Scenario Method to Find Legal Challenges to Future Information Businesses

Olli Pitkänen, Helsinki Institute for Information Technology HIIT, Helsinki, Finland, olli.pitkanen@hiit.fi

Abstract

The paper presents a method to study future legal challenges to information businesses, especially m-commerce products and services. Using numerous scenarios, legal issues are listed and analyzed. Based on a study that applied this method it is concluded that the most significant legal challenges will arise in the areas of privacy, copyright, and contracts.

1   Introduction

Legal structures enable business, but they may also constrain possibilities. Laws make it easier to anticipate the future legal conditions. For example, it is hard to foresee how a contractual relationship is assessed legally if there is no governing law. For that reason, legal structures generally diminish risks involved in business and thus enable business methods. Then again, legal constraints may harm business. Although some of them are due to rules that positively prohibit certain actions, many of them, in fact, are results from the lack of enabling legal structures. So, in many cases enabling and constraining legal issues are merely the other sides of the same coin. Typically, uncertainty that often relates to decision making is hardly an obstacle, but points to risks that are involved in business models. Therefore assessing legal constraints is closely related to risk management. [11]

I have studied legal challenges in relation to information products and services. [15] Information products include, for example, music, movies, literature, computer programs, databases – products whose value is mainly in intangible information. Information services on the other hand include services that provide users with information they need. Therefore, I am concentrating on technologies, legal areas, and business models that are central to information.

The underlying viewpoint is that anyone who wishes to do business that is related to information products or services should consider legal challenges. Then again, of course, it depends on the business model and strategy how much one wants to invest in managing those risks. The study is giving justified means to decide how to design business models and manage risks related to legal challenges and rights in information products and services.

This paper briefly describes the method and summarizes the results of the scenario analysis that I have accomplished. [15]

2   Method

The study covers many areas. I am discussing on technological, legal, economical, as well as other societal issues. Therefore, the study is necessarily somewhat interdisciplinary or multidisciplinary and I have needed to use several methods to accomplish this work. In many areas I have heavily relied on literature. Nevertheless, the main contributions of the study are the legal analysis of the set of scenarios and the model to analyze *legal challenges related to the future information businesses*. [15]

The method highlights information products and services from commercial entity's viewpoint: other business aspects are paid less attention. Also, some specific characteristics of particular companies cannot be considered in a general method like this. Therefore challenges in legal areas such as tax law or competition law do not appear although in practice they can be relevant. The method is still able to point out numerous relevant legal challenges.

The study focuses on the future: the time span is about two to ten years from now. The focus is on the business-to-consumer (B2C) market. The emphasis is on strategic product and service development.

In the study of future legal challenges, I have identified legal challenges that arise in conditions that largely do not yet exist. Mainstream jurisprudence uses court cases, statutes, and their preparatory works as its sources and derives theories by analyzing them. Thus it is hardly possible to predict the future by using these conventional jurisprudential methods.

Compared to traditional jurisprudential research methods, futures research provides us with more suitable means. Especially scenarios are useful when we want to describe what the world may be like and what kinds of legal challenges may occur in the future. Scenario-based methods offer a scientific basis for describing the future and evaluating it from the present day perspective. [15]

Scenarios are widely used. There are many kinds of scenarios. Some of them are huge. They give us large world views illustrating society at large. They describe operating environment, and they consider many aspects. I am calling them *macro scenarios*. In contrast, what I am calling *micro scenarios*, small sample situations, use-cases, examples of business models, services, products, and so on are used to highlight some specific aspects of the future.

In macro scenarios, it is crucial to state what time the scenarios are describing. In general it is easy to overestimate development in the near future, and underestimate it in the long run. Also, factors may have significantly different development pace. For example, if we are studying the future within the time frame of ten to twenty years, it is hardly likely that human behavior would change a lot. Instead, mobile technologies, for instance, will develop a lot in the same time. Therefore, it is essential to place the macro scenarios correctly. On the other hand, micro scenarios are usually not that time-sensitive. Typically, it does not matter so much, when would such a scenario come true, but what issues it raises.

In this study, I have mainly used micro scenarios. However, I have also used macro scenarios to some extent.

