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D5.1 User Validation Plan

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Glossary

Acronym	Meaning
QoE	Quality of Experience
QoS	Quality of Service
KPIs	Key Performance Indicators
ESM	Experience Sampling Method
ROI	Return On Investment
KTM	Knowledge Transfer Metrics

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1.   Introduction

1.1.   Objective of the Task

The ANIMATE platform offers a service that gives the opportunity for an intergenerational transfer of knowledge to the community members. Organisations, retirees, older workers, young workers and unemployed can interact and exchange their skills, experience, knowledge and expertise from different domains.

The services have been tested and evaluated by the final users to ensure the usability of the platform. As the community members contain individual users/organisations with different profiles (e.g., levels of skills, ages, social levels, and economic area), ANIMATE must be able to meet their needs. To this end, both individual users and organizations have been involved in the different phases of design and development of the project, as presented in (7) and described in D2.1 and D2.3. The evaluation process has consisted of collecting and analysing data through the end-users feedbacks and informing designers and developers about their expectations.

The D5.1 – User validation plan deliverable describes the technical validation of ANIMATE services including the design, planning, and execution of tests. This deliverable identifies the set of prioritised requirements and identifies Key Performance Indicators (KPI), Quality of Experience (QoE) and Effects/Side-Effects. Furthermore, the evaluation procedure for the detailed protocols has been established as well as the evaluation feedback gathered through interviews and questionnaires.

The evaluation has been focused on the core modules functionalities as well as on the final services functionalities validation (Web application). The objective has therefore been the testing of the service to verify whether the technical specifications have been achieved and justify possible discrepancies or design changes with respect to the defined service specifications in ANIMATE D2.4 Functionalities and the results of analysis based on the end-users feedbacks.

1.2.   Testing and Validation Methodology

The methodology used to conduct the testing and validation on ANIMATE platform has been based on an incremental approach. First, the core modules have been tested independently to ensure that the expected functionalities are working correctly, i.e., from an accuracy and reliability perspective. Once validated, these entities have been integrated to test the intercommunication between the different modules. After the validation of the ability of modules to communicate accurately and reliably, evaluation has been conducted to test the services together as defined in the technical specifications of D3.1. These services have been derived from the end-users requirements, and therefore, they are expected to provide the most relevant ANIMATE functionalities to the end-users.

The testing and validation have been performed according to the effective plan described throughout the entire project (D2.1). The collected data of end-users has been evaluated, and the outcome of each test analysed to derive from it the possible errors or suggestions for improvements.

2.   Quality of Experience (QoE) Measurements

The notion of QoE is used to measure the user's experiences with an (online) service. It allows describing the quality of the service (QoS, like speed accuracy and dependability) as perceived by the user by quantifying the subjective experience gained by using the service. Many

approaches have been proposed in the literature to measure, evaluate, and improve QoE. According to the ANIMATE service, we have followed these three approaches:

- **Usability Metric**: QoE is how the user perceives the usability of a service when in use, i.e., how he/she is satisfied with an ANIMATE service in terms of usability, accessibility, retainability and integrity.
- **Hedonistic Concept**: QoE describes the degree of the delight of the user for an ANIMATE service, which can be influenced by different factors such as content, network, application, user expectations and goals, and context of use, including user's mood.
- **Buzzword Extension**: QoE has been defined as an extension of traditional KPIs used in the QoS concepts in the sense that QoE provides information regarding the delivered services from the point of view of an end-user.

The QoE has been evaluated with the ANIMATE end-users via questionnaires and face-to-face interviews after the service use. This qualitative research methodology, gathered in D5.3 Analysis of Pilot Trials, has let us know the level of participant's knowledge at any time while we show them the web platform.

3. Key Performance Indicators (KPIs) Measurement

Different organizations use the Key Performance Indicators (KPIs) as a measure of performance management to evaluate (success/failure) of their activities, services or products. The list of KPIs is large, and the choice depends more on the activity and the goals that one is aiming to achieve.

In order to get the most valuable feedback from the evaluation of ANIMATE services, we have reached end-users and communicated with them to learn more about their preferences for the proposed services.

To evaluate the success of the services, a list of specific KPIs that meet the ANIMATE expectations have been identified and formulated. These KPIs have been communicated in diverse experimentation environments, harmonising the means of evaluation as well as comparing the outcomes between the different evaluation sites, providing thus a holistic performance indication for the ANIMATE project, via the harmonized outcomes.

