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The ever growing complexity of regulating the information society

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"The information society is like a tree that has been growing its far-reaching branches much more widely, hastily and chaotically than its conceptual, ethical and cultural roots… The risk is that like a tree with weak roots, further and healthier growth at the top might be impaired by a fragile foundation at the bottom."[2]

Introduction

Richard's whole academic career has been devoted to the concepts of 'information' and 'informatics' in relation to the law.[3] In my contribution I will concentrate on the first. My question will be: what is the information society and can we still regulate it by law? The size of this article forces me to give but a rough outline of the problems we have to face now and in the future. In so doing I have adopted, as a sort of Rawlsian "original position",[4] the following premise: in a civilised and mature information society, three basic principles apply to the correct legal handling of information. They are the principle of intellectual property, the principle of free flow of information and the principle that personal information is protected, also referred to as informational privacy. All three have been enshrined in fundamental rights, but these tend to compete – and in many

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[2] Floridi 2010, pp. 7-8.
[3] Richard is the 'professor Pi' among Dutch lawyers. 'Professor Pi' was a famous comic in the newspapers in the sixties of last century in the Netherlands about an absent-minded professor. When Richard and I for the first time met in the mid eighties of that same century, we happened to share a passion for this absurd comic, at that time already forgotten. A professor Pi comic appears on the cover of Richard's PhD *Een model voor juridische informatica*, Vermande 1984.
[4] I am referring here to the *Theory of Justice*. Naturally, one can speculate about whether someone behind "the veil of ignorance" would choose these principles. This touches upon the general debate concerning the nature of the "primary goods" that Rawls lets those behind that veil select as they choose their place in society. Our notions as to what constitute "primary goods" vary according to time and place. Someone forced to make the choice 500 years ago might have come up with "free flow of information", but not "intellectual property" and certainly not "data protection". The development of modern information and communications technology would have been quite literally "unthinkable" then.

cases clash – with one another.[5] In this article I shall examine them selectively, confining myself to the question of whether European law still applies these principles in the correct fashion.

With Jacques Delors' 1993 white paper and the Bangemann Report of 1994, Europe defined itself as an "information society". That has remained a vague and sweeping term, however, since Europe has found itself unable to develop a consistent approach in the face of converging information technologies.[6] Roughly speaking, the "information society" is meant to refer to both the production of high-quality information and the establishment of a high-quality communications infrastructure. From the legal point of view, the first of these is a matter of intellectual property whilst the second is concerned with high-grade networks. Where these principles are established in an information society, to a greater or lesser extent they have a role to play at a variety of points – *platforms*, if you will – where information is edited, processed, transferred and stored. Amongst the more important such platforms are democratic institutions and the media, the state bureaucracy, healthcare organisations, commercial businesses, scientific and educational establishments and institutions of art, the entertainment and publishing industry. The technical part of these platforms is managed by telecommunications and information technology organizations, but vertical integration takes place depending of the development of the market.

Definitions[7]

It is time for some definitions. "Data" are building blocks of information, but data can only *become* information when they are organised in accordance with certain rules that are known and understood by those playing the "information game" – what we call its *syntax*. In nature or human history, it is quite possible that data may exist in a syntactically organised form but not be understood by us because we do not yet know the syntax. An example of this in nature was the DNA structure of living organisms, whilst in history there was the Rosetta Stone with its Egyptian hieroglyphs. Both have been "deciphered" only comparatively recently, although they had long existed in the form of syntactically organised

[5] The research programme at the Institute for Information Law, University of Amsterdam, with which I have been associated since its foundation in 1989 – including 15 years as Director – has always been based upon these three principles.
[6] See: Dommering 2008.
[7] For a more detailed treatment of this topic, see: Floridi 2010. See also Richard De Mulder's definitions in De Mulder 1984.

but uninterpreted data. Thanks to the digitisation of data, of its storage and of processing media, nowadays it has become possible to use so-called "data-mining" techniques to correlate ever greater amounts of data and so give it new meaning – in other words, to generate more information. With that in mind, in this new century perhaps we should abandon the term 'information society' and instead talk about a 'data-mining society'.

Data may be analogue, binary or digital. Analogue data are generated in all sorts of ways, and vary continuously. Digitisation reduces data to discrete units between different states. They are stored and processed in binary code (zeroes and ones or on/off). Digitisation is the driving force behind the *convergence* of storage and communication media, whereby any information can be conveyed using any means of transmission and saved to any storage medium.

