

Wahlgren, Peter. "The Quest for Scientific Methods: Sociology of Law, Jurimetrics and Legal Informatics." *Combining the Legal and the Social in Sociology of Law: An Homage to Reza Banakar*. Ed. Håkan Hydén, Roger Cotterrell, David Nelken and Ulrike Schultz. Oxford: Hart Publishing, 2023. 227–238. Oñati International Series in Law and Society. *Bloomsbury Collections*. Web. 6 Mar. 2023. <<http://dx.doi.org/10.5040/9781509959419.ch-017>>.

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The Quest for Scientific Methods: Sociology of Law, Jurimetrics and Legal Informatics

PETER WAHLGREN*

I. INTRODUCTION

A CORE OBJECTIVE of sociology of law is to improve the understanding of how the law operates and is generated by the surrounding society. The research topic thus has a history of pluralism. From a practical point of view the law is a steering instrument and a means to address problems (Hart 1961: 39). Consequently, almost everything has a legal side to it, present or potential, and regarding study objects sociology of law is a wide-ranging subject. Many phenomena and their interdependence with the law have been investigated. In the Scandinavian context this is illustrated by works focusing on different aspects and relationships between a diversity of subject matters and stakeholders (Forslund 1978; Hydén 1997; Saldeen 2004; Wahlgren 2008; Banakar et al 2018).

The broadness of sociology of law is not only reflected in a variety of study objects. Heterogeneity is also apparent in the ways in which studies have been designed and methodological preferences differ. Observations, surveys, statistics, interviews, and many variants thereof abound, and so do theories and discussions on how law, as well as the topic sociology of law as such should be understood and delimited (Kaijus 2008; Ziegert 2018).

An interest in the methodological aspects is present in the writings of Reza Banakar, which make it appropriate to share a few observations concerning research approaches in this context. Consequently, this chapter intends to point out similarities in how research has been motivated and addressed, in sociology of law and interdisciplinary lines of research confronting jurisprudence with scientific methods, viz jurimetrics and legal informatics. The text reflects the development from a Scandinavian perspective.

*This chapter originates from the research project *Legislative Techniques*, financed by Torsten and Ragnar Söderberg's Chair in Legal Science.

II. STARTING POINTS

Sociology of law as we now know it originates from ideas articulated in the late nineteenth century, as a reaction to what were considered to be outdated forms of jurisprudence. The beginning is not homogenous, nor well defined. The efforts made towards a socially oriented jurisprudence reflect a continuation of debates between supporters of legal realism and legal positivists. Forerunners exist (Zabala and Silveira 2019) and early contributions were not coordinated, but the central issue was the same. Should the focus be a deeper understanding of the concept of law, including traditional legal dogma, or should the objective be improved efficiency of law by the introduction of alternative methods?¹

The calls for reorientation met opposition from traditional jurisprudence with arguments rooted in the established trenches. Supporters of more realistic views were hesitant about a development towards elaborated dogmatism boosted by logic and formal methods. Positivists, on the other hand, were critical of letting jurisprudence be influenced by social science methods, potentially making law unpredictable and unstable. The debates were sometimes hard and the argumentation has been described as antagonistic and hostile (Banakar 2000: 245–46). An insightful comment was articulated by Oliver Wendel Holmes, who added the time aspect to the discussion and suggested that ‘for the rational study of the law the black letter man may be the man of the present, but the man of the future is the man of statistics and the master of economics’ (Holmes 1897: 457).

Differences between advocates for positivist and realist views are also visible among those criticising traditional jurisprudence from a sociological point of view. Contrasts are reflected in shifting theories on how different social structures affect the legal system and apparent in discussions concerning adequate research approaches (Cotterrell 2020). Variations of this kind prompted several lines of research, sometimes given different names,² but not always easy to discern for an outside observer. In this way, sociology of law in its various guises during the first half of the twentieth century stands out as an essentially theoretical activity. Considerable literature was aggregated about how to understand the topic, while presentations of practical and systematic studies were comparatively rare, although a large number of individual exceptions exist, especially in the form of studies focusing on crimes (Foldes 1906) and anthropology (Allwood 1957). In 1960 the Norwegian Torstein Eckhoff summarised the situation from a Scandinavian perspective: ‘It is only in the last 10–15 years that these tendencies [to extend the contact between law and social science to other fields than that of crime] have manifested themselves in an amount of research worth mentioning’. (Eckhoff 1960: 32). The preconditions had nevertheless changed and the time was now ripe.

