

SMART CITIES IN BRAZIL

AWEX BUSINESS DAYS 2019



WBI : AWEX PARTNER FOR RESEARCH AND INNOVATION IN BRAZIL

- Wallonie-Bruxelles International : international relations department of Wallonia-Brussels
- Research Platform – Scientific Liaison Officers located in partner universities
 - Partners and financing sources identification
 - Workshops, missions, cross market innovation related actions
 - Technology scouting



SMART CITIES – BRAZILIAN CONTEXT

GENERAL CONTEXT

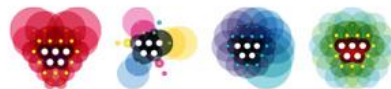
Improve quality of life through **integrated management of services** to citizens, improving the **mobility, public safety** and the use of **resources**

STRATEGIC OBJECTIVES

MOBILITY : Reduce displacement time and increase attractiveness of public transport

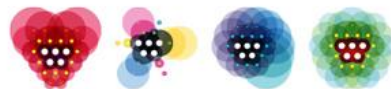
PUBLIC SAFETY : Increase the capacity of surveillance and monitoring of areas of the city to inhibit and mitigate situations of risk to safety

EFFICIENT USE OF RESOURCES : Reducing waste of utilities and create **public lighting network** that enables IoT solutions in the city at large



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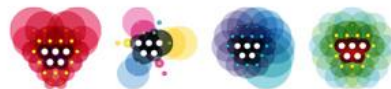
- **RANKING OF BRAZILIAN SMART CITIES:** Curitiba, São Paulo, Vitoria, Campinas, Florianopolis, Rio de Janeiro, Belo Horizonte, Porto Alegre, Santos and Niteroi (according to the 2018 Ranking Connected Smart Cities)
- **Examples of projects implemented in Brazilian Smart Cities**
 - **Sete Lagoas (MG):** treatment and valorization of Pepsico´s waste by a network of 19 companies active in the food, automotive and textile areas and sharing resources. This initiative created by FIEMG is being expanded to other cities in MG as part of the Simbiose Industrial program that helped 760 companies to reduce their costs and valorize 140 K tons of residues.



SMART CITIES – BRAZILIAN CONTEXT

■ Examples of Brazilian Smart Cities

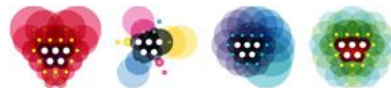
- **Barueri (SP):** one of the highest GDP according to the Connected Smart Cities ranking (+/- 45 000 €/inhabitant in 2016)
AES Eletropaulo invested 17 Million € to install an energy smart grid system for 60K consumers.
- **Vinhedo (SP):** one of the most secure cities in Brazil, first city to implement a monitoring system of the in/out fluxes through security cameras. Created the SIM sytem (Soluções Integradas Municipais) as a network to attend population's demands.



SMART CITIES – BRAZILIAN CONTEXT

■ Examples of Brazilian Smart Cities

- **Fortaleza (CE) and São Paulo (SP):** Launched in 2016, the Vamo (alternative vehicles for mobility) project is intended to promote sustainable mobility through an electric car sharing network in a partnership between the Fortaleza city hall and the company Serttel. Another initiative is that of the LDS Group, which launched a car sharing service in the city of São Paulo in 2017.



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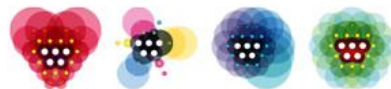
■ Examples of Brazilian Companies committed to circular economy

- ARCELOR MITTAL

Heavy use of natural resources led to the creation of Arcelor Mittal BioFlorestas: 100,000 hectares of planted eucalyptus forests and 20,000 hectares of preserved natural areas, the company is the link between the steel chain and a regenerative economy in the biological cycle

- CBPak

Established in 2002, CBPak offers an alternative to single-use packaging made of plastic or styrofoam, using cassava starch as raw material for its products, making it possible for 100% of them to be compostable.

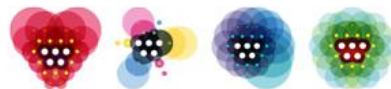


SMART CITIES – BRAZILIAN CONTEXT

- **Examples of Brazilian Companies committed to circular economy**

- **NATIONAL ASSOCIATION OF AUTO PARTS REMANUFACTURERS:**

key role in structuring and disseminating the practice of remanufacturing in Brazil, extending the useful life of products - transforming a product at the end of its useful life into another product. Growing at an average rate of 10% a year, the parts remanufacturing sector in Brazil recovers more than 2,600 tons of resources, including aluminum and iron, and has a share of 6% in the post-sales sector, a percentage that is likely to rise to 20% by 2020.



