

Manifest: The role of law in an electronic world dominated by Web 2.0

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Abstract Web 2.0 has gained enormous momentum in recent years, and has reached most areas in entertainment, research, business, science, and beyond. It is characterized by a move from a read-only Web to a read-write Web, where users contribute content in a variety of forms. However, there is at the same time a host of legal issues arising for Web 2.0, visible via the huge number of law suits that have already been filed in this context. This paper tries to pinpoint core legal issues, the way they are so far treated, and what is needed for improving the situation.

Keywords Web 2.0 · User-generated content · Legal issues · Regulation

CR subject classification A.0 · H.0 · K.4 · K.5

1 Introduction

Recently, almost everything seems to have become “2.0”, be it music, gadgets, health, entertainment, business, Silicon Valley, countries such as India, the family, and, most notably, the Web. 10 GB of “user-generated content” is created in the World-Wide Web daily (see [1]), that is, more than five times the amount of content created by professional Web editors. *Web 2.0* has rapidly become a label that everybody using the Internet and doing business through it seems to be able to relate to; what it primarily stands for is the transition of the Web from a medium where peo-

ple just *read* information to a medium where people both *read and write*; in other words, the Web meanwhile heavily benefits from user contributions and user-generated content (UGC) in a variety of media forms. This has been enabled by technological advances that nowadays make it possible for users to easily employ services offered on the Web and to embark on tasks that have previously been reserved for specialists.

UGC can primarily be observed in the consumer area, but is also entering enterprises. Especially in the former, numerous legal issues arise, which is demonstrated by the large number of cases from this field that courts of laws have to deal with recently. This situation is due to a number of reasons, including the fact that legal restrictions are often ignored, or that users are unaware of the laws they may be or are violating. The goal of this manifest, which contains the findings of a Dagstuhl Perspectives Workshop held at Schloss Dagstuhl, Germany in September 2008, is to shed some light on the interplay between law and Web 2.0 and to discuss a number of questions and issues that urgently deserve clarification.

This manifest is organized as follows: Sect. 2 presents, in a nutshell, the technical side of Web 2.0; Sect. 3 then presents the legal side as it pertains to Internet, media, and related laws. Section 4 is a brief conclusion.

2 The technical side: Web 2.0 dimensions

The transition from Web 1.0 as described by Berners-Lee [2] to Web 2.0 has by no means occurred overnight, but is the current culmination point of a variety of technological and social developments that are described by Musser and O’Reilly [3], O’Reilly [4], as well as Vossen and Hagemann [5] and that are summarized in Fig. 1.

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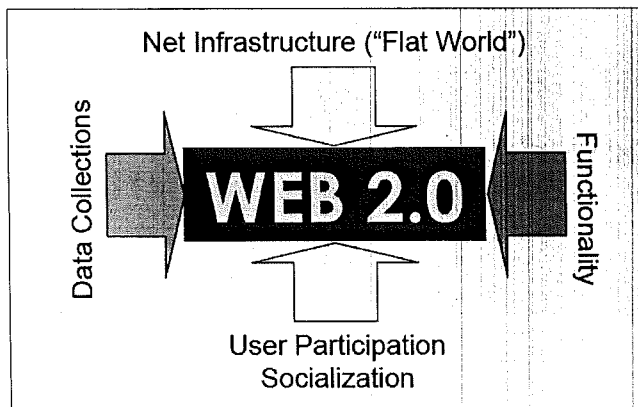


Fig. 1 The four main dimensions determining Web 2.0

The *net infrastructure dimension* refers to the huge improvements in network bandwidth, speed, availability, and reliability that have been made during the past 10 years, especially in broadband networks worldwide; this has motivated Friedman [6] to speak of the “flattening” of the world that has occurred in the 21st century alone. This dimension also refers to improvements and advances made in programming and software, in particular with respect to extensions in client-side scripting that have brought along the Ajax (Asynchronous JavaScript And XML) technology, and also in server-side programming.

Based on technologies such as Ajax or languages like Ruby, the *functional dimension* has brought along Rich Internet Applications (RIAs) and a migration of applications from the desktop to the Web. In particular, office software, text processing, calendar programs, conference software project, management applications, and many more can nowadays be obtained as Software as a Service (SaaS) over the Web, thereby eliminating the need for local installation, bug fixing, or updating. However, these services imply that user data resides on the Web, which is a source of constant debate especially within enterprises.

