Appendix 2
Long List of Mapped Indicators

Revision 4

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Table of Content

Name of the framework

2000-Watt-Areale. Handbuch zum Energiestadt Zertifikat für 2000-Watt-Areale. Version 2015 [2000-Watt-Areas.. Handbook for the 'Energiestadt' Certification of 2000-Watt-Areas. Version 2015]

Framwork	Subtheme	Indicator Title
2000 Watt 2014 en	Access to services	Shoping, mail service, cash service, delivery service
2000 Watt 2014 en	Economic performance	Economic development (optimization of space usage)
2000 Watt 2014 en	Economic performance	Energy System (optimization of local produktion/demand)
2000 Watt 2014 en	Economic performance	Information system (information service to optimize energy consumption)
2000 Watt 2014 en	Economic performance	Optimization operations (heating, venting and cooling)
2000 Watt 2014 en	Economic performance	Population (diversity of users and target groups)
2000 Watt 2014 en	Energy and mitigation	CO_2 per person and year
2000 Watt 2014 en	Environment	public space
2000 Watt 2014 en	Equity	Promotion of dialog and participation in decision-making
2000 Watt 2014 en	Equity	Quality management, reporting
2000 Watt 2014 en	Quality of housing and of the built environment	Invention of different building labels
2000 Watt 2014 en	Quality of housing and of the built environment	mixed usage
2000 Watt 2014 en	Quality of housing and of the built environment	Traffic
2000 Watt 2014 en	Quality of housing and of the built environment	Urban structure
2000 Watt 2014 en	Resources	energy system
2000 Watt 2014 en	Resources	Resource recycling
2000 Watt 2014 en	Resources	water
2000 Watt 2014 en	Safety	pedestrian paths, bicycle paths
2000 Watt 2014 en	Safety	Signposting
2000 Watt 2014 en	Safety	Traffic safety

Name of the framework

2DECIDE project indicators. 2DECIDE = Toolkit for sustainable decision making in ITS deployment

Framwork	Subtheme	Indicator Title
2Decide	Accessibility	Additional travel time caused by incidents
2Decide	Accessibility	Amount of traffic, number of all vehicles
2Decide	Accessibility	Availability of inter-modal transfers
2Decide	Accessibility	Availability (up-time)
2Decide	Accessibility	Average delay per vehicle kilometre (congestion)
2Decide	Accessibility	Average spot speed
2Decide	Accessibility	Average travel speed
2Decide	Accessibility	Average Travel time in peak periods
2Decide	Accessibility	Average travel time per traffic unit
2Decide	Accessibility	av Vehicle-hours/day (passengers car and truck) per vehicle
2Decide	Accessibility	av vehicle-km/day (passenger and truck) per vehicle
2Decide	Accessibility	Capacities at intermodal terminals
2Decide	Accessibility	Capacity of truck parking on corridors
2Decide	Accessibility	Daily hours of delay
2Decide	Accessibility	Demand/Capacity on main routes (Volume/Capacity ratios)
2Decide	Accessibility	Door-to-door freight travel time
2Decide	Accessibility	Freight traffic by mode on corridor
2Decide	Accessibility	Level of intermodal rail traffic
2Decide	Accessibility	Level of public transport inter-modal transfers
2Decide	Accessibility	Level of use of Park-and-Ride facilities
2Decide	Accessibility	Load factors on main routes
2Decide	Accessibility	Off-peak service frequency on main routes
2Decide	Accessibility	Peak-hour service frequency on main routes
2Decide	Accessibility	total tonne-km
2Decide	Accessibility	Total Vehicle kilometers driven (Veh km) passenger cars and trucks

2Decide	Accessibility	Travel comfort experienced by users
2Decide	Accessibility	Vehicle-hours/year
2Decide	Accessibility	Vehicle km travelled in congestion
2Decide	Access to services	Physical coverage of target area or network targeted
2Decide	Access to services	Reliability (number of failures per instance of use)
2Decide	Access to services	Reliability of Service
2Decide	Co-creation	Perceived usefulness (i.e. users find the system useful)
2Decide	Community engagement	Attitude towards using (i.e. users like the system)
2Decide	Economic performance	Annual return of investments
2Decide	Economic performance	CBR (Cost benefit Ratio)
2Decide	Economic performance	Changes in network investments or maintenance costs
2Decide	Economic performance	Costs per public transport
2Decide	Economic performance	Fulfillment of expectations (is the system working as planned)
2Decide	Economic performance	Investment/Implementation costs
2Decide	Economic performance	IRR (Internal rate of return)
2Decide	Economic performance	Maintenance costs (costs per year)
2Decide	Economic performance	NPV (Net Present value)
2Decide	Economic performance	Number of payment violations
2Decide	Economic performance	Operations and management costs (costs per year)
2Decide	Economic performance	Passenger loads on route
2Decide	Economic performance	Precision - duration accuracy
2Decide	Economic performance	Precision - location accuracy
2Decide	Economic performance	Revenue created
2Decide	Economic performance	Revenues per public transport passenger km
2Decide	Economic performance	Timeliness (data update interval)
2Decide	Economic performance	Users investments - intention to buy
2Decide	Economic performance	Users investments - purchase (How many solutions were sold until now)
2Decide	Economic performance	Users investments - willingness to pay
2Decide	Economic performance	Veracity (error probability)
2Decide	Economic performance	Willingness to pay (mobility)
2Decide	Economic performance	Willingness to pay (services)
2Decide	Energy and mitigation	CO_2 emissions
2Decide	Energy and mitigation	Transport energy consumption (kWh)

2Decide	Energy and mitigation	Transport energy consumption (l)
2Decide	Environment	Air quality indices of urban districts
2Decide	Environment	Noise perception
2Decide	Environment	Nox emissions
2Decide	Environment	Number of people exposed to exhaust emissions
2Decide	Innovation	Availability of public transport timetables and real-time information
2Decide	Innovation	Availability of real-time traffic and road works information (pre-trip and on-trip)
2Decide	Innovation	Availability of traffic forecasts
2Decide	Innovation	Volume traffic using specific pricing zone/link
2Decide	na	Behavioural intention to use (i.e users would buy the system, would use the system)
2Decide	na	Perceived ease of use (i.e. users find the system easy to use, clear and understandable)
2Decide	Organisation	All kind of questionnaire/interviews on users opinion and experience
2Decide	Organisation	Coverage of target events (e.g. incidents)
2Decide	Quality of housing and of the built environment	Use of truck parking on corridors
2Decide	Safety	Feeling of personal security
2Decide	Safety	Number of incidents (by type) on main corridors
2Decide	Safety	Number of Traffic accident fatalities (per traffic unit)
2Decide	Safety	Number of Traffic accident injuries (per traffic unit)
2Decide	Safety	Number of Traffic accidents (per traffic unit)
2Decide	Safety	Number of traffic violations (DWI)
2Decide	Safety	Number of traffic violations (other than DWI, signals, speeding)
2Decide	Safety	Number of traffic violations (speeding)
2Decide	Safety	Number of traffic violations (traffic signal compliance)

Name of the framework

BREEAM Communities 2012

Framwork	Subtheme	Indicator Title
BREAM	Accessibility	Access to public transport
BREAM	Accessibility	Cycling network
BREAM	Accessibility	Freight movements
BREAM	Accessibility	Hierarchy of sustainable transport
BREAM	Accessibility	Journey times
BREAM	Accessibility	Modal split
BREAM	Accessibility	Network capacity
BREAM	Accessibility	Network efficiency
BREAM	Accessibility	Parking demand
BREAM	Accessibility	Passenger movements
BREAM	Accessibility	Public transport
BREAM	Accessibility	Queue length
BREAM	Accessibility	Route changes
BREAM	Accessibility	Traffic levels
BREAM	access to services	Service frequency
BREAM	access to services	Service integration
BREAM	access to services	Service reliability
BREAM	access to services	Technical reliability
BREAM	Access to services	Children's playground
BREAM	Access to services	Demographic needs and priorities
BREAM	Access to services	Existing buildings and infrastructure
BREAM	Access to services	Leisure facilities
BREAM	Access to services	Local character and distinctiveness
BREAM	Access to services	Phasing of amenities
BREAM	Energy and mitigation	Accredited external renewables
BREAM	Energy and mitigation	Baseline Energy Demand
BREAM	Energy and mitigation	Biofuels
BREAM	Energy and mitigation	Low impact materials
BREAM	Energy and mitigation	Rainwater harvesting
BREAM	Energy and mitigation	Recognised 'local' LZC technologies
BREAM	Energy and mitigation	Renewable and low carbon installations
BREAM	Energy and mitigation	Street Lighting
BREAM	Energy and mitigation	Waste heat from a building related

		operational process
BREAM	Energy and mitigation	Waste Incineration
BREAM	Energy and mitigation	Waste management
BREAM	Equity	Economic study
BREAM	Equity	Employment provided by the development
BREAM	Equity	Infrastructure and/or facilities
BREAM	Health	Comfort
BREAM	Open government	User Information
BREAM	Policy & organisation	Air Quality
BREAM	Policy & organisation	Allowance for climate change.
BREAM	Policy & organisation	Facilitated community consultation method
BREAM	Policy & organisation	Independent facilitation
BREAM	Policy & organisation	Members of the local community and appropriate stakeholders
BREAM	Policy & organisation	Minimum consultation content
BREAM	Policy & organisation	Unavoidable damage and mitigation/compensation
BREAM	Policy & organisation	Valued ecological features
BREAM	Policy & organisation	Water pollution
BREAM	Policy & organisation	Water strategy
BREAM	Process	Transport network
BREAM	Process	Travel plans
BREAM	Quality of housing and of the built environment	Asbestos
BREAM	Quality of housing and of the built environment	Green infrastructure
BREAM	Quality of housing and of the built environment	Leisure facilities
BREAM	Quality of housing and of the built environment	Microclimate
BREAM	Quality of housing and of the built environment	Previously developed land credit
BREAM	Quality of housing and of the built environment	Prior decontamination
BREAM	Quality of housing and of the built environment	Remediation
BREAM	Quality of housing and of the built environment	Shared spaces
BREAM	Safety	Recent accident history of the area
BREAM	Safety	Safe and appealing streets
BREAM	Safety	Safe and convenient pedestrian route for urban developments

Name of the framework

Comprehensive assessment system for built environment efficiency **(CASBEE) for Cities** (Edition 2012)

Framwork	Subtheme	Indicator Title
CASBEE 2012	Access to services	Adequacy of childcare services
CASBEE 2012	Access to services	Adequacy of cultural services
CASBEE 2012	Access to services	Adequacy of education service
CASBEE 2012	Access to services	Adequacy of elderly people services
CASBEE 2012	Access to services	Adequacy of medical services
CASBEE 2012	Community	Rate of population change due births and deaths
CASBEE 2012	Community	Rate of population change due to migration
CASBEE 2012	Economic performance	Amount equivalent to gross regional product
CASBEE 2012	Economic performance	Baseline Energy Demand
CASBEE 2012	Economic performance	Outstanding local bonds
CASBEE 2012	Economic performance	Tax revenues
CASBEE 2012	Ecosystem	Ratio of green and water spaces
CASBEE 2012	Energy and mitigation	CO2 absorption by forest
CASBEE 2012	Energy and mitigation	Commercial sector
CASBEE 2012	Energy and mitigation	Industrial sector
CASBEE 2012	Energy and mitigation	Residential sector
CASBEE 2012	Energy and mitigation	Transportation sector
CASBEE 2012	Energy and mitigation	Waste and others
CASBEE 2012	Environment	Air
CASBEE 2012	Environment	Water
CASBEE 2012	Policy & organisation	Contribution in CO2 reduction in other regions
CASBEE 2012	Quality of housing and of the built environment	Adequate quality of housing
CASBEE 2012	Quality of housing and of the built environment	Crime prevention
CASBEE 2012	Quality of housing and of the built environment	Disaster preparedness
CASBEE 2012	Quality of housing and of the built environment	Traffic safety
CASBEE 2012	Resources	Recycling rate of general waste

Name of the framework

Comprehensive Assessment System for Built Environment Efficiency (CASBEE) for Urban Development (Edition 2014)
CASBEE 2014 edition contains a fundamentally revised evaluation while inheriting the basic principles of CASBEE 2007.

Framwork	Subtheme	Indicator Title
CASBEE 2014	Access to services	Convenience/welfare
CASBEE 2014	Access to services	Culture
CASBEE 2014	Economic performance	Efficiency/Rationality
CASBEE 2014	Economic performance	Growth potential
CASBEE 2014	Energy and mitigation	CO2 absorption by forest
CASBEE 2014	Environment	Biodiversity
CASBEE 2014	Environment	Greenery
CASBEE 2014	Equity	Area management
CASBEE 2014	Equity	Compliance
CASBEE 2014	Quality of housing and of the built environment	Environmentally friendly buildings
CASBEE 2014	Quality of housing and of the built environment	Harmonization with the periphery
CASBEE 2014	Quality of housing and of the built environment	Traffic/Urban structure
CASBEE 2014	Resources	Resource recycling
CASBEE 2014	Resources	Water resource
CASBEE 2014	Safety	Crime prevention
CASBEE 2014	Safety	Disaster prevention
CASBEE 2014	Safety	Traffic safety

Name of the framework

City Protocol Agreement - Anatomy indicators. Developed by TAFT - DICI Indicators. / July 2015

Framwork	Subtheme	Indicator Title
City protocol	Accessibility	Annual number of public transport trips per capita
City protocol	Accessibility	Average daily traffic jam in hours
City protocol	Accessibility	Commercial air connectivity (number of non-stop commercial air destinations)
City protocol	Accessibility	Interconnectivity between city mobility systems (integration)
City protocol	Accessibility	Kilometers of bicycle paths and lanes per 100.00population
City protocol	Accessibility	Kilometers of high capacity public transport system per 100.00population
City protocol	Accessibility	Kilometers of light passenger public transport system per 100.00population
City protocol	Accessibility	Number of personal automobiles per capita
City protocol	Accessibility	Number of two-wheel motorized vehicles per capita
City protocol	Accessibility	% Parking places off the road
City protocol	Accessibility	Percentage of commuters using a travel mode to work other than a personal vehicle
City protocol	Accessibility	Percentage of population with simultaneous alternative public transport network coverage
City protocol	Accessibility	Transportation fatalities per 100.000 population
City protocol	access to services	Public space Wi-Fi coverage %
City protocol	Access to services	Auditoriums
City protocol	Access to services	City apps sites available
City protocol	Access to services	City markets
City protocol	Access to services	Fiber optic coverage in the city
City protocol	Access to services	Malls
City protocol	Access to services	Museums
City protocol	Access to services	Number of 3G/4G connections per 100.000 population

City protocol	Access to services	Number of cell phone connections per 100.000
City protocol	Access to services	Number of internet connection per 100.000 inhabitants
City protocol	Access to services	Number of landline phone connections per 100.00
City protocol	Access to services	Number of Libraries
City protocol	Access to services	Number of subscribers to the city sports facilities
City protocol	Access to services	Open sensors platform
City protocol	Access to services	Performing arts shows
City protocol	Access to services	Rental. Commercial space pricing (eur/m2)
City protocol	Access to services	Spectators of auditoriums music (thousands)
City protocol	Access to services	Surface public sports facilities (Indoor m²) / population
City protocol	Access to services	Surface public sports facilities (outdoor m²) / population
City protocol	Access to services	Theatres
City protocol	Community	Ageing index
City protocol	Community	Feedback of the citizens in the city services performance
City protocol	Community	Gini index
City protocol	Community	Libraries (Thousands of visitors)
City protocol	Community	Number of homeless per 100.000 population
City protocol	Community	Percentage of city budget allocated culture per year
City protocol	Community	Population Density
City protocol	Community	Visitors of city museums and exhibitions
City protocol	Community engagement	Citizen social participation number of people affiliated to any NGO
City protocol	Community engagement	Degree of civic association
City protocol	Community engagement	Number of open public participation processes
City protocol	Community engagement	Number of registered voters as a percentage of the voting age population
City protocol	Community engagement	Voter participation in last city election (as a percent of eligible voters)
City protocol	Economic performance	Annual GDP growth %
City protocol	Economic performance	Assessed value of commercial and industrial properties as a percentage of total assessed value of all properties
City protocol	Economic performance	Average workers per company

City protocol	Economic performance	Capital spending as a percentage of total expenditures
City protocol	Economic performance	Debt service ratio (debt service expenditure as a percentage of a city's own source revenue)
City protocol	Economic performance	GDP per capita
City protocol	Economic performance	Household saving rate
City protocol	Economic performance	Number of businesses per 100.000 population
City protocol	Economic performance	Number of new companies per 100.000 population per year
City protocol	Economic performance	Number of new patents per 100.000 population per year
City protocol	Economic performance	Own-source revenue as a percentage of total revenues
City protocol	Economic performance	Percentage of Small and Medium Companies vs. total
City protocol	Economic performance	Tax collected as a percentage of tax billed
City protocol	Ecosystem	Percentage change in number of native species
City protocol	Education	Number of higher education degrees per 100.000 population
City protocol	Education	Number of International Masters recognition
City protocol	Education	Number of Master students / Population
City protocol	Education	Percentage of female school-aged population enrolled in schools
City protocol	Education	Percentage of male school-aged population enrolled in schools
City protocol	Education	Percentage of school-aged population enrolled in schools
City protocol	Education	Percentage of students completing primary education: survival rate
City protocol	Education	Percentage of students completing secondary education: survival rate
City protocol	Education	Primary education student/teacher ratio
City protocol	Education	Proportion of universities in the world 200 tier
City protocol	Education	Students per teacher in mandatory education
City protocol	Education	Success rate to secondary school
City protocol	Employment	Industrial available space density
City protocol	Employment	Total office space available (m²)
City protocol	Energy and mitigation	Average length of electrical interruptions (in hours)
City protocol	Energy and mitigation	Average number of electrical interruptions per customer per year

City protocol	Energy and mitigation	Energy consumption of public buildings per year (KWh/m2)
City protocol	Energy and mitigation	Energy consumption of the city per capita kWh per year
City protocol	Energy and mitigation	% low-emission light private vehicles / Total light private vehicles
City protocol	Energy and mitigation	% low-emission light prublic vehicles / Total light public vehicles
City protocol	Energy and mitigation	Number of points for electrical vehicle charging
City protocol	Energy and mitigation	Percentage of city population with authorized electrical service
City protocol	Energy and mitigation	The percentage of total energy derived from renewable sources, as a share of the city's total energy consumption
City protocol	Energy and mitigation	Total residential electrical energy use per capita (kWh/year)
City protocol	Environment	Average annual hours of water service interruption per household
City protocol	Environment	Average wind speed
City protocol	Environment	Coast line
City protocol	Environment	Electromagnetic pollution
City protocol	Environment	Fine Particulate Matter (PM2.5) concentration
City protocol	Environment	Flood risk
City protocol	Environment	Greenhouse gas emissions measured in tonnes per capita
City protocol	Environment	NO2 (nitrogen dioxide) concentration
City protocol	Environment	Noise pollution
City protocol	Environment	Number of species and number of specimens of urban trees
City protocol	Environment	O3 (ozone) concentration
City protocol	Environment	% of city groundwater over total city water
City protocol	Environment	Particulate Matter (PM10) concentration
City protocol	Environment	Percentage of city population served by wastewater collection
City protocol	Environment	Percentage of city population with potable water supply service
City protocol	Environment	Percentage of city population with sustainable access to an improved water source
City protocol	Environment	Percentage of population with access to improved sanitation
City protocol	Environment	Percentage of the city's wastewater receiving primary treatment

City protocol	Environment	Percentage of the city's wastewater receiving secondary treatment
City protocol	Environment	Percentage of the city's wastewater receiving tertiary treatment
City protocol	Environment	Percentage of the city's wastewater that has received no treatment
City protocol	Environment	Percentage of water loss (unaccounted for water)
City protocol	Environment	Pluvial regulated volume
City protocol	Environment	SO2 (sulphur dioxide) concentration
City protocol	Environment	Total domestic water consumption per capita
City protocol	Environment	Total number of animal species and protected species
City protocol	Environment	Total Water consumption per capita
City protocol	Equity	Activity rate (% Active Population/ population 16-64 years):
City protocol	Equity	City's unemployment rate
City protocol	Equity	Commercial/Industrial Assessment as a percentage of total assessment
City protocol	Equity	Percentage of city population living in poverty
City protocol	Equity	Percentage of city population living in poverty
City protocol	Equity	Percentage of persons in full-time employment
City protocol	Equity	Youth unemployment rate
City protocol	Health	Average life expectancy
City protocol	Health	Infectious Incidence annual rate/100.000 people
City protocol	Health	Number of in-patient hospital beds per 100.000 population
City protocol	Health	Number of mental health practitioners per 100.000 population
City protocol	Health	Number of nursing and midwifery personnel per 100.000 population
City protocol	Health	Number of physicians per 100.000 population
City protocol	Health	Public expenditure on health per capita
City protocol	Health	Suicide rate per 100.000 population
City protocol	Health	Under age five mortality per 1 000 live births
City protocol	na	Uses by 3rd parties
City protocol	Open government	Average quality of the datasets
City protocol	Open government	% of the city CPS ontology related to the city investment attraction

		and entrepreneurship is covered by open data datasets
City protocol	Open government	% of the city CPS ontology related to the city quality of life and social equity is covered by open data datasets
City protocol	Open government	% of the city CPS ontology related to the city resilience that is covered by open data datasets
City protocol	Open government	% of the city CPS ontology related to the mobility and zero emissions that is covered by open data datasets
City protocol	Open government	Publicly available applications utilizing open data
City protocol	Policy & organisation	Citizens' representation: number of local officials elected to office per 100.000 population
City protocol	Policy & organisation	City debt (€ per capita)
City protocol	Policy & organisation	Consolidated city budget (€ per capita)
City protocol	Policy & organisation	Index of Transparency and open government
City protocol	Policy & organisation	Number of convictions for corruption and/or bribery by city officials per 100.000
City protocol	Policy & organisation	Number of judges
City protocol	Policy & organisation	Percentage of women employed in the city government workforce
City protocol	Policy & organisation	Women as a percentage of total elected to city-level office
City protocol	Quality of housing and of the built environment	Accessibility of public space: Accessible streets/total
City protocol	Quality of housing and of the built environment	Annual number of trees planted per 100.000 population
City protocol	Quality of housing and of the built environment	Areal size of informal settlements as a percentage of city area
City protocol	Quality of housing and of the built environment	Building age index: % Housing >=50 years
City protocol	Quality of housing and of the built environment	Building compactness
City protocol	Quality of housing and of the built environment	Density housing
City protocol	Quality of housing and of the built environment	Green area (hectares) per 100.000 population
City protocol	Quality of housing and of the built environment	Jobs/housing ratio
City protocol	Quality of housing and of the built environment	Neighborhood homogeneity
City protocol	Quality of housing and of the built environment	No residential constructed surface / Total constructed surface
City protocol	Quality of housing and of the	Number of trees / Kilometer urban

	built environment	road
City protocol	Quality of housing and of the built environment	Percentage of city population living in slums
City protocol	Quality of housing and of the built environment	Percentage of empty housing
City protocol	Quality of housing and of the built environment	Percentage of households that exist without registered legal titles
City protocol	Quality of housing and of the built environment	Percentage of private housing for rent
City protocol	Quality of housing and of the built environment	Percentage of private housing for sale
City protocol	Quality of housing and of the built environment	Popularity of the sites of architectural interest
City protocol	Quality of housing and of the built environment	Principal family housing tenure regime: ownership
City protocol	Quality of housing and of the built environment	Principal family housing tenure regime: rent
City protocol	Quality of housing and of the built environment	Proximity to convenience shopping (% population < 300 m)
City protocol	Quality of housing and of the built environment	Social housing program
City protocol	Quality of housing and of the built environment	Square meters of public indoor recreation space per capita
City protocol	Quality of housing and of the built environment	Square meters of public outdoor recreation space per capita
City protocol	Quality of housing and of the built environment	Surface of pedestrian priority areas and streets/ total street area
City protocol	Quality of housing and of the built environment	Visual perception of urban green
City protocol	Quality of housing and of the built environment	World Heritage Sites
City protocol	Resources	Hazardous Waste Generation per capita
City protocol	Resources	Percentage of city population with regular solid waste collection
City protocol	Resources	Percentage of selective collection
City protocol	Resources	Percentage of the city's hazardous waste that is recycled
City protocol	Resources	Percentage of the city's solid waste that is burned openly
City protocol	Resources	Percentage of the city's solid waste that is disposed of by other means
City protocol	Resources	Percentage of the city's solid waste that is disposed of in an incinerator
City protocol	Resources	Percentage of the city's solid waste that is disposed of in an open dump
City protocol	Resources	Percentage of the city's solid waste that is disposed of in a sanitary landfill
City protocol	Resources	Percentage of the city's solid waste that is recycled

