Multimedia Authoring and Management using your Eyes and Mind

H2020-ICT-2014 - 644780

D8.1

Project Communication Kit

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Abstract: D8.1 reports on the publicity material that has been developed for disseminating MAMEM objectives and goals to different target groups. In particular, D8.1 reports on the project web-site, poster, leaflet and factsheet, as well as the project's social media accounts (i.e. Facebook, Twitter, Google+ and LinkedIn). This material will be made available to all consortium members for disseminating the project's aims and activities to the wider public.

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Executive Summary

D8.1 presents the first version of the project's publicity material that will be used to disseminate its goal and objectives to the wider public. This material consists of the project web-site, poster, leaflet and factsheet, as well as the project's social media accounts. In this report we present the content that has been generated for this purpose and motivate our design and content choices.

Abbreviations and Acronyms

BCI	Brain Computer Interfaces
DoA	Description of Actions
H2020	Horizon 2020 – The EU Framework Programme for Research and Innovation
SSVEP	Steady state visually evoked potentials

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1 Introduction

In MAMEM's DoA [1] we have specified a number of dissemination instruments for addressing the different target groups and aligning with the intended dissemination directions. The goal of this deliverable is to present the first version of these instruments titled as Project Communication Kit. The material included in the communication kit is aligned with the direction of raising awareness about the project and primarily addresses the general public. More specifically, the content of this deliverable consists of information about the website, printed material in the form of a poster, a leaflet and a factsheet, as well as information about the project's social media accounts. In the remaining of this deliverable we will present the constituent parts of the communication kit using screenshots together with a brief description motivating our design and content choices.

2 Web-site

MAMEM website (**www.mamem.eu**) [2] has been designed to serve as the project's main communication channel towards the target groups identified in the dissemination plan of the DoA [1]. The project's website has been structured in the following sections:

Home: The initial page that welcomes the visitor and conveys the project's basic messages. This is essentially the visitor's landing page (Figure 1) that consists of three parts: a) a carousel featuring promotional images conveying the basic messages of MAMEM, b) a "Latest News" section that highlights a stream of latest news, and c) an enriched footer acknowledging the contribution of H2020 funding program and pointing to the projects wiki and social media accounts.
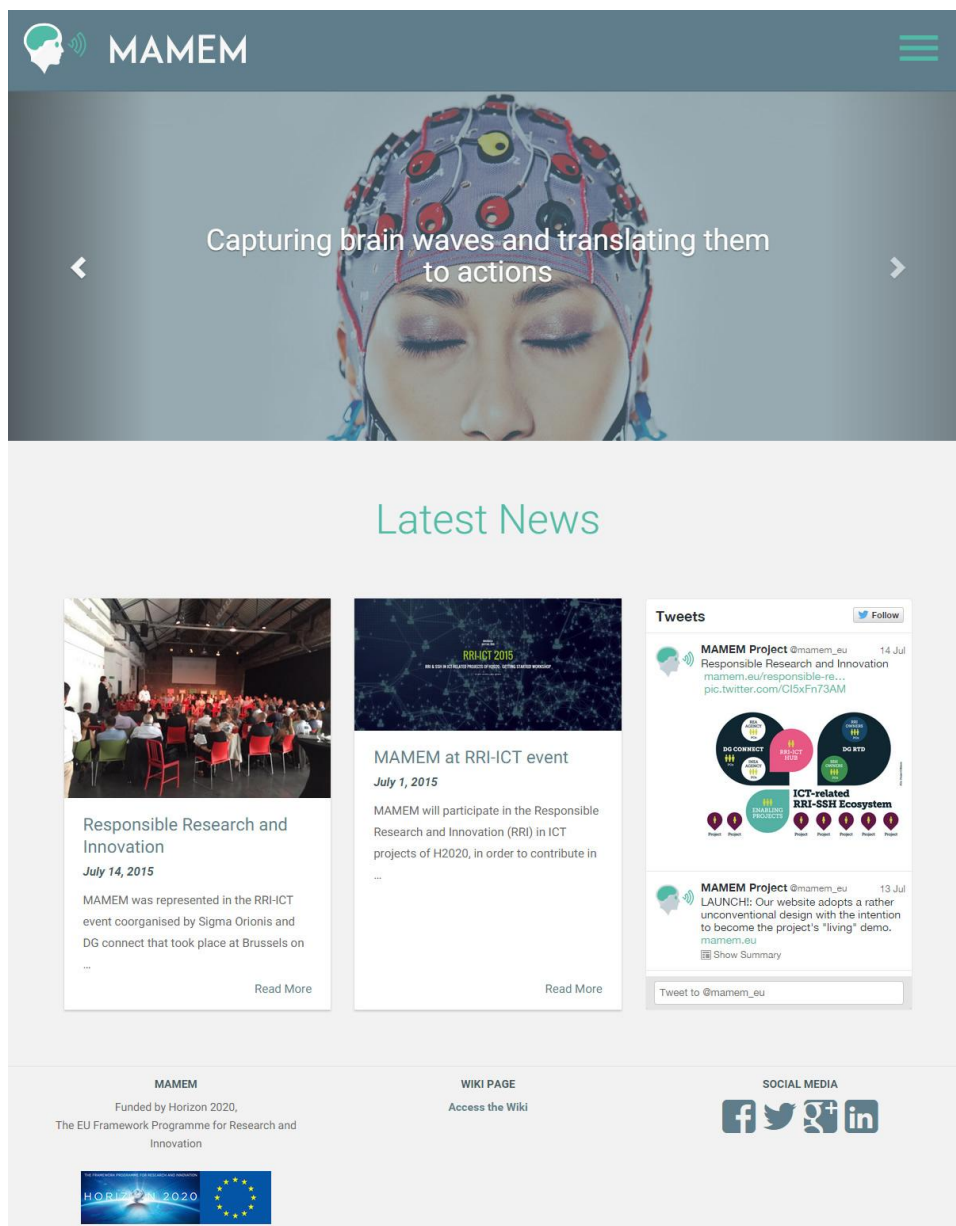
Figure 1: MAMEM's website – HOME section

The Project: This section is used to provide the technical details of the project, in terms of its objectives, envisaged research and development activities and work-plan. This page (Figure 2) in organized in the following sub-sections:

