

Common Knowledge in the “Information Age”

Why We Need a New Self-Description of (Intellectual) Property Rights

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I. The New Significance of Intellectual Property Rights and the Rise of the Information Economy

Until recently, intellectual property rights (IP-rights) like patents, copyrights and trademarks did not attract much attention in the now fading industrial society, neither in the mass media nor in academic circles amongst legal scholars, economists, or political scientists. Debates about the meaning or the economic and social function of patents used to be more or less the exclusive domain of highly trained corporate lawyers. Copyright matters also went largely unobserved. Copyright and trademark laws were classified to be an esoteric and arcane field and for a long time were the nearly exclusive domain of a few IP-specialist. Only the occasional academic or legal scholar, usually from an American university, was involved in these debates. Standard public law commentaries or textbooks from most European countries presented, and continue to present, almost nothing about the significance and function of IP-rights. In this way, academic public law has followed widely academic private law, which also focuses on tangible more than on intangible property.¹

¹ For further details see T. Vesting: “Subjektive Freiheitsrechte als Elemente von Selbstorganisations- und Selbstregulierungsprozessen in der liberalen Gesellschaft - dargestellt am Beispiel der Bedeutung der Intellectual Property Rights in der neuen Netzwerkökonomie”, to appear in: Die Verwaltung, 2001.

Such non-observance has turned into increasing interest over the past ten years, especially in the United States. Today, IP-law is faced with growing attention not only in the expanding IP-departments of big global law firms (who have to adjust to the new legal forms of the information society) but also in the public and academic realm.² The London based *Economist* was the first magazine to cover the economic weight of patents and copyrights in the new information economy, the emerging “patent war” between new “knowledge monopolies”.³ Since then, we have been confronted with an intensive debate about the meaning, function, and enforcement of IP-rights in the mass media; Napster and its “battle” with the music industry is perhaps the best-known recent example. But things have also changed in the academic world. One may think of James Boyle’s considerations in *Shamans, Software, & Spleens* from 1996 or of Lawrence Lessig’s *Code and Other Laws of Cyberspace* from 1999. And one may especially think of Jeremy Rifkin’s highly successful new book, *The Age of Access*, published a year ago. In this book, Rifkin predicts a fundamental change in the role of property accompanied by enormous and far-reaching implications for modern society and the new “weightless economy”.⁴

What is the reason for this spreading attention? The main reason is, of course, the growing importance of IP-rights and their management in the new “information economy”. What do we mean by this?

The concept of information economy, as described by economists like Carl Shapiro and Hal Varian in the United States or Michael Hutter in Germany⁵, is rather broad. It refers to the increasing significance and demand for *hardware*: New digital technology devices and networks like CPUs, memory chips, disk drives, controller cards, etc. It also encompasses the production of highly intelligent *software* like computer operating sys-

² This is even more significant for biotechnology that is not subject of this working paper.

³ The *Economist*, April 8 th – 14 th, 2000.

⁴ J. Rifkin: *The Age of Access*, 2000, 137 ss.

⁵ C. Shapiro/H. R. Varian: *Information Rules*, 1999; M. Hutter: “The Commercialization of the Internet”, in: Ch. Engel/K. Kellner (eds.), *Understanding the Impact of Global Networks on Local Social, Political and Cultural Values*, 2000, 73 ss.

tems (e.g., Microsoft, Linux) and applications (e.g., Microsoft Windows, Netscape, Real Player, etc.). It further includes all kinds of information goods that are distributed through networks, particularly through the Internet and the World Wide Web, like music, databases, movies, magazines, and stock quotes. When networks have a specific impact on market patterns like, for example, positive feedback and temporary monopolies, the literature usually prefers the term “network economy”. This paper takes up both concepts but will not deal with the entire information economy. It focuses both on computer and cultural industries, the latter including two big content markets: Art-entertainment and knowledge-education.

The expansion of the information economy is embedded in a fundamental societal change. For this transformation, philosophers and sociologists coined different concepts like “information society”, “knowledge society” or “global society”; Manuel Castells, in his voluminous characterisation of the information age, writes of a “network society”.⁶ From a theoretical point of view, and in particular from a systems theory perspective, one may have some doubts about the validity of these self-descriptions. The concept of “information society”, for example, has to cope with the problem that every society is based on communication and that communication as a concept includes information.⁷ Similarly, the concept of a “network-society” is confronted with the difficulty that modern society is produced and reproduced through recursive networks of communication. But leaving these lacks of conceptual clarity and consistency aside, it is probable that something new is coming up. And this new “post-modern society” faces us with fundamental changes in all fields of society, from changing consciousness over new modes of cultural production to changing forms of industrial organisations. It is likely that this ongoing transformation will also affect rule-making, the legal system, and the structures of political power.

For the purposes of this working paper, the following seems to be crucial: The evolving information economy (and the transition of society on a general level) is accompanied by the increasing cultural-economic weight of almost all kinds of information and

⁶ M. Castells, *The Rise of the Network Society*, Vol. I, 1996.

informational goods. As information is only information when it is *new* information, the information economy relies on novelty⁸, i.e., on the unremitting production of novel knowledge or ideas. This appears to be linked with an extreme shortening of production cycles, especially in the computer industries where the never-ending production of *new* software (operating systems, applications etc.) is even supplemented with an accelerating series of *updates*. This time-scale directed by overlapping (short-lived) temporary markets also exists in the “Hollywood System” and the mass media. Both Hollywood and the television industry have to attract attention under the conditions of information overload, an aim only reachable by constantly producing novelty, evident in the forms of *news*, *new* films, the *next* football-game, and so forth. Novelty’s growing importance engenders the ascendance of intellectual property and IP-rights in the digitally networked environments of information economics (and a marginalisation of the traditional forms of tangible property). Computer networks produce a fundamental de-materialisation in the economics of distribution, a shift “from markets to networks”. The market where sellers and buyers exchange tangible goods is replaced by an electronic world in which consumers are transformed into “users” of intangible information-goods. As Jeremy Rifkin puts it:

While all forms of property are more likely to be accessed than purchased in a network economy, it bears repeating that tangible property is becoming increasingly marginal to the exercise of economic power, and intangible property is fast becoming the defining force in an access-based era. Ideas in the form of patents, copyrights, trademarks, trade secrets, and relationships are being used to forge a new kind of economic power composed of megasuppliers in control of expanded networks of users.⁹

James Boyle goes even beyond this. For him, intellectual property provides the key to the distribution of wealth, power and access in the information society.¹⁰

⁷ For more details see N. Luhmann, *Soziale Systeme*, 1984, 193 ss.

⁸ On the emergence of novelty in culture see B. Groys: *Über das Neue*, 1992. On the emergence of novelty in economy see C. Gerschlager: *Konturen der Entgrenzung*, 1996.