¹Banakar explicitly mentions Leon Petrazycki and Eugen Ehrlich, and that they were both ‘specifically interested in employing social scientific methods to *develop* and *improve* the science of law’ (Banakar 2006: 248). See also Bengoetxea (2020).

²*Inter alia* referred to as Sociological jurisprudence, Law and Society, Empirical Legal Studies, Living Law, Responsive law and Reflexive law.

III. FORMATIVE YEARS

By the mid-twentieth century, while logical positivism and numerous scientific advancements had already had an apparent impact in many sectors of society, it had become obvious that the legal domain lagged behind.³ Several argumentative works had been published (Stjernquist 1958), and unarguably as part of a growing awareness of the importance of social sciences as such, the first Scandinavian professor in sociology and law was appointed at the Faculty of Law, University of Oslo in 1963. It was followed by the installation of the first Swedish professor at Lund University in 1972.

Internationally, Eckhoff's comment coincided with the setting up of a Working Group on Documentation in sociology of law by The International Sociological Association, which was established as an initiative from the Social Science Department of UNESCO (ISA). A few years later The Law and Society Association was founded in the USA (LSA 2021).

The continued development of sociology of law in Scandinavia is well documented (TfRs 1983–90; Hydén 1996; Hydén 1997; Wahlgren 2008; Banakar et al 2018) and is a description of multifaceted activities, including theoretical analyses of earlier contributions, debates about the proper understanding of the discipline, and empirical studies conducted in various sectors of society. Wide-ranging activities are also a signum on the international scene (Přibáň 2020; Libguides 2021).

Although sociology of law has been vital and rich in expressions, it is difficult to see that the original call for a scientific reorientation has been satisfied and that sociology of law has had a significant impact on jurisprudence. The majority of lawyers appear to move along well-known paths with their heads bowed and jurisprudence can still be characterised as a theoretical discipline in which traditional methods prevail. An ostrich attitude has also hampered interdisciplinary advancements and a fruitful integration of law and sociology. A concerned Reza Banakar in 2000 submitted the fundamental question whether the topics actually were based on incommensurable understandings of the world:

Could it be that law has its own 'reality' or 'truth', that is, its own way of understanding and describing the world, which cannot be captured by sociological concepts? To put it differently, could it be that sociology can understand the world only in terms of its own concepts, definitions, and assumptions and is, therefore, simply unable to provide insights into legal ideas and clarify questions about legal doctrine, as a result of which the essence of law and legal thinking becomes inaccessible to it? (Banakar 2000: 274)

IV. JURIMETRICS

Although the mid-twentieth century stands out as the formative period, the establishment of sociology of law as a separate discipline was not an isolated occurrence.

³See eg Strömholm (1996: 119) 'It is not surprising that this situation gave rise to several noteworthy, more or less successful attempts to "save" jurisprudence' (original in Swedish).

As the perspective broadened, the criticism aimed at jurisprudence grew more intense and the search for methodological alternatives became more diversified.

One important contribution from this time is an article by Lee Loevinger, who presented the concept of jurimetrics. The author forcefully argued for a reorientation of jurisprudence and the text was a frontal attack against a permanent status quo ‘[t]he only important area of human activity which has developed no significant new methods in the last twenty centuries is law’ (Loevinger 1949: 473). Although the criticism was devastating, the article was well researched and the conclusions crystal clear. Speculations about the nature of law should be abandoned and the efforts should focus on the development of scientific methods. The purpose should be to improve the efficiency of law as an operative tool:

The next step forward in the long path of man’s progress must be from jurisprudence (which is mere speculation about law) to jurimetrics – which is the scientific investigation of legal problems. In the field of social control (which is law) we must at least begin to use the same approach and the same methods that have enabled us to progress toward greater knowledge and control in every other field. (ibid: 483)

