ITU-T Kaleidoscope 2009
Innovations for Digital Inclusion

A Model and System Architecture for Ubiquitous Sensor Network Businesses

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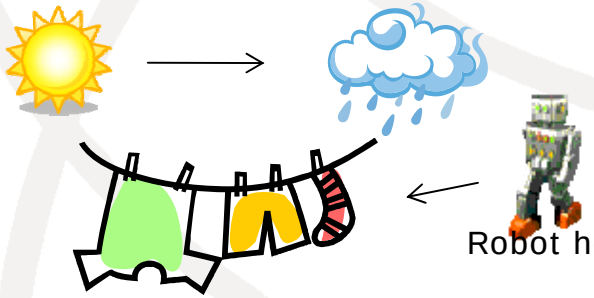
Future application services with USN

Location + warning

Ads + recommendation

Local small stores

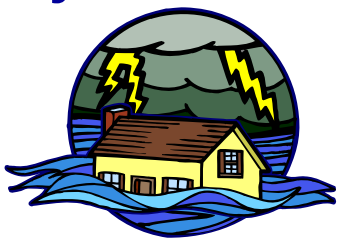
Weather forecast + help



Robot helps…

Evacuation guidance in emergency

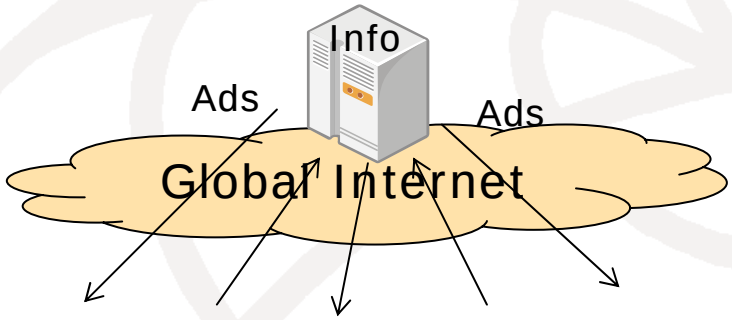
Even for travelers



- ✓Create new markets and businesses
- ✓Grow businesses of telco and electronics
- ✓Decrease digital and business divides