⁹ J. Rifkin: *The age of access*, 2000, 57.

¹⁰ See generally J. Boyle: *Shamans, Software, & Spleens*, 1996.

II. Influences on the Intellectual Property Expansion

1. Economic Interests in the Field of Patents

Given this background, it should not be surprising that the last two decades have been decades of intellectual property expansion. In the field of patents this expansion is to some extent due to an aggressive patenting policy, used particularly by American enterprises during the 80s, when US chipmakers were being challenged by emerging Asian competitors. During this period, patents became crucial for the growing American computer industry. Since then, patenting has supported the building of companies' capital values, allowing them to uphold markets for specific technologies or even to exploit patents to boost revenue; the latter is an important policy-goal of IBM, a company which makes a fifth of its profit out of licensing revenues. Today, patenting is also used to colonise new areas of technology, a policy known as "strategic patenting". Strategic patenting has likewise become widespread in the software industry. After Microsoft had to pay IBM \$ 30m in a patent infringement suit, the entire industry started to realise the economic importance of patents. The most prominent example of this kind of patent extension is Dell-Computer: The company holds 77 patents protecting different aspects of its business method. Dell does not hold the 77 patents for using special hard-drive suppliers and microprocessor for its computers. The one and only purpose of its patenting policy is to protect the company's built-to-order method, i.e., to introduce a barrier to entry into the market, hindering competing companies that may wish to use Dell's business idea. This, by the way, also reveals why patents and patent law at present have an increasing effect on competition and competition law.

2. Changing Jurisdiction on Patent Rights within the American Legal System

The accelerating increase in the number of patents issued in the United States stems from more, however, than aggressive patenting by American enterprises. The expansion of patent-rights, which today is running at nearly twice the level of a decade ago, has also been caused by a changing jurisdiction within the American legal system. Until

the 80s, American courts took a dim view of patents and threw out most that were contested. Then, in 1991, the US Supreme Court allowed the patenting of software for the first time.¹¹ After the Congress had set up a new appeals court - the Court of Appeals for the Federal Circuit (CAFC), to which all patent appeals were referred - patent law was extended with the effect of an enormous increase in cases won by patent holders. Corresponding to this quantitative growth, the CAFC developed a generous attitude towards registration that also made new areas of technology patentable. In 1998, the State Street Bank decision of the US Court of Appeal¹² first allowed patenting of business methods. This is remarkable, though business methods play an important role in the information economy. One example is priceline.com's business method patent for the idea of an auction with a reserve price. Another example is amazon.com's one-click buying, the lawfulness of which has been already endorsed by a preliminary injunction of an American court in first instance.¹³

3. Copyrights and the Internet

A similar development can be observed in the field of copyrights. Extending the notion of tangible property to intellectual property, most western countries today protect computer programs through copyright law; in the Member States of the European Union, this extension was mainly driven by EU directive 91/250. With the growth of the Internet, however, intellectual property protection is now generally faced with a "global cyberspace", in which the effort of copying is reduced to a mouse click. This is accompanied by a technical development which produces a new intimate connection between access and copying. The latter is deeply rooted in the way computers work: Use a computer to listen to a song and you inevitably make a copy. The software runs by copying itself permanently, a mingling of the original and the copy, that does not occur, for example,

¹¹ No. 79-1112 "Diehr"; more details in A. Miller/M.H. Davis: *Intellectual Property*, 2.ed. 1990, 31 ss.

¹² GRUR Int. 1999, 633 ss.

¹³ U.S. District Court Western District of Washington, No. C 99 – 1695 P.

when reading a book. (A distinction that led different US-american lawyers ask whether “copying” is still the right focus for copyright regulation.¹⁴) In consequence of these new opportunities to copy without almost any physical limitation, an intensive struggle over the development of property rules on the Net has occurred on a global as well as on a European and a national level. In this struggle, mainly two economic interest groups are pitted against each other: The coalition of content providers, like television and film industries („Hollywood“), and the coalition of the computer industry and telecommunications service providers; the latter coalition is often supported by non-commercial users from the scientific community.

4. Evolution of Property Rules: United States, Global Level, European Union

The evolution of property rules for patents, copyrights and trademarks is embedded in a wider institutional and organisational transformation: An overall growth of the influence of self-organisation and self-regulation, particularly evident on the level of “navigation” and Domain Names (ICANN).¹⁵ This shift to self-organisation and self-regulation takes place within an institutional framework in which public-private arrangements become a dominant pattern.¹⁶ Although this new framework is accompanied by a diminishing role of the nation-state and traditional legal regulation, it cannot be simply interpreted as a substitution of “politics” through “economy”. National governments and

¹⁴ See P. Samuelson/ R. Davis: “The Digital Dilemma”, 2000, 8. I should perhaps add that German “Urheberrecht” is not a Copy-Law, but based on the author as an exclusive rights holder. This implies that the rights connected with the work of art by law (Urheberrechte) can never be completely transferred to other holders. However, in practise we also find far-reaching transferable rights (Nutzungsrechte) in the German-Model. See M. Hutter: “On the Construction of Property Rights in Aesthetic Ideas”, in: *Journal of Cultural Economics* 19 (1995), 177 ss.

¹⁵ For more details see L. Lessig: *Code And Other Laws Of Cyberspace*, 2000, 100 ss; “The Law of Cyberspace”, in: *Harvard Law Review* 112 (1999), 1573 ss., 1675 ss.; J. Zittran: “ICANN: Between the Public and Private – Comments before Congress”, in: *Berkeley Journal of Law and Technology* 2 (1999).

¹⁶ M. Hutter: “Efficiency, Viability and the New Rules of the Internet”, to appear in: *European Journal of Law and Economics*.

administrations are still influential on different levels and, as in the past, are targets of divergent economic desires and interests. In the United States, for example, the expansion of copyright protection through state regulation is manifest in the Digital Millennium Copyright Act (DMCA) of 1998. The DMCA introduced new provisions to buttress technological protection measures used by copyright owners and also banned devices whose primary purpose is to enable circumvention of technical protection systems.¹⁷ Although the Clinton Administration had no unified view on IP-law matters (the FTC and the Justice Department's Antitrust Division, for example, were sceptical about the intellectual property policy), the extension of IP-Law became one of its important policy initiative both domestically and internationally.

