broad networks, in which stakeholders and communities are allowed to play an active role, draft projects, as well as programs and processes whose node lies in a disseminated and shared know-how that businesses can embrace in order to increase their competitiveness and ability to create job positions at a local level. This also leads to the promotion of the land as a common asset to safeguard and value in terms of cultural and tourist returns, ensuring accessibility and optimizing flows

The strategic framework of the guidelines for development is not to be conceived merely on economic criteria. On the contrary, it must account for a long-term vision of the common welfare, along with the safeguard of residents' rights. Involvement of all subjects is crucial toward encouraging change and development.

Actions:
• deliver a strategic development plan, that highlights and defines all actions aimed at the implementation of the Smart Land at a local level. Vision, objectives and specific action plans, along with funding possibilities, are to be defined through a partaken and shared pathway

• active promotion of sustainable development, backing European and national policies at local level and integrating such policies with specific measures and actions to subsidize municipalities

• implementation of strategic partnerships with universities, formal and informal training agencies, and other skilled actors, with a view to encourage a growth of the "economy of knowledge" at local level

• value the cultural heritage (environmental, historical, architectural, scientific and professional) along with its own traditions, and place them back into the network as a "shared asset" for its own residents and visitors

• shape environments supportive of the establishment of new businesses and innovative start-ups related to new vocations in the fields of creativity and knowledge

Energy

Energy Production and Management in a smart land must be diffused and well-structured. All most innovative systems are to be adopted, linked to Smart Grids and diffused networks; also, actions of cogeneration and allocated generation are to be encouraged, in order to facilitate investments into renewable energies as well as promote a reasonable use of energy, aiming at energy save at all level, from public to private buildings

Key principle is an implementation of all forms of alternative and renewable energies, ensuring that all economic and social spin-offs are to stand within production areas. This may be possible through actions of promotion of land and energy plans implemented by public and private subjects on the base of land agreements. Accordingly, start-up processes and new entrepreneurship may be triggered in this sector.

Actions:
• mobilize economic and social forces in favor of virtuous social and economic actions, encouraging teamwork with interested actors, so as to implement the adoption of energy efficient options at a local level through long-term commitment planning, i.e. the "Patto dei Sindaci" (Land mayors' agreement), which manages to allocate resources to accomplish such policies

• trim down power consumption, starting from street lightning, and promoting energy efficiency in construction industry in order to cut costs and negative impact of heating and air-conditioning

• reduce greenhouse emissions through a limitation of private cars, and support a decrease/optimization of industrial emissions through the implementation of state-of-the-art energy and waste management systems (i.e., APEA, Eco-friendly Industrial Production Areas)

• cut down waste output, through an increase of separate waste collection, and an economic assessment of the recycling chain

Mobility

Smart Lands feature a mobility that is easy and effortless. Public transport grows in terms of service quality, making eco-friendly vehicles available to the community. Likewise, alternative transport routes are implemented for private mobility, and traffic calming devices are put in service across urban old towns, boroughs, as well as residential areas. Within Smart Lands, new infrastructures are paired with "info-structures" able to promote for residents an improved accessibility to neighboring areas, as well as networks of greater extra-urban mobility

Draft an urban plan for mobility, improving the available road network, favoring commuting routes through a restriction of access to old towns, so as to enhance suitability for living, with the implementation of pedestrian areas and traffic calming devices able to check on speed of crossing within residential areas.

Actions:
• safeguard an appropriate availability of innovative and sustainable public transport, through a support of the adoption of eco-friendly vehicles, mainly bicycles. To this end, bike sharing posts, paired with off-center parking lots are to be implemented

• adopt advanced solutions of mobility management that allow to channel local flows out into greater connection routes, without pushing on private vehicles, while encouraging car sharing and car pooling options, through apposite educational campaigns targeted to the sharing of private means of transport

• Implement advanced communication and information systems that allow a dialogue on mobility both between administrators and residents, and among dwellers themselves

---

Economy

Within a smart land, the economy develops mainly through patterns of interaction between residents and businesses. This generate an ongoing "learning tool", characterized by strong bonds between training models and entrepreneurship, with a specific focus on the implementation of creativity, on the support of start-up training, and facilitating the set up of think-tanks

Dissemination of business incubators is a crucial step, along with development of processes, in respect to the guidelines from the digital Agency. Creativity and shared knowledge are to be subsidized. The world of traditions is to be integrated with new technologies, as these latter may deliver forms of development. All subjects, and in particular the banking system, are to be involved in these processes. Today, what is local goes global, and what is global affects the local.

Actions:
• current production network is to be improved through actions of fine-tuning of services in support of businesses and, where viable, eco-friendly production areas (APEA) are to be implemented, in respect to the guidelines from the EU

• businesses operating in the conversion of manufacture toward environmentally-friendly products and production systems are to be supported through European guidelines associated to ETAP and ECOAP, with respect to guidelines from the Ministry of the Environment

• everyone is to have accessibility with regard to IT and technological networks, through actions of governance upon agreements with service providers, so as a milieu can be achieved, that is open to competitiveness, creativity, and inclusiveness within social networks, and with the involvement of stakeholders and local communities

• improvement and renovation are to be encouraged, along with active maintenance of the available assets, in terms of quality enhancement, energy saving, and enrichment of welfare and quality of life

Identity

Acting as an identity-making place, a smart land includes the diverse identities of land, environment, craftsmanship, culture, economy, landscape, production. These can be best articulated when adequately treasured within patterns of offer adopting advanced tools to promote pathways, mappings, contents that value them with regard to their specificity and that increase their actual and recognized asset

Identity cannot be defined as "how we used to be". It must be "how we can and are willing to be in the future" ("I will be what I will be"). Accordingly, action plans are to be focused on the construction of a local identity grounded on the common tangible and intangible heritage, which is to be treasured with respect to both said levels.