City protocol	Resources	Permeable surface
City protocol	Resources	Seismic risk
City protocol	Resources	Soil pollution
City protocol	Resources	Solar radiation
City protocol	Resources	Total collected city solid waste per capita
City protocol	Safety	Average time a crime goes unsolved
City protocol	Safety	Crimes against property per 100.000 population
City protocol	Safety	Crimes (all Police agencies) / population
City protocol	Safety	Number of fire-fighters per 100.000 population
City protocol	Safety	Number of fire related deaths per 100.000 population
City protocol	Safety	Number of homicides per 100.000 population
City protocol	Safety	Number of natural disaster related deaths per 100.000 population
City protocol	Safety	Number of police officers per 100.000 population
City protocol	Safety	Number of volunteer and part-time fire-fighters per 100.000 population
City protocol	Safety	Response time for emergency response services from initial call
City protocol	Safety	Response time for fire department from initial call
City protocol	Safety	Response time for police department from initial call
City protocol	Safety	Violent crime rate per 100.000 population

Name of the framework

CIVITAS (May 31st, 2013)

Framwork	Subtheme	Indicator Title
CIVITAS	Accessibility	Average modal split - passengers
Civitas	accessibility	traffic flow by vehicle type - off peak
Civitas	Accessibility	Average modal split - trips
Civitas	Accessibility	Average modal split -vehicles
CIVITAS	Accessibility	Average occupancy
Civitas	Accessibility	average vehicle speed - off peak
Civitas	Accessibility	Average vehicle speed - peak
Civitas	Accessibility	Freight Movement
Civitas	Accessibility	Perception of service accessibility
CIVITAS	Accessibility	traffic flow by vehicle type - off peak
Civitas	Accessibility	Traffic flow by vehicle type - peak
Civitas	access to services	Quality of service
CIVITAS	Community engagement	Acceptance level of the measure
CIVITAS	Community engagement	Awareness level of the policies/measures
Civitas	Diversity and social cohesion	Average modal split - passengers
Civitas	Economic performance	Accuracy of timekeeping
Civitas	Economic performance	Average occupancy
Civitas	Economic performance	Average operating costs
Civitas	Economic performance	Average operating revenue
CIVITAS	Economic performance	Capital costs
Civitas	Economic performance	Relative travel cost
CIVITAS	Energy and mitigation	CO2 emissions
Civitas	Energy and mitigation	Fuel mix
Civitas	Energy and mitigation	Vehicle fuel efficiency
Civitas	Environment	CO2 emissions
Civitas	Environment	CO emissions
Civitas	Environment	CO levels
Civitas	Environment	Noise perception
Civitas	Environment	Nox emissions
Civitas	Environment	Nox levels
Civitas	Environment	Particulate levels
Civitas	Environment	Particulate levels emissions
CIVITAS	Innovation	Accuracy of timekeeping

CIVITAS	Organisation	Quality of service
Civitas	Process	Sustainable urban mobility plan
Civitas	Safety	Injuries and deaths caused by transport accidents
Civitas	Safety	Perception of security

Name of the framework
CIVIS

Framwork	Subtheme	Indicator Title
CIVIS	Energy and mitigation	Emissions of CO2
CIVIS	Energy and mitigation	Flexibility potential
CIVIS	Energy and mitigation	Primary energy consumption

Name of the framework

ClimateCon

Framwork	Subtheme	Indicator Title
Climate con	Accessibility	Accessibility
Climate con	Accessibility	Car Ownership
Climate con	Accessibility	Car travel
Climate con	Accessibility	Commuter
Climate con	Accessibility	Green space access
Climate con	Accessibility	Housing qualitv
Climate con	Accessibility	Modal split
Climate con	Accessibility	Recreational land
Climate con	Accessibility	Traffic Volume
Climate con	Accessibility	Transport Land
Climate con	Accessibility	Transport network length
Climate con	Accessibility	Travel time
Climate con	Accessibility	Water qualitv
Climate con	Climate resilience	Rainfall
Climate con	Climate resilience	Temperature
Climate con	Community	Dwelling occupancy
Climate con	Community	GDP
Climate con	Community	Household size
Climate con	Community	Income
Climate con	Community	Pooulation erowth
Climate con	Community	Population size
Climate con	Economic performance	House Prices
Climate con	Economic performance	Water Price
Climate con	Employment	Unemployment rate
Climate con	Energy and mitigation	Carbon Footorint
Climate con	Energy and mitigation	CO2 intensitv of energy use
Climate con	Energy and mitigation	CO2 intensitv of production
Climate con	Energy and mitigation	CO2 intensitv of residential activities
Climate con	Energy and mitigation	CO2 intensitv of transportation
Climate con	Energy and mitigation	Energv efficiencv of production
Climate con	Energy and mitigation	Energv efficiencv of residential usase
Climate con	Energy and mitigation	Energv efficiencv of

		transportation
Climate con	Energy and mitigation	Enersv footprint
Climate con	Energy and mitigation	Renewable enersv oroduction
Climate con	Environment	Groundwater levels
Climate con	Environment	N02 short
Climate con	Environment	NO2 long
Climate con	Environment	Noise day
Climate con	Environment	Noise night
Climate con	Environment	O3 long
Climate con	Environment	O3 short
Climate con	Environment	PM10 long
Climate con	Environment	PM10 short
Climate con	Environment	Territorial water extraction
Climate con	Environment	Waste water treatment
Climate con	Environment	Water footprint
Climate con	Environment	Water qualitv extraction
Climate con	Environment	Water qualitv release
Climate con	Environment	Water scarcity
Climate con	Environment	Water use efficiencv
Climate con	na	City Size
Climate con	na	Household
Climate con	Policy & organisation	
Climate con	Quality of housing and of the built environment	Building Stock
Climate con	Quality of housing and of the built environment	Built-up land
Climate con	Quality of housing and of the built environment	Centrality lndex
Climate con	Quality of housing and of the built environment	Compactness lndex
Climate con	Quality of housing and of the built environment	Open spaces
Climate con	Quality of housing and of the built environment	Population density
Climate con	Quality of housing and of the built environment	Sealed Land
Climate con	Quality of housing and of the built environment	Soil sealing
Climate con	Resources	Residential waste intensity
Climate con	Resources	Waste intensitv
Climate con	Resources	Waste recycling
Climate con	Resources	Waste treatment: incineration
Climate con	Resources	Waste treatment: Landfill

Name of the framework

CONCERTO (May 31st, 2013)

Framwork	Subtheme	Indicator Title
Concerto	Economic performance	Annuity of capital costs
Concerto	Economic performance	Annuity of energy costs
Concerto	Economic performance	Annuity of energy-related additional capital costs
Concerto	Economic performance	Annuity of grants
Concerto	Economic performance	Average capital costs per kW installed (invoiced)
Concerto	Economic performance	Average capital costs per kW installed (planned)
Concerto	Economic performance	Average capital costs per m2
Concerto	Economic performance	Average costs of adopted energy saving measures
Concerto	Economic performance	Capital costs
Concerto	Economic performance	Capital costs per m2
Concerto	Economic performance	Dynamic payback period
Concerto	Economic performance	Emission abatement costs
Concerto	Economic performance	Emission reduction per grant
Concerto	Economic performance	Energy cost reduction
Concerto	Economic performance	Energy costs
Concerto	Economic performance	Energy production costs
Concerto	Economic performance	Energy-related additional capital costs
Concerto	Economic performance	Equivalent price of final energy
Concerto	Economic performance	Equivalent price of fossil primary energy
Concerto	Economic performance	Equivalent price of total primary energy
Concerto	Economic performance	External costs
Concerto	Economic performance	Final energy demand reduction per grant
Concerto	Economic performance	Fossil primary energy demand reduction per grant
Concerto	Economic performance	Internal interest rate
Concerto	Economic performance	Net present value
Concerto	Economic performance	Renewable primary energy demand reduction per grant
Concerto	Economic performance	Total primary energy demand reduction per grant

Concerto	Economic performance	Triggered investment per grant
Concerto	Energy and mitigation	Annual average power
Concerto	Energy and mitigation	Average final cooling energy demand reduction per m2
Concerto	Energy and mitigation	Average final domestic hot water energy demand reduction per m2
Concerto	Energy and mitigation	Average final heating energy demand reduction per m2
Concerto	Energy and mitigation	Efficiency
Concerto	Energy and mitigation	Energy output
Concerto	Energy and mitigation	Final energy demand
Concerto	Energy and mitigation	Final energy demand reduction
Concerto	Energy and mitigation	Final energy demand reduction per m2
Concerto	Energy and mitigation	Fossil primary energy demand
Concerto	Energy and mitigation	Fossil primary energy demand reduction
Concerto	Energy and mitigation	Renewable primary energy demand
Concerto	Energy and mitigation	Renewable primary energy demand reduction
Concerto	Energy and mitigation	Total capacity of installed cogeneration plants
Concerto	Energy and mitigation	Total capacity of installed plants using RES
Concerto	Energy and mitigation	Total capacity of new commissioned supply units using RES
Concerto	Energy and mitigation	Total primary energy demand
Concerto	Energy and mitigation	Total primary energy demand reduction
Concerto	Environment	CO2 emission reduction
Concerto	Environment	Emission reduction
Concerto	Environment	Emissions
Concerto	Policy & organisation	Constructed floor area of high performing eco-buildings
Concerto	Project performance	Costs of adopted energy saving measures
Concerto	Project performance	Grants
Concerto	Project performance	Other grants
Concerto	Project performance	Static payback period

Framwork	**Subtheme**	**Indicator Title**
		Name of the framework
		DEvelopment of a System of Indicators for a Resource efficient Europe (DESIRE)
DESIRE	Economic performance	Water productivity (GDP / water appropriation)
DESIRE	Ecosystems	Exposure of ecosystems to acidification
DESIRE	Ecosystems	Exposure of ecosystems to eutrophication
DESIRE	Ecosystems	Exposure of ecosystems to ozone
DESIRE	Ecosystems	(Gross) Nutrient balance (N and P)
DESIRE	Ecosystems	HANPP
DESIRE	Ecosystems	Land productivity
DESIRE	Ecosystems	Species diversity (Distribution & abundance)
DESIRE	Energy and mitigation	Carbon footprint
DESIRE	Energy and mitigation	CO2 emission intensity
DESIRE	Energy and mitigation	CO2 emissions (territorial)
DESIRE	Energy and mitigation	Energy productivity (GDP/Total Net Energy Consumption) (res.)
DESIRE	Energy and mitigation	Energy productivity (GDP/TPES) (ter.)
DESIRE	Energy and mitigation	Fuel use / natural stock
DESIRE	Energy and mitigation	Fuel use / quality of stock
DESIRE	Energy and mitigation	GHG emissions intensity
DESIRE	Energy and mitigation	Total Net Energy Consumption) (res.)
DESIRE	Energy and mitigation	Total Primary Energy Supply (ter.)
DESIRE	Environment	Air emission intensity
DESIRE	Environment	Change in temperature
DESIRE	Environment	Concentration of atmospheric GHG emissions
DESIRE	Environment	Other air emissions
DESIRE	Environment	Total recycling amounts
DESIRE	Environment	Total waste generation
DESIRE	Environment	Waste intensity
DESIRE	Environment	Water abstraction (green and blue water)
DESIRE	Environment	Water footprint (green and blue water)

DESIRE	Health	EMC
DESIRE	na	DMC
DESIRE	na	eHANPP
DESIRE	na	WEI
DESIRE	na	WEI +
DESIRE	Process	Macro LCA
DESIRE	Quality of housing and of the built environment	Artificial land or built-up area
DESIRE	Quality of housing and of the built environment	Land Footprint / Actual Land Demand
DESIRE	Resources	Material productivity (GDP/DMC)
DESIRE	Resources	Material productivity (GDP/RMC)
DESIRE	Resources	Material use / natural stock
DESIRE	Resources	Recycling rates
DESIRE	Resources	RMC

Name of the framework

DGNB New Urban Districts

Framwork	Subtheme	Indicator Title
DGNB	Accessibility	Accessibility of public landscape areas
DGNB	Accessibility	Accessibility of the necessary Infrastructure
DGNB	Accessibility	Business/commercial transportation
DGNB	Accessibility	Connectivity to the public transport provider
DGNB	Accessibility	Construction site- logistics
DGNB	Accessibility	Cycling
DGNB	Accessibility	Cycling safety and Comfort
DGNB	Accessibility	Evaluation of accessibility (barrier free)
DGNB	Accessibility	Guidance sytsem for cycling routes
DGNB	Accessibility	MIT organisation of the parking areas/spaces
DGNB	Accessibility	MIT quality of accessibility
DGNB	Accessibility	MIT quality of connectivity/access to the transport network
DGNB	Accessibility	Mooving motorised transport
DGNB	Accessibility	Network of cycling routes
DGNB	Accessibility	Parking motorised transport
DGNB	Accessibility	Parking places for bicycles
DGNB	Accessibility	Pedestrian movement
DGNB	Accessibility	Public transport - external accessibility
DGNB	Accessibility	Public transport - internal accessibility
DGNB	Accessibility	Rental systems for bicycles
DGNB	Accessibility	The quality of acccessibility to public tarnsport network
DGNB	Access to services	Telecommunication infrastructure
DGNB	Climate resilience	Thermal effect
DGNB	Climate resilience	Ventilation
DGNB	Co-creation	Exploitation of synergies
DGNB	Community engagement	Contribution of participative processes to sustainability
DGNB	Community engagement	Impact of participative processes

DGNB	Community engagement	Municipal involvement - Events/Meetings
DGNB	Community engagement	Municipal involvement - Quality
DGNB	Community engagement	Participative processes
DGNB	Economic performance	Cost controll
DGNB	Economic performance	Fiscal impact on the community
DGNB	Economic performance	Lifecycle costs
DGNB	Economic performance	Municicpal involvement - Costs
DGNB	Economic performance	Value stability
DGNB	Ecosystem	Network of the biotopes
DGNB	Ecosystem	Protection of species and biotopes
DGNB	Energy and mitigation	Aktiv solar potential of all buidlings
DGNB	Energy and mitigation	Coherent structure for heat supply
DGNB	Energy and mitigation	Energy related quality assurance
DGNB	Energy and mitigation	Enwergy generation from waste
DGNB	Energy and mitigation	Flexibility of the structure for heat suppl
DGNB	Energy and mitigation	Integrated energy concept
DGNB	Energy and mitigation	Overall primary energy demand and proportion of renewables (primary energy)
DGNB	Energy and mitigation	Primary energy factor for heat supply
DGNB	Energy and mitigation	Smart Metering
DGNB	Energy and mitigation	Solar potential of all building surfaces
DGNB	Energy and mitigation	Solar Potential of the entire building envelope
DGNB	Environment	Airquality
DGNB	Environment	Construction site - dust
DGNB	Environment	Construction site -noise
DGNB	Environment	Construction site - protection of environment and nature
DGNB	Environment	Construction site - waste
DGNB	Environment	Endangering of ground water
DGNB	Environment	Noise and sound
DGNB	Environment	Recycling
DGNB	Environment	Re-use
DGNB	Environment	Safe storing of waste
DGNB	Environment	Surface water
DGNB	Environment	Sustainable farming management
DGNB	Environment	Sustainable management of rain water
DGNB	Environment	Sustainable water management
DGNB	Environment	The factor of biotope land

DGNB	Environment	The rate of groundwater recharge
DGNB	Environment	Waste prevention, Waste reduction
DGNB	Environment	Water disposal
DGNB	Environment	Water supply
DGNB	Health	Catastrophies
DGNB	Innovation	Infrastructure for innovative/alternative MIT
DGNB	Innovation	Technology and logistics
DGNB	Organisation	Aktive marketing
DGNB	Organisation	Awards
DGNB	Organisation	Collaboration in the planning team
DGNB	Organisation	Competing and cooperative behaviour
DGNB	Organisation	Guiding principles and image
DGNB	Organisation	Integrated planning team
DGNB	Organisation	Life Cycle Assesment
DGNB	Organisation	Local and regional marketing
DGNB	Organisation	Long term and effective Projekt Management
DGNB	Organisation	Market orientation
DGNB	Organisation	Planning of deadlines, events, meeting
DGNB	Organisation	Planning scenarios and options
DGNB	Organisation	Procedures of consolidation, detailing and implementation
DGNB	Organisation	Quality assurance
DGNB	Organisation	Quality of the overall transport concept
DGNB	Organisation	Stipulations regarding sustainability
DGNB	Organisation	Sustainability management
DGNB	Other resources	Balanced water management of the area
DGNB	Other resources	Building materials that ensure ressource preservation
DGNB	Other resources	Land
DGNB	Other resources	Land contamination
DGNB	Other resources	Soil management
DGNB	Process	Social and purchase economical infrastructure
DGNB	Process	Transport model
DGNB	Quality of housing and of the built environment	Art in public space
DGNB	Quality of housing and of the built environment	Barrier free areas
DGNB	Quality of housing and of the built environment	Coefficient on the area for urban gardening/ food cultivation
DGNB	Quality of housing and of the	Compactness of residential buildings

	built environment	
DGNB	Quality of housing and of the built environment	Design guidelines
DGNB	Quality of housing and of the built environment	Design of the public transport stops
DGNB	Quality of housing and of the built environment	Functional flexibility and structure of the built environment
DGNB	Quality of housing and of the built environment	Integration in the urban context
DGNB	Quality of housing and of the built environment	Integration of the DGNB criteria of certification
DGNB	Quality of housing and of the built environment	Maintenance friendly built structures in public spaces
DGNB	Quality of housing and of the built environment	Maintenance friendly green spaces
DGNB	Quality of housing and of the built environment	Maintenance friendly spaces for transport
DGNB	Quality of housing and of the built environment	Maintenance friendly urban furniture
DGNB	Quality of housing and of the built environment	Measures in the built environment supporting the public transport network
DGNB	Quality of housing and of the built environment	Pedestrian- crossing arrangement
DGNB	Quality of housing and of the built environment	Pedestrian- Furniture, spaces for resting, signs
DGNB	Quality of housing and of the built environment	Pedestrian - width of sidewalks
DGNB	Quality of housing and of the built environment	Private landscape areas
DGNB	Quality of housing and of the built environment	Proportion of brownfield land
DGNB	Quality of housing and of the built environment	Public landscape areas
DGNB	Quality of housing and of the built environment	Quality of public space
DGNB	Quality of housing and of the built environment	Social quality
DGNB	Quality of housing and of the built environment	Spatial efficiency
DGNB	Quality of housing and of the built environment	Spatial integration
DGNB	Quality of housing and of the built environment	Urban design
DGNB	Quality of housing and of the built environment	Utilization of existing urban structure
DGNB	Safety	Objective/ Subjective safety

Name of the framework

Eurbanlab Benchmark for You (B4U) (December 2014)

Framwork	Subtheme	Indicator Title
Eurbanlab	Climate resilience	Climate resilient design buildings
Eurbanlab	Climate resilience	Climate resilient design: neighbourhood
Eurbanlab	Climate resilience	Embodied energy of materials - qualitative
Eurbanlab	Climate resilience	Impervious surface
Eurbanlab	Co-creation	Local community involvement
Eurbanlab	Co-creation	Professional stakeholder involvement
Eurbanlab	Community	Connection to the existing cultural heritage
Eurbanlab	Community	Design for a sense of place
Eurbanlab	Community	Ensuring the Comfort & Image of Public Spaces
Eurbanlab	Community	Social housing
Eurbanlab	Economic performance	Total cost savings end users
Eurbanlab	Economic performance	Use of Local workforce
Eurbanlab	Energy and mitigation	Annual final energy consumption
Eurbanlab	Energy and mitigation	Annual primary energy consumption
Eurbanlab	Energy and mitigation	Carbon dioxide emissions
Eurbanlab	Energy and mitigation	Primary energy use for transport
Eurbanlab	Energy and mitigation	Renewable energy produced on-site
Eurbanlab	Energy and mitigation	Share of recovered heat
Eurbanlab	Environment	Emission of Nox
Eurbanlab	Environment	Emission of PM10
Eurbanlab	Equity	Affordability of housing
Eurbanlab	Equity	Fuel poverty
Eurbanlab	Innovation	Advantages for end users
Eurbanlab	Innovation	Advantages for stakeholders
Eurbanlab	Innovation	Change in Rules & Regulations
Eurbanlab	Innovation	Change public procurement
Eurbanlab	Innovation	Changing professional norms
Eurbanlab	Innovation	Changing societal norms
Eurbanlab	Innovation	Complexity for end users of the technology
Eurbanlab	Innovation	Complexity for professional stakeholders

Eurbanlab	Innovation	Current market demand for solution
Eurbanlab	Innovation	Diffusion to other actors
Eurbanlab	Innovation	Diffusion to other locations
Eurbanlab	Innovation	New forms of financing
Eurbanlab	Innovation	Social compatibility of Innovations
Eurbanlab	Innovation	Solution(s) to development issues
Eurbanlab	Innovation	Technical compatibility of Innovation
Eurbanlab	Innovation	Trialability
Eurbanlab	Innovation	Visibility of Results
Eurbanlab	Leadership	Bridging
Eurbanlab	Leadership	Framing
Eurbanlab	Leadership	Lobbying
Eurbanlab	Leadership	Persistency
Eurbanlab	Process	CO2 emission reduction cost efficiency
Eurbanlab	Process	Total cost vs. subsidies
Eurbanlab	Political climate	Government vision
Eurbanlab	Professional implementation	Balanced Team in the Design Phase
Eurbanlab	Professional implementation	Continued monitoring/reporting
Eurbanlab	Professional implementation	Degree of testing
Eurbanlab	Professional implementation	User training
Eurbanlab	Project performance	CO2 emission reduction cost efficiency
Eurbanlab	Project performance	Net Present Value (NPV)
Eurbanlab	Project performance	Payback Period
Eurbanlab	Project performance	Total cost vs. subsidies
Eurbanlab	Project team	Clear division of responsibility
Eurbanlab	Project team	Prior collaboration between team members
Eurbanlab	Project team	Prior experience with the innovation
Eurbanlab	Project team	Training of the workforce
Eurbanlab	Quality of housing and of the built environment	Availability of Commercial Amenities
Eurbanlab	Quality of housing and of the built environment	Availability of multi-modal mobility options
Eurbanlab	Quality of housing and of the built environment	Availability of Public Amenities
Eurbanlab	Resources	Embodied energy of materials - qualitative
Eurbanlab	Resources	Materials used
Eurbanlab	Resources	Share of materials recyclable
Eurbanlab	Resources	Share of recycled input materials
Eurbanlab	Resources	Share of renewable materials

Name of the framework

European Smart Cities v1.0 (2007)

Framwork	Subtheme	Indicator Title
European Smart city index	Accessibility	Accuracy of timekeeping
European smart city index	Accessibility	Air transport of freight
European smart city index	Accessibility	Air transport of passengers
European Smart city index	Accessibility	Average modal split - passengers
European Smart city index	Accessibility	Average modal split - trips
European Smart city index	Accessibility	Average modal split -vehicles
European Smart city index	Accessibility	Average occupancy
European Smart city index	Accessibility	average vehicle speed - off peak
European Smart city index	Accessibility	Average vehicle speed - peak
European smart city index	Accessibility	Companies with HQ in the city quoted on national stock market
European Smart city index	Accessibility	Freight Movement
European smart city index	Accessibility	Green mobility share (non-motorized individual traffic)
European Smart city index	Accessibility	Injuries and deaths caused by transport accidents
European smart city index	Accessibility	International accessibility
European smart city index	Accessibility	Public transport network per inhabitant
European Smart city index	Accessibility	Quality of service
European smart city index	Accessibility	Satisfaction with access to public transport
European smart city index	Accessibility	Satisfaction with quality of public transport
European Smart city index	Accessibility	traffic flow by vehicle type - off peak
European Smart city index	Accessibility	Traffic flow by vehicle type - peak
European smart city index	accessibility	Use of economical cars

European Smart city index	Accessibility	Vehicle fuel efficiency
European smart city index	Access to services	Broadband internet access in households
European smart city index	Access to services	Cinema attendance per inhabitant
European smart city index	Access to services	Computers in households
European smart city index	Access to services	Expenditure of the municipal per resident in PPS
European smart city index	Access to services	Museums visits per inhabitant
European Smart city index	Access to services	Perception of security
European Smart city index	Access to services	Perception of service accessibility
European Smart city index	Access to services	Relative travel cost
European smart city index	Access to services	Satisfaction with quality of schools
European smart city index	Access to services	Share of children in day care
European smart city index	Access to services	Theatre attendance per inhabitant
European Smart city index	Co-creation	Acceptance level of the measure
European Smart city index	Co-creation	Awareness level of the policies/measures
European smart city index	Community	City representatives per resident
European smart city index	Community	Immigration-friendly environment (attitude towards immigration)
European smart city index	Community	Importance of politics for inhabitants
European smart city index	Community	Knowledge about the EU
European smart city index	Community	Participation in language courses
European smart city index	Community	Political activity of inhabitants
European smart city index	Community	Share of female city representatives
European smart city index	Community	Share of foreigners
European smart city index	Community	Share of nationals born abroad
European smart city index	Community	Voters turnout at European elections
European smart city index	Community engagement	Participation in voluntary work
European smart city index	Community engagement	Voters turnout at city elections

European Smart city index	Economic performance	Average operating costs
European Smart city index	Economic performance	Average operating revenue
European Smart city index	Economic performance	Capital costs
European smart city index	Economic performance	GDP per employed person
European smart city index	Economic performance	Importance as decision-making centre (HQ etc.)
European smart city index	Economic performance	Importance as tourist location (overnights, sights)
European smart city index	Economic performance	Overnights per year per resident
European smart city index	Economic performance	Patent applications per inhabitant
European smart city index	Economic performance	Self-employment rate
Smart city index	Education	Adult literacy rate
European smart city index	Education	Book loans per resident
European smart city index	Education	Foreign language skills
European smart city index	Education	Importance as knowledge centre (top research centres, top universities etc.)
European smart city index	Education	Participation in life-long-learning in %
European smart city index	Education	Population qualified at levels 5-6 ISCED
European smart city index	Education	Satisfaction with access to educational system
European smart city index	Education	Satisfaction with quality of educational system
European smart city index	Education	Students per inhabitant
European smart city index	Employment	Perception of getting a new job
European smart city index	Employment	Proportion in part-time employment
European smart city index	Environment	Fatal chronic lower respiratory diseases per inhabitant
European smart city index	Environment	Individual efforts on protecting nature
European smart city index	Environment	Opinion on nature protection
European smart city index	Environment	Particulate matter
European smart city index	Environment	Summer smog (Ozon)
European smart city index	Equity	Perception on personal risk of poverty
European smart city	Equity	Poverty rate

index		
European smart city index	Health	Doctors per inhabitant
European smart city index	Health	Hospital beds per inhabitant
European smart city index	Health	Life expectancy
European smart city index	Innovation	Employment rate in knowledge-intensive sectors
European smart city index	Innovation	R&D expenditure in % of GDP
European smart city index	Innovation	Share of people working in creative industries
European smart city index	Open government	Satisfaction with transparency of bureaucracy
European smart city index	Quality of housing and of the built environment	Average living area per inhabitant
European smart city index	Quality of housing and of the built environment	Green space share
European smart city index	Quality of housing and of the built environment	Satisfaction with personal housing situation
European smart city index	Quality of housing and of the built environment	Share of housing fulfilling minimal standards
European smart city index	Quality of housing and of the built environment	Sunshine hours
European smart city index	Resources	Efficient use of electricity (use per GDP)
European smart city index	Resources	Efficient use of water (use per GDP)
European smart city index	Safety	Crime rate
European smart city index	Safety	Death rate by assault
European smart city index	Safety	Satisfaction with personal safety
European smart city index	safety	Traffic safety

Name of the framework

Kiitoskaupunkien ekologiset kestävyyden indikaattorit 2006-2010 (In Finnish).
The indicators of ecological sustainability of the six biggest Finnish cities (2006-2010).

