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**Author:** *Susen Döbelt (Center for Usability Research & Engineering)*  
*Bernd Ueberschär (IFM GEOMAR, Leibniz Institute of Marine Sciences)*  
*Elsa Pietro (Atos Origin)*  
*Markus Tschersich (Goethe University Frankfurt)*  
*Stephan Heim (Goethe University Frankfurt)*

**Editor:** *Susen Döbelt (Center for Usability Research & Engineering)*

**Reviewers:** *Stefan Eicker (IT-Objects GmbH)*  
*José Luis Vivas (Universidad de Málaga)*

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## Summary

*In this deliverable we describe a comprehensive trial and assessment plan for the second community prototype. The plan includes information regarding testing scenarios, methods, metrics, selection of users, and timing. This deliverable includes a summary of the set up of the PICOS Gaming Community Prototype lab test and field trials. It takes the findings and shortcomings of the first community prototype trials into account and describes the changes which are made.*



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**Members of the PICOS consortium:**

Johann Wolfgang Goethe-Universität (Coordinator)	Germany
Hewlett-Packard Laboratories Bristol	United Kingdom
Hewlett-Packard Centre de Competence France	France
Universidad de Málaga	Spain
Center for Usability Research & Engineering	Austria
Katholieke Universiteit Leuven	Belgium
IT-Objects GmbH.	Germany
Atos Origin	Spain
T-Mobile International AG	Germany
Leibniz Institute of Marine Sciences	Germany
Masaryk University	Czech Republic



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## The PICOS Deliverable Series

D2.1 Taxonomy	July 2008
D2.2 Categorisation of Communities	July 2008
D2.3 Contextual Framework	November 2008
D2.4 Requirements	November 2008
D4.1 Platform Architecture and Design v1	March 2009
D5.1 Platform description document v1	October 2009
D 5.2a Platform prototype 2a	May 2010
D6.1 Community Application Prototype 1	December 2009
D6.2a Community application prototype 2	April 2010
D7.1 a Trial Design Document	December 2009
D7.2a First Community Prototype: Lab and Field Test Report	February 2010
D7.2b First Community Prototype: Field Trial Report	August 2010
D8.1 Legal, economic and technical evaluation of the first platform and community prototype	April 2010
D9.1 Web Presence	February 2008
D9.2.1 Exploitation Planning	April 2009
D9.2.2 Exploitation Plan 2	March 2010
D9.3.1 Dissemination Planning	April 2009
D9.3.2 Dissemination Report V2	March 2010

These documents are all available on the project website located at <http://PICOS-project.eu>.



## The PICOS Deliverable Series

### Vision and Objectives of PICOS

With the emergence of services for professional and private online collaboration via the Internet, many European citizens spend work and leisure time on online communities. Users consciously leave private information; they may also leave personalized traces they are unaware of. The objective of the project is to advance the state of the art in technologies that provide privacy-enhanced identity and trust management features within complex community-supporting services that are built on Next Generation Networks and delivered by multiple communication service providers. The approach taken by the project is to research, develop, build trial and evaluate an open, privacy-respecting, trust-enabling platform that supports the provision of community services by mobile communication service providers. The following PICOS materials are available from the project website <http://www.picos-project.eu>.

### Planned PICOS documentation

- Slide presentations, press releases, and further public documents that outline the project objectives, approach, and expected results;
- PICOS global work plan provide an excerpt of the contract with the European Commission.

### PICOS results

- *PICOS Foundation* for the technical work in PICOS is built by the categorization of communities, a common taxonomy, requirements, and a contextual framework for the PICOS platform research and development;
- *PICOS Platform Architecture and Design* provides the basis of the PICOS identity management platform;
- *PICOS Platform Prototype* demonstrates the provision of state-of-the-art privacy and trust technology to leisure and business communities;
- *Community Application Prototype* is built and used to validate the concepts of the platform architecture and design and their acceptability by covering scenarios of private and professional communities;
- *PICOS Trials* validate the acceptability of the PICOS concepts and approach chosen from the end-user point of view;
- *PICOS Evaluations* assess the prototypes from a technical, legal and social-economic perspective and result in conclusions and policy recommendations;
- *PICOS-related scientific publications* produced within the scope of the project.



## Table of Contents

### List of acronyms 7

<b>1</b>	<b>User Evaluation Plan .....</b>	<b>8</b>
1.1	<i>Experience from the first community trials .....</i>	<i>8</i>
1.2	<i>Implications for the second community trials .....</i>	<i>10</i>
1.3	<i>Upgrade second community prototype .....</i>	<i>13</i>
1.4	<i>Overview of evaluation activities .....</i>	<i>15</i>
1.5	<i>Trial participants .....</i>	<i>16</i>
1.6	<i>Introduction and briefing to evaluation activities .....</i>	<i>18</i>
1.7	<b>Lab tests .....</b>	<b>19</b>
1.7.1	Introduction of PICOS project context and concepts.....	19
1.7.2	Evaluation of PICOS PET concepts .....	20
1.7.3	Free exploration of the application.....	20
1.7.4	Qualitative Interview after free exploration .....	20
1.7.5	Tasks Lab Tests .....	21
1.7.6	Qualitative Interview after Lab Tasks.....	22
1.8	<b>Field Trials .....</b>	<b>22</b>
1.8.1	Briefing in Group Setting.....	22
1.8.2	Field Trial Tasks .....	24
1.8.3	Competition .....	26
1.8.4	Further activities to enhance usage of PICOS system .....	27
1.8.5	Debriefing and focus group .....	27
1.9	<b>Resources .....</b>	<b>28</b>
1.10	<b>Timing .....</b>	<b>29</b>
	<b>Bibliography &amp; References.....</b>	<b>30</b>



## List of acronyms

PET	Privacy Enhanced Technology
ICT	Information and Communication Technology
POI	Point of Interest
cPOI	commercial Point of Interest
Wi-Fi	Wireless Fidelity



## 1 User Evaluation Plan

This document describes the current state of planning for the PICOS field trials for the second community prototype. It is based on the field trials outline plan (D2.5), the current version of the functional specification provided by WP5 and WP6, and the outcomes of the first community field trials. Regarding these outcomes especially the user feedback concerning the organisation of the first community trials and reported problems which occurred during the trials in D7.2b were taken into account. A first trial outline plan was presented at the GM in Frankfurt in July 2010. Open questions were discussed and decisions on changes concerning the conduction of the second community trials were made and described in the deliverable.