Actions:
• cultural heritage is to be valued, along with knowledge, places and one's own traditions. This is to be returned back to the network as "common asset", available to all residents and visitors

• treasure one's own identity, favoring the reutilization and the valorization of what is available, in a renewal based on the safeguard and maintenance of available assets. This will lead to accessibility of environmental, landscape, cultural contents, as well as architectural, historical, urban, productive, and economic ones. Finally, any given element that stands as a land "fingerprint" of the community is to be accessible, and this will implement the subjects of the smart community in compliance with the guidelines from the EU

• uphold one's own identity through a smart presence on the web and on the new media, making use of advanced techniques in order to devise shared pathways and thematic mappings of one's own land and making them easily available

• promote a harmonized and smart proposal of one's own tourist offer on the web, through a strategic and methodical use of the new media, with specific regard to the social networks

Skills

Skills, knowledge and culture play a relevant role within Smart Lands, with specific regard to development policies, through the implementation of extended and integrated networks of knowledge, thus facilitating the construction of think-tanks and ensuring a synergy among all cultural, productive and non-productive components of craftsmanship, as well as high-profile training available in the area

Activate processes of continuous training anywhere, updating skills, crossbreeding between academic and non-academic know-how, local and non-local, traditional and non-traditional one. This is to be achieved through involvement of all subjects, formal and informal, institutional and non-institutional, that may contribute to common development.

Azioni:
• active promotion toward the growth of an economy of knowledge and tolerance as basic factors to produce know-how and increase skills in the land, either at social and inclusive level, and at economic and productive scope

• encourage life-long learning and customized training modules

• offer an environment that fosters creativity, through stimulation of innovations and experimentations in the fields of art, culture, and performing arts

• improve and ensure accessibility to IT networks

• sustain inclusiveness within social contexts, through the involvement of stakeholders and their communities, so as to give voice to the comprehensive knowledge heritage. Through co-sharing and new technologies, such heritage can offspring cultural, social and economic advancement

• make room, provide opportunities, tools and platforms of interaction in order to encourage free knowledge, favoring peer-to-peer approaches, where knowledge is open and disseminated

Landscape

Within Smart Lands, landscape care does not mean only safeguard of available assets, but also improvement of processes that value the landscape, from waste management to reduction of greenhouse emissions, from restriction of private vehicle circulation to urban and land regeneration, upon patterns oriented to the quality of life and milieus, supportive of soil-save, through reclamations and reuse of brownfields, to the purpose of enhancing land offer and fruition

In accordance with the European Landscape Agreement, the landscape "... indicates a specific part of the land, as features stem from the action of natural and/or artificial factors and from their interdependence". Such agreement expects to deem all landscapes independently from preordained criteria of appeal or uniqueness; and actually, it expressively includes "...land landscapes, internal waterways, and seas. It is comprehensive of either landscapes that may be regarded as an exceptional asset, and daily-related landscapes, along with spoiled ones." The European Landscape Agreement opens up to what may be considered the new ethic for the third millennium, inasmuch as it provides for the principle of equal dignity and of the due respect of all cultures, along with maintaining that such cultures are intimately associated to their own land, their own environment, their own landscape.

Actions:
• limit soil consumption and encourage valorization of landscape as the milestone of land identity. This is to be achieved through specific rules applied to regulations of management of municipal lands. Innovative forms of safeguard and preservation are to be implemented as well

