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Increasing the Adoption of AAL solutions, Senior Centred IoT, Workshop 9

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Funder: <http://www.aal-europe.eu/>

Workshop 9: Increasing the adoption of AAL solutions

SENIOR CENTERED IoT

A new challenge for Senior friendly habitats

AAL Forum 2017

3rd OCTOBER, 2017

COIMBRA, PORTUGAL

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AAL

PROGRAMME

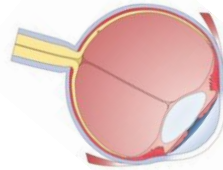
Our focus is to empower Senior Citizens to change their own world



Education, to enable Senior Citizens engage....

Bright & Blurry or Focused

If a person has blurry vision & lights are turned up, they'll just see a much brighter blurry image. But they might be able to make out what the image is. However, if you focus that image through a lens they can see the image distinctly with less light.



Digitization v's Digitalization



Digital Thermometer



Digital SLR

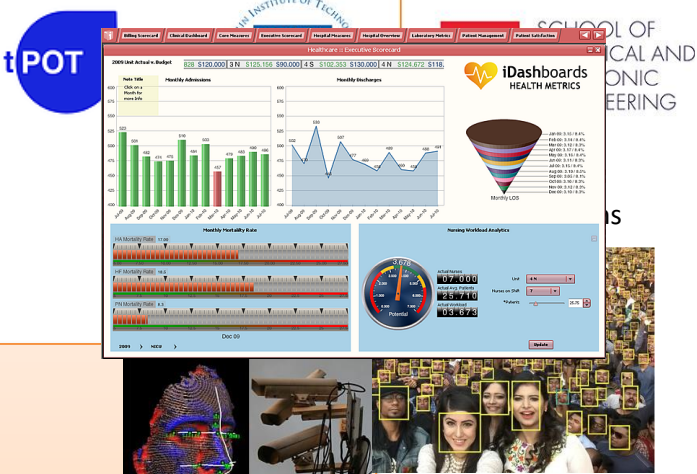
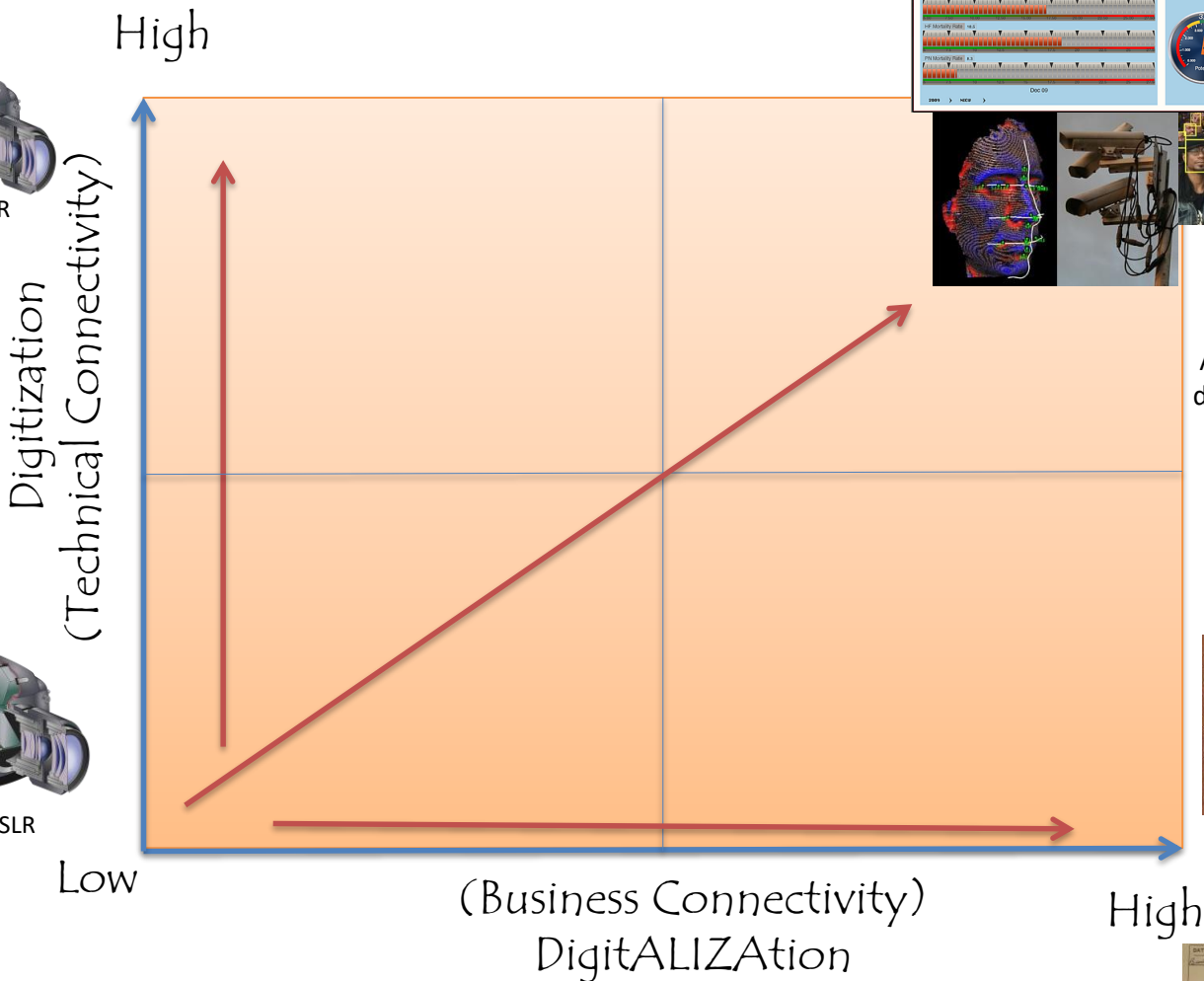
Internet, Modbus, WIFI,



35mm SLR

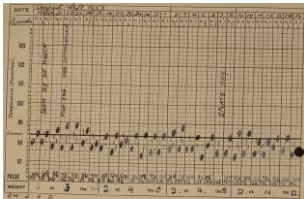


Liquid Thermometer



High Volume
High Accuracy

Acquisition ,exploiting
data links & knowledge



Education

/?@|\$£&^&

What is the construct?

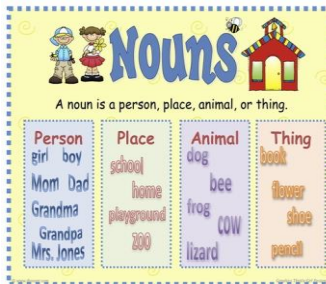
How do we establish communications?



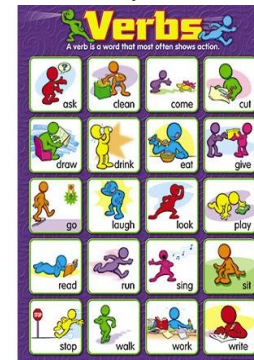
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Digitize them to death

Nouns, People Place or thing



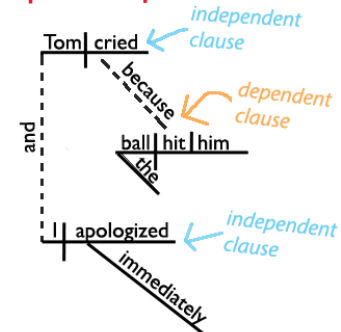
Verbs, Action



Adjective, describes the noun



Compound-Complex Sentence

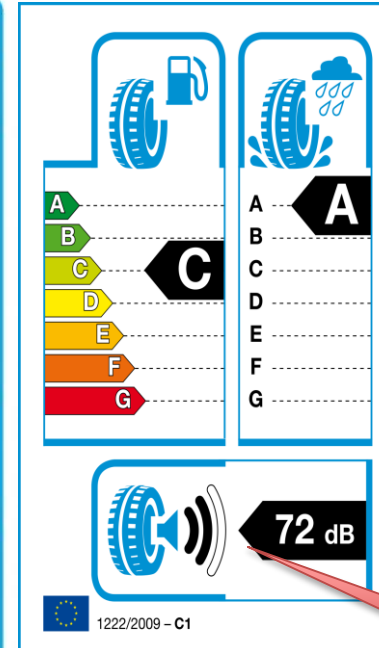
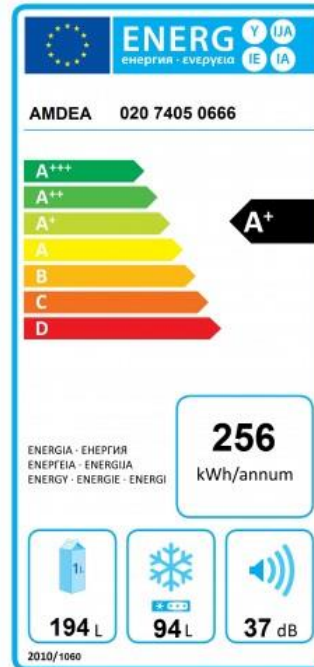