### 1.1 *Experience from the first community trials*

The experience of the trials with the first community, the angler trials, provides valuable guidance and hints for the organization and execution of the trials with the second community, the gamer trials. From the first community trial reports (D7.2a and D7.2b) two major issues can be highlighted which had a major impact on the trial results: one issue is that the usability problems prevented the user from gathering more meaningful feedback on the privacy/trust issues. The other issue is that the number of participants was rather small, many knew each other in advance, and for various reasons there was only little interaction between the participants. As a result, only few privacy/trust issues arose during the trial.

Already during the first lab test, it became obvious, that many trial users were missing a web interface as the basic environment for learning about the PICOS community and test the features in the framework of a familiar common browser technology before switching to the mobile phone applications. Such an interface was finally provided at the beginning of the field trial. Although mobile communication has become more and more important with increasing performance and connectivity of mobile devices, it can be concluded from the users' comments, that they expect an online community interface as the basic approach for assessing a community; and in a second step they want to deal with the attached mobile options. Since anglers have to be mobile per se to catch a fish, they basically appreciate the increasing mobility of their online community.

The most threatening issue for the limited use of the mobile angler community application and consequently a rather weak user evaluation of the PICOS concepts was the limited usability of the mobile applications. Not only the usability (the user interface design), but also technical constraints such as crashing features and cryptic error messages as well as long response time which made the user tired to deal more intensively with the application.

In today's ICT world, users are expecting smoothly working, nicely designed applications, and since they are flooded with such kind of applications they are not willing to spend much time in figuring out what the problem could be with a rugged application (in contrast to the previous DOS generation in the early 80's, where nothing worked smoothly and a lot of expertise was expected from computer



## D7.1b User Evaluation Plan

users). The PICOS angler community application failed to meet these expectations. Although it was clearly pointed out that the mobile application was still a prototype, the users were obviously not patient and did expect rather few (technical) bugs, even in a prototype. Specifically anglers are in the majority very pragmatic individuals: if an applied measure to achieve a goal does not work in a reasonable amount of time, they switch to other methods (of fishing, for example), and it can be assumed that they would behave similarly when dealing with the mobile applications. Nevertheless, a number of useful results were acquired from the lab and field trials concerning the enhancement of the PICOS prototype. But if the prototype lacks performance and interrupts the user to solve a task the feedback of the users is addressed only to the upcoming performance issues.

The test facilitators refrain from guiding the user during the trials concerning their interaction with the application. Information on the concepts and applicability of the PICOS features were available for the participants during the field trials at the web frontend and in written form provided during the briefing session before trials started. An approach of guiding a user through an application is against the natural concept of usability tests (in this case “usability” includes the usefulness of the PICOS features), which are aiming at gathering data of a realistic interaction of a user with a technical system. To discover problems and pitfalls of the application any bias caused by the behaviour of the test facilitator, also known as “test conductor effects” or “Rosenthal-effect” [7], should be avoided to guarantee internal valid results.

If just a rating of the PICOS concepts is desired, it is obviously a better approach, in order to complement the field trial, to present the PICOS concepts to e.g. an interested group of students or employees in the PICOS partner institutions with experience into that direction, and to present and discuss just the concepts in an abstract approach. However, such an approach would not require an implemented prototype, and would probably not a firm ground for a conclusion about whether the PICOS concepts are appreciated by the “mean user” in the real life context or not.

For the above mentioned reason, it hardly ever came to the point during the field trials where the users were in the position applying and evaluating the special PICOS concepts. It was reported that often a problem arose before the user was able to finish a task. If a user is interrupted by the system in the process of solving or finishing a task the result is certainly frustration and negative user experience. Conversely, those features which were working smoothly, such as the Species Summary, were rated quite well, probably because no problems arose while these applications were used.

Some features were obviously too complex to handle, specifically because of the limited screen size of the mobile device. An example is the Privacy Manager: the users experienced this feature as overloaded and were not able to grasp the idea. Consequently it was not much used or not used in a proper way. A more simple approach for the mobile application, which still allows understanding the PICOS concept behind this feature, would have been more helpful, for instance just two options (disclosing/hiding all my information to friends-entire community) would probably have worked better. Furthermore, the full range of functionalities of the Privacy advisor (including allowing/hiding location, content, profile information etc. for community member, selected friends, communities, sub-communities etc) could have been presented at the web frontend. Because such a long table is hard to understand on a small screen like in a mobile phone.



The second issue, the weak communication among the community members, is certainly partly due to the fact that in both trial groups (Vienna & Kiel) many trial users were familiar with each other, and because the overall number of trial community member was rather small. However, from existing online communities, it is known that even community members who are familiar with each other from real live communication regardless communicate quite often via their internet community interface; while also taking care about privacy issues, thus, the weak interaction among the community members in the first community field trial must have had also other reasons. Additionally, since the trial groups from Vienna and Kiel were not familiar with each other (the field trial were conducted for both communities in the same period), there was in theory sufficient room for a communication with unknown community members under consideration of privacy aspects. Thus, it can be concluded from what users reported in the debriefing session, that these kinds of communication attempts were also hindered by the application side (the application lacks feedback, e.g. new posts in a subscribed forum, incoming messages or chat messages).

Although the field trial period lasted four weeks, trial participants stated it was too short for the trial candidates to get familiar with the PICOS applications and their options in order to be able to use the mobile applications just like regular build-in applications, to get familiar with the PICOS concepts, and to commence communication in an anglers real life context (prior, while angling and post angling) and to upload own contributions. The slot for leisure time activities is obviously quite limited in today's society, and an extended period was wished by the anglers.

