Managing Affective-learning THrough Intelligent atoms and Smart InteractionS

D10.6 MaTHiSiS community building plans and results

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List of Acronyms

Abbreviation / acronym	Description
ASC	Autism Spectrum Case
CGDLC	Career Guidance Distance Learning Case
DAT	Data Acquisition Tool
DN	Developers' Network
ITC	Industrial Training Case
KPI	Key Performance Indicator
MEC	Mainstream Education Case
LN	Learners' Network
PMLDC	Profound and Multiple Learning Disabilities Case
TCN	Tutors'/Caregivers' Network

Table 1: Definitions, Acronyms and Abbreviations

Project Description

MATHISIS is a 36-month duration project co-funded by the European Commission Horizon 2020 Programme (H2020-ICT-2015) under Grant Agreement No. 687772. It started on 1st January 2016.

One of the core objectives of MaTHiSiS project is to enhance learning environments and make use of computing devices in learning in a more interactive way, which will provide a product-system to be used in formal, non-formal and informal education. An ecosystem for assisting learners/tutors/caregivers for both regular learners and learners with special needs will be introduced and validated in five use cases: Autism Spectrum Case (ASC), Profound and Multiple Learning Disabilities Case (PMLDC), Mainstream Education Case (MEC), Industrial Training Case (ITC) and Career Guidance Distance Learning Case (CGDLC).

MaTHiSiS product-system consists of an integrated platform, along with a set of re-usable learning components (educational material, digital educational artefacts, etc.), which will respond to the needs of a future educational framework, and provide capabilities for: i) adaptive learning, ii) automatic feedback, iii) automatic assessment of learner's progress and behavioural state, iv) affective learning and v) game-based learning.

Within MaTHiSiS, an innovative structural tool of learning graphs is going to be introduced to guide the learner through the process of learning in the given scenario. To reach a learning objective, learner will have to "follow the path" of the learning graphs, built up on Smart Learning Atoms, which are certain learning elements that carry defined learning materials.

To ensure barrier-free integration in the market, a range of interaction devices, such as specialized robots, mobile devices and interactive whiteboards are used in MaTHiSiS project. The consortium ensures easy-to-use solution with e.g. specialized graphical editor-like tool, allowing easily create educational materials as well as the reusability within both mainstream education and vocational training setups

Objectives of the project

A Cloud-based Learner's Space (CLS) will be developed to provide a system for adaptation/personalization in learning, interaction, data acquisition and analysis as well as content creation on the fly. This is a core component of the MaTHiSiS system which includes 3 crucial subsystems which create an innovative smart learning ecosystem: i) the experience engine, a graph-based interactive storytelling engine, that manipulates interactive content that is later sent to a device of tutor's/learner's choice; ii) the learning graph engine, responsible for adaptation of the Learning Graph based on learner's behaviour and interaction; iii) the Decision Support System (DSS) providing and collecting learning analytics and controlling synchronous and asynchronous interaction between devices. To ensure constant educational flow and augmented learner engagement, the emotion recognition and context aware cognitive/behavioural status extraction tools are introduced within the system addressed by the Sensorial Component.

For the purpose of validating MaTHiSiS approaches in learning environment, a set of Smart Learning Atoms (SLA) is going to be created for defined use cases. Such SLAs will adapt to each learner in a different way based on her/his particular needs, profile, cognitive affective state, relevance to specific learning requirements and previous performance. Further, an editor-like tool is introduced to be able to transform educational material into MaTHiSiS Learning Materials usable by SLAs through Learning Actions. The learning graphs then are going to be deployed to interact with the Cloud-based Learner's Space (CLS) as well as some front-end tools for tutors and caregivers to enable creation, editing and authoring of the learning contents and learning experiences.

MaTHiSiS will support learning across a variety of learning contexts and, with the use of a variety of devices (robots, interactive whiteboards, mobile devices and desktop/laptop computers), with

personalized and adaptable, time and location independent learning paths, transferring learned experience between the platform agents.

By the end of the project, MaTHiSiS will introduce a marketable innovation, aimed at the re-usability of educational and training content and fostering the interactivity between technology and learners/tutors/caregivers.

Executive Summary

This document reports the community building plans and results, undertaken during the first eighteen months of the MaTHiSiS project.

This document primarily identifies the alignment of the community building activities with the overall dissemination and communication strategy and its objectives. In addition, it introduces a stakeholder prioritization map and its usage in the community engagement plan. Furthermore, it provides detailed information on the services and the tools that have to be incorporated into the MaTHiSiS ecosystem in order to ensure thematic network viability and growth. Finally, this report presents the community building results and the corresponding activities, with respect to the impact they had on the Key Performance Indicators (KPIs).

Internally, this deliverable serves as a detailed framework for community building activities, performed by each partner or by the consortium. It also serves as a reference to the community building strategy and its key points that every member of the consortium should be aware of. For external readers, this deliverable provides an overview of the actual progress of the community-building plan presented on M3. This report encompasses all performed activities and established services and tools, for recruiting various stakeholders to the MaTHiSiS thematic networks.

1. Introduction

The current document is the deliverable **D10.6: MaTHiSiS community building plans and results** and describes the elaboration of the planning and the progress on the actions, related to community building that were provided in **D10.1: MaTHiSiS dissemination and communication plan** for work package **WP10: Dissemination and Communication activities**.

It is a public document that will become available on the project's website, upon acceptance. The document provides all the relevant information about the community building plans and activities performed during the first eighteen (18) months of the project.

This document contains the following sections:

- **Section 1: Introduction**
  This section clarifies the purpose and the structure of this deliverable and the context to which it belongs.
- **Section 2: Community Building Strategy**
  This section describes the alignment of the activities conducted during the first 18 months of the project, with the foreseen community-building plan. In addition, it identifies the steps to make the community-building strategy more effective.
- **Section 3: Community Building Results**
  This section provides in detail the activities performed to enable and foster community building, throughout the established dissemination and communication plan.
- **Sections 4: Conclusion**
  This section presents the conclusions of the document.