Labelling...for example

Nouns

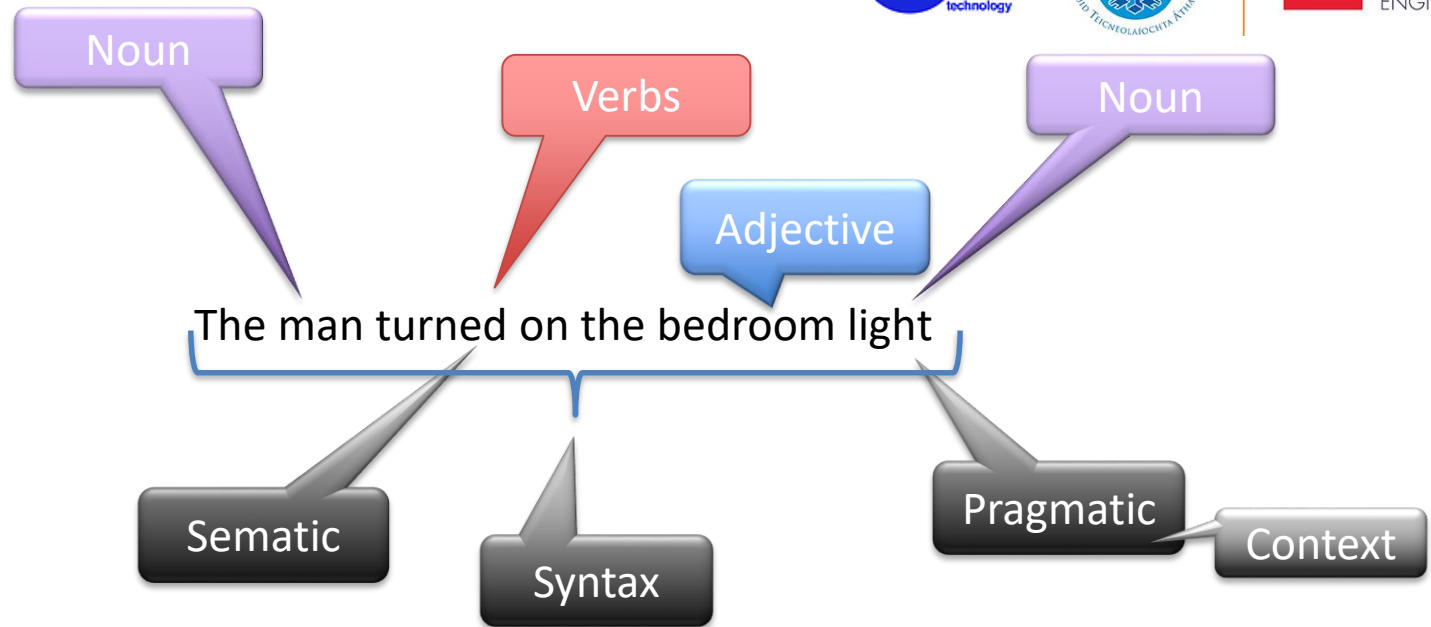
Adjective describes a Range

Nouns Could be Icons



Verbs

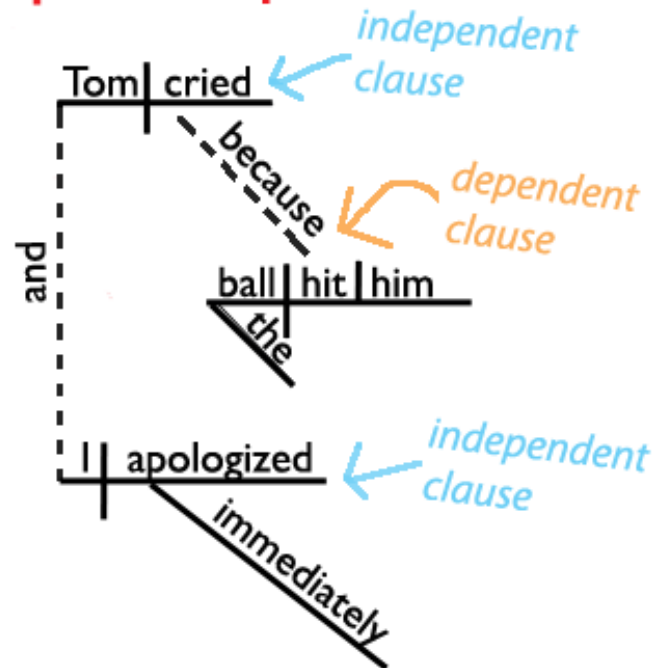
But what is the underlying CONSTRUCT to make meaning



My dream



Compound-Complex Sentence



the object of a verb, or the object of a preposition.
Life is hard and we need some help but I don't want some



Attributes: Have a Name and a value
Methods

Education is vital

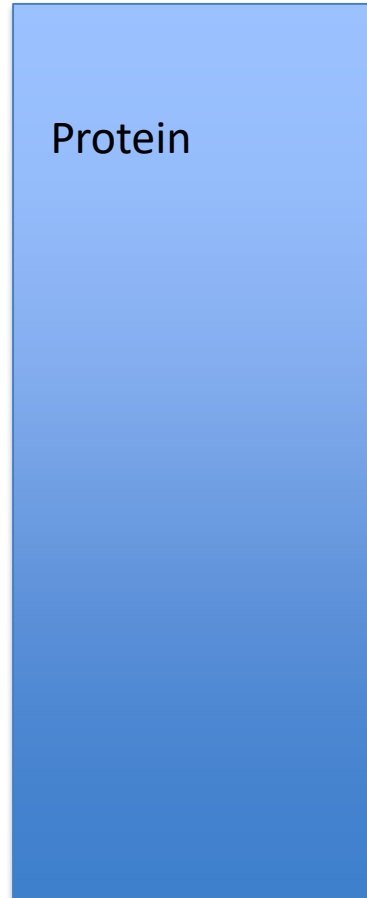
Nouns: Person Place or Thing

Verbs: Action words

Adverbs

Units

Subliminal messages



- 1 Serving Size
- 2 Calories
- 3 Daily Value
- 4 Fat
- 5 Cholesterol & Sodium
- 6 Carbohydrates
- 7 Fiber
- 8 Protein
- 9 Vitamins & Minerals

① **Start Here** →

② **Check Calories**

Limit these Nutrients

④

⑤

Nutrition Facts

Serving Size 1 cup (228g)
Servings Per Container 2

Amount Per Serving
Calories 250 Calories from Fat 110

	% Daily Value*
Total Fat 12g	18%
Saturated Fat 3g	15%
Trans Fat 3g	
Cholesterol 30mg	10%
Sodium 470mg	20%

③ **Quick Guide to % DV**



	Cheerios	with 1/2 cup skim milk	Cereal for Children under 4
Amount Per Serving	100	150	80
Calories	15	20	10
Calories from Fat			
Total Fat 2g*	3%	3%	1.5g
Saturated Fat 0.5g	3%	3%	0g
Trans Fat 0g			0g
Polyunsaturated Fat 0.5g			0.5g
Monounsaturated Fat 0.5g	0%	1%	0.5g
Cholesterol 0mg	6%	8%	0mg
Sodium 140mg	5%	11%	105mg
Potassium 180mg	7%	9%	135mg
Total Carbohydrate 20g	11%	11%	15g
Dietary Fiber 3g			2g
Soluble Fiber 1g			1g
Sugars 1g			1g
Other Carbohydrate 16g			12g
Protein 3g			2g

or less
Low

% or more
High

Current Label

Nutrition Facts	
Serving Size 2/3 cup (55g)	
Servings Per Container About 8	
Amount Per Serving	
Calories 230	Calories from Fat 40
% Daily Value*	
Total Fat 8g	12%
Saturated Fat 1g	5%
Trans Fat 0g	
Cholesterol 0mg	0%
Sodium 160mg	7%
Total Carbohydrate 37g	12%
Dietary Fiber 4g	16%
Sugars 1g	
Protein 3g	
Vitamin A	10%
Vitamin C	8%
Calcium	20%
Iron	45%
* Percent Daily Values are based on a 2,000 calorie diet. Your daily value may be higher or lower depending on your calorie needs.	
	Calories: 2,000 2,500
Total Fat	Less than 65g 80g
Sat Fat	Less than 20g 25g
Cholesterol	Less than 300mg 300mg
Sodium	Less than 2,400mg 2,400mg
Total Carbohydrate	300g 375g
Dietary Fiber	25g 30g

