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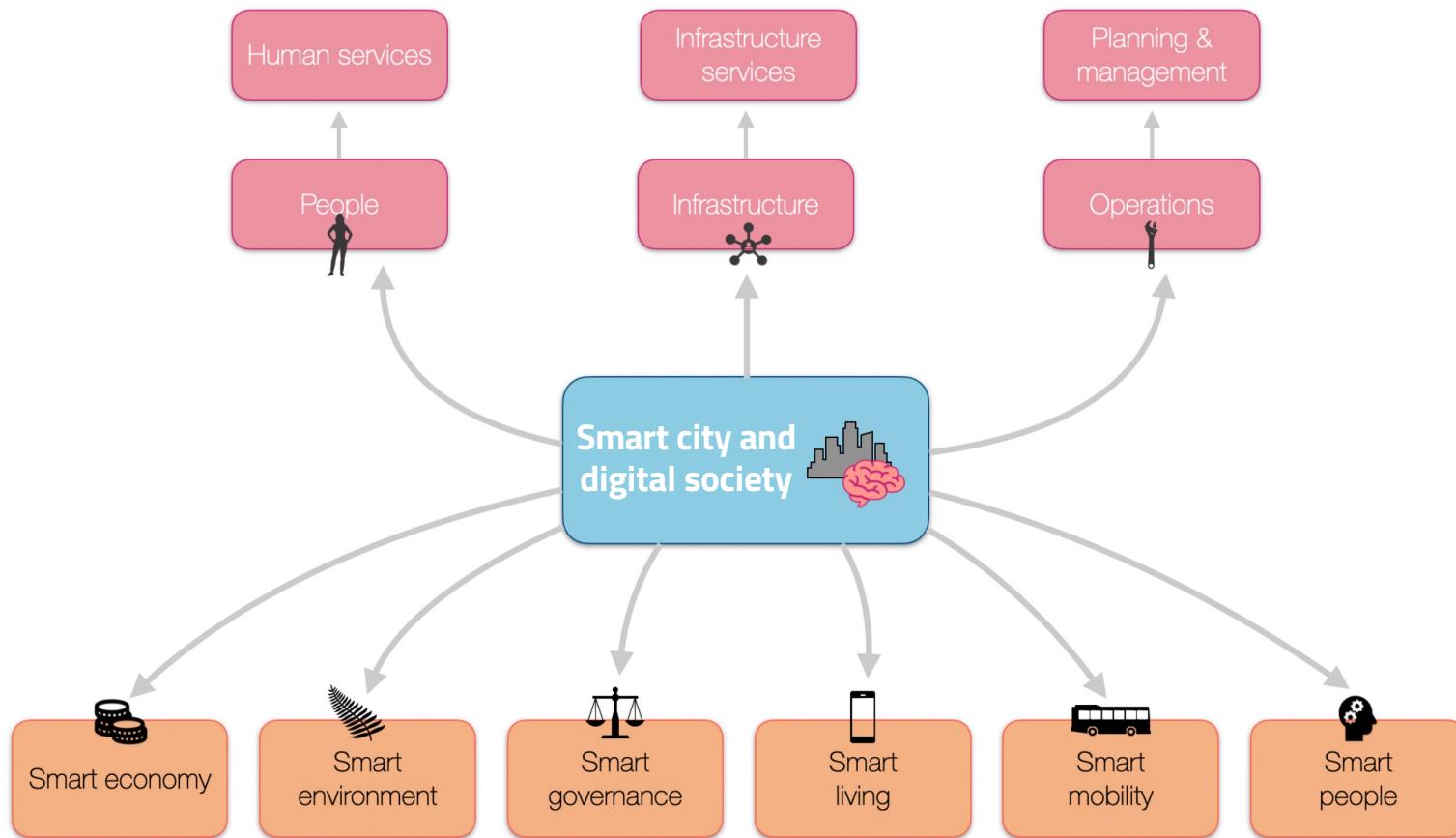
Centro Nazionale di Ricerca in HPC,
Big Data and Quantum Computing