2. Community Building Strategy

2.1 Strategy Alignment Report (M1-18)

According to the Dissemination and Communication Plan presented in **D10.1: MaTHiSiS dissemination and communication plan**, delivered on M3, MaTHiSiS follows a phased approach (Figure 1 – Dissemination Phased Approach) for the overall dissemination plan, including specific community building objectives and activities on each phase.
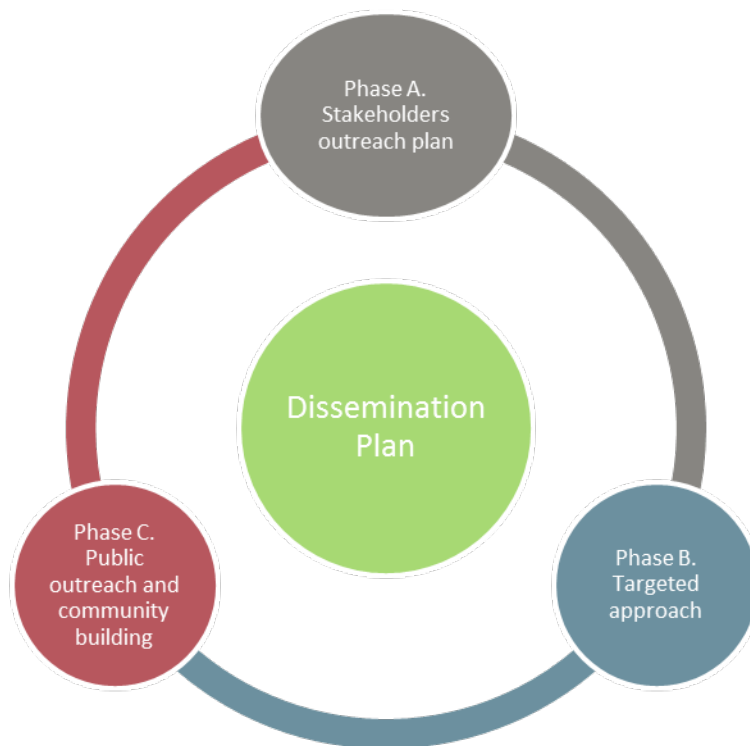
Figure 1 – Dissemination Phased Approach

Specifically, for **Phase A: Stakeholders outreach plan (M1-M12)** the original plan with respect to the community building was:

- **Scope:** to **initiate community building** (Task 10.3), and inform the market and stakeholders regarding the scope and the objectives of MaTHiSiS.
- **Measures taken by MaTHiSiS:**
  - o Participation in more than 11 events representing the project, aiming to inform and invite diverse stakeholder groups. The events list is provided in detail in **D10.3 MaTHiSiS dissemination and communication plan activities report.**
  - o Peer communications with more than 90 SMEs providing educational tools and solutions, in the context of WP1 exploitation and commercialization activities. The list of the SMEs is available in **Annex I – MaTHiSiS Network Members** of **D10.3 MaTHiSiS dissemination and communication plan activities report.**
  - o Peer communications with 70 large corporate organisations with educational needs, in order to identify key market beneficiaries as candidate members of the MaTHiSiS communities. The list of the organisations is available in **Annex I – MaTHiSiS Network Members** of **D10.3 MaTHiSiS dissemination and communication plan activities report.**

- o Targeted communication activities with education/training representatives of public administration at a local, regional and national level, in order to invite and attract policy makers. These activities are listed in section 5.3.3 of the deliverable **D10.3 MaTHiSiS dissemination and communication plan activities report.**
- o Publications on international conferences and workshops, focusing on initiating the thematic building throughout the academic communities. Publications are listed in section 5.4 of the deliverable **D10.3 MaTHiSiS dissemination and communication plan activities report.**
- o Constantly feeding social networks, taking advantage of the MaTHiSiS consortium existing wide networks, thus broadcasting project's value proposition.

For **Phase B: Targeted approach (M13-M18)** the original plan was:

- **Scope:** to identify key players in the market and in the target user's ecosystem and **expand community building** based on existing networks (Task 10.3).
- **Measures taken by MaTHiSiS:**
  - o Re-design the project's website in order to be able to accommodate community members and provide personalized and value-added services per stakeholder group, following the first review recommendations.
  - o Rework the exploitation plan focusing on the market identification, following up the first review recommendations.
  - o Expand the original thematic networks, including the Market Actors and the Policy Makers network, along with the original ones (Learners, Tutors and Developers).
  - o Refine the communication plan to involve systematically all potential stakeholders including market players and influencers across the globe.
  - o Analyse entrepreneurs who offer ICT enhanced educational products and services to better relate the project with the needs of the market, conducted in the context of WP1.
  - o Orchestrate and execute a pre-pilot phase using the MaTHiSiS Data Acquisition Tool to schools, industries and other educations organisations, involving all five MaTHiSiS cases (MEC, ASC, PLLDC, ITC and CGDLC). One of the primary objectives of this initiative was to allow for the first "crash test" of the MaTHiSiS platform with the Learners' and the Tutors' communities.
  - o Carry out the first phase of pilots under the total supervision of the MaTHiSiS consortium (Driver Pilots) in selected schools, industries and other educations organisations, thus having the opportunity to engage schools, learners and tutors with the MaTHiSiS ecosystem, in a more systematic way.

2.2 Strategy Enhancement (M18-M36)

The peer communications with major key players and decision makers across Europe and the direct involvement and interactions of end-users with the MaTHiSiS platform, conducted during M12 to M18, pointed out the necessity to adapt the community building strategy to more specific needs.

For that purpose, the overall communication plan is now aligned with the Market and Stakeholder Analysis introduced in deliverable D1.1 - MaTHiSiS Exploitation Plan. The following table presents the major stakeholder group distribution between the five (5) MaTHiSiS market segments (Use Cases) and the actor networks.