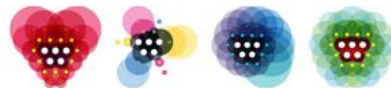
YOUR PARTNERS FOR INNOVATION AND BUSINESS

- **AWEX / APEX**
- **WBI**
- **PERFORMA INVESTIMENTOS fund**
 - Start up creation/ acquisition of technologies
 - Partners: BNDES, SFPI, AgeRio, private invests
 - Area: environmental technologies
- **EU programs: H2020, ERANET, MSCA, ERAMIN, CORNET, COFUND...**
- **Embrapii System:** network of certified research centers.
- **Other Brazilian fundings:**
 - **FINEP**
 - **BNDES**
 - **Research Foundations (FAPs)**



THE EMBRAPII SYSTEM

- Funding of PPP innovative projects to answer the industrial challenges
- Network of 42 accredited research centers or academic labs – presence in the entire country – actives in all fields
- Own funding
- Due diligence: must propose projects in order to remain in the Embrapii System (6 years action plan)
- Funding: Embrapii + Embrapii Unit funds up to 60% of an innovative project – Industry funds the remaining 40%
- Flexible negotiation position and fast implementation
- Helps companies to overcome the « Valley of Death » of Innovation – TRL 3 to 6

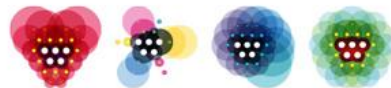


THE EMBRAPII SYSTEM

- Foreign companies allowed to participate :
 - within a co-financing scheme (CORNET, ERANET Globalstars, H2020....)
 - if registered in Brazil
 - as sub-contractor with parallel agreement defining IP and exploitation rights