The *data dimension* refers to the comprehensive creation of data collections by computers as well as by humans that has become common: Computers store Web log data and click paths, crawl sites and maintain search engine indexes, while users themselves register for (often free) services, use tagging for organizational purposes, and write evaluations (e.g., RateMyProfessors, DocInsider, MedMonitor, Helpster, SpickMich, SchulRadar), comments, online diaries or blogs, and emails. A host of uses of these collections has emerged, including data mining [7], the delivery of recommendations, the creation of profiles, online communities, personalization of Web sites, or context-dependent advertising as made popular (and financially attractive) by search engines such as Google, Yahoo! and others, see [8].

Finally, the *social dimension* has enabled a variety of novel forms of interaction, collaboration, and social life on the Web. It comprises social networks such as MySpace, Facebook, Friendster, StudiVZ, LinkedIn, or Xing, through which users establish, maintain, and share contacts, distribute photos, audio as well as video files; it also comprises blogs through which users publish messages expressing their opinions easily realized on platforms such as WordPress or MovableType, wikis through which collaborators can share a document, or podcasts through which people can easily distribute audio or video information that is spoken or filmed. The social dimension applies to certain types of software (e.g., Skype) which gets better the more people use it, yet it also applies to sharing sites such as Flickr, Photobucket, Joost, or Youtube where anyone can upload and share photos and videos, respectively.

It should be noted that these four dimensions cannot be strictly isolated in any Web 2.0 application or scenario, but they highly interact and build upon as well as complement each other. One example is business analytics over UGC: The content producers, e.g., end-consumers or other kind of knowledge workers, are currently not able to run spontaneous analysis queries, so-called *ad-hoc queries*, over the content. Typical problems for the average user are high costs for extracting the data, as well as high set-up times and high efforts for managing the technical complexity of such applications. A host of novel “do-it-yourself” development tools (e.g., Yahoo!Pipes, IcebergOnDemand, Microsoft Popfly) tackle that problem. They can support the “ordinary” user in processing, filtering, and aggregating the UGC. Sample applications allow her or him to create mash-ups which combine data from multiple sources into a new service offering (e.g., realtravel.com, 4Hotels.us, basefire.com, diggdot.us). Hence, these applications drastically lower the technical barriers and the costs for infrastructure required for processing huge amounts of Web 2.0 data. As a result, access to valuable information about customer buying decisions or customer sentiments is no longer restricted to major search engines or marketing institutes, but will be available for the majority of the content producers.

Moreover, Web 2.0 should, as mentioned, be seen as the confluence of these dimensions, some constituents of which date back to the late 1990s already. On the other hand, the Web 2.0 developments and dimensions appear to be orthogonal to the developments that fall into the “Semantic Web” category, as explained, for example, by Berners-Lee et al. [9].

Although the Web 2.0 wave, thanks to the technology it has made available (e.g., Ajax, Ruby, and their client- as well as server-side frameworks, open APIs for creating mash-ups), has created novel services and applications which are characterized by their “richness”, interactivity, multi-dimensionality, and multiple contributions from participating

users, so far the majority of services are offered free of charge. Indeed, monetizing novel applications hardly follows “established” ways as those described, for example, by Afuah and Tucci [10], but often collect fees indirectly through advertising (e.g., Google’s AdWords or AdSense programs; see [11]). Notable exceptions are virtual-life platforms such as Second Life, see [12], or Entropia Universe, or multi-player online games (e.g., World of Warcraft). While search engines such as Google have enabled effects such as the “long tail” as explained by Anderson [13], through which even smallest companies and offerings get access to a world-wide distribution channel and audience, there has been indications that there is also a danger hidden in market powers such as those represented by Google. For example, through an implicit or explicit manipulation of advertisements, a search engine can easily manipulate the placement or ranking of an ad, thereby erasing it from visibility; see [14] or [8] for examples and [15] for details on ranking.

As an aside, we mention that Web 2.0 technology has meanwhile also arrived at the enterprise and is hence no longer primarily used by individual and private people as well as start-up or small companies. Indeed, software vendors are integrating wikis, instant messaging, blogging, or RSS feeds into their platforms in order to introduce it to enterprise software architectures; they are even aggregating their SaaS offerings into platform-as-a-service (PaaS) offerings. Moreover, large companies are increasingly adopting Web 2.0 technology for increased customer interaction, internal knowledge management, or for giving employees increased self-control over their everyday work environment.