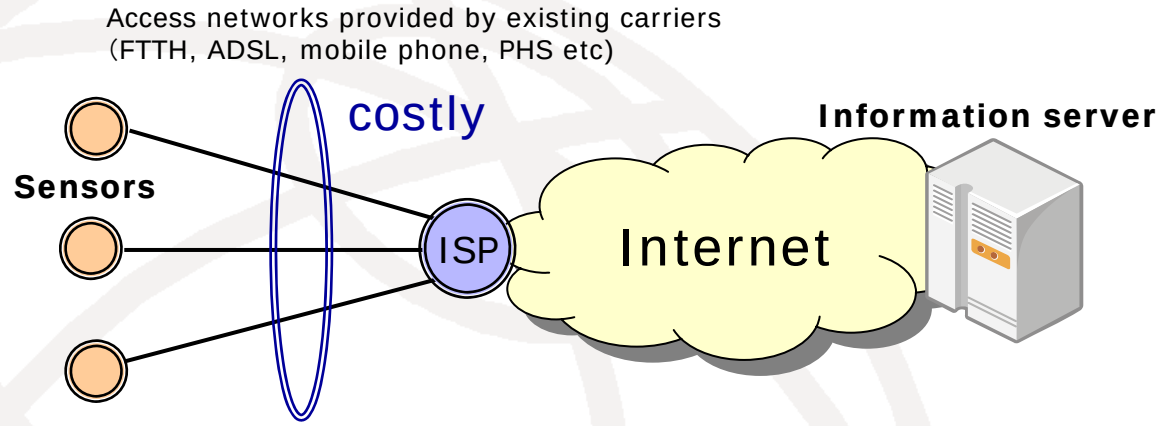
Web-oriented to USN-oriented model

Web-oriented model



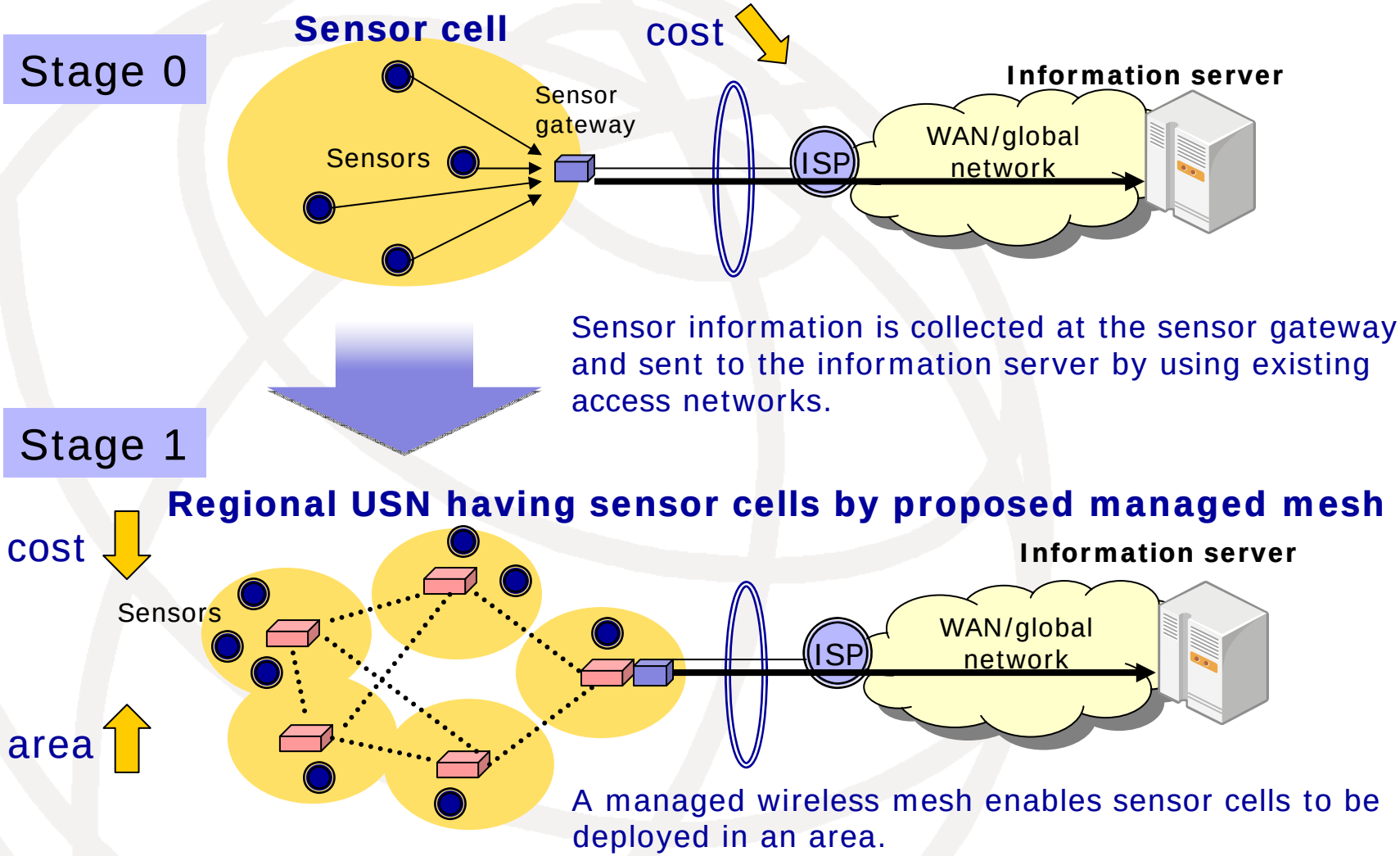
- Big advertising businesses
  - portal sites for many users across global Internet
  - Same in SNSs
- Main players are almost saturated
- Tools
  - Web (Non-real-time, users have to pull info. (server-client))
  - Email