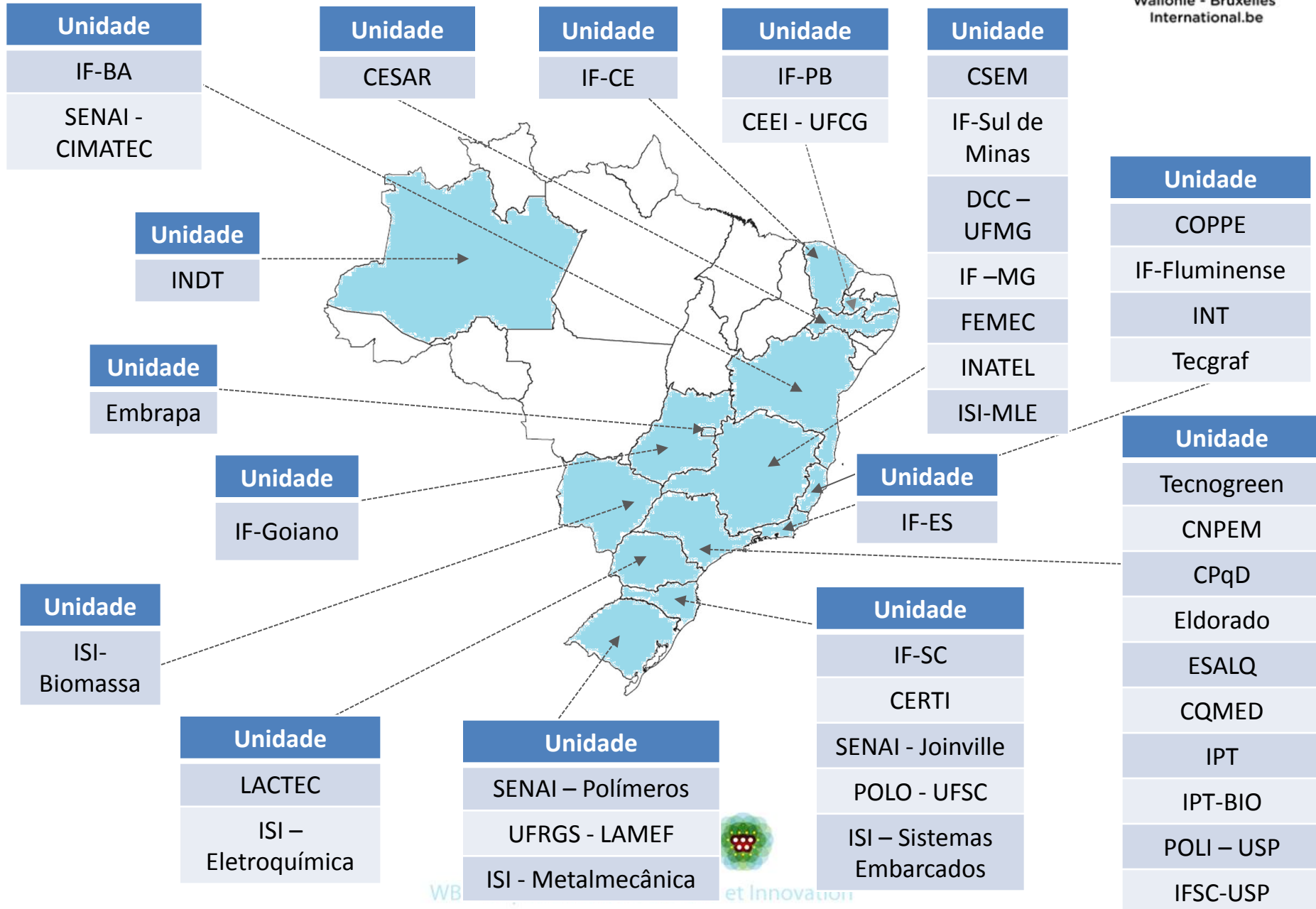


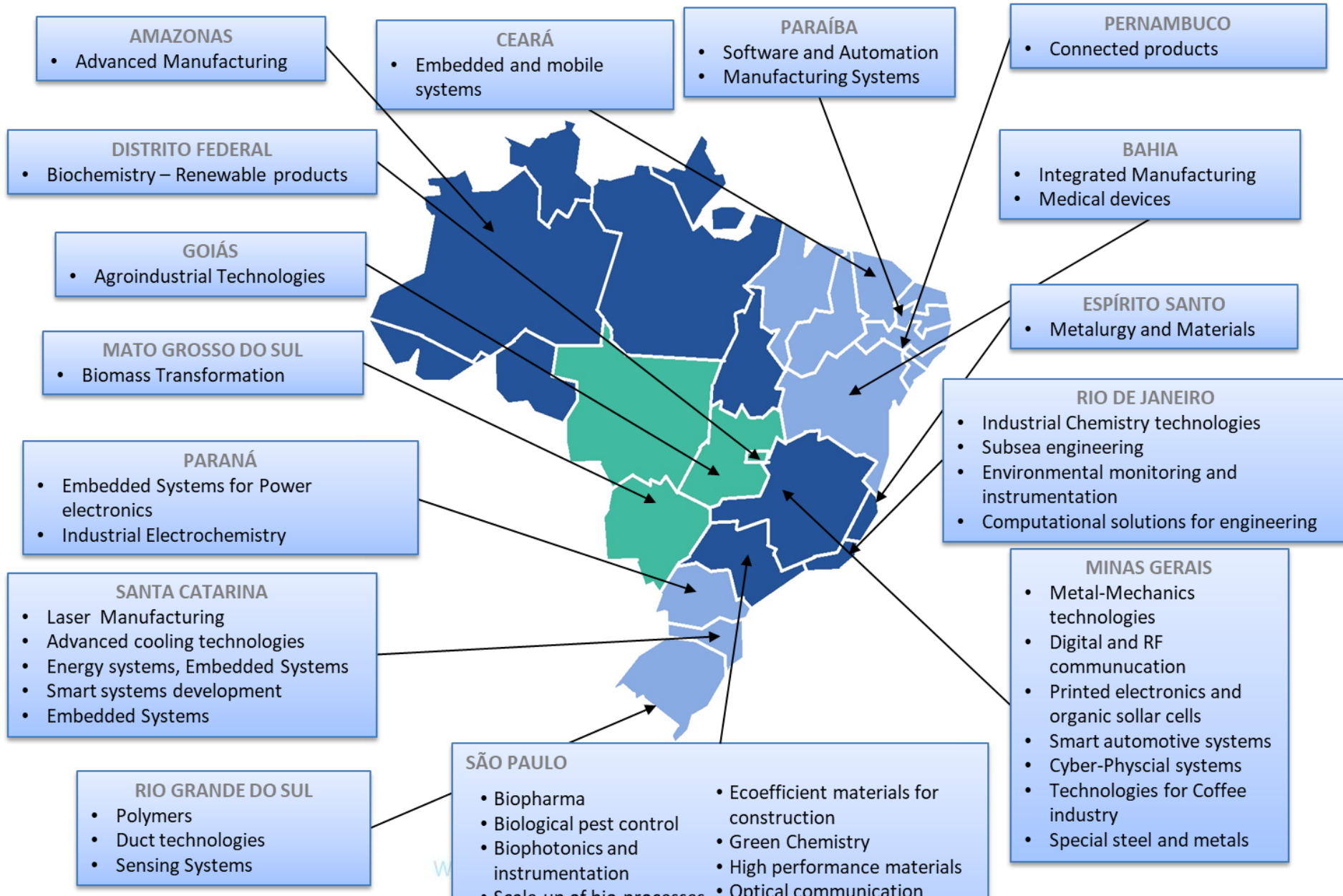
Perfect soft landing tool