Proposed Format

Nutrition Facts	
8 servings per container	
Serving size	2/3 cup (55g)
Amount per 2/3 cup	
Calories	230
% DV*	
12%	Total Fat 8g
5%	Saturated Fat 1g
	Trans Fat 0g
0%	Cholesterol 0mg
7%	Sodium 160mg
12%	Total Carbs 37g
14%	Dietary Fiber 4g
	Sugars 1g
	Added Sugars 0g
	Protein 3g
10%	Vitamin D 2mcg
20%	Calcium 260mg
45%	Iron 8mg
5%	Potassium 235mg
* Footnote on Daily Values (DV) and calories reference to be inserted here.	

Alternate Format

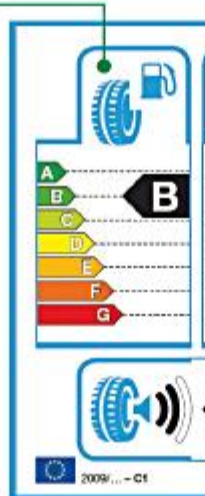
Nutrition Facts	
8 servings per container	
Serving size	2/3 cup (55g)
Amount per 2/3 cup	
Calories	230
% Daily Value*	
QUICK FACTS:	
12%	Total Fat 8g
12%	Total Carbs 37g
	Sugars 1g
	Protein 3g
AVOID TOO MUCH:	
5%	Saturated Fat 1g
	Trans Fat 0g
0%	Cholesterol 0mg
7%	Sodium 160mg
	Added Sugars 0g
GET ENOUGH:	
14%	Fiber 4g
10%	Vitamin D 2mcg
20%	Calcium 260mg
45%	Iron 8mg
5%	Potassium 235mg
* Footnote on Daily Values (DV) and calorie reference to be inserted here.	

Tyre Labelling Information

Fuel Efficiency Class

7 classes from G (least efficient) to A (most efficient)

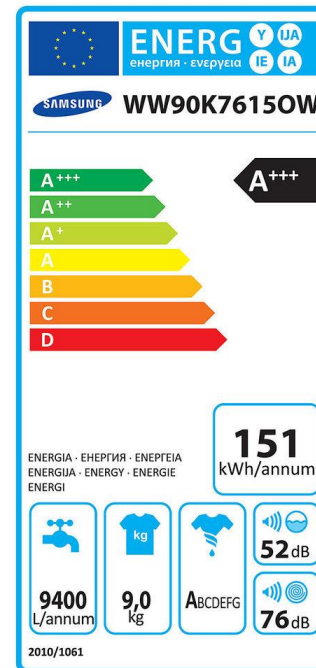
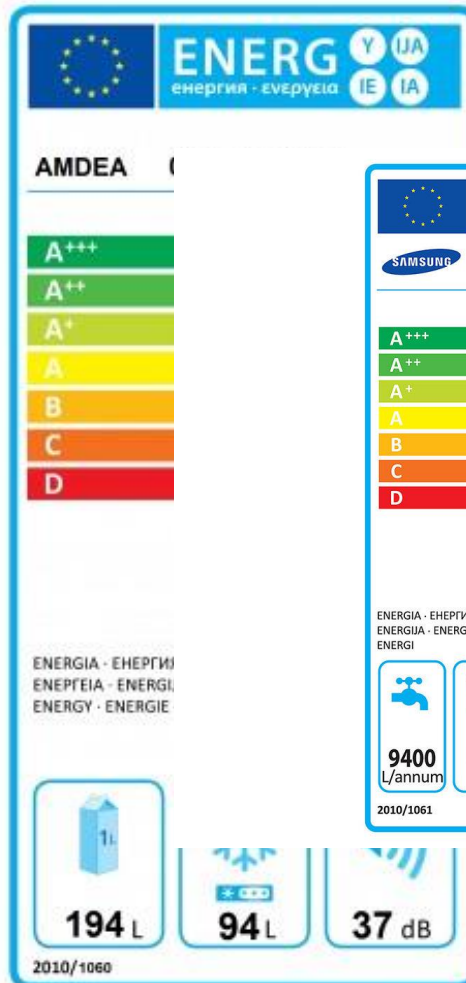
Effect may vary among vehicles and driving conditions, but the difference between a G and an A class for a complete set of tyres could reduce fuel consumption by up to 7.5 %* and even more in case of trucks.



Tyre External Rolling Noise Class

In addition to the noise value in Decibel dB(A), a pictogram displays whether the tyre external rolling noise performance is above the future European maximum limit value (3 black bars= noisier tyre), between the future limit value and 3dB below (2 black bars= noisier tyre) or more than 3 dB below the future limit value (1 black bar = low noise tyre).

NB: The tyre external rolling noise is not entirely correlated with interior noise.



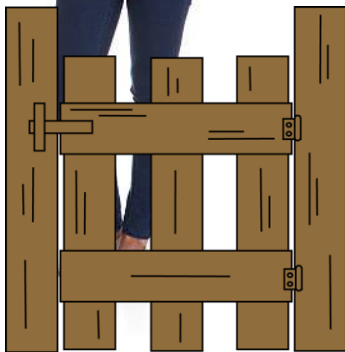
Privacy

Things I think
about but never
disclose externally

Things I disclose by my
gesture/behaviour/manner/
reaction

Things I disclose by my intention
typing/writing/searching/shopping

Loyalty cards gave you
something for your data?



Behind my walls I should be safe



Common causes of memory loss

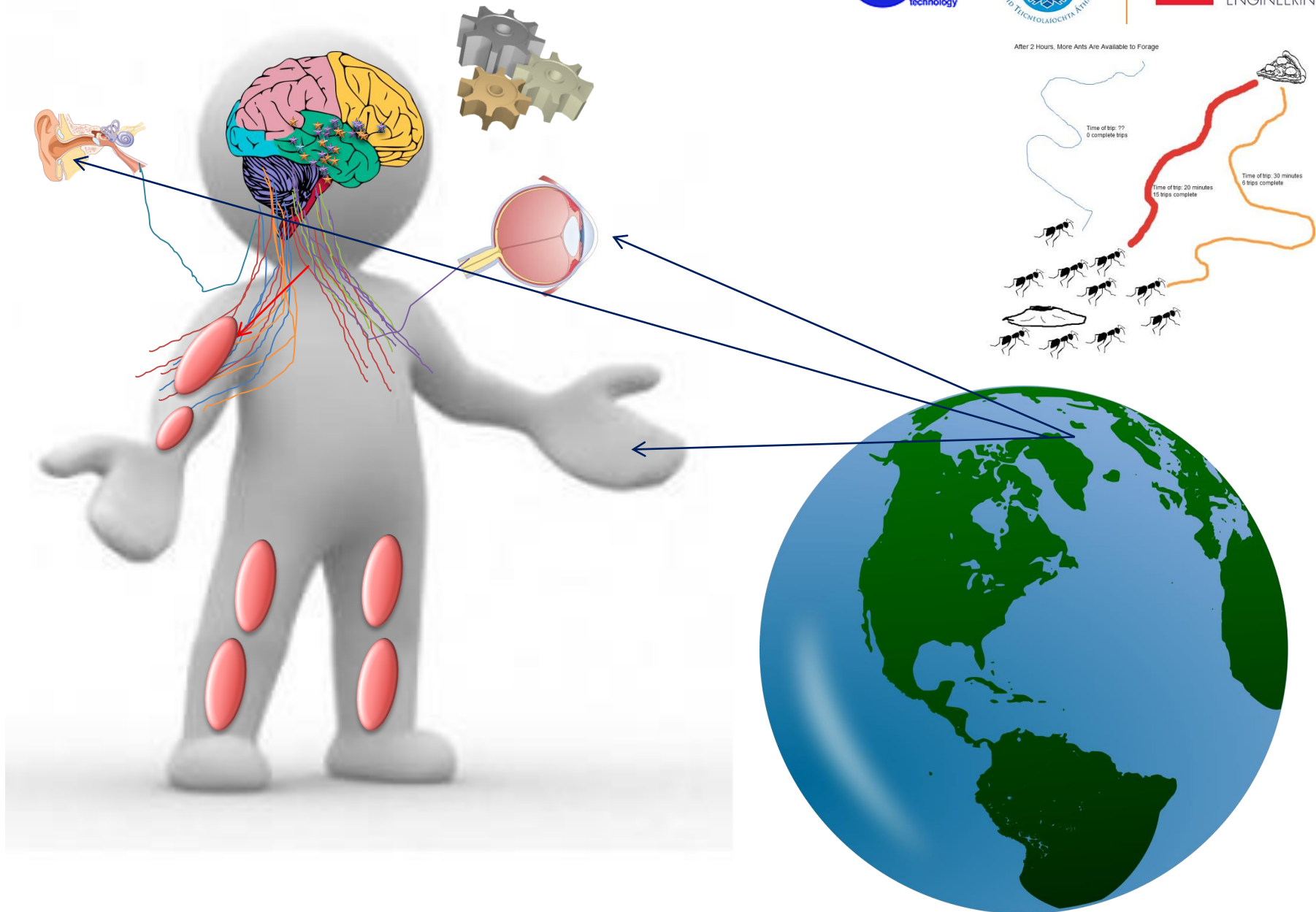
Memory loss can occur in words and thought patterns, and can also be present physically with the loss of motor memory. Memory loss is not always complete, sometimes failing to remember only a selected group of items.



