

Main Results and the Implementation Process: Global Identity Networking for Individuals (GINI)

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1. Introduction

This brief presentation sums up some of the main results from the GINI-project and outlines the process now under way to put the recommendations into concrete actions. The ITU is thanked for its invitation to have this report presented at its JCA-Idm spring meeting, in April 2015 at the ITU headquarters in Geneva.

The Global Networking for Individuals (GINI) is a previous support action with the European Commission which commenced in the spring 2010 and concluded in the fall 2012. All in all, 8 partners participate in GINI, as listed in Appendix 1. In this report, we first discuss why identity management meets with a such a stern challenge and requires a special effort. Second we review key aspects of what GINI achieved as a support action. The last section discusses the present the ongoing implementation phase and reflects on what lies ahead.

2. The challenge of identity management in digital communication

It is worth considering why identity management gives rise to such a stern challenge in digital communication. The fact is, proving your identity, that is who you are, what are your credentials and your true attributes, always was essential for human beings. Culture and social practices have partly evolved with a view to the need of providing humans with a set of supportive tools that are reliable and commonly understood within this context.

In digital communication the traditional tools break down, or are only weakly present. As we'll come back to, the consequences are strongly present. Yet, when we look at the currently dominating mega-trends in digital communication, such as search engines,

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social networks and smart phones, there is an overwhelming - although not exclusively - pattern of data-centricity. All are currently data-driven and provider-controlled, although there are signs of change. Is there a business case under way, underpinning another approach?

At the present time, there is a stark imbalance between the expanding benefits emanating from massive collection, storage and processing of personal data, on the one hand, relative the lack of responses on the part of users or service providers to protect privacy and personal data, on the other hand.

There are serious consequences of this state of affairs, such as:

- Constant violation of the minimum disclosure principle, data-use beyond its original purpose, and lack of user control for privacy preservation.
- Users being unaware how their private information is put to use.
- Many providers of digital services traditionally follow the “lock-in” principle concerning users’ data and information. Users are "forced" to register at each service provider and get stuck with a multitude of partial identities, many of which will soon be outdated while mechanisms are lacking for enacting their removal or invalidation.
- Distortions away from usage of e-commerce, especially in areas where the difficulties of control are the greatest, hindering international transactions and providing a bias against new-comers, small players, and those that are associated with less reliable (or developed) backgrounds.
- Consequences worsen the more dependent transactions are on the online means, and the more vulnerable the subjects involved, which provides a motivation for "lock-in" and organized exploitation.

As a result of the above, today's environment for digital communication is marked by serious gaps in security, privacy, trust, and usability. In the struggle to cope with it all, we observe troubling trade-offs, e.g. between privacy and security, and between usability and security.

In a sense, the *market failure* observed above may be said to be rooted in *policy failure*. There are several reasons why policies have failed to come up with responses, or put in place conditions enabling organized service provision in this area. Let us list three overriding causes:

1) Due to the intrinsic cross-border nature of the digital world, identity management must work out and accommodate discrepancies between multiple jurisdictions.

2) A disconnect by way of speed, as technical progress is moving fast, and accelerating, in the digital field. Policy-making is a much slower process, especially when it comes to working out joint legislation between different, or among all, countries.

3) Outcomes cannot be determined just by government or industry but digital communication engaged multiple stake-holders across multiple sectors and kinds of social context, meaning that solutions to a fundamental building block such as identity management requiring broad participation among many players

Despite extensive multilateral effort, in the ITU, the OECD, the ITU, and elsewhere to work out common principles, standards or approaches since almost two decades, identity management in digital communication is thus marked by a state of fragmentation, a patch-work of partial technical solutions and pass words which lead to friction, costs, and suboptimal outcomes. With convergence and continued expansion, including the entry of billions of new users on-line and trillions of devices in the Internet of things, a situation is just around the corner that will require seamless reliable authentication and authorization on a massive scale. The continued unfinished state of affairs cannot continue, or the costs will dramatically rise.

3. GINI

In the digital world, as in the real world, identities must be built up on *relations, a Personalized Identity Management (PIM) ecosystem that enable individuals to manage their digital identities and control the exchange of their identity information*, only "you" must know. Yet, it is unrealistic that individuals would manage to take charge on their own. Some argue that users do not even care about data leakage. Yet, experiments demonstrate they do, when they become aware and have the tools to articulate their needs. There is a case for professional service support; "you" cannot manage alone - there must be vendors you can turn to, to get what you need, just as in other fields.

