Search Engines as Gatekeepers of Public Communication: Analysis of the German framework applicable to internet search engines including media law and anti trust law

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A. Introduction

Several fundamental questions concerning internet law come to a head over search engines. There are trademark cases, issues about the protection of minors and questions of liability. However, as far as we know, the fundamental role that search engines play in public communication based on the World Wide Web has not yet been subjected to any legal analysis. This seems to leave a significant gap in our knowledge, given the fact that the market for search engines tends to be monopolistic.

The following article is based on a study done for the LfM, the media regulator in North Rhine-Westphalia, and is, therefore, rooted in German law. However, some of the arguments might be valid within other legal frameworks as well. The article addresses the functioning of search engines, the search engine market and the role of search engines in public communications (B). Furthermore, some constitutional issues are explored and the relevant legal framework is described (C). The analysis then focuses on access to the index and ranking lists (D.I), preventing a predominant influence on public opinion (D.II) and the transparency of commercial communications (D.III). Finally, problem areas are outlined and regulatory options discussed (E).

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B. Search engines: functioning, market and role in public communication

The term "search engine" is used for different types of service, sometimes even for web catalogues which simply offer a static link list. The following analysis addresses services on the World Wide Web which offer links to other web pages in response to an input of text by the user. Different modules can be identified when analysing the functioning of such search engines, such as crawler, index, document processing, query module and ranking module.[1] The core of any search engine is the so-called "index", a database of web pages found by "crawlers" which search the web by following a path pre-defined by algorithms. There are restrictions on a page being indexed. Firstly, some pages cannot be reached by the crawler, so only the publicly indexable part of the web can be picked up by search engines.[2] Secondly, the pre-defined path of the crawler determines whether and when a page can be found. Today, the *Google* index contains more than eight billion pages.[3]

Equally crucial for the success of search engines are the query and ranking modules. The exceptional success of *Google* is said to be based on their ranking method. Modern types of search engines are not based on simple methods like counting the search words in a page. The PageRank algorithm used by *Google* is based on the ideas of *Lawrence Page* and *Sergej Brin*, which basically take three factors into account[4]: a) page-specific factors, b) anchor text of incoming links, and c) PageRank.

The PageRank of a web page depends on the PageRank of those web pages from which a link is directed to the respective page. This algorithm can be refined – and has probably been refined – by ranking the outgoing links, calculating the "distance" between the web pages and other criteria. Furthermore, being listed in a web catalogue like *Yahoo!* can be taken into account by a search engine provider when it comes to ranking search results. Furthermore, a feedback to the foregoing behaviour of users is conceivable ("click popularity"[5])[6]. When it comes to criteria like up-

[1] Overview given by Türker, THE OPTIMAL DESIGN OF A SEARCH ENGINE FROM AN AGENCY THEORY PERSPECTIVE 9 (2004).

[2] However, in June 2005 *Yahoo!* announced a search feature which is capable of crawling deep links, see http://docs.yahoo.com/docs/pr/release1245.html.

[3] See http://www.google.com (June 2005).

[4] See Page/Brin/Motwani/Winogra, THE PAGERANK CITATION RANKING: BRINGING ORDER TO THE WEB (1999).

[5] Developed by DirectHit, http://www.directhit.com.

[6] Türker, *supra note* 1, at 17

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to-dateness of a web page one can see that there are slight similarities to journalistic criteria. Recent developments point to more customised search engines.[7]

Studies show that in several countries there is a high degree of concentration when it comes to the user market for search engines. On a given reference day in March 2004, *Google* obtained a market share in the United States of 40.9%, followed by *Yahoo!* with 27.9% and *MSN* with 19.6% (others 12.1%). In Germany, *Google* achieved 80.5%, *Yahoo!* 5.6%; in Great Britain *Google* leads with 65.6% and *Yahoo!* accounts for 10.8%; in China the figure is 72.6% for *Google* and 12.7% for *Yahoo!*.[8] However, there is no publicly available valid information about the market share for advertising revenues. This might be due to the fact that it is difficult to define the universe for online advertising.

