



## **Trust in Digital Life - Trustworthy ICT leading to innovation and growth in Europe**

**TDL** | Trust in  
**Digital**  
**Life**

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[www.trustindigitallife.eu](http://www.trustindigitallife.eu)

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This document came to existence thanks to a close collaboration of Executive Board members of Trust in Digital Life.

## Vision – Trust in Digital Europe

Innovations in information and communications technologies offer an extraordinary potential for an explosive growth of services. As we develop new forms of technologies and services, we can bring new benefits to European citizens and consumers, while creating new economic opportunities for Europe. If done properly, Europe can develop a more productive, innovative and competitive economy that provides its people with more knowledge than ever before. People will benefit from a broader provision and selection of goods and services. We can find new and more innovative ways for them to interact with each other and with public services.

A critical barrier to the acceptance of such services is the lack of consumer confidence. In its Digital Agenda, the European Commission has identified the lack of trust in the online environment as the most serious impediment of the European Digital Economy. Consumers have repeatedly stated that their main reasons for not buying online include concerns regarding payment security, privacy and trust.

The recent Eurobarometer on Attitudes on Data Protection and Electronic Identity in the European Union<sup>1</sup> reports that more than half of online shoppers worry about becoming a victim of fraud (phishing, identity fraud). Seventy percent are concerned that companies or governments may use the information disclosed in ways that were not intended.

Trust and confidence is essential for the success of any innovative ICT service. If we are able to establish an eco-system that brings tangible trust in digital services, citizens will have the confidence to live their digital lives to the full and to unlock the latent potential of digital services, thus creating many new business opportunities.

The challenge Europe faces is to foster innovation that increases confidence and trust in modern society, bringing new and attractive ways of living and working, while also further strengthening Europe's democratic and social values. That challenge is not just a set of technical challenges. Solutions must incorporate legal, business and technical advances, support cyber security policies, and integrate societal considerations. Trust will need to become an intrinsic property of any transaction involving personal information, and citizens should be able to recognize trustworthy services, transactions and data.

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<sup>1</sup> [http://ec.europa.eu/public\\_opinion/archives/eb\\_special\\_359\\_340\\_en.htm#359](http://ec.europa.eu/public_opinion/archives/eb_special_359_340_en.htm#359)

## Why a Trust in Digital Life Consortium? – TDL Mission

The Trust in Digital Life Consortium<sup>2</sup> (TDL), was established by Gemalto, Microsoft, Nokia and Philips to deliver a vision for trustworthy products and services related to information and communications technology, including devices, applications, services, and infrastructures. The consortium has grown to more than 25 partners, including industry parties, knowledge institutes and consumer organizations, bringing their knowledge, expertise and ambitions to take away barriers and capture opportunities. The consortium continues to grow steadily, and we estimate that it will include at least 40 partners in 2012, working together and contributing to the goals of the Digital Agenda.

The participants in TDL share the vision that trust is an essential pre-requisite for connecting people in effective human and enterprise transactions. In our society, trust relies on the rule of law and stable democratic institutions, that then enable, protect and enhance security, privacy, transparency, accountability and reputation. TDL will therefore pay special emphasis on the following Digital Agenda activities and goals:

- A vibrant digital single market: Building digital confidence among consumers by creating tools for consumers to address their concerns regarding privacy and security.
- Interoperability and standards: Ensuring interoperability between trust, privacy and security technologies across member states.
- Trust and Security: Helping technology developers to build their technologies to enhance trust, to give Europeans the ability to embrace digital opportunities with confidence.

These aspects are guiding the TDL promise and action plan described in Section 3.

TDL will translate this shared vision of trust into an agenda for research and innovation. The TDL community is addressing the fundamental societal issues raised by the introduction of digital technologies by bringing together European public and private stakeholders to promote trust in digital life. TDL will further set out an action plan for trustworthy products relating to information and communications technology, including devices, applications, services, and infrastructures.

Central to this action plan shall be the recognition of the importance of the rule of law, security, and privacy and other core democratic freedoms in contributing to trustworthiness. The goal is to have mechanisms for Europe's citizens that enable them to judge whether the service, data transaction or the message is trustworthy enough to be accepted. Finally, all these mechanisms must be user-friendly, intuitive to use, robust and self secured at the same time.

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<sup>2</sup> <http://www.trustindigitalife.eu>

## TDL commitment and action plan

In TDL, industry leaders with essential contributions from the knowledge institutes and consumer organizations are building an ecosystem for trust that is European, multidisciplinary and cross-sectoral. The TDL consortium bundles expertise and knowledge and initiates pilots in real environments dedicated to solving critical barriers for enabling trust and fostering innovation.

TDL works through working groups focused on defined themes. The working groups draw together user stories, use cases, white papers and research questions. This material contributes to the TDL Strategic Research and Innovation Agenda that describes the agenda and roadmap for research and innovation needed for the coming 5 to 10 years to stimulate the development, demonstration and deployment of trustworthy ICT solutions for the European digital society. The Strategic Research Agenda also incorporates the innovation lines defined by TDL as its own project portfolio going further:

- Trusted Stack connected to online services: An architecture model to implement security and trust at all levels and components of an ICT solution. This also includes building a reference architecture for e-authentication for the Internet.
- Platform and Service integrity in mobile services, ensuring that each service is protected.
- Data life cycle management, including necessary techniques for access control, revisions management and data termination. The healthcare domain seems to be a very interesting domain to focus on to enforce privacy issues.