As ANIMATE is a combination of "knowledge sharing platform and social network", most common KPIs have been adapted for its evaluation:

- Encourage end-users (individual users/organisations) to share learning content;
- Willingness to contribute and sharing knowledge;
- Stimulate participation to learn, share knowledge, and support each other;
- Create a relationship between end-users to facilitate the knowledge exchange
- Collaboration and interaction among community members (e.g. direct and face-to-face interaction);
- Disseminating information (new contents, groups, conferences, etc.);
- Refining services to match the end-users' needs;
- Fostering engagement with end-users at a personal level;
- Expanding reach to more diverse audiences and more end-users;
- Increasing the traffic to the website;

In (8) authors associated most of these KPIs were with one or more of the following KPIs: insights, exposure, reach, and engagement. Regarding ANIMATE services, we derived these KPIs and employed the following grouping:

- **Insights and Satisfaction** are related to the end-user feedbacks about the services proposed by ANIMATE. These feedbacks have been collected through questionnaires and face-to-face interviews (qualitative analysis) and with the data collected by the use of the deployed solutions (quantitative analysis). Useful information can be extracted from these data to understand the end-user's altitudes, and reason upon their expectations and perspectives on a particular topic. The data analysis reflect the end-user's satisfaction, enabling to verify the usefulness of the proposed services and to identify potential adjustments.

- **Brand Awareness and Exposure.** One of the goals of the ANIMATE strategy was to create and maintain a positive image among end-users and to assess their impressions about the proposed services. The duration of activity or time spent by the end-user on ANIMATE as well as the degree of the involvement with them are accurate KPIs to measure brand awareness and the impressions of users. These metrics can be measured quantitatively by the platform itself.

- **Reach and Interaction with end-users.** It is important to communicate with end-user s to understand their preferences and the improvements or changes they would like to suggest for the ANIMATE services. This interaction has been helpful to design better and customize ANIMATE services to meet the end-user's expectations. These metrics have been used to support the operationalization of this KPI.

- **Web traffic analytics and Engagement**. Web traffic analytics give us the possibility to assess the number of visitors to ANIMATE site and the actions they perform during their visit. They allow making changes and improvements on the site to guarantee its success. Moreover, the traffic is linked to other KPIs such as the end-user involvement and engagement, which can be reflected from the actions performed by the end-user on ANIMATE platform. It can range from low to medium to high:

  - Low engagement: end-users are acknowledging an agreement or preference for content.

  - Medium engagement: end-users are involved in creating and sharing content with the capacity to influence other end-users.

  - High engagement: end-users are participating in offline interventions as volunteer or program partner.

- **Platform Reliability and Profitability.** The assessment of the platform reliability is useful to improve the maintenance, effectiveness, and efficiency. The identification of the issues causing maintenance effects has helped to select the right strategy to reduce risk and improve operational performance due to technological solutions with the least resources and time. This improves profitability and support the business aims which can be assessed through several KPIs such as the return on investment (ROI).

Regarding the proposed key performance indicators, specific evaluation metrics need to be defined for each KPIs, as follows.

4. Key Performance Indicators (KPIs) Metrics

Many measurements could have been performed and analysed for ANIMATE as a social network service. However, they are not all necessary, and they depend on the provided services. KPIs are often expressed as specific measurements such as ratios or averages (e.g., the average number of comments to a post), while they can also represent broader or more

general constructs (e.g., influence or engagement). For ANIMATE, we have gathered the following metrics (See Table 1) which are associated with the KPIs to ensure that we can reach the right audience.

Key Performance Indicator	Metric
Insights and Satisfaction	• Number/percentage of individual users/organisations satisfied with ANIMATE services.
Brand Awareness and Exposure	• Number of registered individual users/organisations on the platform • Registration evolution: Number of new registered individual users/organisations on the platform • Average Duration/Time spent by users/organisations on the site • Average number of endorsements by individual users/organisations • Average number of credits by individual users/organisations • Degree of involvement (task completed on the platform) • Average number of content ratings (e.g., favourite, like, unlike) and comments per user • Preferred language in the platform • Most common skill for individual users • Most common need for individual users • Most common economic area for organizations
Reach and interaction with end-users	• Number of videos uploaded • Number of PDFs • Number of images • Number of groups • Number of challenges • Total number of conferences • Average number of skills for individual users and organizations • Average number of needs for individual users and organizations • Average number of content for individual users and organizations • Average number of challenges per organization • Average number of staff members per organization • Average number of followers per organization • Average number of people in groups • Average number of connections

Web traffic analytics and Engagement	• **Engagement**
	  - Registered individual users/organisations
	  - Number of the active/inactive individual users/organizations
	  - The most common type of user
	  - The most common location
	  - The time spent by individual users/organizations on the site
	• **Engagement (low)**
	  - Ratings/Endorsement
	• **Engagement (medium)**
	  - Amount of uploaded content
	  - Number of threads on discussion/pools topics/groups
	• **Engagement (high)**
	  - Number of individual users/organisations who engage (register, attend, participate) in offline advocacy events
	  - Internal measure for an engagement of an ANIMATE team: The raw output of ANIMATE social media team is important to measure if increases/improvement in the input produces similar or better increase in the other KPIs.

