



# Ambient Assisted Living Roadmap of IEC SG 5

IEC TC 100 AGS Meeting  
5th June 2013, London

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## 4th Meeting SG 5 (1) March 2013

- Took place in Wellington NZ - Standards New Zealand, hosted the meeting
- First day workshop about the situation of AAL in NZ:
  - The different aspects of AAL have been reviewed
  - NZ society is aware of the fact, that there are members in society that need assistance or want to use modern amenities to live their life on their own
  - Communication is an essential need for a large country with a small population, spread over a large area
- Being a „remote country“, fosters the acceptance of modern communication systems and tools to ease life.

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## 4th Meeting SG 5 (2)

March 2013

- Noting this social acceptance of non-conventional modes of life, the government fosters the development of accessible infrastructure in every environment.
- The normality of getting older and having the need of support is reflected in the development of such infrastructure and the support of honorary posts an people engaging in those.
- This roots to the regular use of supporting facilities and technology, which makes it easy to integrate new technologies and services.
- The social acceptance of these technologies and services is an essential need to succeed in establishing AAL-infrastructures – vice versa the development of AAL-infrastructure has to focus on the acceptance of the user, not on the technical feasibility



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## SG 5 - Activities

- The next meeting is planned for October 2013 in Tokyo (8-10th)
- Discussion of activities and presentation of results of the Teams
  - Team: „Status“:
    - Identification of relevant TCs and standards
  - Team: „Security“:
    - Definition of Security aspects
    - Mutually agreed requirements
  - Team: „Modeling“:
    - Development of the Use Case Model and Use Case Template
    - Discussion of different Use Case Examples



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## SG 5 – Interactions with universAAL

- Presentation by the “Plenary Meeting” in Odense (June 2012)
- Collaboration and Interaction to avoid double work
- Avoiding inconsistencies by improving mutual knowledge, and promoting complementary work / measures
- Creating opportunities for universAAL to get involved in IEC work and vice versa
- DKE assistance in the editorial and organizational process for creating an IEC PAS (submitted to IEC TC 100 AGS prior to London meeting)



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## SG 5 – Interactions with CONTINUA

- Avoiding inconsistencies by improving mutual knowledge, and promoting complementary work / measures
- Creating opportunities for CONTINUA to get involved in IEC work and vice versa
- Reference to IEC standards and guidelines Continua (and vice versa)
- Analysis of Continua guidelines for potential inclusion in the IEC standardization



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## SG 5 – Next steps

AAL is a large system – the work many TCs needs to be taken into account.  
According to the terms of references for the new (tbd) System Technical Committees, SG 5 sees advantage of a transition of SG 5 in such a S-TC.

As a premise for the transition process the following definitions shall be made by SG 5

- Identification of effected IEC TC/SCs
- Identification of related existing standards
- Identification of related external standards
- Definition and establishment of external relations, i.e. related organisation and projects
  - Continua Health Alliance (via IEC/SC 62A and ISO/TC 215)
  - UniversAAL
  - AALIANCE
  - COPOLCO
- Define the way of participation
- Prepare a list of keywords related to AAL
- Workout a Use-Case-Function-Model
- Generate general Use-Cases and map it to the model

## The Use Case Model

- The Use Case Model structures a Use Case Example in different Planes. It analyzes the Use Case with respect to functionality and interoperability of the components in different Planes. Furthermore the Use Case Model provides an insight in required standards, specifications and TC/SC.
- The Plane\* presents the relation between domains and the enabler. One Plane includes:
  - Domain: Single domains of a complex AAL-system.
  - Enabler (elementary / abstract enabling functions ): Elementary / abstract enabling functions are the basis of any AAL-system.
- This Use Case Model should not define any Model of some Reference architecture. It cannot give any statement on a Reference architecture and its application.