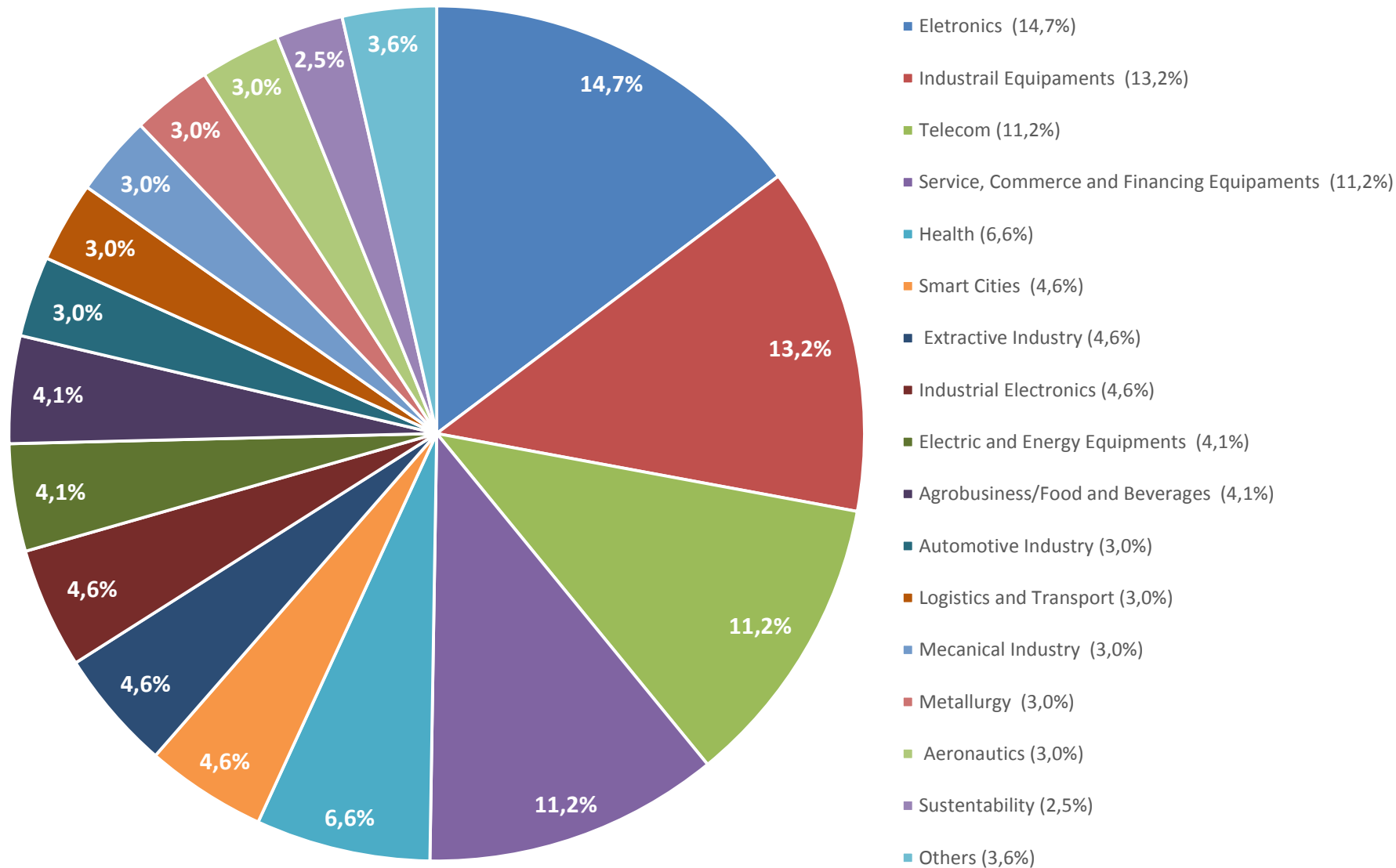
42 EMBRAPII UNITS

Wallonie - Bruxelles
International.be

