



# Future topics from Call2 iKaaS members

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- Project overview
- Some project achievements
- Future research topics

# The problem:

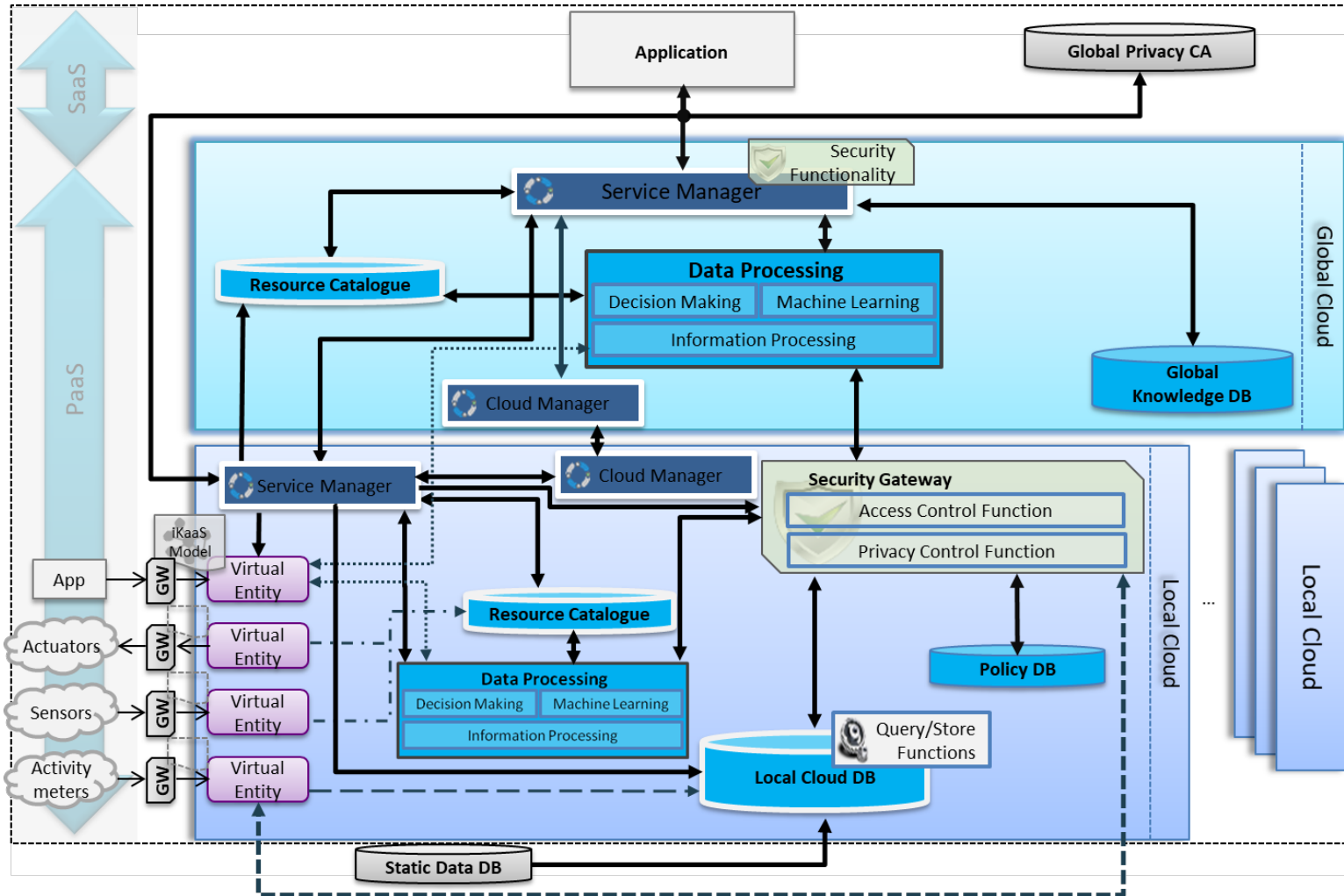


- In the current computing paradigm, users are just consumers of services offered by cloud service providers
- However these days even “everyday” users may have significant resources that just “sit” or are underutilized for plain trivial tasks
- Users can range from individuals to organizations and councils
- Resources can be:
  - hardware resources (running nothing)
  - software resources (with nowhere to run)
  - data (nowhere to be stored or processed)

- A “multi-cloud” (**crossborder!**)-based ecosystem where users:
  - Can be providers of resources
  - Can consume resources offered by other “users as providers”
- Benefits include:
  - Range and scope/scale extension of offered IoT services
  - Creation of an otherwise not possible knowledge base due to
    - lack of needed data
    - lack of Big Data analytics capabilities
    - both
  - Empowerment of the Knowledge-as-a-Service (KaaS) concept