The Clinton Administration particularly advocated the implementation of higher standards of copyright protection on the global level. In 1998, the US pushed through the World Intellectual Property Organisation Copyright Treaty (WIPO). Even earlier, in 1994, the trade-related aspects of intellectual property rights (TRIPS agreement) had been adopted within the World Trade Organisation (WTO). The main function of the TRIPS agreement is to prescribe what WTO members must protect as intellectual property, and to provide a dispute settlement mechanism that allows cross-retaliation through import restrictions. Michael Hutter describes through which coalitions the WTO got "instrumentalised":

The agreement came about because of the strong and persistent pressure of the U. S. delegation which, in turn, acted under pressure from congress. Administration and group interest all intend to "level the playing field" for U.S. business interests related to copyrights and patents. The coalition was bolstered by an alliance of U.S., European and Japanese business communities. Resistance came from developing countries. However, since Trips was part of the package of commitments for prospective WTO members, there was little choice.¹⁸

¹⁷ These provisions are highly controversial in the literature. For a critique of the DMCA see P. Samuelson: "Intellectual property and the Digital Economy", in: Berkeley Journal of Law and Technology 2 (1999), 520 ss.

By 1996, about 30 countries had brought their national laws and practices into accordance with the TRIPS obligations. While the TRIPS agreement was pursued to protect existing intellectual property rights, the WIPO treaty of 1996 related more directly to the Internet on future copyright. In expert working groups, different treaties on copyrights were drafted; two were passed by the Diplomatic Conference in Geneva in 1996. At this point, however, resistance against an overall IP-law extension emerged and things became more complicated. The Hollywood side, supported by the US and the EU delegations (its voice was Bruce Lehman, commissioner of the US Patent and Trademark Office), was now confronted with the new alliance of telecommunication, computer and non-commercial users interest groups, organised by the Digital Future Coalition (DFC). The DFC was effective enough to draw the US Congress to its side and was able to organise a coalition of Asian and African countries in voting against the most contested provisions, namely Art. 7 and 13, which included relatively broad provisions against temporary copying and fair use rights.¹⁹

The development within the European Union is, broadly speaking, a reproduction of these struggles. Although Art. 52 of the EPC still rules out patents of computer software “as such”, Member State courts like the German Bundesgerichtshof and the Boards of Appeals of the European Patent Organisation (EPO) have held that a technical invention which uses a computer program is, in principle, patentable. They argue that under Art. 52 EPC (and the corresponding provisions of the patent laws of the Member States), patents can be granted for inventions which have a technical character. This is interpreted as requiring, first, that the invention must belong to a field of technology, and second, that the invention must also take a “technical contribution” to the technological state of the art.²⁰ In a paper on the patentability of computer-implemented inventions, published

¹⁸ M. Hutter: “Efficiency, Viability and the New Rules of the Internet”, to appear in: *European Journal of Law and Economics* (manuscript p. 15).

¹⁹ More details in P. Samuelson: “Confab clips Copyright Cartel”, in: *Wired*, March 1997.

²⁰ For more details see Esslinger/Betten: “Patentschutz im Internet”, in: *Computer und Recht* 2000, 18 ss.

by the Commission last year²¹, the Commission “adjusts” to this jurisdiction and states the need for “harmonisation” of national patent laws to overcome the “unsatisfactory” legal situation in the European Union. Contrary to the legal situation in the United States, the proposals for a new directive on European patent law still require the invention to provide a technical contribution. But as the concept of “technical contribution” is highly fuzzy, and the line between a business method and the software that implements it inevitably blurry, the European law would in the end lead to a clear expansion of patent rights. It would mean, for instance, that a computer-backed order tracking process with mobile communication for use in a restaurant can be patented if the process makes a technical contribution; the latter may lie in the speed of the transmission. Concerns about software patents and their imaginable extension to business, management, education, and culture are mainly articulated by European commercial software publishers and non-profit associations (e.g., Open Source movement, EuroLinux Alliance).²²

5. Excursus 1: From “Corporatism” to “Hyper-Pluralism”

I would, at this point, like to add some remarks about the changing role of the nation-state as it comes to the fore in regulating IP-Law.

The altered role of the nation-state is very often reduced to that of “regional politics” in a “global economy”. However, the struggle for intellectual property protection indicates that the far more important transition probably takes place at the inner boundaries of nation-states. The rise of the industrial society was accompanied by an emerging group pluralism that itself was mainly directed by the left/right distinction and the social and political organisations related to one or the other side of this distinction. This group pluralism introduced new institutions to “mediate” between state and society (“corporatism”), thereby supplying a new form of professional expert knowledge centred round the

²¹ Commission DG Internal Market: The Patentability of Computer-Implemented Inventions, 19.10. 2000.

²² See EuroLinux Alliance: DGIM Consultation on Software Patents, 15.12.2000.

state. The new pattern of “hyper-pluralism” occurring in the field of IP-matters is one of highly flexible and specialised “target groups”²³ centred around different political organisations on different levels (global, trans-national, national). This new form of flexibility, which favours an aggressive patent policy and simultaneously goes for restricted copyright protection, opens up new learning possibilities for public organisations. But at the same time, however, the new “hyper-pluralism” gives highly organised groups like the motion picture industry great influence over public knowledge-generation and, therefore, over regulation processes. This is largely due to the fact that in the post-modern-society, interests have become so heterogeneous that a common reference framework like *one* public sphere can no longer be maintained.²⁴ And this decline of a relatively stable space of options (left/right) is the profound reason for novel and increasing orientation problems of state organisations (authorities, regulatory bodies, courts, etc.).

6. Excursus 2: The European Union in a Connected “World-Society”

Furthermore, the regulation of intellectual property protection could be conceived as a case study about the future development of the European Union. The expansion of intellectual property protection reveals that the nation-state in the sense of a territorially bound and culturally (linguistically, religiously etc.) distinct political unit is transformed into an “organisation among organisations”. The nation-state and the “international system” based upon it are proving to an increasing extent to be an inadequate answer to cope with the increased intrinsic complexity of the information economy. Therefore, the unity of “spatial order” (Raumordnung) and “political order” is dissolved under the pressure of a rapid self-transformation in which technological, economic and political developments are interwoven. The emergence of international organisations like the WTO, the increasing significance of more or less autonomous public regulatory bodies, and the increasing

²³ R. Mayntz, “Modernisation and the Logic of International Networks”, *Knowledge and Policy* 1993, p. 3 ss.

significance of co-operative relationships of these authorities with private and semi-private organisations changes the state itself. We are faced with a “new world order”, not categorised by either Hobbes, Locke, Montesquieu or Max Weber.