The criticism Loevinger put forward was in no way new, and nor were his ideas, but his argumentation stands out because it included multiple components and suggested concrete ways forward. In addition, he was one of the first to recognise the potential of computers in the legal sector:⁴

Machines are now in existence which have so far imitated ‘thought processes’ that they can solve differential equations and other ‘logical’ operations of equal or greater complexity. The machines can be constructed to solve equations with virtually any number of variables, and with large numbers of variables the operation is much faster than when performed by the human mind. Why should not a machine be constructed to decide lawsuits? The complexity of the problems presented, measured by the number of variables involved, is well within the limits of existing machines. (ibid: 471)

The calls for scientific methods were motivated by the observation that little was known about the actual impact of law in society. Here Loevinger argued for a need of ‘macrolegal techniques’ of investigation, able to address the most fundamental questions in sociology of law and jurisprudence – ‘what indices will most reliably indicate the social results of laws in categories A, B, C, ... N?’ and ‘how can the data to construct these indices be obtained most efficiently?’ (ibid: 488).

The non-existing progress of jurisprudence was obvious for those who had the ability to broaden their perspectives and understood that alternatives as well as new methodological tools were available. Consequently, Loevinger’s contribution had an impact and jurimetrics became recognised as an important field of study, especially in the USA. In 1959 the American Bar Association (ABA) set up several committees for the study of related issues, including electronic data retrieval and communications, and started to sponsor the periodic newsletter *Modern Uses of Logic in Law* (MULL), which later changed its name to *Jurimetrics Journal*. The work led to the formation of ABA’s Standing Committee on Law and Technology, which in 1969 published a second edition of a *Handbook on Computers & the Law*, in which jurimetrics was used as a headline for articles on symbolic logic, analyses of prediction of judicial decisions

⁴Loevinger in this part referred to the work of Norbert Wiener published the year before (Wiener 1948).

and legal education. The support to *Jurimetrics Journal* continues and the publication is currently in its sixty-second volume (*Jurimetrics* 2021).

The ABA was not the only organisation ready to give attention to the new concept of jurimetrics. In 1960 The Association of American Law Schools formed a Jurimetrics Committee with the objective to observe the progress in science and technology and its relations to law. Some years later the Working Group on Documentation in sociology of law set up by ISA published an international survey covering activities in sociology of law, including a bibliographical appendix on jurimetrics (Treves 1968). In parallel, starting in the early 1960s, a number of conferences were arranged, focusing on scientific methods, encompassing a number of approaches (for more detailed historical descriptions see Chasalo 1961: 31; Brown 1961; Seipel 1970; Wahlgren 1992: 117–41). In hindsight, however, it is clear that the answer to the call for ‘scientific methods’ primarily manifested itself in three closely interrelated lines of research: an increased interest in legal logic; potentialities for using computers in the legal sector; and the employment of statistical methods for analysis and prediction – tracks that soon should merge.

In the Scandinavian context pioneering work emerged in the 1970s when a Swedish LLD dissertation was explicitly presented as a study in sociology of law and jurimetrics (Saldeen 1973). The work was based on a statistical analysis of damages in cases of divorce. At the same time a comprehensive article with multiple references to computers and jurimetrics was published in the Swedish leading law journal (Seipel 1970). It is also notable that an interdisciplinary symposium held in 1974 included several references to jurimetrics (Saldeen 1974; Seipel 1974). Additional, but sporadic contributions explicitly referring to jurimetrics followed (Saldeen 1978; 1980), but jurimetrics never became fully integrated with legal sociology or traditional jurisprudence, either in Scandinavia or internationally. A few citations summarise the continued development:

Jurimetrics, the empirical study of the law, has never really come into existence. Although, given the way in which society has developed during the information age, it could have been expected that jurimetrics would become an important discipline, until now it has not conquered much ground in the universities or outside. (De Mulder et al 2010: 135)