- **Abstract:** Contains a short description of the project.
- **Concept:** Outlines the project goal also featuring a conceptual diagram.
- **Objectives:** Features an overview of the project objectives along with their activities.
- **Structure:** Outlines the work packages and provides the related activities as envisaged in the DoA [1].
- **Consortium:** Offers the technical background of every partner, its responsibilities and expertise.
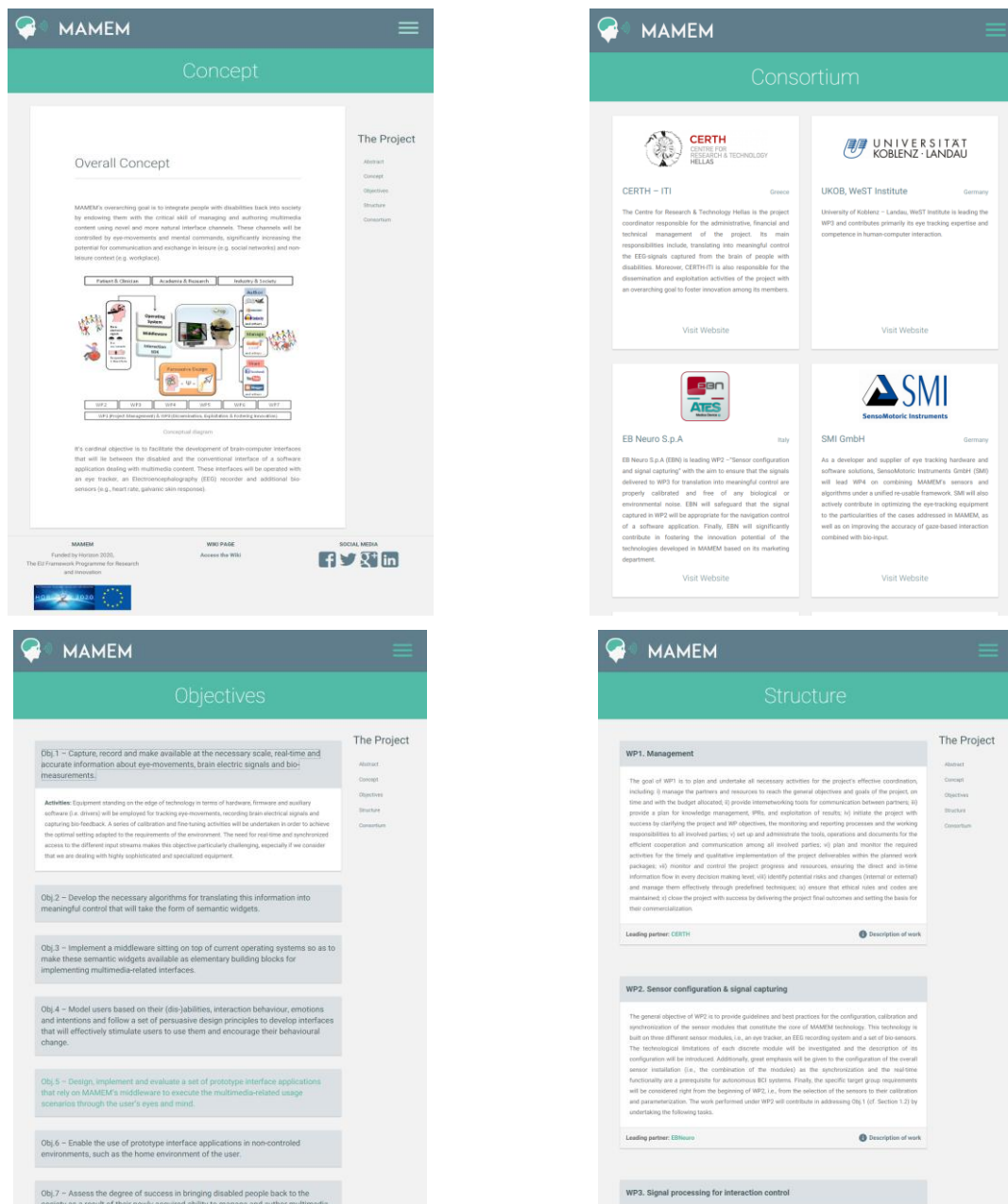
Figure 2: MAMEM's web-site – The Project Section – Technical information about the project

Results: This section will be used to provide access to the project's outcomes (Figure 3). In particular, this section will be structured in the following way:

- **Deliverables:** This page hosts the public deliverables that will be uploaded upon their completion.
- **Publications:** In this page reside all the publications that will be acknowledged to MAMEM.
- **Software:** Any software related to the project will be available in this page for download.
- **Datasets:** Any datasets generated by the project will be available for download from this page.
- **Dissemination:** All project related dissemination material will be available in this page for download.
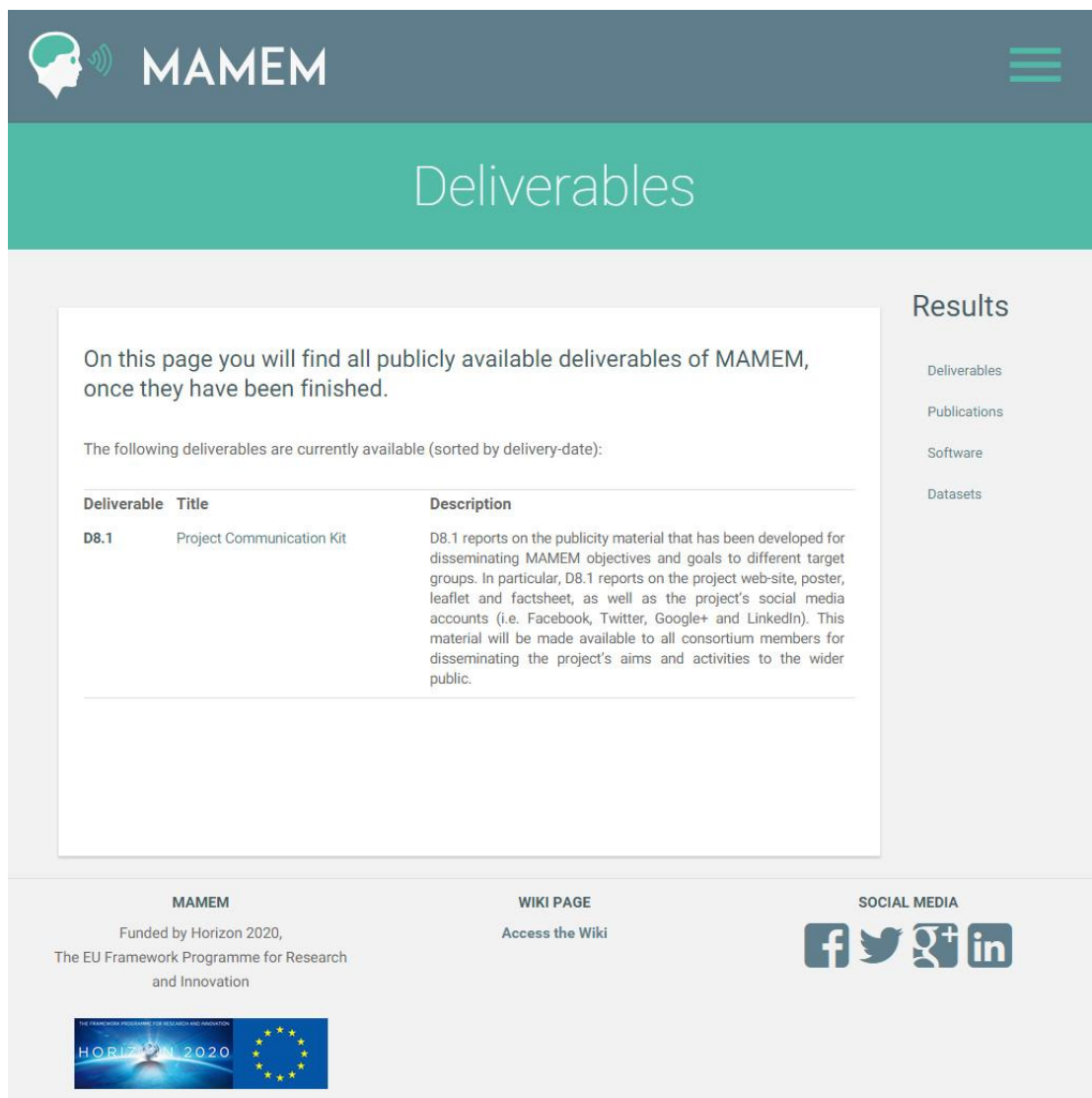
Figure 3: MAMEM's Project – Results Section - Providing access to the project's outcome

Use Cases: This page (Figure 4) provides basic information for the three use cases addressed by MAMEM, namely Parkinson's disease, neuromuscular disease and high tetraplegia. The goal of this page is to give the visitor relevant information about the necessity of MAMEM's technologies in bringing the disabled back to the society.
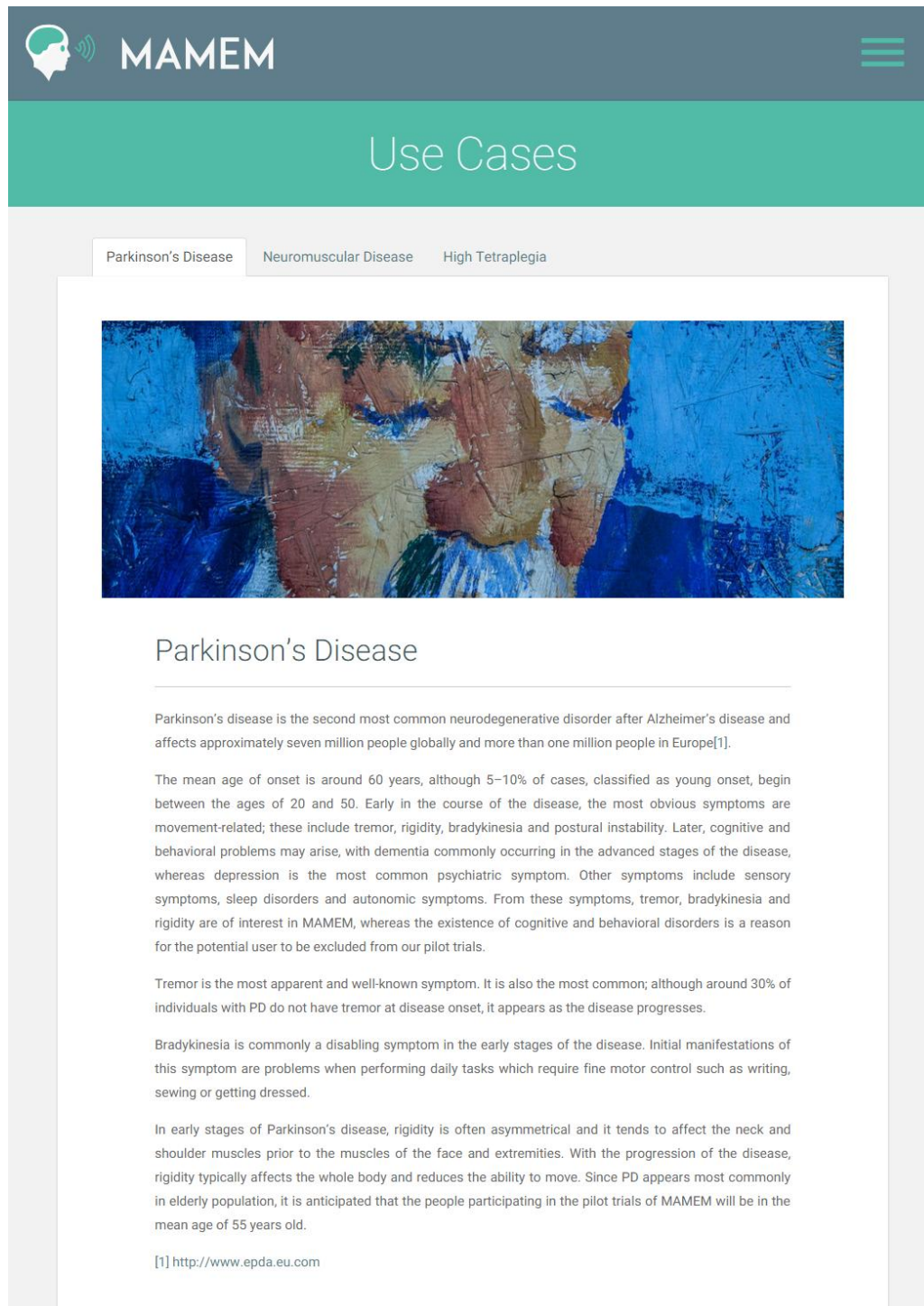
Figure 4: MAMEM's web-site – Use Cases Section - Information about the project's use cases

News: A blog-like news section (Figure 5) that incorporates post about the project activities, developments and other topics of interest.

