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Chapter 12

Living Labs Legals

Oli Pitkänen

12.1 Introduction

Living Labs form a hugely popular tool to study technology, services, applications, and users in living-like environments. At their best, Living Labs provide settings in which users can contribute in creating real successful innovations. [4] One specific area, in which Living Labs could be most useful, is studying legal challenges and requirements of emerging technologies and their applications. However, to produce real success stories, Living Labs still have several issues to overcome. This chapter aims at defining the central legal areas which would benefit from Living Lab studies, thus advancing both Living Lab development and legal studies.

12.2 Legal Issues Related to Living Labs

To create successful innovations, it is not enough to develop the technology and implement applications that users want to use and someone is even willing to pay for, but there are also legal challenges that need to be taken care of. How to develop applications so that they will be legal? Or the other way

around: how to improve the legal system so that it won't unnecessarily harm useful innovations? At first sight, it seems that legal challenges should be analyzed using the methods of legal science. However, innovations, by their nature, often introduce new kind of challenges while legal science mostly uses court cases, statutes, their preparatory works, and other old documents as its sources and derives theories by analyzing them. Thus it is hardly possible to give a comprehensive picture on forthcoming legal issues using only conventional jurisprudential methods [5]. Instead, we need to supplement the traditional methods by for example applying empirical methods with an open mind in Living Lab environments.

In Living Labs, it is essential that service providers and users co-produce services and applications in complex and dynamic formations. Living Labs mimic real life settings in which different actors in service systems have diverse interests. They are governed by various laws. The actors can be businesses (corporations for profit), consumers (individuals), public entities (government, state officials, etc), or communities (informal groups of individuals, usually not for profit). In each service relationship, there are at least three kinds of legal interest that are of particular importance for the Living Lab study:

- to properly protect information concerning the customer or end user and their needs,
- to promote competition by appropriately protecting the service provider's competitive advantage including information concerning the provider's skills and inventions, and
- to secure the terms and conditions of the service and to address liability issues.

In the following, each of these interests is discussed in more detail.

12.3 Privacy and Data Protection

From the legal point of view, the information on the end user is mostly related to privacy and data protection. In addition to technical measures to protect privacy and personal information, other aspects of privacy protection need to be considered – in particular, the legal and moral systems in the society. Surveys and experiments have uncovered a dichotomy between stated attitudes and actual behaviour of individuals facing decisions affecting their privacy and their personal information security. Most individuals are concerned about the security of their personal information, but very few actually take any action to protect it [1]. Many business and government leaders have an unquestioned, optimistic, over-simplified faith in science and technology as solutions to social is-

sues. Such leaders argue for unleashing technology and maximizing economic and security values [2]. Technologies as such have little possibilities to directly affect individuals' behaviour with respect to personal information safety, but they have a most important indirect effect.

As computing and communication devices become more pervasive, they will become increasingly embedded in everyday objects and places, connected by communications networks. This development is called ubiquitous computing, ambient intelligence, or pervasive computing. Tiny pervasive computing devices will form the future technology environment for services [2, 3].

How will ubiquitous computing or ambient intelligence technologies affect privacy? Because devices that are able to exchange information on people are proliferating, the quantity of privacy problems is expected to increase. However, at least three categories of qualitative changes in privacy protection also seem probable.

First, current legislation, although it claims to be technology-neutral, is biased towards existing technical solutions, like personal computers. According to the European Directive on Privacy and Electronic Communications (2002/58/EC), services must consistently provide the option, using a simple means and free of charge, of temporarily refusing the processing of certain personal data for each connection to the network or for each transmission of a communication. It would be quite easy to fulfil such requirements with a PC-based system, but very difficult with a tiny ubiquitous computing device which has a minimal user interface.

Second, people's notions of privacy are evolving. In the future, people may have different notions of privacy and they may be satisfied with reduced privacy in exchange for enhanced comfort that more elaborate services and security provide.

Third, information and communication technologies will no longer affect only informational privacy, but other sectors of privacy as well. One well-known example is Professor Kevin Warwick at the University of Reading, who has been implanted with a wireless device connecting him to a computer network. His example shows how technology can be used to observe and control human beings through computer networks from a distance. It is possible to even affect his brain's decision-making process [5].

Until now, developing information and communication technology has threatened only informational privacy. Professor Warwick and similar examples

show that the emerging technologies can also jeopardize the other components of privacy, in extreme scenarios even physical or mental integrity. This implies a major qualitative change in privacy problems.