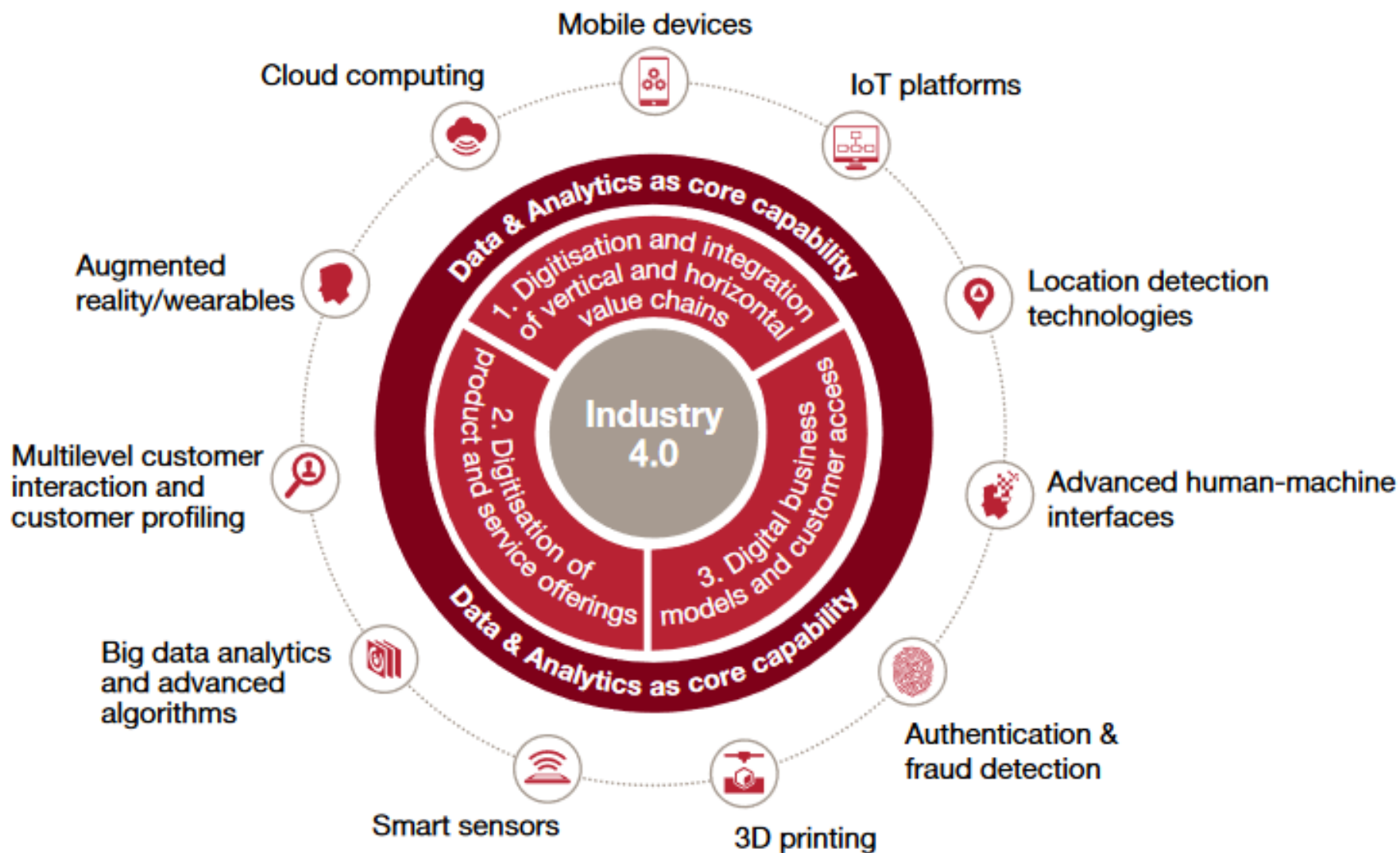


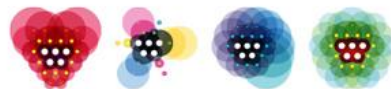
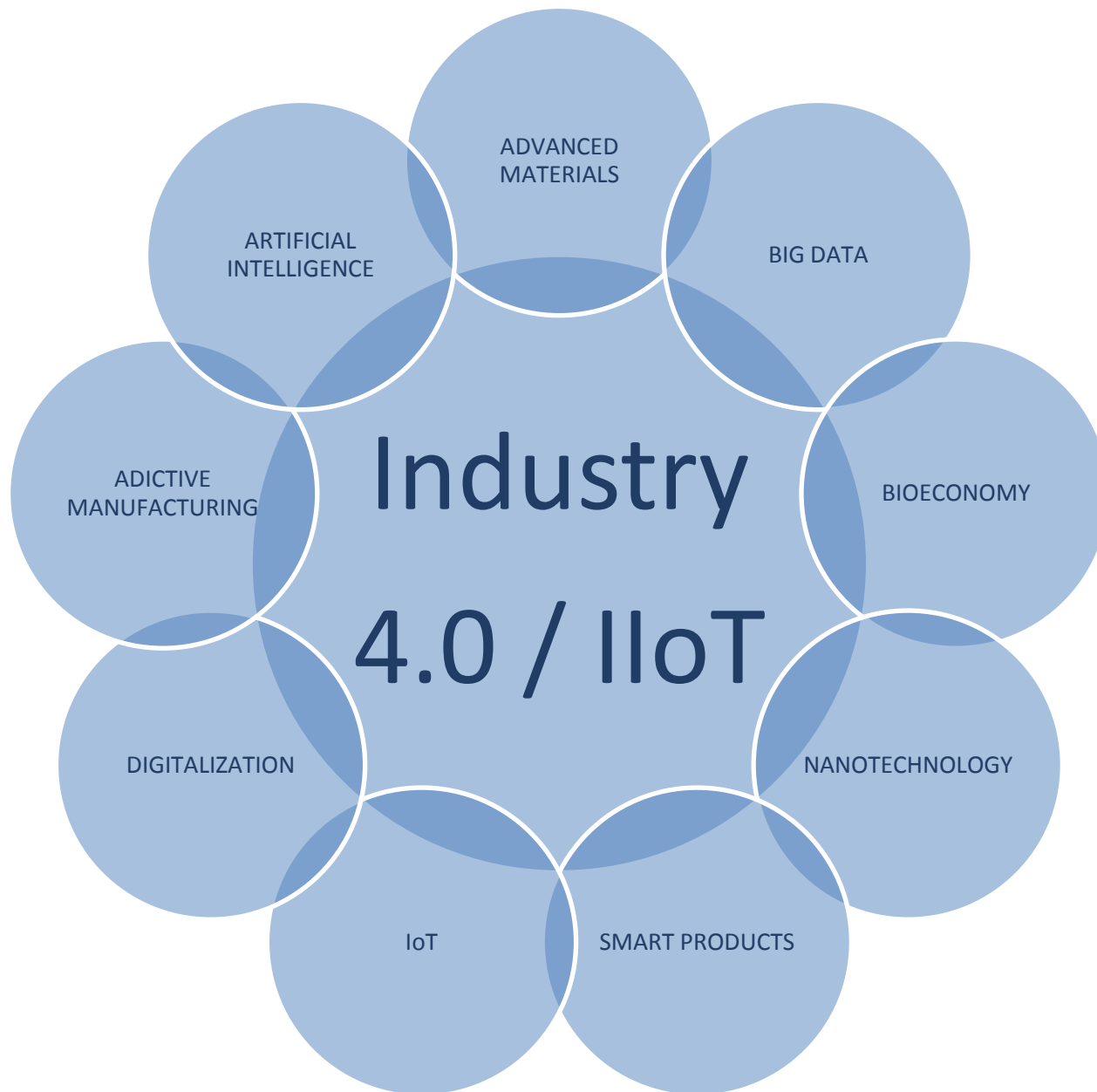


