

GRUPPO TELECOM ITALIA

W3C workshop on the Web of Things
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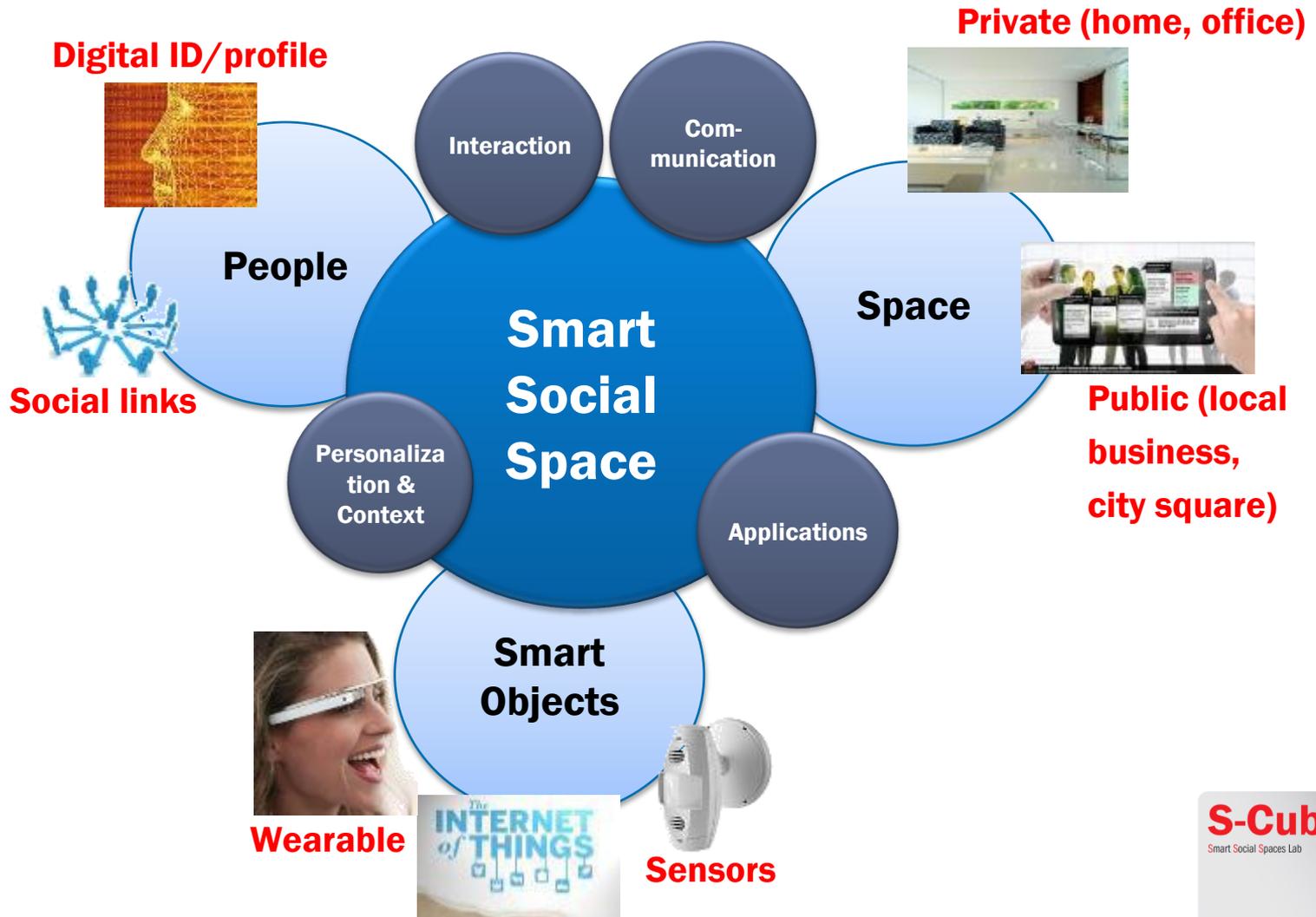
Smart Social Spaces

Opportunities and challenges of the
Social Web of Things

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Strategy & Innovation / Innovation / Open Innovation Research