Although the communication among the trial users was overall not satisfying, it was obvious that the introduced angling competition was an important instrument during the trials to encourage the participants at least to initiate a basic communication. A comparable event is necessary for the gaming community.

In the angling community trials eight tasks were broadcasted during the trial period. It has to be stated that this number was too small to keep the trial users in touch with the community and to encourage a more intensive usage; hence the number of tasks should be increased for the gamers trials.

As a conclusion from all these considerations regarding the results of the angling community trials, usability is a key for a proper evaluation of the implemented PICOS concepts by real users. Intensive bug fixing and task testing phase will be conducted to improve the usability of the system. Usability issues regarding the graphical user interface will be reported in a short usability analysis before the final release of the gamer application.

### **1.2 Implications for the second community trials**

Based on the experience from the first community trial and the different arrangement of the work plan for the second community, the second community trial will be arranged in a slightly different way. Consequences and implications from the execution and results of the first community prototype evaluation for the test and trial planning of the second community prototype are described below.

Firstly, the work plan for the first community tests and trials was organized in a different way compared to the work plan for the second community. For the first community between lab/field



## D7.1b User Evaluation Plan

tests and field trials a second version of the application was released. Feedback of the users could be taken into account and an improved second prototype version was released before the field trials. Such a procedure is not planned for the second community. Hence, the three level evaluation consisting of lab and field test and field trials (with a 5 month lasting break in between) will be replaced by a two level approach including a lab test with an intensive preparation phase before and immediately following the field trial. Lab tests are characterized by a minimal degree of freedom regarding the interaction of the test participant with the application. Contrary the field trials afford a maximal degree of freedom. Hence, both test situations are the endpoint of a continuum and of special value to gather feedback on the application. The evaluation field test, which is situated in between lab tests and field trials is replaced by an intensive bugfixing phase conducted by WP5, WP6 and WP7 partners is added before lab tests to meet the angler's critique of the performance of the first community prototype. To ensure an adequate performance level of the prototype all tasks of lab tests and field trials were tested by the whole consortium in this preparation phase as well.

As reported in D7.2a and D7.2b performance is a needed prerequisite to gather proper feedback on usability and concept level. Results of the first community tests and trials showed that feedback was mainly addressed to the performance, stability and the weak usability of the application. These issues were presented to the PICOS consortium at the GM Meeting at Frankfurt in July 2010 and with the Deliverable D7.2b. Changes of the gamer application took these into concern. A detailed comparison of the gamer vs. the angling prototype changes will be described in D8.2.

In order to meet the request of gathering feedback of the users concerning PICOS concepts, scenarios will be presented in the first part of the lab test to the participants.

Scenarios offer a way to imagine design concepts in use [8]. They give us a way to describe an application and more important an interaction with an application in words. Because of this they can be used to communicate and transform the findings from the requirements analysis into a prototype. A scenario is some kind of a story. According to Carroll [9], scenarios contain and describe a setting, the agents or actors, their goals and purposes and the things they do. For Jacob Nielsen a scenario is a description of

- an individual user
- interacting with a specific set of computer facilities
- to achieve a specific outcome
- under specified circumstances
- over a certain time interval

From scenarios we get a context in which the actors act with the system. In projects dealing with technology and end-users like PICOS- it is of high importance to be able to envision the interaction between the end-user and the system. Therefore scenario will be included to incorporate the findings from the requirements analysis into the development of the first prototype and to ease communication between the technical and the human sides.

Subsequently after presenting the scenarios the willingness of the participants to use the PICOS system will be evaluated by acceptance questionnaires. This will be conducted without any usage of the PICOS prototype.

The results of a special feedback session during the debriefing of the first community field trials (detailed results reported in D7.2b) lead to further implications for the second community trials:



**Feedback debriefing first community trial:** Participants of the first community trials agreed with the proceeding of sending out the tasks via application and the later questionnaire via mail. However, due to their crowded message box after receiving hundreds of “authorization requests” messages they were not always aware of that they got a new task.

**Implication second community trial:** This had functional implications for the improvement of the PICOS application concerning the authorization requests which will be separated from (non automatic) messages which the user receives from other community members. The general proceeding of sending tasks during the field trials via PICOS application will be continued.

**Feedback debriefing first community trial:** Regarding the support during the field trials the participants mentioned that they were satisfied with the support offering of the PICOS Team. They mentioned that they used the support forum once and answers were rated as helpful. If support was needed during the trials the users mainly mailed the test facilitator.

**Implication second community trial:** For the second community trials, support including a personal contact person and a support forum as provided in the first community trials will be continued.

**Feedback debriefing first community trial:** Participants stated they were willing to fulfil more than 2 tasks per week.

**Implication second community trial:** In preparation of the trials more tasks will be prepared and the frequency of tasks during the trials will be increased.

**Feedback debriefing first community trial:** Privacy features were rarely used in the first community trials. Participants stated that there was no special need to focus on privacy settings, because they know each other well and didn't provide sensible data. Additionally, privacy features like the Privacy Manager were hard to use due to its complexity.

**Implication second community trial:** Travian as a game implies private content sharing which may enhance naturally the usage of PICOS PET features. Competition tasks will force users to use the PET of PICOS. Special effort is put to evaluate the PET features on a concept level by presenting a scenario as a first step during the lab tests.

The competition conducted during the first community field trials was evaluated as most appealing during the trials. The participants mentioned that the competition created a real community feeling and was one of the rare means which were used to exchange with the unknown members of the other city. For the first community trial an angling competition was conducted. The three participants with the greatest amount of reliable catch reports compared to the anglers of his city and compared to the other test city was the winner and received a financial award.

Some pre-registered participants for the field trial had withdrawn their participation shortly before the trials were commenced and in the first week of the trial, thus the sample size decreased unexpectedly. Consequently the sample size for the second community trials will be increased substituted potential drop outs and to approach realistic community conditions.