• promote, protect, enhance and manage urban green areas

• reclaim and recover brownfields, in compliance with European models of urban, environmental and social regeneration, as it is encouraged by the acquis urban and by new models of intervention of the future planning 2014-2020
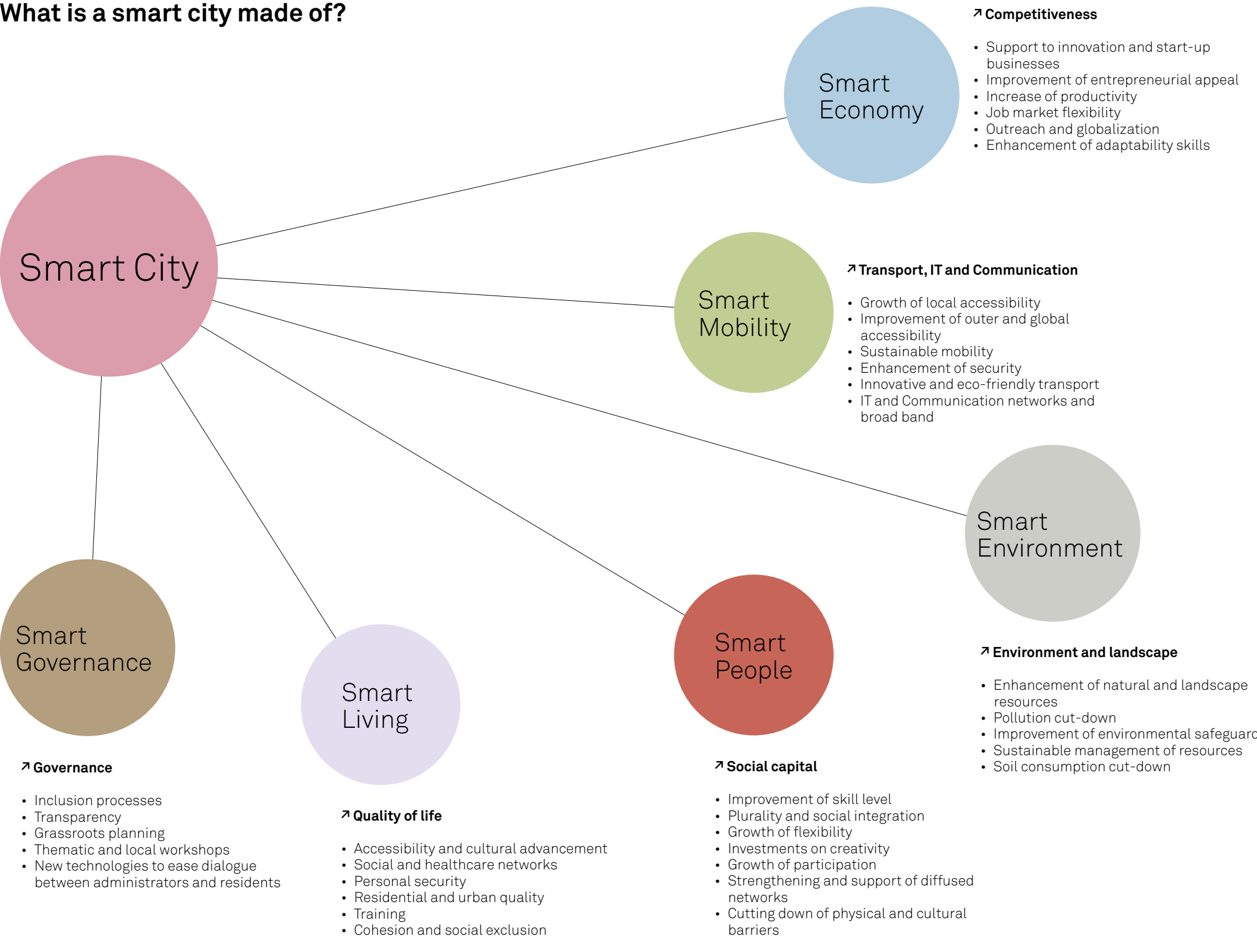
Smart City

Smart City

Smart cities are the cities of the future, where more services are made available to residents and businesses with lower resources, through the adoption of state-of-the-art technologies and smart management systems able to cut wastes and negative impacts, be they affecting the environment, the economy, the society. A smart city features lower pollution, lower waste production. Waste is eventually recycled in order to downscale the use of raw materials. Energy is saved as it comes from renewable resources. Traffic is controlled through an increase of public and alternative transport.

The use of private vehicles is cut down through the stimulation of car-sharing, as well as subsidizing the implementation of car-pooling and bike-sharing services. Social exclusion is tackled through active policies of involvement, focused on different forms of need. Unequal access to services and the very use of the city are reduced, as well as architectural, physical and cultural barriers. Smart Cities adopt smart technologies to build a more sustainable urban environment, with the scope of implementing a context of inclusiveness, which appeals to residents, welcomes, cares, and befriends them toward their own fulfillment.