Framwork	Subtheme	Indicator Title
FIN SCIF	Accessibility	Amount of trips made with with public transport
FIN SCIF	Accessibility	Distribution of usage of different means of transport
FIN SCIF	Accessibility	Length of bike route network
FIN SCIF	Accessibility	Motorization rate
FIN SCIF	Accessibility	Number of workers using public transport supported by the employer
FIN SCIF	Economic performance	Environmental costs compared to city's costs and compared to the number of inhabitants
FIN SCIF	Economic performance	Environmental investments
FIN SCIF	Economic performance	Environmental investments compared to the city's capital assets and compared to the number of inhabitants
FIN SCIF	Economic performance	Environmental responsibility and conditional environmental debt
FIN SCIF	Economic performance	Environmental "yield" compared to city's yield and compared to the number of inhabitants
FIN SCIF	Economic performance	Total sum of environmental costs
FIN SCIF	Economic performance	Total sum of environmental "yield"
FIN SCIF	Energy and mitigation	Energy consumption
FIN SCIF	Energy and mitigation	GHG emissions
FIN SCIF	Environment	Air quality
FIN SCIF	Environment	Amount of waste ending at waste treatment places
FIN SCIF	Environment	Amount of waste of city facilities per city worker
FIN SCIF	Environment	Annual recycling percentage of city organisation waste
FIN SCIF	Environment	City personnel working in environmental support functions
FIN SCIF	Environment	Electricity consumption
FIN SCIF	Environment	Environmental considerations in the city's public procurement

FIN SCIF	Environment	environmental footprint
FIN SCIF	Environment	Paper consumption in the city's public organizations, agencies and offices
FIN SCIF	Environment	Schools and nursery schools with green certificate
FIN SCIF	Environment	Share of buildings connected to the district heating network
FIN SCIF	Environment	Shares of district heating sources used
FIN SCIF	Environment	Specific electricity consumption of facilities owned by the city by building type
FIN SCIF	Environment	Specific heat consumption of facilities owned by the city by building type
FIN SCIF	Environment	Specific water consumption of facilities owned by the city by building type
FIN SCIF	Environment	Waste water loads
FIN SCIF	Environment	Water consumption
FIN SCIF	Environment	Water leakage percentage in sewer network
FIN SCIF	Open government	The environmental attitude and awareness of city personnel
FIN SCIF	Policy & organisation	Administrative measures
FIN SCIF	Policy & organisation	City activities improving eco-efficiency
FIN SCIF	Policy & organisation	Management of environmental impacts
FIN SCIF	Process	Citizen satisfaction
FIN SCIF	Quality of housing and of the built environment	Accessibility to services
FIN SCIF	Quality of housing and of the built environment	Number of people living in noisy traffic areas
FIN SCIF	Quality of housing and of the built environment	Share of buildings in town plan area
FIN SCIF	Quality of housing and of the built environment	Share of densely occupied areas
FIN SCIF	Quality of housing and of the built environment	Share of Nature conservation areas of land/surface
FIN SCIF	Quality of housing and of the built environment	Share of people living and densely occupied areas
FIN SCIF	Quality of housing and of the built environment	Share of recreation areas in town plan area

Name of the framework
Global City Indicators Facility

Framwork	Subtheme	Indicator Title
GCIF	Accessibility	Annual number of public transit trips per capita
GCIF	Accessibility	Commercial Air Connectivity (number of nonstop commercial air destinations)
GCIF	Accessibility	Km of high capacity public transit system per 100,000 population
GCIF	Accessibility	Km of light passenger transit system per 100,000 population
GCIF	Accessibility	Number of personal automobiles per capita
GCIF	Accessibility	Number of two-wheeled motorized vehicles per capita
GCIF	Accessibility	Transportation fatalities per 100,000 population
GCIF	Access to services	Percentage of jobs in the cultural sector
GCIF	Community	Male to female ratio (# of males per 100 females)
GCIF	Community	Percentage of countries population
GCIF	Community	Percentage of population that are adult (25-64)
GCIF	Community	Percentage of population that are children (0-14)
GCIF	Community	Percentage of population that are migrating from elsewhere in the country
GCIF	Community	Percentage of population that are new imigrants
GCIF	Community	Percentage of population that are senior citizens (65+)
GCIF	Community	Percentage of population that are youth (15-24)
GCIF	Community	Population Dependency Ratio
GCIF	Community	Total city population
GCIF	Community	Total number of households
GCIF	Community engagement	Citizen's representation: number of local officials elected to office per 100,000 population
GCIF	Community engagement	Voter participation in last municicpal election (as percentage

		of eligible voters)
GCIF	Diversity and social cohesion	Annual population change
GCIF	Economic performance	Annual inflation rate based on average of last 5 years
GCIF	Economic performance	Capital spending as percentage of total expenditures
GCIF	Economic performance	City Product as percentage of Country's GDP
GCIF	Economic performance	City Product per capita (US$)
GCIF	Economic performance	Commercial/industrial assessment as a percentage of total assessment
GCIF	Economic performance	Country's GDP per capita (US$)
GCIF	Economic performance	Country's GDP (US$)
GCIF	Economic performance	Debt service ratio (debt service expenditure as a percent of a municipality's own-source revenue)
GCIF	Economic performance	Gross capital budget per capita (US$)
GCIF	Economic performance	Gross capital budget (US$)
GCIF	Economic performance	Gross operating budget per capita(US$)
GCIF	Economic performance	Gross operating budget (US$)
GCIF	Economic performance	Number of businesses per 1000 Population
GCIF	Economic performance	Own-source revenue as a percentage of total revenues
GCIF	Economic performance	Percentage of persons in full time employment
GCIF	Economic performance	Tax collected as percentage of tax billed
GCIF	Education	Percentage of female school-aged population enrolled in schools
GCIF	Education	Percentage of male school-aged population enrolled in schools
GCIF	Education	Percentage of school-aged population enrolled in schools
GCIF	Education	Percentage of students completing primary education
GCIF	Education	Percentage of students completing secondary education
GCIF	Education	Percentage opf students completing primary and secondary edication : survival rate
GCIF	Education	Students/teacher ratio
GCIF	Employment	Employment percentage change based on the last 5 years
GCIF	Employment	Total employment
GCIF	Energy and mitigation	Average length of electrical interruptions
GCIF	Energy and mitigation	Percentage of city population with

		authorized electrical service
GCIF	Energy and mitigation	The average number of electrical interruptions per customer per year
GCIF	Energy and mitigation	Total electrical use per capita (kWh/year)
GCIF	Energy and mitigation	Total residentail electrical use per capita (kWh/year)
GCIF	Environment	Annual average rain (mm)
GCIF	Environment	Annual average snowfall (cm)
GCIF	Environment	Annual average temperature (Celsius)
GCIF	Environment	Average annual hours of water service interruption per household
GCIF	Environment	Climate Type
GCIF	Environment	Domestic water consumption per capita (liters/day)
GCIF	Environment	Greenhouse gas emissions measured in tonnes per capita
GCIF	Environment	Percentage of city population served by wastewater collection
GCIF	Environment	Percentage of city's population with potable water supply service
GCIF	Environment	Percentage of city's wastewater receiving primary treatment
GCIF	Environment	Percentage of population with sustainable access to an improved water source
GCIF	Environment	Percentage of the city's wastewater receiving tertiary treatment
GCIF	Environment	Percentage of the city's wastewater that has received no treatment
GCIF	Environment	Percentage of the city's watsewater receiving secondary treatment
GCIF	Environment	Percentage of water loss
GCIF	Environment	PM10 concentration
GCIF	Environment	Total water consumption per capita (litres/day)
GCIF	Equity	Annual average unemployment rate
GCIF	Equity	Average household income (US$)
GCIF	Equity	Cost of living
GCIF	Equity	Income distribution (Gini Coefficient)
GCIF	Equity	Percentage of city population living in poverty
GCIF	Health	Average life expectancy
GCIF	Health	Number of in-patient hospital beds per 100,000 population
GCIF	Health	Number of nursing and midwifery personnel per 100,000 population

GCIF	Health	Number of physicians per 100,000 population
GCIF	Health	Under age five maortality per 1,000 live births
GCIF	Innovation	Number of cell phone connections per 100,000 population
GCIF	Innovation	Number of higher education degrees per 100,000
GCIF	Innovation	Number of internet connections per 100,000 population
GCIF	Innovation	Number of landline phone connections per 100,000 population
GCIF	Innovation	Number of new patents per 100,000 per year
GCIF	Innovation	Number of telephone connections (landlines and cell phones) per 100,000 population
GCIF	na	Region
GCIF	Open government	Type of government (e.g. Local, Regional, Country
GCIF	Policy & organisation	Percentage of women employed in the city government
GCIF	Process	Areal size of informal settlements as a percent of city area
GCIF	Process	Green area (hectares) per 100,000 population
GCIF	Process	Jobs/Housing ratio
GCIF	Quality of housing and of the built environment	Dwelling density (per Square Kilometer)
GCIF	Quality of housing and of the built environment	Land Area (Square Kilometers)
GCIF	Quality of housing and of the built environment	Number of homeless people per 100, 000 population
GCIF	Quality of housing and of the built environment	Percentage of city populatio living in slums
GCIF	Quality of housing and of the built environment	Percentage of households that exist without registered legal titles
GCIF	Quality of housing and of the built environment	Percentage of non-residential area (square kilometers)
GCIF	Quality of housing and of the built environment	Persons per unit
GCIF	Quality of housing and of the built environment	Population density (per square kilometer)
GCIF	Quality of housing and of the built environment	Square meters of public indoor recreation space per capita
GCIF	Quality of housing and of the built environment	Square meters of public outdoor recreation space per capita
GCIF	Quality of housing and of the built environment	Total number of of occupied dwelling units (owned & rented)
GCIF	Resources	Percentage of city population with regular solid waste collection

GCIF	Resources	Percentage of city's solid waste that is disposed in an open dump
GCIF	Resources	Percentage of city's solid waste that is disposed in a sanitary landfill
GCIF	Resources	Percentage of city's solid waste that is disposed of by other means
GCIF	Resources	Percentage of city's solid waste that is disposed of in an incinerator
GCIF	Resources	Percentage of city's solid waste that is recycled
GCIF	Resources	Percentag of city's solid waqste that is burned openly
GCIF	Safety	Number of firefighters per 100,000 population
GCIF	Safety	Number of fire related deaths per 100,000 population
GCIF	Safety	Number of homiceds per 100,000 population
GCIF	Safety	Number of police officers per 100,000 population
GCIF	Safety	Respose time for fire department from initial call
GCIF	Safety	Violent crime rate per 100,000 population

Name of the framework

European Green Capital Award (not official name)

Framwork	Subtheme	Indicator Title
Green capital award	Accessibility	Broadban access
Green capital award	Accessibility	Capacity airport
Green capital award	Accessibility	Congestion motorways and other roads
Green capital award	Accessibility	Distance to airport
Green capital award	Accessibility	Length of cycle lanes
Green capital award	Accessibility	Rail network
Green capital award	Accessibility	Vehicle transport through fast lanes
Green capital award	Access to services	Museum visitors
Green capital award	Access to services	Perception noise annoyance
Green capital award	Access to services	Road, rail and airport noise (Lden), >55dB, >65dB
Green capital award	Access to services	Theaters
Green capital award	Community engagement	Perception everyone can be trusted
Green capital award	Community engagement	Perception foreigners are good for society
Green capital award	Economic performance	Birth of business
Green capital award	Economic performance	Death of business
Green capital award	Economic performance	Disposable income
Green capital award	Economic performance	employment growth
Green capital award	Economic performance	GDP/capita PPS
Green capital award	Economic performance	tourism
Green capital award	Economic sustainability	Labor productivity
Green capital award	Economic sustainability	R&D intensity
Green capital award	Education	Creative sector employment
Green capital award	Education	Early leavers from education
Green capital award	Education	employment in science and technology
Green capital award	Education	High (tertiary) education
Green capital award	Education	Satisfaction schools
Green capital award	Education	Secondary education
Green capital award	Education	youth unemployment
Green capital award	Employment	Aging labor force
Green capital award	Employment	At-risk-of-poverty rate
Green capital award	Employment	employment function

Green capital award	Employment	employment rate
Green capital award	Employment	Long term unemployment rate
Green capital award	Employment	Unemployment rate
Green capital award	Energy and mitigation	Annual total and traffic GHG emission in CO2-eq per capita
Green capital award	Energy and mitigation	Emission reduction target 2010-2020
Green capital award	Environment	Annual emissions per capita of Nox, VOC and PM2.5
Green capital award	Environment	Chemical status
Green capital award	Environment	Chemical status groundwater
Green capital award	Environment	Concentrations of NO2, O3, PM10 and PM 2.5
Green capital award	Environment	Ecological status
Green capital award	Environment	Increased flood risk due to heavy rainfall
Green capital award	Environment	Nitrogen input on soil
Green capital award	Environment	Perception of seriousness of air pollution
Green capital award	Environment	Soil sealing
Green capital award	Health	Availability general practitioners
Green capital award	Health	Hospital beds
Green capital award	Health	Household consumption
Green capital award	Health	Life expectancy
Green capital award	Health	Mortality rate
Green capital award	Health	People connected to secondary or better wastewater treatment
Green capital award	Health	Public water supply consumption
Green capital award	Health	Satisfaction with doctors/hospitals
Green capital award	Process	Political trust
Green capital award	Process	Turnout municipal, national and European elections
Green capital award	Quality of housing and of the built environment	Biodiversity
Green capital award	Quality of housing and of the built environment	Forest
Green capital award	Quality of housing and of the built environment	net migration
Green capital award	Quality of housing and of the built environment	rental price
Green capital award	Quality of housing and of the built environment	Satisfaction with ease of finding good house at reasonable price
Green capital award	Quality of housing and of the built environment	Satisfaction with living in this city
Green capital award	Quality of housing and of the built environment	Satisfaction with sports facilities
Green capital award	Quality of housing and of the built environment	Urban blue area

Green capital award	Quality of housing and of the built environment	Urban green area
Green capital award	Quality of housing and of the built environment	urban sprawl
Green capital award	Resources	Annual municipal sold waste generated per capita
Green capital award	Resources	Incineration
Green capital award	Resources	Landfilling
Green capital award	Safety	Burglary
Green capital award	Safety	Fatalities traffic
Green capital award	Safety	Homicide
Green capital award	Safety	Perception of safety

	Name of the framework	
	Green Digital Charter Action Framework	

Framwork	Subtheme	Indicator Title
Green digital charter	Energy and mitigation	Benchmarks identified for GDC implementation
Green digital charter	Energy and mitigation	Business costs and benefits through ICT-enabled climate change mitigation are recognised - short-, mid- and long-term costs and benefits analysed and identified - costs and benefits widely debated (in the media, council, dedicated stakeholder board)
Green digital charter	Energy and mitigation	Businesses' cost savings and benefits through ICT-enabled climate change mitigation
Green digital charter	Energy and mitigation	City activities are oriented towards integration - involve all city departments - involve public sector, private sector and civil society - involve ICT user, developer, provider and regulator - involve actors across territorial boundaries - secure interop
Green digital charter	Energy and mitigation	City activities are oriented towards large-scale solutions - ex-ante impact assessment of individual ICT actions realised - scenarios for integrated implementation of ICT actions developed - large-scale solutions for maximising impact identified
Green digital charter	Energy and mitigation	City administration features enhanced simulations - instruments for enhanced simulations are available - instruments for enhanced simulations are acepted and regularly used - identify further key infrastructures

Green digital charter	Energy and mitigation	City administration features enhanced strategic planning - instruments for enhanced strategic planning are available - instruments for enhanced strategic planning are acepted and regularly used - enhances simulations of scenarios - transparency and visibi
Green digital charter	Energy and mitigation	City administration features enhanced visualisations - instruments for enhanced visualisations are available - instruments for enhanced visualisations are acepted and regularly used - identify further key infrastructures
Green digital charter	Energy and mitigation	City administration features general conditions for eGovernment - through user acceptance - through operational and organisational structure of administration - through formal and data security requirements as well as service law - through technical requi
Green digital charter	Energy and mitigation	City administration works with enhanced scenario planning - instruments for enhanced scenario planning are available - instruments for enhanced scenario planning are acepted and regularly used - identify further key infrastructures
Green digital charter	Energy and mitigation	City administration works with features enhanced mobile channels - enhanced mobile channels are available - enhanced mobile channels are acepted and regularly used - identify key infrastructures
Green digital charter	Energy and mitigation	City administration works with features virtual policy modelling - instruments for virtual policy modelling are available - instruments for virtual policy modelling are acepted and regularly used - identify further key infrastructures
Green digital charter	Energy and mitigation	City and stakeholders implement ICT applications linking communities to the environment - data collection, access and

		harmonisation ensured - analysis tools adapted and/or developed - User involvement spans across territorial boundaries in the urban regio
Green digital charter	Energy and mitigation	City and stakeholders implement ICT applications linking different communities - User involvement spans across territorial boundaries in the urban region - User involvement spans across different cities
Green digital charter	Energy and mitigation	City applies compatibility standards for data on ICT impacts and data on emissions - in data measurement - in data conversion - in data application - in data monitoring
Green digital charter	Energy and mitigation	City applies systems to use energy emissions from ICT for heating purposes - in public buildings - in private buildings - in mobility sector - in industry - percentage of ICT used for heating purposes - percentage of heating covered by ICT
Green digital charter	Energy and mitigation	City arranges compliance for green hosting and data centres to control ICT emissions and encourage green ICT - through meetings for promoting green hosting and data centres - through meetings for agreement on compliance for green hosting and data centres
Green digital charter	Energy and mitigation	City assigns contact person for GDC exchange - task description for GDC contact person available
Green digital charter	Energy and mitigation	City builds "smart" energy grids for greater use of micro-generation - smart power generation - incentive mechanism for micro-generation of different stakeholders
Green digital charter	Energy and mitigation	City builds "smart" energy grids for greater use of more energy

		efficient lightning system - energy efficient and controllable lightning infrastructure installed (e.g. LED) in buildings - energy efficient and controllable lightning infrastructure installe
Green digital charter	Energy and mitigation	City builds "smart" energy grids for greater use of renewable energy - smart sensing and measurement system - advanced control for regulation of different energy sources - improved interfaces and decision support: load management systems
Green digital charter	Energy and mitigation	City consequently betters opportunities for improved skills, employment, inclusion, well-being and quality of life - increase in opportunities for improved skills - increase in opportunities for employment - increase in opportunities for inclusion - incre
Green digital charter	Energy and mitigation	City creates general conditions for eGovernment - through measures for user acceptance - through adjustment of operational and organisational structure of administration - through the adjustment of formal and data security requirements as well as service
Green digital charter	Energy and mitigation	City develops and implements a system for the use of shared services for its hosting and data centres to control ICT emissions and encourage green ICT - through regular meetings involving ICT providers and regulators in planning - through a strategy docum
Green digital charter	Energy and mitigation	City develops and implements a system of renewable energy use for its hosting and data centres to control ICT emissions and encourage green ICT - through the role and potentials of RES for powering hosting and data centres analysed and identified - throug