EMBRAPII: GENERAL PROJECT REPARTITION



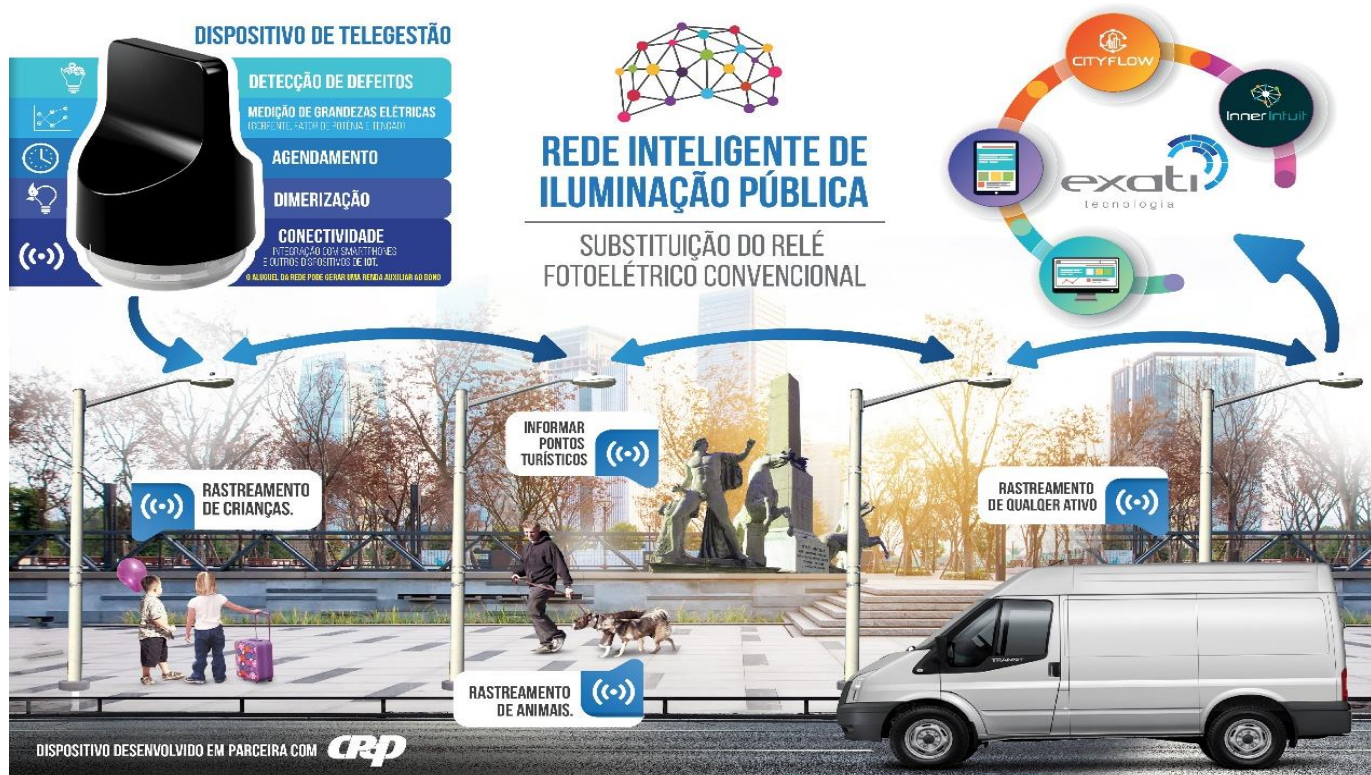
Industry 4.0 framework and contributing digital technologies





THE EMBRAPII SYSTEM : EXAMPLES OF SMART CITY PROJECTS

Public Lighting enabling multi-application sensing



THE EMBRAPII SYSTEM : EXAMPLES OF SMART CITY PROJECTS

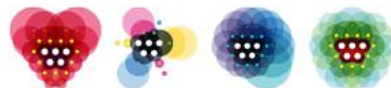
- Low cost weather station for hyper localized sensing – Pluvi On - CPqD