Notice that it is not claimed that any of the scenarios would actually be realized as such. Instead, scenarios are intended to form a holistic picture of possibilities and concerns that may exist in the future.

The major problem I have faced is how to create scenarios to cover possible situations adequately. If I create them randomly, I am not able to claim that they embody important issues to a sufficient breadth and depth. To avoid such biasing, I should have been able to create the scenarios in some systematic way. In order to do that, I needed to understand those underlying *factors* and their *attributes* that influence the legal challenges on the future information businesses.

I believe that I have been able to identify specific factors and their attributes and by interacting those with the existing law, legal challenges are implied. Based on the literature referred below and the discussions with domain experts, I suggest that the most important factors of the deployment and use of emerging information and communication technologies (ICT) from this viewpoint are *technology*, *economy*, and *society and individuals*. I also summarize based on the existing literature, which *attributes* of each factor mostly seem to relate to forthcoming information and communication technologies. In the terms of futures research our attributes include also weak signals and trends.

After identifying factors and their attributes, *scenarios* were created so that each of those attributes occurs at least in one scenario. Next, legal challenges involved in those scenarios were detected. I have also checked the attribute list in order to identify legal challenges directly from them. The legal challenges were then classified by legal areas, assessed, and prioritized. In conclusion I was able to form a list of legal areas that will hold significant challenges. Moreover, I was able to indicate a plausible rationale and mechanism of why and how these challenges emerge. This suggests further work including structural innovations and changes to value networks and their legal rules.

The method has some noteworthy threats to *validity*. I may make mistakes in defining the factors, choose wrong attributes, create scenarios that do not represent adequately the future situations, analyze the scenarios to insufficient depth, make erroneous conclusions, identify legal challenges incorrectly or insufficiently, and finally assess and therefore prioritize some issues erroneously. Based on the careful design of the study, however, I am quite confident that these threats to validity are limited. My confidence is further strengthened by continuous discussions about the relevance of the scenarios with technology experts in leading technology companies and research institutions of the field. I have presented the work to them and they have commented it and helped us to improve the scenarios and the analysis. [3]

On the other hand, it is also possible to argue that the question is not so much about the validity as it is about the *relevance* of the research. Indeed, from an interpretivist/critical perspective it is not possible to create an accurate model of reality in the first place. Instead, the reality is interpreted and reinterpreted in various social contexts, aiming at exposing relevant aspects and viewpoints of the reality for a particular discourse in a particular context. Therefore, instead of formal validity, what matters is the pragmatic and operational relevance of the results to the stakeholders and the context. [3, 17]

In this study, I have considered three *factors* that interact with legal challenges: technology, economy, and society. Each of these factors is characterized in terms of what I consider its most significant *attributes*.

The factors and their attributes are derived from the current literature and from the discussions with experts. The list is not intended to be exhaustive, but to represent the most significant factors and attributes of the deployment and use of emerging mobile services from the project's viewpoint.

I have created future scenarios. My focus has been roughly on the next decade. However, the factors are not unfamiliar or non-existing even today. They do exist already, but their importance is increasing. The ones that are picked up here seem to have most significance in this field in the future.

It should be stressed again that I make no claims to the completeness of this analysis. I do not suggest any simple causal relations between the factors and the issues I aim to discover either. Instead, I aim to establish a framework for discourse that can potentially facilitate the resolution of the issues.

The factors and attributes that I have used in the study are listed in the table below.

Table 1. The factors and attributes

| Factors	Attributes
Technology	• *Moving user* • *Roaming* • *Context-awareness* • *Content adaptation* • *Ubiquitous computing*
Economy (entities)	• *Dynamic capabilities* • *Intangible resources* • *Low hierarchy*
(economic environment)	• *Network economics* • *Lock-in* • *Branding*
Society and Individuals	• *Globalization* • *Market culture* • *Changing work* • *Challenges to political systems* • *Changes in minds and behavior*

I have first created a few scenarios. Then I have analyzed them legally and made a list of legal challenges related to them. It might have caused some bias that I have both created and analyzed the scenarios myself. To avoid the bias, I have also borrowed scenarios that others have created (namely MC2, Between, and ISTAG scenarios, see Chapter 'Scenarios' below) and analyzed them also. The problem with those other scenarios is that I do not know exactly how well they have been created, what kind of processes have produced them, and what presumptions have been made. Basically they have been created for other purposes and there is no guarantee that they suit for my study. Yet, I have tried to select scenarios that seem to have been created properly and that probably have similar enough presumptions.

