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Identity of Identity

Building a Shared Understanding of the Concept of Identity in the FIDIS Network of Excellence

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Discussing on the subject of Identity, and reaching a common understanding is sometime difficult even between people having a similar background. It represents a formidable challenge when people originate from different disciplines (such as security, law or IT), and when they have totally different backgrounds (such as academics or practitioners). This article presents how FIDIS, a Network of Excellence, is addressing this challenge

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Introduction

Digital identity represents a typical illustration of a domain that is at the crossing of many disciplines (security, IT, Law, etc.), and that requires the involvement of a variety of different actors into „Identity" related activities (such as practitioners, academics or citizen).

The need for a multi-disciplinary approach to understand and manage identity is confirmed by the observation of reality which shows that no solution relying purely on a particular discipline or generated by a particular group of actors appears to work. For instance the most sophisticated technical solutions are being fooled by criminal social engineering practices targeting end-users. Security solutions not taking into account privacy concerns are rejected by the citizens and never adopted. Identity laws are falling short at following the tremendous pace of evolution of the technologies and of the practices.

Whilst the need for collaboration is now largely admitted as a necessary condition to developing successful solutions, the setting up of such collaboration has proved to be a difficult undertaking. Indeed this collaboration is faced with a formidable communication challenge: expert and specialists from different fields typically rely on a diverse set of backgrounds and develop their own language to communicate. The different actors of the value chain, moving from the research institutions, to the commercial companies, the governmental bodies or the end users, typically rely a different perspective on the subject (for instance they have a different perception of the important issues, and they rely on different values), hindering the emergence of a common understanding and the building of a shared vision.

The objective of this paper is to present some of the approaches that we have undertaken in the FIDIS project (www.fidis.net) to address this communication challenge. FIDIS, a Network of Excellence initiated by the European Commission aiming at the exchange of knowledge on the subject of identity, represents indeed small microcosm of a group of people originating from different fields (security, technical, law, philosophy), and having different backgrounds (the consortium include both academics and practitioners), that is typically facing the challenge of creating a share understanding amongst a very diverse „population".

In this paper we are going to presents how the FIDIS network is proceeding to address this challenge and to build this share understanding. The instruments used include (1) the definition of a share vocabulary of well defined and agreed terms of the identity domain; (2) the use of narratives illustrating Identity issues to capture knowledge difficult to conceptualize and to link this conceptual understanding to concrete situations; (3) the more formal representation of a key element of identity, such as how the profile of a person can be represented in an information system; (4) and the use of an advanced collaborative platform, of a Wiki, and of a blog, to facilitate the communication process.

1 Building a Shared Understanding

A variety of approaches can be used for advancing the understanding of a particular domain, in particular if this domain is complex, in constant evolution and fuzzily defined (the very same characteristics of the Identity domain).

1.1 The Ontological Approach

The first approach, the **ontological approach**, consists in the explicit specification of a conceptualisation of this domain via the identification and the definition of the main concepts and terms that are manipulated in this domain. Practically this approach is

made up of a well articulated and well argued presentation of key concepts (an example will be an article defining the concept of anonymity) or in the definition of different terms (as can be found in a dictionary or to a lesser extend in an encyclopaedia). The main advantage of this approach is its rigor and its capacity to go deeply into the core of the objects being analysed. Yet, this approach is not without limitations such as the difficulty to have a community to agree on some common semantic (leading to the risk of entering into a „sterile debate") or the risk that these conceptualisations become too abstract, too disconnected from the reality and finally making sense to only a very small group of people. It is also not very adapted for the formalisation of concepts that are too fuzzy, subjected to many interpretations, or too implicit and only embedded in people's practices, in other words, when the nature of this knowledge is tacit.

1.2 The Use of Narratives

The second approach that can be adopted consists in the use of **narratives** (stories, cases, scenarios, presentation of situations) that can be used to present difference issues in the form of a course of events. This method relies on the idea of exposing subject in a relatively informal way, in a context well connected to a concrete situation (fictional or non-fictional) making sense to the audience. A narrative in particular avoids in-depth analysis in favour of a highly descriptive and often „entertaining" presentation of situations. This narrative method addresses many of the limitations of the more formal methods described in the previous section. In particular one of its main advantage is to facilitate the collection of materials related to the subject (therefore making this clarification process easier to achieve), since one does not need to be an expert to write a story or to describe a case. Another advantage is the comprehensibility and the facility of diffusion of the results (stories are often pleasing to read), and the stimulation of cross disciplinary discussions (a story often covers several topics, is concrete and relates to situations that people may have experienced in their real life). Of course, the use of narratives is also not a panacea, and actually it is not meant to be a substitute for the more formal approaches. For instance narrative methods lack the rigour and the exhaustivity of the more formal methods, and in particular fail to provide an in-depth knowledge of the subject, as well as the tools to properly deal with new situations (how to analyse them and how to decide of a next line of action). To conclude, the use of narratives (and storytelling) has been the object of numerous researches in the field of knowledge management as a very effective means to propagate [McLe02], to elicit [Sn02], to capture, and to exchange complex ideas, as well as to encourage collaboration, to generate new ideas and to stimulate change [De01; Le02].