\* According to the SGAM Model established by SG 3 see also the report from CEN-CENELEC-ETSI Smart Grid

Coordination Group „Smart Grid Reference Architecture“

## Definition of Layer

### The Vertical Axis

System A

Semantic Layer

Information Layer

Communication Layer

Component Layer

System B

„Meaning“ – Information semantics

„What“ – Data representation

„How“ – Network and Protocol

„Basis“ – Physical interfaces and devices

Vertical axis: interfaces and formats

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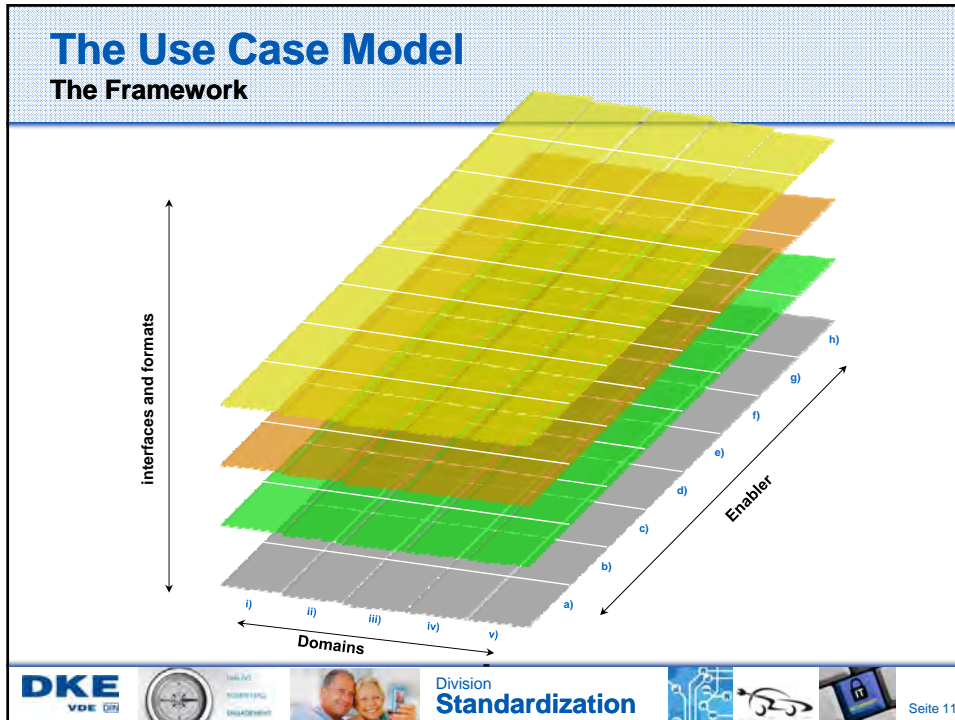
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## Definition of Planes

### The Domain and Enabler Axis

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- ## List of Domains (x-Axis)
- i) Global**  
Denotes all space outside populated areas as well as all outdoor and on the move spaces in a populated area, including public transport;  
**Example:** Has most properties of Urban and of Public buildings except the larger geographic spread, lower protection against weather conditions and easier access by people, animals etc; and for transportation means except the non-stationary character.
  - ii) Public buildings**  
Denotes all other relevant in-door environments (so "public" refers to access, not to ownership here); these are not customizable but instead will be equipped for generic support of the common denominator of user groups; and would thus include generic infrastructure aimed to support a large variety of individuals typically visiting any particular place;  
**Example:** Including devices like the ones referred to under "home" but this can be expected to be a different selection and with a different mix of enabling functions and applications.
  - iii) Personal Mobile and Personal vehicle**  
Denotes all personal mobile devices which can control, save the communication, the information flow as well as data. Furthermore personal vehicles are included.  
**Example:** Normal cars or vehicles designed for elderly people, whether hand-operated (stability aids) or engine powered (electrical bikes and scooters, ...), etc.
  - iv) Home**  
Denotes the private, hence highly customizable in-door area where someone lives, alone or with friends / relatives / room mate(s) and would thus include dedicated infrastructure aimed to support those individuals;  
**Example:** Include infrastructure and devices like home wireless network, routers, gateways and concentrators, audio-video aids (microphones, camera's, screens, speakers, head sets, head phones, ...), in-house only vehicles and walking / moving aids, in-house only appliances and robots, CTV, monitoring and security means, etc.
  - v) Body and Personal**  
Denotes the immediate area around the body.  
**Example:** Include devices like sensors and actuators worn in or on the body and also personal devices typically taken along by one individual (music player, smartphone, tablet, ...).
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## List of enablers (1) Elementary / abstract enabling functions (y-Axis)