Therefore, combining my own scenarios and the borrowed scenarios I believe I have been able to avoid bias that analyzing my own scenarios might have caused, and yet I have had reasonable control on at least some of the scenarios. The fact that my own scenarios and the borrowed scenarios introduced similar legal challenges make me confident that the chosen method is acceptable.

I have carried out the legal analysis of the scenarios using a similar method that a practicing lawyer would use, if a client asks to assess what kind of legal problems there might be in a given case. Of course, the lawyer would use the knowledge that the legal education and prior experience have provided, but also systematically go through different legal areas and check specific issues in each of them. From the methodological perspective, this kind of analysis might be described as hermeneutic – or maybe heuristic.

After I have created the prioritized list of legal challenges based on the micro scenarios, I have listed the major distinguishers that cause those challenges in business models.
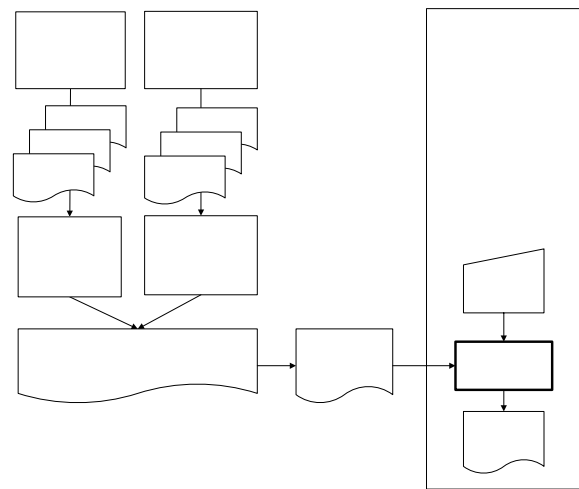
Figure 1. Illustration of the research method.

It is important to note that the scope of my study includes business models that are related to information products and services. Therefore I exclude issues that are not specific to information products. Also, I am studying future situations. Therefore I am not emphasizing issues that are common already.

3 Scenarios

Scenarios are useful tools for researching future phenomena. They are descriptions of which – in the author's view – are possible futures. It must be emphasized that they are not predictions. Instead they are depictions of the future that are useful to clarify our thinking. [5]

Scenarios are very different. Some of them are very small. They simply describe an episode, an event, or a use-case concentrating for example on a person, a business, or a service. They more or less ignore the society at large. They answer questions like, what possible business models there will be, what a future person might do at home, or what features a future product will have. I call them *micro scenarios*. On the other hand, large scenarios, those that I call *macro scenarios*, present conceptions of the world – or at least of a society. They combine a

number of attributes and form a large picture on what will happen if these values of the attributes co-exist in the given time. For a company, they illustrate the future operational environment. They give answers to questions like, what the environmental, political, economical, or health-care status will be, for example, in 2050, how the unemployment will develop in the next two decades, or what kind of European Union there will be in 2100 and will the USA still exist.

In this study, I have analyzed the following scenarios:

- five *MobileIPR* scenarios that were created using the systematic method described above in HIIT's MobileIPR research project, [12, 13, 14]
- eight *MC2* scenarios created in HIIT's Mobile Content Communities research project, [7]
- forty-eight *Between* scenarios (eight of them in detail and forty of them more briefly), which were created in HIIT's Between research project, [6]
- four *ISTAG Scenarios for Ambient Intelligence 2010* that the IST advisory Group has created in European Comission, [4] and
- four sets of macro scenarios, namely *Mobicom* (MobiCom European Fifth Framework Project IST-1999-21000) [1, 8, 9], *The Arizona Rebublic* [16], *RAND* [2], and *Intelcity* [10].

4   Legal Challenges and Major Distinguishers

Based on the analyzed scenarios, I conclude that the legal areas including most challenges in relation to information products business models will be

- privacy and data protection,
- intellectual property rights, and
- contracts.