1.3 Computerised Representations

In the perspective of an application to information systems, it is useful to mention that the ontological approach previously described can be further elaborated in the definition of even more formal approaches that consist in the elaboration of very formal data structures, or computer based ontologies (with the definition of classes of objects, and the connection of these objects in semantic networks) that can be exploited by computerised systems. For instance, we will describe in the next chapter how FIDIS has worked on identifying different computer-based ontological description of the representation of the profile of the person (i.e. how to represent the profile of a person in a computer), in order to advance the understanding of the identity domain in an online context.

1.4 Social Dynamics

We should also never underestimate the importance of the motivational and social factors in the success of setting-up of different processes that can be put in place. How to guarantee that the processes are effectively adopted? How to ensure that the members of a community are going to participate in the collaborative construction of these definitions, or will contribute by writing narratives, or computer models that we have introduced? How to create a climate favouring the knowledge exchange and the confrontation of ideas, and therefore cross-fertilisations between disciplines? The answer to these questions relates to elements of the dynamic of participation in groups that have been largely studied by sociologist, and later have been adapted to the online context (covering the problem of online collaboration and the dynamic of knowledge exchange in virtual communities).

Different principles have been suggested to address the social dimension related to the building of a shared understanding, and more generally to help the establishment of an active virtual community (in which all the members are engaged in a knowledge exchange process). The main principles consist in working to establish a climate of trust [Tu01], a sense of community [BlMa02, KoKi03], and a feeling of recognition for their actions [Ch04] for the members of these communities .On the technical side, one of the most interesting approaches found to stimulate people's participation in digital community platforms consists in implementing mechanisms that make the activities of their members visible. This approach has attracted attention in the research community via the concept of *social translucence* [Er02]. We will indicate later in this article how we have tried to apply these principles in the FIDIS context.

1.5 Wikis, blogs and other tools

We have observed the emergence of new series of collaborative tools that appear to be particularly relevant to support knowledge exchange in communities, and that they can be very helpful in contributing to the construction of a common understanding.

The first and probably the most important category of these tools is the Wiki. A Wiki, is an information systems allowing groups of users to easily create and edit Web page content using any Web browser an to link the pages one with another. If we consider that the pages to be edited represent terms, we can easily imagine that the Wiki represent a quasi ideal tool to support the collaborative construction of this shared vocabulary that we have mentioned in the Ontological approach.

Another very useful tool is constituted by blogs. Blogs (sometime referred as a weblogs) are web-based publications infrastructures consisting primarily of periodic articles or postings (normally in reverse chronological order) that can easily be posted by an author and commented by its readers (who can easily post reply to the posting directly into the blog). Obviously, blogging tool appear to be particularly well adapted to the support of the collection of narratives, but also to support many processes that can be associated to these narratives, such as the support of the discussion on their subjects (the narratives representing

the postings of the blogs, and the discussions the different replies).

2 Building a Shared Understanding of the Identity Domain

The different instruments and principles that we have described previously have been applied in the context of the FIDIS project in order to help building a common understanding of the Identity domain.

2.1 Explicit Conceptualisation of the Identity Domain

The initial work FIDIS started with was to clarify what is the concept of conceptualisation. More concretely, FIDIS has looked into different theories related to Ontology (Ontology represents the discipline concerned with the specification of conceptualisations) in order to determine the different forms of representation of a conceptualisation. For instance, a variety of approaches can be used to conceptualise a term, ranging from relatively „free" and open textual description, to more structured taxonomies up to very elaborated specifications involving semantic representations.