If we consider advertising and search engines we can identify different types of financing, such as banner advertising, sponsored links or ad-links. Sponsored or ad-links are context sensitive placements of links which are shown in response to search words inserted by the user. They can essentially form part of the result list or be shown separately. The search engine provider might also offer paid inclusion, which means incorporation into the index if the respective content provider pays for it.

Given the great – and growing – importance of the web in public communications, the role of search engines cannot be overestimated. According to a German survey, 75% of users in 2004 name search engines as their principal means of finding web pages.[9] 91% of users take at least occasional advantage of search engine services.[10]

Empirical research not only demonstrates the significance of search engines as such; one can also see that ranking matters. *Machill/Neuberger/Schweiner/Wirth* show that in 80.6% of retrieval processes only the first page of the ranking is consulted, while in 13.2% of cases the user goes on to look at the second page of the results list.[11]

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[7] See Baeza-Yates, *Information retrieval in the Web*, INTERNATIONAL JOURNAL OF APPROXIMATE REASONING 97 (2003).

[8] Sullivan, *Google Tops, But Yahoo! Switch Success So Far*, Search Engine Watch, http://searchenginewatch.com/reports/article.php/34711_3334881.

[9] See Eimeren/Gerhard/Frees, *INTERNETVERBREITUNG IN DEUTSCHLAND: POTENTIAL AUSGESCHÖPFT – ARD/ZDF-ONLINE-STUDIE 2004*, MEDIAPERSPEKTIVEN, 350, 355 (2004).

[10] Machill/Neuberger/Schweiner/Wirth, *Navigating the Internet: A Study of German-Language Search Engines*, 19 EUROPEAN JOURNAL OF COMMUNICATION 321, 325 (September 2004).

[11] Machill/Neuberger/Schweiner/Wirth, *supra* note 10, at 321, 330.

It has been said: "To exist is to be indexed by a search engine"[12]. Judging by these facts one could put it more bluntly: to exist is to be listed on the first result page of *Google*.

Search engines construct net reality. They are not just technical tools in the hand of the user. They have a significant impact on the image users have of web content and its patterns of relevance. Just as the mass media supported the emergence of modern societies by periodically destroying news ("newness") instead of storing knowledge permanently, search engines enable access to dissociated knowledge in the information society.

The following analysis, therefore, addresses four problem areas:
a) What are the conditions of access for content providers to the index of a search engine and the result lists?
b) What information are users getting, especially about commercial communications?
c) How is the risk of predominant influence shaping public opinion being addressed?
d) Are there legal grounds for competitors to obtain access to the index in order to create competition?

C. Legal Framework in Germany

Art. 5 (1) of the *Grundgesetz* (German Constitution - Basic law, GG) grants the freedom of communication. In sentence 2 of this paragraph broadcasting, press and film are mentioned as enjoying specific protection from state interference.[13] However, according to the German Federal Constitutional Court, freedom of broadcasting is not just a classical liberal freedom, but also an objective guarantee, obliging the state to ensure that free and open public communication always remains possible. German lawyers are engaged in a hot debate about whether this concept is applicable to new media services as well.[14] We argue the case for broad scope since

[12] Introna/Nissenbaum, *Shaping the Web: Why the Politics of Search Engines Matters*, THE INFORMATION SOCIETY 171 (2000).

[13] For a brief overview see Schulz/Jürgens/Held/Dreyer: *Regulation of Broadcasting and Internet Services in Germany* - WORKING PAPERS OF THE HANS BREDOW INSTITUTE, No. 13 -, available at http://www.hans-bredow-institut.de/publikationen/apapiere/13mediaregulation.PDF 6 .