We can define 'information' in either quantitative or qualitative terms. The quantitative approach measures the probability that the information is new to the recipient. In telecommunications, the measure used in the efficiency of transfer: the fewer bits are needed to transmit information, the more efficient the communication. Using a lot of bits to put across comparatively little information indicates that there is a great deal of repetition (redundancy) or disruptive 'noise' in the transfer. This mathematical approach to information was developed by Claude Shannon and its primary importance is in the field of telecommunications. Jurists, by contrast, are more interested in the *semantics* involved: what the information refers to (is it true or false) or how it should be evaluated and what we can and should do with it. There is a relationship between the quantitative and qualitative approaches, however, in that the measure of the amount of information required also reflects how the data are *ordered*.[8] We are talking here about *entropy*, a term used in physics to describe the extent to which the energy in a system is organised. The lower the entropy, the greater the organisation. The information *disparity* between, say, a sender and a receiver in a communications process also expresses the fact that the party in possession of more information holds greater power. And the *information asymmetry* that can arise as a result is a subject addressed by a whole range of legal rules – those to protect the consumer in the media and the marketplace, for instance.

[8] Floridi (2010, p. 47) argues that 'randomness' is to be preferred to 'ordered'.

We can illustrate all this using a simple example. During the football World Cup, a report that the Netherlands has taken a 1-0 lead over Argentina comes as news to those fans who are not following the game live. The communication is efficient because few bits are needed to convey the essential information, and it does indeed represent information because both the sender and the intended recipient are familiar with the rules of the game – that is, the syntax. They can then engage with the semantics by checking that the report is true, and also add kinds of value judgements of their own by considering whether the score represents an accurate reflection of the strength of the two teams. The report brings greater order to the collection of data about the World Cup, too, because it helps to clarify the rankings of the remaining countries and increases or decreases the winning chances of bets made on the tournament. Those organisations that are first to learn the new score can try to sell it to the market as 'news', thereby profiting from information asymmetry.

To close this section, I need to say something about the term 'communication'. By this we mean the transfer of information from a sender to a recipient – either of which may or may not be human – through a medium or channel of communication. As such, communication takes many forms. At one end of the spectrum there is the gathering of information for storage in a central database (which we should really call an information bank, since we are talking here about interpretable data). In this case the information flows from the outside in, a process we call registration. This is the predominant form of communication used in compiling banks of personal data. At the other end of the same spectrum is mass communication: the simultaneous transmission of information from a central point to an indeterminate number of recipients. And between these two extremes lie a variety of other forms: one-to-one communication (in human terms, conversation); communication between discernible multiple senders and recipients (group conversation); communication between an individual and an information centre (consultation, as when someone retrieves information from a database or looks up a message from a mass medium at a time of their own choosing); and the consultation of personal or group files when the recipient chooses (group consultation). It is this middle part of the spectrum, in particular, which is currently undergoing turbulent development thanks to the likes of Facebook, Twitter, instant messaging and YouTube. To return to the example of the 1-0 score line, these days that news is increasingly likely to reach the recipient through one of those media. As well as a data-mining society, therefore, we now also live in a *network* society where group communication

using rapid and mobile media is effecting mobilisation for political, social and entertainment purposes.

There is one last aspect of the term ‘communication’ that I need to clarify before ending this round of definitions. Communication and its channels are characterised by a layered structure in which certain recurring elements can be identified regardless of how the process occurs: a layer of information stacked upon a layer of telecommunications services stacked upon a layer of physical infrastructure. At the top of this pile, in the information layer, a common syntax has to be used (when the head of the Dutch central bank calls his German counterpart, they presumably will talk in English). The same applies to the telecommunications services in the middle, although in this case the common syntax takes the form of communication protocols agreed between providers (IP/TCP, for instance); they form the standard language in which networks and communications devices communicate. And what is required in the bottom layer is physical means of transmission: radio frequencies, cables and satellites. Whereas in the last century the sender and recipient themselves would choose which media from the middle and bottom layers to use before they started communicating with one another, today telecommunications services and physical infrastructure have become a ‘cloud’ that users plug themselves into – more and more frequently from a mobile device – in order to make contact, but without knowing the details of the underlying layers. This is a development analogous with that of the motor car, where the engine has disappeared under the bonnet.