GINI is driven by the vision of a Personalized Identity Management ecosystem, that is, a future situation and framework where people will control their own Individual Digital Identity (INDI) space. In short, *GINI-SA addresses the societal, business, legal and technological aspects related to developing an ecosystem for identity management in the digital world.*

Through INDI, individual persons will have the ability to establish and manage personalized digital identities, which they own and which enable them to be linked to verifiable and authoritative national data registries. They will be in the position to present their chosen, verified digital identity to other physical persons or legal entities with which they wish to establish trust relationships in order to perform transactions for personal, business or official purposes. They will also be able to attach them to messages and profiles.

The functionality of user-interface to be achieved can be summed up as:

- Decoupling the activation of digital identities from a specific identifier, and support the use of multiple identities and/or identifiers;
- Allowing users to exercise control as to who is able to verify his or her identity and through which processes;
- Enabling users to control essential phases of their digital identities' life cycle (creation, change, management, revocation, etc.);

- Determining an architecture for user-centric and effective separation of identifiers and identity attributes;
- Determining the prerequisites for developing viable business models for operators and relying parties to prepare, launch and trade within a digital identity ecosystem;
- Mobilizing the viable offering of new services by relying parties;
- Engaging public data sources to provide data through operators based on their compliance with the required functionality of the system;
- Supporting the entry of large numbers of new Internet users in control of their identities and personal data while accessing data sources and a huge pool of new services through relying parties.

GINI has further examined the technological, legal, regulatory and privacy-related dimensions of the gap between the current state of the art and the vision for an INDI ecosystem beyond 2020 (Figure 1). We further identified gaps between the existing conditions and the envisaged ecosystem in each of those different – but entangled – streams. The consolidated approach described in the GINI *Whitepaper*, and actions defined by the GINI *Roadmap*, were recommended as a way forward to overcome those gaps.² The initiatives were further organized in terms of actions to be taken by the different main stakeholder categories, including the research community, public actors and industry/the market (Figure 2).

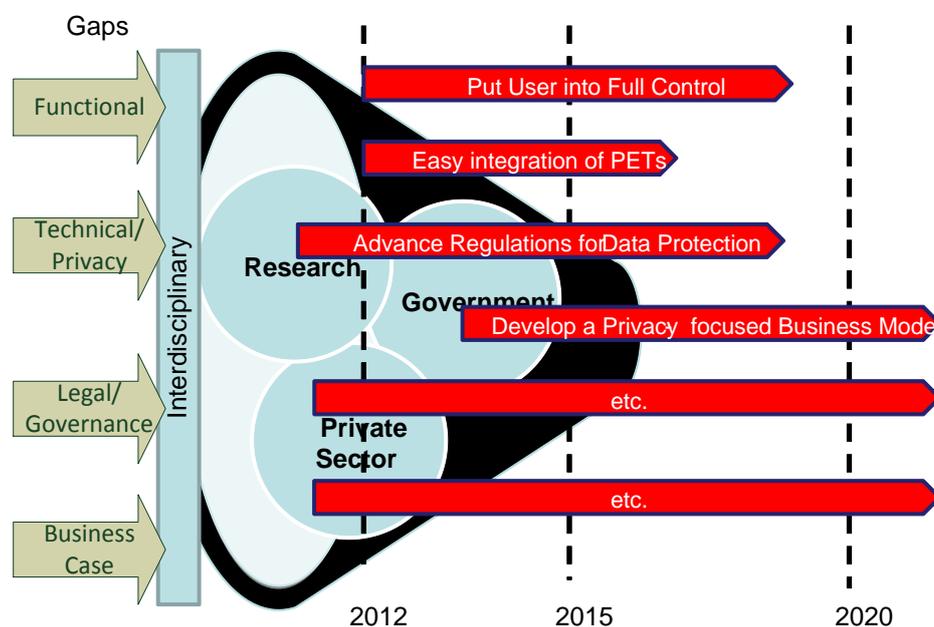


Figure 1 - Synthetic Approach to GINI Roadmap

² For the GINI Whitepaper, see <http://www.gini-sa.eu/images/stories/GINI-White-final20131124revised20140129.pdf>. For the GINI Roadmap, see <http://www.gini-sa.eu/images/stories/Roadmap%20final%202013.11.24%20%20Revi%202014.01.29%20-%202014.02.24mrACC%20cor%20QA%20odd%20no..pdf>

