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Summary

This first version of the PICOS exploitation, describes details about how we will exploit the project results, especially in an industrial context. The plan will be refined in the further project periods.

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

Members of the PICOS consortium:

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Hewlett-Packard Centre de Competence France	France
Universidad de Málaga	Spain
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IT-Objects GmbH.	Germany
Atos Origin	Spain
T-Mobile International AG	Germany
Leibniz Institute of Marine Sciences	Germany
Masaryk University	Czech Republic

The PICOS Deliverable Series

These documents are all available from the project website located at http://picos-project.eu.

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 Architecture	March 2009
D9.1 Public Website	January 2009

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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 in online communities. Users consciously eave 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 providing 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.

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List of acronyms

CISO	*Chief Information Security Officer*
NFC	*Near field communication*
SRA	*Strategic research agenda*

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1 Introduction

The results developed in PICOS should reflect and address the previously gathered requirements of mobile communities. In order to improve community related products and services with regard to privacy and trust and thereby transfer the results of PICOS to the real world, exploitation is one essential part of the project. In the following chapters, the goals and the planned exploitation activities for the 2nd project period are outlined.

2 Objectives

According to the general plans for exploitation in PICOS described in PICOS Annex 1 (p. 93), it is the main goal within the exploitation process, to support community software and services along the "community business value chain". It is intended to achieve an application of the technical results in an industrial context and to specify interfaces and services in order to implement them in community related products and services.
This means that PICOS will allow especially the involved industrial partners, to extend and enhance their products and services by the integration and usage of PICOS developments regarding trust, privacy and Identity Management aspects and to develop new ones upon this basis. The variety of different companies participating in the PICOS consortium should ensure that the results of PICOS will have an impact at different levels of community related services, which will help to improve privacy and trust on these different levels. For instance, on the levels of a telecommunications provider as well as on the level of a community- or IT-service provider.

3 Exploitable results

The primary exploitable results in this context will be the PICOS Platform Prototype (D5.1) and the Community Application Prototype (D6.1), which we will develop within the 2nd project period. Furthermore, also the knowledge and best practices gathered within the prototype development will be subject to exploitation.

The exploitation of the developed prototypes will take place in multiple contexts. First of all, a comprehensive documentation of the prototypes will be available on the PICOS Public Website[1]. Further, we will show the prototypes at conferences or other appropriate events (e.g. trade shows). It will be promptly decided, which events and conferences this comprises.

Within the duration of PICOS and its 2nd period, each partner is involved in the creation of various artifacts. This may be for example documents, charts, images or software artifacts (code, documentation, etc.). In accordance with the section B3.2.3 of the PICOS Annex 1, a plan for the

[1] http://www.picos-project.eu

management of intellectual property rights on these materials will be established. The plan should ensure the rights of the created artifacts.

4 Planned activities

Besides the general plans for exploitation of the PICOS results, each involved partner pursues individual goals and plans, based on his business context and the products and services he offers. So far, among the industrial partners involved in PICOS mainly Atos Origin has very concrete exploitation plans. Other industrial partners, such as HPL, ITO and TMO are still developing their plans for exploitation. The following paragraphs will start with a detailed description of Atos' exploitation plans.

4.1 Atos Origin

Atos Origin delivers solutions for Business Risk Mitigation, Security Strategy and Compliance, Identity and Access Management, Security Infrastructure and Managed Security Services. Atos Information Security Solutions is an end-to-end approach to business risk and information security, which address the full threat landscape from technology security, people and processes, security operations, security strategy, policies, procedures and governance. PICOS is placed inside of Atos Origin Security Technical Advisory (STA) proposition. This proposition leverages Atos Origin's experience and expertise in security architecture to facilitate the adoption of design principles and technology that streamline the management and daily operation of information security controls.
The Security Technical Advisory offering applies Atos Origin's experience in IT integration and operations to CISO's (Chief Information Security Officer) challenges related to:

- Assessment of the existing Security Architecture
- Development of a Business case for the required security infrastructure solution
- Definition of a security infrastructure design, leveraging the four architectural principles described above
- Infrastructure Project Management

It is expected that PICOS results will contribute to the following objectives of the global STA solution portfolio:

- Address customer business risks and reduce costs (e.g. by reducing sources of possible complaints by online and mobile communities services users) incurred through security breaches and their subsequent recovery
- Improve the offering of privacy and trust enhancing technologies applied to different contexts and constellations of virtual communities
- Providing consistent user experience, usability and tangible perception of security mechanisms and tools for end-users
- Consistent approach to design of built-in privacy and identity management across open platforms and middleware solutions for building collaborative systems between business and private stakeholders

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Atos Origin will eventually utilise the security, trust and privacy enhancing technologies of PICOS in the custom solutions for its customers, to offer efficient and streamlined security and dependability assurance mechanisms in the development of IT systems for Atos customers. Atos Origin expects to strengthen with PICOS results its offering of streamlined security, identity management and privacy enhancing mechanisms for the development of customer-oriented projects in the core business lines of the company. Atos indicates below some of the main lines where exploitation opportunities will be explored.