The European legal statutes for intellectual property, the free exchange of information and informational privacy

When it comes to information, Europe has distinct legal orders in which the principles described above have been enshrined. The Articles 8 and 10 of the European Convention on Human Rights (ECHR), agreed upon in the fifties of the last century as a reaction to World War II, establish the principles of free flow and informational privacy and these have been further elaborated in the Strasbourg Conventions and in European Court of Human Rights (ECtHR) case law. The principle of intellectual property has been firmly established early in the last century in the Berne Convention. On the other hand, there is the economically oriented legal order of the European Union. Based upon the freedom of services provided for in the EU Treaty, the Copyright Directives (to confine myself to copyright) incorporate the principle of intellectual property,

the Audiovisual Media Services (AMS) and E-Commerce directives incorporate the two free-flow principles. Meanwhile, those pertaining to the protection of personal data are established in the various Privacy directives. These different legal orders have been more and more entwined, which now has been formally confirmed by the EU Charter since ratification of the Lisbon Treaty and the ever expanding EU involvement with copyright.[9]

Free flow principles

Let's turn to the two free flow principles first. How the two free flow principles are interpreted in practice depends very much upon the nature of the communication concerned. The principle can be broken down into two distinct forms: the free exchange of information in, respectively, the private sphere (personal conversation) and the public domain (mass communication). In the former case, the guiding principle is the confidentiality of communications. A company involved in transferring data constituting a personal conversation may not intrude into its contents and traffic flow and a State authority wishing to intercept such an exchange must do so in accordance with justifiable grounds established in law and applied proportionately. In other words, the flow of data making up a private conversation must not be interfered with. The ECtHR has adopted a dynamic interpretation of the term "correspondence" used in Article 8 of the ECHR, so that it includes communications by telephone and e-mail. Moreover, the scope of protection has also been extended to include data revealing when and where a conversation took place;[10] Article 5 of the Directive on Privacy and Electronic Communications (2002/58/EC) provides specifically for the confidentiality of this so-called 'traffic data'. In a data-mining society, more and more data that contain very little personal information in itself could become quite revealing thanks to the ability to combine it with other material. Traffic data, for example, might be used to map networks of people who communicate with one another. And in many cases, the composition of such a network provides more information than can be gleaned from what its members actually say.

The free exchange of information in the public domain is governed by three related subprinciples: independence, truth and pluriformity. They are related because the search for truth relies upon the process of gathering and selecting data not being driven by vested interests and because it is assumed that in a

[9] For a detailed analysis of this development, see: Dommering 2008, pp. 69 et seq.
[10] Copland v. UK (ECtHR, 3 April 2007; app. no. 62617/00).

democracy there exists not one absolute truth, but rather a range of political visions of the truth. By saying this, we are touching at the very heart of semantics. The guiding principle is that , it should be possible to disseminate information that meets these criteria freely, without government interference either beforehand (censorship) or afterwards (judicial injunction). Traditionally, the press has been ascribed a crucial role in this process of free exchange, since only an organisation possessing the knowledge and experience needed to collect and edit data in accordance with professional rules rooted in the search for truth, and then to publish it under a quality brand, was deemed capable of providing us with an accurate picture of the world. But whether this really is the case has been a matter of debate ever since the first means of mass communication appeared early in the 20th century. It is certainly correct historically, in so far as a lack of knowledge, power and access to means of communications on the part of individual members of the public did once create an information asymmetry to their detriment and in favour of the political and bureaucratic establishment – an imbalance which the press was in a position to rectify.[11] The ECtHR has adopted a dynamic interpretation of the freedom of expression described in Article 10 of the ECHR, applying it all forms of mass media.[12] In so doing, the court predicates an institutional theory of the press as playing the role of a 'watchdog' in democratic society.[13] Recently, moreover, it has ascribed a similar function to interest groups and to platforms for public debate.[14] The ECtHR has also endowed the ethics of journalism with a special status reflecting their applicability to the search for truth,[15] with safeguards extended to include the process of gathering data by allowing journalists to protect their confidential sources and by entitling them to demand access to public information under certain circumstances.[16] The integrity of press archives is also protected,[17] and member states are expected to encourage pluriformity in the provision of information to the public.[18] On the other hand, governments must act effectively to counter information intended to promote hatred and discrimination against