Roadmap towards a fully user-centric INDI ecosystem

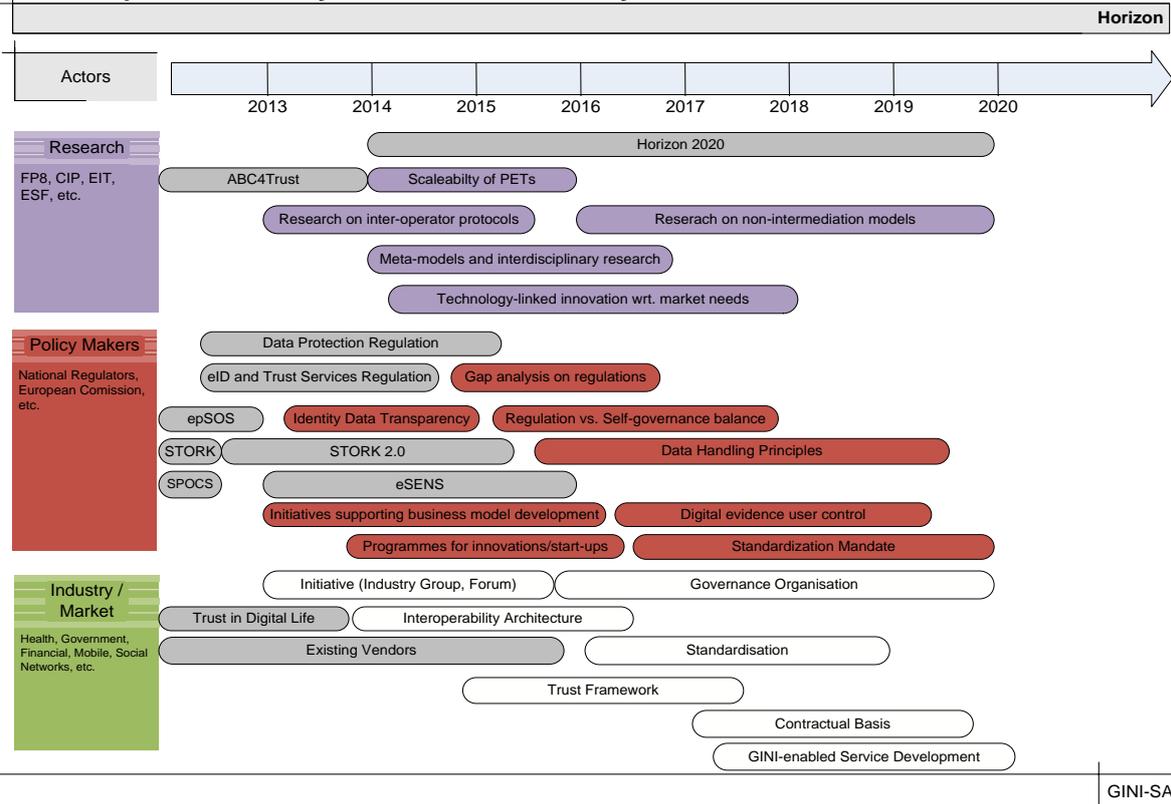


Figure 2 - GINI Roadmap towards a fully user-centric INDI ecosystem

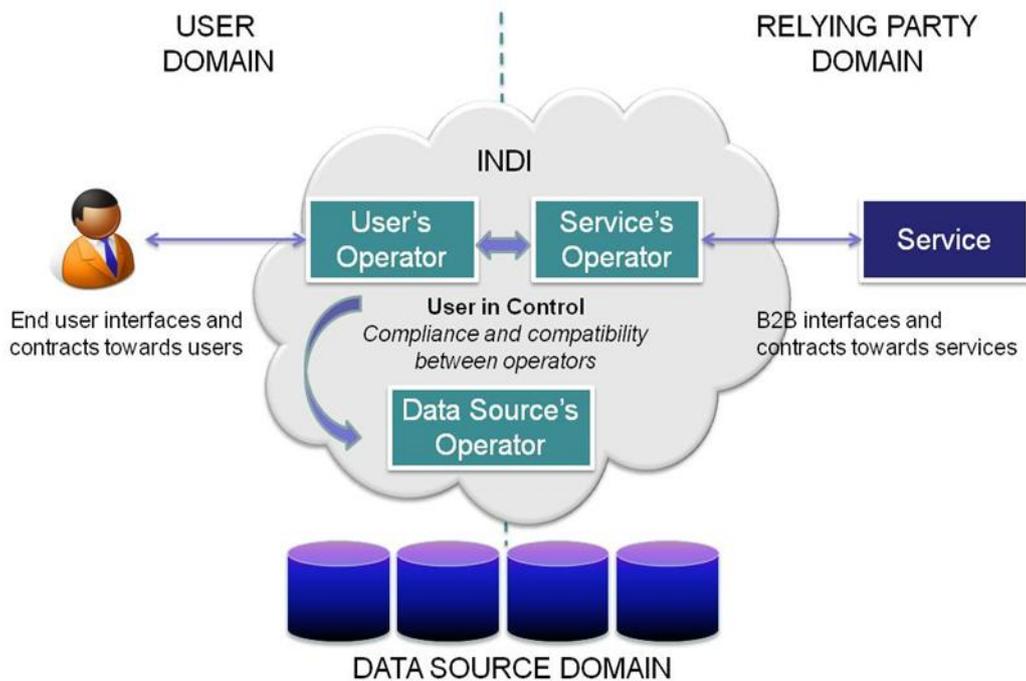


Figure 3 – The multi-Operator model within the INDI ecosystem

The overall framework developed by GINI accounts for a framework conducive to trust relationships which are managed through a dynamic interface within a multi-corner model (Figure 3). Here within, Individual users, relying parties and data sources are interlinked and serviced by operators capable of handling and storage of identity data, taking into account the proportionality and minimization principles while complying with the conditions specified above. In this framework, privacy will be safeguarded subject to orderly consideration of the special situation when identity retrieval is required by law, for fraud detection or conflict resolution.

GINI further examined the building blocks for a viable business models, a prerequisite for the emergence of operators acting as professional and diversified Identity Service Providers, within Europe as well as globally. The development of such Operators, offering choice to individuals, will form a key part of the infrastructure that is required for the future. The overall analysis and recommendations of GINI are spelled out in the *GINI White Paper*.

4. Implementation phase

Following the completion of GINI in October 2012, the GINI project has entered an implementation phase. From its inception and continuing after its completion, GINI has devoted significant efforts to engagement and dissemination activities. It has consulted with a multitude of relevant EU stakeholders in the research community, institutional actors in the EC and Member states, the industry, grass-roots NGOs representing end-users, and also with multilateral organizations and representatives of countries from outside the EU.