Green digital charter	Energy and mitigation	City develops and implements digital infrastructures to enable low carbon activities - through regular meetings involving ICT developers, users, providers and regulators in planning - through a strategy document addressing SDI - through a strategy documen
Green digital charter	Energy and mitigation	City develops and implements digital services to enable low carbon activities - through regular meetings involving ICT developers, users, providers and regulators in planning - through a strategy document addressing digital services
Green digital charter	Energy and mitigation	City develops and implements innovative digital planning applications to enable low carbon activities - through regular meetings involving ICT user, developer, provider, regulator and data owner in planning - through a strategy document identifying priori
Green digital charter	Energy and mitigation	City develops and implements set of planning rules for green hosting and data centres to control ICT emissions and encourage green ICT - through regular meetings involving ICT developers, users, providers and regulators in the development of planning rule
Green digital charter	Energy and mitigation	City develops and implements strategies for sustainable production, use and disposal of ICT equipment - through regular meetings involving ICT developers, users, providers and regulators in developing strategies for sustainable production, use and disposa
Green digital charter	Energy and mitigation	City develops and implements strategy for greater use of teleconferencing - through regular meetings involving ICT developers, users, providers and regulators in

		developing teleconferencing facilities - through a strategy document addressing greater use o
Green digital charter	Energy and mitigation	City develops and implements strategy for more sustainable ways of working in transport and urban mobility - through regular meetings involving transport and ICT developers, users, providers and regulators in developing teleconferencing facilities - throu
Green digital charter	Energy and mitigation	City develops and implements strategy for smart public transport networks - through regular meetings involving transport and ICT developers, users, providers and regulators in developing strategies for smart public transport networks - through a strategy
Green digital charter	Energy and mitigation	City develops and implements strategy to transform citizen engagement - through regular meetings involving relevant stakeholders for the transformation citizen engagement - through a strategy document addressing the transformation citizen engagement
Green digital charter	Energy and mitigation	City develops and implements systems to use energy emissions from ICT for heating purposes - through regular meetings involving ICT developers, users, providers and regulators in planning - through a strategy document addressing the use of energy emissio
Green digital charter	Energy and mitigation	City develops and/or implements common standards for ICT solutions in new buildings to facilitate energy-efficient "smart" processes - through identifying existing standards for ICT solutions in new buildings to facilitate energy-efficient "smart" process
Green digital charter	Energy and mitigation	City develops and/or implements

		common standards for ICT solutions in retro-fitting existing buildings to facilitate energy-efficient "smart" processes - through identifying existing standards for ICT solutions in new buildings to facilitate energy-effici
Green digital charter	Energy and mitigation	City develops and supports innovative new services based on the highest speeds and capacities of these networks - through regular meetings involving relevant stakeholders for innovative new services based on the highest speeds and capacities of these netw
Green digital charter	Energy and mitigation	City develops applications for improving transparency and visibility of energy use - standards for transparency and visibility of data adopted - data collection, access and harmonisation ensured - analysis and visualisation tools adapted and/or developed
Green digital charter	Energy and mitigation	City develops a strategy to promote open innovation plattforms and methodologies - through regular meetings involving relevant stakeholders for open innovation plattforms and methodologies - through a strategy document addressing open innovation plattform
Green digital charter	Energy and mitigation	City develops common standards for collection, collation and analysis of emission and energy data across the city administration - through regular meetings involving relevant stakeholders in developing standards for collection, collation and analysis of
Green digital charter	Energy and mitigation	City develops common standards for collection, collation and analysis of emission and energy data across the city as a whole - through regular meetings involving relevant stakeholders in developing standards for collection, collation and analysis of emiss
Green digital charter	Energy and mitigation	City develops compatibility standards for data on ICT impacts

		and data on emissions - through regular meetings involving relevant stakeholders in developing compatibility standards for data on ICT impacts and data on emissions - through a strategy documen
Green digital charter	Energy and mitigation	City develops green and digital strategy embracing open innovation - key individuals made acquainted with open innovation methodology - training measures on open innovation methodology realised - local barriers and drivers for open innovation analysed
Green digital charter	Energy and mitigation	City develops green and digital strategy - formal decision for strategy development has been taken (mayor, council) - local interpretation of the GDC realised - environmental department and stakehodlers are involved - ICT
Green digital charter	Energy and mitigation	City develops implementation roadmap for GDC - actions and timeline defined - stakeholder roles and responsibilities identified - budget sources identified
Green digital charter	Energy and mitigation	City develops promotional measures for ICT carbon footprint reduction towards private sector - city ICT carbon footprint measures evaluated - barriers and drivers for implementation analysed - key private sector target groups identified (in cooperation wi
Green digital charter	Energy and mitigation	City develops promotional measures for ICT carbon footprint reduction towards wider community - city ICT carbon footprint measures evaluated - local barriers and drivers for implementation analysed - key community target groups identified (in cooperation
Green digital charter	Energy and mitigation	City develops promotional measures on open innovation

		fostering low-carbon activities in all sectors - open innovation activities evaluated - key sectors and target groups identified - availability of good practice and guidance screened - options for prov
Green digital charter	Energy and mitigation	City develops "smart" energy grids for greater use of micro-generation - building a "smart" energy grid for greater use of micro-generation is part of policies/measures currently implemented - building a "smart" energy grid for greater use of micro-genera
Green digital charter	Energy and mitigation	City develops "smart" energy grids for greater use of more energy efficient lighting systems - building a "smart" energy grid for greater use of more energy efficient lighting systems is part of policies/measures currently implemented - building a "smart"
Green digital charter	Energy and mitigation	City develops "smart" energy grids for greater use of renewable energy - building a "smart" energy grid for greater use of renewable energy is part of policies/measures currently implemented - building a "smart" energy grid for greater use of renewable en
Green digital charter	Energy and mitigation	City develops strategies to address enabling value and behavioural change through transformational approaches to ICT - through regular meetings involving relevant stakeholders in developing transformational approaches to ICT for value and behavioural chan
Green digital charter	Energy and mitigation	City develops strategy and ICT actions to deliver on climate change mitigation goals - CO_2 emission reduction potential of ICT actions has been identified - ICT action specification carried out for all city departments - meetings for strategy development

Green digital charter	Energy and mitigation	City develops strategy for collaborating with industry for greener logistics - through regular meetings involving relevant stakeholders in developing standards for greener logistics - through a strategy document addressing greener logistics
Green digital charter	Energy and mitigation	City develops strategy for collaborating with industry for greener production - through regular meetings involving relevant stakeholders in developing standards for greener production - through a strategy document addressing greener production
Green digital charter	Energy and mitigation	City develops strategy for collaborating with industry for using green procurement - through regular meetings involving relevant stakeholders in developing standards for greener procurement - through a strategy document addressing greener procurement
Green digital charter	Energy and mitigation	City develops strategy for creation of new jobs by supporting restructuring of economic processes to reduce the use of material and energy - through regular meetings involving relevant stakeholders for restructuring of economic processes to reduce the use
Green digital charter	Energy and mitigation	City develops strategy for encouraging smarter uses of laptops - through regular meetings involving ICT developers, users, providers and regulators in planning - through a strategy document addressing smarter uses of laptops
Green digital charter	Energy and mitigation	City develops strategy for encouraging the use of more energy efficient servers - through regular meetings involving ICT developers, users, providers and regulators in planning

		- through a strategy document addressing the use of more energy efficient serv
Green digital charter	Energy and mitigation	City develops strategy for encouraging "thin client" facilities - through regular meetings involving ICT developers, users, providers and regulators in planning - through a strategy document addressing "Thin client" facilities
Green digital charter	Energy and mitigation	City develops strategy for enhanced scenario planning - through regular meetings involving relevant stakeholders for the implementation of virtual policy modelling - through a strategy document addressing the implementation of virtual policy modelling
Green digital charter	Energy and mitigation	City develops strategy for enhanced strategic planning - through regular meetings involving relevant stakeholders for the implementation of enhanced strategic planning - through a strategy document addressing the implementation of enhanced strategic plann
Green digital charter	Energy and mitigation	City develops strategy for enhanced visualisations - through regular meetings involving relevant stakeholders for the implementation of enhanced visualisations - through a strategy document addressing the implementation of enhanced visualisations
Green digital charter	Energy and mitigation	City develops strategy for enhancement of the quality of jobs by restructuring of economic processes to reduce the use of material and energy - through regular meetings involving relevant stakeholders for restructuring of economic processes to reduce the
Green digital charter	Energy and mitigation	City develops strategy for the creation of advanced wireless and mobile applications - through regular meetings involving relevant stakeholders in creating advanced wireless and

		mobile applications - through a strategy document addressing the creation of
Green digital charter	Energy and mitigation	City develops strategy for the restructuring of economic processes to reduce the use of material and energy - through regular meetings involving relevant stakeholders for restructuring of economic processes to reduce the use of material and energy - throu
Green digital charter	Energy and mitigation	City develops strategy for transforming leasure activities by innovative new services - through regular meetings involving relevant stakeholders for transforming the way of playing by innovative new services - through a strategy document addressing the tr
Green digital charter	Energy and mitigation	City develops strategy for transforming the way of living by innovative new services - through regular meetings involving relevant stakeholders for transforming the way of living by innovative new services - through a strategy document addressing the tran
Green digital charter	Energy and mitigation	City develops strategy for transforming urban management by innovative new services - through regular meetings involving relevant stakeholders for transforming urban management by innovative new services - through a strategy document addressing the transf
Green digital charter	Energy and mitigation	City develops strategy for transforming working processes by innovative new services - through regular meetings involving relevant stakeholders for transforming working processes by innovative new services - through a strategy document addressing the tran
Green digital charter	Energy and mitigation	City develops strategy to consequently better opportunities for improved skills, employment, inclusion, well-being and quality of

		life - the importance of better opportunities for improved skills, employment, inclusion, well-being and quality of life for
Green digital charter	Energy and mitigation	City develops strategy to implement enhanced mobile channels - through regular meetings involving relevant stakeholders for the implementation of enhanced mobile channels - through a strategy document addressing the implementation of enhanced mobile chann
Green digital charter	Energy and mitigation	City develops strategy to implement enhanced simulations - through regular meetings involving relevant stakeholders for the implementation of enhanced simulations - through a strategy document addressing the implementation of enhanced simulations
Green digital charter	Energy and mitigation	City develops strategy to implement virtual policy modelling - through regular meetings involving relevant stakeholders for the implementation of virtual policy modelling - through a strategy document addressing the implementation of virtual policy modell
Green digital charter	Energy and mitigation	City develops strategy to support broadband networks based on high-capacity optical fibre and advanced wireless and mobile solutions - through regular meetings involving relevant stakeholders in developing broadband networks based on high-capacity optical
Green digital charter	Energy and mitigation	City drives formalisation of stakeholder commitment for green and digital actions - city provides draft Memorandum of Understanding for different stakeholder groups - negotiation of formal commitments ongoing
Green digital charter	Energy and mitigation	City drives ICT usage to enhance economic wellbeing of all citizens - ICT usage for an inclusive

		economy is subject of local debate (media, council, dedicated stakeholder board) - Unions, employer associations, chambers and incubators are approached and i
Green digital charter	Energy and mitigation	City drives ICT usage to enhance environmental wellbeing of all citizens - ICT usage for improving environmental quality is subject of local debate (media, council, dedicated stakeholder board) - Environmental pressure groups and NGOs are approached and i
Green digital charter	Energy and mitigation	City drives ICT usage to enhance social wellbeing of all citizens - ICT usage for social inclusion and equity is subject of local debate (media, council, dedicated stakeholder board) - citizens and civil society organisations (esp. representing the disadv
Green digital charter	Energy and mitigation	City drives stakeholder dialogue and networking on green and digital actions - City departments approached and involved (cross-sector) - Business and industry approached and involved - Science and academia approached and involved - Civil society organisat
Green digital charter	Energy and mitigation	City drives stakeholder involvement for test-bed implementation - citizens approached and involved - public sector organisations approached and involved - service providers approached and involved - businesses approached and involved
Green digital charter	Energy and mitigation	City/ external stakeholder invests in stakeholder involvement - time investment in participation process - knowledge investment from different stakeholders/experts - financial investments from city/ external stakeholders
Green digital charter	Energy and mitigation	City features applications for improving transparency and

		visibility of energy use - city website includes monitor of public admin energy use - city website offers apps for self-assessment of energy use - city rewards declaration of energy use for city-re
Green digital charter	Energy and mitigation	City features applications for measurement of energy use - for public administration - for public facilities - for households - for industry - for public and private transport - across territorial boundaries
Green digital charter	Energy and mitigation	City features citizen engagement in agenda setting and decision making - through public communication activities - through public consultation activities - through public involvement activities - through public collaboration activities - through public em
Green digital charter	Energy and mitigation	City features collaboration agreement with industry for greener production - mandatory environmental product label policy - eco-profile with information to scrutinize the environmental footprints of the products - tools (e.g. environmental accounting calc
Green digital charter	Energy and mitigation	City features common standards for ICT in new buildings to facilitate energy-efficient "smart" processes - for public administration - for public facilities - for households - for industry - for public and private transport - across territorial boundaries
Green digital charter	Energy and mitigation	City features common standards for ICT in retro-fitting existing buildings to facilitate energy-efficient "smart" processes - for public administration - for public facilities - for households - for industry

		- for public and private transport - across ter
Green digital charter	Energy and mitigation	City features digital infrastructures to enable low carbon activities - local SDI (INSPIRE compliant) facilitates cross-domain data access via intranet / internet - fibre optic broadband coverage - mobile broadband coverage - identify further key infrastr
Green digital charter	Energy and mitigation	City features digital services to enable low carbon activities - energy efficiency and carbon footprint assessment for households - energy efficiency and carbon footprint assessment for industry - identify further key services
Green digital charter	Energy and mitigation	City features ICT applications linking communities to the environment - ICT usage targets environmental awareness and behavioural change at individual level - ICT usage targets environmental awareness and behavioural change at corporate level - ICT usage
Green digital charter	Energy and mitigation	City features ICT applications linking different communities - ICT usage targets collective action across territorial boundaries - ICT usage targets peer exchange between cities
Green digital charter	Energy and mitigation	City features ICT infrastructure with minimal carbon footprint - through procurement - through RES usage - within city administration - within territorial boundaries (municipality, urban region)
Green digital charter	Energy and mitigation	City features ICT services with minimal carbon footprint - through service level agreements - through service sharing - within city administration - within territorial boundaries (municipality, urban region)
Green digital charter	Energy and mitigation	City features innovative digital planning applications to enable low carbon activities - facilitating energy and carbon monitoring

		- in the energy provision and usage domain - in the production and consumption domain - in the construction domain - in the
Green digital charter	Energy and mitigation	City features innovative ICT solutions for CO2 emission reduction - facilitating energy and carbon monitoring - in the energy provision and usage domain - in the production and consumption domain - in the construction domain - in the land use domain - in
Green digital charter	Energy and mitigation	City features innovative new services based on the highest speeds and capacities of these networks - in city administration - in relevant stakeholders - in end-users
Green digital charter	Energy and mitigation	City features innovative tools for transparency and visibility of data and their anaysis - for public administration - for public facilities - for households - for industry - for public and private transport - across territorial boundaries
Green digital charter	Energy and mitigation	City features low carbon activities and systemic carbon efficiencies
Green digital charter	Energy and mitigation	City features low carbon activities in all sectors
Green digital charter	Energy and mitigation	City features more sustainable ways of working in transport and urban mobility - e-Learning courses on sustainable urban mobility - energy efficient ICT applications - sustainable corporate vision - teleworking
Green digital charter	Energy and mitigation	City features practical examples of ICT carbon footprint reduction - through procurement - through service level agreements - through service sharing - through RES usage - within city administration

		- within territorial boundaries (municipality, urban re
Green digital charter	Energy and mitigation	City features smart public transport networks - ICT enhanced control system of public transport networks - ICT enhanced ticketing service, e.g. Radio Frequency Identification Detectors (RFID) to make public transport more comfortable for users - ICT enhan
Green digital charter	Energy and mitigation	City features teleconferencing - increase in the use of teleconferencing for meetings - teleconferencing as substitute for physical meetings
Green digital charter	Energy and mitigation	City has achieved compliance for a green use of hosting and data centres to control ICT emissions and encourage green ICT through: - signed commitments of local politicians - signed commitments of city admins and public sector organisations - signed commi
Green digital charter	Energy and mitigation	City has collaboration agreement with industry for greener logistics - mandatory green logistics policy - eco-profile with information to scrutinize the environmental footprints of the products - tools (e.g. environmental accounting calculators) which sup
Green digital charter	Energy and mitigation	City has collaboration agreement with industry for using green procurement - mandatory environmental product label policy - eco-profile with information to scrutinize the environmental footprints of the products - tools (e.g. environmental accounting calc
Green digital charter	Energy and mitigation	City has created and/ or expanded Living Labs network across Europe - number of Living Labs that joined the network - platform for communication is installed - frequency of platform use - quality of platform use

Green digital charter	Energy and mitigation	City ICT actions are evaluated regularly - evaluation covers process, output, outcome and impact - local good practice case studies available
Green digital charter	Energy and mitigation	City implements applications for measurement of energy use - standards for measurement of energy use adopted - data collection, access and harmonisation ensured - analysis tools adapted and/or developed
Green digital charter	Energy and mitigation	City implements eParticipation - the importance of citizen consultation in urban government processes is widely accepted among the city government - ICT infrastructure for eParticpation is installed
Green digital charter	Energy and mitigation	City implements greater co-production by citizens of content and services - the importance of citizen co-production of content and services is widely accepted among the city administration - ICT infrastructure for co-production by citizens of content and
Green digital charter	Energy and mitigation	City implements inclusive test-bed projects - test-bed set-up finalised (organisational, technical, financial) - test-bed evaluation assigned
Green digital charter	Energy and mitigation	City implements innovative ICT solutions for CO_2 emission reduction - as part of policies/measures currently implemented - as a dedicated line of action and responsibility assigned - beyond public administrations
Green digital charter	Energy and mitigation	City implements innovative tools for transparency and visibility of data and their anaysis - standards for transparency and visibility of data adopted - data collection, access and harmonisation ensured - analysis and visualisation tools adapted and/or de

Green digital charter	Energy and mitigation	City implements large-scale ICT pilots - budget for ICT pilots approved by council - project manager and team assigned
Green digital charter	Energy and mitigation	City implements new city-based Living Labs - budget for Living Labs approved by council - Living Lab manager and team assigned - participants of Living Labs confirmed
Green digital charter	Energy and mitigation	City implements practical examples of ICT carbon footprint reduction - ICT carbon footprint reduction is part of policies/measures currently implemented - ICT carbon footprint reduction is a dedicated line of action and responsibility assigned - ICT carbo
Green digital charter	Energy and mitigation	City implements system for encouraging smarter uses of laptops and substitution of conventional computers by laptops - incentive system - system to remove barriers - training system - promotion system - by addressing smarter uses of laptops in the plannin
Green digital charter	Energy and mitigation	City implements system for encouraging the use of more energy efficient servers - incentive system - system to remove barriers - training system - promotion system - by addressing energy efficient servers in the planning of new digital infrastructures
Green digital charter	Energy and mitigation	City implements system for encouraging "thin client" facilities - incentive system - system to remove barriers - training system - promotion system - by addressing "thin client" facilities in the planning of new digital infrastructures
Green digital charter	Energy and mitigation	City includes ICT footprint quality

		criteria in service level management to control ICT emissions and encourage green ICT - through meetings for developing ICT footprint criteria to be included in service level agreements - through an agreement on ICT foo
Green digital charter	Energy and mitigation	City initiates to create and/ or expand Living Labs network across Europe - number of cities contacted - number of confirmations to join network - city installs platform for exchange among the Living Labs
Green digital charter	Energy and mitigation	City maximises co-production by citizens of content and services - percentage of content and service processes in which co-production by citizens was applied
Green digital charter	Energy and mitigation	City minimises carbon footprint of ICT infrastructures - ICT carbon footprint reduction is part of measures currently implemented - ICT carbon footprint reduction is a dedicated line of action and responsibility assigned - ICT carbon footprint reduction
Green digital charter	Energy and mitigation	City minimises carbon footprint of ICT services - ICT carbon footprint reduction is part of measures currently implemented - ICT carbon footprint reduction is a dedicated line of action and responsibility assigned - ICT carbon footprint reduction is addr
Green digital charter	Energy and mitigation	City plans the use of and installs renewable energy sources to power ICT - renewable energy power plants identified - role and potentials of RES for powering ICT analysed and identified - infrastructure to power ICT by renewable energy ressources being in
Green digital charter	Energy and mitigation	City practices eParticipation - percentage of urban management decisions in which eParticipation

		was applied
Green digital charter	Energy and mitigation	City's cost savings and benefits through ICT-enabled climate change mitigation
Green digital charter	Energy and mitigation	City screens funding opportunities for GDC activities
Green digital charter	Energy and mitigation	City stakeholders create and participate (in) open innovation plattforms and methodologies - through outside-in-processes - through inside-out-processes - through coupled processes
Green digital charter	Energy and mitigation	City strategy includes support of broadband networks based on high-capacity optical fibre and advanced wireless and mobile solutions - status quo of ICT- infrastructure identified - incentive systems for private investors to create broadband networks - o
Green digital charter	Energy and mitigation	City strategy includes the creation of advanced wireless and mobile applications - status quo of ICT- infrastructure identified - incentive systems for private investors to create advanced wireless and mobile applications - objective to replace old infras
Green digital charter	Energy and mitigation	City supports creation of new jobs by material and energy saving organisation of economic processes - through guidelines distributed by city administration - training events - reduction of the use of materials and energy use is part of the promotion of th
Green digital charter	Energy and mitigation	City supports enhancement of the quality of jobs by material and energy saving organisation of economic processes - through guidelines distributed by city administration - training events - reduction of the use of materials and energy use is part of the p
Green digital charter	Energy and mitigation	City supports material and energy saving organisation of economic processes

		- through guidelines distributed by city administration - training events - reduction of the use of materials and energy use is part of business development
Green digital charter	Energy and mitigation	City's urban management is transforming by innovative new services - new innovative instruments for the assessment of urban structures - new innovative instruments for urban planning - new innovative instruments for urban management - relevant stakeholder
Green digital charter	Energy and mitigation	City´s working processes are transforming by innovative new services - PC power saving system - use of teleconferencing - use of exchange portals to reuse products - more sustainable printing and photocopying services - identify more key infrastructues
Green digital charter	Energy and mitigation	City uses a set of planning rules to control ICT emissions and encourage green ICT to control ICT emissions and encourage green ICT - green standards for planning of hosting and data centres - set of planning rules
Green digital charter	Energy and mitigation	City uses maximum of renewable energy for its hosting and data centres to control ICT emissions and encourage green ICT - percentage of hosting and data centres powered by renewable energy - percentage of maximum reached for renewable energy use for hosti
Green digital charter	Energy and mitigation	City uses renewable energy sources to power ICT - in public buildings - in private buildings - in mobility sector - in industry - percentage of power for ICT covered by renewable ressources - kinds of renewable resources used to power ICT

Green digital charter	Energy and mitigation	City uses shared services for its hosting and data centres to control ICT emissions and encourage green ICT - percentage of shared services used for hosting and data centres - shared service center has been implemented
Green digital charter	Energy and mitigation	Climate change mitigation actions recognise different stakeholder roles - climate change mitigation scenarios and vision address all relevant target groups, roles and contributions - target-group specific promotional measures available
Green digital charter	Energy and mitigation	Climate change mitigation strategy promotes social cohesion through ICT - climate change mitigation vision dentifies synergies with social cohesion strategy - climate change mitigation strategy contains ICT-enabled measures to promote social cohesion
Green digital charter	Energy and mitigation	Climate change mitigation strategy targets optimum business benefits through ICT - climate change mitigation scenarios and vision address ICT-enabled business benefits - local indicators for assessing ICT-enabled business benefits available
Green digital charter	Energy and mitigation	Climate change mitigation strategy targets optimum community benefits through ICT - climate change mitigation scenarios and vision address ICT-enabled community benefits - local indicators for assessing ICT-enabled community benefit available
Green digital charter	Energy and mitigation	CO_2 emission of city's ICT equipment
Green digital charter	Energy and mitigation	CO_2 emission reduction achieved, noticable improvement in climate relevant behavior
Green digital charter	Energy and mitigation	CO_2 emission reduction achieved, noticable improvement in social cohesion
Green digital charter	Energy and mitigation	CO_2 emission reduction achieved

		through delivery of innovative ICT solutions
Green digital charter	Energy and mitigation	CO2 emission reduction achieved through implementing ICT actions
Green digital charter	Energy and mitigation	CO2 emission reduction through ICT enhanced more sustainable ways of working in transport and urban mobility
Green digital charter	Energy and mitigation	CO2 emission reduction through ICT enhanced sustainable transport
Green digital charter	Energy and mitigation	CO2 emission reduction through new open innovation initiatives
Green digital charter	Energy and mitigation	CO2 emission reduction - through sustainable production of ICT equipment - through sustainable use of ICT equipment - through sustainable disposal of ICT equipment
Green digital charter	Energy and mitigation	CO2 emission reduction through use of teleconferencing instead of transport services
Green digital charter	Energy and mitigation	Community costs and benefits through ICT-enabled climate change mitigation are recognised - short-, mid- and long-term costs and benefits analysed and identified - costs and benefits widely debated (in the media, council, dedicated stakeholder board)
Green digital charter	Energy and mitigation	Deployment projects identified together with city, stakeholders and users
Green digital charter	Energy and mitigation	Documented guidance received from Eurocities network (reports, data, templates, etc.)
Green digital charter	Energy and mitigation	Documented guidance received from GDC signatories (reports, data, templates, etc.)
Green digital charter	Energy and mitigation	Documented guidance received from NICE (reporting tools, action tools, etc.)
Green digital charter	Energy and mitigation	Ecological footprint reduction of city's different population groups - working class - middle class - upper class
Green digital charter	Energy and mitigation	Ecological footprint reduction through green logistics
Green digital charter	Energy and mitigation	Ecological footprint reduction through green procurement