[11] This institutional approach is also known as the social responsibility theory. See: Siebert et al 1963, chapter 3. Walter Lippman went even further, suggesting that there should be 'intelligence centres' of some kind, dedicated to gathering accurate information in order to overcome the general public's information deficiency. See: Lippman 1946.
[12] Groppera v. Switzerland (ECHR, 28 March 1990; Series A 173); Autronic v. Switzerland (ECHR, 22 May 1990; Series A 198).
[13] Sunday Times v. UK (ECtHR, 26 April 1979; Series A 30).
[14] Társarág v. Hungary (ECtHR, 14 April 2009; app. no. 37374/05).
[15] Stoll II v. Switzerland (ECtHR 10 December 2007; Grand Chamber).
[16] Társarág v. Hungary (ECtHR, 14 April 2009; app. no. 37374/05).
[17] Times Newspapers v. UK (ECtHR, 10 March 2009; app. no. 3002/03 and 23676/03).
[18] Groppera v. Switzerland (ECHR, 28 March 1990; Series A 173); Lentia v. Austria (ECtHR, 24 November 1993; Series A 276).

certain groups in society rather than to foster public debate open to all members of the public on an equal basis.[19]

Both aspects of free flow are subject to the principle of proportionality. In other words, the free flow of information may only be restricted in favour of another general interest or of a conflicting right when that is essential to the functioning of a democratic society.

Within the EU, we have a limited number of rules governing the public exchange of information. For example, those covering the separation of commercial and editorial content in mass media or anything resembling it (independency). There are also anti-hate regulations, a number of which are contained in the AMS Directive (2007/65/EC).

Both the free-flow principle governing private communications and its counterpart covering public exchanges protect access to distribution networks, since information that is not communicated cannot exist.[20] The ECtHR has acknowledged that under certain circumstances there does exist a right of access to networks for the distribution of public information.[21] The conditions whereby service providers may access a communications network are defined in the Access Directive (2002/19/EC), whilst those for individual users are contained in the Universal Service Directive (2002/22/EC).[22]

The principle of informational privacy

The principle of informational privacy is designed to protect information originating in the personal sphere and hence is based upon confidentiality, including that of communications. This notion has been developed in detail in the principle of personal data protection, intended to safeguard that information about or traceable to individuals which is held outside their personal sphere, as extrapolated by the ECtHR from the 'right to respect for private and family life'

[19] Féret v. France (ECtHR, 16 July 2009; app. no. 15615/07). Moreover, measures are required pursuant to the UN Convention on the Elimination of All Forms of Racial Discrimination of 21 December 1965, which has been ratified by most member states of the Council of Europe.

[20] According to Floridi (2010, p. 106), in information ethics we use the so-called 'triple A' principles: accuracy, availability and accessibility. I have already covered accuracy under the subprinciple 'truth'. Here we are talking about availability and accessibility.

[21] Hertel v. Switzerland (ECtHR, 25 August 1998; 1998-VI; TV Vest v. Norway (ECtHR, 11 December 2008; app. no. 21132/05).

[22] See: Helberger & van Eijk 2008, pp. 1109 and 1163.

described in Article 8 of the ECHR.[23] Within the EU, rules for the protection of personal data are found in three Privacy Directives (1995/46/EC, 2002/58/EC and 2006/24/EC). The form of communication these cover is registration and consultation, whilst the subprinciples upon which they are based are accuracy (the data held are correct), a specialised principle of proportionality (data are held only for reasonable purposes and only when necessary) as well as accessibility, or the principle of control.[24] These subprinciples are clearly related to one another, and also to those governing the free flow of information as described earlier.

Both free flow of information and informational privacy are the product of a long tradition in European democracy. As applied to the person, the principle of free flow expresses the notion that there is a clear dividing line between the private sphere and the public domain. Citizens participate in public life but retain a private one, which the state should in principle stay out of.

Applied to the public domain, free flow implies that there is open debate about the direction society should take and that a variety of political and religious ideologies can exist side by side. It also expresses the notion that the powers that take the important decisions in a society are subject to constant public scrutiny and that there is free and open discussion about the decision-making process, based upon data available to all.