Platform reliability and Profitability	• Number of Endorse Us • Number of contact Us

Table 1 Key Performance Indicators (KPIs) and related metrics.

4.1. Knowledge Transfer Metrics (KTM)

Knowledge transfer between the community members is an important objective of the ANIMATE platform. The services allow end-users to interact and exchange knowledge and expertise from different domains, which will have large economic and societal impacts. To achieve this goal, the objectives and mechanisms of the knowledge transfer process have been defined and the level of end-users' engagement, success and impact of these knowledge transfer activities adequately measured.

Consequently, a set of robust and specific metrics that would cover the majority of needs for measuring knowledge transfer were developed. These metrics have been used for the evaluation of knowledge transfer activities at ANIMATE in terms of quantity and quality.

In ANIMATE, the major stakeholders (individual users or organisations) involved in the knowledge transfer are organised into two categories:

- Creators of the knowledge to be transferred: individual users such as retirees, older/experienced workers, and organisations
- Recipients of the knowledge: individual users such as young workers, unemployed and organisations

According to the expected objectives of the ANIMATE platform, the stakeholders can contribute to the impact and the success of knowledge transfer. The positive effects (internal and external) on the individual users/organisations of ANIMATE will reflect this success.

External effects will show the influence of the contributions of an individual user/organisation as creator or receiver to the dissemination of knowledge to other end-users. This influence and the status of the individual users/organisations can be measured by different metrics as described above (see Table 1). The level of the individual user/organisation engagement, the number of interaction and the volume of data exchanged with other end-users, as well as the quantity/quality and the area of knowledge transfer, the number of followers, friends, ratings/endorsement, etc. Moreover, the success of knowledge transfer and the evolution of the individual user/organisation can be illustrated by the change or the switch of his status from receiver to the creator of knowledge. This will demonstrate that the received knowledge by persons or organisations, have contributed to improving their expertise in order to become influential actors as the creator of the knowledge transfer.

On the internal side, different metrics can be used to show how knowledge transfer contributed to the professional and socio-economic evolution of the individual user/organisation of ANIMATE.

Table 2 presents, the used metrics to assess both the quantity and the quality of the different facets of knowledge transfer in terms of internal effects for individual users and organisations.

Mechanism of Knowledge Transfer	Metrics
Individual User	
Networks	• Number of connected individual users/organisations according to the user skill or interest • Number of organisations as followers
Continuing Professional Development (CPD)	• Number of participation in challenges • Number of groups as member • Number of participation in challenges
Professional status changes	• Unemployed to employed • Number of organisations as staff • Number of conferences created
Organisations	
Networks	• Number of connected individual users/organisations according to the organisation skill or economic area • Number of followers of the organisation

Consultancy	• Number of created conference • Number of groups of the conference
Collaboration	• Number of created challenges • Number of local, regional and international connections
Organisations Evolution	• Number of employees
Social Impact	• Number of new jobs created • Number of staff of the organisation
Competences development	• Number of participants in challenges of the organisation • Number of participants in conferences of the organisation

Table 2 Mechanism of knowledge transfer metrics.

4.2.   Statistical results

Given the ANIMATE functionalities, the most common KPIs described below are satisfied as presented in the following table.

KPIs	ANIMATE Functionalities
• Encourage users to share learning content • Willingness to contribute and sharing knowledge • Stimulate participation to learn, share knowledge, and support each other	*Create, rating, and award for content*
• Create a relationship between users to facilitate the knowledge exchange • Collaboration and interaction among community members (e.g. direct and face-to-face interaction) • Fostering engagement with users at a personal level • Expanding reach to more diverse audiences and more users	Connections, Groups, Chat, Messages, Conferences, Notifications
• Disseminating information (new contents, groups, forums, etc.) • Increasing the traffic to the website	Notifications, Search

• Refining services to match the users' needs	Search, Profile (Category, Skill, and Interest), Tags (content, Group Conference)

Table 3 KPIs satisfied by ANIMATE functionalities.

In order to determine the degree of success in the achievement of the KPI and KTM (Table 1 and 2), different scripts have been executed against the ANIMATE DB to get valuable data about the reached audience and the capacity for knowledge transfer in ANIMATE.