Figure 5: MAMEM's website – News Section - Providing the project news

3 Designing the website as a demonstration prototype

Motivated by the technical objective of MAMEM to develop novel interfaces that could be operated through eyes and mind, we have decided to adopt a design approach that could potentially favour its handling through eyes and mind. In this respect, the navigation controls of MAMEM's website have been designed to comply with the notion of gaze-based zooming and attention focus, together with concentration and mind-based selection.

More specifically, we have adopted a tile-based design for the interface that looks a lot like a mobile layout, as depicted in Figure 6(a). We have decided to use large tiles for the basic options of the menu, so as to facilitate its handling through an eye-tracker. Similarly, a rather unconventional design was adopted for the sub-menus where shading colours were used to differentiate between the available options. This colour-based design scheme in indented to serve as an abstract container of mental commands, where the visitor can make his selection by "thinking" of the colour corresponding to his preferred choice (see Figure 6(b)).

(a)   (b)
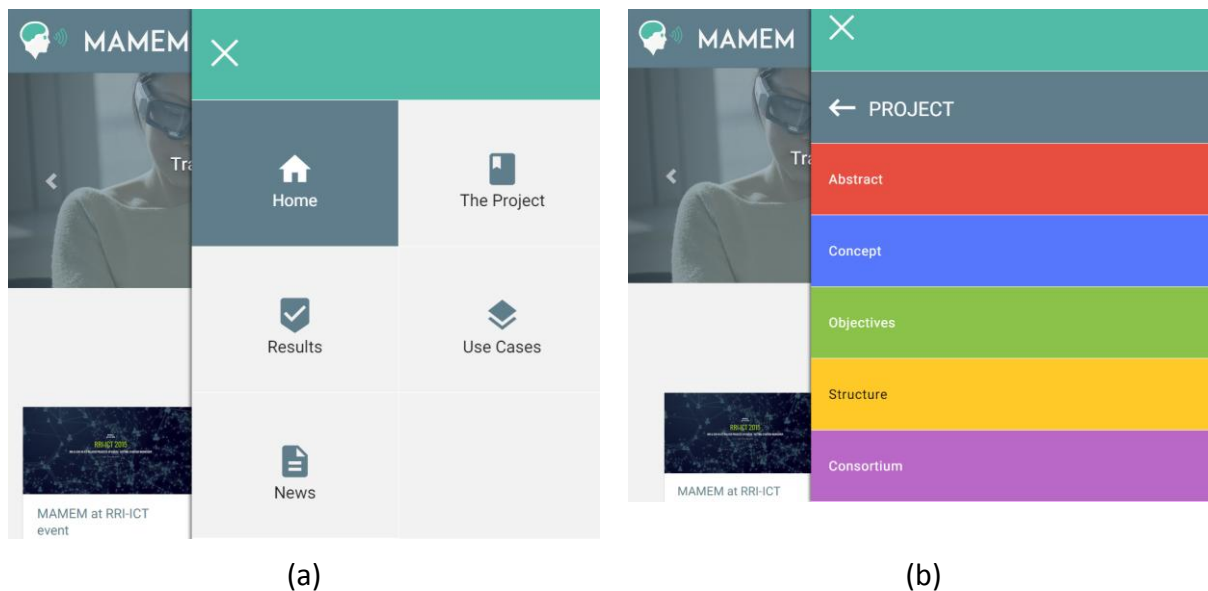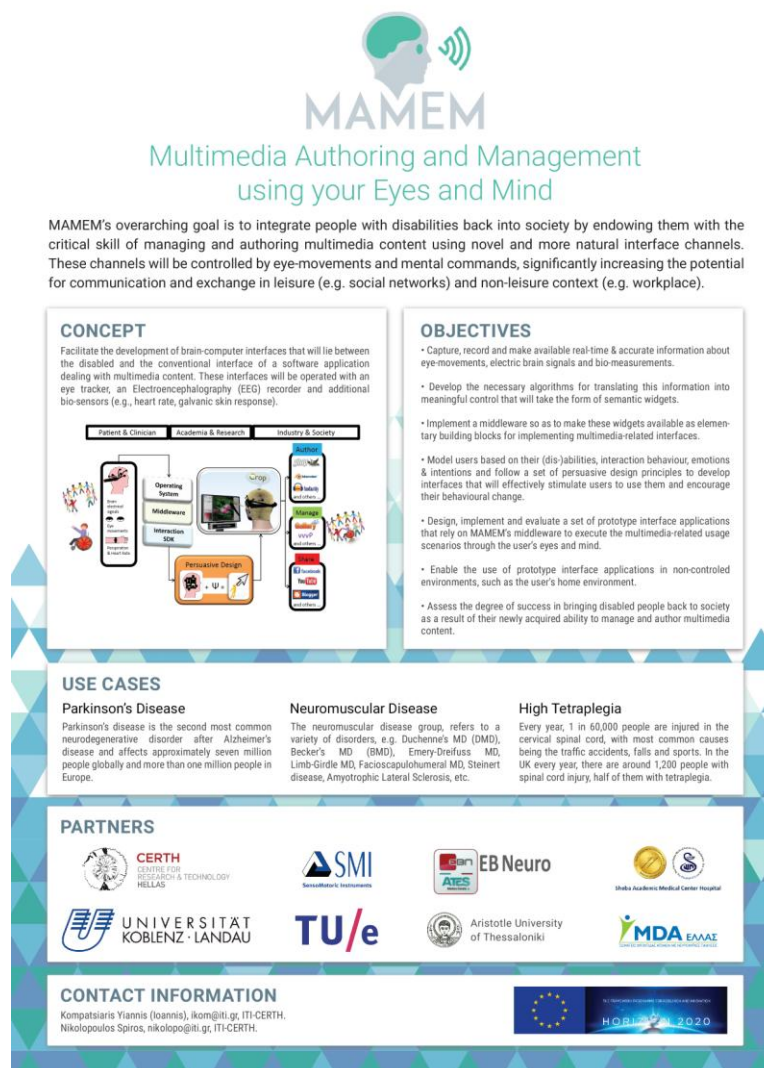
Figure 6: Unconventional design of MAMEM's website intended to facilitate its operation through eyes and mind: a) Tile-based layout introducing large tiles for the basic menu options allowing the visitor to easily make his choice using an eye-tracker, b) Sub-menus based on shading colours facilitating the mental commands that can be issued by the visitor using SSVEPs.