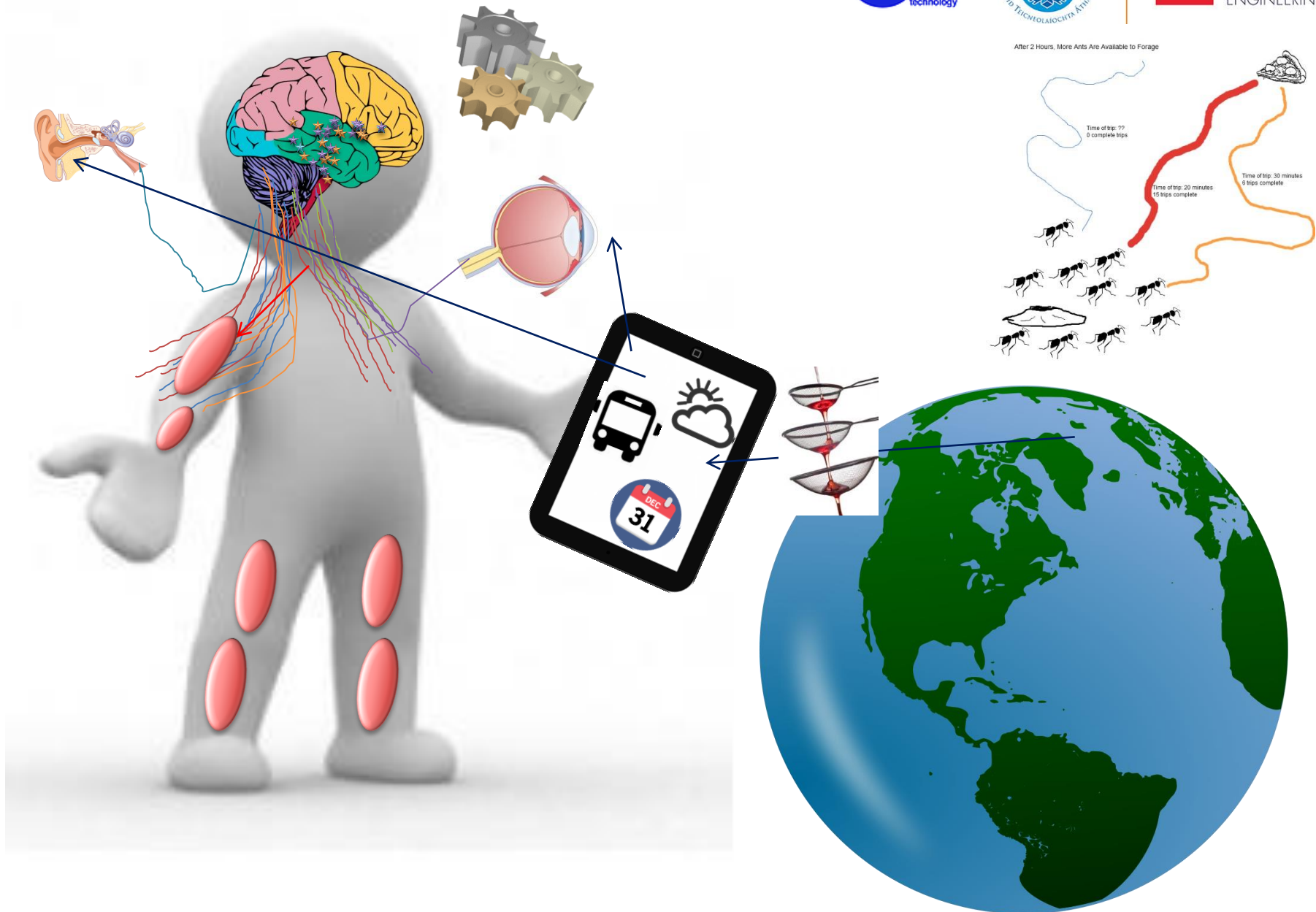


*lights are
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to make
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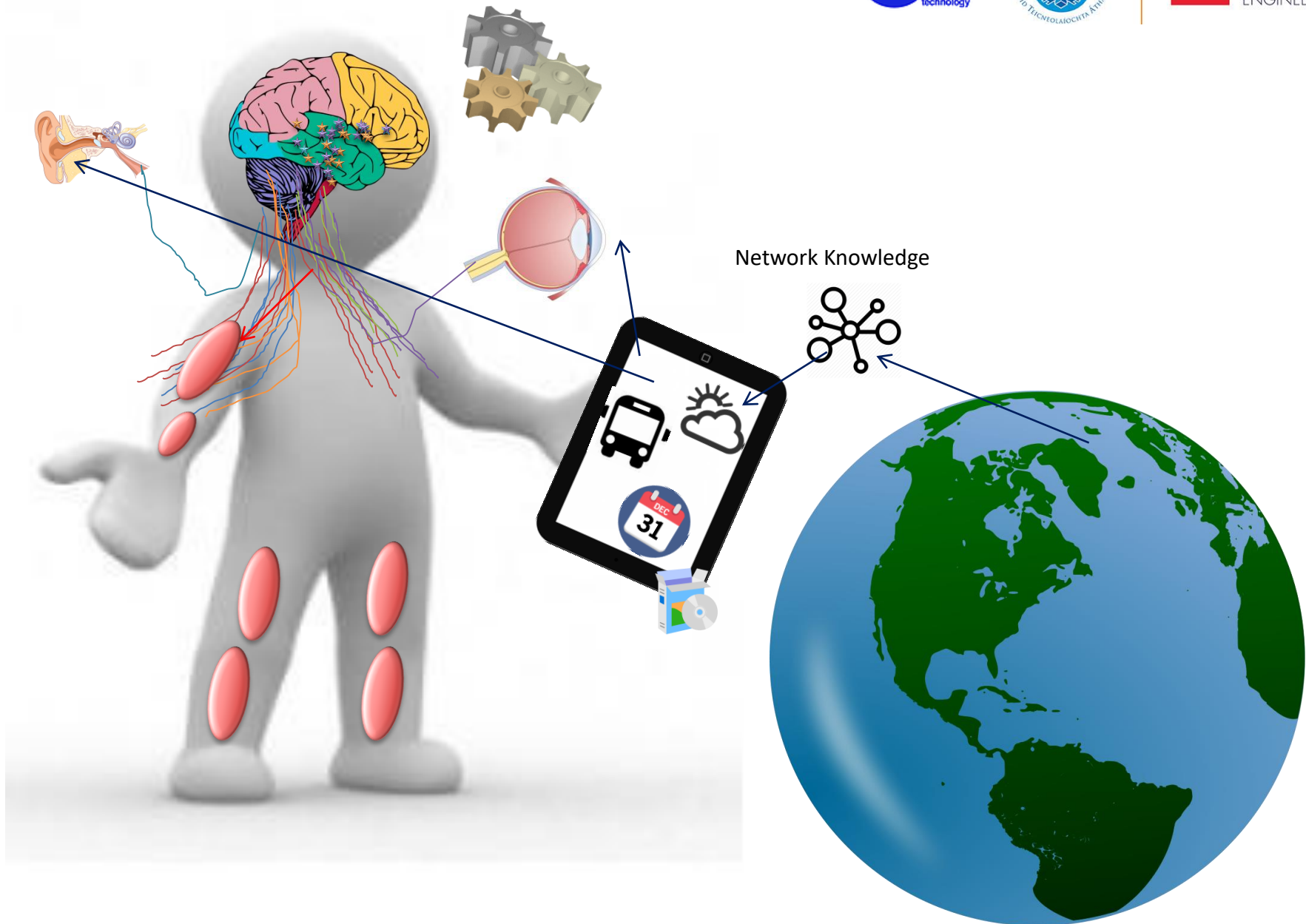
Processing in the Brain