After the delivery of the final prototype of ANIMATE, at the beginning of March, all data in the ANIMATE DB was removed. The idea was populating the platform with real content and profiles belonging to ANIMATE partners and those stakeholders that have been shown their interest along the different phases of the ANIMATE project. Thus, at the end of March, scripts were executed against the DB with the aim of evaluating the activity in the platform along the whole month. These results that were defined according to the KPIs specified in Table 1, are gathered below:

KPI	Metric	Results	Observation
Insights and Satisfaction	Using a **Likert scale**, the average of the result (**individual users**) on the platform is 8-9 / 10 end-users. Only one user rated 2/10 Using a **Likert scale**, the average of the result (**organizations**) on the platform is 8-9 / 10 end-users. No company rated below 8	Individual Users 97% Organisations 100%	Individual users are happier than companies
Brand Awareness and Exposure	Number of registered individual users/organisations on the platform	Individual users: 46 Organizations: 14	Individual users are 77% of the users in ANIMATE.
	Registration evolution: Number of new registered individual users/organisations on the platform (from February till March 2017)	Individual Users: 19 Organizations: 8	An increase of 41.3% for individual users and 57% for organizations.

	Average Duration/Time spent by users/organisations on the site	17 min	This value represents that users do not spend too much time in ANIMATE. This is because users have been testing the final prototype for only one month, so their main activities have been based on: create profiles, describe skills and interests, upload of content, searches, etc. Thus, activities that require more time like video-conference have been barely performed.
	Average number of endorsements by individual users/organisations	Individual Users: 3 Organizations: 2	Users need to be encouraged to endorse the skills of other users.
	Average number of credits by individual users/organisations	Individual Users: 80 Organizations: 50	These credits are derived from the performance of basic functionalities in the platform (basic profile, upload of content, connections with other users, etc.)
	Degree of involvement (tasks completed on the platform)	The most common tasks achieved by users are: • Profile Basic Information (10 credits) • Profile Skills(10 credits) • Profile Experience (10 credits) • Discover (10 credits) • Socialise(20 credits) • Connected (20 credits) • Contributor (30 credits)	Currently, users only perform basic functionalities with the platform because of the initial stage of ANIMATE.

	Number/average of content ratings (e.g., favourite, like, unlike) and comments per user	Average number of content ratings per user: 2 Average number of comments per user: 1	Users will be more motivated to rate content when the number of users in ANIMATE is broadened.
	Preferred language in the platform	English	Basic language
	Most Common Skill for Individual Users	Nursery	Most of the recruited users belong to Healthcare sector
	Most Common Need for Individual Users	Sport	Most of the users are interested in being healthier.
	Most common economic area for organizations	Software and the Internet	
Reach and interaction with end-users	Number of videos uploaded	80	
	Number of PDFs	15	
	Number of images	9	
	Number of groups	28	
	Number of challenges	3	
	Total number of conferences	15	
	Average number of skills for individual users and organizations	2	Users will include more skills as the platform increases its community and the offer of resources is broadened
	Average number of needs for individual users and organizations	2	Users will include more needs as the platform increases its community and the offer of resources is broadened.

	Average number of content for individual users and organizations	3	
	Average number of challenges per organization	1	Organization will post more challenges as new organizations they are interested in arrive in ANIMATE.
	Average number of staff members per organization	1	This will increase as higher organizations are involved in ANIMATE.
	Average number of followers per organization	1	This will increase as more organizations are involved in ANIMATE.
	Average number of people in groups	2	This will increase as companies gain reliability and popularity in ANIMATE.
	Average number of connections	Individual user: 2 Organizations: 1	Higher when the number of users in ANIMATE increases.
Web traffic analytics and Engagement	**Engagement:** Registered individual users/organisations	60	
	Engagement: Number of the active/inactive individual users/organisations	Inactive users: 10 Active users: 50	Due to the short testing period (one month), 17% of users only performed tasks related to creating an account in ANIMATE and then stopped their activity.
	Engagement: The most common type of user	Individual User	
	Engagement: The most common location	Spain[1]	
	Engagement: The time spent by individual users/organisations on the site	17 min	

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[1] Most of users do not specify their location

	Engagement (low): Ratings/Endorsement	132 ratings 114 endorsements	
	Engagement (medium): Amount of uploaded content	104 resources	
	Engagement (medium): Number of threads on discussion/pools topics/groups	1 thread	Groups are not too active in ANIMATE yet.
	Engagement (high): Number of individual users/organisations who engage (register, attend, participate) in offline advocacy events	---	This data should be measured in the long term – in 10-12 months after project end
	Engagement (high): Internal measure for an engagement of an ANIMATE team: The raw output of ANIMATE social media team is important to measure if increases/improvement in the input produce similar or better increase in the other KPIs.	---	
Platform Reliability and Profitability	**Number of Endorse Us**	2	
	Number of Contact Us	3	This value will increase in coming months when activity increases and problems arise (bugs, improvements, etc.)