### 1.3 Upgrade second community prototype

The gamers' application [4][5] is built on the anglers' application v2.5 [2][3]. Some new features have been incorporated according to the requirements contained in the internal deliverable R2 [6] and appropriate modifications have been made to adapt the application to the needs of the gamers. The main features are:

Changes in gamers' profile: some outdated attributes referred to anglers have been renamed/ removed and new ones have been added. The new profile consists of the following items (new or modified attributes in blue):

Pseudonym (partial ID1)

Avatar image

Main Info

- Family Name
- Age
- Gender

Hometown

- Country
- Locality ("City")
- Street Name
- Zip Code

Messaging

- Email
- Skype-ID (old "Instant message comm.")
- Phone Number
- Facebook (IM address 2)
- Internet Access
- Preferred contacts means

Hobbies info

- Hobbies (merged with Interests)
- Favourite Games
- Favourite Location
- Alliance Memberships (old "fishing clubs")

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The PICOS project receives research funding from the Community's Seventh Framework Programme.



- Playing Style (old “fishing style”)
- Travian epochs
- Blank attribute

In addition to old attributes (“Country”, “Age”, “Gender” and “Zip code”) the following ones cannot be changed in the creation of partial IDs: “Family Name”, “Street Name”, “Locality”.

- Contact List: new facility to retrieve the contact list of one selected contact and optionally store the received contact as his own contacts.

The contact list displays the presence status.

- Privacy Advisor: the PA scanning has been extended due to the profile enlargement. The following information is checked: “Family Name”, “Locality”, “street name”, “phone number”, “zip code”, “email”, “Skype-ID”, “Facebook”. The content types for scanning are: content in categories (file description and text files), fora, thread, posts, chat messages and asynchronous messages.
- Privacy Manager: new interface available in order to help the end-user to handle their privacy rules. The creation process is subject to five steps through subsequent screens.
- Policy Creator: the user has the possibility to create new rules associated to:
  - His/her contact list
  - His/her content in public community and sub-communities (threads, posts).
  - His/her content in the public repository (categories, files)

These rules will apply to a set of contacts, a sub-community or the whole community.

These rules can also be valid for a specific period of time defined by the owner of the content.

- The Policy Editor has been improved to display those privacy rules related to contacts.
- Private Sites: the user is allowed to define, manage and create privacy rules for sensitive locations (e.g: “at home”, “at work”) in order to automate the location function (accurate position, blurred, disable).
- Point of Interests (POIs): similarly to private sites, the user is allowed to define, manage, and create privacy rules for interesting locations (e.g: Wi-Fi hotspot, Internet Café) and share or recommend these locations with other contacts. Rating of POIs is also possible.
- Content
  - New content notification: announcements are sent to subscribers when changes are performed on categories, forum or forum-threads.
  - Content access history: each content contribution stores an access history with partial ID and date of members who accessed that content.
- Advertisement services



- Advertisers can create commercial POIs in dedicated accounts to target specific users of the PICOS community according to attributes in the profile (Gender, Age and Hobbies).
- Ordinary members can subscribe to ads services to receive information about cPOIs when approaching the influence area of the cPOI and recommend the notified cPOI to other contacts.
- Notification of cPOI is also received when reading forum contributions according to specific keywords.
- Membership revocation, implying anonymization of the revoked user's contributions in the public community, sub-communities and public repository for the remaining members.

Another aspect that differentiates the gamer from the angler solution is the absence of a web frontend complementing the client application on the mobile with a PC interface. In the gamers' prototype the functionalities are only available in the mobile application. Gamers are expected not to require extended text entry like the anglers (e.g. providing catch reports or pictures). Furthermore, the angler web frontend could be used only for demonstration purposes at the kick of meeting.

### **1.4 Overview of evaluation activities**

As mentioned above in section 1.2 the project logic of the first community prototype was the following: revision of the angler app v1.xx after Lab and Field tests, v2.xx testing during the Field trials. Because there is only one release planned for the second community application the three stage approach (including lab tests, field tests and field trials) is changed to a two stage approach (including lab tests and field trials) . An intensive preparation phase with WP5, WP6 and WP7 partners before the second community lab test will start.

#### **Main aspects of the evaluation activities in phase 2 are:**

- Preparation:
  - Bugfixing and task testing by the consortium partners
- Lab tests
  - users perform specified tasks under observation
- Field trials
  - trial participants use device on their own
  - several activities to increase usage (section 1.8.2 and 1.8.4)

For a better understanding differences in the organization of the trials are visualized below.



first community trials					second community trials			
Nov 09	Nov/Dec 09	Nov/Dec 09	May 10	May/Jun 10	Sept 10	Oct 10	Oct 10	Oct/Nov 10
release angler app v1.xx					Bug fixing/task testing by WP 5, 6 and 7 partners			
	lab test	field test				release gamer app 1.xx	lab test	field trial
			release angler app v2.xx					
				field trial				

Table 1: Overview organisation first community vs. second community trials

### 1.5 Trial participants

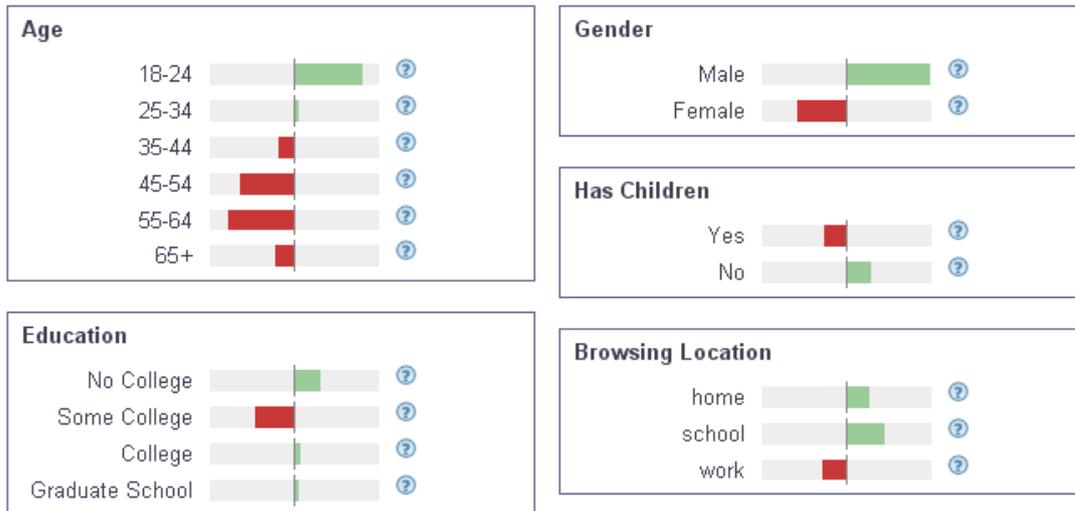
Lab tests and field trials were conducted at two locations: Vienna and Brno. To ensure the mix of known and unknown community members during the trials 10-15 participants per location will be recruited.