Sensor deployment with existing access networks

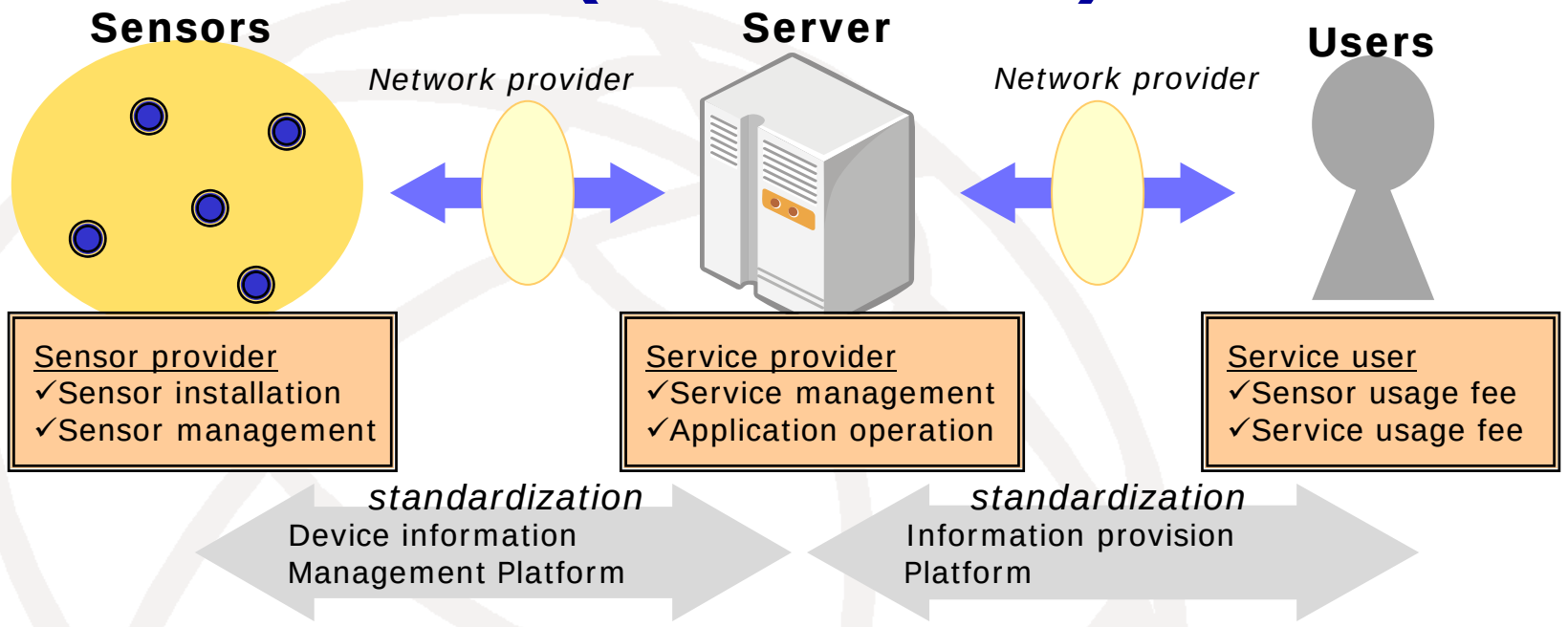


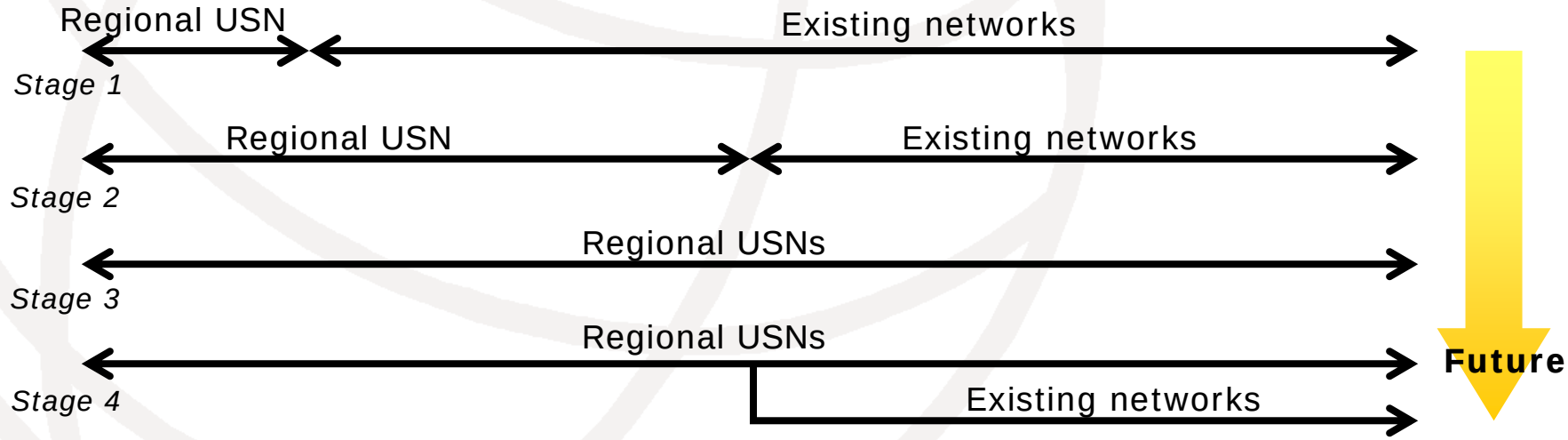
- Existing access networks – telephone network-based
- Charge model does not fit to USN business model
  - Communication fee + monthly fee… not good
  - A sensor may send only 1 but emergency packet a year…
- P-to-P model does not fit to USN com model
  - P-to-P-based… not enough
  - Needs to support efficiently P-to-MP, MP-to-P, and MP-to-MP communications