The world has changed, but law schools and legal professionals seem to be intent to turn a blind eye to science and technology. – Most lawyers are simply not familiar with quantitative, empirical or computer supported approaches. Furthermore, they try to avoid such contact as much as possible. (ibid: 164)

Among the quantitative methods I have found in legal articles in Sweden, many have only been implicitly applied. The author of the article can, for example, refer to statistics or data, and draw own conclusions or invite the reader to draw conclusions from these without the researcher explaining why the statistics or data really mean what the author thinks it means. In many cases, I have also found it difficult to recreate the models that the author claims to use. (Andersdotter 2018: 54, original in Swedish)

V. A DIFFERENT TURN – LEGAL INFORMATICS

If the legal response to calls for including scientific methods, logic and statistical analyses in the methodological toolbox was hesitant, the opposite is true for the

readiness to find uses for computers. The Scandinavian countries were comparatively early to react to potentialities to utilise computers and information technology (IT) in law, and during the 1960s and onwards were able to position themselves at the forefront of the development.

The interest in IT in the Scandinavian setting was in no way a coincidence. With comparatively large public administrative sectors, the Scandinavian countries, especially Sweden, had early on started to invest substantially in computers for the public sector. Consequently, there also existed an interest in finding ways of employing the new technology in the legal domain and in 1966 it was decided that a standing committee for the development of IT for the judiciary should be established. Members included the heads of the authorities in the legal sector and a representative from the parliament. The work was led by the state secretary at the Ministry of Justice. Stakeholders outside the authorities were appointed contact persons and the committee was named *Samarbetsorganet för rättsväsendets informationssystem*, SARI (the cooperation organ for the judiciary's information system) (SARI 1968; Alpsten 2000).

Legal informatics, originally a translation from the Swedish Rättsinformatik, was shortly after recognised as a field of research and one of the world's first academic organisations addressing the topic was the Swedish Working Party for EDP (Electronic Data Processing) and Law, later renamed the Swedish Law and Informatics Research Institute (IRI), established at Stockholm University in 1968 (IRI 2022). IRI was soon followed by The Norwegian Center for Computers and Law (NRCCL), set up at Oslo University 1970. Academic chairs became available in 1982 and 1988 respectively. A Nordic yearbook in legal informatics and a series of Nordic conferences were introduced in 1984. These activities are unbroken and regularly engage researchers and practitioners from Denmark, Finland, Norway and Sweden. The responsibility for the conferences rotates between these countries and the 37th version 2022, held in Copenhagen is given the title *Humans, Data and Law: Tectonic Plates in Motion* (CIIR 2022). Similar to sociology of law, legal informatics has appeared under several names and the headings have often mirrored the ways in which the technology has been referred to at different points in time.⁵

The development of Legal informatics was prompted by the fact that computers and information systems at an early stage were identified as phenomenon in need of regulation, as it became obvious that established routines on how to manage privacy and security had to be revised. The first IRI seminar in 1968 addressed the issue of to what extent computers posed a threat to privacy and the world's first national Data Act was enacted in Sweden in 1973 (Rudgard 2021: 15), prohibiting data registers comprising personal information without an explicit permit.

For those involved in this process it thus became necessary to develop an understanding of the technique, its subcomponents and underlying methods, including statistics, logic and other formal representations. This in turn led to insights about

⁵ Apart from Legal informatics, which this chapter uses as a common denominator, *inter alia*, EDP (Electronic Data Processing) and Law, Computing Law, Cybernetics, Electronic Law, Computers and Law, IT Law, ICT Law, AI and Law, Oikeusinformatiikka (Finnish), Droit et informatique (French), Rechtsinformatik (German), informatica giuridica (Italian), Rettsinformatikk (Norwegian), Кибернетика (Russian), Rättsinformatik (Swedish).

how the technology could be utilised as a legal tool and became a basis for further developments. In this way, a number of what frequently had been described as scientific methods became integrated in the legal sector, albeit under different labels and not primarily as a result of theoretical contributions to jurisprudence, but as components incorporated in and adjunct to a technology introduced for practical reasons.