Informational privacy, too, draws a distinction between the state and the private sphere in which a citizen is entitled to keep information about himself to himself. The rules protecting personal data held outside the private domain exist to allow as well as to regulate the creation of databases holding such material. These databases appeared as early as the 19th century, when they were established to facilitate an orderly civil society; they are essential, after all, in enabling the citizen to exercise both his private entitlements – property rights, for example – and his public ones, such as the right to vote. And in commerce they simplify the exchange of information and hence the completion of transactions. Since they also have the potential to be used as instruments of power, though, it is vital that they be subject to public and private control.

[23] Gaskin v. UK (ECtHR, 7 July 1989; Series A 160); Copland v. UK (ECtHR, 3 April 2007; app. no. 62617/00).
[24] In the 'triple A' model (see note 20), the principal of availability is further refined to produce that of proportionality: available only if necessary for a specified purpose.

Principle of intellectual property

The principle of intellectual property aims to protect the economic fruits of creative and intellectual efforts. It may be of vital interest that information circulates freely, information has to be created or produced in the first place. Otherwise there is nothing to circulate. Therefore, investments and creative efforts have to be paid for. The central concepts to exploit information in the public sphere are the definition of a 'work' of copyright, the 'copying' of a work of copyright and the 'public communication' of a work. 'Work' stands for the continental tradition of creative effort and the Anglo-Saxon tradition of the effort of producing information ('sweat of the brow'). 'Copying' comes from the old world of paper . Paper is the tangible unit to exploit information. 'Communication to the public' refers to the immaterial world of physical performance (theatre) and the immaterial dissemination of information to a circumscribed public (film, broadcasting).

Looking back at our definitions, copyright is more about the formal order of information (information produced, edited and selected) than semantics. As with the two principles of free flow the question whether information is privately or publicly communicated is of vital importance.

Together, the principles of free flow and of informational privacy and the principle of intellectual property constitute the conceptual, ethical, economical and cultural roots of the 'information order' in a liberal democratic state. I shall end this contribution by considering how these principles stand in a data-mining and network society: are they sufficiently well-anchored to keep supporting the ever-burgeoning tree of information and communications technology?

The shift of technological paradigms

The existing legal instruments which regulate information are based on distinct technological paradigms.

The technological paradigm of the public the free flow principle that regulates the public communication of information is the means of mass communication: press, broadcasting, film, music halls, i.e. the dissemination of edited data from one central point to a circumscribed audience . The same holds true for the notions that underpin the principle of intellectual property: paper or immaterial distribution to fixed (language) audiences. All regulations address the top (information) layer of the communications process.

The paradigm of the private free flow of information principle is the postal and telecommunications services. It protects the confidentiality of private communications and related data. It addresses the entropy of information rather than semantics. The object of regulation is the layer of telecommunications services of the communications process. As the communications remain private the principle of intellectual property does not apply.

The paradigm of the principle of informational privacy is the (personal) computer and the (central) storage of data by means of the computer. The computer formed part of the information layer. The main subject of the regulation is the syntactical and semantic ordering of data. As soon as ordered data are made available to the public the principle of intellectual property considers this a communication to the public.

The network society has changed all that, because the computer became the central connecting point in a network of individualized communications and data storage. This is creating a new information asymmetry between the world of data and the general public. One which, in part at least, is being offset by a group of new media we can subdivide into “access media”, “consultation media” and “search media”. Access media are the Internet service providers, which now play an essential role in the free flow of information in both the private sphere and the public domain. They find themselves half in the telecommunications layer and half in the information one. The E-Commerce Directive (Articles 12-14) addresses them primarily in terms of the former, but now that they are increasingly becoming a target for governments seeking to regulate and filter the flow of information to individual users at the point of access they provide, they also deserve a form of protection against excessive government intervention comparable with that enjoyed by the electronic mass media – a ban on censorship, for example. The current regulatory regime fails to provide this. In other words, to the telecommunications rules designed to facilitate the free flow of information in the private sphere must be added the principle of free flow in the public domain and to some extent also the principle of intellectual property.

As platforms for discussion and the exchange of information, the new consultative and group conversation mass media, like YouTube and Facebook, merit protection under principles of free flow tailored to the public domain. But on other side of the coin they should also be subject to obligations as regards the search for truth, independence and accessibility. There is also a danger that, as the dividing line between the private and the public fades and as all our

communication activity is monitored and recorded, a permanent gap will open up between the principle of free flow as applied to the private sphere and that of information privacy. In respect of both, the existing rules do not reach far enough.