[14] Overview given by Schulz, *§ 2* margin number 40, in: BECK'SCHER KOMMENTAR ZUM RUNDFUNKRECHT (Hahn/Vesting eds., 2003).

the constitutional requirements are intended to guarantee the conditions for public communication so that public opinion can be formed democratically. The underlying concept must, therefore, be adjusted to changes in the way public communication functions. In consequence, broadcasting under art. 5 (1) GG has to be understood as any form of communication addressed to a general public by means of electronic networks. Given this interpretation, search engines fall within the scope of this constitutional clause. At first glance search engines are not a service offered to the general public, as the result list depends on the input of an individual user. However, on closer inspection it is apparent that the same results will be given to any user who enters the same keywords (customised search engines might be judged differently).

Three requirements deduced from art. 5 (1) GG are of specific importance when it comes to search engines. Firstly, according to the Federal Constitutional Court the legislative must prevent predominant influences on the shaping of public opinion.[15] Measures to combat media concentration must – in the view of the Court – address the eventuality that a predominant influence on public opinion can result from control over different kinds of media.[16]

A further dimension to ensuring free public communication is preserving a public forum where issues of social importance can be debated. The trends in online communications indicate that they accelerate the audience fragmentation which can already be observed in the classical media. *Schönbach* distinguishes between display media and research media, the latter triggering the risk that the common public agenda is being significantly narrowed.[17] Thirdly, the constitution requires that a commercial communication has to be distinguishable from a public communication. Public communication might not be able to fulfil its democratic function when users are no longer able to distinguish between these different modes of communication.[18] However, this does not mean that the law maker is required to establish the same rules and regulations for new media services as have been established for traditional media.

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[15] See BVerfGE 12, 205 (260); 20, 162 (175); 57, 295 (320); (74, 297 (324); 83, 238 (272). For an English translation of these cases see http://www.ucl.ac.uk/laws/global_law/german-cases/index.shtml?cases.

[16] See BVerfGE 73, 118 (174).

[17] See Schönbach/De Waal/Lauf, *Research Note: Online and Print Newspapers: Their Impact on the Extent of the Perceived Public Agenda,* EUROPEAN JOURNAL OF COMMUNICATION, vol. 20, p.245-248 (June 2005).

[18] See Hoffmann-Riem/Engels/Schulz, in: 2 FERNSEHWERBUNG UND KINDER 339 (Charlton et. Al, eds., 1995).

D. Legal analysis

I. Access to search engines

The German framework for electronic media services is complex and not completely coherent.[19] Consequently, it is important to allocate a given service to a legally defined service type in order to establish what the legal requirements are. According to our analysis, search engines as described above should be treated as *Mediendienste* (media services), which are governed by the Interstate Treaty on Media Services. However, for more customised types the *Telemediengesetz* (TDG) might be the applicable federal statute.

1. Access for content providers

The first problem area relates to the entitlement of content providers to obtain access to the index or ranking lists, or at least their rights to protection against discrimination in the indexing or ranking process. In essence, the question is whether German law permits the providers of search engines to choose whom to integrate into the index and how to rank the search results or whether – at least if they have significant market power – they are bound by any legal restrictions.

There are in fact obligations under broadcasting law for the providers of specific services to offer those services to any interested party under non-discriminatory conditions (§ 53 Interstate Treaty on Broadcasting, *Rundfunkstaatsvertrag* (RStV)). This obligation is based on art. 6 of the EC Access Directive. However, analysis shows that those obligations are restricted to services which have an influence on digital television or similar media services. For these rules to be applicable it is not sufficient to argue that web search engines can be used to look for web TV providers. Any claims against search engine providers based on this clause in broadcasting law would consequently be unfounded.

However, under general competition law there are rules against the abuse of market power which prohibit discriminatory behaviour by companies. Under section 20 (1) of the German Restraints of Competition Act (*Gesetz gegen Wettbewerbsbeschränkungen*, GWB) a company with dominant market power may not inappropriately obstruct or unreasonably discriminate against other companies in business dealings which are normally open to other companies.