FIDIS continued with the conceptualisation of key general concepts of the Identity domain (such as for example „Identity" or „Identification"). This work has also quasi mechanically led to the specification of more specific concepts that were introduced so as to help to define the more general concepts (for instance the concepts „ipse-identity", „virtual person", „anonymity", „pseudonymity", were defined as part of the work to define the „identity" concept). Practically this specification work has consisted in a textual description of these concepts following a particular structure. This structure proposes different facets to describe a term such as a short description of this term, the identification and the formulation of the main issues associated with this concept or a set of reference points (such as a reference paper, or an expert). For instance in the case of the concept „Identity", the term „Identity" has been defined in relation to the characterisation of a person via a set of attributes, how the term „Identity" can be applied in different situations, what are the different issues associate to this concept, and how it relates to the person. This concept of „Identity" was also further decomposed in different sub-concepts such as the ipse-identity (who the person really is) and the idem-identity (the external projection of this person that will be perceived by the environment); or in some other models [Du02] into „True Identity", „Assigned Identity", „Abstracted Identity". Besides some notions attached to this „identity" can be introduced via the concept of the „virtual person", or the relationship of the identity with a territory. In a similar way, FIDIS has defined the concept of „identification" as the set of approaches, mechanisms and processes involved in the disclosure of the identity information, in the course of an interaction. Examples of associated concept that relate to processes include anonymity, pseudonymity, observability, linkability, etc..

The third part of this work has consisted in making an inventory of the different terms used in the Identity domain, and to start defining them individually as in a dictionary. The objective of this work was to define a shared vocabulary that could be used for facilitating the knowledge exchange on the Identity domain. This work is probably the most promising, and the more capable to generating value inside and outside the consortium, in particular if we consider the importance of the role of a vocabulary in the construction of a shared understanding. Besides, this work is also the one that has (and will) lead to the more important implication and collaboration in the consortium. Indeed, massive distributed definition of terms can easily be achieved in a distributed setting (collections of terms, contrary to more traditional documents, represent atoms of knowledge that can easily be edited and updated by a large community of people), in particular when it is supported by collaborative knowledge construction technologies such as Wikis, that we have previously presented. A Wiki, was therefore set-up, both to facilitate the collaborative collection and description of the Identity terms, but also as a very flexible delivery medium (a Wiki is easier to navigate than a monolithic document).

> This Wiki provides the foundation of the general FIDIS Identity Wiki that is used to reference the outputs generated inside the whole FIDIS project, but also in the future to reference potentially any work that can be relevant in the Identity domain.

2.2 Using Narratives to Talk About Identity Issues

As indicated previously, the „narrative" approach was adopted in different parts of FIDIS to collect knowledge difficult to formalise. Practically this collection of cases, stories, scenarios, or perspectives in a particular application domain, linking the different Identity terms and concepts together in different contexts and according to a multidisciplinary perspective, is conducted in different areas of the project. This series of „narratives", for which maximum freedom is given to the authors in order to let them express their creativity as much as possible, is developed by many different members of the FIDIS network, each illustrating a different Identity issue and providing a different perspective (security, legal, societal, etc.). This approach has allowed the collection of a very concrete and comprehensive material from the different members of the network, and has contributed to the construction of a shared understanding of the Identity concept amongst the partners (each case are typically short, independent and self contained, and are concrete enough to make sense to any individual).

The scenarios & stories authored in FIDIS cover a large variety of issues. For instance, some of the stories serve to clarify some identity related processes and to explore anonymity services on the Internet, illustrating the use of pseudonyms in the context of a web-based shopping system.

Other stories provide some examples and cases that belong to the field of criminal investigation, law and society. For instance, some concrete cases are used to illustrate the different issues related to money laundering and the financing of terrorism. Another example presents a case law related to identity and anonymity, in the management of copyright protection in the music industry, and the protection of anonymity and right to freedom of expression on the Internet. Similarly, an imaginary story has been written to help to underlines and to anticipate the consequences of the future developments of the Information Society on privacy (and what can be the ultimate consequences of laws that would fail to provide sufficient protecting to the privacy of the individuals).

Other examples explore a probable future of the Information Society with the Ambient Intelligent Environments, and the potential invasiveness of the technology. In particular, one of them describes a scenario of use of loyalty cards emphasising the risks they put

on the privacy of the citizens. Another more futuristic scenario describes the advent and the consequences of RFID on identity by presenting the experience of people in a bar in 2012, and how they might interact within ambient intelligent environments with „smart objects" and with each other.

Apart from the mentioned initial scenarios used to describe the identity domain, narratives have been used in a number of FIDIS-studies, mainly as a starting point for the following multi-disciplinary analysis. One example of this can be found in the article „Mobilität, mobile Technologie und Identität" in this DuD issue.

2.3 Computerized Representations of the Identity of the Person

Further FIDIS work is related to the identification and an inventory of computerised representations that can be relevant to the domain of identity.