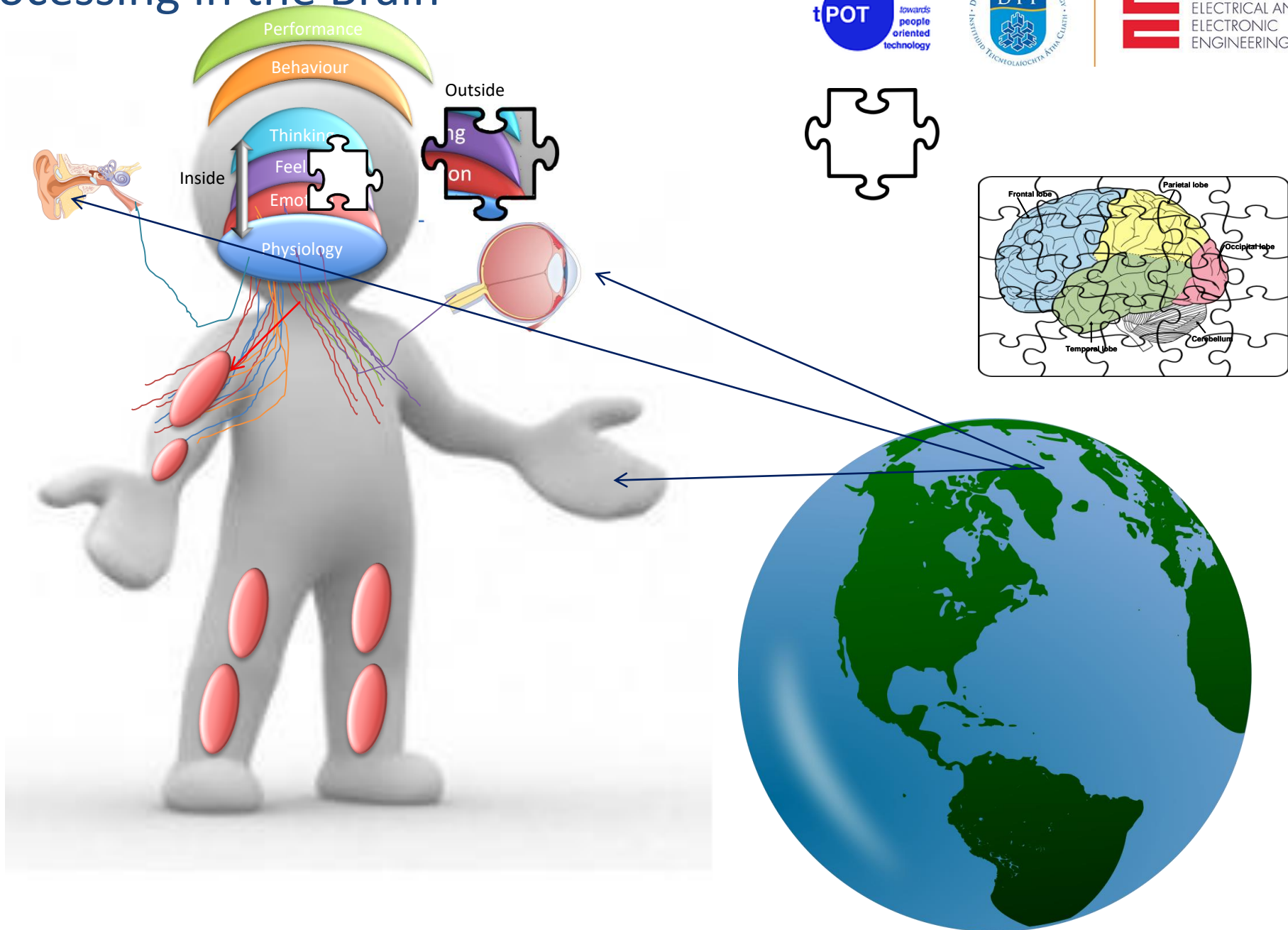
Processing in the Brain



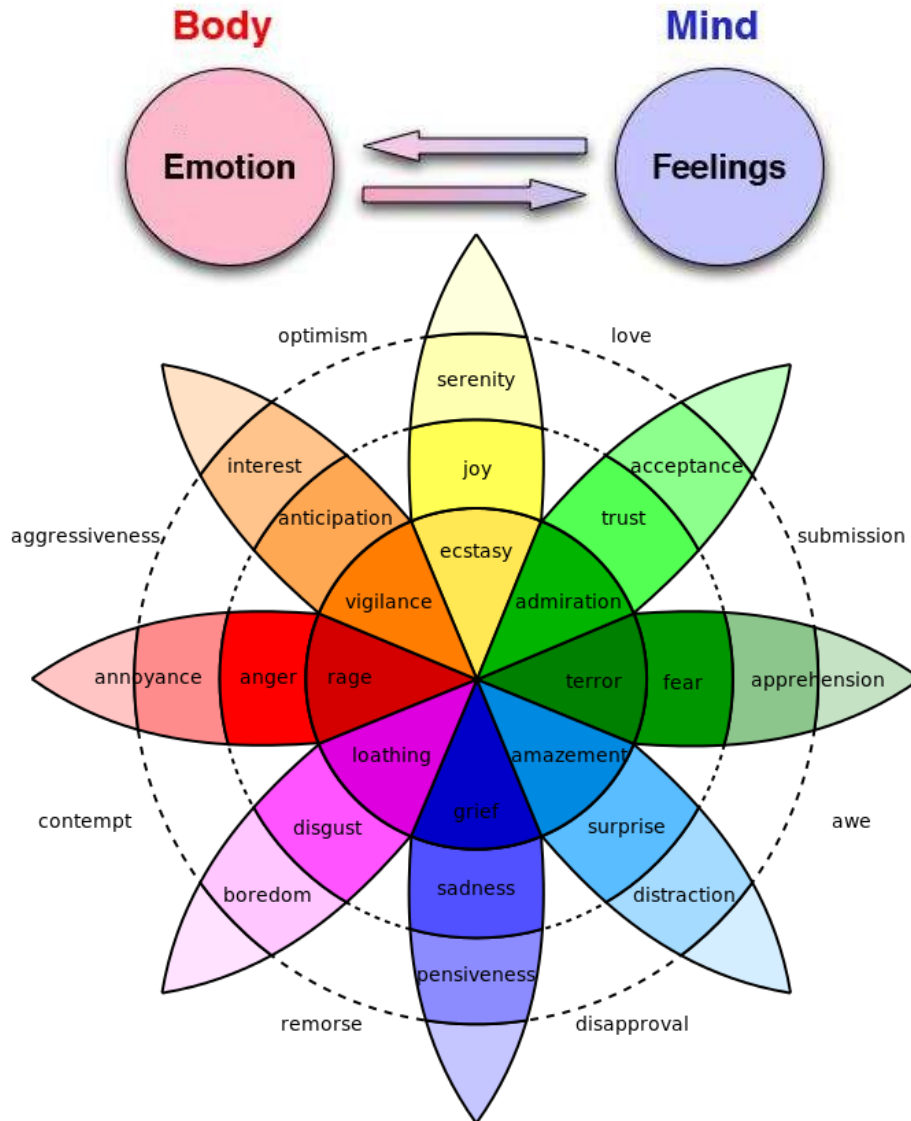
Processing in the Brain



Processing in the Brain



Emotion and Feelings are different



Plutchik's Wheel of Emotions

Feeling mental portrayal of what is going on in your body when you have an emotion and is the by-product of your brain perceiving and assigning meaning to the emotion, And are subjective being influenced by personal experience, beliefs, and memories.