Apart from the unconventional layout of the design, the modifications that are necessary to render MAMEM's website operational using the visitor's eyes and mind include the functionality of the cursor, as well as the stimuli that are necessary to trigger the evoke potentials for issuing mental commands. An evoked potential is an electrical potential recorded from the nervous system through an EEG-recorder following the presentation of a stimulus. In particular, the Steady State Visually Evoked Potentials (SSVEP) are signals that are natural responses to visual stimulation at specific frequencies that can be easily captured through an EEG-recorder and are frequently used in brain computer interfaces (see for example [5]). By incorporating in the design of our web-site a similar kind of visual stimuli we will be able to facilitate the visitor in making sub-menu selections using his mind. Finally, our

intention is to include these functionalities at later stage allowing the project's website to be operated in two modes: a) conventionally using the mouse and the keyboard, b) unconventionally using the visitors' eyes and mind.

4   Poster

MAMEM's poster [3] (see Figure 7) contains information about the project's concept, objectives, use cases, partners and contact information. At the top resides the logo and acronym of the project that in conjunction with a white background with geometric details, makes the poster to stand out from a distance and be easily recognizable. The different sections are distinguishable using a card layout. The first card includes a short description of the project that gives the observer a quick understanding of the project as a whole. Two cards follow that feature information about the concept and the project objectives respectively. There is also a conceptual diagram that visualizes the flow of the project, so as for the observer to quickly grasp its key points. The following card includes information about each of the project's three use cases. Finally the contact information of the project's coordinator is placed at the bottom of the poster. This poster will be primarily used as printed material for various types of events, such as conferences, clustering activities, networking events, etc.

Figure 7: MAMEM's Poster presenting basic information about the project

5 Leaflet

MAMEM's leaflet [4] (see Figure 8) features core information about the concept, objectives and use cases of the project, without the complex technical details of the Work Packages. It's an easy to read primer allowing the reader to easily understand what the project really is.

The structure of this leaflet offers the observer an intuitive way to learn about the project. At first the abstract section gives information about the full scope of the project. Subsequently the concept and objectives of the project are outlined. Special emphasis is given to the Use Cases section. Each use case addressed by the project is described thoroughly to provide information about its demographic hindrances. Finally, the consortium is presented along with the contact information of the coordinator.

This leaflet will be used exclusively as printed material on networking and clustering events, and will be distributed to relevant organizations (e.g. hospitals, care-giving centers, companies active in assistive technologies) that can be interested in MAMEM's technologies.

ABSTRACT

Loss of the voluntary muscular control while preserving cognitive functions is a common symptom of neuromuscular diseases leading to a variety of functional deficits, including the ability to operate software tools that require the use of conventional interfaces like mouse, key-board, or touch-screens. As a result, the affected individuals are marginalized and unable to keep up with the rest of the society in a digitized world.

MAMEM's goal is to integrate these people back into society by increasing their potential for communication and exchange in leisure (e.g. social networks) and non-leisure context (e.g. workplace). In this direction, MAMEM delivers the technology to enable interface channels that can be controlled through eye-movements and mental commands. This is accomplished by extending the core API of current operating systems with advanced function calls, appropriate for accessing the signals captured by an eye-tracker, an EEG-recorder and bio-measurement s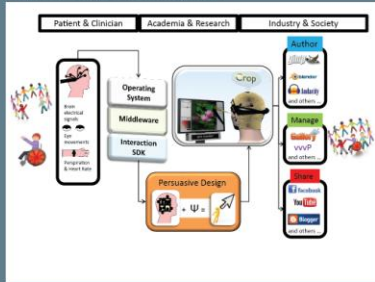ensors. Then, pattern recognition and tracking algorithms are employed to jointly translate these signals into meaningful control and enable a set of novel paradigms for multimodal interaction. These paradigms will allow for low- (e.g., move a mouse), meso- (e.g., tick a box) and high-level (e.g., select n-out-of-m items) control of interface applications through eyes and mind. A set of persuasive design principles together with profiles modeling the users (dis-)abilities will be also employed for designing adapted interfaces for disabled. MAMEM will engage three different cohorts of disabled (i.e. Parkinson's disease, neuromuscular disease, and tetraplegia) that will be asked to test a set of prototype applications dealing with multimedia authoring and management.

MAMEM's final objective is to assess the impact of this technology in making these people more socially integrated by, for instance, becoming more active in sharing content through social networks and communicating with their friends and family.

CONCEPT

MAMEM's overarching goal is to integrate people with disabilities back into society by endowing them with the critical skill of managing and authoring multimedia content using novel and more natural interface channels. These channels will be controlled by eye-movements and mental commands, significantly increasing the potential for communication and exchange in leisure (e.g. social networks) and non-leisure context (e.g. workplace).

It's cardinal objective is to facilitate the development of brain-computer interfaces that will lie between the disabled and the conventional interface of a software application dealing with multimedia content. These interfaces will be operated with an eye tracker, an Electroencephalography (EEG) recorder and additional bio-sensors (e.g., heart rate, galvanic skin response).

OBJECTIVES

• Capture, record and make available at the necessary scale, real-time and accurate information about eye-movements, brain electric signals and bio-measurements.

• Develop the necessary algorithms for translating this information into meaningful control that will take the form of semantic widgets.

• Implement a middleware sitting on top of current operating systems so as to make these semantic widgets available as elementary building blocks for implementing multimedia-related interfaces.