Segments/ Actors	Autism	PMLD	Mainstream Education	Industrial Training	Career Guidance
Learners	Individuals with disorders of the autism spectrum	Individuals with profound and multiple learning disabilities	Primary education students Secondary education students Higher Education Students	Industrial Workers, Industrial Executives CPD Learners	Unemployed individuals Long-term unemployed individuals Secondary education students Undergraduate university students Postgraduate university students Long term career development (employed)
Tutors / Caregivers	Teachers, Tutors Psychologists Assistant personnel for learners with special needs Parents	Teachers, Tutors Psychologists Assistant personnel for learners with special needs Parents	Primary Education Teachers and tutors Secondary Education Teachers and tutors Psychologists Assistant personnel Higher education professors	Industrial Trainers Industrial Experts Industrial Executives	Career counsellors Social Workers Psychologists Secondary Education Teachers and tutors Higher education teachers and tutors
Developers (companies or free	LMS Developers Developers of related affective detection,	LMS Developers Developers of related affective detection,	LMS Developers Developers of related affective detection,	LMS Developers Developers of related affective detection,	LMS Developers Developers of related affective detection,

Segments/ Actors	Autism	PMLD	Mainstream Education	Industrial Training	Career Guidance
lancers)	gaming, personalization and adaptation systems	gaming, personalization and adaptation systems	gaming, personalization and adaptation systems	gaming, personalization and adaptation systems	gaming, personalization and adaptation systems
Market Actors (different actors of the Education value chain)	LMS providers Educational Content Providers Promoters and investors Potential Buyers (Educational Foundations, Inclusive related foundations)	LMS providers Educational Content Providers Promoters and investors Potential Buyers (Educational Foundations, Inclusive related foundations)	LMS providers Educational Content Providers Promoters and investors Potential Buyers (Educational Foundations)	LMS providers Industries Educational Content Providers Potential Buyers (Companies interested in providing affective and game-based based training)	LMS providers Educational Content Providers Promoters (Private and Public Long-life training centres) and investors
Policy Makers	Education and Inclusion Ministry representatives Town Councils Mainstream Schools' representatives Inclusion and Special needs schools and Foundations	Education and Inclusion Ministry representatives Town Councils Mainstream Schools' representatives Inclusion and Special needs schools and Foundations	Education and Inclusion Ministry representatives Town Councils Mainstream Schools' representatives Universities (Innovation managers, counsellors)	Commercial and Industrial Chambers Federations of Industries	Ministry of Education Ministry of Labour, Ministry of Health, Higher Education Institutions, Private Career Guidance Services (Life Long Learning Centres, Job finding bureaus, Temporal Employment Companies)

Table 2 - MaTHiSiS Major Stakeholder Group Distribution

The identification of different Actors for each one of the five Use Cases or Market Segments of MaTHiSiS, illustrates the fact that MaTHiSiS ecosystem has diverse audiences with different needs and interests. Therefore, the communication plan has to be personalized and targeted, in order to be efficient and drive the community building activities.

2.2.1 Stakeholder Prioritization in Community Building

The identification of the MaTHiSiS project stakeholders is the first step towards the realization of who are affected, who have influence or power over it and who could benefit from the successful conclusion of the project. The second and most critical step is to further analyse and classify the stakeholders and prioritize them according to their power and their interest[1].

The following figure illustrates the mapping of all stakeholders to four quadrants, indicating the actions needed as far as communication and community building is concerned.

- **High power, interested stakeholders.** These are the key players that should be managed closely and be fully engaged in community activities, making sure they are very satisfied with the level and quality of communication.
- **High power, less interested stakeholders.** Context setters that should be kept satisfied but not bored with the communication process.
- **Low power, high interested stakeholders.** These are irreplaceable members of the MaTHiSiS communities that they should be kept adequately informed, as they are capable of contributing with important aspects and advice.
- **Low power, less interested stakeholders.** These are bystanders that they should be monitored and informed but not bored with excessive communication.

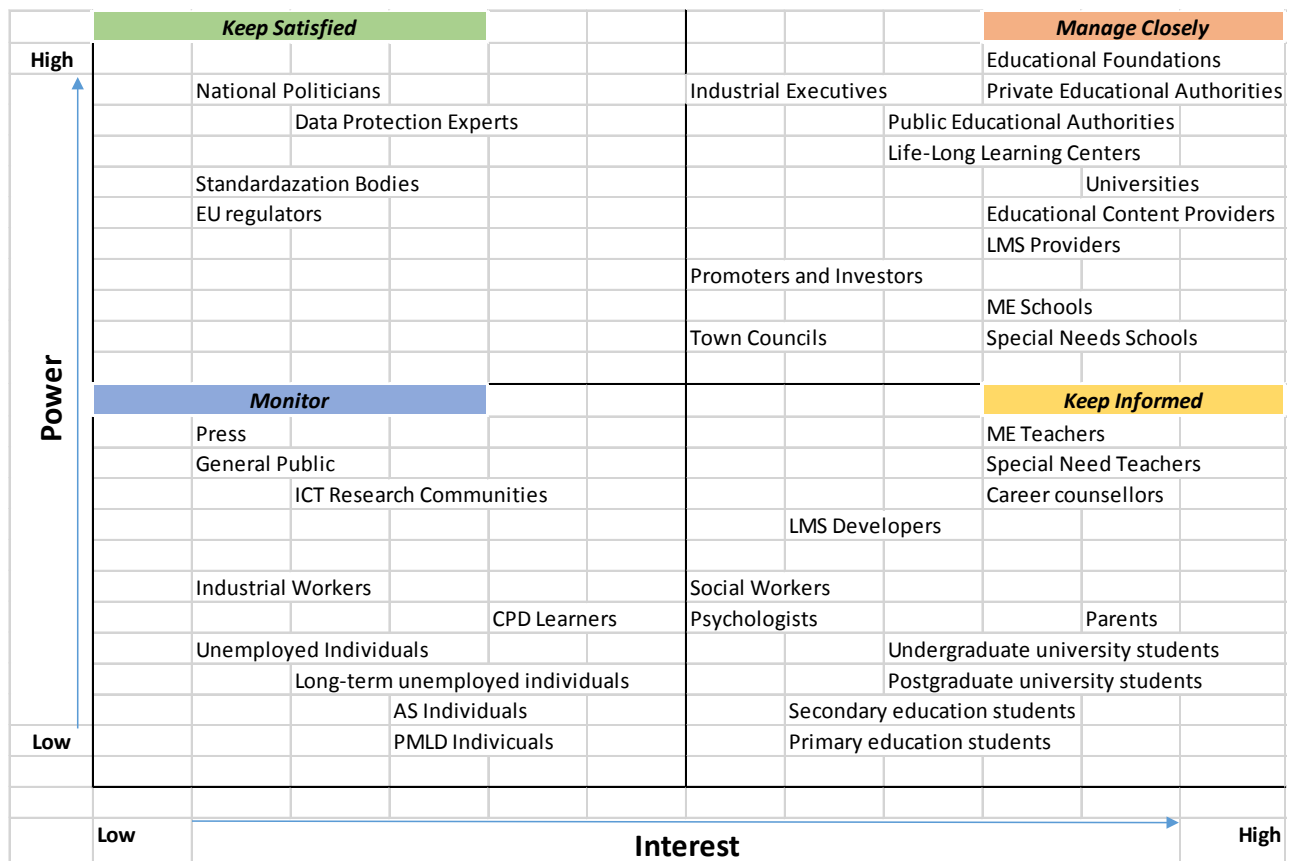| Power / Interest	*Keep Satisfied*		*Manage Closely*
High			Educational Foundations
	National Politicians	Industrial Executives	Private Educational Authorities
	Data Protection Experts		Public Educational Authorities
			Life-Long Learning Centers
	Standardazation Bodies		Universities
	EU regulators		Educational Content Providers
			LMS Providers
		Promoters and Investors	
			ME Schools
		Town Councils	Special Needs Schools
	Monitor		*Keep Informed*
	Press		ME Teachers
	General Public		Special Need Teachers
	ICT Research Communities		Career counsellors
		LMS Developers	
	Industrial Workers	Social Workers	
	CPD Learners	Psychologists	Parents
	Unemployed Individuals		Undergraduate university students
	Long-term unemployed individuals		Postgraduate university students
	AS Individuals		Secondary education students
Low	PMLD Indivicuals		Primary education students
	Low	Interest	**High**