Emotions are lower level responses occurring in the subcortical regions of the brain, the amygdala and the ventromedial prefrontal cortices, creating biochemical reactions in your body altering your physical state.



In 2050, the **33% of population** will be **over 60 years old**

Decrease of fertility rate within worldwide developed markets

Increase **spending** on **healthcare** and **welfare system**



MAIN ISSUE

Today, the welfare system is still deeply structured with assistive traditional methods, which are managed directly by staff, careers and doctors, with high demanding of time and costs.



Could smart technologies become useful to improve people's quality of life within their own environment?

Which kind of methods, tools and scenarios could enhance wellbeing and healthy conditions, reducing time and costs?



SENIOR PEOPLE AND SMART TECHNOLOGIES

A photograph of a smiling senior couple sitting in the front of a car. The man is holding a white smartphone up to a payment terminal mounted on the car's roof rack, demonstrating a mobile payment system. The woman is looking at the phone with a smile. The background is a bright, sunny sky.

77% OVER 65 OWN A CELL PHONE

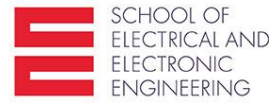
59% OVER 65 SURF ON INTERNET

27% OVER 65 OWN A TABLET

55% OVER 65 HAVE BROADBAND AT HOME

IOT FOR A BETTER LIVING





IOT FOR A BETTER LIVING



Samsung - T9000 Washing machine

IOT FOR A BETTER LIVING



Samsung oven - NV73J9770RS Wi-Fi

IOT FOR A BETTER LIVING



IOT FOR A BETTER LIVING



IOT FOR A BETTER LIVING



IOT FOR A BETTER LIVING



IOT FOR A BETTER LIVING



STATE OF ART OF TECHNOLOGIES

WHAT WE HAVE TODAY?



STATE OF ART OF TECHNOLOGIES

WHAT WE HAVE TODAY?

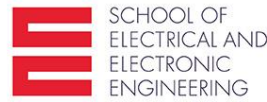


STATE OF ART OF TECHNOLOGIES

WHAT WE HAVE TODAY?