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[19] See Schulz/Jürgens/ Held/Dreyer*: supra* note 13, 8. The German legislative intends to simplify the framework in 2005. In consequence, the distinction between *Teledienste* and *Mediendienste* will cease to exist or at least lose significance.

Since only companies with a dominant market position are subject to this regulation, it hinges on an assessment of the market of relevance. German competition law is based on the so-called "*Bedarfsmarktkonzept*" which defines this market in terms of the potential for product substitution from the customer's perspective.[20] The relevant geographical market must also be taken into account.

When it comes to inclusion into the index of a search engine one has to differentiate between "normal" inclusion by crawling the web and "paid inclusion". For the former there is no exchange of benefits and, in our analysis, there is therefore no market. For the latter there is a market. However, its geographical scope is hard to define.

Ad-links and other context sensitive advertising have to be regarded as a specific market. We argue that from an advertiser perspective this kind of context sensitive placement cannot be substituted by traditional forms of advertising like ad banners. In this form of advertising, language matters and the geographical markets are likely to be defined along the borders of language areas. Notwithstanding the fact that there is no publicly available data about advertising revenues one can assume that the market position of a search engine with regard to ad-links is comparable with its position on the user market.

Furthermore, the behaviour of search engine providers with dominant market power can have effects on other markets. This brings us to the concept of *Drittmarkbehinderung* (distortion within other markets), which is controversial under sec. 20 GWB. It goes without saying that to be indexed by a search engine is relevant for content providers competing to gain the attention of users. However, the existence of reception markets is fundamentally questionable from the point of view of German competition law. The reason why the Federal Cartel Office (*Bundeskartellamt*) in Germany is reluctant to assume the existence of reception markets is the absence of a direct exchange of benefits (if we ignore the marginal pay services at this point).[21] However, this position has been challenged.[22] Nevertheless, even if we accept the relevance of reception markets, content providers would only be covered in the unlikely event that they also offered search services.

To sum up, the only markets to which section 20 GWB might apply are those for paid inclusion and ad-links.

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[20] See HEIDENHAIN/SATZKY/STADLER, GERMAN ANTITRUST LAW (3rd ed., 1999), para. 176.

[21] BKartA BuV/E BKartA 2396 (2402) confirmed by KG Bremen 26.6.1991 WUW/E OLG 4811 (4825).

[22] See MONOPOLKOMMISSION, XI. HAUPTGUTACHTEN, WETTBEWERBSPOLITIK IN ZEITEN DES UMBRUCHS (1996), paras. 240, 836.

Given this conclusion, the additional criterion about business dealings, which are normally open to other companies is likely to be fulfilled.

If one company's website is indexed and its competitor's page is excluded, discrimination can be assumed. By contrast, when it comes to presentation of the result list it is not so easy to say whether discrimination has occurred, since ranking in a search list depends on many factors, not all of which are completely under the control of a search engine provider. If, indeed, there is discrimination the question remains as to whether it might be justified. The search engine provider might argue that a result list is a scarce resource. For trade fairs, for example, it is acceptable that the organiser has a right to choose as space is limited. However, the situation is not completely comparable as the organiser of a trade fair usually wants to create a comprehensive overview of the market, whereas there is no such intention when it comes to the ad-links of a search engine provider.

In any case, preventing the infringement of laws (for example rules protecting minors) justifies the discrimination of content services by search engine providers.

Section 19 (1) GWB, which is the general clause prohibiting abuse of market power, does not impose any restriction which goes beyond section 20 GWB.

Moreover, the rules on unfair competition (*Gesetz gegen unlauteren Wettbewerb*, UWG) must be taken into account. Essentially these are more far-reaching than the above-mentioned provisions on the abuse of market power since they are applicable to all companies regardless of their market position. However, discrimination against content providers in the indexing and linking procedures does not constitute an infringement of the law on unfair competition as such (for non-transparent payments see IV.3 below).