These arguments allow the conclusion that the sovereignty of the national-state will drift further in the direction of responsibility for partial segments of regional orders, such as the regulation of citizenship and its exceptions. At the same time, the dependence of the nation-state on international and trans-national political networks, in Luhmann’s terminology: the “political system of the world society”, will grow.²⁵ Beyond the level of international networks, among which are to be counted informal relations between national parliaments, governmental organisations and courts²⁶, an in principle pluralistic order of overlapping regulatory networks will gain in significance. For this “new world order” the terms “global governance” or “global public private governance” seem to be becoming established in the political and social science literature.²⁷ While the term “global public private governance” is often, perhaps justifiably, characterised as fuzzy, the term aptly expresses the way the “new world order” follows the “logic of networking”, that is a logic in which order must be generated under the conditions of displacement of earlier stable limits (private/public; state/non-state etc.). All in all an a-centric landscape of high mobility and unravelling borders should be generated, in which public and private, national, trans-national, supranational and international components overlap to an at times varying extent.²⁸ Jean-Marie Guéhenno pictured the formation of such „network-connections” using the image of the interlinked Olympic rings.²⁹ This image

²⁴ K.-H. Ladeur: “The Liberal Legal Order and the Rise of Economic Organizations – Towards a Legal Theory of Proceduralization”, in: K.-H. Ladeur (ed.), *Liberal Institutions, Economic Constitutional Rights, and the Role of Organizations*, 1997, 169 ss, 198 s.

²⁵ N. Luhmann: “Der Staat des politischen Systems”, in: Ulrich Beck (ed.), *Perspektiven der Weltgesellschaft*, 1998, pp. 345 ss, 351 s.

²⁶ A.-M. Slaughter: “International Law in a World of Liberal States”, *EJIL* 6 (1995), 503 ss, 522 ss.

²⁷ For an overview see the papers in J. Kooiman: *Modern Governance*, 1993; and R. Värynen: *Globalization and Global Governance*, Lanham 1999.

²⁸ See K.-H. Ladeur: “Towards a Legal Theory of Supranationality – The Viability of the Network Concept”, in: *European Law Journal*, Vol. 3 (1997), 33 ss.

²⁹ J.-M. Guéhenno: *The End of the Nation-State*, 1995.

captures the future world order very well, although the rings and their connections should not be thought of as stable. The future will more probably be like a computer-animation, based on “iteration” (Derrida), in which order is not simply replaced by disorder, but in which a greater variation of figure combinations must indeed be reckoned with.

This must have consequences for the self-description of the European Union too. The European Union will never become a sovereign state because not only state-organisations, but also EU-organisations are increasingly embedded in a world of communicatively networked global interdependence. The growing complexity and flexibility of the European political process propose the notion that the European Union “is essentially organised as a network that involves the pooling and sharing of sovereignty rather than the transfer of sovereignty to a higher level.”³⁰ This network-like pattern is, in recent debates, often equated with a plurality of overlapping powers in the sense of institutional neo-medievalism. From my point of view, this is a rather unhistorical comparison. But the network metaphor as used in this literature, some scholars are even talking of Europe as a “network-state”³¹, underpins that in future “authority” has to be shared along a network, which by definition has nodes, not a centre. Nodes may be of different sizes, and may be linked by asymmetrical relationships in the network. However, Manuel Castells remarks,

regardless of these asymmetries, the various nodes of the European network state are interdependent on each other, so that no node, even the smallest powerful can ignore the others, even the smallest, in the decision-making process. If some political nodes do so, the whole system is called into question. This is the difference between a political network and a centred political structure.³²

As shown above, the concept of a “network state” - if this notion makes any sense at all – could only be the first step to adapt to the new “logic of networking”. The “logic of networking” does not only destabilise limits between state and non-state actors but also the limits between private and public organisations. The new “global public private

³⁰ R. Keohane/S. Hoffmann: “Institutional Change in Europe in the 1980s”, in: Keohane/Hoffmann (eds.): *The New European Community: Decision Making and Institutional Change*, 1991, p. 13.

³¹ M. Castells: *End of Millennium*, 1998, 363.

³² M. Castells: *End of Millennium*, 1998, 363.

governance”-pattern, the in principle pluralistic order of overlapping regulatory networks, will no longer be ordered territorially but *functionally* and will largely proceed from a cooperation with *private* actors; intellectual property expansion is only one case study that upholds this judgement, others could be added (e.g., telecommunications law, antitrust law, *lex mercatoria*, multinational enterprises, labour law, sport law etc.).³³ *This* is the challenge a European constitutional theory has to cope with. Therefore, the concepts both of democracy and sovereignty should be reoriented precisely towards this development³⁴, instead of simply projecting the traditional democratic image of the sovereign national state coupled with a unified will onto the European level.

III. Concerns about Intellectual Property Expansion

1. “The Tragedy of the Anti-Commons”

Advances in technology often posed challenges for IP-law and the legal order. At first glance, one therefore could argue that legislators in all western countries periodically had to amend copyright law to regulate new technology products such as photographs, motion pictures, and sound recordings. However, a profound analysis may suggest that intellectual property expansion not only brings about some perturbations into IP-law, but also has wide-ranging negative effects on the information economy and, in particular, on the computer industry.

³³ See e.g. M. Rothblatt, „Lex Americana: The New International Legal Regime für Low Earth Orbit Satellite Communications Systems“, *Journal of Space Law*, Vol. 23 (1995), 123 ss; K.-H. Ladeur, „Die Globalisierung der Telekommunikation und die kooperative Herausbildung einer neuen transnationalen Rechtsordnung – das Beispiel der mobilen Satellitenkommunikation“, *ArchPT* 1998, pp. 243 – 251; H. Ullrich: “Antitrust Law relating to High Technology Industries”, in: Roger Zäch (ed.), *Towards WTO Competition Rules*, 1999, 261 ss, 284 ss; and the papers in G. Teubner, *Global Law without a State*, 1997.

³⁴ See K.-H. Ladeur: “Globalization and the Conversion of Democracy to Polycentric Networks – Can Democracy survive the End of nation-States?”, forthcoming.

In recent literature, different scholars have pointed out that the expansion of intellectual property rights can cause self-blocking effects in which more intellectual property rights – paradoxically – may lead to fewer useful products and innovations. James Boyle stresses that the traditional system of intellectual property protection is built around the (romantic) idea of originality, i.e. the original creation of a unique individual spirit, and thus tends to undervalue the importance of the “public domain”.³⁵ For this tendency of underestimating the economic significance of common knowledge as a pool of intellectual “raw material”, Michael Heller has coined the expression of the “tragedy of the anti-commons”.³⁶ This expression itself is referring to the “tragedy of the commons” metaphor that helps to explain why people overuse shared resources – canonical examples include depleted fisheries, overgrazed fields, and polluted air.³⁷ Behind Heller’s conversion of the original expression lies the idea that once an anti-commons emerges, collecting rights into usable private property bundles can be difficult, costly, and slow. Heterogeneous interests among owners may produce high transaction costs for novel products, or even the failure of an innovation because *too many* dispersed intellectual property rights exist. Behind this background one might, for example, ask whether Bill Gates could have developed the highly *derivative* program of MS-DOS at the time that he developed it, the current set of copyright and patent-protections for software had been in place. And indeed, there are some indicators that suggest that especially the extension of patents on computer software in the US has created a very unsatisfactory economic environment in the US-american software industry (high risk of patent dispute). As a consequence, intellectual property “overprotection” is also seen as rather hindering than protecting innovation through market competition. Referring to the traditional functions and justifications of the patent system, Seth A. Cohen notes:

Legal and economic dynamics have had the effect of limiting the effectiveness of the reward functions of the patents systems to the point where even the prospect function cannot explain the results, the impor-

³⁵ J. Boyle: *Shamans, Software, & Spleens*, 1996, 55, 160.