Selected users will be invited to participate in the evaluation activities. Trial participants are screened according to the following criteria:

- Online gamers are supposed to possess on enough experience with mobile devices and with online communities.
- They must be active gamers (15-20 hours/week) or must have some experience with online games. Though Travian players are our target gamers, online gamers proved to have diverse games likings.
- The participants must be able to handle the application in English.
- Demographic background: according to the graph below (showing a demographic description of Travian users relative to the general internet population), the participants in the trials should comply with the following features:

### Audience Demographics for Travian.ws

Relative to **the general internet population** how popular is travian.ws with each audience below?



**Figure 1: Audience demographics for Travian.ws**

Source: <http://www.alexa.com/siteinfo/travian.ws> (Travian World Analyzer (TWA) is an analytical site for Travian game)

- Higher education
- Age: between 18 and 35
- Gender: Special effort will be also taken to find and invite female participants, though their participation in Travian is underrated.
- Nationality: recruitment will be performed at the two locations (Brno, Vienna) to ensure a mixture of community members who are familiar and not familiar with each other.
- Participants' relationship to PICOS can be two-party: gamers that already participated in interviews for the requirements gathering process (D2.6) and new contacts that didn't take part.
- Special effort will be taken to also find and invite people in each city who already know each other with regard to:
  - Their membership to the same alliance, to friendly alliances or to enemy alliances.
  - Acquaintance from previous gaming periods.
  - Acquaintance/friendship regardless of the game.

These characteristics will be instrumental for those tasks tied up with privacy and trust.



Place:

- There must be enough and suitable meeting rooms to conduct the introduction and debriefing sessions, as well as lab tests, subsequent interviews and other related activities
- For the initial lab tests no special requirements are needed, a large room should be provided where lab tests could take place.

Sites should be provided. e.g. a Wi-Fi hotspot, a refectory, a library, a game-shop, a play-center, Internet Café/Cybercafé. Otherwise, the test conductors should identify those regions that would act like POIs.

Other requirements:

- Internet access (Wi-Fi)
- Mobile handset Nokia 5800 with the installed application. An insufficient number of handsets may lead us to consider shifts for the tests.
- Organization of the technical support for gamers.
- Population of the community with content such as public fora, thread, posts, commercial POIs.
- Creation of accounts for test conductors to interact with the participants (PICOS-friends)

### **1.6 Introduction and briefing to evaluation activities**

The first step of the evaluation activities will be the introduction to the field test and the briefing of the participants. Both will take place in the laboratory. The test conductors will point out the goals of the evaluation activities and the different sessions and that the aim is to test the system but not the participant. The briefing phase is concluded by a short interview concerning some demographic data of the participants, such as age, education level, occupation, and level of experience. Furthermore the pre-questionnaire will contain items analysing if the participants meet the recruiting criteria:

- Experience with mobile devices
- Experience with online communities
- Experience with specific gaming community
- Expectations regarding gaming community
- Importance of privacy, trust, identity and security for the user

Next every participant will receive a Nokia 5800 with the installed application. As the participants cannot be expected to use the mobile device without any explanation, they get a brief introduction of the usage. The basic technical functionality of the device will be explained thoroughly to the participants. Every participant will be given the same standardized explanation, which will be followed by a short exploration phase, where the participant may try the handling of the device.



Thereafter that the participants will be asked to conduct the following training tasks to learn using the device:

- Turn on/off device
- Interacting by touch and with pen
- Navigate on screens/scrolling
- How to access different menus
- How to access the internet via Wi-Fi and via the GSM (with limited data transfer)
- Navigate to/between pages and applications
- Entering text and numbers in different contexts.
- Reset application in case of an abnormal system end.

In case the participants will have difficulties they will be able to ask questions. Training tasks will be repeated until participants will be comfortable with all aspects of handling the device.

### **1.7 Lab tests**

Lab tests will be split into two parts: The first part of the lab test will be addressed to the evaluation of Picos concepts. This part will be separated from an interaction with the Picos prototype. The second part will include the usage of the Picos prototype by providing the users several tasks. The goal of the lab test is to evaluate the PICOS concepts on the one hand and on the other hand usability and user experience of the PICOS application with users of the real target groups. To be able to do so the main concepts of the PICOS project will be explained to the users after the training of the device has taken place.

#### **1.7.1 Introduction of PICOS project context and concepts**

As a qualification for the trial participants the PICOS project context and several project concepts will be explained to them. The intention is to prepare the trial participants for the ensuing trials. With the knowledge about the targets of the PICOS project and the ideas behind the tested PICOS concept, it will be easier for the trial participants to give high qualitative feedback. The explanation will contain the following elements on the project and the concept level:

- Project level
  - Motivation and Achievements
- Concept level
  - Service for Gaming community
  - Allows to share information among gamers
  - Stay in touch and share experiences



- Access to relevant data and information about angling
- Concepts of community, public and private Sub-Community, My Files, root identity and partial identities, advertising feature
- Handling mainly with mobile device
- Special focus on privacy, trust, identity and security aspects as well as the advertising feature

During the explanation the mobile device will be used to show and communicate the different concepts and possibilities of the PICOS client. New concepts which are not easy to understand for the trials participants, like the partial ids, additionally will be demonstrated and visualized on slides.