Internationally, legal informatics evolved rapidly, attracting much interest and receiving broad acceptance. The topic was also recommended to be a component in law school curriculums (Council of Europe 1992), and, as a consequence of the digitalisation, IT has in a comparatively short time become a subject matter that everyone has a relationship with. The technology has brought about a number of issues of relevance for the legal sector, *inter alia* privacy, data quality, security, surveillance, use of digital media for manipulation, intellectual property, transparency, freedom of information, e-governance, e-commerce, regulation of IT systems and new forms of criminal activities.

Although public concern and media discussions have primarily focused on substantive law issues, legal informatics has from the beginning been a science with a practical side (Bing and Harvold 1977; Seipel 1977). The possibility of enhancing the efficiency and quality of legal work has been a focal interest, and the accompanying inclusion of system science has deepened the understanding of the functions of the legal system as such. Concrete illustrations include innumerable projects and applications⁶ such as legal databases, document management systems, information services, decision support systems, e-banking, apps for commercial activities and interactive interactions with public agencies via the Internet. The development is reflected in organisational changes at national and international levels, including major reallocations of resources for further advancements.

Significant from a methodological point of view is that legal informatics soon developed an interest for artificial intelligence (AI) and the first conferences on AI and Law were organised during the 1980s (Wahlgren 1992: 133–41). AI is an open, multifaceted discipline with the potential to generate results of relevance for all types of activities that can be described in a sufficiently detailed manner. In this respect AI research is, in principle, a borderless activity in which methods and approaches vary significantly. Digital techniques and computers are essential elements, but in order to develop practical AI, input from a large variety of natural, human and legal sciences must be acknowledged, depending on the type of task that is addressed.

An early illustration of how knowledge and methods of different origin have been integrated as described above is the General Data Protection Regulation (GDPR) adopted by the EU in 2016. In certain circumstances the GDPR stipulates that processing of personal data must be preceded by an impact assessment and that ‘measures which meet ... the principles of data protection by design and data protection by default’ should be implemented (EU 2016: recital 78). In order to comply with this, it is not only necessary to interpret the meaning and relevance of the relevant legal

⁶ Among the first SARI projects were computerised analyses of legislative texts, forming KWIC (Key Word In Context) and KWOC (Key Word Out of Context) indexes – necessary components for the design of databases (SARI 1969).

principles for the specific case. It is also necessary to complete a proactive risk analysis, and, based on that, to design and program a solution that is able to technically ensure the upholding of these legal principles.

The GDPR is valid for the processing of personal data, including IT and AI applications, but similar methodological requirements can be related to several regulative issues regarding many types of IT systems. It is foreseeable that there will be a growing need for proactive ELSI (Ethical, Legal, Social Impact) analyses as well as interdisciplinary efforts to develop acceptable technical solutions for various scenarios. The need to merge legal, social and technical methods is obvious.

Looking back, it is clear that the methodological shifts that can be related to practical developments in legal informatics has not happened in the way that might have been predicted, ie as a consequence of internal reconsiderations and methodological developments within jurisprudence. The driving forces have been computer and system sciences, which by their own technology, power of performance and impact on society have brought about new solutions and methods. Legal informatics has in various ways been able to contribute to this development, often with input that has been reflected in methodological developments, but to a large extent this has been a trajectory of its own. Methodological developments originating from jurisprudence are scarce or non-existing, and the effectiveness of IT-related alternatives also makes it relevant to wonder to what extent and in which contexts traditional legal methods and processes will endure.

While legal problem solving will not be eliminated in tomorrow's legal paradigm, it will nonetheless diminish markedly in significance. The emphasis will shift towards legal risk management supported by proactive facilities which will be available in the form of legal information services and products. As citizens learn to seek legal guidance more regularly and far earlier than in the past, many potential legal difficulties will dissolve before needing to be resolved. Where legal problems of today are often symptomatic of delayed legal input, earlier consultation should result in users understanding and identifying their risk and controlling them before any question of escalation. (Susskind 1998: 290)

For many centuries law has been an important and often unchallenged mechanism for addressing problems and ensuring control. These tasks are now being taken over, and the issue is to see to it that the systems addressing problems and ensuring control can be controlled. This is not primarily a question about formulating legal provisions, but rather a question about developing theoretical models for understanding and sustainable technical methods.