Perhaps, the most important or at least very significant legal area will be *privacy and data protection.* Mobility, context-awareness, and ubiquity will bring computer networks even into the most intimate places and walks of life. As the scenarios show, future computing and communication devices are not only capable of accessing people's private information but many useful services are highly dependant on it. There will an increasing dilemma: people are requesting and can benefit from services that jeopardize their privacy.

Probably, the opposite interests of getting useful services and protecting privacy tend to seek balance. People are willing to disclose reasonable amount of private information to get the services they need, but not more than that. Certainly some people are more cautious of their privacy while some others do not care even if quite a lot of information on them is available for others. It certainly depends also a lot on the situation, social context, the services, and other factors, how much somebody is willing to disclose. Privacy is most relative. In a business meeting

everybody is expected to introduce oneself while in a anonymous discussion group it is acceptable to use a pseudonym. Usually, it is at one's own discretion how much personal information she or he is willing to reveal.

On the other hand, for certain service providers there may be incentives to collect as much private information from people as they can, because that information can be worth a lot of money. Also, as discussed above, it is often more difficult and expensive to build technical systems that secure private information than ignore privacy needs. Therefore service providers easily disregard privacy unless customers insist it or a legal system forces them to honor people's privacy.

The recent changes in legal systems, like European directives on data protection, have substantially improved privacy protection. Some of the chosen actions, however, make it very difficult to develop services that users would like to have. Some of the scenarios may turn out to be unfeasible, because it is very difficult to implement the services in an efficient but legal way.

In summary, the opposite interests in privacy and useful services need to be balanced. The legal system needs to take into consideration both sides and also understand what is technically feasible. Challenges to privacy are much greater than ever before.

It seems that *intellectual property rights*, particularly copyright, will be another legal area where a number of challenges come up. That is not surprising considering that the focus of the study is information products, and intellectual property rights often protect them. The interesting point, however, is that there seem to be emerging new kinds of challenges. Especially issues related to content adaptation will be significantly more challenging in relation to forthcoming technologies than before.

On the other hand, although digital technology in general has made for example unauthorized copying very easy, challenges related to copying, distribution and other fields of intellectual property rights do not necessarily change a lot from how they occur, say, on the wired Internet. Still, the increasing volume of certain subject matters will make even some well-known challenges more important. Challenges related to database protection for example will be more and more important because there will be rapidly increasing number of many kinds of databases. Their legal significance will multiply even if there would not be any new challenges related to them. Similarly patents will be more important simply because there will be many more patentable inventions, and trademarks will be increasingly important because of the growing importance of brands.

There will be major challenges related to *contracts*. First, on computer networks, it is not always easy to find out, who the contracting parties are. Second, it will be sometimes difficult to state what the subject of a contract is. It can also be complicated to determine when the parties have committed to the contract. Moreover, it can be troublesome to decide which is the correct law to govern a certain contract as well as which authorities have

jurisdiction over disputes concerning it. Several scenarios above describe machines that make agreements on behalf of human beings or legal entities. This introduces severe legal challenges.

There will be noteworthy challenges in other legal areas too. For example, international law in general will be important, because of globalization and moving users. Administrative law can be challenged if administrative procedures are automated. Labor law will face challenges because of changing work. Tax laws meet challenges because of new kinds of transactions, resources, and incomes as well as moving users, globalization, and changing work. Criminal law will be challenged not only by new kind of international and computerized criminals but also because it will be very difficult to decide weather some objectionable act in the new environment is punishable according to the existing law. Constitutions can face challenges as political systems are challenged. Nevertheless, based on the scenario analysis, those other legal areas do not seem to bring forth as crucial challenges as the first three. In addition, legal areas like corporation law, environmental law, family law, procedures and litigation, property, and torts will hardly have new challenges because of the new technologies.

Which are the most important characteristics or the major distinguishers of business models that imply legal challenges? From the scenarios above, I have collected characteristics that cause the major challenges. They are listed in Appendix 1. [15]

5   Conclusions

The first goal in this paper was to demonstrate how to study future legal challenges. I have developed a scenario-based method that produces lists of legal challenges and helps to analyze them. From the methodological point of view, I have demonstrated the usefulness of scenario generation and analysis in legal research. It differs significantly from the currently prevailing paradigm of legal science. Especially, the method does not honor the doctrine of sources of law, which is fundamental to jurisprudence. Therefore my study cannot be called legal science, or at least not legal dogmatics. Yet, I believe that adopting such new ways of thinking and analysis will be important to keep legal studies useful.