Green digital charter	Energy and mitigation	Ecological footprint reduction through green production
Green digital charter	Energy and mitigation	Economic growth that can be attributed to ICT is considered sustainable - economically - socially - ecologically
Green digital charter	Energy and mitigation	Energy savings through compliance arrangements to control ICT emissions and encourage green ICT
Green digital charter	Energy and mitigation	Energy savings through energy efficient new buildings
Green digital charter	Energy and mitigation	Energy savings through energy efficient retro-fitted existing buildings
Green digital charter	Energy and mitigation	Energy savings through heating by ICT
Green digital charter	Energy and mitigation	Energy savings through planning rules to control ICT emissions and encourage green ICT
Green digital charter	Energy and mitigation	Energy savings through powering city´s hosting and data centres by RES to control ICT emissions and encourage green ICT
Green digital charter	Energy and mitigation	Energy savings through powering ICT by RES
Green digital charter	Energy and mitigation	Energy savings through service level agreements to control ICT emissions and encourage green ICT
Green digital charter	Energy and mitigation	Energy savings through sharing services with other users to control ICT emissions and encourage green ICT
Green digital charter	Energy and mitigation	Eurocities confirms city usage of network expertise
Green digital charter	Energy and mitigation	Formal commitment of ICT developers, users, providers and regulators for sustainable production, use and disposal of ICT equipment - for individual sectors - across all sectors - across territorial boundaries
Green digital charter	Energy and mitigation	Formal stakeholder commitment for green and digital actions has been achieved - for individual sectors - across all sectors - across territorial boundaries
Green digital charter	Energy and mitigation	GDC implementation roadmap available - roadmap formally adopted by

		council(s)
Green digital charter	Energy and mitigation	GDP increase of city's different population groups - working class - middle class - upper class
Green digital charter	Energy and mitigation	ICT carbon footprint reduction achieved
Green digital charter	Energy and mitigation	ICT carbon footprint reduction in private sector
Green digital charter	Energy and mitigation	ICT carbon footprint reduction in wider community
Green digital charter	Energy and mitigation	ICT carbon footprint reduction of city's own digital services achieved
Green digital charter	Energy and mitigation	ICT carbon footprint reduction of city's own infrastructure achieved
Green digital charter	Energy and mitigation	ICT provides a platform for the economic wellbeing of all citizens - ICT usages target human capital development - ICT usages target business product and service innovation
Green digital charter	Energy and mitigation	ICT provides a platform for the environmental wellbeing of all citizens - ICT usage targets air quality improvement - ICT usage targets noise reduction - ICT usage targets biodiversity maintenance - ICT targets climate change adaptation - ICT targets wate
Green digital charter	Energy and mitigation	ICT provides a platform for the social wellbeing of all citizens - ICT usages target digital divide and social capital development - ICT usages target citizen participation and empowerment
Green digital charter	Energy and mitigation	ICT related service level agreements include ICT footprint quality criteria to control ICT emissions and encourage green ICT - for server management - for counceling services
Green digital charter	Energy and mitigation	Improvement in interaction processes between communities through ICT
Green digital charter	Energy and mitigation	Increase in number of energy efficient servers in city

		administration
Green digital charter	Energy and mitigation	Increase in number of laptops in city administration, behavioral change towards energy efficient use of laptops
Green digital charter	Energy and mitigation	Increase in Score on Weissman's Social Adjustment Scale and Sarason's Social Support Scale of city's different population groups - working class - middle class - upper class
Green digital charter	Energy and mitigation	Large-scale ICT pilots implemented since GDC signature - % of total population addressed by each pilot
Green digital charter	Energy and mitigation	Local green and digital strategy available - strategy is in line with and complementary to both environmental and ICT strategies - strategy refers to Green Digital Charter - strategy is formally adopted by council(s)
Green digital charter	Energy and mitigation	Local green and digital strategy embracing open innovation available - strategy acknowledges open innovation as a key instrument to foster low-carbon activities in all sectors - strategy removes barriers for open innovation - strategy offers incentives an
Green digital charter	Energy and mitigation	Local ICT actions are evaluated regularly - evaluation covers input, process, output, outcome, impact
Green digital charter	Energy and mitigation	Local lessons learnt from ICT actions are disseminated at national and/or EU-level - through participation in national exchange of experiences - through participation in EU-level exchange of experiences
Green digital charter	Energy and mitigation	Local strategies address behavioural change through ICT usage - users reached by ICT actions targeting behavioural change
Green digital charter	Energy and mitigation	Local strategies address enabling

		new open innovation initiatives of low carbon solutions - through programm of ideal support of initiatives - through programm of structural support of initiatives - through programm of financial support of initiatives
Green digital charter	Energy and mitigation	Local strategies address enabling value and behavioural change through transformational approaches to ICT - through ideal support of ICT initiatives - through structural support of ICT initiatives - through financial support of ICT initiatives
Green digital charter	Energy and mitigation	Local strategy and ICT actions address climate change mitigation goals - ICT usage for decision making - ICT usage for sectoral emission reduction - ICT for transforming life and work - ICT carbon footprint reduction - strategy is formally adopted by co
Green digital charter	Energy and mitigation	Local sustainability strategy and vision address critical role of ICT for sustainable growth - as a general area of concern - as a dedicated line of action - strategy is formally adopted by council(s)
Green digital charter	Energy and mitigation	New city-based Living Labs implemented, currently in the phases of - co-creation - exploration - experimentation - evaluation
Green digital charter	Energy and mitigation	New open innovation initiatives of low carbon solutions have been created - number of initiatives
Green digital charter	Energy and mitigation	NICE confirms city usage of project expertise
Green digital charter	Energy and mitigation	Noticable behavioural change in sustainable urban management pratices
Green digital charter	Energy and mitigation	Noticable improvement in climate relevant behavior through ICT usage

		- in city administration - in relevant stakeholders - in end-users
Green digital charter	Energy and mitigation	Noticable improvement in climate relevant behavior through usage of advanced wireless and mobile applications - in city administration - in relevant stakeholders - in end-users
Green digital charter	Energy and mitigation	Noticable improvement in climate relevant behavior through usage of broadband networks based on high-capacity optical fibre and advanced wireless and mobile solutions - in city administration - in relevant stakeholders - in end-users
Green digital charter	Energy and mitigation	Noticable improvement in climate relevant behavior through usage of innovative new services based on the highest speeds and capacities of these networks - in city administration - in relevant stakeholders - in end-users
Green digital charter	Energy and mitigation	Noticable improvement of the quality of jobs through material and energy saving economic processes
Green digital charter	Energy and mitigation	Noticable increase in the quantity of jobs through material and energy saving economic processes
Green digital charter	Energy and mitigation	Noticable increase in the sustainability of leisure activities within the city
Green digital charter	Energy and mitigation	Noticable increase in the sustainability of the way of living within the city
Green digital charter	Energy and mitigation	Noticable increase in the sustainability of working processes within the city
Green digital charter	Energy and mitigation	Noticable reduction of the use of materials and energy by economic processes
Green digital charter	Energy and mitigation	Number of green connected cities
Green digital charter	Energy and mitigation	Participation in Eurocities KSF for EU-wide networking on GDC activities
Green digital charter	Energy and mitigation	Participation in EU-wide bilateral/mulitlateral meetings with GDC signatories

		- physical meetings held with other GDC signatories - virtual meetings held with other GDC signatories - English translation of key local documentation available
Green digital charter	Energy and mitigation	Participation in NICE training on GDC implementation - participation in NICE outreach events
Green digital charter	Energy and mitigation	Per capita non local government funding acquired for GDC activities
Green digital charter	Energy and mitigation	Percentage of energy use and CO_2 emissions across city administration recorded by development of common standards
Green digital charter	Energy and mitigation	Percentage of energy use and CO_2 emissions across the city as a whole recorded by development of common standards
Green digital charter	Energy and mitigation	Percentage of energy use and CO_2 emissions of ICT recorded across the city as a whole
Green digital charter	Energy and mitigation	Promotional measures on open innovation fostering low-carbon activities in all sectors are available - evaluation results of city's own practices - consultation service for planning and implementation - technical guidance for planning and implementation -
Green digital charter	Energy and mitigation	Promotional measures towards private sector concerning ICT carbon footprint reduction are available and disseminated - evaluation results of city's own practices - consultation service for planning and implementation - technical guidance for planning and
Green digital charter	Energy and mitigation	Promotional measures towards wider community concerning ICT carbon footprint reduction are available and disseminated - evaluation results of city's own practices - consultation service for planning and implementation - technical guidance for planning and

Green digital charter	Energy and mitigation	R&D activities (questions and tasks) identified together with city, stakeholders and users
Green digital charter	Energy and mitigation	Reduction of ecological footprint through ICT
Green digital charter	Energy and mitigation	Regular stakeholder dialogue format has been established ("Green and Digital Arena") - Arena remit, task description and annual working plan agreed - Annual arena meetings since formation - new partnerships established
Green digital charter	Energy and mitigation	Relative reduction of city's direct ICT carbon footprint since GDC signature
Green digital charter	Energy and mitigation	Renewable energy used for hosting and data centres
Green digital charter	Energy and mitigation	Renewable energy used to power ICT
Green digital charter	Energy and mitigation	Role of different stakeholder groups in climate change mitigation is recognised - role and contributions analysed and identified (esp. households, SMEs, industry, logistics) - role and contributions widely debated (in the media, council, dedicated stakeh
Green digital charter	Energy and mitigation	Role of ICT-enabled climate change mitigation for social cohesion is recognised - implications analysed and identified (esp. digital divide, social exclusion, spatial segregation) - implications widely debated (in the media, council, dedicated stakeholder
Green digital charter	Energy and mitigation	Role of ICT for sustainable growth is subject of local debate - in the local media - in the city council - in a dedicated stakeholder board
Green digital charter	Energy and mitigation	Stakeholders are involved in test-bed implementations - stakeholder costs and benefits are specified - test-bed operation requires contributions from citizens, public sector organisations, service providers and businesses
Green digital charter	Energy and mitigation	Stakeholders share a green and

		digital vision outlining integrated action - across all city departments and sectors - across territorial boundaries - vision is formally adopted by council(s)
Green digital charter	Energy and mitigation	Stakeholders share a green and digital vision outlining large-scale solutions - across departments and sectors - across territorial boundaries - vision is formally adopted by council(s)
Green digital charter	Energy and mitigation	Standards for collection, collation and analysis of emission and energy data are implemented across the city administration - set of standards for collection of emission and energy data - set of standards for collation of emission and energy data - se
Green digital charter	Energy and mitigation	Standards for collection, collation and analysis of emission and energy data are implemented across the city as a whole - set of standards for measurability of emission and energy data - set of standards for transparency of emission and energy data - s
Green digital charter	Energy and mitigation	Test-bed projects running - total users addressed by test-beds
Green digital charter	Energy and mitigation	User-driven open innovation environments including deployment projects - total users addressed by deployment projects
Green digital charter	Energy and mitigation	User-driven open innovation environments including R&D activities - total efforts allocated for R&D
Green digital charter	Energy and mitigation	Users and stakeholders are thoroughly taken into account/ involved - in the conception and design of ICT actions - in the implementation and testing of ICT actions - in the evaluation of ICT actions
Green digital charter	Energy and mitigation	Within the city leasure activities are transforming by innovative new

		services - warning system for playing in public transportation for getting off at the right stops - systems to indicate the occupation of play grounds - combined eletronic tickets for
Green digital charter	Energy and mitigation	Within the city the way of living is transforming by innovative new services - incentive system for sustainable ways of living distributed through innovative new services - innovative new information system for sustainable ways of living - innovative new

Name of the framework

Indicators measuring the energy positivity of neighbourhoods from IDEAS project. IDEAS is an abbreviation of "Intelligent NeighbourhooD Energy Allocation & Supervision".

Framwork	Subtheme	Indicator Title
IDEAS	Energy and mitigation	annual mismatch ratio (AMRx) for cooling
IDEAS	Energy and mitigation	annual mismatch ratio (AMRx) for electricity
IDEAS	Energy and mitigation	annual mismatch ratio (AMRx) for heating
IDEAS	Energy and mitigation	maximum hourly deficit (MHDx) for cooling
IDEAS	Energy and mitigation	maximum hourly deficit (MHDx) for electricity
IDEAS	Energy and mitigation	maximum hourly deficit (MHDx) for heating
IDEAS	Energy and mitigation	maximum hourly surplus (MHSx) for cooling
IDEAS	Energy and mitigation	maximum hourly surplus (MHSx) for electricity
IDEAS	Energy and mitigation	maximum hourly surplus (MHSx) for heating
IDEAS	Energy and mitigation	monthly ratio of peak hourly demand to lowest hourly demand (RPLx) for cooling
IDEAS	Energy and mitigation	monthly ratio of peak hourly demand to lowest hourly demand (RPLx) for electricity
IDEAS	Energy and mitigation	monthly ratio of peak hourly demand to lowest hourly demand (RPLx) for heating
IDEAS	Energy and mitigation	yearly on-site energy ratio (OER)

Name of the framework

ISO 37120 - Sustainable development in communities — Indicators for city services and quality of life.

Framwork	Subtheme	Indicator Title
ISO 37120	Accessibility	Annual number of public transport trips per capita
ISO 37120	Accessibility	Commercial air connectivity (number of non-stop commercial air destinations)
ISO 37120	Accessibility	Kilometres of bicycle paths and lanes per 100.00 population
ISO 37120	Accessibility	Kilometres of high capacity public transport system per 100.00 population
ISO 37120	Accessibility	Kilometres of light passenger transport system per 100.00 population
ISO 37120	Accessibility	Modal split (percentage of commuters using a travel mode other than a personal vehicle)
ISO 37120	Accessibility	Number of personal automobiles per capita
ISO 37120	Accessibility	Number of two-wheel motorized vehicles per capita
ISO 37120	Access to services	Number of cell phone connections per 100.00 population
ISO 37120	Access to services	Number of internet connections per 100 000 population
ISO 37120	Access to services	Number of landline phone connections per 100.00population
ISO 37120	Diversity and social cohesion	Average life expectancy
ISO 37120	Economic performance	Average annual hours of water service interruptions per household
ISO 37120	Economic performance	Average length of electrical interruptions (in hours)
ISO 37120	Economic performance	Average number of electrical interruptions per customer per year
ISO 37120	Economic performance	Capital spending as a percentage of total expenditures
ISO 37120	Economic performance	Commercial/Industrial Assessment as a percentage of total assessment
ISO 37120	Economic performance	Debt service ratio (debt service expenditure as a percent of a municipality's own-source revenue)

ISO 37120	Economic performance	Number of businesses per 100.00 population
ISO 37120	Economic performance	Own-source revenue as a percentage of total revenues
ISO 37120	Economic performance	Tax collected as percentage of tax billed
ISO 37120	Ecosystems	Percentage change in number of native species
ISO 37120	Education	Number of higher education degrees per 100.00 population
ISO 37120	Education	Percentage of female school-aged population enrolled in school
ISO 37120	Education	Percentage of male school-aged population enrolled in school
ISO 37120	Education	Percentage of school-aged population enrolled in school
ISO 37120	Education	Percentage of students completing primary education
ISO 37120	Education	Percentage of students completing secondary education
ISO 37120	Education	Student/teacher ratio
ISO 37120	Employment	Percentage of persons in full-time employment
ISO 37120	Employment	Percentage of women employed in the city government workforce
ISO 37120	Employment	Youth unemployment rate
ISO 37120	Energy and mitigation	Energy consumption of public buildings as a percentage of total consumption in the city
ISO 37120	Energy and mitigation	Greenhouse gas emissions measured in tonnes per capita
ISO 37120	Energy and mitigation	Percentage of city population with authorized electrical service
ISO 37120	Energy and mitigation	Percentage of total energy derived from renewable sources, as a share of the city's total energy consumption
ISO 37120	Energy and mitigation	Total electrical use per capita (kilowatt/year)
ISO 37120	Energy and mitigation	Total residential electrical use per capita (kilowatt/year)
ISO 37120	Environment	Annual number of trees planted per 100.00 population
ISO 37120	Environment	Fine Particulate Matter (PM2.5) concentration
ISO 37120	Environment	Hazardous waste generation per capita
ISO 37120	Environment	NO2 (nitrogen dioxide) concentration
ISO 37120	Environment	Noise pollution
ISO 37120	Environment	O3 (ozone) concentration

ISO 37120	Environment	Particulate Matter (PM10) concentration
ISO 37120	Environment	Percentage of city population with regular solid waste collection (residential)
ISO 37120	Environment	Percentage of city's hazardous waste that is recycled
ISO 37120	Environment	Percentage of city's solid waste that is recycled
ISO 37120	Environment	Percentage of the city's solid waste that is burned openly
ISO 37120	Environment	Percentage of the city's solid waste that is disposed of by other means
ISO 37120	Environment	Percentage of the city's solid waste that is disposed of in an incinerator
ISO 37120	Environment	Percentage of the city's solid waste that is disposed of in an open dump
ISO 37120	Environment	Percentage of the city's solid waste that is disposed of in a sanitary landfill
ISO 37120	Environment	Percentage of the city's wastewater receiving primary treatment
ISO 37120	Environment	Percentage of the city's wastewater receiving secondary treatment
ISO 37120	Environment	Percentage of the city's wastewater receiving tertiary treatment
ISO 37120	Environment	Percentage of the city's wastewater that has received no treatment
ISO 37120	Environment	Percentage of water loss (unaccounted for water)
ISO 37120	Environment	SO2 (sulphur dioxide) concentration
ISO 37120	Environment	Total collected municipal solid waste per capita
ISO 37120	Environment	Total domestic water consumption per capita (litres/day)
ISO 37120	Environment	Total water consumption per capita (litres/day)
ISO 37120	Equity	City's uneployment rate
ISO 37120	Equity	Number of homeless per 100.00 population
ISO 37120	Equity	Percentage of households that exist without registered legal titles
ISO 37120	Health	Number of homicides per 100.00 population
ISO 37120	Health	Number of in-patient hospital beds per 100.00 population
ISO 37120	Health	Number of mental health practitioners per 100.00 population
ISO 37120	Health	Number of nursing and midwifery personnel per 100.00 population
ISO 37120	Health	Number of physicians per 100.00

		population
ISO 37120	Health	Percentage of city population served by wastewater collection
ISO 37120	Health	Percentage of city population with potable water supply service
ISO 37120	Health	Percentage of city population with sustainable access to an improved water source
ISO 37120	Health	Percentage of population with access to improved sanitation
ISO 37120	Health	Suicide rate per 100.00 population
ISO 37120	Health	Under age five mortality per 1 000 live births
ISO 37120	Innovation	Number of new patents per 100.00 population per year
ISO 37120	Open government	Citizens' representation: number of local officials elected to office per 100.00population
ISO 37120	Open government	Number of convictions for corruption/bribery by city officials per 100.00 population
ISO 37120	Open government	Number of registered voters as a percentage of the voting age population
ISO 37120	Open government	Voter participation in last municipal election (as a percentage of eligible voters)
ISO 37120	Open government	Women as a percentage of total elected to city-level office
ISO 37120	Quality of housing and of the built environment	Areal size of informal settlements as a per cent of city area
ISO 37120	Quality of housing and of the built environment	Green area (hectares) per 100.00 population
ISO 37120	Quality of housing and of the built environment	Jobs/housing ratio
ISO 37120	Quality of housing and of the built environment	Percentage of city population living in poverty
ISO 37120	Quality of housing and of the built environment	Percentage of city population living in slums
ISO 37120	Quality of housing and of the built environment	Square metres of public indoor recreation space per capita
ISO 37120	Quality of housing and of the built environment	Square metres of public outdoor recreation space per capita
ISO 37120	safety	Response time for emergency response services from initial call
ISO 37120	safety	Response time for fire department from initial call
ISO 37120	safety	Response time for police department from initial call
ISO 37120	safety	Transportation fatalities per 100.00population

ISO 37120	safety	Violent crime rate per 100.00 population
ISO 37120	Safety	Crimes against property per 100.000
ISO 37120	Safety	Number of firefighters per 100.000 population
ISO 37120	Safety	Number of fire related deaths per 100.00population
ISO 37120	Safety	Number of natural disaster-related deaths per 100.00population
ISO 37120	Safety	Number of police officers per 100.00 population
ISO 37120	Safety	Number of volunteer and part-time firefighters per 100.00 population.

Name of the framework

ISO 37151.1 - Smart community infrastructure - Principles and requirements for performance metrics

Framwork	Subtheme	Indicator Title
ISO 37151	Accessibility	Abilty to access
ISO 37151	Access to services	Population coverage
ISO 37151	Climate resilience	Amount of green house gas (GHG) emission
ISO 37151	Climate resilience	Redundancy
ISO 37151	Climate resilience	Robustness
ISO 37151	Climate resilience	Substitutability
ISO 37151	Climate resilience	Swiftness of recovery
ISO 37151	Co-creation	Customer communication
ISO 37151	Economic performance	Investment efficiency
ISO 37151	Economic performance	Stability
ISO 37151	Economic performance	Temporal coverage
ISO 37151	Economic performance	Total life-cycle cost
ISO 37151	Economic sustainability	Appropriateness of maintenance
ISO 37151	Economic sustainability	Efficiency of maintenance
ISO 37151	Ecosystem	Amount of green space
ISO 37151	Ecosystem	Contribution to human and public health
ISO 37151	Ecosystem	Control of surface run-off and drainage
ISO 37151	Environment	Amount of pollutant emission
ISO 37151	Environment	Level of sensory nuisance
ISO 37151	Equity	Service price
ISO 37151	Other resources	Area coverage
ISO 37151	Project performance	Appropriate size of facilities
ISO 37151	Project performance	Community infrastructure-specific qualities
ISO 37151	Project performance	Easy procedure to use
ISO 37151	Project performance	Flexibility for the size of demands
ISO 37151	Project performance	Interoperability
ISO 37151	Project performance	Operational efficiency
ISO 37151	Project performance	Proper invoicing
ISO 37151	Project performance	Provision of information
ISO 37151	Project performance	Service capacity

ISO 37151	Resources	Efficiency of energy consumption
ISO 37151	Resources	Efficiency of natural resources consumption
ISO 37151	Resources	Net amount of waste
ISO 37151	Safety	Cyber Security and data privacy
ISO 37151	Safety	Physical security
ISO 37151	Safety	Safety

Name of the framework

ITU Key performance indicators in smart sustainable cities (2014)

Framwork	Subtheme	Indicator Title
ITU	Accessibility	Coverage of electronic bus bulletin board
ITU	Accessibility	Coverage of installation of road sensing terminals
ITU	Accessibility	Coverage of parking guidance systems
ITU	Health	Improvement of waste water recycling with ICT measures
ITU	Health	Sewage discharge management with ICT measures
ITU	Quality of housing and of the built environment	Application level of energy saving technologies in public buildings
ITU	Quality of housing and of the built environment	Percentage of public buildings with integrated technologies
ITU	Quality of housing and of the built environment	Proportion of smart home automation adoption

Name of the framework		
LEED v4 for Neighbourhood Development (updated October 1, 2014)		

Framwork	Subtheme	Indicator Title
LEED	Accessibility	Access to Quality Transit
LEED	Accessibility	Bicycle Network
LEED	Accessibility	Bikable Location
LEED	Accessibility	Developer-Sponsored Transit
LEED	Accessibility	Flexible Work Arrangements
LEED	Accessibility	Guaranteed Ride Home Program
LEED	Accessibility	Transit Facilities
LEED	Accessibility	Transit Passes
LEED	Accessibility	Unbundling of Parking and Parking Fees
LEED	Accessibility	Vehicle Sharing
LEED	Access to services	Access to Recreation Facilities
LEED	Access to services	All other projects
LEED	Access to services	Neighborhood Schools
LEED	Access to services	Projects with Access to Quality Transit
LEED	Climate resilience	High-Reflectance and Vegetated Roofs
LEED	Climate resilience	Nonroof
LEED	Co-creation	Charrette
LEED	Co-creation	Community Outreach
LEED	Co-creation	Endorsement Program
LEED	Community	Connected and Open Community
LEED	Community	Internal Connectivity
LEED	Community	Surrounding Connectivity
LEED	Economic sustainability	Community-Supported Agriculture
LEED	Economic sustainability	Neighborhood Gardens
LEED	Economic sustainability	Proximity to Farmers Market
LEED	Ecosystem	Development Footprint on Previously Developed Land
LEED	Ecosystem	Habitat Conservation Plan (equivalent)
LEED	Ecosystem	Long-Term Conservation Management of Habitat or Wetlands and Water Bodies
LEED	Ecosystem	No Development on Wetlands and

LEED		Water Bodies
LEED	Ecosystem	Rainwater Management and Protected Buffers
LEED	Ecosystem	Restoration of Habitat or Wetlands and Water Bodies
LEED	Ecosystem	Undeveloped Portion of Project Left Undisturbed
LEED	Energy and mitigation	Block Orientation
LEED	Energy and mitigation	Building Orientation
LEED	Energy and mitigation	District Heating and Cooling
LEED	Energy and mitigation	Infrastructure Energy Efficiency
LEED	Energy and mitigation	Prescriptive Compliance: Advanced Buildings Core Performance Guide
LEED	Energy and mitigation	Prescriptive Compliance: ASHRAE 50% Advanced Energy Design Guide
LEED	Energy and mitigation	Renewable Energy Production
LEED	Energy and mitigation	Whole-Building Energy Simulation
LEED	Environment	All Other Sites with Flood Hazard Areas
LEED	Environment	American Society of Civil Engineers Standard
LEED	Environment	Construction Activity Pollution Prevention
LEED	Environment	Exterior Lighting for All Other Areas
LEED	Environment	Exterior Lighting for Circulation Network
LEED	Environment	Exterior Lighting for Residential Areas
LEED	Environment	Indoor Water Use Reduction
LEED	Environment	National Flood Insurance Program
LEED	Environment	No Irrigation Required
LEED	Environment	Points for retaining rainwater on site
LEED	Environment	Reduced Irrigation
LEED	Environment	Wastewater Management
LEED	Environment	
LEED	Innovation	Additional Strategies
LEED	Innovation	Innovation
LEED	Innovation	Pilot
LEED	na	
LEED	Quality of housing and of the built environment	Access to Civic & Public Space
LEED	Quality of housing and of the built environment	Adjacent Sites with Connectivity
LEED	Quality of housing and of the built environment	Affordable Housing
LEED	Quality of housing and of the built environment	Brownfield Site