4.1.1 Industrial Perspective for Exploitation

The Atos Origin group has a significant activity and specific economic weight in the mobile software and services industry in Europe, as does specifically Spanish Atos Origin S.A.E.[2] (PICOS project partner). Thus, Atos Worldline commercialises a mobile services platform, Worldline Padda, which could benefit from results of PICOS as it could integrate design principles, components and tools for enhancement of identity management, trust and privacy of its users. Beyond this, Atos Worldline is also starting dissemination of solutions for near-field communications (NFC) for mobile applications, enhancing tangibility and trustworthiness of user experience in mobile social networks. Obvious synergies are already being explored for collaboration with PICOS and researchers of both teams met at the W3C Event on Social Networks in Barcelona this year.

Similarly, Atos Origin S.A.E is providing its own mobile platform solutions for advanced Internet services to Spain's largest mobile operator, Telefónica Móviles, and could take a similar approach at a national level. Last but not least, Tempos21[3], a Spanish mobile services company, is also part of the Atos Origin group and collaboration is already envisaged to explore potential synergies once PICOS results achieve a sufficient degree of maturity.

Formal liaisons with two other Atos Origin-coordinated FP7 projects which also look at mobile solutions from different perspectives, My-eDirector 2012[4], for personalised media experience and delivery including mobile environments, and ComeIN[5] for e-Inclusion of marginalised youth through mobile communities, will also provide synergies for exploitation of platforms, approaches and eventually implementation solutions. For both projects, we will build on already established relationships and already exchanged information (i.e. projects surveys and public deliverables mutually exchanged) in order to explore and offer application areas for respective and even combined project results with additional added value for our potential customers.

The same unit involved in PICOS within Atos Research & Innovation is also leading two FP7 Coordination and Support Actions which could be relevant from the point of view of exploitation of PICOS results. STRAW[6] aims at providing a European Service of Technology Watch on Security

[2] Sociedad Anonima Española
[3] http://www.tempos21.com
[4] http://www.myedirector2012.eu/
[5] http://www.comein-project.eu
[6] http://www.straw-project.eu

Technologies not only advising European end-users and public authorities but also bringing together the defence and security research industry for developing new civil applications. INCO-TRUST[7] specifically targets international cooperation in the area of trustworthy, secure and dependable ICT infrastructures and represents a relevant forum for further assessment of exploitation opportunities for PICOS at a worldwide level.

Atos Origin also participated in FP6 project SecurePhone and has experience for exploitation of security and mobile-related research and development results from European projects which is to be seen as a valuable asset for PICOS.

4.1.2 Exploitation Considering National and European Technological Platforms

In the area of Privacy challenges like implementation of privacy at design level, user centricity and user friendliness for transparency and privacy-enhancing technologies, pseudonymisation and anonymisation, mobile-based and web-based privacy-enhanced services, control of private data exchange between services, private data traceability, accountability, privacy risk management and finally awareness building and training of different users are all areas where mutual benefit can be expected (also for exploitation) between PICOS and initiatives and partners of technological platforms where Atos Origin plays a prominent role.

The leadership of Atos Research & Innovation of the NESSI European Technological Platform[8] in the Software & Services and Trust, Security & Dependability (where Atos Research & Innovation has already co-authored a whitepaper on Privacy geared at defining NESSI's new SRA, taking into account knowledge derived from PICOS) represents also an excellent opportunity for early exploitation of results as they become available within the project's planning. In particular, NESSI is an excellent platform for an industrial platform like Atos, to contact the key players in the industry to formalise agreements for exploitation in a context where potential partners are familiar with the idiosyncrasy of research and development projects results. Atos Origin also plays a prominent role in the Spanish technological platform eSec[9].

Moreover, Atos Origin also participates in the Spanish eMov technological platform[10] and its European Counterpart eMobility[11] both of which focus in their Strategic Research Agendas on aspects such as security, trust, privacy, threats on mobility and business models all of which are relevant for PICOS and where collaboration with platform partners could lead to identify future exploitation opportunities.

Atos Research & Innovation is also working simultaneously in strong authentication solutions in the mobile environment, including biometric authentication, in the context of the Spanish national

[7] http://www.inco-trust.eu/
[8] http://www.nessi-europe.com
[9] http://www.idi.aetic.es/esec/
[10] http://www.idi.aetic.es/emov/
[11] http://www.emobility.eu.org/about_us.html

research and development project Segur@[12], using the same mobile handset model chosen for PICOS and the same rich mobile application platform which effectively means that results from both projects can easily achieve complementarities at the implementation level and therefore joint exploitation with an added value.

The dissemination actions by Atos Origin also have a positive impact towards potential applications of exploitation of PICOS results. Thus, an immediate relevant action in this respect is the presentation of PICOS to a Chinese delegation from Handan city in the context of the European Funded EU-China Information Society Project[13]. Handan is the leading player for e-Services in China developed under international cooperation from Europe and its authorities are considering future evolution of some of such services to become mobile-based.. Already, synergies have been detected at the level of data protection, regulation, compliance and multilateral security aspects. Atos Origin will evaluate collaboration with this project for mutual exchange of knowledge and identification of potential applications, thus giving PICOS possibilities of internationalisation beyond the European geographical context.