Among the various dissemination activities in the final consultation stage of GINI as a support action, can be mentioned:

- The GINI workshop at the Cyber Security & Privacy EU Forum, Berlin; April 24th-25th, 2012.
- Session of identity management organized by the International Secure Electronic Transactions Organization (OISTE) at the World Summit on the Information Society (WSIS), Geneva; May 16, 2012.
- Workshop on the cross domain coordination of International Cooperation, Day 2 on technical themes in Trustworthy ICT and INCO, organized by the BIC (Building International Cooperation for Trustworthy ICT), Digital Agenda Assembly, Brussels; June, 21-22, 2012.
- Tutorial session "Personalized, Privacy-Enhancing Identity Management, International Telecom Union's Study Group 17 Meeting, Geneva; August 31st, 2012.
- Session on security and recommendations from GINI, EEMA - ISSE 2012, Brussels; October 23-24, 2012.

Leading towards pilot activity to engage citizens, projects spin-offs, patents, security standards, companies take up, incorporation into a product, services available for citizens, GINI's results have been built upon for practical action in various other projects. For instance, ABC4Trust developed and successfully trialed Privacy-ABCs, an important building block for privacy friendly identity management raising the sovereignty of the user and at the same time properly protecting Relying parties, providing exemplary instantiation of the GINI framework as presented in Brussels on January 20, 2015, at the ABC4Trust Summit Event.