Prototype

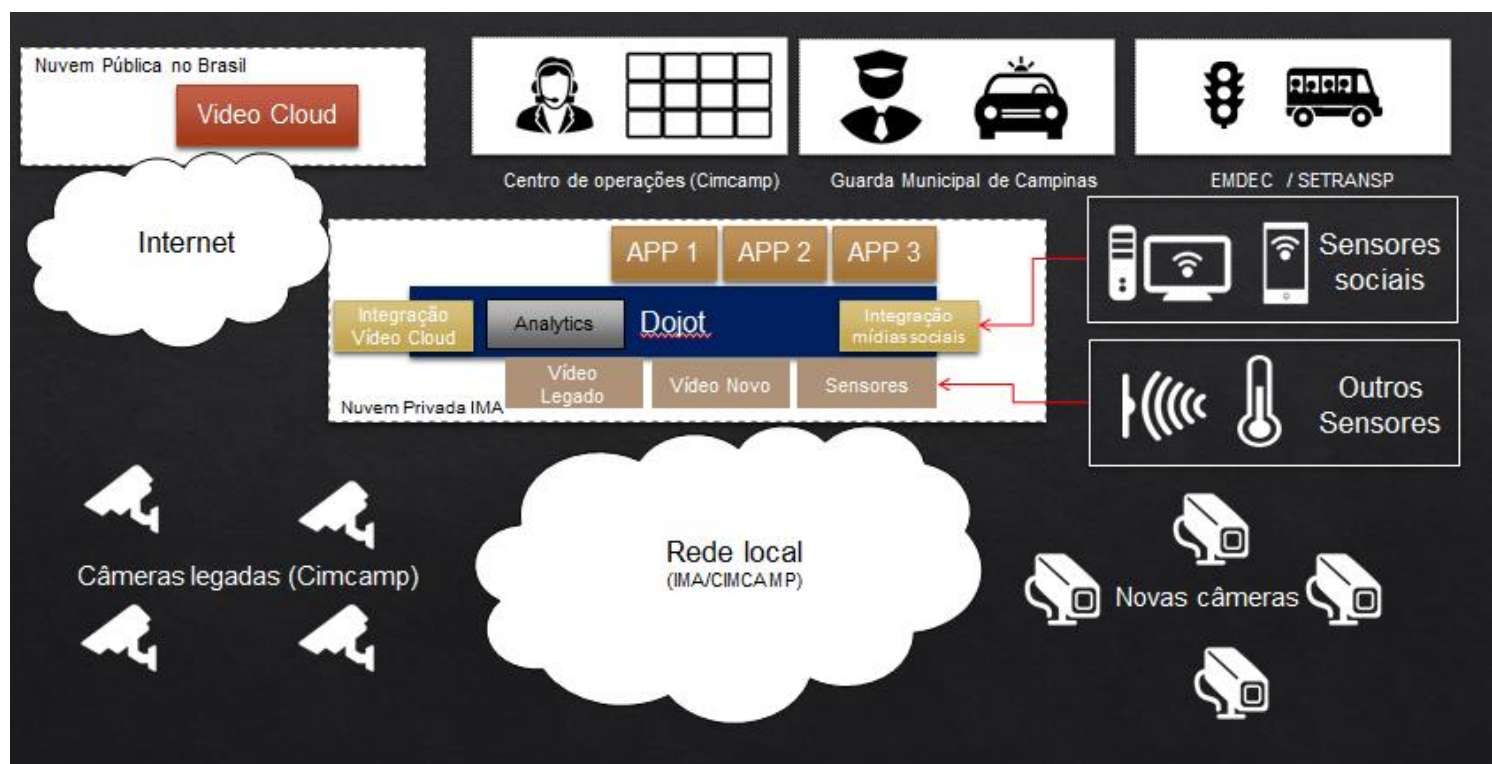


Project result



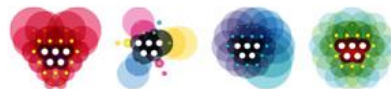
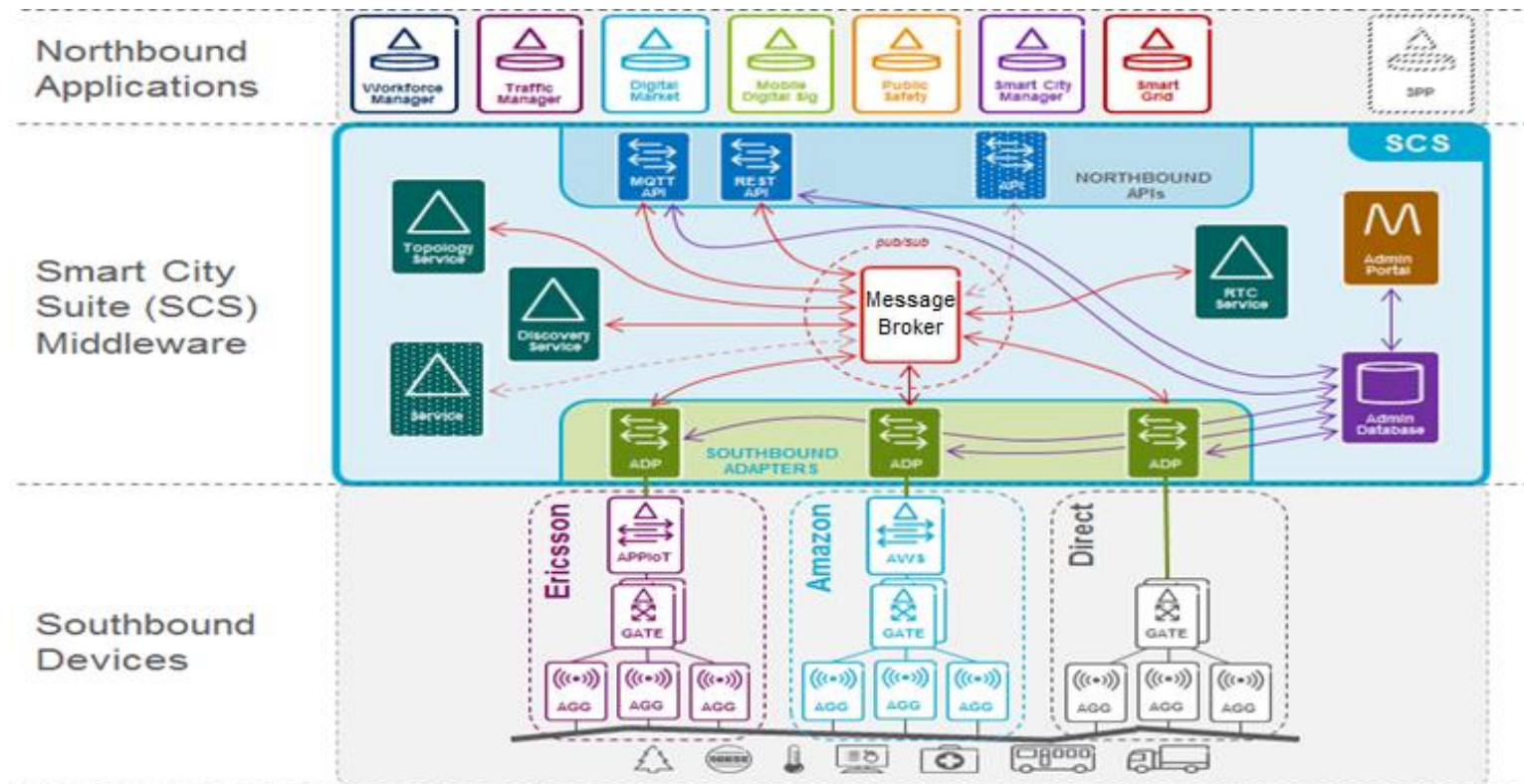
THE EMBRAPII SYSTEM : EXAMPLES OF SMART CITY PROJECTS