VI. SEPARATION, INTEGRATION OR DOWNFALL?

What has been described here is how an increased awareness of methodological shortcomings, which started as internal discussions within jurisprudence, has come to be expressed in the academic disciplines sociology of law and legal informatics, undertakings which are different but interlinked by common aims – to broaden the jurisprudential perspective and encourage the inclusion of scientific methods. The connection with jurimetrics is also illustrated – an interdisciplinary and bridging

approach which initially demonstrated a practical interrelationship between the topics.

Sociology of law and legal informatics have both deepened the understanding of the preconditions for legal solutions and in various ways been able to relate new – as well as previously overlooked – methods to the legal field. It is nevertheless apparent that their practical outcomes are of different kinds and that their influence on traditional jurisprudence has been limited. A considerable portion of academic jurisprudence is still occupied with trying to understand the nature of law, and law students are taught to solve what are considered to be legal problems in reactive manners. Countless calls for methodological revisions have had little influence, despite being articulated for well over a century.

At the same time, it is obvious that the preconditions have changed. Technological progress propelled by digitalisation is affecting all parts of society in a profound way. The legal domain is not immune to this development and technology can in many ways provide complements and alternatives to legal solutions (Wahlgren 2018a). This represents a considerable shift, as reactive problem-solving methods are being replaced by proactive problem-elimination mechanisms. Changes of this kind are already ongoing, often with remarkably good results. The same is true for the impact of digital infrastructures on efficiency and quality in legal management and public administration. It is also undisputable that technical solutions have the potential to verify the effects of various regulative approaches by means of providing mechanisms for collection of control data (Wahlgren 2018b). The latter is a function which until recently has been underdeveloped and frequently non-existent. From this perspective it might therefore appear as if the future is bright. The fact that this development is, to a large extent, driven by technology and non-lawyers nevertheless gives rise to a number of questions.

What if jurisprudence continues to ignore new ways in which human activities are expected to be carried out in order to ensure reasonable demands for efficiency and quality? What if law school curriculums no longer reflect the standardised ways in which transactions and problem solving are managed in society? And, if the answers to these questions give rise to a fear that jurisprudence will continue to be marginalised, is reorientation still an option, or is it already too late? Is Loevinger's more than 70-years-old 'inescapable fact', cited below, still valid, and, if so, are sociology of law and legal informatics able to fill the void? Alternatively, is it unproblematic to recast fundamental legal principles and teleological interpretation methods into technical solutions, and can these tasks therefore be safely entrusted to tech-companies and engineers without legal training? Can ELSI analyses be automated, and, if so, is this the point in time when confused understandings of the function of jurisprudence finally disintegrate? In retrospect, was jurisprudence merely a historical parenthesis; a dubious control and problem-solving mechanism that an immature civilisation all too long clung to?

In the field of social control (which is law) we must at least begin to use the same approach and the same methods that have enabled us to progress toward greater knowledge and control in every other field. The greatest problem facing mankind ... is the inadequacy of socio-legal methods inherited from primitive ancestors to control a society which, in

all other aspects, is based upon the powerful techniques of a sophisticated science. The inescapable fact is that jurisprudence bears the same relation to a modern science ... as astrology does to astronomy, alchemy to chemistry, or phrenology to psychology. (Loevinger 1949: 483)