³⁶ See M. A. Heller: “The Tragedy of the Anticommons: Property in the Transition from Marx to Markets”, in: *Harvard Law Review* (1998), 621 ss; see also M.A. Heller/R.S. Eisenberg, “Can Patents deter Innovation”, *Science* 280 (1988), 698 ss.

³⁷ G. Hardin, “The Tragedy of the Commons”, *Science* 162 (1968), 1243 ss.

tance of re-establishing the reward function has become paramount. In order to correct these failures, innovate rivalry must be encouraged in intellectual property systems, whether by modifying the proprietary system, or by creating a new non-proprietary paradigm.³⁸

2. The Enclosure of Common Knowledge

The increasing enclosure of common knowledge through an order of fragmented and overlapping intellectual property rights is, furthermore, a serious challenge for the self-organising capacities of liberal society. Common knowledge (or cultural commons, or public domain) can be described as a mode of what is nowadays widely classified as “social capital.”³⁹ The concept of social capital starts from the premise that capital today is embodied less in land, factory, tools, and machines than, increasingly, in information, knowledge, and personal skills. Social capital is an addition to the latter, a distinct portion of “human capital”. It is usually seen as a “means” feeding “spontaneous sociability”, i.e. to be able to work together for common purposes in groups or associations like neighbourhoods, churches, unions, clubs, and charities. Seen from the viewpoint of the highly organised contemporary society (“society of organisations”), social capital stands for the ability to associate both in stable organisations (companies, public administration) or fluid networks for organising tasks (film industry, textile production in the Prato region). The concept of social capital is, therefore, closely linked to the notion of “trust” and, on a more general level, to the notion of “culture” in the sense of shared informal values and rules that underlie and maintain the unity of “communities”.⁴⁰

³⁸ S. A. Cohen: “To Innovate or Not to Innovate, That is the Question: The Functions, Failures, and Foibles of the Reward Function Theory of Patent Law in Relation to Computer Software Platforms”, in: *Michigan Telecommunications Law Review* 5 (1999), 1 ss, 33.

³⁹ See e.g. G. S. Becker, *Human Capital: A Theoretical and Empirical Analysis*, 2d ed., 1975; J. Coleman, “Social Capital in the Creation of Human Capital”, in: *American Journal of Sociology* 94 (1988), 95 ss; R.D. Putnam, “Bowling Alone”, in: *Journal of Democracy* 6 (1995), 65 ss.

⁴⁰ See generally F. Fukuyama: *Trust: The Social Virtues and the Creation of Prosperity*, 1996.

The close interrelations of social capital, trust and culture make clear why a healthy information economy is one in which sufficient social capital is (re-)produced in its poly-contextural environment of law, politics, science, mass-media, etc. These close interrelations also make clear why, vice versa, each of the different autonomous systems has to promote this self-organising capability of the information economy. Only the existence and maintaining of social capital permits business-firms, corporations, and networks to be self-organising, and the self-organising proclivity is exactly what is necessary to make the economy and other social systems work as well. If on the contrary, common knowledge is constantly undervalued by law and politics the balancing between public and private interests a liberal society is based upon could be destroyed. In a perspective that mainly focuses on intellectual property, Pamela Samuelson and Randall Davis circumscribe the “digital dilemma” as follows:

Today’s information infrastructure may also have the potential to demolish a careful balancing of public good and private interest that has been at the core of U.S. intellectual property law over the past two hundred years. The public good is the betterment of society that results from promoting, as the Constitution says, ‘progress of science and useful arts’. The private interest has arisen from grant of a time-limited monopoly (as copyright or patent) to those who have made a contribution to that progress. The classic challenge has been to strike and maintain a balance between these interests by offering enough control to motivate authors, inventors, and publishers to create and disseminate works, but not so much control to threaten important public goals, such as the preservation of the cultural heritage of the nation, broad access to information, and promotion and education and scholarship. As usual, the devil is in the details, but by and large the past two hundred years of intellectual property history have seen a successful, albeit evolving, balancing of those details. But the information infrastructure presents a leap in technology that may well upset the current balance, perhaps requiring a re-evaluation of some of the fundamental premises and practises associated with intellectual property.⁴¹

This development may also have negative effects on the political institutions of liberal democracy. Referring to the “political lobby” of “Hollywood”, Yochia Benkler remarks:

This political economy is responsible for an extensive enclosure movement that has pushed our intellectual property law toward ever in-

⁴¹ P. Samuelson/ R. Davis: “The Digital Dilemma”, 2000, 5.

creasing centralisation, and has squelched concerns that this galloping propertisation is attained at the expense both of innovation and of robust democratic discourse that a well-balanced intellectual property law could serve.⁴²

IV. Intermediate remark

This working paper will not deal with the devil in the details. However future solutions for balancing public and private interests in the field of IP-law might actually appear, the aim here is to make clear that expansion of intellectual property engenders new challenges for the entire legal system and, moreover, for policy-making and (state-) regulation. The expansion of intellectual property affects not only IP-law, but also constitutional law. It affects particularly the construction of property rights as basic rights and their relationship to the freedom of expression and information. On a more general level, the expansion compels us to re-think the role and function of public law in the new information society and to reconsider the traditional departmentalisation that divides the public and the private. In order to make a first contribution to an answer to this bundle of problems and questions, I will now reduce my scope of research to one general and one specific issue. Generally, can and should law create incentives for the generation of common knowledge? How can we describe this relationship between law and the cultural commons? More specifically, what follows from this for the legal construction of property rights?

⁴² Y. Benkler: "From Consumers to Users: Shifting the Deeper Structures of Regulation Toward Sustainable Commons and User Access", in: *Federal Communications Law Journal* 52 (1999), 561 ss, 570.

V. (Public) Law's Contribution for Generating Common Knowledge

1. From Subjects and Objects to the "Logic of Networking"

In current legal debates, it is widely accepted that modern law is not a self-sufficient undertaking although law is an autonomous system. There is some consensus that the legal order is related to different forms of structured environmental complexity (strukturierte Umweltkomplexität). Although the break with traditional stratified society and its semantic tradition, "the great chain of being" (alteuropäische Gesellschaft), has brought up a new form of self-referential autonomy of law, it is essential to insist on a conception of autonomy that does not mingle autonomy and autarky. The concept of autonomy of law means that law is an autonomous communicative network in the way that only the law (and no other system) can decide what is lawful and what is not.⁴³ But autonomy of law does not indicate that law would be independent from all kinds of non-legal preconditions and prerequisites. Law as a (formal) order is always and to some considerable degree parasitic on pre-legal (informal) processes, without which the legal system neither could exist nor (re-)produce its normative binding effects - and which the legal system alone cannot create or maintain. But the form of this dependence has changed as traditional society's unity of law, morality, and religion has been dissolved and fragmented in the (post-modern) information society.