### a) Interaction with humans

Denotes all direct **interaction of or through AAL system elements with humans**

**Example:** This includes audio-visual interaction (both artificially generated or with other humans, or even animals, through the AAL system); measurements in or on the body (vital signs, position, movement and acceleration, ...), personal care (e.g. hair combing, shaving, feeding support, ...), control operations by a human (pressing alarm button, viewing and operating all sorts of human interfaces, ...) and so on.

### b) Physical interaction with human environment

Denotes all direct **physical interaction of or through AAL system elements with the human environment** and thus includes tele-operated or autonomously operating appliances. (Interaction within systems or machines).

**Example:** Vacuum cleaner, robot making the bed, cooking aids, door and light switches, etc. but excludes digital / virtual interactions (data acquisition, steering actuators digitally, ...).

### c) Data acquisition

Denotes all **data acquisition** through sensors (gathering the data), but also the interaction between data entry in the human interface (which is Interaction with humans) and the further processing (which is any one of the items below).

**Example:** To get the physical state of the parameter measured.

### d) Measurement and control

Denotes "local" control loops including mechatronics.

**Example:** To **automatically** steer a robot arm or moving aid to a certain position, to balance a 2-wheel vehicle or manoeuvre a wheel chair up the stairs, and so on.



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## List of enablers (2) Elementary / abstract enabling functions (y-Axis)

### e) Data aggregation, storage and relay

Denotes all **content-agnostic data handling**.

**Example:** Storage, communicating, aggregation, etc.

### f) Defined function control and support

Denotes all **digital and physical activity in immediate support of any given single AAL function**.

**Example:** Sending a reminder that the medication has not been fully taken today yet, dispatching a task for a house robot to vacuum the living, turning on the lights upon detection it is getting dark, etc.

### g) Complex Cross- function service control and support

Denotes all **tactical level coordination necessary to perform composed, more complex functions** in a meaningful manner.

**Example:** The (guided, semi-automated or fully autonomous) verification of fridge content followed by assembling a shopping list followed by dispatching tele-shopping orders and printing a shopping list for human shopping by the assisted person or an assistant, and so on.

### h) Integral service programs

Denotes all **overall level coordination necessary to perform composed groups of services** over longer time spans in a meaningful manner.

**Example:** The assessment what services an AAL service user need, the customization of the to-be-provided services from an available "menu" over a future period, alignment with the individual and with any relatives or friends about this program, planning and arranging for digital and / or physical aids or infrastructure to be delivered and installed, etc; or at public building or higher domain levels the planning for those groups that need to be served (as opposed to individuals).



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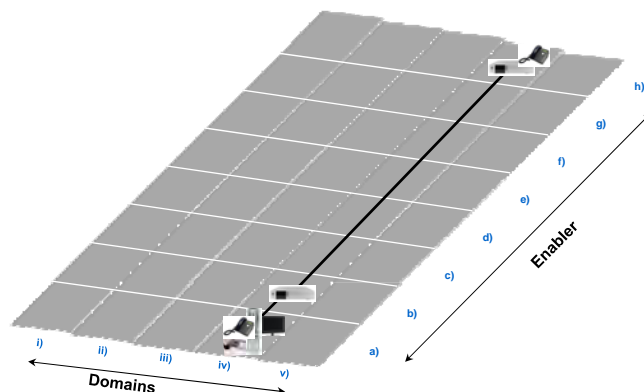
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## Example Applying SG 5 Use Case model to TC 100 AAL Use Case Telemonitoring with Connected TV USE CASE

- Telemonitoring with Connected TV USE CASE (provided by Japan)
- Monitoring of the vital signs of a Connected TV AAL service users. The concept is to monitor the AAL service user's health status via the Connected TV at home by establishing a communication link between the user and the health care provider. The current TV sets provide data to make the necessary action or not. When the power switch and channel selection of the Connected TV are operated, this information is sent by email to the registered email address on a cell phone or PC of the health care provider or family members. This means the Connected TV user is in healthy condition.
- An email is also transmitted when the power switch of the TV set is not used for twenty four hours. This may mean that the AAL user needs assistance or the health condition has deteriorated. The health care provider has to make a call or visit to the AAL user.
- Information, e.g. local weather on the residential area, is transmitted and displayed on the Connected TV set automatically. The TV user can answer to a question by remote control.