## Three key themes of the TDL work

### I. Defining the roadmaps for building the future of Trustworthy ICT

When defining the roadmaps for Trustworthy ICT, many elements come into play. They range from new technologies, new business models to new legal frameworks to ensure a seamless deployment. TDL will work to achieve the goal of serving European Citizens by contributing to the definition of “trustworthy frameworks” or “end-to-end platforms”. It is essential that any work in this domain must not impede the local nature of innovation and it has to allow every individual stakeholder to promote products and services and to create value. The work should be focused enough to recommend building blocks (for example, strong authentication, data protection solutions, identity management and secure transactions), but yet let multiple solutions co-exist in the most interoperable and secure manner.

## II. Full transparency and accountability of the established trust chain

Today it is unclear which information is stored about consumers and how identifiers are used to monitor users. Full transparency of the methods and techniques to identify and authenticate individuals is necessary to increase participation in transactions through the Internet. We are facing an ever-increasing number of providers of all sizes and forms in the Web 2.0, the Cloud and the Internet of Things environment. Therefore trust in the future will vary over a broad range, with new entrants being initially unknown and not trusted. TDL will develop mechanisms to establish and manage heterogeneous trust and accountability within these complex and dynamic domains.

## III. Helping citizens to be protected from the potential threats of the Internet

In the shared and integrated domain of the Internet, organizations, governments, citizens and consumers face a myriad of threats that are technically advanced, persistent, well-funded, and motivated by profit or strategic advantages. Commonly available cyber defences such as firewalls, antivirus software, and automatic updates for security patches help reduce the risk from threats, but they are not enough. There still is currently no global approach to protecting people from the potential dangers of the Internet. Despite the considerable investments, also companies still face attacks and data breaches. Consumers have to manage the security of their own systems and often fail to do so. Even at the level of countries, it is a huge challenge to stem the dangers of cyber warfare. Information technology is complex and many people are unaware of how to protect themselves, even though tools have been built to automatically scan machines, install program updates, update virus signatures, and remove malware when found. As helpful as education and these tools are, they have proven inadequate for the task of preventing the proliferation of botnets and infected machines. Those with infected computers are not simply risking their own valuable information and data; they put others at risk too, as well as networks, organisations, and industries. The health of devices connected to the Internet needs to be improved and maintained. To realize this vision of protecting citizens, TDL will ensure that all stakeholders, including governments, the IT industry, and Internet access providers, work together to ensure the health of connected devices.

## The key targets and deliverables of TDL

TDL has defined as its key targets and consequent deliverables the following:

- Ensuring interoperability between trust technologies;
- Removing uncertainty about compliance of devices and services with trust policies;
- Assuring robust and secured implementation of trust technologies;

- Improving measurement techniques for trustworthiness based on the development, demonstration and deployment of new combinations of technology and mechanisms covering the chain of trust;
- Following an approach of user-friendliness by design, taking culture, human behaviour, law and policies into account;
- Enabling collaborative innovation and provision of end-to-end services based on an established trust-chain. This will require moving from isolated technologies development and a bridging of the gap between industry parties developing trust establishment from the end-user perspective with the chain of trust as a construct to establish trust between multiple players and those focusing on the chain of trust from the device perspective starting from a hardware-based trust anchor (TMP, MTM, etc.) used by device software; and
- Acting as test bed for the developers who are willing to pilot their technologies and solutions.

### **Role of the regulators and policy makers in building the trust**

The continuing emergence of new technologies and processes requires constant risk assessment, a domain in which Europe has excelled. Through its research and policy leadership, European stakeholders have a strong understanding of today's technological environment and the arising risks. However, in order to keep pace with emerging technologies development, mere risk assessment is not enough. Instead, we must develop a set of research and policy goals that bind together innovation and trust and enable us to apply this understanding to emerging technologies. We must seek the means through which trust can be designed into our technologies. Similarly, we must develop methods and technology concepts of understandable, consumer friendly and 'provable trust' that will be adopted by many industry players and integrated in their products and services.

When considered trustworthy, an innovation can be integrated into existing systems, deployed to replace older solutions, and even disrupt existing practices. The challenge for Europe's regulators and policy makers is, therefore, to foster innovation that increases confidence and trust in modern society, bringing new attractive ways of living and working while also further strengthening Europe's social values. We need a uniform Legal framework (across all member states) to enforce users rights and create an applicable privacy playing field for EU ICT solutions providers.

The regulator can support the goals of TDL by removing the unnecessary regulatory barriers and by adapting and harmonizing national and EU policies to be technology neutral, principles based and balanced in terms of obligations and incentives for the stakeholders to foster European rights and values. Appropriate supporting legislation will be an enabling factor to both protect the rights of European citizens and to promote innovation in European digital businesses. European companies would be able to compete with companies outside Europe when offering these services both in Europe and to the rest of the world. TDL can be an instrument to provide Regulators with the right level of anticipation on foreseeable technologies to setup rules and regulations with best chances of pertinence on the long term.

## Conclusions

The TDL ecosystem is an important stepping-stone towards a trustworthy online environment. TDL will provide significant contributions to economic growth by bundling leading players in this field and creating an experimental open innovation environment. TDL will execute its research and innovation agenda and will realise many best practices to create awareness and trust.

Together we can ensure an innovative marketplace that enhances the lives of European citizens, and protects their fundamental rights through:

- development and adoption of the trust roadmaps by industry, knowledge institutes and government
- demonstration and implementation of reference architectures and platforms
- certification and validation schemes for trusted products, components and services