At the World Economic Forum in Davos 2014 and 2015, GINI further co-organized special side-events building support for a coherent system for managing digital identities and cyber-security. The theme for these two events were (see also Box 1):

- "Addressing Identity of People and Things, Privacy, Security and Trust on the Cloud", Belvédère Hotel, World Economic Forum, Davos; January 22, 2014.
- "The Rise of Borderless Electronic Identities: Addressing Internet Privacy, Security and Trust in the Post-Password Era", Belvédère Hotel, World Economic Forum, Davos, January 21, 2015.

In both the above, and related project activities, GINI interacts and collaborates with a number of organizations that are looking for an effective way to activate users and gain their confidence in offering services that grant them enhanced control over their identities and personal data. Such services are under way in multiple areas. One example is that of search engines, where the "new Qwant" launched in Paris and Berlin mid-April 2015 provides users with a set of offerings that stresses their privacy and control, in sharp contrast to Google. WISEKey, a prime player within the World Economic Initiative in this area, has developed a range of privacy-enhancing tools that stretch deep into multiple areas of communicating technical devices, extending the identity management agenda into the pivotal realm of Industry 4.0, and also the so-called Internet of Toilets (IoT).

<p>Box 1: Special Events co-organized by GINI, at the World Economic Forum, Davos, 2014 and 2015</p> <p>Together with partners, notably WISEKey as the main sponsor and OISTE, both Geneva-based, IKED and Fraunhofer FOCUS in Berlin represented GINI in co-organizing two consecutive special event in connection with the World Economic Forum in Davos.</p> <p>On January 21, 2015: The Roundtable "THE RISE OF BORDERLESS ELECTRONIC IDENTITIES: ADDRESSING INTERNET PRIVACY, SECURITY AND TRUST IN THE POST-PASSWORD ERA", launched a new platform and activities aimed to pave the way for a coherent system for digital identities, spanning geographical as well as sectoral boundaries. (DIKTYO).</p> <p>The above was preceded by the Davos 2014 Roundtable "Addressing Identity of People and Things, Privacy, Security and Trust on the Cloud". The speakers included Neelie Kroes, European Commissioner and Vice President of the European Commission at the time.</p>
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5. Conclusions

In order to enable progress on the scale and the speed that is now called for, it is essential to work out new and more effective models of cooperation between the key stakeholders so as to motivate new kinds of collaboration in developing more coherent and comprehensive solutions to trustworthy identity management. This agenda spans, e.g., research, innovation in data base delivery and access, the development of new services offerings, piloting, and the appropriate and timely deployment of new regulations, standards and other policy tools. The latter categories of measures are important, e.g., to help underpin interoperability and scaling of solutions while, at the same time, they need to be devised in ways that do not compromise the room for further innovation.

As expounded by the GINI Roadmap, there is a need of a concerted effort and agenda that is likely to last several years into the future. At the same time, it is imperative to move fast when it comes to initiating new steps that can help unleash the dynamics of a vibrant operator industry, that is more capable of innovation, experimentation and the implementation in offerings that can demonstrate practical benefits to users and other players. Given the opaque nature of the problems at hand and the rapid development of digital communication, an important part of the present policy agenda has to do with overcoming the asymmetry in information. On this basis, there is an task to help grow awareness and articulate a constructive demand for the benefits of more user-centric and reliable identity-control and privacy in the digital world now in the making.

Appendix 1: GINI Consortium:

In total, 8 partners from 6 European countries took part in GINI-SA and remain connected in the implementation work. The partners are:

IKED (The International Organisation for Knowledge Economy and Enterprise Development), *Malmo, Sweden*, www.iked.org

Fraunhofer Institute for Software and Systems Technology (ISST),
Berlin, Germany, www.isst.fraunhofer.de

KU Leuven Research and Development (Katholieke Universiteit Leuven),
Belgium, www.kuleuven.be

(Department of Electrical Engineering, research group (COSIC) & The Interdisciplinary Centre for Law and Information & Communication Technology (ICRI))

Graz University of Technology, *Austria*, www.tugraz.at

Goethe University, *Frankfurt-am-Main, Germany*, www.uni-frankfurt.de

Government to You, *Athens, Greece*, www.gov2u.org

NorthID Oy, *Helsinki, Finland*, www.northid.com