The method highlights information products and services. Other business aspects are paid less attention. Also, specific characteristics and organizational cultures of particular companies cannot be considered in a general method like this. Therefore certain legal challenges remain largely unnoticed. It seems that the method is able to point out numerous relevant legal challenges – especially those that are *directly* related to information products and services. For example, challenges related to products and services that will possibly infringe privacy or intellectual property rights will be easily visible. On the other hand, challenges that are *not directly* related to products and services, but more to – for instance – a company's position in the marketplace, remain mostly hidden. Therefore challenges in legal areas such as competition law and corporate and financial law do not appear in this study

although in practice they can be relevant. In the future work, it should be studied whether it is possible to extend the method to cover these areas also.

Typically, micro scenarios, like those analyzed in this study, do not describe business models and revenue logics. Therefore, legal challenges that are related to business models remain largely hidden. Especially issues concerning tax law, competition and anti-trust law, and corporate law are difficult to point out with this kind of scenarios. This seems to be an important shortcoming of the method.

In general, the study does not expose all the legal challenges. Even within the scope that I have defined in the beginning of the paper, there can be legal challenges that cannot be found using this method. However, the method is useful, if it reveals significant new legal challenges that were otherwise left unnoticed, or if it provides an easier and a more systematic way to find the challenges. It remains to future work to extend the method to cover also the rest of the legal challenges. Therefore, the method in its current form has significant limitations, but taken them into account, it still produces valuable output.

In this study, I have pointed out the areas in which legal challenges plausibly arise. Would it be possible to actually *analyze the legal risks* related to future businesses? What are the actual legal risks related to a certain future business, how *probable* they are and what are the *expected losses* if they occur? Details in legal systems vary by time and by jurisdiction. Therefore, on a general level, analysis cannot go into legal details. However, as the saying goes, the devil is in the details – they may often be crucial. The approach is not useful if the details are ignored completely. For example, let us suppose that a company is considering a business idea that would bring the company in between a content provider and an end-user. One of the legal questions in that case would be whether the company was an intermediary that is liable for copyright infringements. The main principle is that if a service provider distributes information that infringes someone's copyright, the service provider can be liable. However, the safe-harbor rule in copyright law immunizes the service provider if it is a *mere conduit*. Yet, the rule does not exist everywhere, and it depends on the details of the definition of "mere conduit" when it is applicable. The actual result, whether there is a legal challenge or not and how severe it is, may thus be very sensitive to the details of the legal system. Consequently, a more precise risk analysis requires detailed information on the case in question and it is not feasible on a general level. In the future work, however, it would make sense to study how to assess the legal risks more in detail in a certain case.

In this study, the legal systems are considered rather static. I have not studied extensively, how the legal challenges will change, if the legal systems transform. Considering that the time span in this study does not reach farther than a decade and that the legal systems do not change rapidly, the presumption is probably not grave. However, in the future work, the dynamic nature of legal systems should be taken into consideration.

I have listed, analyzed, and discussed the future legal challenges that I was able to point out using the method. I conclude that the most important legal challenges to future information businesses are within the areas of

- privacy and data protection;
- intellectual property rights; and
- contracts.

I have also discussed above the major distinguishers of businesses implying legal challenges. They help to indicate the specific legal challenges related to a certain information product or service.

6 Acknowledments

References

1. A. Aarnio, A. Enkenberg, J. Heikkilä, S. Hirvola. Scenarios for Mobile Commerce in 2006, Report D.5.1 in MobiCom European Fifth Framework Project IST-1999-21000 in *Evolution Scenarios for emerging M-Commerce services: New Policy, Market Dynamics, Methods of Work and Business Models*, the Mobicom Consortium, Ioanna Constantiou, ELTRUN - the eBUSINESS Center, Athens University of Economics and Business (AUEB), 2002.