What is often overlooked in personal Web applications that target the end user and that are not confined by company borders is the fact that there is a side to it that goes far beyond the technology behind it. While Web engineering as seen from a computer science perspective (see, for example, [16]) commonly follows a “what is doable will be done” approach, only a few computer scientists have so far recognized that there might be risks involved [17] or there exist ethical implications [18]. As the search engine manipulation example already indicated, there is also room especially in the Web 2.0 context for illegal activity, and this is where the necessity of a dialogue between computer science and law becomes obvious.

Interestingly, the conservatism of enterprises in adoption of Web 2.0 technologies shows one way of dealing with involved risks. Businesses are much more concerned about use of internal sensitive information than end users. While they definitely show interest in experimenting with Web 2.0, they rather follow the principle “what is risky will not be done”. Additionally, they focus much more on extensive sophisticated means for content control and can meanwhile achieve reasonable usability. One recent example is the IBM’s Blue-

house product for enterprise-ready social networking. Not being afraid of comparisons with Facebook, IBM highlights functionality for data protection, controlled SaaS, and more. The applicability of such measures for end users and at global scale is nevertheless unclear, the consideration of interests of non-target groups is very limited, and many open problems are being silently delegated to end users.

Many of the new Web services as described above bring along a number of new legal and even political challenges, including but not limited to the following:

- Who is in control of these SaaS services or the data they collect?
- Who is the owner of content that a user has contributed to a Web site run by a company or service provider?
- How can national and domestic law be enforced in light of multi-national and multi-dimensional services?
- Who can be held responsible for breaches of law or copyright, for example with respect to context published on Youtube?
- Is it at all possible in Web 2.0 to protect ethical and legal values referring to personal rights, personal data, or to minors?
- Is “big brother” watching us?
- Is Google allowed to index my gmail entries?
- Does Amazon own the reviews I have written?
- Is keeping (customer/business) data on the Web (as in SaaS applications) a good idea?

3 The legal side: Internet governance and Web 2.0

3.1 The Web 2.0 phenomenon and its legal impact

When lawyers talk about Web 2.0, they normally associate with this rather vague term

- Software as service,
- Participation,
- Collectivism,
- Virtual communities,
- Amateurism,
- The increasing value of virtual goods,
- Creative commons.

On the basis of these features, an increasing range of legal problems linked with Web 2.0 were identified in our September 2008 Perspectives Workshop at Dagstuhl:

- The re-territorialization of the Internet, i.e. the increasing interest of politicians in filtering and tracing the identity of users/Internet providers (data retention; IP address),
- The lack of sensibility of consumers/users regarding privacy and data protection (see the social networks like StudiVZ),

- The increasing disregard of intellectual property rights (P2P; Limewire, BitTorrent),
- The migration from property rights to access rights (Digital Rights Management; iTunes),
- The feeling that the existing system of intellectual property rights is out of control regarding informational justice (i.e. the balance between rights in information and free access to information),
- The dangers of phishing and identity theft linked with the incapability of politics to implement efficient signature structures,
- The danger of an information overload in protecting digital consumers by providing them with hundreds of mandatory information notices on a website,
- The explosion of the traditional trademark law system regarding the immense increase of domain registration possibilities (new gTLDs like .asia or .berlin),
- The uncertainty how to deal with new ways of online marketing like Google AdSense,
- The erosion of personality rights in the context of complaints regarding sites like rottenneighbor.com or spickmich.de,
- The applicability of traditional press law to Web 2.0 amateurism like weblogs or Internet fora,
- The chances and limits of geolocation (i.e. in international court cases like the famous Yahoo case or in online gambling situations where politicians asked to block the access to a specific website for foreign users),
- The distrust in a legal system which is traditionally limited in its effect and power to the national border and has thus severe problems in getting enforced in third countries,
- The existing differences in ethical values and the missing system of international cyber-ethics (see the differences in legal systems for the protection of minors or against fascist content),
- The Roman law being the basis for the main distinction between goods and rights in civil law and its inadequacy regarding new ideas like software as a service or virtual goods.

3.2 Regulative ideas in Web 2.0

All disciplines are based upon certain regulative ideas, a specific "Vorverständnis" (preunderstanding). These ideas form the archimedic external point which allows understanding of the essence of the discipline. A regulative idea cannot be proven within the system; it is axiomatic (see [19]).