Smart Cities are an organic city, a network of network, able, at urban space level, to take up the challenge of globalization in terms of an increase of competitiveness appeal, inclusiveness. As they target six axes -economy, mobility, environment, people, quality of life and governance, smart cities grow more high-tech, more interconnected, cleaner, more appealing, safer, homelier, more efficient, more open and cooperative, more creative and more sustainable
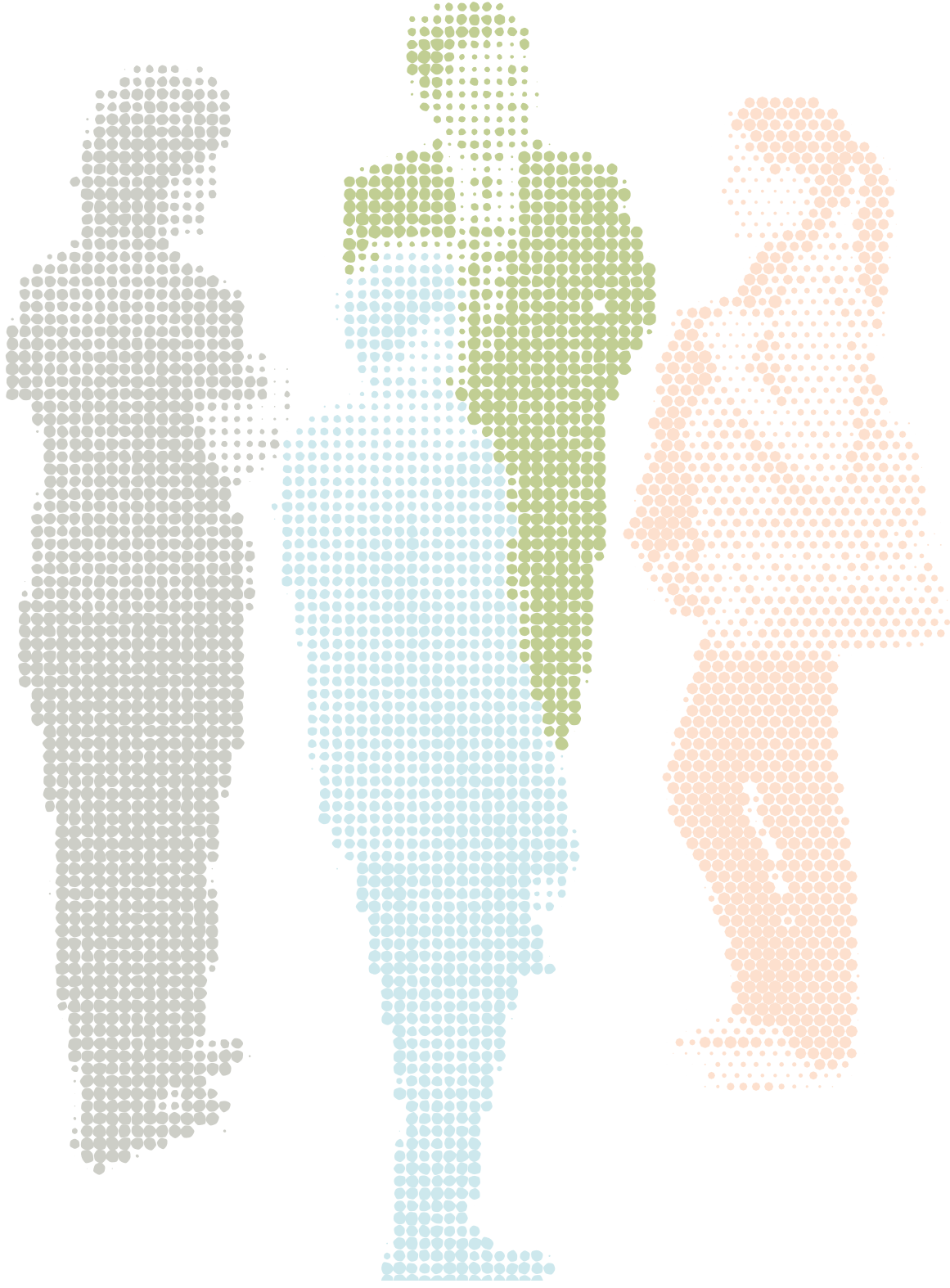
What is a smart city made of?

↗ Competitiveness (Smart Economy)
- Support to innovation and start-up businesses
- Improvement of entrepreneurial appeal
- Increases of productivity
- Job market flexibility
- Outreach and globalization
- Enhancement of adaptability skills

↗ Transport, IT and Communication (Smart Mobility)
- Growth of local accessibility
- Improvement of outer and global accessibility
- Sustainable mobility
- Enhancement of security
- Innovative and eco-friendly transport
- IT and Communication networks and broad band

↗ Environment and landscape (Smart Environment)
- Enhancement of natural and landscape resources
- Pollution cut-down
- Improvement of environmental safeguard
- Sustainable management of resources
- Soil consumption cut-down

↗ Governance (Smart Governance)
- Inclusion processes
- Transparency
- Grassroots planning
- Thematic and local workshops
- New technologies to ease dialogue between administrators and residents

↗ Quality of life (Smart Living)
- Accessibility and cultural advancement
- Social and healthcare networks
- Personal security
- Residential and urban quality
- Training
- Cohesion and social exclusion