• Model users based on their (dis-)abilities, interaction behaviour, emotions and intentions and follow a set of persuasive design principles to develop interfaces that will effectively stimulate users to use them and encourage their behavioural change.

• Design, implement and evaluate a set of prototype interface applications that rely on MAMEM's middleware to execute the multimedia-related usage scenarios through the user's eyes and mind.

• Enable the use of prototype interface applications in non-controled environments, such as the home environment of the user.

• Assess the degree of success in bringing disabled people back to the society as a result of their newly acquired ability to manage and author multimedia content.

USE CASES

Parkinson's Disease

Parkinson's disease is the second most common neurodegenerative disorder after Alzheimer's disease and affects approximately seven million people globally and more than one million people in Europe.

The mean age of onset is around 60 years, although 5–10% of cases, classified as young onset, begin between the ages of 20 and 50. Early in the course of the disease, the most obvious symptoms are movement-related; these include tremor, rigidity, bradykinesia and postural instability. Later, cognitive and behavioral problems may arise, with dementia commonly occurring in the advanced stages of the disease, whereas depression is the most common psychiatric symptom. Other symptoms include sensory symptoms, sleep disorders and autonomic symptoms. From these symptoms, tremor, bradykinesia and rigidity are of interest in MAMEM, whereas the existence of cognitive and behavioral disorders is a reason for the potential user to be excluded from our pilot trials.

Tremor is the most apparent and well-known symptom. It is also the most common; although around 30% of individuals with PD do not have tremor at disease onset, it appears as the disease progresses.

Bradykinesia is commonly a disabling symptom in the early stages of the disease. Initial manifestations of this symptom are problems when performing daily tasks which require fine motor control such as writing, sewing or getting dressed.

In early stages of Parkinson's disease, rigidity is often asymmetrical and it tends to affect the neck and shoulder muscles prior to the muscles of the face and extremities. With the progression of the disease, rigidity typically affects the whole body and reduces the ability to move. Since PD appears most commonly in elderly population, it is anticipated that the people participating in the pilot trials of MAMEM will be in the mean age of 55 years old.

Figure 8: MAMEM's leaflet – Providing technical information about the project's objectives and use cases.

6 Factsheet

MAMEM's factsheet [5] (see Figure 9) includes factual information about the project like its acronym and full title, start date, duration, funding and contact information along with the project's abstract.

This material is intended to cover aspects that would be interesting from a statistical point of view (e.g. EU's aggregated numbers of spending, average number of partners, duration of projects, etc.).
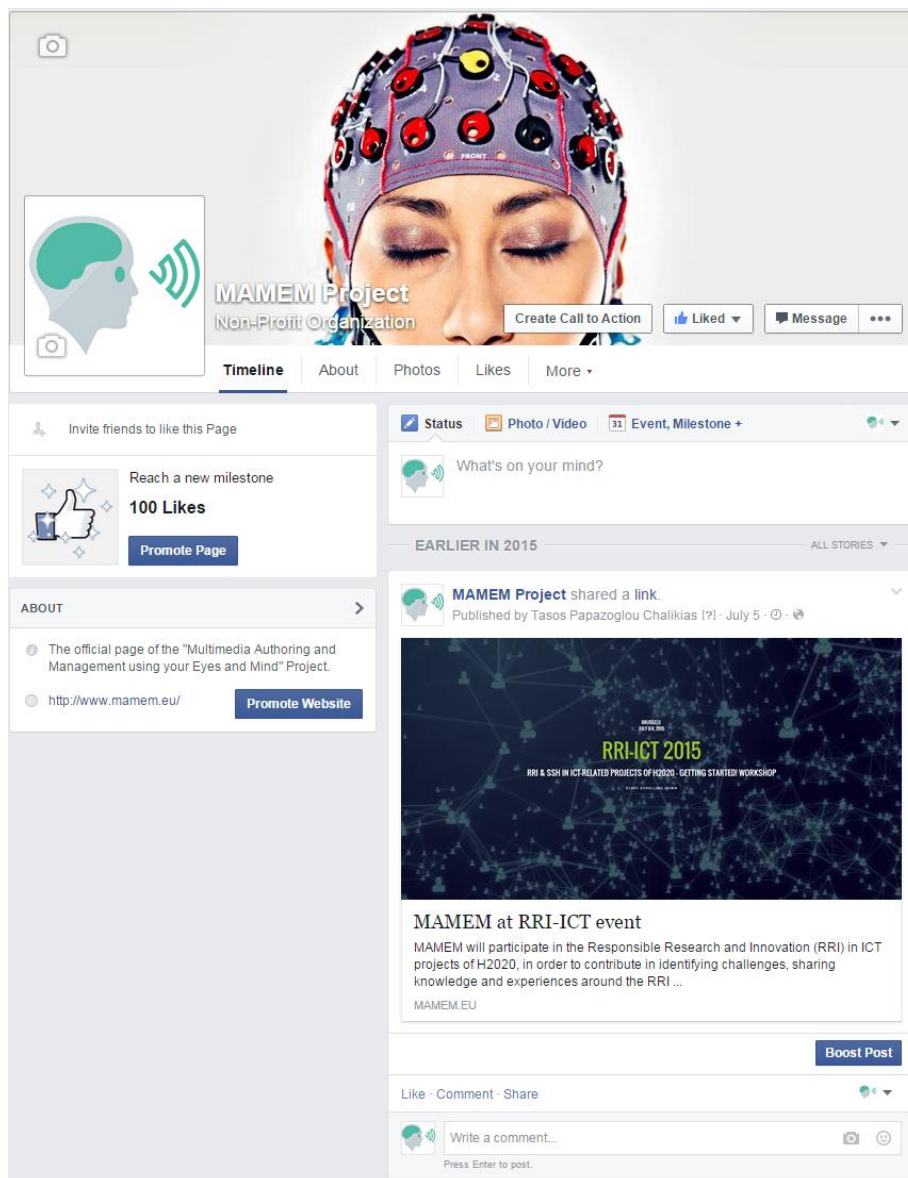

Figure 9: MAMEM's Fact Sheet – Summarizing the factual information about the project