Current legal and constitutional theory debates, however, often undervalue the deep impact these fragmentation-processes have on the legal system. On the contrary, with a Durkheimian approach to the non-legal preconditions of the contract, scholars press the law's dependence on structured environmental complexity in holistic frameworks like universal ethics or national culture. For instance, the dependence of law on general and abstract moral rules rooted deeply in a common shared "lifeworld" is in the centre of Habermas' discourse theory of law.⁴⁴ In constitutional law, to give another ex-

⁴³ See N. Luhmann, *Das Recht der Gesellschaft*, 1993.

⁴⁴ See e.g. J. Habermas: *Faktizität und Geltung: Beiträge zur Diskurstheorie des Rechts und zum demokratischen Rechtsstaat*, 1992, 599; for further explanations see M. Neves: *Zwi-*

ample, the concept of national homogeneity and unity played an important role in the legal debates during the Weimar Republic.⁴⁵ Such holistic pictures are still painted even today. Consider the reflections on the future of democracy in a European context that the Federal Constitutional Court (Bundesverfassungsgericht) expounded in the Maastricht decision. But this kind of constitutional theory only reveals the backwardness of all holistic frameworks, especially when they ascribe to the classical vocabulary of subject/object semantics within the enlightenment tradition.⁴⁶

I cannot go into further details here.⁴⁷ But an adequate picture of the legal system and its environment cannot be painted on the grounding of such holistic self-descriptions. On the contrary, it must proceed from the assumption that with the shift from traditional to (post-)modern society a network of autonomous “cultural provinces” has arisen, an immaterial world of *relations* and *connections* whose inherent natural lawfulness is produced and reproduced by the diversity and intrinsic complexity of autonomous communicative networks. Their “language games” and specific bodies of knowledge obey the language of functional differentiation and, therefore, are no longer accessible to *one single* observer. This renders obsolete the idea of a stable “subject” (e.g., “Volk”), which could be conceived of independently of the communicative network and its dynamic relationships. That is meant when the end of the (sovereign) subject is talked of. Jean-Marie Guéhenno is undoubtedly correct:

Nothing is more foreign to our age than the idea of a person-subject that could exist in and of itself, outside the network of relationships in which it is inscribed and which alone defines it.⁴⁸

schen Themis und Leviathan: Eine schwierige Beziehung, 2000, 88 ss.; for a critique see K.-H. Ladeur, “Discourse Ethics as Constitutional Theory. Neglecting the Creative Role of Economic Liberties?”, in: *Ratio Juris* 13 (2000), 95 ss.

⁴⁵ See T. Vesting: *Politische Einheitsbildung und technische Realisation*, 1990.

⁴⁶ On this tradition and its self-descriptions see generally N. Luhmann: *Die Gesellschaft der Gesellschaft*, 1997, 866 ss, 1016 ss (subject).

⁴⁷ I tried to argued more precisely in: T. Vesting, “The New Economy as Challenge to create New Public Law (beyond the State)”, 2000, forthcoming.

⁴⁸ J. M. Guéhenno: *The End of the Nation State*, 1995, p. 33.

From this follows it that (post-)modern society is a society without centre or peak. (Post-)modern society is not constituted by “the will” of “man”. It consists of various collective spheres of (bounded) rationality, of a-centric and dynamic communicative networks, reproduced through heterarchic, connectist, relational, neighbourhood-like linked processes of dynamic self-association, self-organisation and self-regulation on the level of social systems, organisations, and persons. Therefore, I suggest Jeremy Rifkin is entirely right when he claims the inadequacy of self-description based on subjects and objects in an evolving information society:

In an electronic world of communications, subjects and objects give way to nodes and networks, and structure and function are subsumed by process. The computer’s mode of organization – especially parallel computing – mirrors the workings of cultural systems, in which each of the parts is a node in a dynamic network of relationships that is continually readjusting and renewing itself at every level of its existence.⁴⁹

2. Common Knowledge as a Concept of Practical Knowledge

For this reason, a theory which does not want to end up deadlocked in holistic subject/object semantics must find another way to describe the law’s autonomy from the society and, simultaneously, its reproduction through society. There are different approaches worth exploring. On a broad level are Michael Polanyi’s observations about the embeddedness of general, abstract scientific knowledge (impersonal knowledge) in a constantly changing environment of actual scientific practise (personal knowledge).⁵⁰ Polanyi’s philosophical treatment of the relationship between impersonal and personal knowledge indicates that the self-image of modern science as a mathematically based “objective” science is true to the degree it is generated through a self-contained system of reasoning. In this self-contained system, findings are logically derived from initial assumptions, and in this respect scientific knowledge is universal, and completely imper-

⁴⁹ J. Rifkin: *The Age of Access*, 2000, p. 206.

vious to context. The Pythagorean theorem, $a^2 + b^2 = c^2$, for example, is true for all right triangles everywhere and forever. In that sense modern science is based on abstract, formalised, general, objective, and timeless knowledge (“formal rationality” in Max Weber’s terms).

Beside formalisation, objectivity, and autonomy of science exists another realm: the social or practical dimension of cognitive activity. This realm in which knowledge is discovered and reproduced and which is grounded in the power of tacit knowing, Polanyi called the “society of explorers”.⁵¹ Coupling the notion of “exploration” with the notion of “society”, Polanyi particularly wished to call attention to the horizontal dimension of science, to the flexible rules of the cognitive search, the continual cross-checking and validating of each and every claim to have found the truth. Thus, in Polanyi’s words, “the authority of scientific opinion remains essentially mutual; it is established *between* scientists, not above them. Scientists exercise their authority over each other”.⁵² In *The Tacit Dimension*, published 1966, Polanyi uses the expressions of a „principle of mutual control“ that is organised in „chains of overlapping neighborhoods“ to trace a line around the processes in which scientific opinion is formed.

The scientific community shows some hierarchical features, but these do not alter the fact that the authority of scientific opinion is exercised by the mutual control of independent scientists, far beyond the direct scope of any one of them.⁵³

Thus, modern science is both: an autonomous undertaking, far beyond the scope of *any* scientist and, at the same time, a dependent one. It is, on the one hand, based on self-referential autonomy of “impersonal” or “objective” knowledge. But on the other hand, it has to be reproduced and validated through overlapping communicative networks

⁵⁰ See generally M. Polanyi: *Personal Knowledge*, 1964; an overview of Michael Polanyi’s thought gives J. H. Gill: *The Tacit Mode: Michael Polanyi’s Postmodern Philosophy*, 2000.