- Advanced public security applications – CPqD and Huawei



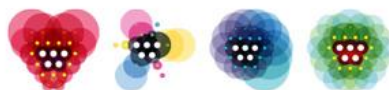
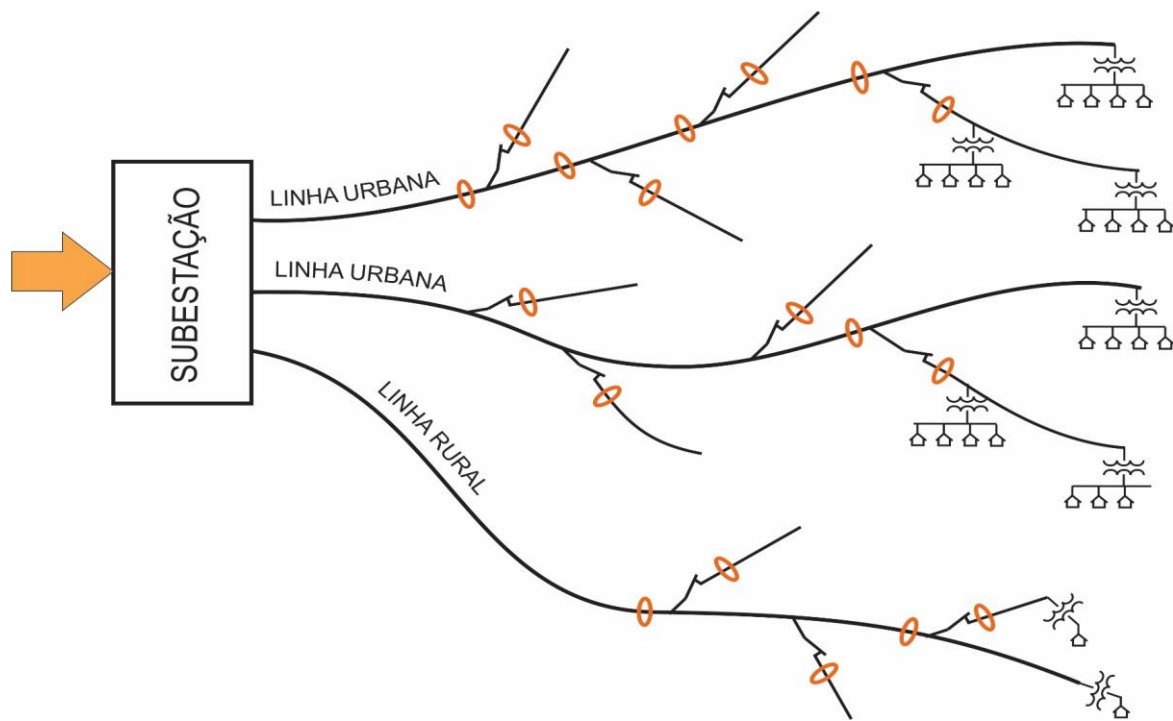
THE EMBRAPII SYSTEM : EXAMPLES OF SMART CITY PROJECTS

Smart City Platform – Intel and Ericsson



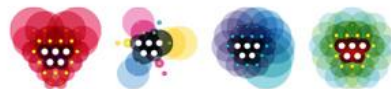
THE EMBRAPII SYSTEM : EXAMPLES OF SMART CITY PROJECTS

- Medium voltage SmartGrid Sensors – Lactec



THE EMBRAPII SYSTEM : EXAMPLES OF SMART CITY PROJECTS

- **Hospital 4.0 – Embrapii CERTI and SIEMENS: Virtual Command Center** remote operation and data collection of medical images from different medical devices



THE EMBRAPII SYSTEM : EXAMPLES OF SMART CITY PROJECTS

- Hospital 4.0 – Real Time Monitoring of Intensive Care Units



THE EMBRAPII SYSTEM : EXAMPLES OF SMART CITY PROJECTS

- **Circular Economy and Biofuel Production:** Use of new biofuel based on cotton and other vegetables to replace fossil fuel allowing savings of 2,5 millions Euros per year



THE EMBRAPII SYSTEM : INDUSTRIAL PARTNERS



GE Oil & Gas



BG GROUP



Elekeiroz



natura
bem estar bem



48 %
industrial
participation
in total
funding

Braskem



Lubrizonol



Stor

ESS
energizing Chemistry

THERASkin



BRATAC
Fiação de Seda



THE EMBRAPII SYSTEM : INDUSTRIAL PARTNERS



CORNING



BrPHOTONICS



SIEMENS

NOVADATA

AsGa | Sistemas TELECOM MIND



Companhia Brasileira de Alumínio



exatron



ENVISION.

MOTOROLA SOLUTIONS

TOSHIBA
Leading Innovation >>>



FMC Technologies



Padtec



Endress+Hauser



ERICSSON

TMSA



VBI - Département Recherche et Innovation



**MERCI !
THANK YOU !**

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