LEED	Quality of housing and of the built environment	Building Reuse
LEED	Quality of housing and of the built environment	Certified Green Building
LEED	Quality of housing and of the built environment	Compact Development
LEED	Quality of housing and of the built environment	Diversity of Housing Types
LEED	Quality of housing and of the built environment	High-Priority Redevelopment Area
LEED	Quality of housing and of the built environment	Historic Resource Preservation and Adaptive Reuse
LEED	Quality of housing and of the built environment	Infill Project with Nonresidential Component
LEED	Quality of housing and of the built environment	Infill Sites
LEED	Quality of housing and of the built environment	Mixed-Use Neighborhoods
LEED	Quality of housing and of the built environment	Projects of All Sizes
LEED	Quality of housing and of the built environment	Projects with 10 or Fewer Habitable Buildings
LEED	Quality of housing and of the built environment	Projects with New Dwelling Units
LEED	Quality of housing and of the built environment	Projects With Noncompliant Routes and No New Dwelling Units
LEED	Quality of housing and of the built environment	Project with Affordable Residential Component
LEED	Quality of housing and of the built environment	Project with Residential Component
LEED	Quality of housing and of the built environment	Reduced Parking Footprint
LEED	Quality of housing and of the built environment	Shaded Sidewalks
LEED	Quality of housing and of the built environment	Sites with Nearby Neighborhood Assets
LEED	Quality of housing and of the built environment	Sites with Significant Habitat
LEED	Quality of housing and of the built environment	Sites with Wetlands and Water Bodies
LEED	Quality of housing and of the built environment	Transit Corridor
LEED	Quality of housing and of the built environment	Tree-Lined Blocks
LEED	Quality of housing and of the built environment	Walkable Streets
LEED	Quality of housing and of the built environment	
LEED	Resources	Infill Sites
LEED	Resources	Recycled and Reused Infrastructure
LEED	Resources	Sites Served by Transit

| LEED | Resources | Sites without or without Affected Soils |
| LEED | Resources | Solid Waste Management |

Name of the framework

Green Growth in Cities

Framwork	Subtheme	Indicator Title
OECD	Accessibility	Annual number of storm water/sewage overflows in city/metro region per 100 km of network length
OECD	Accessibility	Capacity and use of Park and Ride facilities in metro area
OECD	Accessibility	City/metro road network length
OECD	Accessibility	Length of public transport network, by rail, light rail, bus, bus rapid transit
OECD	Accessibility	Levies and charges specifically aimed at relieving urban congestion
OECD	Accessibility	Percentage of residents living within 500 metres of transportation connection
OECD	Accessibility	Share of children going to school on foot, by bicycle, by school bus, on public transport, and by private car
OECD	Accessibility	Share of city trips by motorised private transport, by public transport, by bicycle and on foot
OECD	Accessibility	Total length of bicycle lanes
OECD	access to services	Percentage of population living within 500m of commercial services
OECD	Community	Number of people commuting into/out of the city as a share of population
OECD	Economic performance	Annual number of health warning (boil water) notices and supply interruptions or restrictions; or Average annual hours of water service interruptions per connection or per million cubic metres of water produced
OECD	Economic performance	Household expenditure on transport services as a share of total household expenditure
OECD	Economic performance	Percentage of purchase of eco-labelled products of household consumption expenditure of durable

		goods in city/metro area
OECD	Ecosystems	Inland or coastal areas within metro area covered by water over a large part of the year
OECD	Energy and mitigation	Carbon intensity of local energy production
OECD	Energy and mitigation	Carbon intensity of regional/city GDP, broken down by sector
OECD	Energy and mitigation	Energy intensity, by sector (manufacturing, transport, commercial & public service, residential), TPES and TFC
OECD	Energy and mitigation	Share of city/metro region energy consumption that comes from renewable resources as a percentage of total city TFC
OECD	Energy and mitigation	Share of city/metro region energy production that comes from renewable resources
OECD	Energy and mitigation	Share of electricity customers who have opted for green tariffs
OECD	Energy and mitigation	Shares of municipal waste recycled, composted, incinerated with/without energy recovery, landfilled
OECD	Energy and mitigation	Total value of projects with green building certification as a share of the total value of projects granted a building permit per year
OECD	Environment	Average household wastewater treatment charges
OECD	Environment	Compliance of public water supply with drinking quality standards as % of samples exceeding one or more standards.
OECD	Environment	Compliance of urban streams and lakes with local ecological and chemical water quality criteria
OECD	Environment	Domestic water consumption
OECD	Environment	Emissions to air of conventional pollutants per unit of city GDP, by source (urban transport, industries and buildings)
OECD	Environment	Emissions to air of persistent organic pollutants (POPs) per unit of city GDP, by source
OECD	Environment	Household waste generation intensity
OECD	Environment	Movement, treatment and disposal of hazardous waste as a share of production of hazardous waste in city/metro area

OECD	Environment	Municipal solid waste generation intensity in city/metro area
OECD	Environment	Non-revenue water in urban water supply networks
OECD	Environment	Number of hours/days per year of net exceedances of limit values for PM10, PM2.5, O3, NO2, SO2.
OECD	Environment	Percentage of low exhaust vehicles in total city car fleet, in taxi fleets, in company fleets, and in (city) government fleets
OECD	Environment	Percentage of urban population resident in areas where air pollutant concentrations are higher than local limit values
OECD	Environment	Percentage of urban population residing in areas where air pollutant concentrations are higher than local limit values
OECD	Environment	Proportion of residents exposed to traffic noise of >55 dB(A) by day and >45 dB(A) by night
OECD	Environment	Trends in discharges of BOD, N and P from urban wastewater treatment plants (both public and industrial)
OECD	Environment	Urban traffic intensity
OECD	Environment	Water abstractions for public supply
OECD	Equity	Average price of domestic water supply per m3 or average household water bill as a share of average income
OECD	Health	Concentration of lead in blood of city/metro area population
OECD	Health	Environmentally induced health problems and related costs in disability-adjusted life years
OECD	Health	Number of hospital admissions for asthma at times of peak air pollution episodes, per capita of population or as a share of total annual admissions for asthma
OECD	Health	Post-neonatal death rates due to respiratory diseases
OECD	Health	Proportion of urban population residing in designated natural and industrial hazard zones
OECD	na	Amount of toxic waste collected from households and SMEs
OECD	na	Average travel speed on primary thoroughfares during peak hours

OECD	na	Compliance of metro area bathing sites (coastal and freshwater) with quality standards.
OECD	na	Compliance of urban wastewater treatment plants with local effluent limits
OECD	na	Construction, industrial and hazardous waste intensities in city/metro area
OECD	na	Industrial water use intensity (from network and self-supply), by sector and per unit of city GDP.
OECD	na	Number of people reported to have been affected by diseases arising from drinking water and basing water over a defined period per capita
OECD	na	Passenger and freight transport intensity by mode per capita, resp. unit of city GDP
OECD	na	Percentage of households served by separate collection of recyclable waste fractions)
OECD	na	Percentage of population connected to public sewerage, of which connected/not connected to a treatment plant
OECD	na	Population connected to urban wastewater treatment plants with primary/secondary/tertiary treatment level
OECD	na	Proportion of urban storm water receiving treatment before being discharged
OECD	na	Public perceptions of urban air quality, green space provision, and public transport quality
OECD	na	Share of city enterprises with ISO14001/EMAS certification or similar
OECD	na	Share of eco-labelled products in public procurement by city authorities
OECD	Open government	PAC expenditure on urban waste management services
OECD	Open government	PAC expenditure on urban water services per unit of city GDP
OECD	Process	Number of Blue Flag sites within metro area (for coastal cities)
OECD	Quality of housing and of the built environment	Area of green space accessible to the public
OECD	Quality of housing and of the	Area of land protected from urban

	built environment	development
OECD	Quality of housing and of the built environment	Density of city/metro region per area
OECD	Quality of housing and of the built environment	Extent of built-up area
OECD	Quality of housing and of the built environment	Extent of re-naturalised waterways and redeveloped waterfront areas, opened up to the public
OECD	Quality of housing and of the built environment	Percentage of citizens living within 300 m from public open space >5000 m2
OECD	Quality of housing and of the built environment	Proportion of city/metro brownfield sites that has been redeveloped
OECD	Quality of housing and of the built environment	Proportion of population within a 15 min walk of green space
OECD	Quality of housing and of the built environment	Share of new development built in mature areas, downtown, near transit locations and on greenfield land
OECD	Quality of housing and of the built environment	Urban growth
OECD	Resources	Percentage of buildings/houses equipped to reuse grey water
OECD	Resources	Proportion of construction/demolition (C&D) waste being recovered/recycled out of total produced
OECD	Resources	Proportion of treated effluent that is re-used
OECD	Resources	Waste recycling rates (paper, glass, batteries, PVC, bottles, metals
OECD	Safety	Number of reported episodes of illness attributable to diseases carried in drinking-water and bathing water over a defined period per capita

Name of the framework
Planning for Energy Efficient Cities (PLEEC)

Framwork	Subtheme	Indicator Title
PLEEC	Accessibility	CO2 emissions in motorised private transport
PLEEC	Accessibility	CO2 emissions in public transport
PLEEC	Accessibility	CO2 emissions in transport of goods
PLEEC	Accessibility	Cost of a monthly ticket for public transport
PLEEC	Accessibility	Cost of petrol
PLEEC	Accessibility	Energy demand in motorised private transport
PLEEC	Accessibility	Energy demand in public transport
PLEEC	Accessibility	Energy demand in transport of goods (freight)
PLEEC	Accessibility	Length of bicycle network per inhabitant
PLEEC	Accessibility	Level of motorisation
PLEEC	Accessibility	Parking fee
PLEEC	Accessibility	Transport performance in bicycle transport
PLEEC	Accessibility	Transport performance in motorised private transport
PLEEC	Accessibility	Transport performance in pedestrian transport
PLEEC	Accessibility	Transport performance in public transport
PLEEC	Accessibility	Transport performance in transport of goods (freight)
PLEEC	Access to services	CO2 emissions in service sector
PLEEC	Access to services	Energy demand in service sector
PLEEC	Economic performance	CO2 emissions in industry
PLEEC	Economic performance	Energy demand in industry
PLEEC	Economic performance	Share of companies with energy management
PLEEC	Energy and mitigation	CO2 emissions in private households
PLEEC	Energy and mitigation	Energy demands in private households
PLEEC	Energy and mitigation	Energy supply - biomass
PLEEC	Energy and mitigation	Energy supply - crude oil and

		petroleum products
PLEEC	Energy and mitigation	Energy supply - gas
PLEEC	Energy and mitigation	Energy supply - geothermal including heat pump
PLEEC	Energy and mitigation	Energy supply - hydropower
PLEEC	Energy and mitigation	Energy supply - nuclear
PLEEC	Energy and mitigation	Energy supply - solar
PLEEC	Energy and mitigation	Energy supply - solid fuels
PLEEC	Energy and mitigation	Energy supply - tide, wave, ocean
PLEEC	Energy and mitigation	Energy supply - traditional mix
PLEEC	Energy and mitigation	Energy supply - waste
PLEEC	Energy and mitigation	Energy supply - wind
PLEEC	Energy and mitigation	Energy tariff - renewables mix
PLEEC	Energy and mitigation	Share of district heating
PLEEC	Energy and mitigation	Share of energy-efficient lamps
PLEEC	Energy and mitigation	Share of household income spent on electricity
PLEEC	Energy and mitigation	Share of household income spent on petrol
PLEEC	Energy and mitigation	Share of public low- (zero-) energy buildings
PLEEC	Energy and mitigation	Share of smart meters
PLEEC	Quality of housing and of the built environment	Population density
PLEEC	Quality of housing and of the built environment	Share of annual thermal renovations
PLEEC	Quality of housing and of the built environment	Share of detached housing
PLEEC	Quality of housing and of the built environment	Share of dwellings in low- (zero) energy buildings
PLEEC	Resources	Recycling of waste
PLEEC	Resources	Waste collection fee
PLEEC	Resources	Waste generation

Name of the framework

READY - Resource Efficient cities implementing advance smart city solutions

Framwork	Subtheme	Indicator Title
READY	Economic performance	GDP per capita
READY	Economic performance	GDP per capita reference year 1993
READY	Energy and mitigation	CO2 emission by fuel
READY	Energy and mitigation	CO2 emission by fuel and activity by the householdes and technology
READY	Energy and mitigation	CO2 emission by fuel in the industrial sector
READY	Energy and mitigation	CO2 emission by sector
READY	Energy and mitigation	CO2 emission by sector per capita
READY	Energy and mitigation	CO2 emission coefficient for the district heating production
READY	Energy and mitigation	CO2 emission for heating
READY	Energy and mitigation	CO2 emission for heating capita
READY	Energy and mitigation	CO2 emission for the district heating adjust to the degree day
READY	Energy and mitigation	CO2 emission for the district heating by utlity
READY	Energy and mitigation	CO2 emission for transportation
READY	Energy and mitigation	CO2 emission from electricity
READY	Energy and mitigation	CO2 emission from the electricity and utility
READY	Energy and mitigation	CO2 emission per capita respect 2020 target (1.602 Ton/Ihn)
READY	Energy and mitigation	CO2 emission per heat production by fuel in the industrial sector
READY	Energy and mitigation	CO2 emission share by sector
READY	Energy and mitigation	CO2 emission to Other
READY	Energy and mitigation	CO2 emission to Other per capita
READY	Energy and mitigation	CO2 intensity
READY	Energy and mitigation	CO2 intensity for the electric sector
READY	Energy and mitigation	CO2 intensity reference year 1993
READY	Energy and mitigation	CO2 per capita
READY	Energy and mitigation	CO2 per capita reference year 1993
READY	Energy and mitigation	CO2 per GDP
READY	Energy and mitigation	CO2 per GDP reference year 1993
READY	Energy and mitigation	CO2 reduction per capita reference year 1993

READY	Energy and mitigation	CO2 reduction reference year 2008
READY	Energy and mitigation	Cooling production from CHP
READY	Energy and mitigation	Decentralized heat production by fuel
READY	Energy and mitigation	District heating energy consumption by sector and utility
READY	Energy and mitigation	District heating energy production by fuel
READY	Energy and mitigation	District heating production by utility and fuel
READY	Energy and mitigation	Energy consumption by fuel and activity by the householdes and technology
READY	Energy and mitigation	Energy consumption by fuel for CHP
READY	Energy and mitigation	Energy consumption by industry and fuel
READY	Energy and mitigation	Energy consumption by sector and fuel
READY	Energy and mitigation	Energy per capita
READY	Energy and mitigation	Energy per GDP
READY	Energy and mitigation	Energy per GDP refernce year 1993
READY	Energy and mitigation	Energy supply - Non-REN
READY	Energy and mitigation	Energy supply - REN
READY	Energy and mitigation	Heat production from CHP
READY	Energy and mitigation	Heat Supply by DH
READY	Energy and mitigation	Numbers of dwelling per type of boiler
READY	Energy and mitigation	Share of local energy production
READY	Energy and mitigation	Share of REN
READY	Energy and mitigation	Share of the district heating production by utility
READY	Energy and mitigation	Share of the energy consumption by industry
READY	Energy and mitigation	Total CO2 emission
READY	Energy and mitigation	Total CO2 emission adjust by degree day
READY	Energy and mitigation	Total energy consumption by sectors
READY	Energy and mitigation	Total Energy consumption for CHP
READY	Energy and mitigation	Total Energy consumption for DH
READY	Energy and mitigation	Total energy supply by fuel

Name of the framework
Reference Framework for Sustainable Cities

Framwork	Subtheme	Indicator Title
Reference framework for sustainable cities	Accessibility	Percentage of trips by private motorised transport
Reference framework for sustainable cities	access to services	Percentage of households having access to high speed internet of above 30 Mbps
Reference framework for sustainable cities	Access to services	Basic services proximity
Reference framework for sustainable cities	Access to services	Number of local product stores
Reference framework for sustainable cities	Community	Net migration (in-migration minus out-migration) – shrinking/growing city
Reference framework for sustainable cities	Economic performance	Debt service ratio: debt service expenditures as a percentage of a municipality's own-source revenue
Reference framework for sustainable cities	Economic performance	Percentage of municipal budget allocated to cultural and sporting facilities
Reference framework for sustainable cities	Ecosystems	(Percentage of) Areas designated for nature protection and biodiversity under either municipal, communal, national or local schemes
Reference framework for sustainable cities	Education	Percentage of early school-leavers
Reference framework for sustainable cities	Education	Share of 30-34 years old having completed tertiary or equivalent education- with reference value of at least 40%
Reference framework for sustainable cities	Employment	Employment rate for women and men aged 20-64
Reference framework for sustainable cities	Employment	Employment rate per activities sector (as indicator for economic diversity)
Reference framework for sustainable cities	Energy and mitigation	Greenhouse gas emissions – in tons per capita
Reference framework for sustainable cities	Energy and mitigation	Share of renewables in energy consumption
Reference framework for sustainable cities	Environment	The number of times that the limit PM10 permitted by the European directives on air quality is exceeded
Reference framework for	Equity	Percentage of local budget

sustainable cities		dedicated to Deprived Neighbourhoods Areas compared to global local budget
Reference framework for sustainable cities	Equity	Population at risk of poverty or exclusion
Reference framework for sustainable cities	Health	Life expectancy
Reference framework for sustainable cities	Innovation	R&D intensity
Reference framework for sustainable cities	Open government	To what extent does the staff of your administration participate in training sessions and/or exchange programmes related to integrated and sustainable urban development?
Reference framework for sustainable cities	Open government	To what extent does your city promote the cooperation and /or coordination with other municipalities and/or other levels of government?
Reference framework for sustainable cities	Open government	To what extent do you evaluate the progress of your policies/strategies/projects and do you adapt them according to your findings?
Reference framework for sustainable cities	Process	Latest approval or revision date of a master plan with an integrated vision for the city as a whole
Reference framework for sustainable cities	Process	Percentage of lead urban projects managed by a transversal team
Reference framework for sustainable cities	Process	Satisfaction of local stakeholders with opportunities to participate in local planning and decision-making processes
Reference framework for sustainable cities	Quality of housing and of the built environment	Housing quality indicator
Reference framework for sustainable cities	Quality of housing and of the built environment	Satisfaction with public spaces
Reference framework for sustainable cities	Quality of housing and of the built environment	Soil sealing (m2) per capita

Name of the framework

Smart City Planner Rotterdam

Framwork	Subtheme	Indicator Title
SCP Rotterdam	Accessibility	% 30 km speed limit roads
SCP Rotterdam	Accessibility	dynamics in the area (USR)
SCP Rotterdam	Accessibility	% inhabitants <10 min by bike or subway of a high speed train station
SCP Rotterdam	Accessibility	% inhabitants with a public transport stop (train, tram, subway) within reasonable distance
SCP Rotterdam	Accessibility	% inhabitants with a subway station <800 m
SCP Rotterdam	Accessibility	% inhabitants with a train station <1500 m
SCP Rotterdam	Accessibility	% inhabitants with a tram stop <500m
SCP Rotterdam	Accessibility	modal split car use
SCP Rotterdam	Accessibility	Parking pressure (24h)
SCP Rotterdam	Accessibility	# parking spots in public space/inhabitant
SCP Rotterdam	Access to services	% adresses with glass fibre network
SCP Rotterdam	Access to services	Average # of commercial services/inhabitant < 500m
SCP Rotterdam	Access to services	Average # of different types of cultural and recreative services/inhabitant < 1500m
SCP Rotterdam	Access to services	# inhabitants with a daily service < 300m
SCP Rotterdam	Access to services	% of inhabitants with a cultural or recreational service < 500m
SCP Rotterdam	Economic performance	Average age of inhabitants
SCP Rotterdam	Economic performance	Average energy saving potential in €/household/yr
SCP Rotterdam	Economic performance	Average income of inhabitants
SCP Rotterdam	Economic performance	Average property tax value
SCP Rotterdam	Economic performance	% households with a high income of total households
SCP Rotterdam	Economic performance	Relative change in property tax value of dwellings 2007-2012
SCP Rotterdam	Economic performance	Sensitivity to energy poverty
SCP Rotterdam	Ecosystem	Average age of fast-growing trees

SCP Rotterdam	Ecosystem	% green area of total
SCP Rotterdam	Ecosystem	# of trees in public spaces per ha
SCP Rotterdam	Ecosystem	Plant biodiversity
SCP Rotterdam	Education	% adresses with at least one type of secondary education < 1km
SCP Rotterdam	Education	Average # of student places < 30 mins with bicycle or public transport
SCP Rotterdam	Education	% inhabitants with primary education < 300m
SCP Rotterdam	Employment	% jobless of total labor force
SCP Rotterdam	Employment	# jobs available < 45 min with car
SCP Rotterdam	Employment	# jobs available < 45 min with public transport
SCP Rotterdam	Employment	% jobs of total jobs and inhabitants
SCP Rotterdam	Employment	% labor force of total population
SCP Rotterdam	Employment	# labor forces available < 45 min with car
SCP Rotterdam	Employment	# labor forces available < 45 min with public transport
SCP Rotterdam	Employment	% self-employed without staff of total population
SCP Rotterdam	Energy and mitigation	Average CO2-reduction/yr/adress
SCP Rotterdam	Energy and mitigation	average kWh/yr/adress electricity
SCP Rotterdam	Energy and mitigation	average kWh/yr potential in area
SCP Rotterdam	Energy and mitigation	average kWh/yr produced in area
SCP Rotterdam	Energy and mitigation	average m3/yr/adress natural gas
SCP Rotterdam	Energy and mitigation	Average savings MJ/yr/adress
SCP Rotterdam	Energy and mitigation	average total energy use/building in MJ/yr
SCP Rotterdam	Energy and mitigation	# chargers for electric cars/1000 inhabitants
SCP Rotterdam	Energy and mitigation	% households on district heating
SCP Rotterdam	Energy and mitigation	% of flat roofs of total roof area
SCP Rotterdam	Environment	Exceeding the air quality limit (PM10/NO2) according to #inhabitants
SCP Rotterdam	Environment	Exceeding the air quality limit (PM10/NO2) according to location
SCP Rotterdam	Environment	Exceeding the noise limit (>55 dB) according to #inhabitants
SCP Rotterdam	Environment	Exceeding the noise limit (>55 dB) according to location
SCP Rotterdam	Environment	External safety risk according to # inhabitants
SCP Rotterdam	Environment	External safety risk according to location
SCP Rotterdam	Environment	% of area with retention problems

SCP Rotterdam	Environment	Probability of economic damage
SCP Rotterdam	Environment	Probability of flooding
SCP Rotterdam	Environment	Sealed soil ratio
SCP Rotterdam	Health	Health barometer
SCP Rotterdam	Health	% inhabitants with basic health care services < 800m
SCP Rotterdam	Health	Social index - capacities
SCP Rotterdam	Health	Social index - participation
SCP Rotterdam	Health	Social index - social cohesion
SCP Rotterdam	Health	Social index - urban environment
SCP Rotterdam	Quality of housing and of the built environment	Average energy performance coefficient
SCP Rotterdam	Quality of housing and of the built environment	# dwellings/ha
SCP Rotterdam	Quality of housing and of the built environment	% dwellings of total m2 floor space
SCP Rotterdam	Quality of housing and of the built environment	Floor space index
SCP Rotterdam	Quality of housing and of the built environment	% green roofs of total roof area
SCP Rotterdam	Quality of housing and of the built environment	Ground space index
SCP Rotterdam	Quality of housing and of the built environment	% inhabitants < 50 m of roads > 10.000 motor vehicles/day
SCP Rotterdam	Quality of housing and of the built environment	% inhabitants with open water <250m
SCP Rotterdam	Quality of housing and of the built environment	% inhabitants with paved public space < 250m
SCP Rotterdam	Quality of housing and of the built environment	% inhabitants with play areas < 100m incl playable steps
SCP Rotterdam	Quality of housing and of the built environment	% inhabitants with public space < 250m
SCP Rotterdam	Quality of housing and of the built environment	% inhabitants with user green < 250m
SCP Rotterdam	Quality of housing and of the built environment	% life-proof dwellings of total
SCP Rotterdam	Quality of housing and of the built environment	% new planning opportunities of total m2 floor space
SCP Rotterdam	Quality of housing and of the built environment	% of multi-functional buildings
SCP Rotterdam	Quality of housing and of the built environment	Open space ratio
SCP Rotterdam	Quality of housing and of the built environment	% open water of total area
SCP Rotterdam	Quality of housing and of the built environment	% parking spots of total area
SCP Rotterdam	Quality of housing and of the built environment	% paved public space of total
SCP Rotterdam	Quality of housing and of the built environment	Public private ratio