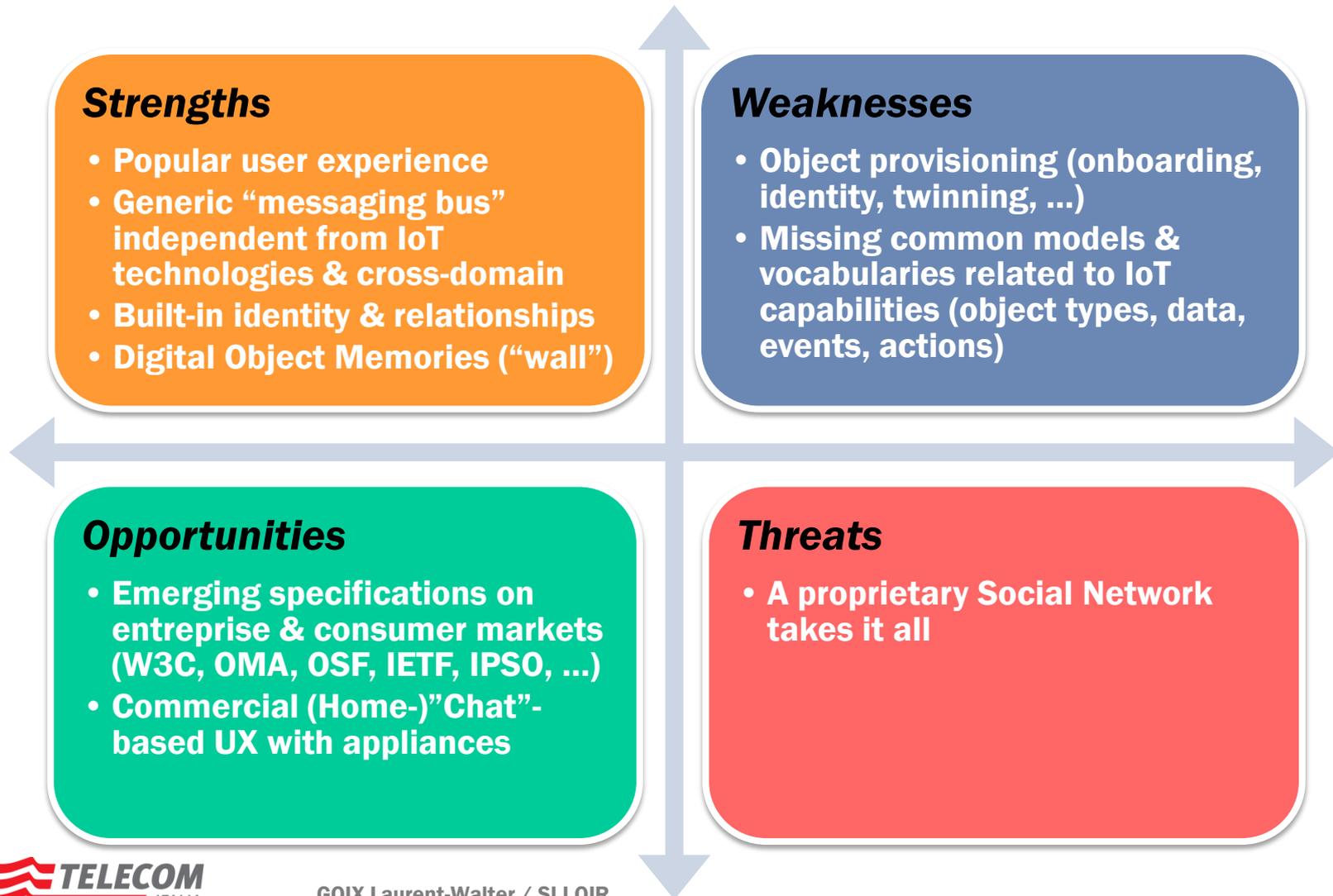
Smart Social Spaces @Telecom Italia



Smart Social Spaces: our vision from IoT to (S)WoT

- IoT (& M2M) is **well covered by many SDOs** and industry foras to address low-level protocol specifications & APIs to access sensor data and control actuators
- **Still, its integration with the Web (and the Web of People) is limited**
 - **User experience** is optimized for (native) vertical applications and closed ecosystems
 - **Object addressing, and access control**, use heterogeneous naming conventions, management interfaces & accounts
 - **Interconnection** with entities outside of the local network is limited, e.g. to notify users remotely and receive remote requests/commands
- **“Social” has intrinsic features that can support the WoT**

S.W.O.T. on SWoT: so what?