### **1.7.2 Evaluation of PICOS PET concepts**

As mentioned in D7.2b there were only rare comments on PICOS PET functionalities and concepts. The participants sparsely evaluated the PICOS PET features and comments on a general level concerning the ideas of PICOS PET were rare as well. Reasons for that were rooted in the low performance of the PICOS prototype during the tests. Despite the comments of the test facilitators that the PICOS application is still on a prototype level functionality, usage and feedback concerning these features were rare. In D2.5 questionnaire were suggested to gather feedback regarding interface concepts. To avoid interactions of participant experiences and the evaluation of PICOS concepts questionnaire will be provided before the participants interact with the PICOS prototype. Instead of an interaction with the prototype, an introduction on PICOS PET through scenarios will be provided.

### **1.7.3 Free exploration of the application**

Next test participants will be asked to explore the system using the mobile device. Free exploration time is limited to 10 minutes.

### **1.7.4 Qualitative Interview after free exploration**

Following the free exploration users will be interviewed regarding the following topics:

- General impression of the application
- Problems, strengths and weaknesses
- If and how are privacy, trust and security supported by the application
- Further usage of the application
- Subjective satisfaction and user experience

Answers will be noted by the test facilitator.



### 1.7.5 Tasks Lab Tests

After the introduction and exploration of the system and PICOS concepts test participants will be asked to perform realistic tasks with the system. Here only the mobile device is used. Some of these tasks are common to the angler trials related to common activities, but new tasks have been added to test specific gamer's features.

Web access can be used to check the results of an interaction in case test participants wish to do so. The interaction of the users with the system is observed and recorded by the test facilitator for later analysis. After each task the test facilitator briefly asks the participants regarding encountered problems, difficulties and ideas for improvement. Additionally quantitative measures such as task completion rate and time, but also qualitative measures of subjective satisfaction and user experience will be collected for each task. The aim is to measure the current usability and user experience of the system, and to detect usability problems and their causes in order to improve the system's usability.

In detail the users will be asked to perform the following tasks in the lab using a mobile device:

#### Registration

- Task of registration in the community.
- Creation of main public partial identity (partial ID1).
- Search for contacts and add them to the contact list, associated to partial ID1.
- Invite other group members and PICOS-friends
- Login, logout and exit of PICOS application

#### Identities

- Login again and change profile information, e.g. add age and email address
- Create a new partial identity (partial ID2). Check that some attributes cannot be changed.
- Change to new partial identity (from partial ID1 to partial ID2).

#### Contacts

- Search for new contacts and PICOS-friends and add them to his contact list, associated to partial ID2.
- See the contact list of one of the PICOS-friends and add one to the contact list.

#### Private Room

- Take a picture and upload it to the private room.

#### Public Repository

- Explore the public repository.
- See the access history of the file.



#### Sub-communities

- Join a public sub-community and send message to all members of the sub-community.
- Explore an existing thread and read the posts within.
- Rate an existing post in the thread.
- See the access history of the thread.

#### Messaging

- Send a message to a contact.

#### Location Based Services (outdoor activities)

- Locate contacts on the map (some with blurred position)

#### Private Sites

- Define a Private Site and create a rule for it.

#### Revocation and leaving the community.

### 1.7.6 Qualitative Interview after Lab Tasks

Following the lab tasks users are interviewed regarding the following topics:

- General impression of the system
- Problems, strengths and weaknesses
- If and how are privacy, trust and security supported by the system
- Further usage of the system
- Subjective satisfaction and user experience
- Would users expect all data to be deleted after revocation

## 1.8 Field Trials

### 1.8.1 Briefing in Group Setting

Prior to the commencement date of the field trials for the gaming community, the participants will be invited for a kick-off meeting. The head of the organization and responsible for the execution of the kick-off meeting will be partner CURE with the assistance of other PICOS partners (to be announced).

The kick-off meeting is specifically necessary to communicate administrative matters with the participants. The following draft agenda will be accomplished in the kick-off meeting:

- Introduction (background for the field trial);



- Details about the execution of field trials;
- Agreement consent form;
- Distribution of the trial devices (NOKIA 5800);
- Completing questionnaires;

A short summary of the PICOS concepts from the lab tests will be given to the users. It is important to emphasize, that the field trials are conducted in order to trial the application under “real-world” scenarios for several weeks, being ideally implemented into the regular (gamers) life of the trial candidates.

### **Execution of field trial period**

The users will be asked to use the application as often as possible, once a day is suggested to be a desirable frequency.

In order to facilitate the usage of the application, it is planned that about 10 tasks/week tasks will be broadcast to the trial user community (using the admin console). The tasks will be designed to encourage the user to apply features which specifically pursue the PICOS concepts. The users will be advised to check their message inbox at least once a day. Subsequently to a new task, a link (URL) to a short online questionnaire will be forwarded to the trial user via e-mail, with the request to deal with the questionnaire at the same day in order to monitor the execution of the tasks and to be able to react with according measures if problems or other issues are to be solved.

Towards the end of the trial period, a more detailed questionnaire will be submitted and the trial users will be asked to complete the questionnaire before the final debriefing meeting.

A gaming award will be announced (basic idea and details to be fixed from GUF and BRNO). The idea is to encourage the trial candidates to intensify the usage of the PICOS application and specifically to encourage the exchange of posts within the trial community.

In order to encourage frequent usage of the application and to support the participants during the trials in case of any trial and application related problems, a first-level user support will be provided to the trial community analogously to the field trials of the angler community. Related contact points with respective coordinates (e.g. telephone number and email address) will be submitted in the briefing meeting. In order to illustrate specifically the handling of features of the application which target PICOS concepts, video tutorials are considered as an additional help facility (videos may be stored at the PICOS website).

A second level support will be provided by the technical PICOS partners (ATOS). In the case of platform related problems the partners of HPF will be responsible to restart the PICOS platform (third level support).

### **Agreement consent form**

Trial candidates will be asked to sign the consent form concerning data recording and data handling during the trial period and beyond; the users have also to sign a form about the user’s responsibility in cases of damaged, lost or stolen handsets.