DESIGN FOR INTERACTIONS WITH SENIOR CITIZENS



INTERFACE DESIGN

COMPLEXITY INSIDE SYSTEMS

EMOTIONAL DESIGN

HUMAN COMPUTER INTERACTION

AFFORDANCE

USER ACCEPTANCE

USER CENTERED DESIGN

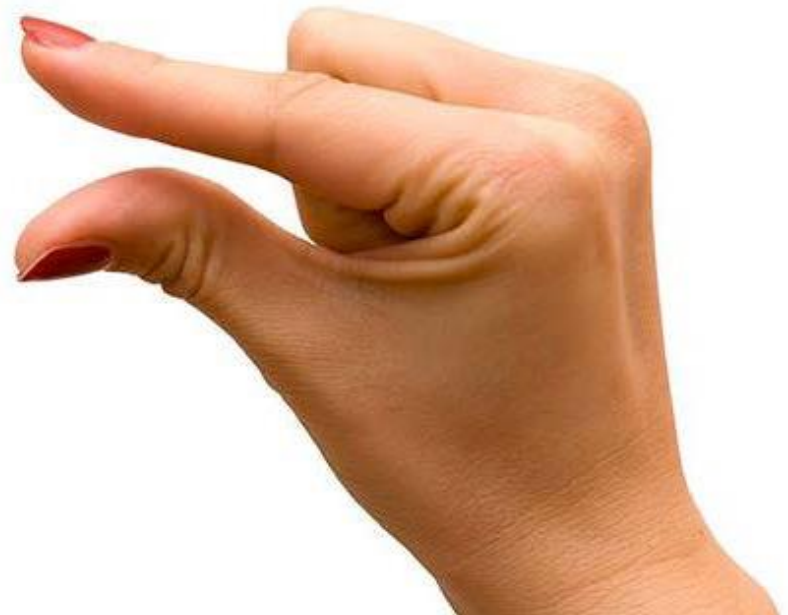
SIMPLICITY & USABILITY

ASSISTIVE TECHNOLOGIES



EMOTIONAL DESIGN

PINCH
TO
ZOOM



EMOTIONAL DESIGN



AFFORDANCE IN DESIGN



KNOB HANDLE



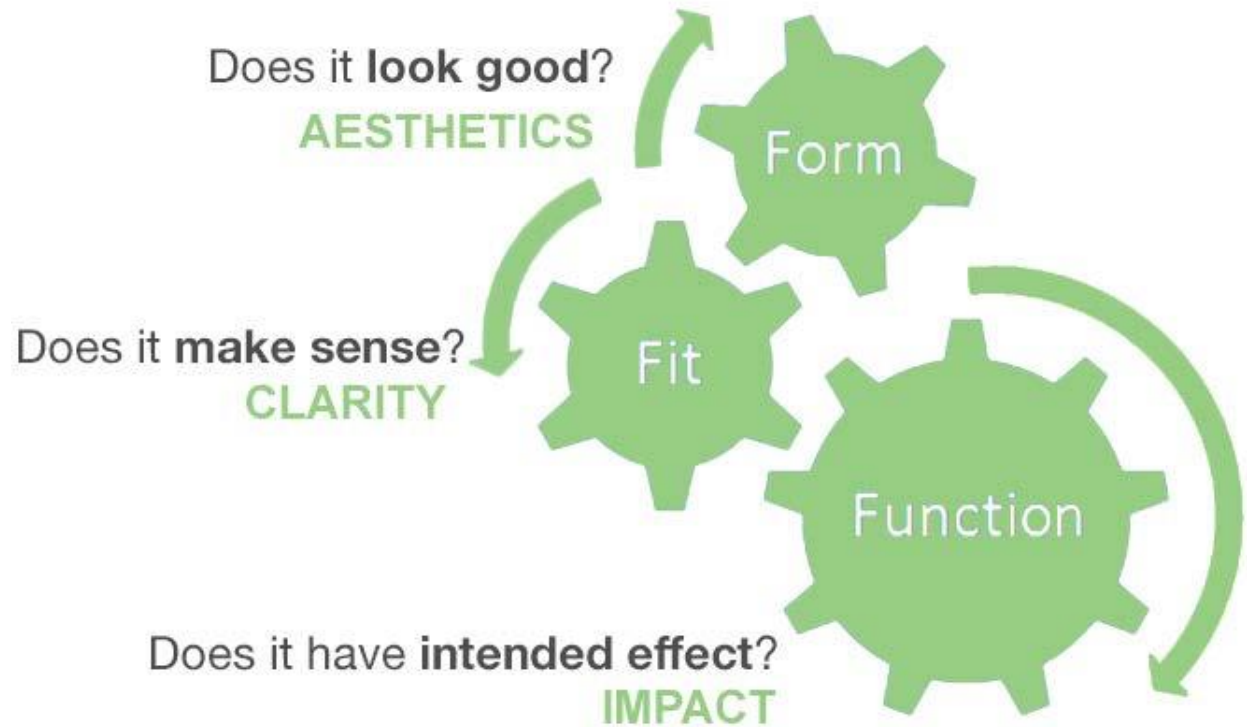
LEVER HANDLE



AFFORDANCE IN DESIGN



FORM - FIT - FUNCTION



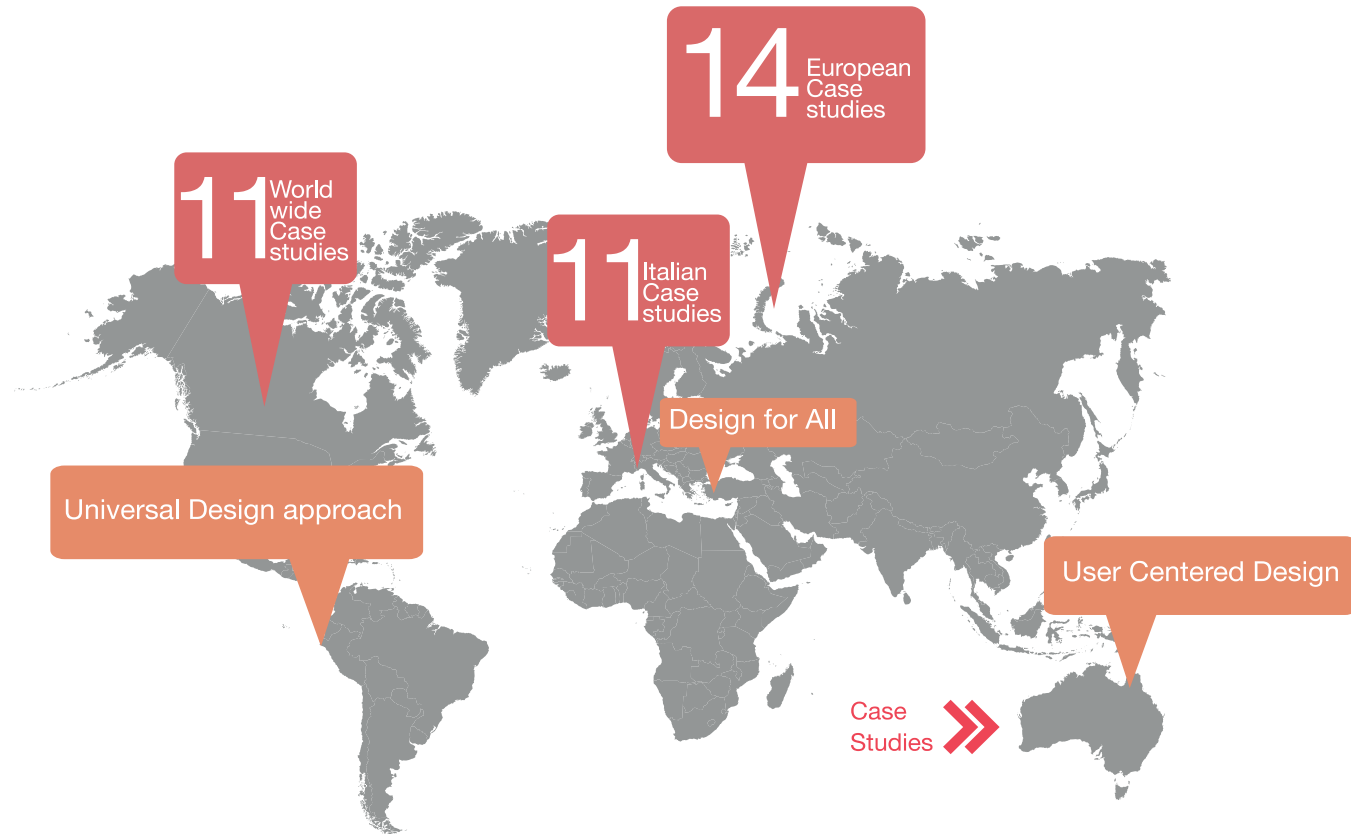
STARTING POINTS: USER NEEDS

- Interactions to increase usability
- User interfaces
- Simplicity & Usability
- Complexity inside systems
- User Acceptance – Affordance





SENIOR FRIENDLY HOUSES: HIGHLIGHTS





SENIOR FRIENDLY HOUSES: CRITERIA ANALYSIS

KEY POINTS

DEVELOP & CONSTRUCTION

FEEDBACKS

EVALUATION CHART

PASSIVE TECH



+

ACTIVE TECH



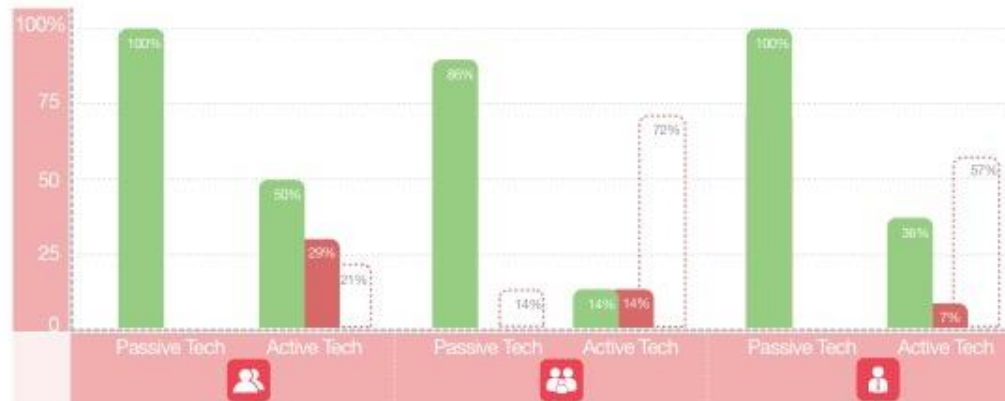
+

USER FEEDBACK



+



SENIOR FRIENDLY HOUSES: RESULTS



Users

-  Primary users
-  Secondary users
-  Experts, designers, researchers, doctors

Feedback

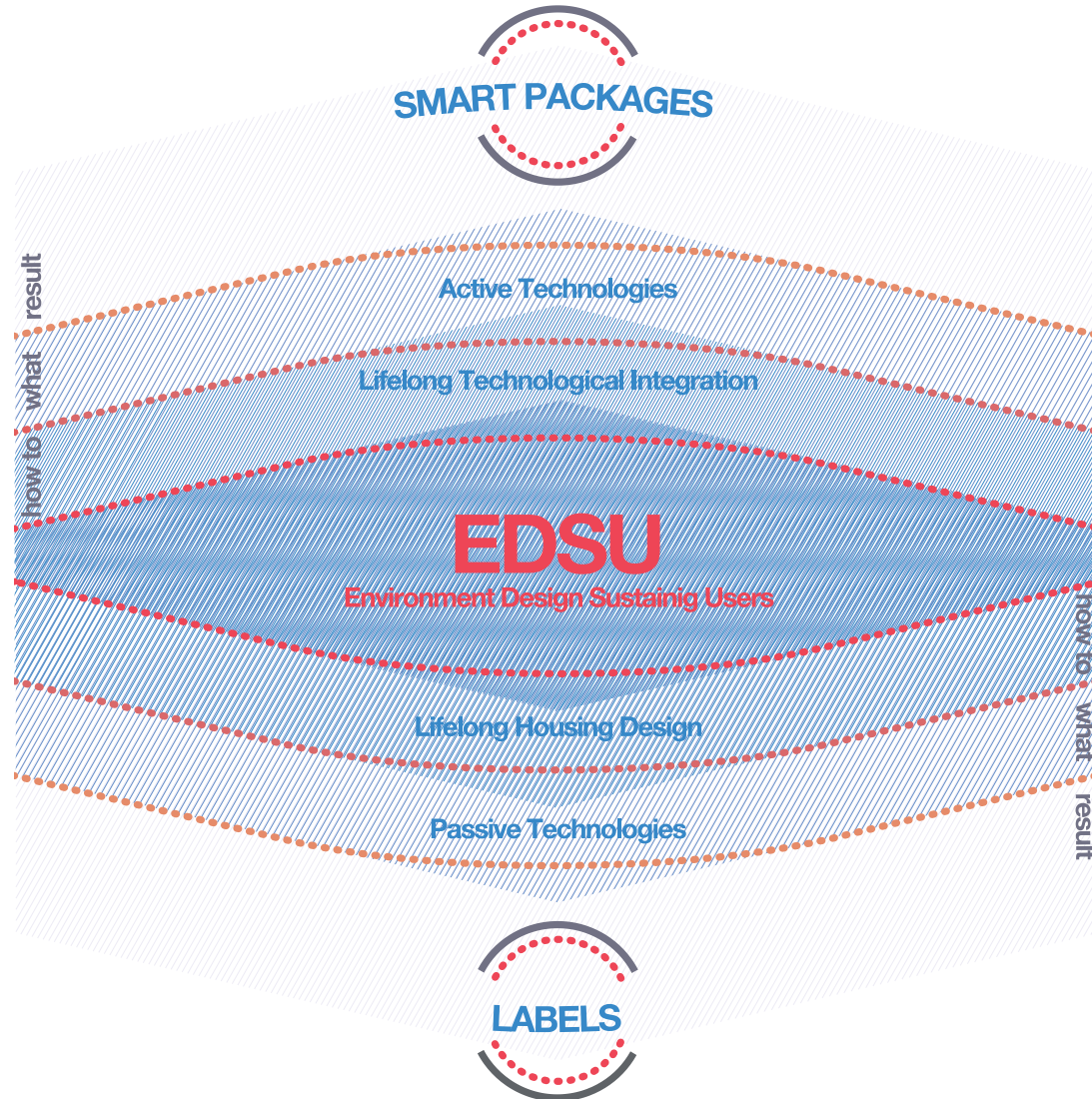
-  Positive feedback
-  Negative feedback
-  Not available feedback



A STRATEGY FOR DESIGNING A SENIOR FRIENDLY ENVIRONMENT



SCHOOL OF
ELECTRICAL AND
ELECTRONIC
ENGINEERING



LIFELONG HOUSING DESIGN: LABELS

A new assessing and evaluation method for establishing Good Design Practices to guarantee accessibility, adaptability and flexibility features for a Senior friendly house.