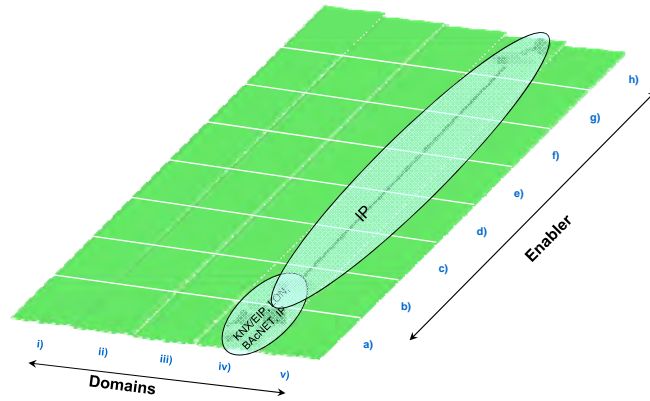


## Component Layer

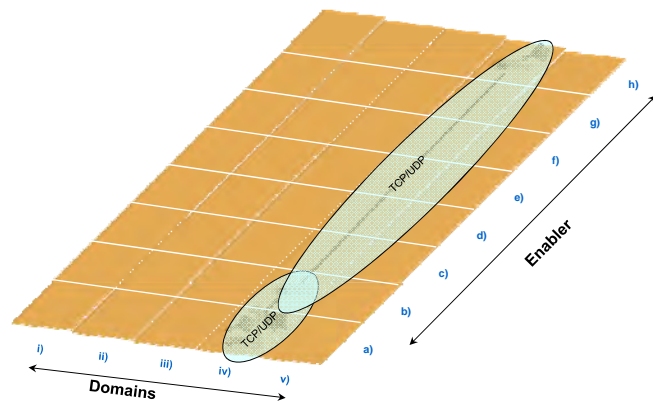











## Communication Layer



## Information Layer



## Semantic Layer





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## Thanks for your attention! Any questions?

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## Back-Up 1st Meeting in March 2012

### Founding of SG 5

#### Achievements

- review the scope of SG 5
- Liaisons with external organizations
- presentation of national activities
- introduction of TC100 activities
- Definition of main areas of work for SG 5
  - Collect information about AAL standards
  - Investigate the aspects of data security/privacy
  - Define an architecture model
- Establishment of three teams:
  - - Status Team:
    - collecting information about AAL-standards
    - Identify existing IEC-standards
    - Identify fora and consortia to liaise with (f.e. Continua)
  - - Security Team:
    - deals with the aspects of data security
  - - Modeling Team:
    - deals with the definition of an architecture model
    - Explore the model SG1 and SG3 are working with
    - Develop a use case model
    - Initiate a call for use cases



## Back-Up 2nd Meeting of SG 5

### September 2012

#### Achievements

- Introduction of:
  - UniversAAL
  - Decision to liaise with UniversAAL
  - UK programme in Assisted Living Standards and interoperability
- Establishment of a collaboration with the ISO/IEC JTAG on the revision of Guide 71
- Beginning of the work in the three working groups



## Back-Up 3rd Meeting of SG 5 December 2012

### Achievements

- Introduction of:
  - Continua Health Alliance
  - CENELEC BTWG 101-5
- Review of:
  - Scopes of the 3 Teams
  - Update of the Team assignment
  - List of keywords related to AAL
- Continuing the work in the three working groups
  - Prepare the use of a Use-Case-Function-Model
  - Work on the list of related TCs and Standards
  - Data-Security and privacy



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