Figure 2 – Power/Interest Grid for Stakeholder Prioritization

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[1] Methods used: Wright, George, and George Cairns, Scenario Thinking: Practical Approaches to the Future, Palgrave MacMillan,Houndmills, Basingstoke, Hampshire, 2011 p. 92 and https://www.mindtools.com/pages/article/newPPM_07.htm

Stakeholders mapping is constantly revisited in order to identify which quadrants stakeholders fall into. The stakeholder list is re-ranked using different tactics of communication: "manage closely", "keep satisfied"/"keep informed" and "monitor".

The ambition of the community building strategy is to invite stakeholders from all four quadrants and provide engagement levels that correspond to their influencing capabilities and to their level of commitment regarding the projects' achievements.

2.2.2 Community Member Benefits

The community networks supported by the MaTHiSiS ecosystem are:

- The Learners Network
- The Tutors / Caregivers Network
- The Developers Network
- The Market Actors Network
- Others Network, including various Policy Makers.

A dedicated community area on the project's website will be used to accommodate the value-added services and enhance the experience of the communities within the MaTHiSiS ecosystem. These services will be offered to the members of the community horizontally but the provisioning of the content will be dynamic and adapted to both the specific needs of the corresponding use case and the role of the stakeholder. The community area will be available and fully operational in September 2017.

2.2.2.1 Online Demo

It is essential for a software platform to be able to offer an online demo. Therefore, the MaTHiSiS communities will be offered with an up & running demo, along with the ability to test and evaluate learning experiences especially designed for Autism Spectrum case, Profound and Multiple Learning Disabilities case, Mainstream Education, Industrial Training and Career Guidance.

The main idea behind the online demo, is that the actual involvement and the interaction of the various stakeholders with the platform will, in one hand, act as a "honeypot" to attract new members and on the other hand it will serve as a silent extension of each pilot phase (driver, assisted and real-life pilots). In this way, there are going to be continuous iterations enabling feedback gathering during the whole lifecycle of the project.

The Online Demo will use the Learning Experiences designed and implemented for each Pilot phase without adding extra burden to the technological and pedagogical teams of the project. In each case, the community members will have the opportunity to develop, test and deploy new learning experiences or learning materials on the MaTHiSiS ecosystem.

The online demo will be available to all community members in September 2017.

2.2.2.2 Learning Experience Common Repository

A Learning Experience is a full scenario in MaTHiSiS platform, involving Learning Graphs with specific goals and Smart Learning Atoms (SLAs), specific agents (pc/laptop, NAO robot, mobile, IWB) in predefined learning environments. In the context of each pilot phase, multiple learning experiences and learning materials come to life, covering the needs of all five MaTHiSiS use cases. Through the community area in the website, the members will have the option to share the results of their tests and benchmarks with the rest of the community. In addition, a sharing option will be available for the Learning Graphs and Learning Materials that they develop for the sessions that they conduct. In this way, the community will become an interactive place for learners, tutors/caregivers and developers to share and transfer technological or pedagogical knowledge and for the Market Actors and the Decision Makers to get a grasp on the immerging opportunities.

2.2.2.3 Forum

The community will be supported by a Forum with a variety of topics and threads dealing with the technological and pedagogical aspects of the MaTHiSiS ecosystem. The main topics of the Forum will be indicative as follows:

- General, for all kinds of posts that are not use case specific
- Autism Spectrum Case
- Profound and Multiple Learning Disabilities Case
- Mainstream Education Case
- Industrial Case
- Career Guidance Distance Learning Case
- Platform Development

The forum will be supported by moderators and by MaTHiSiS experts, in order to be able to provide validated and documented answers to the members of the community. The forum will be available through the community in September 2017.

2.2.2.4 Push Notifications

One of the primary mass communication channels of the project is the newsletters. The members of the community will have the opportunity to receive push notifications from the MaTHiSiS newsletters service, according to the interests of their registered profile (use cases, preferred networks etc.). For that purpose, the push notifications will be implemented via popular email marketing providers, in order to ensure the successful delivery of the messages (overcoming email reputation rules and restrictions) and retrieve valuable information on the impact of the emails (number of actual recipients, number of users that opened the email, number of users that visited the links to projects website etc). Push notification activities will be initialized in September 2017 alongside with the online community area.