↗ Social capital (Smart People)
- Improvement of skill level
- Plurality and social integration
- Growth of flexibility
- Investments on creativity
- Growth of participation
- Strengthening and support of diffused networks
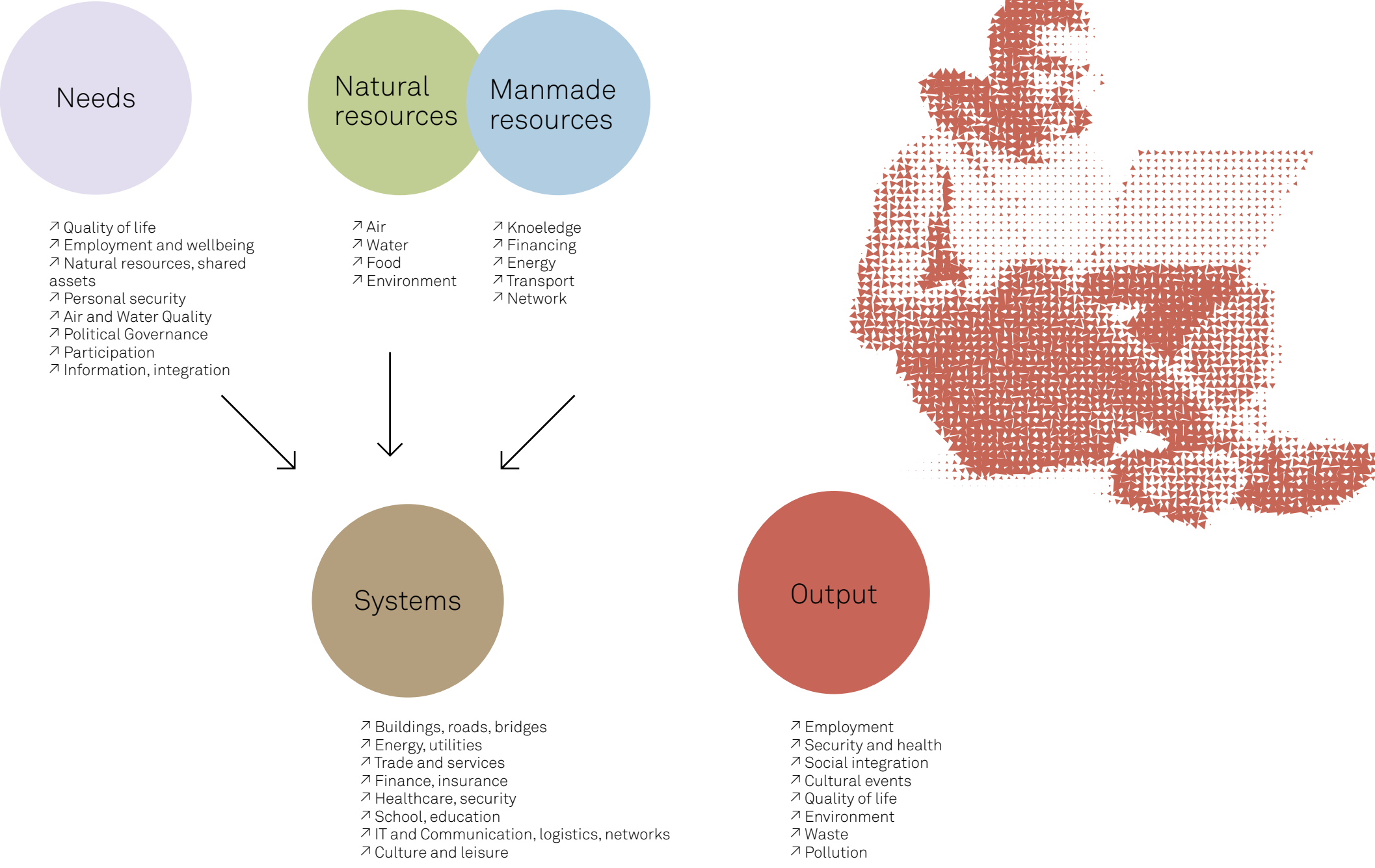- Cutting down of physical and cultural barriers

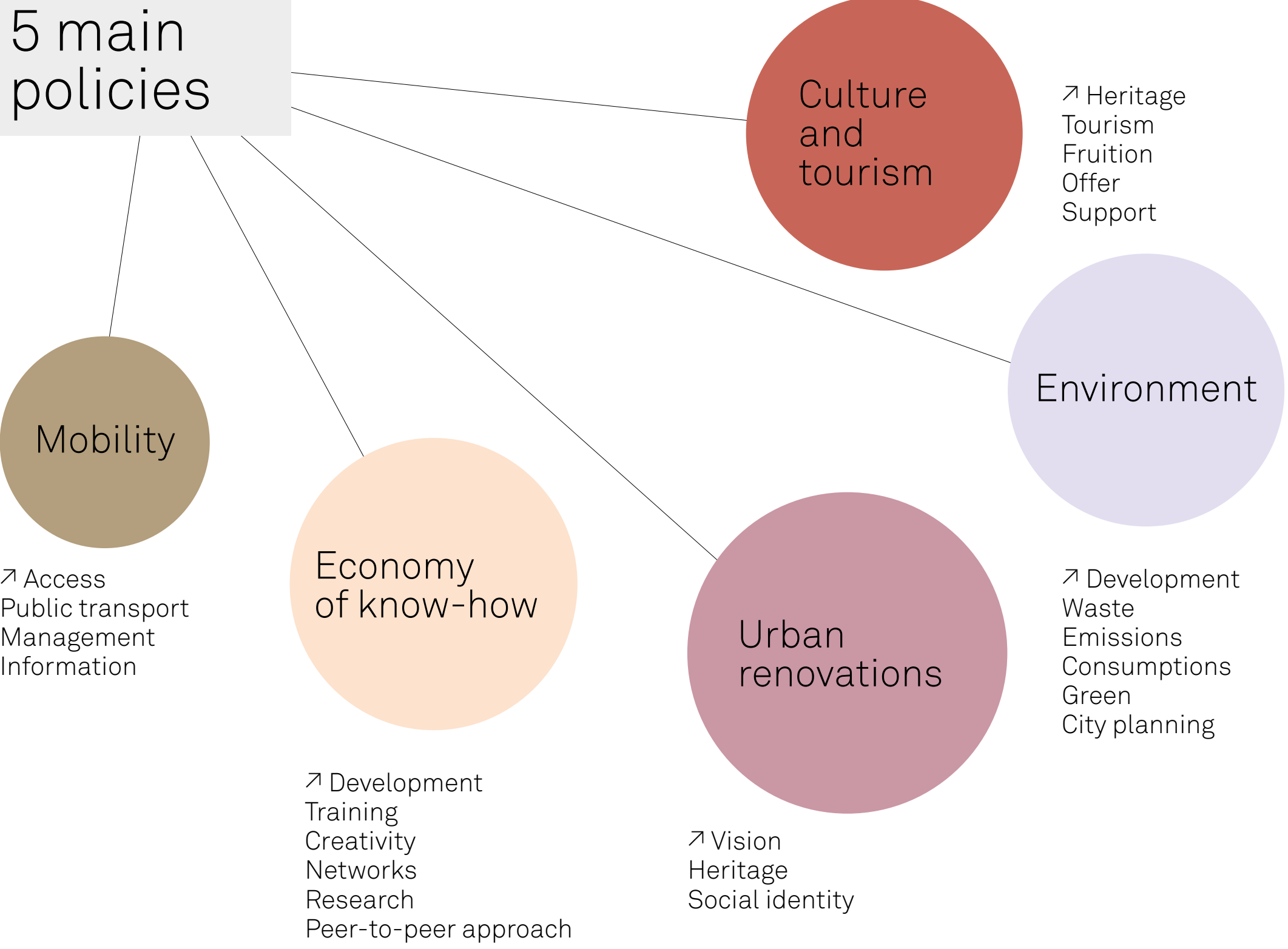## What is needed to implement a smart city