Regional USN deployment with managed wireless mesh

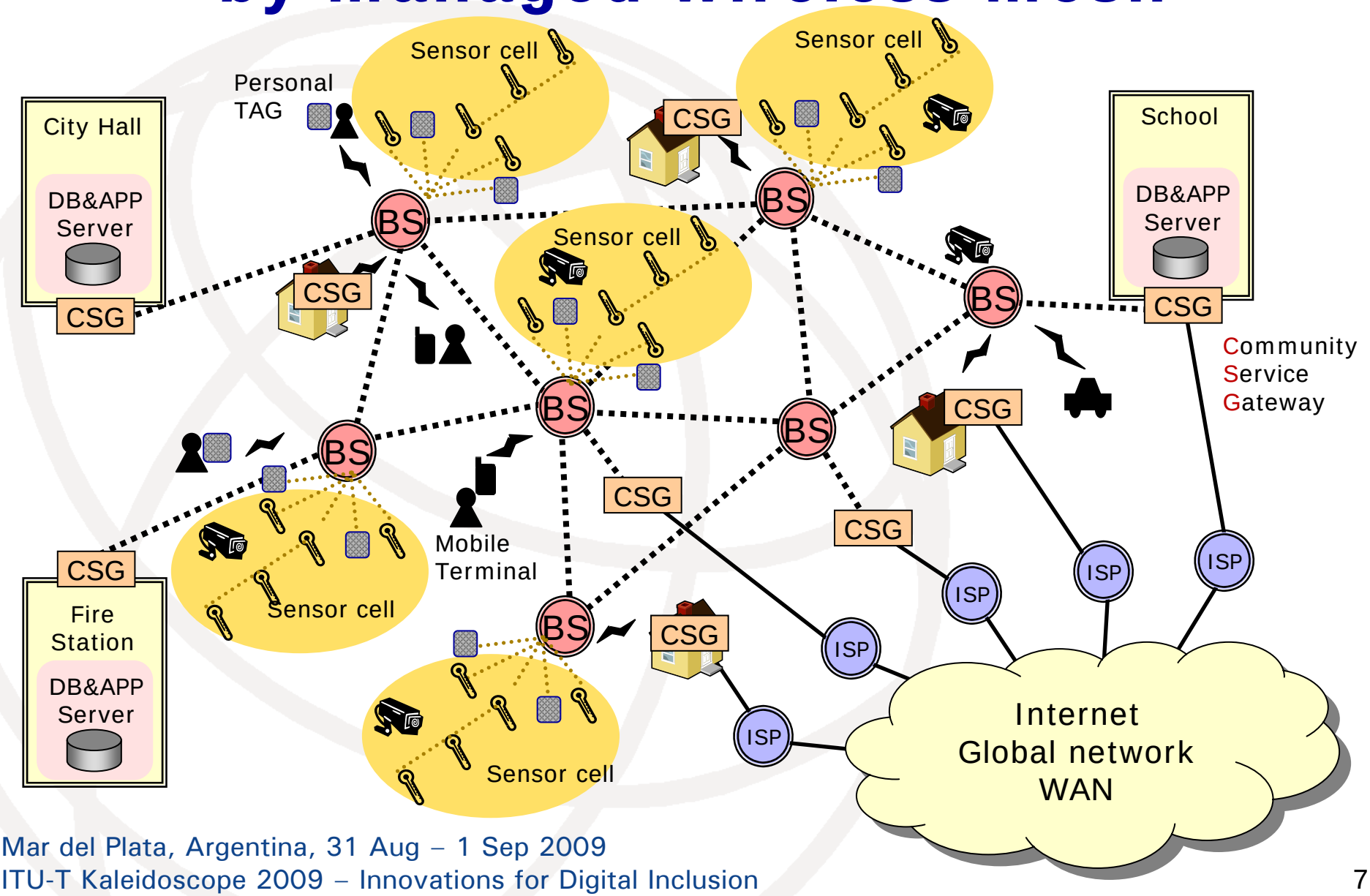


USN development (horizontal)