2.2.2.5 Training / Webinars

MaTHiSiS is a sophisticated software platform involving multidisciplinary expertise and different roles. Therefore, a training curriculum is major for the understanding and the proper usage of the platform. The online community members will have the opportunity to attend training sessions according to their networks (Learners, Tutors and Developers) and preferred Use Cases, through webinars.

Webinars are suitable for inviting diverse stakeholders into the dialogue, sharing knowledge and best practices. The webinars will be used to maintain interest in MaTHiSiS ecosystem and engage key players from the demand side (learners, tutors, parents/caregivers, career counsellors, industrial trainers) and supply side (LMS Providers, Educational Content Developers, Game Developers etc.).

The training curriculum will be ready for the second phase of the pilots (Assisted Pilots) in October 2017 and the webinars will be launched in the beginning of 2018.

2.2.2.6 Helpdesk / Support

MaTHiSiS is a "living" software platform that needs to be maintained and supported as much as any other professional tool. For this purpose, a dedicated helpdesk / support team, with the following indicative responsibilities, will support the platform:

- Serving as the first point of contact for the users / community members
- Guiding the users through the problem-solving process
- If possible, determining the best solution based on the issue and details provided by users
- Directing unresolved issues to the next level of support, depending on the issue (developers, pedagogists, career counsellors etc.)
- Recording events and problems and their resolution in logs

- Passing on any feedback or suggestions by the community members to the MaTHiSiS consortium
- Identifying and suggesting possible improvements on communication and resolution procedures.

The helpdesk is expected to be fully operational by the end of 2017.

2.3 Community Engagement Plan

According to the Phased Approach (Figure 1 – Dissemination Phased Approach), the scope of the upcoming Phase C (M19-M36) is to support learners and tutors/caregivers in skill acquisitions, and developers/SMEs in the creative and collaborative development of MaTHiSiS based applications.

Indeed, the upcoming period provides a unique opportunity to build the thematic networks, given that the current state of the platform (beta version) allows for user engagement and full-scale interaction. In addition, the execution of the Driver Pilots (until M18) provided valuable feedback on the particularities and specific needs of each Use Case, in practice. The following sections describe the necessary steps to attract individuals, organizations and businesses to become part of the MaTHiSiS ecosystem.

2.3.1 Enable Community on the website

Up until now, the website is informative and focuses on delivering generic messages to wide audiences as far as the MaTHiSiS value proposition is concerned. In order for the website to be able to foster the thematic networks is it necessary to embed value-added services for its members. For this purpose, the following enhancements are planned for the website:

- Enrolment / Registration Process with detailed information that could allow for further classification and statistical analysis, such as:
  - Full Name, Position, Organization, Email (as username), Password, Country, State/Province, City
  - Interested in (multi select list): Mainstream education case, Autism spectrum case, Profound and Multiple Learning Disabilities case, Industrial Training Case, Career Guidance Distance Learning Case
  - Which networks would you like to join (multi select list) : Learners, Tutors / Caregivers, Developers, Market Actors, Other
  - Subscribe to MaTHiSiS emails
- Develop the private area within the website that will be available to all registered community members. A dashboard will be introducing the benefits and the capabilities of each network within the community. Therefore, shortcuts would be provided to:
  - The Online Demo suggesting learning experiences that are related to the users preferred Use Cases
  - Recent activities on the community
  - Submitted tickets to the helpdesk and the tracking status.
  - Upcoming webinars and training course schedules.
- Develop the Helpdesk / Support team and the corresponding tool that would allow for issue submission, follow up and tracking.
- Integrate the Forum and the moderation team within the members' area and register the high-level topics.

2.3.2 Enrolment Process

The enrolment process is a major step towards the participation of an individual, an organization or a business to the MaTHiSiS community. Key target groups have been identified, enabling the project to prioritize the communication activities and establish a clear view on the key messages that we want to convey. The key messages can be construed according to four discrete focus areas:

- **Solution-oriented.** The key message(s) contains information on the global breakthrough features of the platform and the functionality that it delivers per Use Case. It is essential to attract businesses and organizations using targeted and domain specific terminology. The target groups of the solution-oriented messages are primarily tutors, learners, public and private education institutions and market actors across MaTHiSiS Use Cases.

- **Technological-oriented.** The key message emphasizes on the unique functionalities and the innovations of the MaTHiSiS platform in terms of high-end technologies, algorithms used, interoperability and scalability. The target groups of the technological-oriented message are the developers, the Market Actors (MOOC platform providers, resource providers etc.) and the academic Decision Makers.

- **Commercial-oriented.** The key message showcases the high-level solutions, the product packaging advantages, the modularity and the available business models and tools. The target groups are the Market Actors (LMS Providers, Content Developers etc.) and Decision Makers including entrepreneurs, investors and other potential customers.

- **Story-oriented.** The key message focuses on delivering a comprehensive outline of the value-added learning experiences provided by the MaTHiSiS platform. The target groups are the general public, the press and generic decision makers.

The initial call for the enrolment will be addressed directly to the members identified as candidate members in section **5.1 Thematic Community Building** on the deliverable **D10.3 MaTHiSiS dissemination and communication plan activities report.** These are members of the networks of the partners within MaTHiSiS consortium, therefore we have contact information and the use case that they belong, in order to invite them using the appropriate key messages. For the invitation, an email marketing service will be used to deliver the key messages and the links to the enrolment landing webpage.

2.3.3 Broadcast Community Benefits

Apart from targeting the existing networks of the MaTHiSiS consortium members, there has to be an open call to wide audiences, taking advantage of all available channels within the dissemination and exploitation plan. The structure, the benefits and the provisioned value-added services of the MaTHiSiS networks has to be broadcasted throughout events, peer communications, press releases and various internet marketing activities such as newsletters, social network posts etc. The responsible partners conducting specific dissemination and communication activities need to be fully aware of the key messages for each focus area and target group and use them accordingly.