The web, with its HTML language, has opened up a world of data for the user. But the entropy of this collection is extremely high. In his book *Information: A Very Short Introduction*, Floridi provides an example of a situation in which information is available but is almost impossible to obtain because the data are so poorly structured: a library where the books are shelved at random. The web is just such a library. However, the user has available to him a tool that can reduce that entropy: the search engine. Because of this ability, search engines have become a medium vital to the free flow of information, private as well as public. They became an important medium on the crossing point of commercial and non-commercial streams of information. Where the editorial information of mass media linked audiences with advertisements, search engines label editorial information to individual preferences of individual users, thus not only enabling behaviour based advertising, but also providing tailor made information that can be used by all sorts of public and private services. This function therefore deserves protection based upon the principles of free flow, in terms both of the integrity of the information it produces – including the liability aspect – and of the objectivity of the search result. At issue here are all three sub principles of public free flow (independency, truth and pluriformity of the search results), private free flow (confidentiality of search data) but also informational privacy (accuracy, proportionality and access of stored personal data in the course of the search activity). None of them are covered by the existing regulatory regime.[25]

Patterns of communication have changed beyond all recognition. The AMS and E-Commerce directives have tried to bring some order to the situation by introducing the terms 'linear' and 'non-linear' communication and then attempting to regulate these forms whilst leaving 'the rest' more or less alone, or addressed only to a limited extent in the E-Commerce Directive. This is a valiant effort, but one doomed to failure because patterns of communication on the Internet are much more varied than the picture this regulation paints. What is really needed is an analysis of those patterns in order to design a new framework based upon the principles of free flow for private and public communications

[25] See also: Peggy Valcke 2008, p. 1105.

and upon those of informational privacy – a framework that includes the new media that are such an important part of the patterns concerned.

To sum up: in the data-mining and network society the forms of communication associated with public communication are becoming increasingly bound up with the registration and storage form. The principles of intellectual property, free flow and of informational privacy have started to overlap. Terms relevant to consultation and registration, such as 'storage' and 'processing', are blending with free-flow terms like 'conversation', 'consultation' and 'editing'. 'Public communication' becomes 'private registration'. The second problem is that free mass consumer access to networks and data is placing the editorial processing of data to create high-value information under pressure. As well as directly affecting the quality of public debate and the public media, this is also creating new media which legally have not yet been properly anchored in either principle, free flow, informational privacy or intellectual property. Moreover, this process is increasing the power of the citizen and reducing information asymmetry: to an ever greater extent, individuals participating in networks are able to find news, to pass it on and to comment upon it. To a large extent they become also producer of information (the so called 'prosument'). The third problem is that network communication is blurring the dividing line between the private sphere and the public domain, so that it is no longer clear which forms of communication are regulated and which are not, or under which of the principles they should be regulated. The last problem, I notice here, is that intellectual property is losing its grip on the wide electronic dissemination of data. The difference between an original work and a copy of the work has virtually disappeared in a digital environment.[26]

Most likely, there are other problems, too. Or those mentioned here should be addressed in a different way.[27] For the time being, though, this is sufficient.

What can be done?

The roots of the information society are in urgent need of strengthening, otherwise the uncoordinated proliferation of information and communications technology will continue unabated.

[26] See Egbert Dommering 1990, p. 1-13.
[27] All of this forms part of a broad process of convergence. See: Dommering 2008, pp. 15 et seq.

The first thing to be done is to step back from existing legislation desperately trying to enforce rules based on old technological paradigms. We need a new approach based on the conceptual framework of the three principles of the information society I have sketched in the above. The question is what interest has to be protected on which level of the communications process by which legal means? To carry out this analysis we need clear and distinct notions of data, information and communication.

The next step concerns the issue of complexity, both in terms of technique as in terms of (failing) information markets. Technical design as a means of implementing the principles of the information society should become an important point on the political agenda. Until so far technical design has only been an issue of ever increasing political and economic dominance over individual citizens and customers. The protection of the information society as a *democratic society obeying to the rule of law*, requires that the checks and balances of the principles of the information society should be part of the considerations of technical design. The other point of interest is the shaping of markets in which the balance of the principles of the information society can be maintained. The question should be: can the market do the job, and if so what sort of interventions of the government are required to protect the principles of the information society? This will be the battle between the principle of free flow and intellectual property on the one hand and a free flow driven by commercial advertising and/or personal data on the other hand.

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