# The architecture and components of the iKaaS platform



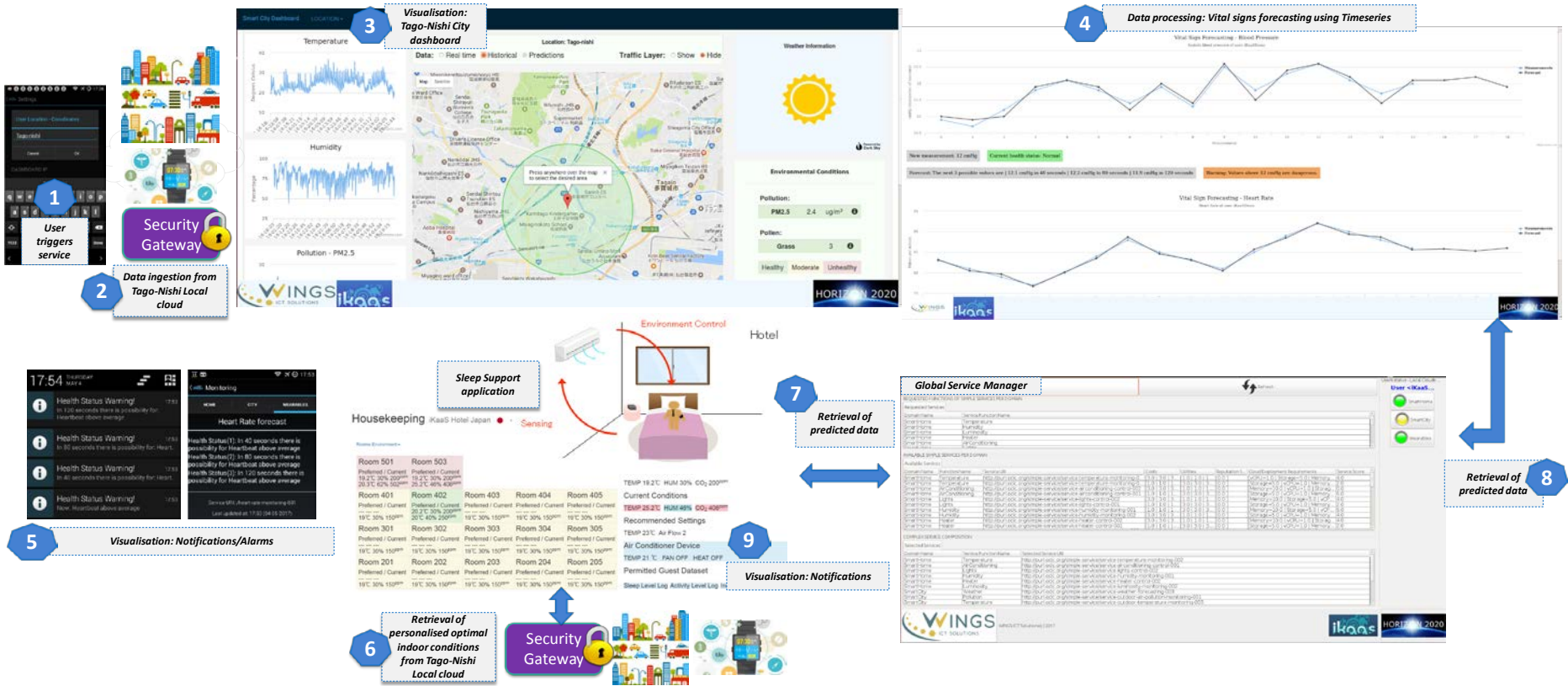
- iKaaS toolbox

Component	EU Partner
Virtual Entity	UNIS, ATOS, EMT, WINGS
Data Processing	UNIS, ATOS, WINGS, EMT, Madrid-City
Service Manager	WINGS
Resource Catalogue	WINGS
Local Cloud DB	ATOS/EMT
Application	WINGS, EMT

Component	JP Partner
Data Processing	Uni-Tohoku
Security Gateway	KDDR
Policy DB	KDDR
Local Cloud DB	KKC, Hitachi

- iKaaS implemented and tested 5 diverse use cases in the broader Smart City/Smart Home arena that addressed real-life diverse problems
  - Environmental service
  - Assisted living
  - Health support
  - Town management
  - Combinations of them
  - All well received by users and stakeholders
  
- Allowed us to benchmark how well the iKaaS approach fares when using cloud technologies in the considered context

# Example: Cross-border application



Tago-Nishi cross-border application scenario integrated with AAL Smart City components



- The regulatory trends in EU and Japan have been followed
  - EU Data Protection Regulation 2016/679; comes into force 2018
  - JP Act on the Protection of Personal Information (APPI) 2015; came into force 2017
- iKaaS Data Protection and Ethical Committee (DPEC) was set in Japan
- The issues that can affect the flow of data between EU and Japan have been recognized
- Ethical and privacy issues of the selected use cases have been analysed and considered in iKaaS implementation and testing

***Explicit informed consent*** is considered best suited for the purposes of iKaaS for cross-border transfer of personal data (Kato et al. LNICST 181, pp. 23–28, 2017)

- It does not require multiple contracts in cases of multilateral data transfer
- Allows for transfer of potentially identifiable information (e.g. location data)

- **Blockchains and smart contracts:**
  - automated incentivizing of stakeholders to share their resources and data
  - rewards in terms of cryptocurrencies can be given to contributing stakeholders
  - automated and undisputable logging of resources use (operations performed, inline or not with terms/clauses, etc.)
  
- a very good fit for the multi-party ecosystem of the iKaaS platform
- have certain issues and limitations related e.g. to scalability and efficiency when used in large scale deployments like the ones corresponding to Smart Cities

Thank you!