Social Web of Things: (some) features & issues

Common issues

- SN account vs object addressing
- Access control & audience targeting
- Information filtering (quality/quantity)
- Interaction paradigms in natural language

NEXT...

- Object ownership / twinning
- Concurrent access

S-Cube Smart Office: Danny is now in Demo room
4 seconds ago

S-Cube Smart Office: TV SmartPlug was turned off.
12 seconds ago

S-Cube Smart Office: Demo lights was turned off.
46 seconds ago

S-Cube Smart Office: OpenWeather/Map forecast: rainy
2 minutes ago

S-Cube Smart Office: Demo lights is powered on
2 minutes ago

S-Cube Smart Office: Livingroom light was turned off.
3 minutes ago

S-Cube Smart Office: ALERT! Microwave (SmartPlug Shuko) PowerUsage: 0.684 kW
7 minutes ago

S-Cube Smart Office: OpenWeather/Map forecast: cloudy
12 minutes ago

→ danny:sn: turn off Demo lights

→ Smart Office: DONE: 23/06/2014 - 17:32:44 Turn off Demo lights

→ danny:sn: Tell me Demo lights status

→ Smart Office: DONE: 23/06/2014 - 17:31:45 Tell me Demo lights status

Cloud-based notifications

Local space notifications

Local space queries

Local space commands

BUTLER Smart Office trial

- Live internal setup @S-Cube Joint Open Lab as part of IST **FP7 BUTLER** project [1]
 - uBiquitous, secUre iNternet-of-things with Location and contEx-awaReness
- Objective is to **validate IoT integration & seamless interaction with users** by relying on (federated) “social networks” as common interaction paradigm (and access control)

SmartOffice Dashboard

Now relying on heterogeneous vocabularies and (web) APIs



FreeDomotic
WebSocket
API

Energy@Home
JSON API

BUTLER SMARTOFFICE



The screenshot shows a user interface for Butler SmartOffice. It features a list of events such as 'Smart Office: Entrance lights was turned off' and 'Smart Office: Meeting room lights was turned off'. There are also user interaction elements like 'dannyysn: Wake up Smart Office...' and 'dannyysn: hi!'. The interface is clean and modern, with a white background and blue accents.

OMA SNEW
[OpenSocial /
ActivityStreams]
API

[1] <http://www.iod-butler.eu/>



Current standardization activities: Open Mobile Alliance

- **Started a White Paper [1] on “Social Web of Things” in March 2014**
 - **Reference architectural model**
 - **List of (typical) scenarios and use cases**
 - **Notifications, queries, commands, followship**
 - **Deployment options and related issues**
 - **Account-object identity mapping, information abstraction & frequency**
 - **Impact on OMA SNEW (Social Network Web) specifications [2]**
 - **Gap analysis**
 - **Possible extensions to the ActivityStreams base schema to better cover the IoT/WoT use cases**
 - **Other potential impacts on reference SNEW architecture and entities**

[1] http://member.openmobilealliance.org/ftp/Public_documents/CD/MobSocNet/Permanent_documents/OMA-WP-Social_Web_of_Things-20140623-D.zip

[2] <http://technical.openmobilealliance.org/Technical/technical-information/release-program/current-releases/snew-v1-0>



Our interest within W3C

- **Web of Things WG:** Focus on “Things”
 - Use case identification (Digital Object Memories, Object control & notification)
 - Abstract modelling & common vocabularies (properties, events, commands/actions)
 - Web API definition (HTTP, WS and/or JS) to access & manage things from Web-based applications (including mobile, possibly in collaboration with OMA)
- **Social Web WG:** Focus on “Social”
 - Usage/extension of ActivityStreams and “action handlers” for WoT use cases
 - Support of federation across “Smart Spaces” (e.g. home, vacation house, office) & user domains