REFERENCES

- Allwood, MS (1957) *Eilert Sundt: A Pioneer in Sociology and Social Anthropology* (Oslo, Nordli).
- Alpsten, B (2000) 'Något om utvecklingen av rättsinformation i Sverige' (Universitet i Oslo, Institutt for privatrett, Avdeling for forvaltningsinformatikk, Forvaltningsinformatisk notatserie nr 7/00), https://www.jus.uio.no/ifp/om/organisasjon/afin/forskning/notatserien/2000/7_00.html.
- Andersdøtter, A (2018) 'Djupare juridisk analys med jurimetri – En fallstudie i opphovsrätten' 2018/19 *Juridisk tidskrift* 54.
- Banakar, R (2000) 'Reflections on the Methodological Issues of the Sociology of Law' 27(2) *Journal of Law and Society* 273.
- (2006) 'Sociological Jurisprudence' in P Wahlgren (ed), *Allmän rättslära* (Juridiska institutionen, Stockholms University) 244.
- Banakar, R, Dahlstrand, K, and Ryberg Welander, L (eds) (2018) *Festschrift till Håkan Hydén* (Juristförlaget i Lund).
- Bengoetxea, J (2020) 'Legal Theory and Sociology of Law' in J Přibáň (ed), *Research Handbook on the Sociology of Law* (Cheltenham, Edward Elgar) 7.
- Bing, J and Harvold, T (1977) *Legal Decisions and Information Systems* (Oslo, Universitetsforlaget).
- Brown, JR (1961) 'Electronic Brains and the Legal Mind: Computing the Data Computer's Collision with Law' 71(2) *Yale Law Journal* 239.
- Chasalo, I (1961) 'The First National Law and Electronics Conference' 4(7) *The American Behavioral Scientist* 31.
- CIIR (2022) Center for Information and Innovation Law, Nordic Conference on Law and Information Technology 2022, <https://jura.ku.dk/ciir/english/calendar/2022/nclit2022/>.
- Cotterrell, R (2020) 'Sociological Jurisprudence: Tradition and Prospects' in J Přibáň (ed), *Research Handbook on the Sociology of Law* (Cheltenham, Edward Elgar) 19.
- Council of Europe/Committee of Ministers (1992) 'Recommendation of the Committee of ministers to Member States concerning teaching, research and training in the field of law and information technology', Recommendation No R(92)15, 1992.
- De Mulder, R, van Noortwijk, K and Combrink-Kuiters, L (2010) 'Jurimetrics Please!' 1(1) *European Journal of Law and Technology*.
- Eckhoff, T (1960) 'Sociology of Law in Scandinavia' in *Scandinavian Studies in Law*, vol 4, 29.
- EU (2016) European Union Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC, recital 78, EUR-Lex – 32016R0679 – EN – EUR-Lex (europa.eu).
- Foldes, B (1906) 'The Criminal' 69(3) *Journal of the Royal Statistical Society* 558.
- Forslund, A-L (1978) *Vad är rättssociologi?* (Stockholm, Publica).
- Hart, HLA (1961) *The Concept of Law*, repr 1986 (Oxford, Clarendon).
- Holmes, OW Jr (1897) 'The Path of the Law' 10 *Harvard Law Review* 457.
- Hydén, H (1986) 'Sociology of Law in Scandinavia' 13(1) *Journal of Law and Society* 131.