Other dissemination activities (please see Section 4 of PICOS D.9.3.1 Dissemination Plan) may also be relevant from exploitation as can be the case for the dissemination Atos Origin already made in January 2009 at the W3C Workshop on the Future of Social Networks[14], where a PICOS Position Paper co-authored by Atos Origin was disseminated[15] and important networking contacts resulted. More importantly, Atos Origin joined the newly created after the workshop W3C Social Web Incubator Group[16] and plans to actively participate with contributions stemming from PICOS in discussions which could possibly lead to new standardisation initiatives on different aspects mobile social networks by the W3C.

[12] https://www.cenitsegura.com/joomla/index.php?lang=en
[13] http://www.EU-China-Infso.org
[14] http://www.w3.org/2008/09/msnws/
[15] http://www.w3.org/2008/09/msnws/papers/W3C_PositionPaper_PICOS.pdf
[16] http://esw.w3.org/topic/SocialWebXGCharter

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4.2 T-Mobile

T-Mobile, in their role as a mobile communication operator also intends to incorporate PICOS approaches and concepts within existing products and services in the mobile market. In addition PICOS results may be integrated or applied to further product developments. The overall goal of T-Mobile is to enhance the privacy for customers on the mobile operators' level. This may complement privacy enhancing efforts on services, provided by other parties e.g. service providers.

T-Mobile sees benefits from the PICOS participation especially in the following areas:

- User to user interaction

  At the moment, the main focus of privacy enhancing techniques is related to user data exchange between the mobile operator and 3rd parties, where the user has to give his consent so that the mobile operator is allowed to deliver the data to enable the 3rd party to provide a service. With the results of the PRIME project[17], T-Mobile was able to implement a significant enhancement in his network to control and monitor such data flow by the user. Nowadays, (mobile) community applications are emerging and the control and monitoring capabilities need to be enhanced so that also the data flow between users is under the user's control. With PICOS, we will gain substantial knowledge to enhance privacy here. Applications to support users in the context of community features are already on the horizon.

- Usability

  With the PRIME results and the T-Mobile Privacy Gateway development, we have found out, that the usability from customer perspective is very important. The privacy topic is rather complex and normal users are usually not aware of all the details and do not fully understand all privacy related aspects. They just want to use a service and they abort the service usage, if they are forced to agree on something, that they do not understand immediately. The results from usability work, e.g. the concept of a privacy advisor and how to explain complex facts, is therefore very important for T-Mobile's business and will be incorporated in future product development.

- Enabling services

  External applications and services more and more integrate with mobile operator network elements to ease data flow and to support more advanced services to the customer. The privacy aspects therefore become more important and research results will be reflected in further product developments.

[17] https://www.prime-project.eu

- New business models

  The advancement of new business models for mobile operators like advertising, co-operations with partners, new billing models etc. is ongoing and needs to be accompanied by enhanced privacy solutions. The angler community prototype will be a good example for a private community that demonstrates many new facets that could be applied to existing or new products.

4.3 Hewlett-Packard

The plans of HP comprise to include concepts and technologies developed in PICOS, in communications and community related services (e.g. OpenCall). Considering HP as a developer and provider of such services, it is especially their aim to improve the privacy and protection of user data within these services. Aside from these generic aims, HPL will use the knowledge gained from the PICOS project to:

- inform the choices it will make about future research activities, their directions and approaches, particularly in information security
- brief HP businesses on how best to ensure their products and services can make use of various privacy-enhancing technologies to meet the emerging informational needs of their customers, and of their customers' customers
- brief HP's internal Privacy Office on the project's findings and how these may be incorporated into future developments of HP's internal privacy policies, practices and processes
- brief senior company management about the impact of privacy considerations and the potential use of relevant IP that is available to HP from PICOS in determining future investment choices

4.4 IT Objects

IT-Objects GmbH (ITO) develops innovative web platforms, especially community systems, and innovative mobile applications. For example, currently people from ITO are involved in the development of a community platform for the corporate audit of E.ON AG and in the development of location-based mobile applications in an Urban Systems project, in which the infrastructure for the European Cultural Capital Ruhr Area 2010 has to be contrived.

ITO will include concepts and technologies of PICOS in its software development projects. Furthermore, ITO will enhance its business portfolio: It will offer to enrich existing community platforms using these concepts and technologies. In this business area ITO will especially analyse how open source community systems can take advantage from the knowledge and experiences of the PICOS project.

4.5 Further plans

Aside from the industrial perspectives, the close contact with representatives from the three focused communities, will allow us, to exploit the developments of PICOS within these communities. For instance IFM-Geomar currently plans a web portal, which should serve as a virtual community for anglers. We plan to integrate the angling community application prototype or elements of it into the community, in order to achieve a practical application of the PICOS developments. A similar approach is planned for the 2nd prototype community.

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