2. W. Baer, S. Hassell, B. Vollaard. *Electricity Requirements for a Digital Society*. RAND's Publications MR-1617-DOE, 2002.

3. P. Checkland and J. Scholes. *Soft Systems Methodology in Action*, John Wiley & Sons, 1991

4. K. Ducatel, M. Bogdanowicz, F. Scapolo, J. Leijten, J-C. Burgelman (eds.). *ISTAG Scenarios for Ambient Intelligence in 2010*, Final Report, IPTS-Seville, 2001.

5. HyperForum on Long Term Sustainability, California Institute of Technology, http://www.hf.caltech.edu/hf/b3/

6. A. Kankainen, T. Kankainen, J. Blom. *Between - Ubiquitous Bubbles Enhancing Human-Human and Human-Computer Interaction*. Final report, 15.5.2003, Helsinki Institute for Information Technology HIIT, 2003.

7. Mobile Content Communities, Helsinki Institute for Information Technology HIIT, http://pong.hiit.fi/

8. N.A. Mylonopoulos, G.I. Doukidis. *Mobile business: technological pluralism, social assimilation, and growth*. International Journal of Electronic Commerce. Fall 2003; 8(1), 2003

9. N. A. Mylonopoulos, I. Sideris, K. Fouskas, A. Pateli. *Emerging Market Dynamics in the Mobile Services Industry*, White Paper, the MobiCom Consortium, Research Centre of Athens University of Economics and Business, 2002.

10. K. Paskaleva, S. Curwell, S. Soubra. *Report on Visions and Scenarios*. INTELCITY IST-2001-37373, Phase 1 Report. ITAS Karlsruhe, University of Salford, VTT, CSTB. 2002.

11. O. Pitkänen, A. Soininen, P. Laaksonen, P. Hurmelinna: *Legal Constraints in Readiness to Exploit Mobile Technologies in B2B*. International Workshop on Wireless Strategy in the Enterprise, Berkeley, CA, 2002.

12. O. Pitkänen, P. Virtanen, M. Välimäki: *Legal Protection of Mobile P2P Databases*. International Conference on Law and Technology (LawTech 2002), Cambridge, MA, USA, 2002.

13. O. Pitkänen. *Managing Rights in Information Products on the Mobile Internet.* Licentiate's study at Helsinki University of Technology, Department of Computer Science and Engineering, HIIT Publications 2002-4, Helsinki Institute for Information Technology HIIT, 2002.

14. O. Pitkänen, M. Mäntylä, M. Välimäki, J. Kemppinen. *Assessing Legal Challenges on the Mobile Internet*. International Journal of Electronic Commerce, Fall 2003, Vol. 8, No. 1, pp. 101-120, 2003.

15. O. Pitkänen. *Legal Challenges to Future Information Businesses*, HIIT Publications 2006-1, Helsinki Institute for Information Technology HIIT, 2006.

16. *Scenarios for the Future: Steady Time, Real Time, Zero Time. Our World in 2005*. The Arizona Republic, 2000.

17. B. Wendell. *Foundations of Futures Studies*, Vol. I-II, Transaction Publishers, 1997.

Appendix 1: List of Business Distinguishers and Legal Challenges

Business Distinguisher	Legal Challenge	Scenarios
Personal Information		
1. Service adapts in accordance with *context information*, like end-user's location or profile.	*Privacy*: data protection at large.	MobileIPR: 1 Between at large ISTAG: 1–4
2. Sharing products that may disclose *personal information*.	*Privacy*: data protection at large.	MobileIPR: 2 MC2: 1, 6 Between at large ISTAG: 1–4
3. Distributing pictures and other information on *famous people*.	*Privacy*: data protection at large but also *right of publicity* where applicable	MobileIPR: 2 Between 04-7
4. Processing *sensitive* private information (e.g. racial or ethnic origin, political opinions, beliefs, trade-union membership, and information on health or sex life).	*Privacy*: at large, especially rules on the processing of special categories of data.	MobileIPR: 2, 3 ISTAG: 1
Intellectual Property		
5. Need to *adapt information*.	*IPR* (esp. copyright): a right to modify information products and right in modified, derivative products. *Trademark law* at large, esp. the owner of a trademark can forbid the use of trademark in connection with a modified product.	MobileIPR: 1, 2 MC2: 2, 8 ISTAG: 1, 4 MobileIPR: 1; MC2: 2
6. The utilization of *large information sources*.	*IPR*: Database sui generis right at large, also copyright and other IPR.	MobileIPR: 1, 3, 4, 5 MC2: 1, 2, 4 ISTAG: 1
7. Users *sharing information* products with other users.	*IPR*: esp. copyright at large.	MobileIPR: 2 MC2: 1; Between 04-5 ISTAG: 1, 4