Discrimination that does not target one's own market position or that of a rival company – perhaps for political or religious motives – does not fall within the scope of the rules on unfair competition.

2. Access for competing search engine providers

Another kind of access problem is associated with access to the index of the search engine provider as such. Competitors of the provider may be interested in using the index, as it is extremely costly to build such things and requires appropriate know-how. Under exceptional conditions the doctrine on essential facilities grants access to a competitor's resources in order to permit competition. Under German competi-

tion law section 19 (4, iv) GWB establishes an essential facilities provision.[23] The conditions under which access can be granted under the essential facilities rule are complex and cannot be described here in depth. However, two points should be indicated which make it unlikely that access would be granted. Firstly, the range of potentially eligible facilities is restricted to infrastructure. This term is not clearly defined.[24] It can be argued that only networks of whatever type might be regarded as infrastructure, which would rule out index servers. Furthermore, analysis of the law-making process shows that intellectual property rights are excluded from the essential facility doctrine. Since databases are protected under section 87a of the German Copyright Act (*Urheberrechtsgesetz*, UrhG), this also militates against the inclusion of search engine indexes.

Secondly, access can only be granted if the facility cannot be duplicated. Analysis of the market shows that apart from *Google* there are other competitors, if few in number, which have built their own index database. This leads to the (preliminary) conclusion that it is not impossible to duplicate the facility.

In consequence, there is no claim against the market leader for competing search engine providers to obtain access to the index database.

II. Prohibiting a predominant influence on public opinion

For services operating nationwide the prevention of a predominant influence on the formation of public opinion is only addressed in the Interstate Treaty on Broadcasting (*Rundfunkstaatsvertrag*, RStV).[25]
Section 26 (1) RStV states that no provider of a nationwide television programme shall have predominant influence on public opinion making. Paragraph 2 assumes that there is such a predominant influence if the programmes assigned to this provider accumulate a viewer market share of 30%. However, predominant influence can already be assumed when the market share reaches 25% if (a) the provider also holds a dominant market position within a related media market ("*medienrelevanter verwandter Markt*") or (b) a comprehensive appreciation of his or her activities in the television and related markets equals a viewer market share of over 30% in the television market. This is the only cross-ownership rule at nationwide level.

[23] Overview given by Heidenhain/Satzky/Stadler, *supra* note 20, paras. 186-190.

[24] See Möschel, in: IMMENGA/MESTMÄCKER GWB (3rd ed., 2001), § 19 margin number 3.

[25] The regulation of broadcasting, as far as the content side is concerned, falls within the competence of each German state (*Bundesland*). A common framework for services operating nationwide has been adopted in the form of the Interstate Treaty on Broadcasting.

There are some uncertainties about this provision. Firstly, the law maker has not made it clear which other media markets are to be included. Radio and press are mentioned in the reasoning of the act as being covered by the clause. However, for the interactive media inclusion is controversial.[26] Secondly, when it comes to alternative (b) there has to be an assessment of the impact different services have compared with television. There are some insights from communication science on how to go about this, but up to now there has been no universal approach for measuring influence on the formation of public opinion.[27]

Since the objective of the regulation is patently to control the influence of television providers over the formation of public opinion, there is in our view no reason to exclude services which potentially have such an influence. Additionally, the constitution requires that there be adequate control of such influence, even if it results from a combination of different media. The provision of search engines has, therefore, to be considered when applying section 26 (2) RStV.

However, the approach is linked to the provision of television programmes. German law does not impede a predominant influence on the formation of public opinion if it derives, for example, from control over the daily newspaper market in combination with search engines.