Smart Cities are not a project, as they are a pathway that is to be established with the support of state-of-the-art technologies. As it is a process, **governance** plays a main role, i.e., the implementation of management systems able to optimize the network of services that a smart city either must offer (lowest offer level), and can offer (potential level of offer)
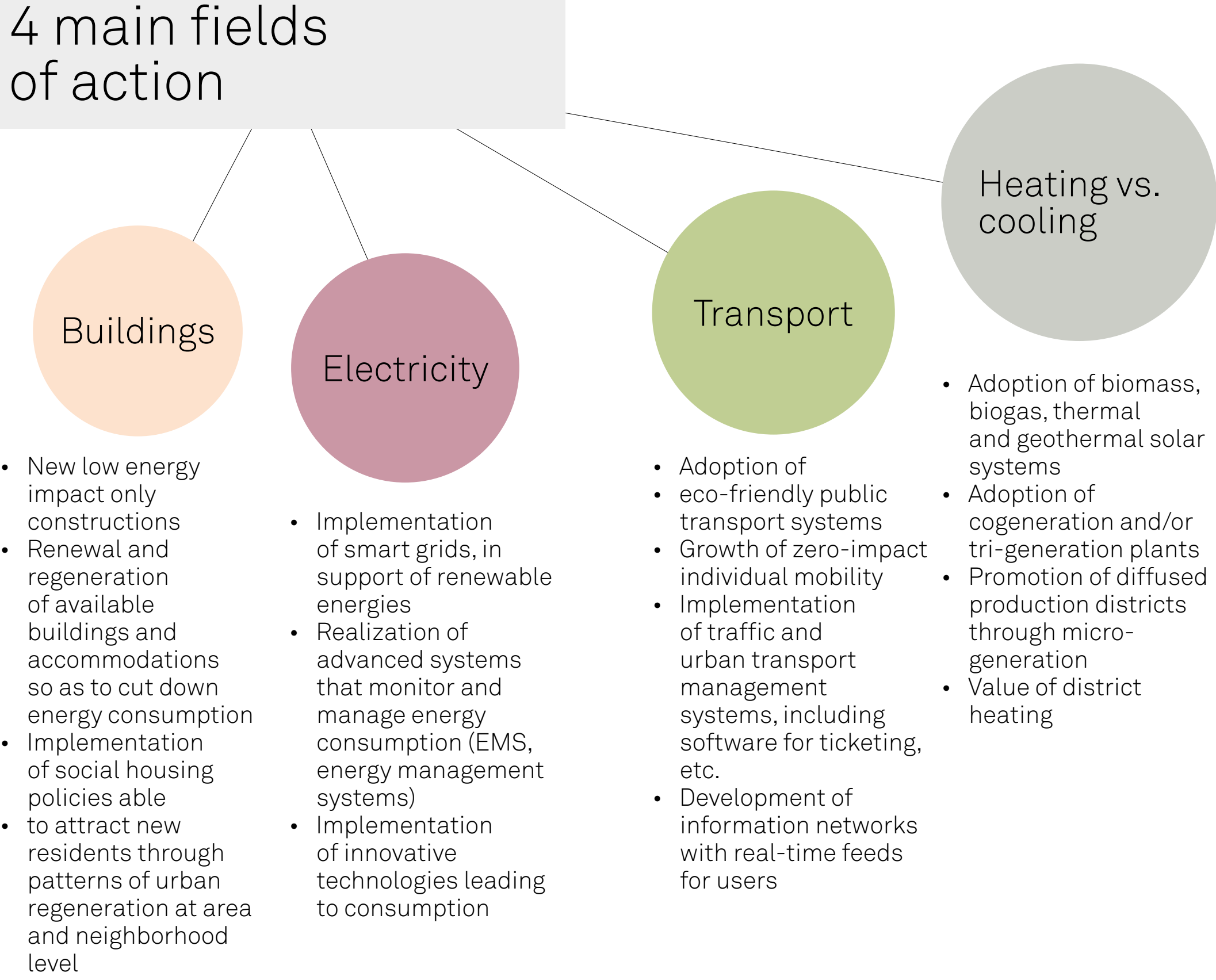
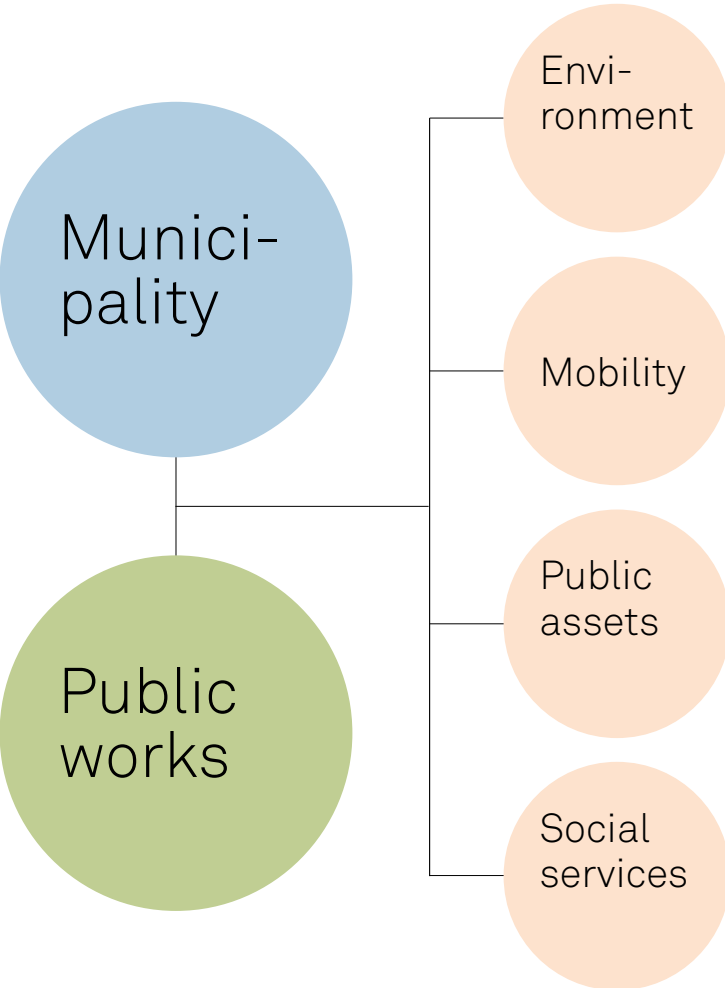## What is the rational pathway to build a smart city