SCP Rotterdam	Quality of housing and of the built environment	% public space of total surface area
SCP Rotterdam	Quality of housing and of the built environment	Ratio of #owners to total #lots
SCP Rotterdam	Quality of housing and of the built environment	Urban heat island effect (static)
SCP Rotterdam	Quality of housing and of the built environment	% user green of total surface area
SCP Rotterdam	Quality of housing and of the built environment	year built
SCP Rotterdam	Resources	Average water use/resident
SCP Rotterdam	Resources	% contaminated soil according to class and location
SCP Rotterdam	Resources	%dwellings on separate sewer system
SCP Rotterdam	Resources	% inhabitants on contaminated soil
SCP Rotterdam	Resources	% recycled waste of total
SCP Rotterdam	Resources	total amount of waste/household
SCP Rotterdam	Safety	# notifications of violence and annoyances/1000 inhabitants
SCP Rotterdam	Safety	Safety index
SCP Rotterdam	Safety	# traffic accidents/1000 inhabitants

Name of the framework

Siemens Green City Index

Framwork	Subtheme	Indicator Title
Siemens Green city index	Accessibility	Congestion reduction policies
Siemens Green city index	Accessibility	Size of non-car transport network
Siemens Green city index	Accessibility	Use of non-car transport
Siemens Green city index	Community engagement	Green transport promotion
Siemens Green city index	Community engagement	Public participation in green policy
Siemens Green city index	Energy and mitigation	Clean and efficient energy policies
Siemens Green city index	Energy and mitigation	CO_2 emissions
Siemens Green city index	Energy and mitigation	CO_2 intensity
Siemens Green city index	Energy and mitigation	CO_2 reduction strategy
Siemens Green city index	Energy and mitigation	Energy consumption
Siemens Green city index	Energy and mitigation	Energy consumption of residential buildings
Siemens Green city index	Energy and mitigation	Energy-efficient buildings initiatives
Siemens Green city index	Energy and mitigation	Energy-efficient buildings standards
Siemens Green city index	Energy and mitigation	Energy intensity
Siemens Green city index	Energy and mitigation	Renewable energy consumption
Siemens Green city index	Environment	Clean air policies
Siemens Green city index	Environment	Green action plan
Siemens Green city index	Environment	Municipal waste production
Siemens Green city index	Environment	Nitrogen dioxide
Siemens Green city index	Environment	Ozone
Siemens Green city index	Environment	Particulate matter
Siemens Green city index	Environment	Sulphur dioxide
Siemens Green city index	Environment	Waste recycling
Siemens Green city index	Environment	Waste reduction and policies
Siemens Green city index	Environment	Wastewater treatment
Siemens Green city index	Environment	Water consumption
Siemens Green city index	Environment	Water efficiency and treatment policies
Siemens Green city index	Environment	Water system leakages
Siemens Green city index	Process	Congestion reduction policies
Siemens Green city index	Process	Green management
Siemens Green city index	Process	Public participation in green policy
Siemens Green city index	Quality of housing and of the built environment	Green action plan

Siemens Green city index	Quality of housing and of the built environment	Green land use policies

Name of the framework

Smart City Profiles

Framwork	Subtheme	Indicator Title
Smart city profiles	Accessibility	Basic infrastructure
Smart city profiles	Accessibility	bike traffic network
Smart city profiles	Accessibility	Commuter traffic
Smart city profiles	Accessibility	Modal Split
Smart city profiles	Accessibility	Parking space management
Smart city profiles	Accessibility	Public transportation
Smart city profiles	Accessibility	Season tickets for public transportation
Smart city profiles	Accessibility	sustainable mobility
Smart city profiles	Access to services	ICT infrastructure
Smart city profiles	Economic performance	Companies dealing with environmental or climate protection or renewable energy
Smart city profiles	Economic performance	Companies participating in environment, climate or energy networks
Smart city profiles	Economic performance	Creative Industries
Smart city profiles	Economic performance	EMAS-companies (EMAS- Eco Management and Audit Scheme)
Smart city profiles	Economic performance	Environmental Schools
Smart city profiles	Economic performance	expenditures by the municipality for environmental protection
Smart city profiles	Economic performance	Green jobs
Smart city profiles	Economic performance	Innovation
Smart city profiles	Economic performance	Lifestyle and values
Smart city profiles	Economic performance	Research
Smart city profiles	Energy and mitigation	CO2
Smart city profiles	Energy and mitigation	electricity consumption
Smart city profiles	Energy and mitigation	Energy efficiency of energy grids
Smart city profiles	Energy and mitigation	Grid connection to renewable sources
Smart city profiles	Energy and mitigation	Heat generation
Smart city profiles	Energy and mitigation	Household energy consumption
Smart city profiles	Energy and mitigation	Industrial energy consumption
Smart city profiles	Energy and mitigation	Power generation
Smart city profiles	Energy and mitigation	smart grids

Smart city profiles	Environment	Air pollution
Smart city profiles	Environment	waste generation
Smart city profiles	Equity	Energy poverty
Smart city profiles	Policy & organisation	Climate related municipal subsidies
Smart city profiles	Policy & organisation	Cooperation between city and surroundings
Smart city profiles	Policy & organisation	Environmental Information
Smart city profiles	Policy & organisation	Establishment within the administration
Smart city profiles	Policy & organisation	Vision. Strategy and Activities
Smart city profiles	Quality of housing and of the built environment	changes in population density
Smart city profiles	Quality of housing and of the built environment	CO2 for heat supply
Smart city profiles	Quality of housing and of the built environment	Compactness of settlement area
Smart city profiles	Quality of housing and of the built environment	compactness of used residential buildings
Smart city profiles	Quality of housing and of the built environment	decentralized renewable heat generation
Smart city profiles	Quality of housing and of the built environment	energy efficient buildings
Smart city profiles	Quality of housing and of the built environment	Green space
Smart city profiles	Quality of housing and of the built environment	housing demand vs housing supply
Smart city profiles	Quality of housing and of the built environment	interior and exterior development
Smart city profiles	Quality of housing and of the built environment	recreational area
Smart city profiles	Quality of housing and of the built environment	Retrofitting activities
Smart city profiles	Quality of housing and of the built environment	share of building area with high potential for thermal retrofitting
Smart city profiles	Resources	material and waste infrastructure
Smart city profiles	Resources	recycling rate

	Name of the framework	

Name of the framework

Smart City Wheel

Framwork	Subtheme	Indicator Title
Smart city wheel	Accessibility	Clean-energy Transport
Smart city wheel	Accessibility	ICT Cluster
Smart city wheel	Accessibility	International Events Hold
Smart city wheel	Accessibility	Public Transport Use
Smart city wheel	Access to services	Investment in Culture
Smart city wheel	Access to services	Life Conditions
Smart city wheel	Access to services	Online Procedures
Smart city wheel	Access to services	WiFi Coverage
Smart city wheel	Community	New startups
Smart city wheel	Economic performance	GRP per capita
Smart city wheel	Education	University Graduates
Smart city wheel	Employment	Municipal human resources
Smart city wheel	Energy and mitigation	Sustainability-certified Buildings
Smart city wheel	Health	Life Expectancy
Smart city wheel	Innovation	Access to real-time information
Smart city wheel	Innovation	Creative Industry Jobs
Smart city wheel	Innovation	Diviersity of Sensors
Smart city wheel	Innovation	New startups
Smart city wheel	Innovation	R + D
Smart city wheel	Open government	Data sets
Smart city wheel	Open government	Open data
Smart city wheel	Process	Green Space per Capita
Smart city wheel	Quality of housing and of the built environment	Gini Index
Smart city wheel	Quality of housing and of the built environment	Internet-connected Households
Smart city wheel	Resources	Carbon Footprint
Smart city wheel	Resources	Total Energy Consumption
Smart city wheel	Resources	Waste Generation
Smart city wheel	Resources	
Smart city wheel	Resources	
Smart city wheel	Safety	Crime

Name of the framework

Transform KPIs (Qualitative self-assessment and quantitative self-assessment)

Framwork	Subtheme	Indicator Title
Transform	Accessibility	Availability of a city-wide cycle-hire scheme
Transform	Accessibility	Availability of an airport
Transform	Accessibility	Availability of an inter-modal electronic ticketing system
Transform	Accessibility	Availability of consolidation centers to minimize freight movement within your city
Transform	Accessibility	CO2 emissions per passenger km by private motorized transport
Transform	Accessibility	CO2 emissions per passenger km travelled by buses
Transform	Accessibility	CO2 emissions per passenger km travelled by cycling
Transform	Accessibility	CO2 emissions per passenger km travelled by ferries/river boats
Transform	Accessibility	CO2 emissions per passenger km travelled by foot
Transform	Accessibility	CO2 emissions per passenger km travelled by other modes
Transform	Accessibility	CO2 emissions per passenger km travelled by rail/metro/tram
Transform	Accessibility	CO2 emissions per passenger km travelled by taxi
Transform	Accessibility	Length of cycle lanes
Transform	Accessibility	Passenger km travelled by bike per year
Transform	Accessibility	Passenger km travelled by bus per year
Transform	Accessibility	Passenger km travelled by ferries/river boats per year
Transform	Accessibility	Passenger km travelled by foot per year
Transform	Accessibility	Passenger km travelled by other modes per year
Transform	Accessibility	Passenger km travelled by private motorized transport per year
Transform	Accessibility	Passenger km travelled by rail/metro/tram per year
Transform	Accessibility	Passenger km travelled by taxi per year

Transform	Accessibility	Proportion of cycle lanes that are segregated
Transform	Accessibility	Share of trips made by bike of the total amount of trips made
Transform	Accessibility	Share of trips made by buses of the total amount of trips made
Transform	Accessibility	Share of trips made by ferries/river boats of the total amount of trips made
Transform	Accessibility	Share of trips made by foot of the total amount of trips made
Transform	Accessibility	Share of trips made by other modes of the total amount of trips made
Transform	Accessibility	Share of trips made by private motorized transport of the total amount of trips made
Transform	Accessibility	Share of trips made by rail/metro/tramof the total amount of trips
Transform	Accessibility	Share of trips made by taxi of the total amount of trips made
Transform	access to services	Percentage of the city population which are memebers of the inter-modal electronical ticketing systems
Transform	Access to services	Charges on the use of private or commercial vehicles to reduce congestion or emissions
Transform	Climate resilience	Energy price shock
Transform	Climate resilience	Self-sufficiency distributed generation
Transform	Co-creation	Awareness of the city's Smart energy vision
Transform	Co-creation	Engagement from users
Transform	Co-creation	Formal& informal hubs and innovation centers
Transform	Co-creation	Investment
Transform	Co-creation	Self-sufficiency by users
Transform	Co-creation	Smart City-reflective behavior
Transform	Economic sustainability	Availability and prevalence of green jobs in the city
Transform	Economic sustainability	Green initiatives
Transform	Economic sustainability	Investment in innovation (public&private)
Transform	Energy and mitigation	Access to affordable energy services
Transform	Energy and mitigation	Amount of publically accessible, on-street electric vehicle charging points
Transform	Energy and mitigation	Amount of renewable energy that is imported into city

Transform	Energy and mitigation	Amount of renewable energy that is produced within the city boundaries
Transform	Energy and mitigation	Amount of renewable energy that is used for electricity production
Transform	Energy and mitigation	Amount of renewable energy that is used for fuel production
Transform	Energy and mitigation	Amount of renewable energy that is used for heat production
Transform	Energy and mitigation	Annual CO2 emissions associated with the heating of buildings in your city
Transform	Energy and mitigation	Availability of a city target to reduce the level of fuel poverty
Transform	Energy and mitigation	Availability of a district heating system
Transform	Energy and mitigation	Availability of a study that identifies the available resources of renewable energy in the city
Transform	Energy and mitigation	Average prices to commercial (all non-residential) customers for energy by biomass pellets
Transform	Energy and mitigation	Average prices to commercial (all non-residential) customers for energy by coal
Transform	Energy and mitigation	Average prices to commercial (all non-residential) customers for energy by diesel
Transform	Energy and mitigation	Average prices to commercial (all non-residential) customers for energy by electricity
Transform	Energy and mitigation	Average prices to commercial (all non-residential) customers for energy by heat from district heating
Transform	Energy and mitigation	Average prices to commercial (all non-residential) customers for energy by heating oil
Transform	Energy and mitigation	Average prices to commercial (all non-residential) customers for energy by natural gas
Transform	Energy and mitigation	Average prices to commercial (all non-residential) customers for energy by oil
Transform	Energy and mitigation	Average prices to commercial (all non-residential) customers for energy by petrol
Transform	Energy and mitigation	Average prices to residential customers for energy by biomass pellets
Transform	Energy and mitigation	Average prices to residential customers for energy by coal
Transform	Energy and mitigation	Average prices to residential

		customers for energy by diesel
Transform	Energy and mitigation	Average prices to residential customers for energy by electricity
Transform	Energy and mitigation	Average prices to residential customers for energy by heat from district heating
Transform	Energy and mitigation	Average prices to residential customers for energy by heating oil
Transform	Energy and mitigation	Average prices to residential customers for energy by natural gas
Transform	Energy and mitigation	Average prices to residential customers for energy by oil
Transform	Energy and mitigation	Average prices to residential customers for energy by petrol
Transform	Energy and mitigation	Capacity of the electricity generated by biomass
Transform	Energy and mitigation	Capacity of the electricity generated by hydro power
Transform	Energy and mitigation	Capacity of the electricity generated by other renewable energy sources
Transform	Energy and mitigation	Capacity of the electricity generated by solar power
Transform	Energy and mitigation	Capacity of the electricity generated by wind
Transform	Energy and mitigation	Carbon intensity of the cities grid electricity supply
Transform	Energy and mitigation	Change in primary energy demand (reference year/current year)
Transform	Energy and mitigation	GHG emissions caused by energy production & transportation
Transform	Energy and mitigation	Increasing distribution system efficiency
Transform	Energy and mitigation	Increasing efficiency in the supply system
Transform	Energy and mitigation	Increasing end-use energy efficiency
Transform	Energy and mitigation	Industry switching from coal/wood fire to electricity
Transform	Energy and mitigation	Industry switching from heating oil to natural gas
Transform	Energy and mitigation	Industry switching from residual fuel oil to distillate fuel oil
Transform	Energy and mitigation	Industry switching to biogenic heating fuels
Transform	Energy and mitigation	Level of energy services provided
Transform	Energy and mitigation	Level of public and private investment in developing RES
Transform	Energy and mitigation	Percentage of city inhabitants that are in fuel poverty
Transform	Energy and mitigation	Percentage of households connected to a gas network

Transform	Energy and mitigation	Percentage of households connected to district heating
Transform	Energy and mitigation	Percentage of the population that has access to electricity
Transform	Energy and mitigation	Percentage of total city authority's costs for energy (electricity/gas/heat/oil products) for other purposes of the total city authority's costs for energy
Transform	Energy and mitigation	Percentage of total city authority's costs for energy (electricity/gas/heat/oil products) for the purpose of education of the total city authority's costs for energy
Transform	Energy and mitigation	Percentage of total city authority's costs for energy (electricity/gas/heat/oil products) for the purpose of gouvenrment of the total city authority's costs for energy
Transform	Energy and mitigation	Percentage of total city authority's costs for energy (electricity/gas/heat/oil products) for the purpose of hospitals of the total city authority's costs for energy
Transform	Energy and mitigation	Percentage of total city authority's costs for energy (electricity/gas/heat/oil products) for the purpose of leisure of the total city authority's costs for energy
Transform	Energy and mitigation	Percentage of total energy demand covered by renewable energy production in the city
Transform	Energy and mitigation	Percentage of your households connected to an electrical grid
Transform	Energy and mitigation	Primary energy saved by energy demand reduction in appliance use
Transform	Energy and mitigation	Primary energy saved by energy demand reduction in industrial processes
Transform	Energy and mitigation	Primary energy saved by energy demand reduction in lighting (in buildings, public lighting)
Transform	Energy and mitigation	Primary energy saved by energy demand reduction in operational buildings' energy demand (heat, cold, ventilation)
Transform	Energy and mitigation	Primary energy saved in energy production by using energy efficient production technologies

		such CHP, heat pumps, use of waste heat
Transform	Energy and mitigation	Primary energy saved in energy production by using renewable energy sources
Transform	Energy and mitigation	Production of electricity and heat from RES
Transform	Energy and mitigation	Proportion of the city's energy demand and carbon emissions associated with the residential sector
Transform	Energy and mitigation	Purchase of 'green' electricity from the grid
Transform	Energy and mitigation	Reduction in primary energy demand
Transform	Energy and mitigation	Reduction of energy use
Transform	Energy and mitigation	Regulation for the price for commercial (all non-residential) customers for energy by biomass pellets
Transform	Energy and mitigation	Regulation for the price for commercial (all non-residential) customers for energy by coal
Transform	Energy and mitigation	Regulation for the price for commercial (all non-residential) customers for energy by diesel
Transform	Energy and mitigation	Regulation for the price for commercial (all non-residential) customers for energy by electricity
Transform	Energy and mitigation	Regulation for the price for commercial (all non-residential) customers for energy by heat from district heating
Transform	Energy and mitigation	Regulation for the price for commercial (all non-residential) customers for energy by heating oil
Transform	Energy and mitigation	Regulation for the price for commercial (all non-residential) customers for energy by natural gas
Transform	Energy and mitigation	Regulation for the price for commercial (all non-residential) customers for energy by oil
Transform	Energy and mitigation	Regulation for the price for commercial (all non-residential) customers for energy by petrol
Transform	Energy and mitigation	Regulation for the price for residential customers for energy by biomass pellets
Transform	Energy and mitigation	Regulation for the price for residential customers for energy by coal
Transform	Energy and mitigation	Regulation for the price for

		residential customers for energy by diesel
Transform	Energy and mitigation	Regulation for the price for residential customers for energy by electricity
Transform	Energy and mitigation	Regulation for the price for residential customers for energy by heat from district heating
Transform	Energy and mitigation	Regulation for the price for residential customers for energy by heating oil
Transform	Energy and mitigation	Regulation for the price for residential customers for energy by natural gas
Transform	Energy and mitigation	Regulation for the price for residential customers for energy by oil
Transform	Energy and mitigation	Regulation for the price for residential customers for energy by petrol
Transform	Energy and mitigation	Share of biomass of the total electricity supply
Transform	Energy and mitigation	Share of coal of the total electricity supply
Transform	Energy and mitigation	Share of energy from other sources of the total electricity supply
Transform	Energy and mitigation	Share of energy from waste of the total electricity supply
Transform	Energy and mitigation	Share of energy supplied by biomass used for building heating to total amount of energy used for building heating
Transform	Energy and mitigation	Share of energy supplied by coal used for building heating to total amount of energy used for building heating
Transform	Energy and mitigation	Share of energy supplied by electrical heating used for building heating to total amount of energy used for building heating
Transform	Energy and mitigation	Share of energy supplied by energy from waste (district heating) used for building heating to total amount of energy used for building heating
Transform	Energy and mitigation	Share of energy supplied by fuel oil used for building heating to total amount of energy used for building heating
Transform	Energy and mitigation	Share of energy supplied by natural gas (district heating) used for building heating to total amount of energy used for building heating

Transform	Energy and mitigation	Share of energy supplied by natural gas (individual boilers) used for building heating to total amount of energy used for building heating
Transform	Energy and mitigation	Share of energy supplied by oher sources used for building heating to total amount of energy used for building heating
Transform	Energy and mitigation	Share of energy supplied by oil used for building heating to total amount of energy used for building heating
Transform	Energy and mitigation	Share of energy supplied by solar thermal used for building heating to total amount of energy used for building heating
Transform	Energy and mitigation	Share of energy used for hot water in buildings across the city (by end use)
Transform	Energy and mitigation	Share of energy used for ligthing in buildings across the city (by end use)
Transform	Energy and mitigation	Share of energy used for other purposes in buildings across the city (by end use)
Transform	Energy and mitigation	Share of energy used for plug loads in buildings across the city (by end use)
Transform	Energy and mitigation	Share of energy used for refrigeration in buildings across the city (by end use)
Transform	Energy and mitigation	Share of energy used for space conditioning in buildings across the city (by end use)
Transform	Energy and mitigation	Share of hydro power of the total electricity supply
Transform	Energy and mitigation	Share of natural gas of the total electricity supply
Transform	Energy and mitigation	Share of nuclear of the total electricity supply
Transform	Energy and mitigation	Share of oil of the total electricity supply
Transform	Energy and mitigation	Share of RE
Transform	Energy and mitigation	Share of solar power of the total electricity supply
Transform	Energy and mitigation	Share of the carbon emission associated with the demand for transport fuel witin the commercial sector of the total carbon emissions associated with the demand for transport fuel
Transform	Energy and mitigation	Share of the carbon emission

		associated with the demand for transport fuel witin the industrial sector of the total carbon emissions associated with the demand for transport fuel
Transform	Energy and mitigation	Share of the carbon emission associated with the demand for transport fuel witin the public sector of the total carbon emissions associated with the demand for transport fuel
Transform	Energy and mitigation	Share of the carbon emission associated with the demand for transport fuel witin the residential sector of the total carbon emissions associated with the demand for transport fuel
Transform	Energy and mitigation	Share of the carbon emission associated with the demand for transport fuel witin the retail sector of the total carbon emissions associated with the demand for transport fuel
Transform	Energy and mitigation	Share of the carbon emission associated with the electricity demand witin the commercial sector of the total carbon emissions associated with electricty demand
Transform	Energy and mitigation	Share of the carbon emission associated with the electricity demand witin the commercial sector of the total carbon emissions associated with electricty demand
Transform	Energy and mitigation	Share of the carbon emission associated with the electricity demand witin the industrial sector of the total carbon emissions associated with electricty demand
Transform	Energy and mitigation	Share of the carbon emission associated with the electricity demand witin the public sector of the total carbon emissions associated with electricty demand
Transform	Energy and mitigation	Share of the carbon emission associated with the electricity demand witin the residential sector of the total carbon emissions associated with electricty demand
Transform	Energy and mitigation	Share of the carbon emission associated with the electricity demand witin the retail sector of the total carbon emissions associated with electricty demand

Transform	Energy and mitigation	Share of the carbon emission associated with the heating demand witin the industrial sector of the total carbon emissions associated with heating demand
Transform	Energy and mitigation	Share of the carbon emission associated with the heating demand witin the public sector of the total carbon emissions associated with heating demand
Transform	Energy and mitigation	Share of the carbon emission associated with the heating demand witin the residential sector of the total carbon emissions associated with heating demand
Transform	Energy and mitigation	Share of the carbon emission associated with the heating demand witin the retail sector of the total carbon emissions associated with heating demand
Transform	Energy and mitigation	Share of the demand for transport fuel witin the commercial sector of the total demand for transport fuel
Transform	Energy and mitigation	Share of the demand for transport fuel witin the industrial sector of the total demand for transport fuel
Transform	Energy and mitigation	Share of the demand for transport fuel witin the public sector of the total demand for transport fuel
Transform	Energy and mitigation	Share of the demand for transport fuel witin the residential sector of the total demand for transport fuel
Transform	Energy and mitigation	Share of the demand for transport fuel witin the retail sector of the total demand for transport fuel
Transform	Energy and mitigation	Share of the electricity demand witin the commercial sector of the total electricty demand
Transform	Energy and mitigation	Share of the electricity demand witin the industrial sector of the total electricty demand
Transform	Energy and mitigation	Share of the electricity demand witin the public sector of the total electricty demand
Transform	Energy and mitigation	Share of the electricity demand witin the residential sector of the total electricty demand
Transform	Energy and mitigation	Share of the electricity demand witin the retail sector of the total electricty demand
Transform	Energy and mitigation	Share of the heating demand witin the commercial sector of the total heating demand

Transform	Energy and mitigation	Share of the heating demand witin the industrial sector of the total heating demand
Transform	Energy and mitigation	Share of the heating demand witin the public sector of the total heating demand
Transform	Energy and mitigation	Share of the heating demand witin the residential sector of the total heating demand
Transform	Energy and mitigation	Share of the heating demand witin the retail sector of the total heating demand
Transform	Energy and mitigation	Share of wind power of the total electricity supply
Transform	Energy and mitigation	Specifiaction of the carbon intensity or level of renewable generation associated with the energy supply associated with the long term energy procurement contract for municipal energy usage
Transform	Energy and mitigation	Target for GHG emission reduction
Transform	Energy and mitigation	The annual energy bill for the city's buildings
Transform	Energy and mitigation	The city authority's purchase of energy (electricity/gas/heat/oil products etc.) for use in public buildings
Transform	Energy and mitigation	The city's long term energy procurement contract for municipal energy usage
Transform	Energy and mitigation	The city's target to reduce the level of fuel poverty
Transform	Energy and mitigation	The duration of the city's long term energy procurement contract for municipal energy usage
Transform	Energy and mitigation	The year of the next renewal of the city's long term energy procurement contract for municipal energy usage
Transform	Energy and mitigation	Total electricity consumed within the city
Transform	Environment	Availability of emission related restrictions on the operations of ships or shipping ports
Transform	Environment	Availability of harnessed energy from the city's wastewater treatment processes
Transform	Environment	Availability of low-emission buses in the city
Transform	Environment	Average volume of wastewater treated per day
Transform	Environment	CO2 emissions from water supply