7   Social media

MAMEM's goal is to make extensive use of the capabilities offered by social networks to disseminate its achievements and reach a wide audience. For this purpose a number of social media accounts have been already generated and linked through the projects website.
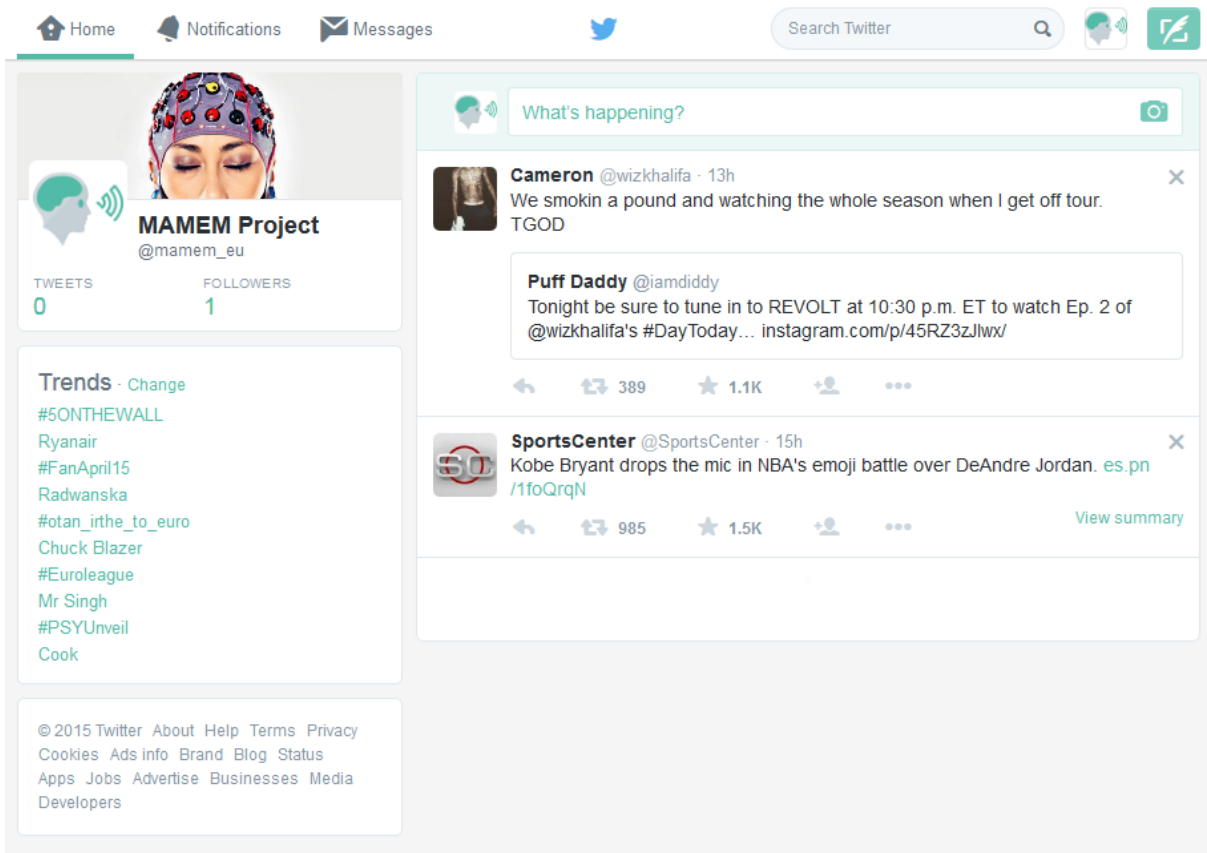
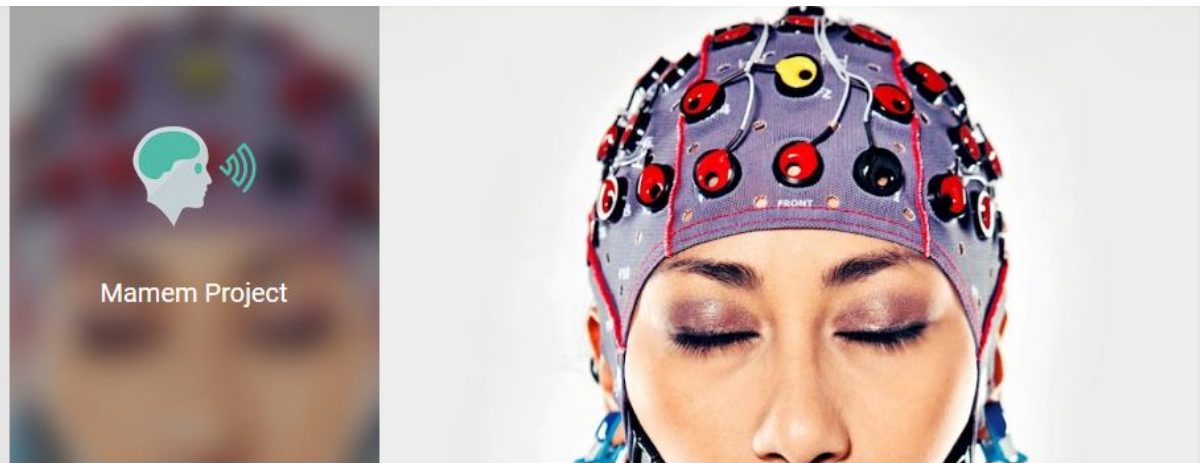**Generated social media accounts**:

Facebook URL: **https://www.facebook.com/mamemeu**

Twitter handle: @mamem_eu

Twitter URL: **https://twitter.com/mamem_eu**

Google+ URL: **https://plus.google.com/u/1/109703352921059221390**

Mamem Project

About Posts Collections Photos Videos +1's Reviews

People

In your circles
You haven't added anyone or you're not displaying this.

Have you in circles
No one's added you or you're not displaying this.

Edit

Communities

Talk about stuff you're into with people who love it too.

Discover communities

Education

Where have you gone to school?

Edit

Story

Tagline
Multimedia Authoring and Management using your Eyes and Mind

Introduction
MAMEM's overarching goal is to integrate people with disabilities back into society by endowing them with the critical skill of managing and authoring multimedia content using novel and more natural interface channels. These channels will be controlled by eye-movements and mental commands, significantly increasing the potential for communication and exchange in leisure (e.g. social networks) and non-leisure context (e.g. workplace).