The grid of the appropriate key messages per channel and actor group us presented in the following table:

Channels Actors	Events	Peer Communications	Scientific Publications	Press	Internet Marketing
Learners	Solution-oriented		Technological-oriented	Solution-oriented Story-oriented	Solution-oriented Story-oriented
Tutors / Caregivers	Solution-oriented		Technological-oriented	Solution-oriented Story-oriented	Solution-oriented Story-oriented

Channels Actors	Events	Peer Communications	Scientific Publications	Press	Internet Marketing
Developers	Technological-oriented	Technological-oriented	Technological-oriented	Solution-oriented Story-oriented	Technological-oriented
Market Actors	Solution-oriented Technological-oriented Commercial-oriented	Solution-oriented Technological-oriented Commercial-oriented	Technological-oriented	Solution-oriented Story-oriented	Solution-oriented Technological-oriented Commercial-oriented
Policy Makers	Solution-oriented Commercial-oriented Story-oriented	Solution-oriented Commercial-oriented Story-oriented	Technological-oriented	Solution-oriented Story-oriented	Solution-oriented Commercial-oriented Story-oriented
Public	Story-oriented		Solution-oriented Technological-oriented Story-oriented	Solution-oriented Story-oriented	Solution-oriented Story-oriented

Table 3 – Key Messages per channel and actor group

2.3.4 Targeted Events

To effectively ensure awareness of the project and establish important liaisons, MaTHiSiS partners will keep organizing and/or attending several events, ranging from conferences, exhibitions to workshops and meetings, targeting different stakeholders and markets.

With respect to the thematic building, there are three majors events planned:

- **MaTHiSiS Event for Learners with Intellectual Disabilities**
  Estimated Date: end of 2017
  MaTHiSiS, in cooperation with its Tutors'/Caregivers' Network, will invite selected learners with intellectual disabilities to present the MaTHiSiS system/platform or aspects of it to their peers through their work carried out in previous pilots of the Autism Spectrum Case (ASC) and the Profound and Multiple Learning Disabilities Case (PMLDC). This will be a one-day event. Feedback from participants will be registered and involved systematically to the improvement of the platform.

- **First MaTHiSiS Developers Workshop/Hackathon**
  Estimated Date: first half of 2018
  One-Day Event
  MaTHiSiS will use all consortium business and market contacts along with any new contacts acquired during the course of the project and previous events, in order to organize a dedicated workshop/hackathon for computer programmers, graphic designers, interface

designers, project managers, etc. During the workshop, participants will familiarize themselves with the MaTHiSiS platform and the supporting tools including the Magellan Authoring Tool and, most importantly, the various libraries of the MaTHiSiS Open API Infrastructure. Feedback will be received in the form of brainstorming. MaTHiSiS will provide the participants with the necessary tools, resources, and environment to form development teams and try to transform aforementioned ideas creating proof-of-concept prototypes, breakthrough learning materials that can exploit MaTHiSiS technologies.

- **Second MaTHiSiS Developers Workshop/Hackathon**

  Estimated Date: second half of 2018
  One-Day Event

  The two MaTHiSiS Developers Workshop / Hackathon events for developers will be identical. Nevertheless, the objective of the second Hackathon will be to involve selected Market Actors (LMS Providers, Content Developers), if possible, and have the development community create prototype learning experiences and learning materials that suit their business needs.

2.3.5 The MAGELLAN Authoring Tool

The technological and operational achievements of a software platform are major factors for the engagement of the end users and the potential customers. In the case of MaTHiSiS, it is the learning experience provided by the platform that makes it unique and appealing. In terms of interaction, the key factor for a challenging learning experience is the learning materials and by all means the sequence of diverse learning materials served by the MaTHiSiS "brains".

For this purpose, there is a major shift of the project conducted with the integration of the MAGELAN platform in MaTHiSiS ecosystem.

2.3.5.1 MAGELLAN in a nutshell

In order to challenge the thematic networks, the **MAGELLAN** platform created by Diginext will be widely promoted and exploited. This platform is developed in the context of the EU project **MAGELLAN**: **a Multimodal Authoring and Gaming Environment for Location-based coLlaborative AdveNtures.** MAGELLAN enables the creation of next-generation user experiences. The next revolution in computer games is 'multi-participant', 'location-based' and 'mixed reality", which is radically different from traditional games or their mobile equivalent. MAGELLAN allows for blending real and virtual worlds in the form of augmented or mixed realities, involving multiple participants collaborating or competing in interactive experiences. The platform opens a new and immense playground for creative souls.

Figure 3. «The world around you is not what it seems ». INGRESS: left, Magic Leap: centre, Pokemon Go: right)

The process of creating rich experiences encounters significant technical challenges and barriers. MAGELLAN fills in this gap by making the experience design cost effective, easily adaptable without the need to master all the technologies.

Figure 4. Significant technical challenges prevent creative people from creating such experiences.

The goal of the MAGELLAN platform is to enable the intuitive creation of multi-participant location-based experiences, unleashing the creativity of people, establishing a web platform aggregating a community of authors and participants. Furthermore, MAGELLAN enables by design cost-effective authoring, publishing, executing, and experiencing location-based games. MAGELLAN is appealing for skilled professional authors, but also for authors without deep technical skills.

MAGELLAN relies on the following technical innovations:

- Scalable WEB infrastructure
- Collaborative authoring tool dedicated to non-programmers thanks to a novel visual authoring interface
- 3D GIS system to support large-scale outdoor playgrounds as well as indoor environments
- Hybrid system for the accurate indoor/outdoor localisation of participants
- Novel 3D video tracking system
- Interactive narrative structures

- Downloadable and configurable across a variety of commercial platforms including smartphones and tablets
- Multimodal natural interface
- Augmented Reality and Mobile interfaces
- A new formal model for location-based interactive stories
- A reference authoring guide for creating next-generation location-based games.