### **Distribution of the trial devices (NOKIA 5800)**

Each user will get a complete retail box with a NOKIA 5800 device with all generic accessories and pre-paid SIM cards which allow the trial user to connect to the Internet via UMTS each day of the trial period.

### **Questionnaires**

Two questionnaires will be submitted during the briefing session. One questionnaire deals with the demographic background of each trial participant. The second questionnaire deals with the personal expectations of the users related e.g. to the frequency of usage of the PICOS applications in the trial period.

### **1.8.2 Field Trial Tasks**

During this period participants will receive following tasks as a message in the PICOS Gaming Application. Because the participants will have previously accumulated knowledge of the application during the lab tests, the field trial will feature more advanced tasks for them to perform. Furthermore the tasks will focus on the testing of the location based services which could not be tested inside the lab. The number of field trial tasks will be increased compared to the first community trials because those participants mentioned that they were willing to solve more than two tasks a week, and it is assumed, that the gamer will behave in the same manner.

Following tasks are proposed for the field trial and tested in the preparation phase:

Public Repository:

- Open a file and rate it.
- Transfer a picture from the private room to the public repository and create a corresponding privacy rule for a set of contacts that allows access to the picture for a period of time. Send a message to one of this contacts informing about the transfer and wait for an answer indicating if he was able to see the picture or not.

Sub-communities

- Create a post to a thread and add a privacy rule for a set of contacts for a period of time.
- Create a post containing sensitive information to provoke the Privacy Advisor.
- Subscribe to notifications in a thread and check how the creation of new content is notified.
- Create a new sub-community and invite contacts to become members.

Messaging

- Open a chat with three contacts (online).

Points of Interest

- List existing public POIs and show them on a map.

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The PICOS project receives research funding from the Community's Seventh Framework Programme.

- Recommend a POI to a contact.
- Define an own POI and create some rules attached to it.

Advertising Services (tbd)

- Following POIs exist: Game Shop (age: 10-40; target interest: games), Internet Café (age: 18-65; target interest: online gaming).
- Task 1:
  - Please add the following exemplary interests to your profile interests: games, online gaming.
  - Please move close to a commercial POI, and you will receive an advertisement.
- Task 2:
  - You and one of your contacts: Please add the following exemplary interests to your profile interests: games, online gaming.
  - If you are in the target profile, you will receive an advertisement.
- Task 3:
  - If you receive an advertisement, please use the “recommend”-functionality, to recommend it to those friends who you think might like it.

Tasks will be sent out via the PICOS admin console (Figure 2) by the test facilitator of CURE at varying weekdays and daytimes. A fix day/daytime for sending the tasks will be avoided to prevent that the user get reception always in the same context situation.

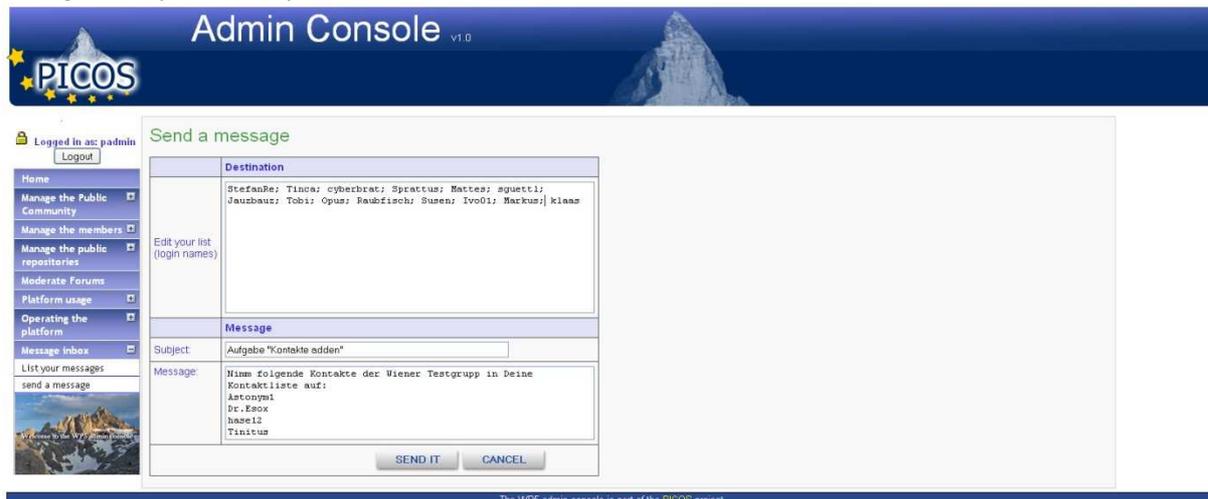


Figure 2: Screen shot of Picos admin console while sending the task “add contacts” to the participants in Kiel



### 1.8.3 Competition

The gamer competition design is based on the assumption that the trial participants create their Travian accounts at the beginning of the trials or shortly before. The Competition is ongoing over the whole trial period (four weeks) and extends over several smaller challenges. For each challenge the players receive points. The player with the most points at the end of the trial will receive a reward.

#### **Challenge 1 (The Gathering):**

The task is to form an alliance in Travian under the following constraints:

- 3-5 players per alliance
- Communication, coordination and matching has to be performed via the PICOS client.
- Additionally to the foundation of the alliance, a private sub community with the name of the Alliance has to be created in the PICOS client, to which only the alliance members have access.
- Time limit: goals have to be reached within 3 days.

Reward:

First Alliance that reaches the goals: 5 points (for each player).

Second Alliance that reaches the goals: 3 points (for each player).

Third Alliance that reaches the goals: 2 points (for each player).

All other Alliances that reach the goals in time: 1 point (for each player).

#### **Challenge 2 (Prosperity): Growth is the key to success.**

The player with the most villagers will win the competition for his alliance. At day four a list of all players and their number of villagers will be posted in the PICOS competition thread in the PICOS platform. Seven days later, the player who will have gathered the most villagers in the meantime will win the challenge.