⁵¹ See e.g. M. Polanyi, *The Tacit Dimension*, 1966, 53 ss.

⁵² M. Polanyi: *Knowing and Being*, 1969, 56; see also J. H. Gill: *The Tacit Mode: Michael Polanyi’s Postmodern Philosophy*, 2000, 63 s.

of scientific communities and can, therefore, not be separated from the more pluralistic and flexible rules of “personal” or “tacit” knowledge. This flexibility is particularly due to the fact that personal knowledge constantly has to adapt to transient and shifting situations. The future orientated communicative networks of post-modern society are bound up with a transitional character of the new, the permanent sequence of new but equally fleeting events; the latter is, as we already saw, particularly true for the information economy. Using the distinction of “*techne*” (to describe the self image of modern science) and “*metis*” (to describe a wide array of practical skills and acquired intelligence in response to a constantly changing environment), James C. Scott writes:

If the description of *techne* as an ideal or typical system of knowledge resembles the self-image of modern science, that is no accident. The actual *practise* of science, however, is something else again. The rules of *techne* are the specification of how knowledge is to be codified, expressed, and verified, *once* it has been discovered. No rules of *techne* or *episteme* can explain scientific inventions and insight. Discovering a mathematical theorem, however, must follow the tenets of *techne*. Thus the systematic and impersonal rules of *techne* facilitate the production of knowledge that can readily be assembled, comprehensively documented, and formally taught, but they cannot by themselves add to that knowledge or explain how it came into being.⁵⁴

3. Law and the Common Knowledge

Transferred into the context of this working paper, the treatment of the relationship between impersonal and personal knowledge by Polanyi may support placing the interdependence of law and common knowledge in more precise terms. As a highly formal order, the legal system is – like scientific (impersonal) knowledge - always and to some considerable degree parasitic on common knowledge (and cultural commons). But if we refer to common knowledge as an “informal basis” of a law, we should primarily deal with it as a synonym for *personal*, *local*, and *dispersed* knowledge, a form of

⁵³ M. Polany: *The Tacit Dimension*, 1966, 72 s.

⁵⁴ J. Scott: *Seeing like a State: How Certain Schemes to Improve the Human Condition have Failed*, 1998, 320.

“metis” that is generated through chains of overlapping neighbourhoods (and not through: a single will!). Otherwise we would confuse practical and scientific knowledge (what indeed authors like Hobbes, Rousseau, and others did when they declared the new geometrical science found by Galilei and Descartes to the one and only model of all human science⁵⁵).

If we accept this assumption, common knowledge can no longer signify a homogenous unity. It could neither be directed by general and abstract rules of “a shared practise of communication”⁵⁶, as Habermas believes, nor by a territorially bound democratic culture based on common experience and values, “the cultural heritage of a nation”, as Samuelson pointed out. In a post-modern information society where order and law-making processes are increasingly transformed into network-like, neighbourhood-like patterns that obey the logic of functional specialisation, the law is grounded on different contexts of “personal knowledge”. Common knowledge is a dispersed, local resource of “practical skills” in constantly changing environments, a node in a “dynamic network of relationship that is continually readjusting and renewing itself at every level of its existence”.⁵⁷ Common knowledge is embedded in the self-organising capacities of dynamic communicative networks, and this has repercussions on the form and notion of common knowledge itself. Seen from a systems theory perspective, common knowledge is related to different autonomous systems and their codes, programmes and rationales. It is produced and reproduced in different parts of society through the behaviour of organisations and persons. Therefore, common knowledge is paradoxically always a dispersed, fragmented knowledge of “communities” – just like economists understand and use the concept of “social capital”.

⁵⁵ See e.g. T. Hobbes: *Leviathan*, 1651, ch. 20, 107. “The skill of making, and maintaining Common-Wealths, consisteth in certain Rules, as doth Arithmetique and Geometry; not (as Tennis-play) on Practise onely”.

⁵⁶ J. Habermas: *Faktizität und Geltung: Beiträge zur Diskurstheorie des Rechts und zum demokratischen Rechtsstaat*, 1992, 362 (english translation).

⁵⁷ J. Rifkin: *The Age of Access*, 2000, p. 206.

From this it follows, that the legal system should be directed by a flexible, poly-contextual bounded “procedural rationality”.⁵⁸ Procedural rationality could be circumscribed as the task to continually re-adjust and renew the self-descriptions of law to the self-organising processes of post-modern society, in particular on the level of organisations, business-networks and associations. Procedural rationality is especially feasible in the information economy since the computer industry and the cultural industries are widely driven by self-organisation and self-regulation.⁵⁹ Therefore, the task of law should become a reflexive one: It should primarily promote the self-organising and self-regulating capabilities of the information economy. So far the legal system is organised within the nation-state or the European Union, the courts have to adapt their doctrinal approaches and case law material to meet these new forms of self-organisation and self-regulation. The same applies to policy-making and regulation. If nation-states or the European Union intervene in the processes of self-organisation and self-regulation on the basis of more general and abstract rules, they should be aware of the increased complexity of the information economy. However, legal *theory* has to design a concept of law and its basic elements (e.g. private property) on a more abstract level. It should support the collective seeking processes to cope with the uncertainties of the evolving information society, and produce possible answers and solutions to the new orientation problems of state courts and public authorities. Such a contribution could itself be directed by the meta-rule to keep post-modern society open for processes of self-transformation and innovation, to maintain diversity and changeability of linkages between networks in the information economy and its diverse segments, including computer industries, arts, entertainment, knowledge, and education. In the preceding industrial society, the main purpose of public law was to guarantee public goods like inner peace and social security. In the information society, the main task of public law has to shift to the preservation of the diversity and variety of common knowledge-pools. To preserve common knowledge and its accessibility by bal-

⁵⁸ See H. Simon: „From substantive to procedural rationality“, in: S.J. Latsis (ed.), *Method and Appraisal in Economics*, 1976, 129, 131.

⁵⁹ There are also remnants of old state regulation and, at the same time, lawless situations, for example, child-pornography, hate-speech, neo-nazism etc on the Internet.

ancing the public and the private interests should be regarded as the principal public interest for the “information age”.

VI. Property Rights in the “Information Age” (Preliminary Reflections)

1. Property Rights between Exclusion and Co-operation

The structure of property rights is often narrowed down to *exclusion*: to rights of exclusion or, to turn it positively, to privileges of use respectively to share in economic goods.