In addition to this, the antitrust rules are applicable (section 35 ff. GWB). However, these do not cover instances where the company has grown internally. Furthermore, a dominant market position must have been built or strengthened in economic terms. This is, as a rule, not the case with cross-media activities.[28]

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[26] See Hess, *Medienkonzentrationsrecht nach dem neuen Rundfunkstaatsvertrag – Teil 1: Materielles Medienkonzentrationsrecht*, ARCHIV FÜR PRESSERECHT (AFP), 680, 683 (1997); Janik, *Kapitulation vor der eingetretenen Konzentration: Die Sicherung der Meinungsvielfalt im privaten Rundfunk nach dem Sechsten Rundfunkänderungsstaatsvertrag*, ARCHIV FÜR PRESSERECHT (AFP) 111, 114 (2002); Kreile/Stumpf, *Das neue „Medienkartellrecht": Die Sicherung der Meinungsvielfalt im novellierten Rundfunkstaatsvertrag*, MULTIMEDIA UND RECHT (MMR) 192, 194 (1998).

[27] See Hasebrink, *Zur Berücksichtigung medienrelevanter verwandter Märkte bei der Anwendung des Zuschaueranteilsmodells (§ 26 (2 cl. 2 RStV)*, http://www.kek-online.de/kek/information/publikation/bredow2003.pdf (2003).

[28] See in general terms RITTNER, WETTBEWERBS- UND KARTELLRECHT, § 5 margin number 36 (1995). Bender criticises the lack of rules on cross-media ownership in the light of constitutional requirements, CROSSMEDIA-OWNERSHIP 33 (1999).

III. Transparency of commercial communications

Since search engines have to be regarded as media services under German law, the provisions of the MDStV are applicable. Section 13 (2) provides that advertising has to be separated and clearly identified as such. Section 10 (4) MDStV additionally requires that commercial communications must be clearly identified.

For ad-links – which can be seen as advertising – this means that there is not only a requirement to separate them from the list of unpaid results, but there also has to be clear labelling. It is controversial among German lawyers whether the indication of a "sponsored link" is sufficient for users to understand that the provider has paid for the placement of this link.[29] In cases of infringement of the rules, the responsible authority could impose fines.

However, the rules are only applicable if it is a case of commercial advertising. Hence, the paid placement of political or religious links is legal under German law without separation or transparency measures.

Paid inclusion in the index of a search engine is not in itself an act of communication and thus, we argue, it is neither advertising nor commercial communication. In consequence, no separation or transparency measures are required.

Not only are breaches of the above-mentioned advertising rules actionable under public law, but infringements of the rules on unfair competition give competitors the opportunity to sue in the civil courts. Section 4 no. 3 UWG stipulates that concealing the commercial intention of an act of communication is an unfair practice. However, paid inclusion in the index is not covered under the UWG.

E. Problem areas and regulatory options

The brief analysis presented above shows that law preventing a predominant influence on the formation of public opinion is currently predicated on broadcasting activities. In consequence, the rules would be effective if a television broadcaster also gained considerable market share in the search engine market, even if it suc-

[29] See also Leupold/Bräutigam/Pfeiffer, *Von der Werbung zur kommerziellen Kommunikation: Die Vermarktung von Waren und Dienstleistungen im Internet*, WRP 575, 590 (2000). The debate revolves around similar topics as in the United States, see the San Francisco Chronicle of 29 June 2002, Business section, p. B1, reporting that the Federal Trade Commission has issued letters to search engine providers commenting that the labels "featured listings", "recommended sites", "search partner", "products and services" and "partner server results" are not deemed sufficient.

ceeded in doing this without mergers, since the rules also cover internal growth. However, if there was no link to the television market there would be no remedy. A company could happily accumulate power over public opinion in Germany.

As to discrimination in the indexing or ranking, our analysis shows that the provider of a search engine has a free hand as long as there is no exchange of benefits.

For commercial communications German law makes it illegal to mingle paid links with the result lists. There has to be a separation and ad-links must be clearly marked. However, this does not extend to paid inclusion in the index. For political or religious advertising the transparency and separation rules do not apply.