Rules for the challenge: Pushing is allowed and the goal has to be reached within seven days.

Reward:

The Alliance of the player with the highest growth rate within the period: 5 points (for each player).

The Alliance of the player with the second highest growth rate within the period (an Alliance can only be once in the ranking): 3 points (for each player).

The Alliance of the player with the third highest growth rate within the period (an Alliance can only be once in the ranking): 2 points (for each player).

All other Alliances: 1 point (for each player).

#### **Challenge 3 (Raiders): As much as you can carry!**

The goal is to get the most resources in one raid.

Rules for the challenge are: The player with the most resources in one raid will win the challenge.

The raid result has to be taken via the mobile phones camera and posted in the PICOS "Raid



competition” thread in the PICOS community client. The goal has to be reached within seven days. Alternatively this can be an ongoing competition until the end of the trial period.

Reward:

The player with the highest raid receives five points.

The player with the second highest raid receives three points.

The player with the third highest raid receives two points.

Every other player with at least one successful raid receives one point.

### **Challenge 4 (Conquest):**

The goal is to conquer a village.

- Time limit: Challenge starts at the first day of the trials and ends with the last day of the trials.

First Alliance that reaches the goals: 5 points (for each player).

Second Alliance that reaches the goals: 3 points (for each player).

Third Alliance that reaches the goals: 2 points (for each player).

All other Alliances that reach the goals in time: 1 point (for each player).

### **Challenge (The Holy Grail):**

One player receives at the beginning of the trials a message from the PICOS trial administrators, which will tell him that he is the keeper of the Holy Grail. If this player is raided successfully in Travian by another player of the trials, he has to write the raider a short message via the PICOS client, and inform him that he has conquered the Holy Grail. The player who possesses the Holy Grail at the end of the trial period receives 5 points.

## **1.8.4 Further activities to enhance usage of PICOS system**

All the information necessary for participants will be communicated by the PICOS trial facilitator via the PICOS system. Therefore we encourage participants to use the PICOS system by communicating with it. Financial rewards are offered for extra engagement (see section 1.8.3) of participants.

## **1.8.5 Debriefing and focus group**

A closing meeting will be organized at the end of the user trials in mid November 2010. This closing meeting is considered as an important event in the “User in PICOS” integration, since it allows a personal peer-to-peer evaluation of the trial user’s perception of the PICOS gamer application, specifically the PICOS features, and to evaluate the trial experience. The following chapter describes the supposed organization and agenda for this gamers’ debriefing session.

The following issues are planned for this closing session:

- Questionnaires (PET, SUS, online community, handling of private data in online communities)



- Group discussion (general review of field trials, rating of the organization of field trials and the application, closing questionnaires);
- Award gamers competition
- Return of devices
- Reimbursement of expenses

Similar to the lab test, during the final session the trial users will be asked to complete different questionnaires: PET-USES, SUS (System Usability Scale) and a pre-test questionnaire including questions about demographics, interests, gaming experience and experience with online communities as well as questions about privacy concerns. In addition, the users will be asked to complete a questionnaire about privacy, trust and data handling in online communities.

### **Group discussion**

An informal group discussion is planned which expects feedback about the following issues:

- the organization of the field trial;
- usability of the mobile applications;
- the usefulness of the specific PICOS concepts on trust and data handling (including a discussion about individual features);
- the range and usefulness of application features, specifically from the gamers point of view;
- a general evaluation of the positive and negative aspects of the mobile application
- a short discussion with verification of the results of the questionnaires;

### **Winner of the gaming competition**

The winner of the gaming competition within the PICOS gamers' trial community will receive their award.

### **Return of devices**

At the end of the final meeting, the trial users will be asked to return their handsets including all accessories and SIM cards.

### **Reimbursement of expenses**

Finally, those trial users who were fully participating in the lab test and field trial according to the given conditions as introduced in the briefing session will get their full expense allowance.

The entire debriefing session will be videotaped and reviewed for the evaluation of the results.

## **1.9 Resources**

Resources of different type need to be available and all sorts of materials need to be prepared to ensure smooth running of the gamer community trials. This section provides an outline of the most important things that have to be considered for the preparation of the trials.



The most important resource is a working mature community prototype. Due to its critical nature, fall-back solutions in case of problems should be planned beforehand and stability of the system must be tested thoroughly in preparation of the test and trials.

For the community lab test and trials, users will need Nokia 5800 devices to interact with the system; these devices will be provided by PICOS. The handsets of the angler trials will be used again and the gamer application will be installed previous the lab trials. Costs coverage for the mobile connections to the PICOS System during the trials will be organised by CURE and the local PICOS partner in Brno. Different options exist, and detailed solutions have been identified to single out the most cost-effective solution for the trials. The costs for the user trials will be handled by CURE and will be supported personal by GUF and the local partners in Brno. Meeting rooms at different sites in Vienna and Brno will be required for the conduction of focus groups and interviews. Office space from projects partners will be used as far as possible.

An environment for experience sampling (triggering of samples, direction towards questionnaires, etc) and online questionnaires will be setup to allow efficient and ongoing analysis of data. Also a support forum for users with technical or methodological questions will be established for the duration of the trials. A forum for the competition results will be established as well.

The support during the field trials will be organized according to the angler trials. First level support will be provided by the trial conductor of CURE. Trial participants raise their questions via mail or telephone. If the problems are of technical nature, the partners in charge will be informed and can take care of the problems during normal working days. Additionally a public PICOS forum will be provided by the technical partners of ATOS were technical questions are answered.

### 1.10 Timing

The following table summarizes the actions planned for the PICOS project regarding the trial and their timings on the basis of the gamer community.

Phases	Scheduled
Trial plan	Final approval 24.09.2010
Ongoing prototype testing	Sept/Oct 2010
Lab tests	Brno: 09.10.2010 Vienna:16.10.2010
Kick off Field Trial	Brno: 10.10.2009 Vienna: 17.10.2009
Debriefing Field Trial:	Brno: 6.11.2010 Vienna: 13.11.2010



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