LIFELONG TECHNOLOGICAL INTEGRATION

SMART PACKAGES



SCHOOL OF
ELECTRICAL AND
ELECTRONIC
ENGINEERING

Philips HUE Lighting System

Comfort Pack

Wireless system connection

APP Application provided for usage & control

Power supply needed

**COMFORT
PACK**

VIPER Home Security&Monitoring

Safety Pack

Wireless system connection

APP Application provided for usage & control

Power supply needed

**SAFETY
PACK**

SAMSUNG Novobot cleaning Robot

Family Pack

Wireless system connection

APP Application NOT provided

Power supply needed

**FAMILY
PACK**

CUPTIME Smart Cup aider

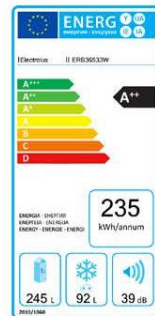
Health Pack

Wireless system connection

APP Application provided for usage & control

Power supply NOT needed

**HEALTHY
PACK**



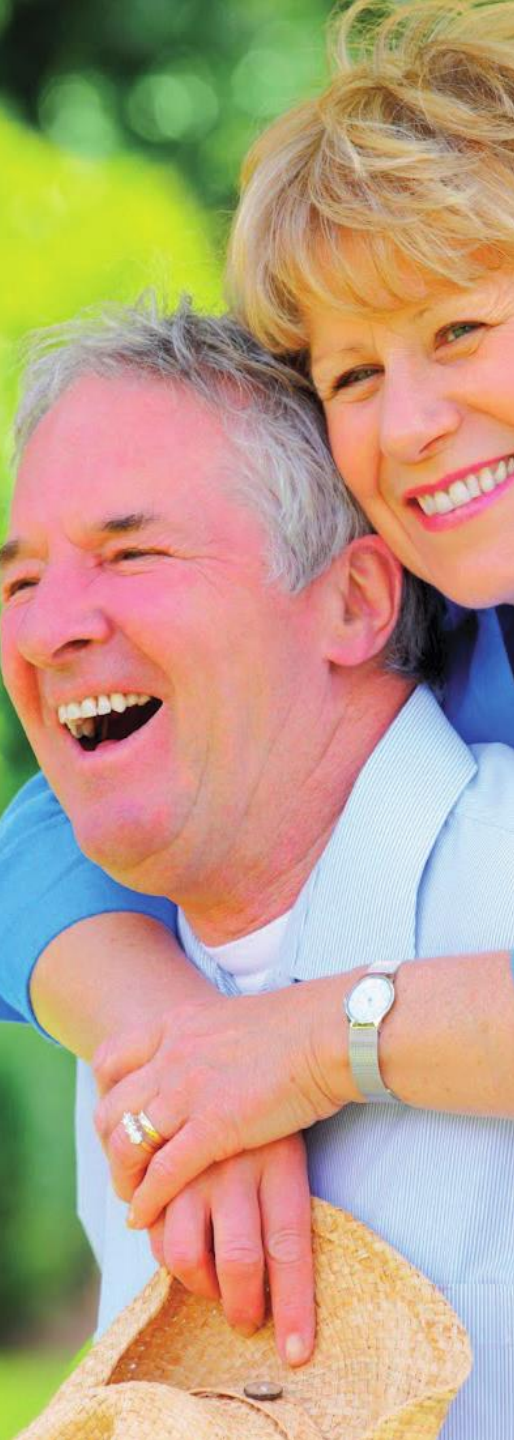
Philips HUE Lighting System

Comfort Pack

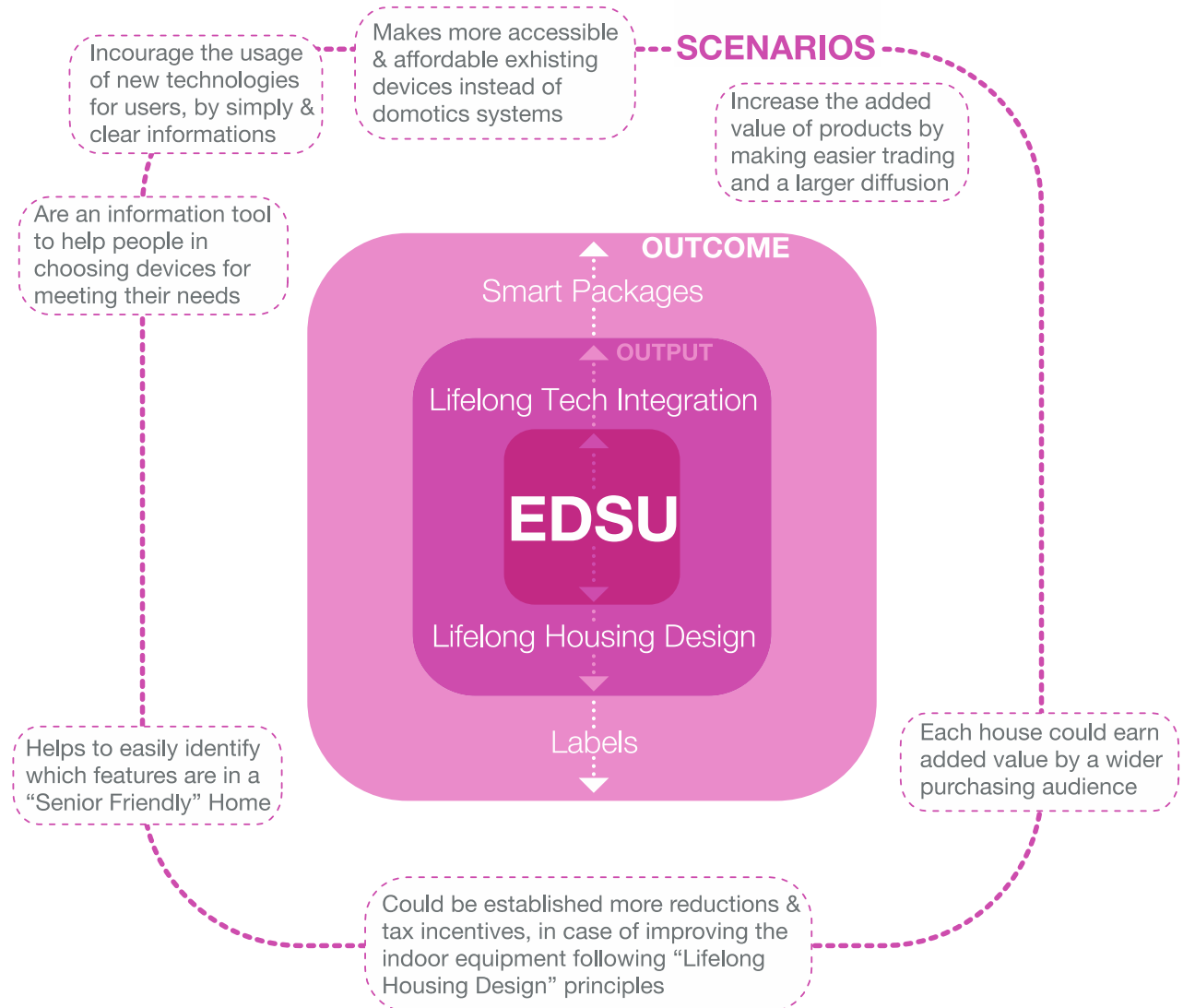
Wireless system connection

APP Application provided for usage & control

Power supply needed



DESIGNING SCENARIOS





THANK YOU FOR YOUR ATTENTION

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