Our analysis does not include a constitutional evaluation. However, we do recognise some reasons for a media policy debate on the above findings. Even if the constitution calls for certain measures, they need not necessarily be legislative. In media regulation, binding legal provisions are not the only tools that have been devised to prevent an abuse of dominant position. First and foremost, there is the market. However, media goods have specific characteristics that might weaken the market's disciplinary power.[30] For traditional media services, deficits in the market – like asymmetric information or externalities – might prompt the conclusion that we are dealing with so-called "trust goods".[31] Some of those arguments are also applicable to new media services like search engines. This is obvious with regard to asymmetric information. Without specific measures to inform users, they cannot tell how the index is compiled or how the ranking is done. They simply have to trust the search engine provider and cannot shift to a competitor on the grounds that they are not satisfied with, say, the elimination of results, because they are not aware of the elimination. The problem is perhaps clearer if we mention that, according to press reports, Chinese search engines block pages that contain words like "democracy"[32]. Furthermore, professional codes play an important role here.

Mass communication can be seen as an autonomous social system, with journalism as a constituent part following its own professional rules. However, right now one cannot maintain that there are similar rules for new intermedia services like search engines. The protagonists normally have a background in information technology

[30] On this power see SCHMIDT, WETTBEWERBSPOLITIK UND KARTELLRECHT 32 (6th ed., 1999).

[31] On the concept of market failure in the media sector see Kops, German TV Programmes for China? 2000 http://rundfunkoek.uni-koeln.de/institut/pdfs/0200.pdf.

[32] E.g. BBC News http://news.bbc.co.uk/2/hi/technology/4088702.stm (14.6.2005).

or engineering and are, therefore, not bound by the professional codes that have evolved in the world of public communication.[33]

Inspired by insights from Larry Lessig[34] one could be led to assume that, in the World Wide Web, market and professional rules are overshadowed by the code, architecture and standard-setting of cyberspace. However, the situation with search engines is a specific one. They somehow duplicate the publicly indexable part of the web and are therefore not restricted by the architecture of the web like other services are.

In this light it seems plausible to ponder the media policy options. These are outlined below very briefly.

Firstly, asymmetric information could be overcome by transparency. This goes for indexing and ranking as well as for the inclusion of commercial communications. German law already stipulates requirements in the latter case. However, transparency has its drawbacks. If the search engine algorithm was completely public, that would be an open invitation to search engine spammers and could end up achieving the very opposite of what it was designed to achieve.

Secondly, signalling measures such as labels could be applied, issued by "trusted third parties". Consideration could also be given to establishing codes of conduct.[35] These would not merely serve to create more transparency on a voluntary basis. They could also help to define professional roles, enabling search engine providers to accept that they are essential players within the system of public opinion making.

Finally, attention might be devoted to additional measures, such as creating alternative search engines to provide a "second opinion" or shifting from television-orientated controls over influencing public opinion to a model that embraces any services that potentially influence the formation of public opinion, or, indeed, rules for sector-specific access.

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[33] See the discussion by Dernbach, *Braucht die Multimedia-Gesellschaft Berufskommunikatioren,* in: PUBLIZISTIK IM VERNETZTEN ZEITALTER 53, 56 (Dernbach/Rühl/Theis-Berglmaier eds., 1998). For information on journalistic rules see WEISCHENBERG/ALTMEPPEN/LÖFFELHOLZ, DIE ZUKUNFT DES JOURNALISMUS: TECHNOLOGISCHE, ÖKONOMISCHE UND REDAKTIONELLE TRENDS (1994).

[34] See LESSIG, CODE AND OTHER LAWS OF CYBERSPACE (1999).

[35] In Germany leading search engine providers agreed in spring 2005 on a code of conduct within the voluntary framework of the German self-regulatory body *FSM* (*Freiwillige Selbstkontrolle Multimedia*), see http://www.fsm.de/inhalt.doc/Pressemitteilung_Selbstkontrolle_Suchmaschinen .pdf.