Bragging rights
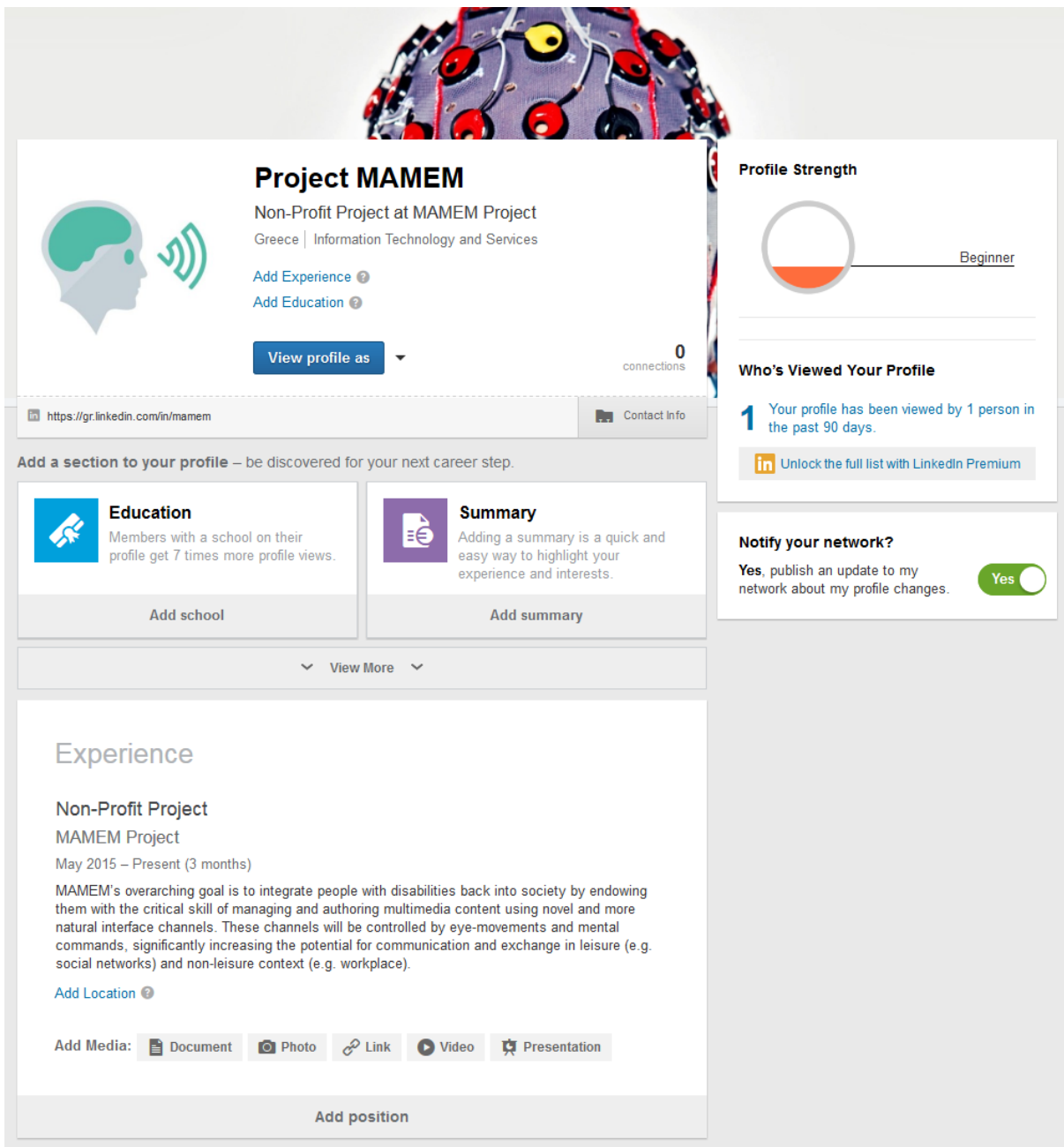Examples: survived high school, have 3 kids, etc.

Edit

Work

Occupation
Non-Profit Project

Skills
What are your skills?

LinkedIn URL: **https://gr.linkedin.com/in/mamem**

The social media accounts will be used frequently during the project's lifespan, to inform people about important or incremental updates. Also significant developments in related fields will be referenced through these accounts to further enhance the project's reach.

Social media posts can be created for example when a member of the consortium will attend a project related meeting or convention, or when a deliverable or software is available on the website.

As a side note, when creating a new entry on the website, the aforementioned social media accounts are automatically populated with a small description and a link to this entry, to further spread project exposure on the internet.

It is advisable to use a hashtag along with every social media post, so as to group related content together and make the search functionality easier. The suggested hashtag is noted below.

Hashtag: #mamem_eu

8 Summary

This document features material for disseminating MAMEM objectives and goals to different target groups, as well as for facilitating its communication activities. In particular, this deliverable reports on the project website, poster, leaflet and factsheet, as well as the project's social media accounts (i.e. Facebook, Twitter, Google+ and LinkedIn). A set of screenshots accompany every section of the deliverable to add more depth to the information provided about the dissemination material. Moreover, we have made sure to explain our motivation for organizing the content into the presented form by providing brief descriptions on our design and content choices.

Finally, it is important to note that we made a decision to implement a rather unconventional layout for the navigation of the website. We thought about blending a part of the website with our middleware solution, allowing navigation through eyes and mind. In this sense the website becomes part of a live demonstration of what the project will be achieving. The design inspiration came from the structure of mobile applications, where complex actions are masked behind a simple interface, usually a large surface for the fingers to tap on.

9 References

[1]   Description of Actions - Readable form (requires authentication):
http://mklab.iti.gr/mamem/images/3/32/PartB_MAMEM.pdf

[2]   MAMEM website:

http://mamem.eu

[3]   MAMEM poster:

http://www.mamem.eu/wp-content/uploads/2015/07/Poster-A4.pdf

[4]   MAMEM leaflet:

http://www.mamem.eu/wp-content/uploads/2015/07/Leaflet.pdf

[5]   MAMEM factsheet:

http://www.mamem.eu/wp-content/uploads/2015/07/Fact-Sheet-A4.pdf

[6]   SSVEP-based mind speller:

https://www.youtube.com/watch?v=ZupEt1uvcls