Transform	Environment	Obligation of domestic users to meter their water supply
Transform	Environment	Obligation of industrial and commercial users to meter their water supply
Transform	Environment	Percentage of domestic users which have a metered water supply of total amount of domestic users
Transform	Environment	Percentage of industrial and commercial users which have a metered water supply of total amount of domestic users
Transform	Environment	Percentage of water consumption by other sectors of the total water consumption in the city
Transform	Environment	Percentage of water consumption by the agricultural sector of the total water consumption in the city
Transform	Environment	Percentage of water consumption by the commercial sector of the total water consumption in the city
Transform	Environment	Percentage of water consumption by the industrial sector of the total water consumption in the city
Transform	Environment	Percentage of water consumption by the municipal sector of the total water consumption in the city
Transform	Environment	Percentage of water consumption by the residential sector of the total water consumption in the city
Transform	Environment	Percentage split of the city's water supply by desalinated sea water
Transform	Environment	Percentage split of the city's water supply by ground water
Transform	Environment	Percentage split of the city's water supply by other water sources
Transform	Environment	Percentage split of the city's water supply by recycled water
Transform	Environment	Percentage split of the city's water supply by surface water
Transform	Environment	Residential
Transform	Environment	Share of the low emission bus fleet of the total bus fleet
Transform	Open government	Amount of open data projects within the city
Transform	Open government	Amount of wireless hotsports in the city
Transform	Open government	Availability of an assement by the city authority assessing the economic case for the strategic use of ICT in the city
Transform	Open government	Availability of an ICT carbon

		reduction target?
Transform	Open government	Availability of an overview of total spend on ICT across the city
Transform	Open government	Availability of a technical architecture which includes all ICT in use across the city
Transform	Open government	Availability of a Twitter account, Facebook page, or some online communications forum to the public operated by the city authority
Transform	Open government	Availability of a website operated by the city authority
Transform	Open government	Availability of a wireless hotspot target
Transform	Open government	Availability of staff members within the city with a role specifically responsible for ICT
Transform	Open government	Availbaility of an internet connectivity target
Transform	Open government	e-Governance
Transform	Open government	Governance
Transform	Open government	Government engagement with users
Transform	Open government	Is there someone who is responsible for information communication technology strategy across the whole city?
Transform	Open government	Local stakeholders involved in investment and maintenance
Transform	Open government	Proportion of buildings that have broadband connection
Transform	Open government	Proportion of buildings that have fibre optic connection
Transform	Open government	Proportion of buildings that have internet connection
Transform	Open government	Proportion of people that have access to the internet at home or at work
Transform	Open government	Standards for data collection and analysis
Transform	Policy & organisation	The extent to which the city can set the vision for of the public wifi
Transform	Policy & organisation	The extent to which the city can set the vision for the broadband faciltites and services
Transform	Policy & organisation	The extent to which the city can set the vision for the bus services
Transform	Policy & organisation	The extent to which the city can set the vision for the city roads
Transform	Policy & organisation	The extent to which the city can set the vision for the collection of

		waste in teh construction sector
Transform	Policy & organisation	The extent to which the city can set the vision for the comercial waste collection
Transform	Policy & organisation	The extent to which the city can set the vision for the commercial buildings
Transform	Policy & organisation	The extent to which the city can set the vision for the distributed power generation of the city
Transform	Policy & organisation	The extent to which the city can set the vision for the district heating system
Transform	Policy & organisation	The extent to which the city can set the vision for the education facilities
Transform	Policy & organisation	The extent to which the city can set the vision for the mobilte and telecommunication factilities and services
Transform	Policy & organisation	The extent to which the city can set the vision for the municipal offices/buildings
Transform	Policy & organisation	The extent to which the city can set the vision for the rail services
Transform	Policy & organisation	The extent to which the city can set the vision for the residential waste collection
Transform	Policy & organisation	The extent to which the city can set the vision for the storm water management
Transform	Policy & organisation	The extent to which the city can set the vision for the wastewater treatment
Transform	Policy & organisation	The extent to which the city can set the vision for the water supply operation
Transform	Policy & organisation	The extent to which the city has budgetary control over of the public wifi
Transform	Policy & organisation	The extent to which the city has budgetary control over the broadband faciltites and services
Transform	Policy & organisation	The extent to which the city has budgetary control over the bus services
Transform	Policy & organisation	The extent to which the city has budgetary control over the city roads
Transform	Policy & organisation	The extent to which the city has budgetary control over the collection of waste in teh

		construction sector
Transform	Policy & organisation	The extent to which the city has budgetary control over the comercial waste collection
Transform	Policy & organisation	The extent to which the city has budgetary control over the commercial buildings
Transform	Policy & organisation	The extent to which the city has budgetary control over the distributed power generation of the city
Transform	Policy & organisation	The extent to which the city has budgetary control over the district heating system
Transform	Policy & organisation	The extent to which the city has budgetary control over the education facilities
Transform	Policy & organisation	The extent to which the city has budgetary control over the mobilte and telecommunication factilities and services
Transform	Policy & organisation	The extent to which the city has budgetary control over the municipal offices/buildings
Transform	Policy & organisation	The extent to which the city has budgetary control over the rail services
Transform	Policy & organisation	The extent to which the city has budgetary control over the residential waste collection
Transform	Policy & organisation	The extent to which the city has budgetary control over the storm water management
Transform	Policy & organisation	The extent to which the city has budgetary control over the wastewater treatment
Transform	Policy & organisation	The extent to which the city has budgetary control over the water supply operation
Transform	Policy & organisation	The extent to which the city owns/operates assets or functions of the broadband faciltites and services
Transform	Policy & organisation	The extent to which the city owns/operates assets or functions of the bus services
Transform	Policy & organisation	The extent to which the city owns/operates assets or functions of the city roads
Transform	Policy & organisation	The extent to which the city owns/operates assets or functions of the collection of waste in teh

		construction sector
Transform	Policy & organisation	The extent to which the city owns/operates assets or functions of the comercial waste collection
Transform	Policy & organisation	The extent to which the city owns/operates assets or functions of the commercial buildings
Transform	Policy & organisation	The extent to which the city owns/operates assets or functions of the distributed power generation of the city
Transform	Policy & organisation	The extent to which the city owns/operates assets or functions of the district heating system
Transform	Policy & organisation	The extent to which the city owns/operates assets or functions of the education facilities
Transform	Policy & organisation	The extent to which the city owns/operates assets or functions of the mobilte and telecommunication factilities and services
Transform	Policy & organisation	The extent to which the city owns/operates assets or functions of the municipal offices/buildings
Transform	Policy & organisation	The extent to which the city owns/operates assets or functions of the public wifi
Transform	Policy & organisation	The extent to which the city owns/operates assets or functions of the rail services
Transform	Policy & organisation	The extent to which the city owns/operates assets or functions of the residential waste collection
Transform	Policy & organisation	The extent to which the city owns/operates assets or functions of the storm water management
Transform	Policy & organisation	The extent to which the city owns/operates assets or functions of the wastewater treatment
Transform	Policy & organisation	The extent to which the city owns/operates assets or functions of the water supply operation
Transform	Policy & organisation	The extent to which the city sets/enforces policies and regulation of of the public wifi
Transform	Policy & organisation	The extent to which the city sets/enforces policies and regulation of the broadband faciltites and services
Transform	Policy & organisation	The extent to which the city sets/enforces policies and

		regulation of the bus services
Transform	Policy & organisation	The extent to which the city sets/enforces policies and regulation of the city roads
Transform	Policy & organisation	The extent to which the city sets/enforces policies and regulation of the collection of waste in teh construction sector
Transform	Policy & organisation	The extent to which the city sets/enforces policies and regulation of the comercial waste collection
Transform	Policy & organisation	The extent to which the city sets/enforces policies and regulation of the commercial buildings
Transform	Policy & organisation	The extent to which the city sets/enforces policies and regulation of the distributed power generation of the city
Transform	Policy & organisation	The extent to which the city sets/enforces policies and regulation of the district heating system
Transform	Policy & organisation	The extent to which the city sets/enforces policies and regulation of the education facilities
Transform	Policy & organisation	The extent to which the city sets/enforces policies and regulation of the mobilte and telecommunication factilities and services
Transform	Policy & organisation	The extent to which the city sets/enforces policies and regulation of the municipal offices/buildings
Transform	Policy & organisation	The extent to which the city sets/enforces policies and regulation of the rail services
Transform	Policy & organisation	The extent to which the city sets/enforces policies and regulation of the residential waste collection
Transform	Policy & organisation	The extent to which the city sets/enforces policies and regulation of the storm water management
Transform	Policy & organisation	The extent to which the city sets/enforces policies and regulation of the the wastewater treatment

Transform	Policy & organisation	The extent to which the city sets/enforces policies and regulation of the water supply operation
Transform	Process	Incentives to low-emission vehicles (e.g. reduced parking or congestion charges)
Transform	Process	Application of building codes and/or standards for new residential developments
Transform	Process	Appplication of building codes and/or standards for new commercial and industrial buildings
Transform	Process	Availability of a 'compact city' strategy
Transform	Process	Availability of an Eco district development strategy
Transform	Process	Encouragement of brownfield redevelopment
Transform	Process	Examples of urban agriculture in the city
Transform	Process	Planning requirements for energy and/or carbon reduction for new buildings in the city
Transform	Process	Planning requirements for installation of onsite renewables for new buildings in the city
Transform	Process	Planning requirements for water conservation for new buildings in the city
Transform	Process	Protection of green and open spaces from development
Transform	Quality of housing and of the built environment	Amount of buildings built in the next 10 years
Transform	Quality of housing and of the built environment	Amount of buildings built prior to the year 1918
Transform	Quality of housing and of the built environment	Amount of buildings built prior to the year 1945
Transform	Quality of housing and of the built environment	Amount of buildings built prior to the year 1970
Transform	Quality of housing and of the built environment	Amount of buildings built prior to the year 1990
Transform	Quality of housing and of the built environment	Amount of buildings built that will be built in the next year
Transform	Quality of housing and of the built environment	Share of the commercial buildings in the city of the total amount of buildings
Transform	Quality of housing and of the built environment	Share of the industrial buildings in the city of the total amount of buildings
Transform	Quality of housing and of the built environment	Share of the other buildings in the city of the total amount of buildings

Transform	Quality of housing and of the built environment	Share of the public buildings in the city of the total amount of buildings
Transform	Quality of housing and of the built environment	Share of the residential buildings in the city of the total amount of buildings
Transform	Resources	Aailability of organics collection for single-family households
Transform	Resources	Availabilit of recyclables collection for multi-family buildings
Transform	Resources	Availability of an informal sector waste collection
Transform	Resources	Availability of collection fees for commercial establishments
Transform	Resources	Availability of collection fees for multi-family buildings
Transform	Resources	Availability of collection fees for single-family households
Transform	Resources	Availability of landfill gas management for landfills in the city
Transform	Resources	Availability of landfill gas usage to generate energy in your city
Transform	Resources	Availability of organics collection for commercial establishments
Transform	Resources	Availability of organics collection for multi-family buildings
Transform	Resources	Availability of recyclables collection for commercial establishments
Transform	Resources	Availability of recyclables collection for single-family households
Transform	Resources	Development of ICT use
Transform	Resources	Flexibility and transparency of service providers
Transform	Resources	Integrated energy planning
Transform	Resources	Percentage of recycled and composted waste of total ampunt of waste
Transform	Resources	Percentage of re-used waste of total amount of waste
Transform	Resources	Percentage of the city wich is served by a formal waste collection
Transform	Resources	Percentage of waste for landfill of total amount of waste
Transform	Resources	Percentage of waste treated by other methods of total amount of waste
Transform	Resources	Percentage of waste used for energy generation of total amount of waste
Transform	Resources	The share of fine waste (soil, dust, etc.) of the total amount of waste
Transform	Resources	The share of glass waste of the

		total amount of waste
Transform	Resources	The share of metal waste of the total amount of waste
Transform	Resources	The share of organic waste of the total amount of waste
Transform	Resources	The share of organic waste of the total amount of waste
Transform	Resources	The share of paper and cardboard waste of the total amount of waste
Transform	Resources	The share of plastic waste of the total amount of waste
Transform	Resources	The share of textile waste of the total amount of waste
Transform	Resources	The share of wood waste of the total amount of waste
Transform	Resources	Transportation (integration with energy systems)
Transform	Resources	Use of ICT tools in city planning and management
Transform	Resources	Waste generation
Transform	Resources	Waste (integration with resource systems)

Name of the framework	
Triple Helix Model	

Framwork	Subtheme	Indicator Title
Triple Helix	Accessibility	Length of public transport network (km)
Triple helix	Access to services	Annual visitors to museums per resident
Triple helix	Access to services	Number of local units manufacturing ICT products
Triple Helix	Access to services	Number of museums
Triple Helix	Access to services	Percentage of households with Internet access at home
Triple Helix	Access to services	Proportion of households with broad band access
Triple Helix	Access to services	The number of public libraries
Triple Helix	Access to services	The number of theatres
Triple helix	access to services	Theatre attendance (per year)
Triple Helix	Access to services	Total book loans and other media per resident
Triple helix	Community	Proportion of population aged 15-64 with secondary level education living in Urban Audit cities - %
Triple helix	Community	Proportion of population aged 15-64 with some college education living in Urban Audit cities - %
Triple Helix	Community engagement	Political activity of inhabitants
Triple helix	Economic performance	All companies (total number)
Triple helix	Economic performance	Annual expenditure of the Municipal Authority per resident
Triple helix	Economic performance	Companies with HQ in the city quoted on national stock market
Triple helix	Economic performance	Gross Domestic Product per head of city
Triple helix	Economic performance	Proportion of municipal authority income from transfers from nat., reg., Debt of municipal authority per resident
Triple helix	Economic performance	Tourist overnight stays in registered accommodation in Urban Audit cities
Triple helix	Education	Foreign language skills
Triple helix	Education	Total book loans and other media per resident

Triple helix	Employment	Employment rate in knowledge-intensive sectors
Triple helix	Employment	Number of unemployed
Triple helix	Employment	Proportion of employment in: - Culture and entertainment industry
Triple helix	Employment	Proportion of employment in: - Commercial services - Transport and communication - Trade - Hotels and restaurants
Triple helix	Employment	Proportion of employment in: - Agriculture & fishery - Mining, manufacturing and energy - Construction
Triple helix	Employment	Share of people working in creative industries
Triple helix	Employment	Total Economically Active Population
Triple helix	Employment	Unemployment rate
Triple helix	Energy and mitigation	Efficient use of electricity (use per GDP)
Triple helix	Energy and mitigation	Efficient use of water (use per GDP)
Triple helix	Environment	Ecological Footprint
Triple Helix	Environment	Rate of recycled waste per total kg of waste produced
Triple helix	Equity	Median or average disposable annual household income
Triple helix	Innovation	New business registered in reference year (net entry rate)
Triple Helix	Innovation	Number of knowledge centre (top research centres, top universities etc.)
Triple Helix	Multilevel governance	City representatives per resident
Triple Helix	Quality of housing and of the built environment	Area in green space (m2)
Triple Helix	Quality of housing and of the built environment	Green space (m2) to which the public has access, per capita
Triple helix	Innovation	Patent applications per inhabitant
Triple Helix	Quality of housing and of the built environment	Proportion of the area in recreational sports
Triple helix	Innovation	R&D expenditure in % of GDP
Triple helix	Open government	City representatives per resident
Triple helix	Open government	Number of administrative forms available for d ld f ffi i l b Number of administrative forms which can be submitted electronically
Triple helix	Open government	Political activity of inhabitants
Triple helix	Open government	Share of female city representatives
Triple helix	Quality of housing and of the	Area in green space (m2)

	built environment	
Triple helix	Quality of housing and of the built environment	Green space (m2) to which the public has access, per capita
Triple helix	Quality of housing and of the built environment	Population density in Urban Audit cities
Triple helix	Quality of housing and of the built environment	Proportion of the area in recreational sports
Triple helix	Resources	Rate of recycled waste per total kg of waste produced

Name of the framework

UNECE United Smart Cities

Framwork	Subtheme	Indicator Title
Smart city index	Accessibility	Transportation mode split. (Percentage of each mode of transportation, i.e. private, public, bicycles, pedestrians)
Smart city index	Economic performance	Annual GDP growth rate
Smart city index	Economic performance	Annual GNP growth rate
Smart city index	Economic performance	Foreign Direct Investments (Capital/Earnings accrued from listed FDI's per annum)
Smart city index	Economic performance	Net Export Growth rates (% increase of country's total exports minus the value of its total imports per annum)
Smart city index	Education	Adult literacy rate
Smart city index	Education	Number of schools with environmental education programs
Smart city index	Employment	Average professional education years of labor force
Smart city index	Employment	Percentage of green jobs in the local economy
Smart city index	Employment	Underemployment/employment/unemployment rates
Smart city index	Energy and mitigation	Percentage of total energy consumed in the city that comes from renewable sources
Smart city index	Energy and mitigation	Total amount of GHG emissions per city and per capita
Smart city index	Environment	Levels of Particulate Matter (PM10 - mg/m3)
Smart city index	Environment	Levels of Particulate Matter (PM2.5 - mg/m3)
Smart city index	Environment	Proportion of population with access to adequate and safe drinking water
Smart city index	Environment	Total amount of water availability
Smart city index	Environment	Water quality index/score
Smart city index	Health	Mortality rate/ Life expectancy
Smart city index	Health	Percentage of population with access to health care services
Smart city index	Health	Percentage of population with access to water-born or alternative (and effective) sanitary

		sewage infrastructure
Smart city index	Quality of housing and of the built environment	Access to local/ neighbourhood services within a short distance
Smart city index	Quality of housing and of the built environment	Breakdown of housing sector by property type (owner occupied / rental, single occupant/ couples/family/multifamily etc.)
Smart city index	Quality of housing and of the built environment	Crime rates
Smart city index	Quality of housing and of the built environment	Measures of income distribution and inequality
Smart city index	Quality of housing and of the built environment	Percentage of green space (public parks) coverage in relation to city area and/or population size
Smart city index	Quality of housing and of the built environment	Percentage of preserved areas/ reservoirs/ waterways/parks in relation to total land area
Smart city index	Quality of housing and of the built environment	Percentage of roadways in good conditions
Smart city index	Quality of housing and of the built environment	Percentage of social / affordable / priority housing
Smart city index	Quality of housing and of the built environment	Percentage of trees in the city in relation to city area and/or population size
Smart city index	Resources	Recycling rate (Percentage diverted from waste stream)
Smart city index	Resources	Volume of solid waste generated

	CITYkeys

Name of the framework
URBES

Framwork	**Subtheme**	**Indicator Title**
URBES	Accessibility	Average time needed for mobility used to reach educational or working places
URBES	Access to services	Broad band internet access
URBES	Access to services	Citizens who benefit from infancy services
URBES	Access to services	Info mobility services
URBES	Access to services	Number of museums, galleries, archeological sites or monuments
URBES	Access to services	Number of people using a public library
URBES	Access to services	Number of public libraries
URBES	Access to services	Number of visitors of cultural interesting sites
URBES	Community	Share of non profit organizations
URBES	Community	Share of social cooperatives
URBES	Community	Share of volunteers working for non profit organization
URBES	Economic performance	Degree of specialization within production and services field
URBES	Education	Level of literacy
URBES	Education	Level of numeracy
URBES	Education	Share of childrens visiting a kindergarten
URBES	Education	Share of persons having at least one higher school degree
URBES	Education	Share of persons having at least one university degree
URBES	Education	Share of persons leaving education without acquisition of a degree
URBES	Education	Share of schools offering disability services
URBES	Employment	Employment rate of people 20-64 years old
URBES	Employment	Rate between working women with children and working women without children
URBES	Employment	Share of paid employees working for cooperatives
URBES	Employment	Share of persons living in a family

		without occupation
URBES	Employment	Share of young people who are not working or studying at all
URBES	Energy and mitigation	District heating
URBES	Environment	Cars fullfilling emission standards below Euro4
URBES	Environment	Drinkable water
URBES	Environment	Losses of water within the network
URBES	Environment	Noise disturbance
URBES	Environment	Quality of urban air
URBES	Environment	Separate collection of municipal waste
URBES	Environment	Share of waste disposed at waste disposal areas
URBES	Equity	Families not being able to pay their loans
URBES	Equity	Index of living conditions
URBES	Equity	Per capita adjusted disposable income
URBES	Equity	Tax contribution of people earning less than 10K €
URBES	Health	Age-standardized cancer mortality rate (19-64 years old)
URBES	Health	Age-standardized mortality rate for dementia and related illnesses (people aged 65 and over)
URBES	Health	Incidence rate of fatal occupational injuries or injuries leading to permanent disability
URBES	Health	Infant mortality rate
URBES	Health	Life expectancy at birth
URBES	Innovation	Number of patent applications per mio. inhabitant
URBES	Innovation	Patent propensity
URBES	na	
URBES	Open government	Non-participation rate
URBES	Open government	Public institutions publishing at least one social report
URBES	Open government	Share of female councilors
URBES	Open government	Share of female politicians on local government level
URBES	Open government	Voter turnout
URBES	Open government	Women and political representation at municipial level
URBES	Policy & Organisation	Average age of councilors
URBES	Policy & Organisation	Average age of ministers
URBES	Process	Duration it takes to to decide if a court procedure suceeds in the first

		stage
URBES	Quality of housing and of the built environment	Areas of urban gardening
URBES	Quality of housing and of the built environment	Availability of green areas per inhabitant
URBES	Quality of housing and of the built environment	Conservation of historic urban fabric
URBES	Quality of housing and of the built environment	Density of green areas of public interest
URBES	Quality of housing and of the built environment	Density of urban bicycle paths
URBES	Quality of housing and of the built environment	Density of urban footpaths
URBES	Quality of housing and of the built environment	Density of urban public transport networks
URBES	Quality of housing and of the built environment	Density of urban transport networks
URBES	Quality of housing and of the built environment	Presence of historic rural landscapes
URBES	Quality of housing and of the built environment	Share of historic interesting areas
URBES	Quality of housing and of the built environment	Share or urban traffic areas
URBES	Quality of housing and of the built environment	Total density of green areas
URBES	Quality of housing and of the built environment	Urban parks and gardens
URBES	safety	Share of deaths caused by accidents
URBES	safety	Share of domestic burglaries
URBES	safety	Share of robberies
URBES	safety	Share of trick robberies
URBES	safety	Traffic accidents (14-34 years old)
URBES	Safety	Homicide rate

Name of the framework

URB-GRADE - Decision Support in the Cloud

Framwork	Subtheme	Indicator Title
Urbgrade	Economic performance	Internal rate of return (IRR)
Urbgrade	Economic performance	Investment
Urbgrade	Economic performance	Net Present Value (NPV)
Urbgrade	Economic performance	Number of cases involved
Urbgrade	Economic performance	Profitability ratio
Urbgrade	Economic performance	Total amount of Energy Savings
Urbgrade	Economic performance	Total amount of Maintenance Savings
Urbgrade	Energy and mitigation	Consumption
Urbgrade	Energy and mitigation	Consumption installation per lamppost and time of operation
Urbgrade	Energy and mitigation	Consumption per cubic meter
Urbgrade	Energy and mitigation	Consumption per m2
Urbgrade	Energy and mitigation	Consumption per square meter
Urbgrade	Energy and mitigation	Consumption per use of energy
Urbgrade	Energy and mitigation	Consumption per user
Urbgrade	Energy and mitigation	Consumption per workstation
Urbgrade	Energy and mitigation	Electricity consumption per m2 - private single family house
Urbgrade	Energy and mitigation	Electricity consumption per m2 - small institutions
Urbgrade	Energy and mitigation	Fridge and freezers consumption
Urbgrade	Energy and mitigation	Heat consumption - private single houses and small institutions
Urbgrade	Energy and mitigation	HVAC and Heating consumption (optimal temperature related)
Urbgrade	Energy and mitigation	HVAC and Heating consumption (volume related)
Urbgrade	Energy and mitigation	Luminance efficiency
Urbgrade	Energy and mitigation	Motor doors and electric blinds consumption per up or down
Urbgrade	Energy and mitigation	Total consumption per inhabitant
Urbgrade	Environment	Residual consumption
Urbgrade	Environment	Water consumption per m2 - private single family houses
Urbgrade	Environment	Water consumption per m2 - small institutions

| Urbgrade | Project performance | Payback Period |
| Urbgrade | Project performance | Risk Ratio |