The MAGELLAN authoring tool is the first interactive storytelling tool for the intuitive creation of multi-participant mixed reality location-based experiences. The authoring tool allows for the creation of mixed reality experiences, thanks to an asset library, an interactive 3D map and a novel scenario editor.
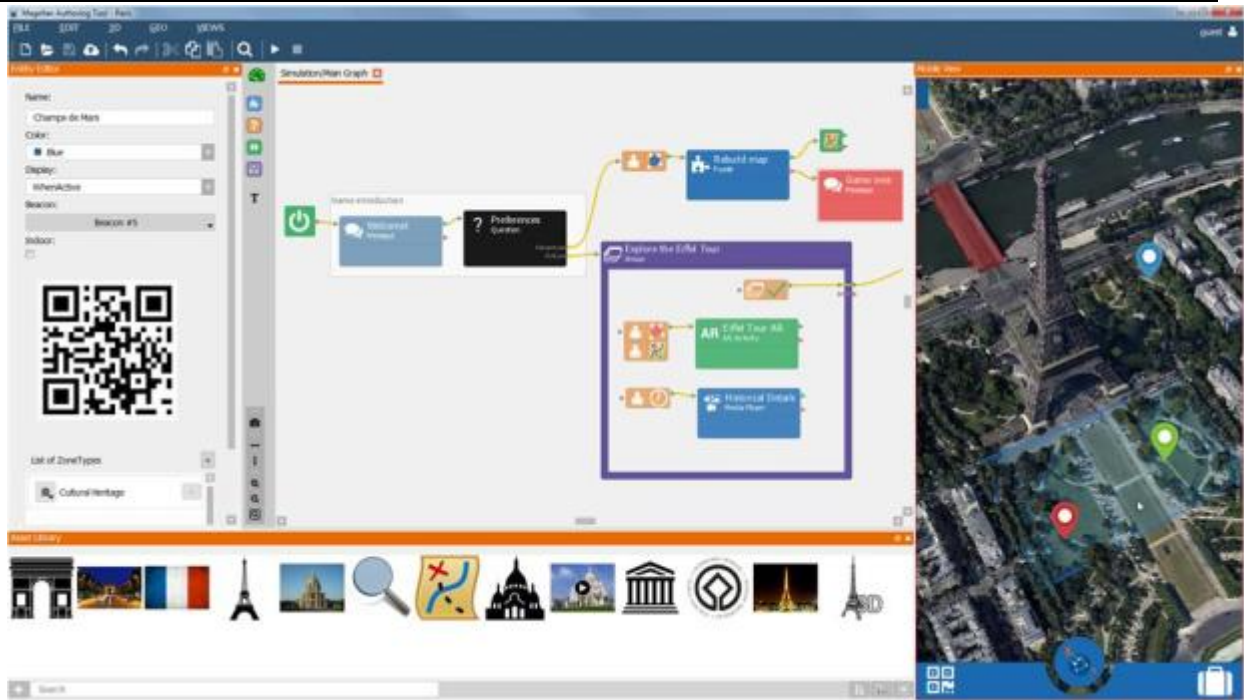
Figure 5. The MAGELLAN authoring tool: the first interactive storytelling tool for the intuitive creation of multi-participant mixed reality location-based experiences.

The authoring tool supports the publication of the created experiences on mobile devices such as smartphones. The MAGELLAN mobile system embeds innovative Augmented Reality algorithms and an indoor localization technology.

Figure 6. The MAGELLAN Experiencing System: a mobile system embedding innovative Augmented Reality algorithms and a new indoor localization technology.

Flagship experiences have been created with the MAGELLAN platform. These amazing experiences are listed in the table below:

2.3.5.2 MAGELLAN Opportunities

The MAGELLAN authoring platform brings a completely new perspective to the MaTHiSiS ecosystem by providing the community with new ways to enhance the learning experiences.

With respect to the **Tutor/Caregiver network**, the MAGELLAN provides a high-level authoring tool to create scenario-based games that can definitely challenge their learners. Given that the MaTHiSiS adaptation layer uses the Theory of Flow to advance the game play and personalize the learning experience, the platform has to make sure that is capable of challenging the users.

Furthermore, the MAGELLAN platform ships with a detailed Application Interface (API), challenging the **developer community** to incorporate programmable knowledge in the games and, as a result, to the overall learning experience. There are two Hackathons scheduled in 2017 called the "MAGELLAN Final Game Event 2017", through which MaTHiSiS project will retrieve valuable input regarding the acceptance from the developers and other stakeholders.

Finally, the MAGELLAN platform acting as a supporting and complementary tool for the delivery of state-of-the-art learning experiences brings goodwill to the MaTHiSiS project that could be much appreciated by the **Market Actor** and the **Decision Maker networks**.

3. Community Building Results

The main objective of the dissemination and communication strategy is to increase the corresponding activities as the project results appear, shifting from awareness creation to exploitation preparation. In that sense, every single dissemination and communication activity supports indirectly the community building. Nevertheless, the level of commitment, interaction and engagement of the stakeholders with the final product, determines the success of the community building.

3.1 Networking Activities

The networking activities conducted so far regarding the engagement of different stakeholders with the MaTHiSiS platform are related to:

- The pre-pilot phase that took place between February and April 2017. The objective of this phase was the collection of interaction/algorithm training data using a Data Acquisition Tool (DAT) that emulated the MaTHiSiS platform. During this phase, learners and tutors had the opportunity to interact with learning materials and contribute data to the affective state logging system. In addition, this phase acted as a rehearsal of the actual pilots.
- The driver pilot phase that took place between April to June 2017 covering all 5 use cases of the project. During this phase, the platform operated in full scale and the learners and tutors involved had the opportunity to be part of thorough learning experiences using all types of supported agents (pc/laptop, mobile, IWB, NAO robot).

The following table provides a detailed log of the interactions performed during the DAT and the Driver-Pilot phases.