Smart city & digital society: scenari e prospettive

Nicola Mazzocca (UNINA) Marco Pistore (FBK)

Kick off meeting 25/26 novembre 2022, Bologna



Nicola Mazzocca

Bologna, 25/26 novembre 2022



Architettura del progetto

- Lo Spoke 'Smart City e Digital Society' affronta le sfide di progettazione, valutazione e gestione di sistemi, servizi e infrastrutture operanti in ambito sociale, organizzativo e tecnologico.

Digital Society and Smart Cities CN1 Spoke

WP1 - Modelling
FBK
UniNa, UniCt

WP1 GOALS

- State of industrial applications
- analytical and simulation models
- environments and tools for the analysis of complex systems
- management and maintenance of smart city applications

WP2 - Computing platforms
UniNa
UniCt, UniBO, FBK, UniTn, UniSal, CRS4

WP2 GOALS

- Industrial applications
- modelling and design of hw/sw architectures based on cloud&edge systems
- sensor network design
- twin system design
- prototyping architectures
- performance evaluation metrics

WP3 - Software systems
UniMiB
UniAq, PoliBa, UniNa, UniBO

WP3 GOALS

- Industrial applications
- software development cycles
- software specification and maintenance
- definition of system software platforms
- algorithms
- AI applications
- prototyping

WP4 – Health and lifestyle
UniTn, FBK, UniCT, CRS4

WP5 - Mobility
UniCT, FBK, UniNa, UniAq, UniBO

WP6 - Socio-economical analysis
PoliBa, UniNa, UniMiB

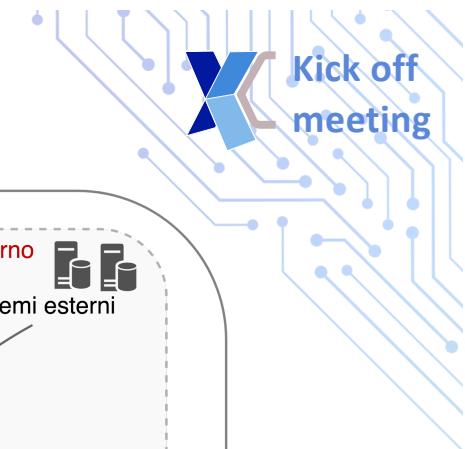
WP7 - Infrastructures and utilities
UniAq, Unina, PoliBa, FBK, UniSal, CRS4