An example of this work included an inventory of the computerised representation of people's profiles, the examination of different facets of representations of the person, and the investigation of commonalities between these different models. For instance HR-XML is a standard of representation and exchange of people information that relies on the specification of a set of attributes (such as job position and competency) that are able to represent the user's information used in the domain of Human Resource. IMS / LIP (Learner Information Packaging) is another similar standard that has been defined for the representation of learner information for e-learning applications. Interestingly, the two standards have commons facets and attributes such as address of the person and competency.

The value of this work to our understanding of the Identity domain is beyond a computerised exploitation, since it provides us with a very well structured and concrete representation of the person. It also helps us to be aware of the real risks associated with the representation of this Identity. Indeed, it is easy to imagine that only the information that can be represented (for instance the competence of a person) can be potentially exploited later. This may result in a restriction of the freedom of the individual (for instance if competence information represent an obstacle to the granting of a loan), or in an opportunity to create innovative services (for instance when the access of

competence information is used to provide more personalise guidance).

What did we learn from this work that, to our knowledge, had never been conducted in a large scale?

Firstly, it has been observed that several application domains (human resource, e-learning, justice) have already started to create holistic models of the person that fulfil the needs of this domain (for example HR-XML for human resources, IMS/LIP for e-Learning and JXDM for Justice). In some cases, domains have independently developed different representations (in some cases very elaborated) for representing the same objective (such as for the representation of the address of a person), raising the question of the duplication of work. In other cases, attempts to reuse some of the existing specifications have been observed. For instance there is a clear similarity between the specifications developed for e-learning in IMS/LIP and in Human resources with HR-XML that indicates some clear interdependence between the two specifications. Currently, the modelling of identities appears to be composed of dispersed initiatives, is still very much under construction (and incomplete), and very complex for the most advanced initiatives. Such initiatives would probably benefit from additional cross-disciplinary studies, such as this, even if the benefit of a holistic approach still needs to be demonstrated (because of its complexity). It has been noted in particular that there is relatively limited interaction between different „Universes" (such as identity management and intelligent adaptive systems) for which representation of persons is very important. Finally, and not surprisingly, it can be noted that some aspects of the person modelling, such as the behavioural or social characteristics, are still largely underdeveloped, especially considering that they will be essential in the new technologies of tomorrow, such as intelligent mobile and ubiquitous applications.

To conclude, this work on the inventory of approaches for the computerized representation of the person has underlined an area of Identity research for which the finding of a common understanding, and a sharing of experience is beneficial, even if it is difficult to achieve.

2.4 Social Dynamics in FIDIS

As indicated previously, the motivational and social dimensions are of critical importance for the success of every process that involves the participation of groups of people.

FIDIS has first used the traditional methods to support this social process via: the organisation of „face-to-face" workshops helping the establishment of a climate of understanding and trust amongst the participants. In addition email was used to manage the different contributions. More interestingly, the use of the Wiki, and in particular implementation of mechanisms making visible the contribution of the different participants (who has contributed, how many terms have been authored, etc.) have represented an element that has helped to stimulate people participation, though some important progress is expected for the future (the Wiki has not yet reached a critical mass so that it constitutes a real pressure on people to participate). The setting-up of blogging, that is still in an initial stage, could be employed to help the process of collection of new stories and support discussion. In addition to the effect of boost the interaction blogs may accelerate the dissemination of ideas and the emergence of a common understanding.

Summary

In this article we have described how we are proceeding in the FIDIS network of excellence to facilitate the emergence of a common understanding of the Identity domain. The approach consists is a combination of methods (Ontological work, the use of narratives) and tools (the setting-up of a Wiki, and the exploration of blogs), that allows us to tackle this conceptualisation from different angles, and in particular in a way that allows for a combination of formal and more informal means to conceptualising „things".

Have we managed to establish a sense of community in FIDIS? Have participants developed a common understanding of the Identity domain and build a shared vision of the future of identity in the Information society? Has the „Identity of Identity" task provided any help for this?

We would like to be able to give a frank yes to all these questions, but the real answer is „yes, but more needs to be done". We believe indeed that this action should be pursued since it is considered to be a „long-drawn-out job". However, we achieved promising results and have demonstrated the approach to be meaningful and worth to be continued.

This work of common conceptualisation of the domain will therefore be pursued in the future, with a particular focus on the support of new tools (Wiki, Blogs, and associated mechanisms) that can represent a real support for accelerating the construction of a shared understanding of the Identity Domain in the FIDIS community, and a space in which the common vision of Identity in the Information Society can be elaborated.

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