Partner	Type	Organization/School	City/Country	Use Case	# of Learners	# of Tutors	# of Sessions
UoN	DAT	Oak Field School and Sports College	Nottingham, UK	ASC	6	1	6
JCYL	DAT	Equipo Atención a Alumnado con Trastornos de Conducta	Valladolid, Spain	ASC	5	2	1
EOPPEP	DAT	EOPPEP	Athens, Greece	CGDLC		10	2
AV	DAT	AV	Bordeaux France	ITC	5	0	1
PE	DAT	I.C. Leonardo da Vinci	Bussolengo, Italy	MEC	8	1	1
JCYL	DAT	CEIP "Miguel de Cervantes"	Valladolid, Spain	MEC	6	2	1
PE	DAT	I.C. Leonardo da Vinci	Bussolengo, Italy	PMLDC	1	1	1
UoN	DAT	Oak Field School and Sports College	Nottingham, UK	PMLDC	6	1	6
RIX	Driver Pilot	Charlton Park Academy	London, UK	ASC	3	2	3
PE	Driver	I.C. Leonardo da	Bussolengo, Italy	ASC	1	1	1

Partner	Type	Organization/School	City/Country	Use Case	# of Learners	# of Tutors	# of Sessions
	Pilot	Vinci					
PE	Driver Pilot	School G. Sichirollo	Rovigo, Italy	ASC	2	3	1
PE	Driver Pilot	Social Cooperative Il Mosaico	Potenza Picena, Italy	ASC	1	1	1
UoN	Driver Pilot	Oak Field School and Sports College	Nottingham, UK	ASC	4	2	6
FMD	Driver Pilot	I.C. Rita Levi Montalcini	Rome, Itay	ASC	2	6	4
JCYL	Driver Pilot	CEIP "Gonzalo de Berceo"	Valladolid, Spain	ASC	1	3	1
JCYL	Driver Pilot	Equipo Atención a Alumnado con Trastornos de Conducta	Valladolid, Spain	ASC	3	3	3
LCS	Driver Pilot	I Circolo didattico Cava de Tirreni	Cava de Tirreni (SA), Italy	ASC	4	3	8
EOPPEP	Driver Pilot	Techniki Ekpaideftiki KDVM (Lifelong Learning Center)	Athens, Greece	CGDLC	4	3	1
EOPPEP	Driver Pilot	Career Office of the Hellenic American College at EOPPEP building	Athens, Greece	CGDLC	3	1	2
AV	Driver Pilot	IDGEO	Toulouse/France	ITC	9	1	3
NTU	Driver Pilot	Bluecoat	Nottingham, UK	MEC		2	
PE	Driver Pilot	I.C. Leonardo da Vinci	Bussolengo, Italy	MEC	12	2	1
PE	Driver Pilot	I.C. Don Milani	Sommacampagna, Italy	MEC	2	3	1
JCYL	Driver Pilot	CEIP "Miguel de Cervantes"	Valladolid, Spain	MEC	7	3	7
LCS	Driver Pilot	I Circolo didattico Cava de Tirreni	Cava de Tirreni (SA), Italy	MEC	7	3	14
RIX	Driver Pilot	Charlton Park Academy	London, UK	PMLDC	8	2	8
PE	Driver Pilot	I.C. Leonardo da Vinci	Bussolengo, Italy	PMLDC	2	2	1
PE	Driver Pilot	Social Cooperative Il Mosaico	Potenza Picena, Italy	PMLDC	2	1	1
UoN	Driver Pilot	Oak Field School and Sports	Nottingham, UK	PMLDC	4	2	6

Partner	Type	Organization/School	City/Country	Use Case	# of Learners	# of Tutors	# of Sessions
		College					
JCYL	Driver Pilot	CEIP "Gonzalo de Berceo"	Valladolid, Spain	PMLDC	1	3	1
JCYL	Driver Pilot	CEE "Nº 1"	Valladolid, Spain	PMLDC	8	3	8
LCS	Driver Pilot	I Circolo didattico Cava de Tirreni	Cava de Tirreni (SA), Italy	PMLDC	8	3	16
FMD	Driver Pilots	I.C. Rita Levi Montalcini	Rome, Itay	ASC	6	7	12
FMD	Driver Pilots	I.C. Rita Levi Montalcini	Rome, Itay	MEC	16	7	32

Table 4 – Log of DAT and Driver Pilot activities

3.2 Thematic Network KPIs

The candidate members of the original thematic networks are identical with those reported in **D10.3 MaTHiSiS dissemination and communication plan activities report.** The progress for the reporting period (M13-M18), focuses on the fact that through the Data Acquisition and the Driver Pilot phases, there are community members (Tutors and Learners) actually interacting with the MaTHiSiS platform.

3.2.1 Learners' Network (LN)

During the reporting period, the Learners' Network contains 1313 candidates with the following distribution on Use Cases:

	PMLDC / ASC	MEC	ITC	CGDLC	Total	Target (M1-M18)
Candidate Members	1167	60	75	11	1313	150
Active Members	78	58	9	17	162	

Table 5 - Learners' Network Members

3.2.2 Tutors'/Caregivers' Network (TCN)

During this period the Tutors'/Caregivers' Network contains 1339 candidate members with the following distribution on Use Cases:

	PMLDC / ASC	MEC	ITC	CGDLC	Total	Target (M1-M18)
Candidate Members	1193	60	75	11	1339	30
Active Members	52	23	1	8	84	

Table 6 - Tutors'/Caregivers' Network Members

4. Conclusion

During the first 18 months of the project, the primary effort of the consortium has been concentrated on the development of the prototype, the demonstration of results and the technical proficiency of the MaTHiSiS platform. Several wide and targeted dissemination and communication activities have supported the initialization and the expansion of the community building. Nevertheless, the actual platform and its corresponding functionality and robustness drive the transformation of various stakeholders to active community members.

Given that the MaTHiSiS platform is currently on beta version and has been already tested and validated during the driver pilots, there is solid ground for community engagement and extensive communications throughout all available channels.

For the following reporting period, the next steps are:

1. Prepare the website to foster the community online tools.
2. Invite existing partner network members to enrol to the MaTHiSiS community and take advantage of the benefits and tools.
3. Bring into force the community engagement plan.
4. Intensify dissemination and communication activities, focusing on preserving and expanding the thematic networks.
5. Drive exploitation preparation.