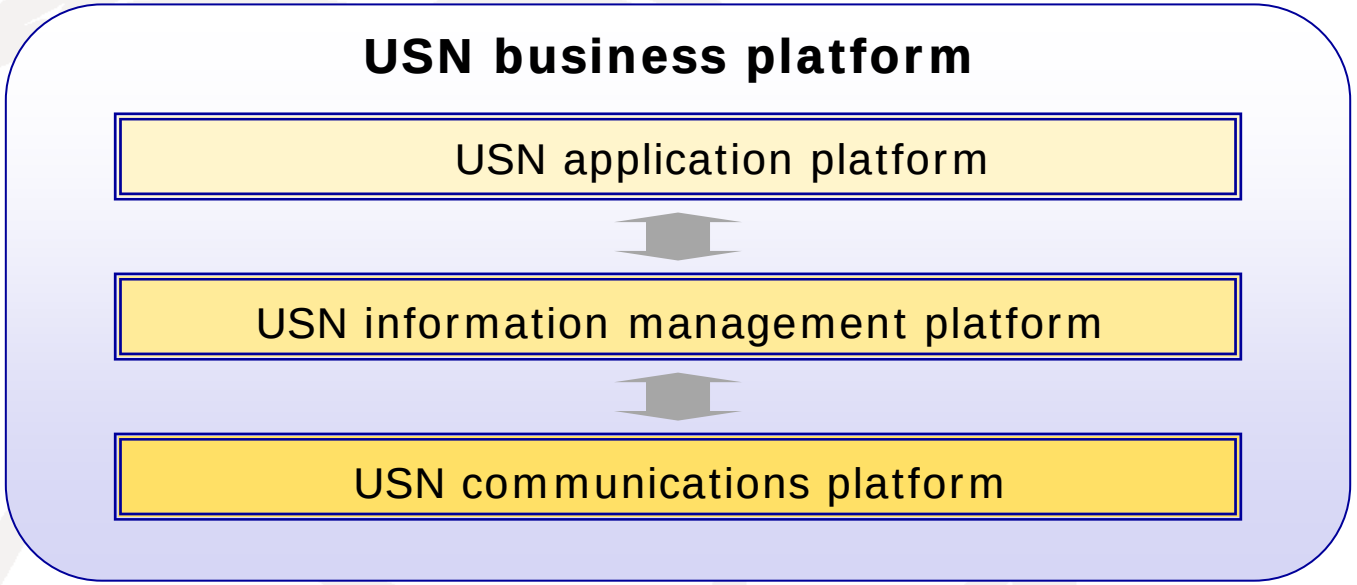




Regional USN by managed wireless mesh

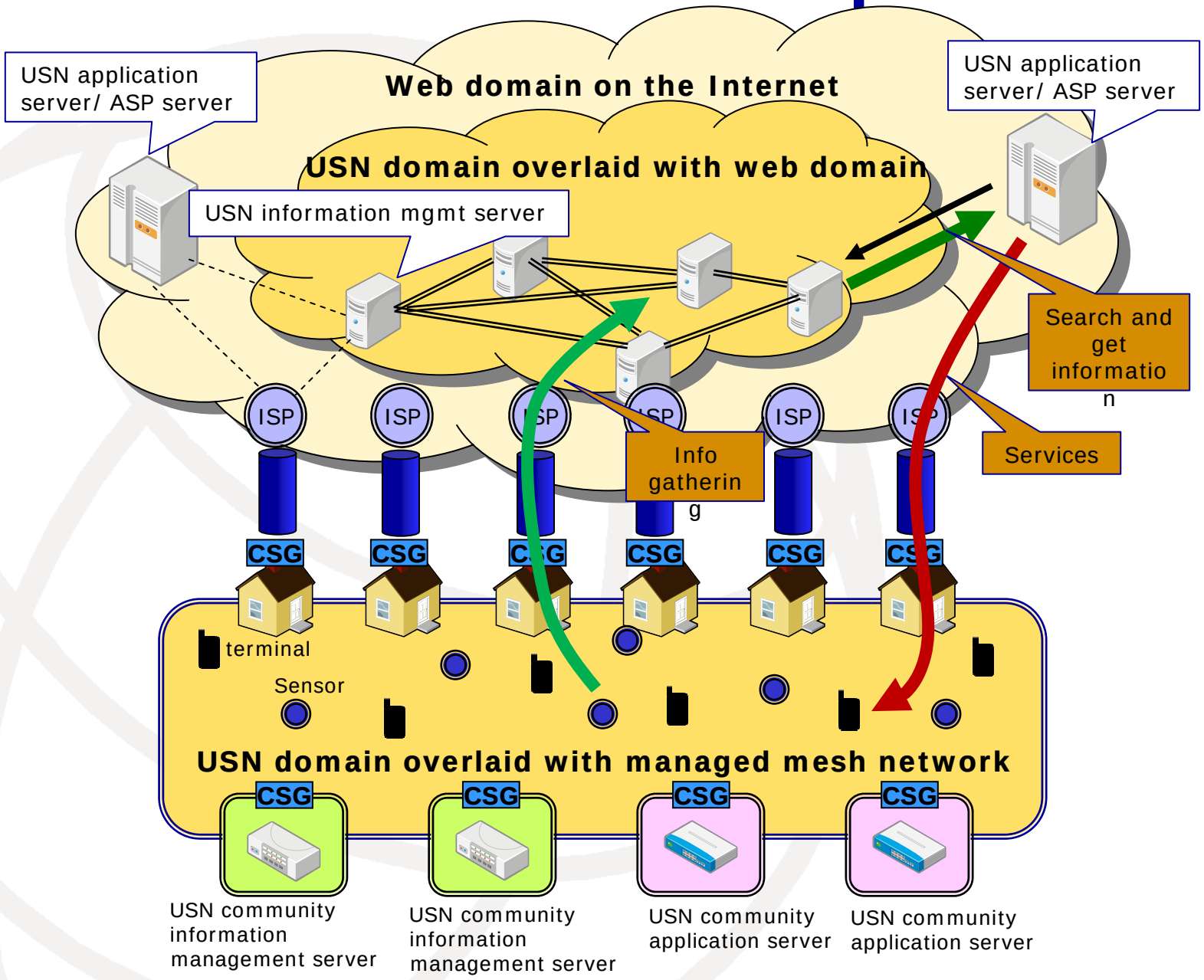


USN business architecture (vertical)