Technicians often forget that they are working on the basis of a regulative idea themselves. They normally regard themselves as being neutral, not related to ethical con-

cepts, merely devoted to solving a technical problem. Yet the mere use of a programming language is based upon pre-assumptions and pre-existing purposes. Technicians have, like the rest of us, a concept of our living in mind when they start to work. Information and its technologies are inseparably related to pre-understandings of technicians. The assumption of neutrality with regard to information technology therefore does not work. It is an ideology which might be used or even misused. The major elements of technical pre-understanding might be called functionality. The term is a mere symbol for the openness of technology towards meta-technical, normative values. Technicians mainly execute within a given normative background. If their product fits into and suits the given, pre-supposed value system, then the technicians are satisfied.

Economics are based upon the concept of efficiency (see [20]). According to Pareto efficiency, a change that can make at least one individual better off, without making any other individual worse off, is called a Pareto improvement: an allocation of resources is Pareto efficient when no further Pareto improvements can be made. Kaldor-Hicks efficiency is guaranteed if the economic value of social resources is maximized. A more efficient outcome can leave some people worse off. However this is still efficient if those that are made better off could *in theory* compensate those that are made worse off and lead to a Pareto optimal outcome.

Informational justice is the regulative idea of information law (see [21–23]), a metaphor for the meta-rules that decide upon access to information versus exclusive rights in information. It is a symbol for a critical approach that questions existing solutions in normative conflicts regarding access to information. It is a utopian idea, as it does not stick to the prevailing ideas on information rights. The idea of the ideal community of communicators serves as a kind of utopia, which therefore has to be taken as (potentially) realizable in our real world.

Lawyers can learn from technicians that functionality is one integral part of regulation in information law. A policy decision has to be technically well made. Regulation is a craft in itself. It thus has to be made in a suitable, functional way. Each policy decision has to be evaluated *ex ante* and *ex post* in order to check its functionality. Therefore, the technical question of functionality has a regulatory dimension. The question is whether the stated objectives have been achieved. The target of a regulation needs to be analysed and clarified as well as its mechanisms. There are a lot of examples where information law regulations were not made correctly. For instance, the EU Software Directive contains more than 20 technical mistakes.

It has, however, to be considered that functionality is a necessary, but not sufficient criterion of informational justice. A regulation which is in itself drafted well accord-

ing to pre-existing policy aims can nevertheless violate informational justice. One further element might be the economic analysis of law and its reference to efficiency. As the research has shown, economic criteria might indeed be used to determine the reasonableness of legislative acts. Indeed, efficiency is one of the aims of regulation not only in information law. Each policy decision has to be checked whether the outputs are proportionate to costs and resources used. Efficiency also includes sustainability in order to determine whether the benefits achieved last over time. Economic analysis thus helps to obtain quantitative estimates of the likely effects of initiatives on affected groups. Within a Cost Benefit Analysis all negative and positive effects of policy measures on the society can be monetised.

However, the commonly used Kaldor-Hicks criteria of economic efficiency tries to measure all interests involved in monetary terms rather than in terms of preference satisfaction. The economic system is open to a wide range of values, but these are incorporated only to the extent that they are reflected in preferences, which in turn can be economically measured. Efficiency presupposes that every human action, desire, interest can be regarded as an element of efficiency. Humans – especially in the social communities of Web 2.0 – are however not always acting as a homo economicus (see [24]). They act emotionally; they sometime are altruistic, their interests are often led by considerations which cannot be classified as rationalistic egoism. Economic theory has a tendency to reduce values to a mere element of efficiency.

3.3 Regulatory tools

A variety of regulatory tools is currently in use in order to implement informational justice in Web 2.0 cases:

- *Regulation by statute:* Lawyers in Continental Europe mostly consider statutes to be the appropriate tool for Internet governance. Consequently, a lot of national acts are applicable to Web 2.0 services. But the process of drafting and enacting a statute is slow. When the statute is enacted, the Internet community has already changed. The regulated topic might sometimes not even exist any more. Is the task of lawyers to run behind new Web trends – like the hare in the famous fairy tale of the hare and the hedgehog?
- *Regulation by courts:* Anglo-American lawyers have a tendency to stress the importance of case-to-case regulations regarding Web 2.0 (see [25]). Courts can react quicker than legislators; they only decide upon normative problems on an experimental, flexible and case-to-case basis. But this is as well a disadvantage. The findings of a court cannot be considered as general rules. The applicability of a case decision in other situations is always doubtful.
- *Non-regulation:* In the Internet world, computer scientists sometimes asked for avoiding any regulation. Moratoriums are regarded as necessary until the social impact of a new technology is discernible. But lawyers cannot wait as they are under constitutional duty to implement justice and protect citizens.
- *Self-Regulation:* The amount of problems surrounding the enforcement of the law results in a growing number of voices calling for self-control and self-regulation in the Internet. In the present discussion, there is strong emphasis on voluntary self-regulation by providers. The different self-control institutions use various sets of rules of specific content. Unclear is also the efficiency of self-control, as its sanction mechanisms cannot be supported by state regulations of enforcement. Beyond contractual obligations, there is no chance to enforce codes of conduct. The self-regulatory rules might as well conflict with existing regulations on unfair contract terms and antitrust law. Art. 81 of the EU Treaty permits rules of conduct with anti-competitive effects only in so far as such rules repeat and specify existing, EU-conform regulations of unfair competition law. Rules of conduct which restrict a provider's action on the market are therefore dubious under European antitrust law where they restrict an action which subsequently proves to be irrelevant and neutral in the light of unfair competition law.
- *Code as code:* The question therefore arises whether the answer to the machine might be found in the machine itself (see [26]). A number of difficult legal questions may become obsolete in the Internet by the introduction of certain technical procedures. For instance, one has to think of digital watermarking techniques and digital fingerprints. These procedures guarantee that the owner of a right can positively be identified and that cases of piracy can as easily be prosecuted. Reference may also be made for cryptographic procedures or privacy-enhancing technologies (PET). However, the role of technical means within the legal system has to be considered. Technology as such is not more than a fact which per se cannot claim legitimacy. For instance, it would be dangerous to qualify the circumvention of any anti-copying device as illegal. As the anti-copying device could very well be set up by someone who himself is not in the position of a right-holder; the circumvention of security measures which have been established by a software-pirate can not be prohibited. Technical devices cannot justify themselves normatively.
- *Regulation by education:* The complexity of content-ownership and control issues leads to substantial igno-

rance of possible misuses and their consequences. The lack of easily implementable and up-to-date regulations aggravates the situation. Additionally, possible technical self-regulation solutions are often impeded since they pursue commercial values in the first place and not informational justice towards involved socio-economic groups of people. Given this situation, it becomes essential to provide high quality information on the conflicts of interests, for different target groups and different backgrounds. Expert forums, the educational system, and public discussions could and should raise awareness of informational justice. One of the most important goals for research and other public institutions is to advance discussions about and press for transparency, to uncover the profiteers of the information age and whether they comply with ethical and legal values. The society as a whole should be prepared to monitor relevant activities, lobby its interests, and resist lobbyists of commercial and government interests. A positive side effect would be best practices, which can then be enforced by law. Initiatives like FIPR (<http://www.fipr.org/>) provide valuable contributions, but they are few and not widely known so far.

One of the aspects of educating towards more competence in the use of media (especially “new” media), or to produce “Medienkompetenz”, is not only to learn *how* to use it but also in a sensible way, including to respect legal issues concerning these media. That will certainly be a challenge in particular for schools where “using a keyboard and Windows” should not be the main focus of a computer class anymore.

4 Conclusion

Answers to questions such as those listed in Sects. 2 and 3 can only be obtained within an interdisciplinary discourse involving people from such diverse areas as computer science, economy, business, law, and politics. The main question seems to be how the meta-values underlying computer science and law can be brought into a trans-disciplinary relationship:

- How can informational justice and the efficiency/functionality underlying web services be combined?
- Can we integrate informational justice/legal requirements in technology itself (see above the references to “Code as Code”)?
- What are the chances and restrictions of law-enhancing technologies (like DRM, geolocation, PET)?
- Are there efficient “new” legal regulation mechanisms to deal with the challenges of Web 2.0 and beyond technologies?

We would be glad to be given the chance to discuss these questions in a second Dagstuhl workshop. The Dagstuhl Academy could thus become the first place where computer scientists and law experts can discuss future trends in Internet governance.

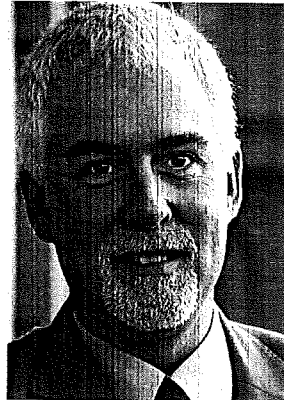
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