WP8 - Environment
UniSal, Unina, PoliBa, UniMiB, UniTn

WP4 – WP8 GOALS

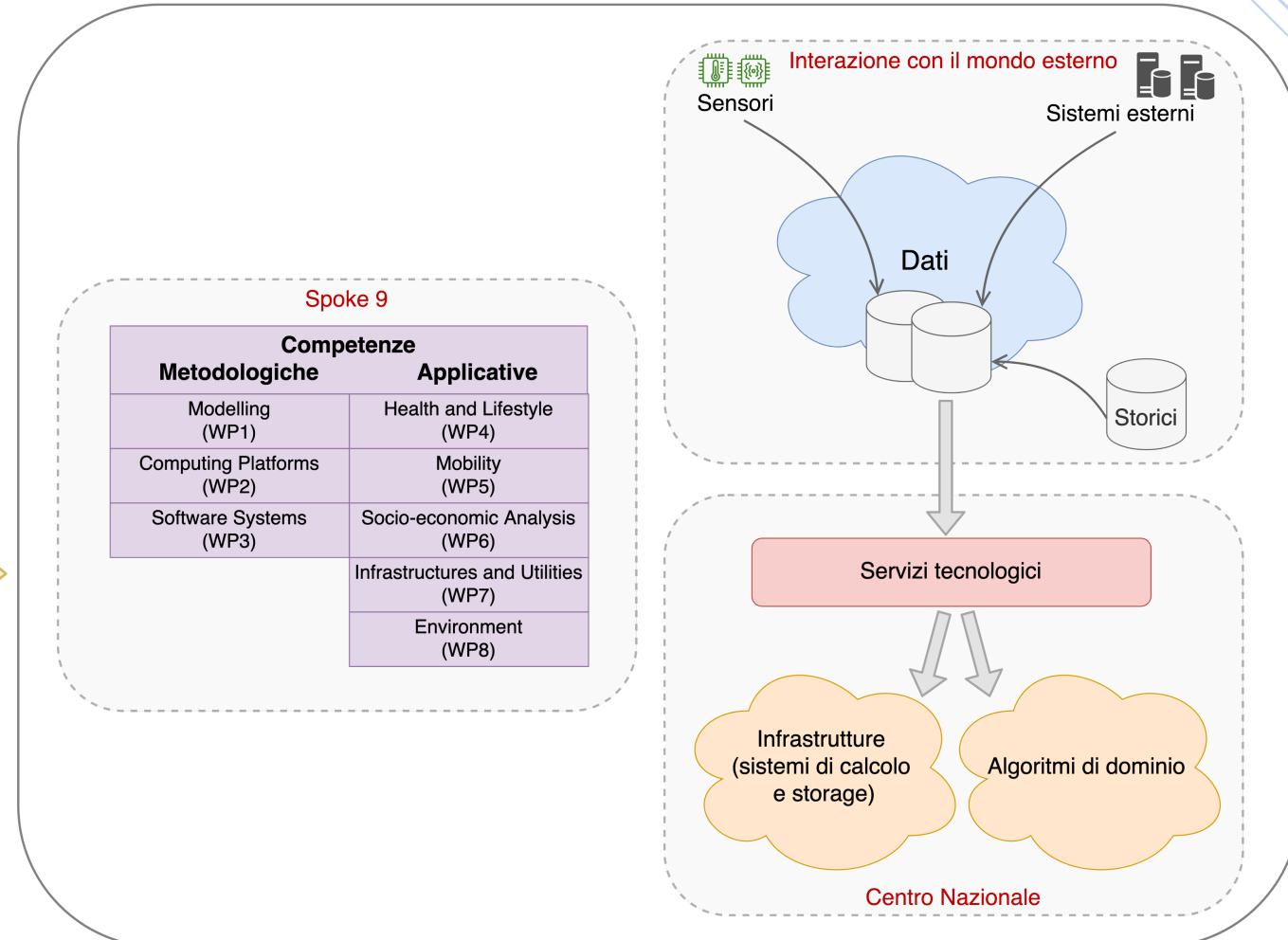
- state of industrial applications
- modelling of hw/sw architectures
- algorithms
- human-in-the-loop approaches
- prototyping and demonstration
- support to open science and innovation
- impact analysis

Modello di interazione del progetto



Gestione di applicazioni di utilità pubblica/privata

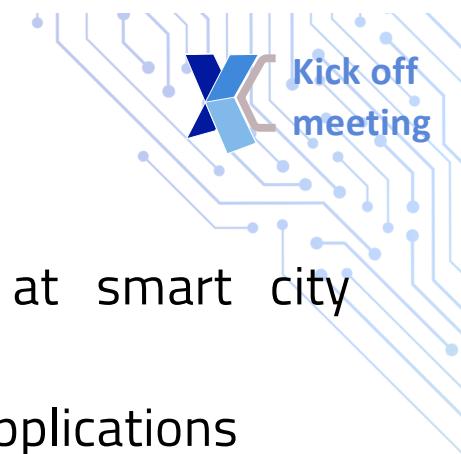
Sviluppo di nuove metodologie, tecnologie, sistemi



Principali attività dei WP

WP1 (Modelling)

- Definition of trustworthy and explainable AI models targeted at smart city applications
- Definition of social and cooperative AI models targeted at smart city applications