Needs
- ↗ Quality of life
- ↗ Employment and wellbeing
- ↗ Natural resources, shared assets
- ↗ Personal security
- ↗ Air and Water Quality
- ↗ Political Governance
- ↗ Participation
- ↗ Information, integration

Natural resources
- ↗ Air
- ↗ Water
- ↗ Food
- ↗ Environment

Manmade resources
- ↗ Knoeledge
- ↗ Financing
- ↗ Energy
- ↗ Transport
- ↗ Network

Systems
- ↗ Buildings, roads, bridges
- ↗ Energy, utilities
- ↗ Trade and services
- ↗ Finance, insurance
- ↗ Healthcare, security
- ↗ School, education
- ↗ IT and Communication, logistics, networks
- ↗ Culture and leisure

Output
- ↗ Employment
- ↗ Security and health
- ↗ Social integration
- ↗ Cultural events
- ↗ Quality of life
- ↗ Environment
- ↗ Waste
- ↗ Pollution

5 main policies

Culture and tourism
↗ Heritage
Tourism
Fruition
Offer
Support

Environment
↗ Development
Waste
Emissions
Consumptions
Green
City planning

Mobility
↗ Access
Public transport
Management
Information

Economy of know-how
↗ Development
Training
Creativity
Networks
Research
Peer-to-peer approach

Urban renovations
↗ Vision
Heritage
Social identity

4 main fields of action

Buildings
- New low energy impact only constructions
- Renewal and regeneration of available buildings and accommodations so as to cut down energy consumption
- Implementation of social housing policies able
- to attract new residents through patterns of urban regeneration at area and neighborhood level

Electricity
- Implementation of smart grids, in support of renewable energies
- Realization of advanced systems that monitor and manage energy consumption (EMS, energy management systems)
- Implementation of innovative technologies leading to consumption

Transport
- Adoption of eco-friendly public transport systems
- Growth of zero-impact individual mobility
- Implementation of traffic and urban transport management systems, including software for ticketing, etc.
- Development of information networks with real-time feeds for users