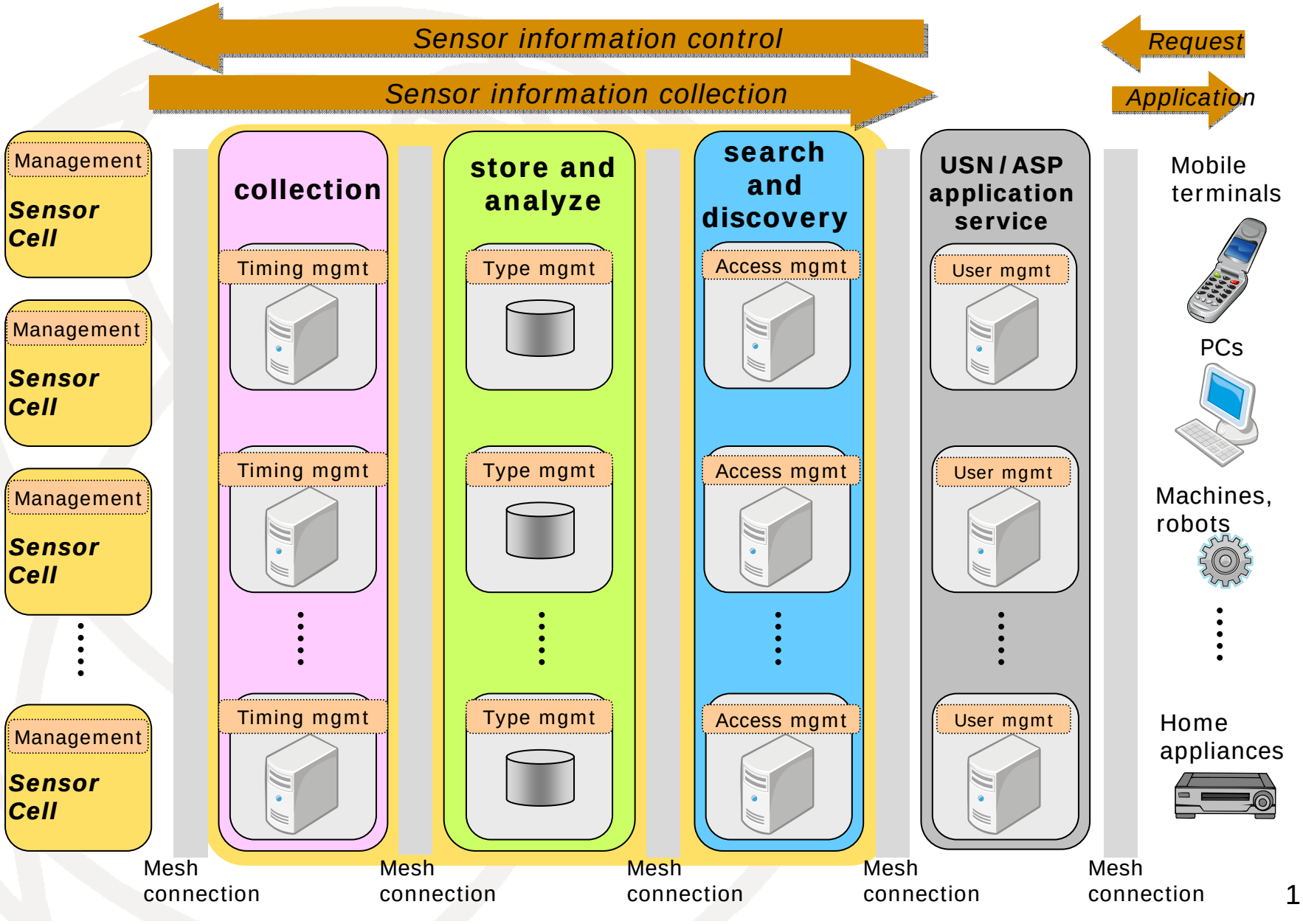


- To develop USN businesses, three separate platform environments must be constructed.
- Constructing these three individual environments will enable existing business models to be expanded and converted to USN businesses