WP2 (Computing Platforms)

- Architectures and platforms targeted at Smart City applications
- Data space of a Smart City for a digital twins platform
- HPC-enhanced AI-based city monitoring solutions

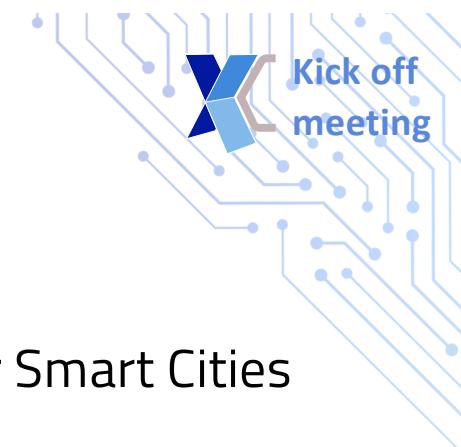
Principali attività dei WP

WP3 (Software Systems)

- Dependable Software for Smart Cities
- Novel Deep Learning modeling techniques and AI vision algorithms for Smart Cities
- Machine Learning DevOps (MLOps) for Digital Twins

WP4 (Health and lifestyle)

- Digital Twins for Health
- HPC-enabled Health and Well-Being Services



Principali attività dei WP

WP5 (Mobility)

- Transport model
- Real time monitoring and proactive safety of Mobility users
- Prediction Models of the Citizen Urban Mobility Behaviors



WP6 (Socio-economic analysis)

- Economic development and resilience of cities and communities
- Evaluation of risks in using AI-driven policy making and regulatory approaches



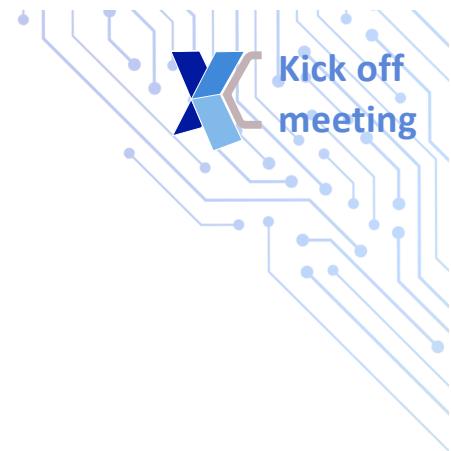
Principali attività dei WP

WP7 (Infrastructures and utilities)

- Energy consumption modeling, prediction, and control
- Structural monitoring and risk analysis techs for urban scenarios
- Risk-based models of resilience for analyzing critical infrastructures and structures, and virtual fences realization

WP8 (Environment)

- Models and tools for monitoring environmental parameters in a urban scenario, for forecasting urban flooding and environmental pollution risks
- A digital twins platform for sustainability cities



Sviluppo delle attività

- Lo sviluppo delle attività seguirà tre fasi:
 - 1) Raccolta ed integrazione dei dati;
 - 2) Analisi dei dati e modelli predittivi;
 - 3) Sistemi automatici di gestione e strumenti di supporto alle decisioni.
- Le attività dello Spoke prevedono:
 - la realizzazione di dimostratori con riferimento ai singoli domini d'interesse (mobilità, infrastrutture, sicurezza urbana, sviluppo socio-economico, ecc.)
 - la possibilità di sperimentare i modelli e le tecniche sviluppate con riferimento a città che si rendano disponibili alla sperimentazione mettendo a disposizione dati, infrastrutture e personale coinvolto nelle attività di gestione.

Aziende interessate alle attività



- ENI
- Intesa San Paolo
- Fincantieri
- Autostrade per l'Italia
- Fondazione Urbana
- Leonardo
- Engineering
- Sogei
- Terna
- IFAB

- Seco – Next -
- BIP
- Atos
- Net services
- Lega delle cooperative
- E4 computing
- CRIF
- ASTOM

Nicola Mazzocca

Bologna, 25/26 novembre 2022