Blackstone defined property as “that sole and despotic dominion which one man claims and exercises over the external things in the world, in total exclusion of the right of any other individual in the universe.”⁶⁰ In the US-american debate the vocabulary of privileges of use and rights of exclusion could be traced back to Hohfeld. For him rights of exclusion meant “that others are legally required to leave the object alone save as the owner may permit, and ... ‘privileges’ mean that the owner is legally free to do with the object as he or she wills.”⁶¹

In accordance with the English and American tradition, the traditional concept of private property in “German private law” is “Sachherrschaft” (thing-ownership). The German Constitutional Court favours a similar approach, which also stresses the aspect of exclusion, particularly in form of a subjective right *against* the state: Property rights have to secure a space of possibilities of individual choice, a „Freiheitsraum(s) im vermögensrechtlichen Bereich.“⁶²

⁶⁰ W. Blackstone: *Commentaries on the Law of England*, Vol 1.

⁶¹ See F. I. Michelman: “Ethics, Economics and the Law of Property”, in: *Nomos* 24 (1982), 3, 5.

⁶² See BVerfGE 68, 193 (222); 53, 257 (290); 31, 229 (239); 24, 367 (389).

The idea of property as a exclusive right is even the starting-point of J. Rifkin:

In modern times, then, property has come, to mean the exclusive right to possess, use, and dispose of things in the marketplace. Something is said to qualify as property if one can occupy or hold it and exclude others from having it; if one can use it in any way one chooses as long as the use doesn't harm anyone else; and if one can dispose of it by transferring or selling it to another party.⁶³

Exclusion is evidently only one side of property. Not only the history of liberal theory proves this⁶⁴, but also the simplest examples imply this conclusion:

1. The value of real estate today is constituted by location. But location is a relational aspect. It refers to common regard and, therefore, rather to inclusion than to exclusion.
2. Simmels debate on the social function of jewellery.⁶⁵ A diamond is perhaps the most individual and personal property one may imagine, but its "value" is constituted through its relational, social aspects. Diamonds are an incentive for social attention, which then produces a feedback on the person wearing the diamond: The *social* attention increases the person's self-worth. No attention, no "value"!
3. The relational dimension of property rights is evident in economy: Property is a means to produce new property (and not only to exclude!). Property has a *productive* self-generating function. It serves to multiply possibilities beyond the horizon of a personal "will". This is particularly obvious in the information economy: Amazon.com wouldn't work without efficient browsers, browsers are based on systems software, although systems software originally was not planned for selling books through the net etc.
4. IP-Law has always had the double-function of excluding *and* including. It is an incentive for innovation (reward function), but the innovation should not be kept secret

⁶³ J. Rifkin: *The Age of Access*, 2000, 81

⁶⁴ See K.-H. Ladeur: *Negative Freiheitsrechte und gesellschaftliche Selbstorganisation: Die Erzeugung von Sozialkapital durch Institutionen*, 2000, p. 21 ss.

⁶⁵ G. Simmel: „Psychologie des Schmucks“, in: G. Simmel: *Gesamtausgabe: Aufsätze und Abhandlungen 1901-1908*, Bd. 8, 1993, 385 ss.

(e.g. industrial secret). The purpose is disclosure, to make the new knowledge reachable for the “public domain”, to provide open access to technological innovation. The same applies to Copyright law. Copyright law should allow distributing informational goods without infringing the legitimate claims of copyright-holders.

Why, then, is the structure of property narrowed down in legal doctrines? I suggest there are at least four profound reasons:

1. Since John Locke property has always been, and still is today, constructed under the “tangible property paradigm”: Property is a “thing”. Property theory describes the relationship between a stable person (subject) and a stable thing (object). Even more: It assumes a full decision making authority of a person over a thing. Property is primarily property in real estate and land, which had been the key to wealth and power in the traditional society.
2. With the emergence of the industrial society and the welfare state, property was remodelled as a “bundle of rights”. Property “consists of a complex aggregate of rights (or claims), privileges, powers, and immunities” (Hohfeld). Although the tangible property paradigm lost its clear outline at this point, the proclivity only to stress the concept of exclusion remained dominant in legal doctrines. Law tried to keep the “object” of property stable.
3. But property law also tries to keep the subject side stable. That is why the extension of ownership from natural to artificial persons (“juristische Person”) never stripped off the image of “person”. But an enterprise is not a huge person or a “nexus of contracts”, it is something different and more complex: an organised social system based on membership. In the information economy, industrial organisations are, to some extent, substituted by large but more flexible business-networks. Property law treats both as “black boxes”.
4. Public law usually ignores that property (exclusion; free of consensus) *and* contract (inclusion; consensus-based), property (consumption) *and* market (distribution) belong together: no market (including labour markets), no private property!

2. The Reconstruction of Property Rights as Intangible Rights

Against the background sketched here, the legal construction of property rights must be re-constructed, mainly in two aspects:

1. From “tangible to intangible property”: The exception has to become the rule. In an information economy in which informational goods become dominant, the starting point for constructing property rights has to be intangible property (not: tangible). J.W. Child has already suggested that ownership should be re-modelled on the pattern of patent law and not of land ownership.⁶⁶
2. The principal “objects” of property rights are enterprises and business networks. That is obvious again in the information economy. This compels us to reflect on the authorship-paradigm, especially its romantic vision of “originality”. In the information economy the author does not disappear, but he has to be perceived as a node in a network of inventions.

3. The Coupling of Property Rights, Public Interest and Common Knowledge

From this it follows, that the construction of property rights has to shift from “exclusion to co-operation”: Under the conditions of an information society property is primarily not a right to share in economic goods, “but a mechanism for allocating decisional competence over social cooperation.”⁶⁷

⁶⁶ J. W. Child: “The Moral Foundations of Intangible Property”, in: *The Monist* 1990, 578 ss.; see also D. Schmitz, “The Institution of Property”, in: K.-H. Ladeur (ed.), *Liberal Institutions, Economic Constitutional Rights, and the Role of Organizations*, 1997, 31 ss, 49.

⁶⁷ K.-H. Ladeur: “The Liberal Legal Order and the Rise of Economic Organizations – Towards a Legal Theory of Proceduralization”, in: K.-H. Ladeur (ed.), *Liberal Institutions, Economic Constitutional Rights, and the Role of Organizations*, 1997, 169 ss, 188.

If we accept the assumption that property rights are a mechanism over “social co-operation”, it becomes clear that a property law theory for the “information-age” must stress the *relational* aspect of property rights. Legal theory, then, has to describe these relational aspects from a cognitive perspective, directed by the meta-rule to maintain diversity and changeability of linkages between networks in the information economy and its diverse segments. This is the undeniable core of an “objective dimension” of property: Property rights are grounded in social conventions and implicit knowledge of self-organising processes. The principal task of state-jurisdiction and state-regulation is to promote (and enforce) the capability of co-operation and innovation in these processes through property rights. That means that property rights have to strengthen the power of self-coordination, self-organisation etc.

.....to be continued