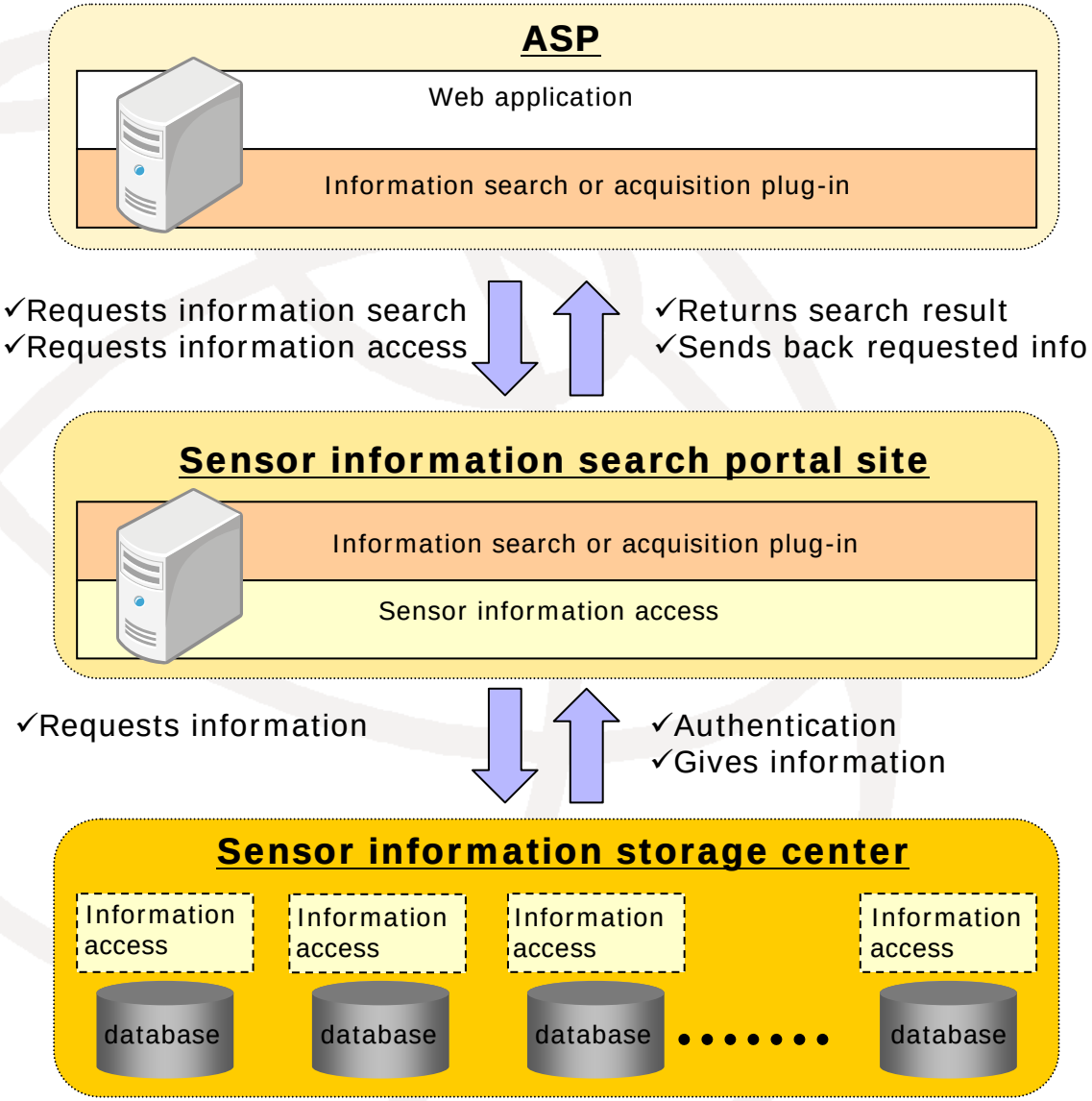
USN communications platform



USN info management platform



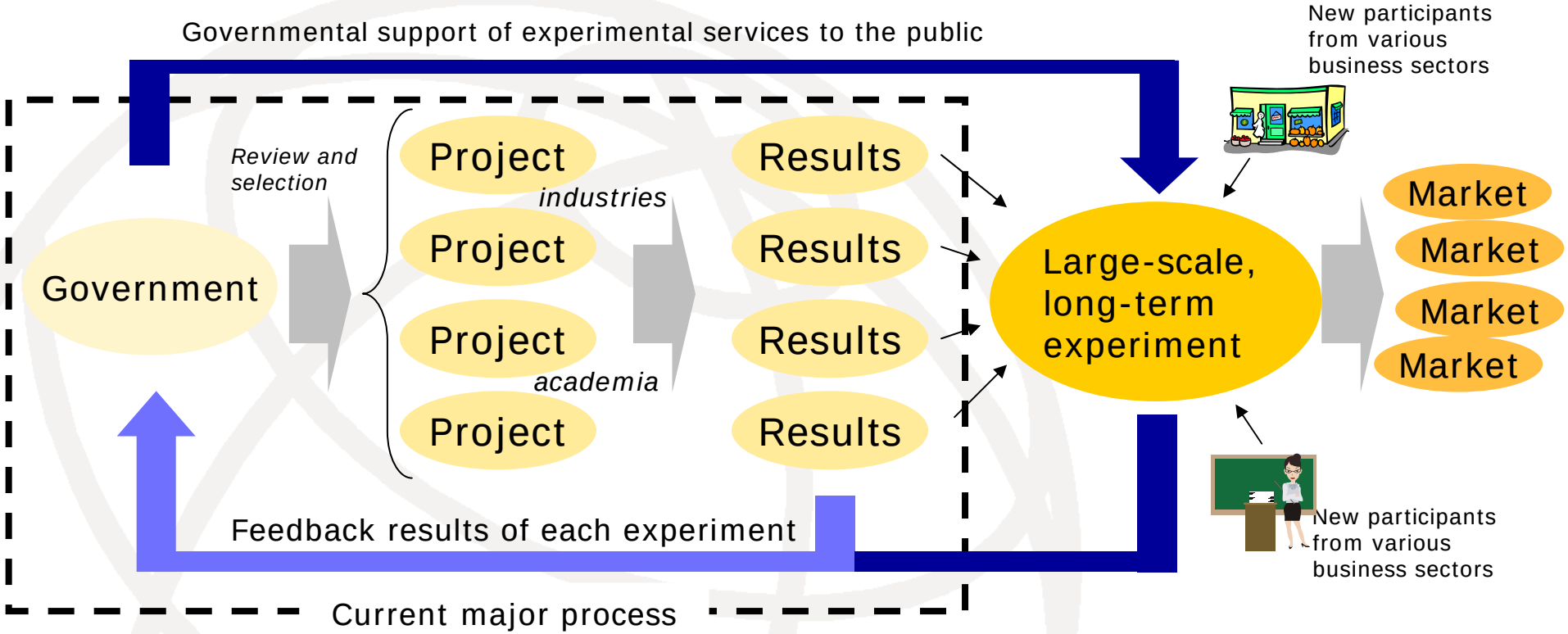
USN application platform



Steps to realize USN businesses

- 1st stage: trial of a regional USN
  - Assess initial costs of network and operation
- 2nd: nationwide expansion of regional USNs
  - Interwork of regional USNs and carriers' access networks
  - Integration of services and terminal functions
- 3rd: start USN services
  - Interwork of regional USNs, access networks, and global networks
  - Standardize interfaces and functions for overlaying USN domains across those networks
- Final:
  - Standardize sensor cell and managed mesh so that any player can deploy sensor cells or regional USN

Government initiated USN technology and business development



- Develop and deploy large-scale experimental network system by integrating technologies obtained by separated projects
- Carry out long-term, user-involved experiment, attracting new participants from various business and social sectors
- Government should collect information required for actual commercialization and assist the experiment

Conclusions and future prospects

- USN platform supporting various service applications
  - Broad ranges of devices, communications infrastructures, applications, and services
  - Enlarges business opportunities and narrows the digital divides
  - No single player can take the initiative and monopolize the standards
  - Needs a new regional network interworking with upgraded access networks and nation-wide/global networks like NGN++ or Future Network
- Large-scale, long-term experiment with citizens
  - Feedbacks clarifies the needs and new businesses
  - Will motivate further R&D, moving forward toward realization of USN