Heating vs. cooling
- Adoption of biomass, biogas, thermal and geothermal solar systems
- Adoption of cogeneration and/or tri-generation plants
- Promotion of diffused production districts through micro-generation
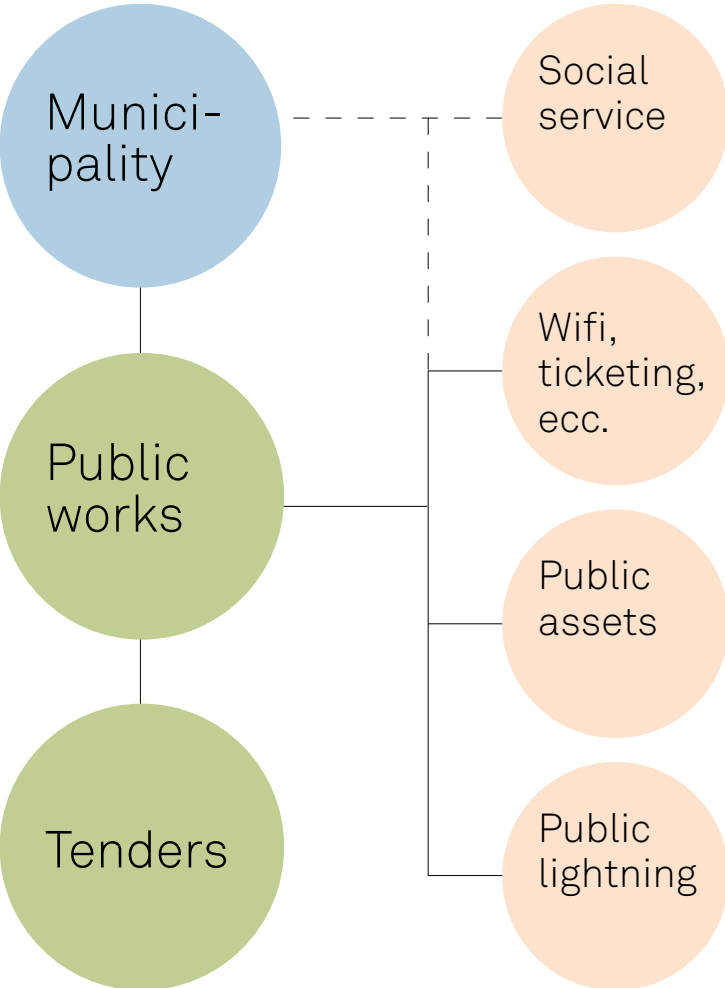- Value of district heating

3 action plans

Smart strategy 1: "Everything within"

The municipality entrusts its services with the study and provision of feasible actions to achieve

Municipality management is liable for all investment costs and likely management revenues

Municipality departments plan and accomplish facilities

Referee-reviewed services define and structure services in keeping with "service records" that state level, provision, and quality of services offered to users

Municipality — Environment, Mobility, Public assets, Social services
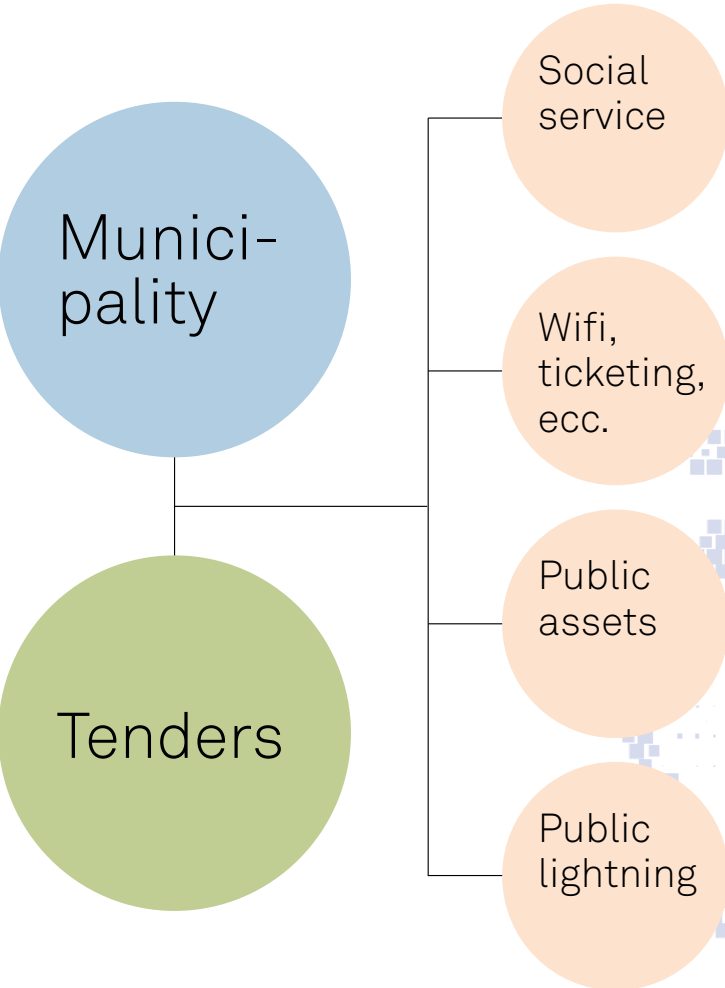Public works

Smart strategy 2: "Mixed"

The municipality entrusts its services with the study and actions to achieve, subcontracting expert technical advisors

Municipality departments plan and/or (where useful) accomplish facilities relying on outsourced expert advice

Municipality offices invite tenders toward the fulfillment of works, and/or to commend provision of services

Municipality management is liable for all investment costs, and revenues from management lease are expected

Municipality — Social service, Wifi, ticketing, ecc., Public assets, Public lightning
Public works
Tenders

Smart strategy 3: "Everything out"

The municipality commends its services and, upon specific requests, the study and provision of feasible actions to achieve, subcontracting expert advisors for feasibility studies

Through tenders (project financing, letters of intent, etc.) that may locate executors/ authorities, depending on the typology of work and services

The investment costs and the revenues are in charge of executors. On the basis of the feasibility studies' outputs, the Municipality can define a grant in order to achieve

the best results. The Municipality can also define a reduction of the grant, depending on the achievement of the public services activated.

Municipality — Social service, Wifi, ticketing, ecc., Public assets, Public lightning
Tenders

Fondazione Francesco Fabbri

THEOREMA