- (ed) (1997) *Rättssociologi—då och nu: En jubileumsskrift med anledning av rättssociologins 25 år som självständigt ämne i Sverige* (Lund, Lund University).
- IRI (2022) *The Swedish Law and Informatics Research Institute*, <https://irilaw.org>.
- ISA (2021) *International Sociological Association International Sociological Association*, isa-sociology.org.
- Jurimetrics Journal (2021), https://www.americanbar.org/groups/science_technology/publications/jurimetrics/.
- Kaijus, E (2008) ‘Sociology of Law as a Multidisciplinary Field of Research’ in P Wahlgren and H Hydén (eds), *Law and Society*, Scandinavian Studies in Law vol 5 (Stockholm, Almqvist & Wiksell).
- Loevinger, L (1949) ‘Jurimetrics: The Next Step Forward’ 33(5) *Minnesota Law Review* 455.
- Libguides (2021) *Sociology of Law: Scholarly publications* (Lund, Lund University).
- LSA (2021) Law & Society Association, Home | Law & Society Association | For Sociolegal Scholars, <https://www.lawandsociety.org>.
- NRCCL (2022) Norwegian Research Center for Computers and Law – Department of Private Law, <https://www.jus.uio.no/ifp/english/about/organization/nrccl/>.
- Příbáň, J (ed) (2020) *Research Handbook on the Sociology of Law* (Cheltenham, Edward Elgar).
- Rudgard, S (2021) ‘Origins and Historical Context of Data Protection Law’ European Privacy Chapter One pdf, <https://zdocs.ro/doc/european-privacy-chapter-one-j1jr4m8e8g6e>.
- Saldeen, Åke (1973) *Skadestånd vid äktenskapskillnad: En rättssociologisk och jurimetrisk studie* (Uppsala, Uppsala University).
- (1974) ‘Synpunkter på tvärvetenskap och jurimetrik’ Original in *Mål och metoder för forskning inom civilrätten, Statens råd för samhällsforskning, 1974, s 55–81* (reprinted and updated in *Några skrifter* (Iustus, Uppsala 2004) (De lege).
- (1978) *En jurimetrisk metod för en rättssociologisk analys, i Festskrift Per Stjernquist*, (Lund) 55.
- (1980) *Fastställande av faderskap, Norstedts* (Stockholm).
- (2004) *Några skrifter, Iustus* (De lege, Uppsala).
- SARI (1968) Samarbetsorganet (Ju 1968:59) för rättsväsendets informationssystem (SARI) Kommittéberättelse 1968:Ju59 – Riksdagen.
- (1969) Samarbetsorganet för ADB inom rättsväsendet ed. Kwoc-register över brottsbalken, Stockholm, Samarbetsorganet för ADB inom rättsväsendet 1969.
- Seipel, Pr (1970) Om användning av automatisk databehandlingsteknik inom juridiken, Svensk juristtidning, 1970, Part I p. 267–292, Om användning av automatisk databehandlingsteknik inom juridiken | SvJT & part II p. 722–748.
- (1974) Tvärvetenskapliga perspektiv på juridiken, in *Statens råd för samhällsforskning*, ed, *Mål och metoder för forskning inom civilrätten*. Stockholm 1974 p. 82–118.
- (1977) *Computing Law, Perspectives on a New Legal Discipline* (Stockholm, Liber Förlag).
- Stjernquist, P (1958) ‘Gransområden mellan rättsvetenskap och samhällsvetenskap Statsvetenskaplig tidskrift’ 61(2–3) *Visar* 141.
- Strömholm, S (1996) *Rätt, rättskällor och rättstillämpning*, 5th edn (Stockholm, Norstedts juridik) 119.
- Susskind, R (1998) *The Future of Law, Facing the Challenges of Information Technology* (Oxford, Clarendon).
- TfRs (1983–90) Tidskrift för rättssociologi, 1983-90 Arkiv | Tidskrift för rättssociologi, <https://journals.lub.lu.se/trs/issue/archiv>.
- Treves, R (ed) (1968) *Nuovi Svi luppi della Sociologia del Diritto* (Milan, Edizione di Comunità).
- Wahlgren, P (1992) *Automation of Legal Reasoning, A Study on Artificial Intelligence and Law* (Boston, Kluwer).

- (2018a) 'Automatiserade juridiska beslut' in M Nääv and M Zamboni, *Juridisk metod*, 2nd edn (Lund, Studentlitteratur AB) 401.
- (2018b) 'On Regulatory Impact Assessments' in R Banakar, K Dahlstrand and L Ryberg Welander (eds), *Festskrift Håkan Hydén* (Lund, juristförlaget) 751.
- Wahlgren, P (ed) (2008) *Law and Society* (Stockholm, SISL) (Scandinavian Studies in Law, vol 53).
- Wiener, N (1948) *Cybernetics: Or Control and Communication in the Animal and the Machine* (Paris, Hermann & Cie).
- Zabala, FJ and Silveira, FF (2019) *Decades of Jurimetrics* (School of Technology, Pontificia Universidade Católica do Rio Grande do Sul).
- Ziegert, KA (2018) 'Ernst Rabel's Kaleidoscope: The Quest for Legal Science' in R Banakar, K Dahlstrand and L Ryberg Welander (eds), *Festskrift Håkan Hydén* (Lund, juristförlaget) 793.