Table 4 Results from KPIs

Regarding KTMs, because of the initial phase where ANIMATE is and the lack of a fair amount users who attract other users and give dynamism to the platform ensuring the knowledge exchange purpose, measurements of Table 2 cannot been evaluated yet. However, and in order to ensure the capacity for knowledge exchange of ANIMATE, a case of exchange between an expert nurse and a novel nurse has been collected.

This exchange is based on the expert nurse watching a video uploaded to the platform on the procedure of administering an enema (nursing procedure). After performing the technique, the novice nurse has some doubts, and through the message system of the ANIMATE platform, she makes a query to an expert who is registered as a GRECS user.

https://www.youtube.com/watch?v=juAMzlwHsu4&feature=youtu.be

Thus, as main conclusion of the analysis of table 2 and table 3 it can be determined that, although there is currently some activity of users in the platform, a great effort has still to be made in the months after project end to attract new users who favour dynamism and activity in the platform.

5.   Effects and Side-Effects

The ANIMATE platform allows individual users/organisations to find and connect with the community members. End-users can interact through the ANIMATE services to exchange knowledge, skills, and experience in different domains. In addition, others benefits may result, such as:

- **Positive change in society** by uniting people on a common platform for the achievement of some specific objective (helping by exchanging knowledge).

- Large **social, intergenerational and geographical diffusion** through exchanges between individual users/organisations from different social levels, ages or locations (e.g., countries), and economic area

- **Develop/Expand the network of 'friends/acquaintances'**, which will allow an unemployed individual user to find a job or a new opportunity.

- **Support between organisations** through the training of employees and the transfer of knowledge and new technologies

- Social impact by **connecting older/intergenerational individual users** through communication tools (message, chat, video conference) (6) or creating groups for discussion/exchanging expertise for specific topic (e.g., take care of the elderly)

- Social networks have removed all the communication and interaction barriers, and individual users/organisations can communicate their perception and thoughts over a **variety of topics**.

Consequently, the individual user/organisation can feel connected to a large community by browsing the ANIMATE platform, but such easy, casual connection in an electronic environment can also have its downside. The ANIMATE platform offers services to interact and exchange knowledge, therefore can also have a negative effect on society and individuals:

- **Inappropriate content:** unfortunately, inappropriate content such as photos or videos that contain violence and sex can be sometimes shared on the platform or inappropriate messaging on chat. Such content can have a negative impact on overall society by involving end-users themselves in crime related activities. Moreover, young individual users can be greatly affected by such content which damages their behaviour. For ANIMATE, we planned different filters (text, image, and video) to block such content, as explained in D3.1 (4) and D3.5 (5).

- **Content quality:** individual users/organisations can access to contents for a specific topic that may include false information's or errors. To evaluate the content uploaded by end-users, we defined in ANIMATE different rating tools (e.g., rating, endorsements, comments, etc.) which allow having the feedbacks of end-users as described in D3.1 (4) and D3.5 (5).

- **Privacy:** often, end-users pay less attention to privacy on the web by sharing or posting personal or intimate information about their lives (e.g. videos or photos) which may pose threats to them. Even with the strong security settings, the published things will remain available indefinitely and may leak on the websites (e.g., downloading private pictures and copying the end-user status) and used by predators for unintended and uncontrolled purposes.

- **Wrong end-users**: ANIMATE is an open platform and offers the possibility to connect with all end-users. Unfortunately, individual user/organisation with bad intention can have access to ANIMATE and interact with other end-users. To avoid this type of end-

users, the community members can tag or send an email to the ANIMATE administrator to report such persons as explained in D3.6 (6).

6. Conclusion

This deliverable describes the user validation plan – and specifically the technical validation of ANIMATE services including the design, planning, and execution of tests. This deliverable identifies the set of prioritised requirements and identifies Key Performance Indicators (KPI), Quality of Experience (QoE) and Effects/Side-Effects. ANIMATE functionalities ensure most KPIs measurements. Insight and satisfaction KPI are assessed through the pilot trials with end-users (D5.2 and D5.3) while other KPIS are measured by using the data stored in the database and web traffic assessment tools. The described metrics and measures are operationalized and reported in the deliverables *D5.2 and D5.3*.