8. Utilization of pictures and other products that are made by *hobbyists* and *communities*.	*IPR*: esp. copyright moral rights, like right to be acknowledged to be the author.	MobileIPR: 2; MC2: 1 Between 04-7 ISTAG: 2, 4
9. Copying and superdistributing information products.	*IPR* esp. copyright and license terms.	MC2: 4 Between 04-5 ISTAG: 1
10. A new business model may infringe a patent.	*Patent law* at large.	MobileIPR: 4 MC2: 2
11. Using pictures that portray a person.	*Right in portraits*: a person may have a right to limit the usage of pictures that shows him or her.	MobileIPR: 2 MC2: 1 Between 04-7 ISTAG: 2
12. A service may transmit information that is not lawful.	*IPR*: *intermediate liability*, the applicability of *safe harbor* rules (esp. non-applicability, if the service does not fulfill all the *mere conduit* requirements, but for instance adapts or filters information).	MobileIPR: 1, 2 MC2: 1, 2, 8 Between 02-2 ISTAG: 1, 2, 4
Agreements		
13. In general, a *need to agree* on something over the network.	*Contracts* at large, but esp. the existence of binding agreements, the possibility to reliably identify contracting parties, and finding applicable laws and courts that have jurisdiction.	MobileIPR: 1, 2, 3 MC2: 6, 8 ISTAG: 1–4
14. Need to agree on rules with members of large *communities*.	*Contracts*: complex dynamic contractual relationships, management of numerous contracts, increasing transaction costs.	MobileIPR: 2 MC2: 8 ISTAG: 4
15. Need to *adapt content*.	*Contracts*: legally binding agreements with all parties on adaptation.	MobileIPR: 1, 2 ISTAG: 1, 4
16. Distributing pictures, video, or other information on *events*, or conversely trying to control event's information.	*Contracts*: esp. the existence of binding agreements between e.g. the organizers and the audience.	MobileIPR: 2 MC2: 1

17. New business models are incompatible with existing licenses or other agreements.	*Contracts*: the possibility to reinterpret or renegotiate a contract.	MobileIPR: 4 MC2: 8 ISTAG: 1
Other categories		
18. Users can access a service from *different countries*.	*International law*: which laws apply, which courts have jurisdiction, where a judgment can be enforced. Esp. in *tax* law, which fisc has jurisdiction to tax.	MobileIPR: 1, 2, 3 MC2: 8 ISTAG: 1, 2
19. *Employees* in new working conditions and changing job descriptions.	*Labor law* at large.	MobileIPR: 2 MC2: 2 ISTAG: 1, 2
20. *New kind of transactions*.	*Tax law* at large.	MobileIPR: 2 ISTAG: 1, 2
21. *Public administrative processes* are automated or changed.	*Administrative law* at large.	MobileIPR: 3 ISTAG: 1–4
22. *Defect* in the system, *poor quality of service (QoS)*, or *incorrect information* that is provided may cause serious damage to others.	*Liability, torts,* and *damages* at large, esp. products liability.	MobileIPR: 3, 4 MC2: 1, 3 ISTAG: 3
23. *Games, lotteries and betting*: end-users may *win* something randomly or non-randomly, free of charge or on payment.	*Marketing law*, *consumer protection law*, and *special laws on lotteries and betting*: special regulations and prohibitions. If users abroad can access the service, which laws apply and which courts have jurisdiction?	MC2: 1, 7
24. A service leads users to *socially unacceptable behavior*	*Criminal law* and *ordinances* at large. The representative of the business might be liable for incitement if the users have been led to violate the law.	MC2: 4, 6