The opportunity in Living Labs is to use the real life settings to find out how the users actually experience their privacy, how they want to control and manage it, in which situations they feel that they are insulted or that their privacy is compromised, and what kind of protection they need.

12.4 Intellectual Property Rights

Intellectual Property Rights, especially *Copyright* will play a central role in the information society. Many business models will increasingly depend on copyright law. Yet, the basic ideas behind the copyright system have their origins in a very different world. In the early era of industrializing printing houses and phonorecord companies it certainly made sense to give protection against unauthorized copying. In relation to emerging innovations that are studied in Living Labs, it is no longer clear whether copy-protection is the key-factor to promote creativity.

Copyright provides not only economic rights, but also moral rights. For many people, especially amateurs, it is not so vital to make money from the works they have created, but to get credited as an author. Thus, copyright can be important for non-profit communities, also.

Living Lab studies could provide us information on what makes people to create works, and why they sometimes want to share those works with others and sometimes not. What motivates creative people especially in relation to those innovations that are studied? How to make them even more motivated? How to improve the copyright system in a way that it better supports that motivation?

Another IPR regime, the *patent system* was developed to protect inventions that are related to tangible industrial products. Because of this history, it is often difficult to apply patent law to intangible services. The subject matter of patent law has been gradually extending: computer programs are already largely patentable and many countries, most notably the United States, also allow business method patents. Therefore, it seems that regardless of problems, it is increasingly possible to patent service-related inventions. Arguably, the patent system has many flaws, and some opponents claim that the system as a whole is mostly harmful and hinders development. However, provided society con-

siders it useful to promote inventions with such a system, there should be no reason not to introduce a similar protection for new innovations. It should nevertheless be used to promote competition and not to develop unnecessary monopolies.

Living Labs could once again play an important role in finding out what are the valuable characteristics of an innovation that need protection from the inventor's point of view and – on the other hand – should not be overprotected from the healthy competition's perspective. Living Labs could therefore provide important information to improve also the patent system.

12.5 Contractual Relations and Consumer Protection

New information and communication technologies introduce new kinds of contractual challenges. In a typical Living Lab study, users are moving, they have various wireless devices, and it can be increasingly challenging to securely identify the users. From the contractual viewpoint it is troublesome if one contracting party is not able to be sure who the other party is. This can be addressed by using, for example, digital signatures that are certified by a trusted third party. However, this requires technological solutions that are accepted by the users. The technology is not yet available, but could be developed with the help of Living Labs.

Consumer protection laws protect individuals against unfair trade and credit practices. They ensure not only the safety of goods and services, but also the economic and legal interests that will enable consumers to shop with confidence. It will be challenging for a consumer to determine which providers are trustworthy and with whom it is safe to transact. Especially, to develop solutions to these problems, finding out what the real user needs in this area are, is very demanding. Living Labs can be used to improve consumer protection law and the technical solutions to promote consumer protection in its difficult but increasingly important role in increasing consumers' trust and enabling business.

12.6 International and Cross-Border Issues

Service providers could obviously benefit from worldwide borderless digital markets, but the current legal system does not support it. To foster service provisioning and to promote fair global competition, it is essential to reduce the problems that differences between national laws introduce – though under-

standing that some of the differences are necessary because of essential differences in the countries, the nations, and the cultures.

There are hardly any international laws that govern the legal topics discussed above, only a variety of national laws. National laws can be quite different, and services, which are becoming increasingly international, may face problems when trying to cope with multiple jurisdictions. Also, people's needs may vary a lot depending on the culture, the political system, and other factors. Therefore, it is vital to be able to conduct comparable studies in several places to find out, what the differences are, which legal rules can be harmonized, and which rules need to reflect for example cultural differences. International Living Lab networks can provide us with a useful tool for that.

12.7 Conclusions

Living Labs studies can provide important information on legal issues. A democratic lawmaking process cannot depend only on one such research method as Living Labs alone. For example, traditional legal science or jurisprudence is needed as well as all the other fields of science that can output useful information for legislators. However, as discussed above, Living Labs have their opportunity to provide information that is significant and that is difficult to get in any other way. The examples above include information on people's needs and expectations on privacy, what motivates creative people with regards to new services, and how to find a reasonable level for consumer protection to foster also businesses. International Living Lab networks can be used to compare those topics in different cultures and jurisdictions. Therefore, it is desirable that Living Lab studies will also include efforts to find answers to these legal questions.

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