THE RELATIONSHIP OF IS AND LAW –
THE PERSPECTIVE OF AND IMPLICATIONS FOR
IS RESEARCH

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Abstract

Information Systems (IS) and law have a mutual influence on each other. On the one hand, IS artifacts (e.g., e-government IS) exist or need to be implemented that are highly regulated and sometimes come along with a need for changing the law. On the other hand, law strongly affects (and usually restricts) IS potentialities. Based on a systematic literature analysis, this paper presents the investigation of this interdisciplinary relationship in IS research. The paper makes two essential research contributions. First, the perceived relationship of IS and law in IS scholarly publications is described and classified. Second, based on the findings, implications for future IS research in this area are discussed. The paper argues for an interdisciplinary research perspective on IS and law.

Keywords: Law, Regulation, Framework, Literature Analysis, Interdisciplinarity.
1 Introduction

“Research in the information systems field examines more than just the technological system, or just the social system, or even the two side by side; in addition, it investigates the phenomena that emerge when the two interact” (Lee, 2001, p. iii). The same statement might hold true for the technological system and the legal system.

We follow Boell and Cecez-Kecmanov (2012) and perceive an Information System (IS) as “a sociotechnical assemblage of work practices, users, developers and IT artefacts entangled within the broader organizational, social, industry and other contexts.” Regulatory requirements play an important role in certain areas of IS research. One area with a very strong relation to law is e-government research. Processes and organizational structures in public administrations are usually defined by legal regulations and administrative guidelines (Janssen & Cresswell, 2005), which make it crucial to consider the legal perspective in e-government research approaches and projects. The term ‘legal regulation’ subsumes every regulation that is legally binding (e.g., laws, judge-made law (in areas where case law is applied) or contractual regulations). But also other research areas address legal issues. The research field of (process) compliance, e.g., is looking for ways to ensure a company’s compliance with different types of regulations (e.g., Smith et al., 2010, Volonino et al., 2004). Organizations’ IT is more and more faced with regulations, such as the equity requirements of BASEL III, the Sarbanes Oxley Act (SOX), or national data protection laws. IS research reacts on these regulatory changes by investigating its consequences (e.g., Hoeren & Vossen, 2008, Jannssen & Joha, 2011, Panko, 2006) and by developing solutions to improve the management of regulations (e.g., Knuplesch et al., 2010, Sadiq et al., 2007). Legal regulations and contracts are important for IT outsourcing research (e.g., Davis et al., 2006, Gefen et al., 2008, Hall & Liedtka, 2007, Yuanyuan & Bharadwaj, 2009). Research is also conducted on information systems that support and enhance legal work (e.g., Martin, 1999, Schweighofer, 1999).

In all these examples, we observe that the technical or organizational (IS) perspective and the legal perspective on a (research) topic are not addressed in an integrated (interdisciplinary) approach. In this context, we perceive interdisciplinary research as the involvement of legal researchers in IS discussions, research projects, and combined papers and vice versa. In reality we often observe that only certain aspects are considered or that these perspectives are treated in a one-sided way. Our goal is to understand how the relationship of IS and law is treated in IS research. Knackstedt et al. (2012) already investigated how the relationship of IS and law can be described in the context of e-government projects. In order to get a better picture of how the different perspectives are treated in IS research in general we need to broaden our view beyond e-government research. Therefore, our work is driven by the following research questions: “How does IS research treat the relationship of IS and law?” and “What are the implications for future IS research?”

By answering these questions, we make two essential research contributions. First, we provide insights into the perception of IS and law from an IS research perspective. Therefore, we adapt the framework of the relationship of IS and law, introduced by Knackstedt et al. (2012), and apply it as basis for an extensive literature analysis. Second, based on our findings, we discuss the results’ implications for future IS research and argue for a stronger interdisciplinary collaboration in this area, which would also be beneficial for e-government research.

The remainder of this paper is as follows. In Section 2, we describe the basic framework for the description of the relationship of IS and law. We use this framework to conduct a literature analysis on the most influential IS scholarly journals. The research method for this analysis is explained in Section 3. The results of the analysis are presented in Section 4. Based on the results, we derive implications for future IS research in Section 5. Finally, we summarize the results and discuss limitations to our work in Section 6.
2 Framework for the Relationship of IS and Law

In order to describe how IS research is treating the relationship of IS and law, we need a theoretical basis for our literature analysis. Knackstedt et al. (2012) propose a framework with three dimensions that can be used to describe the characteristics of this relationship. Most work in this field focuses on specific aspects of the relationship. Other theoretical frameworks for the big picture of the relationship between IS and law are missing so far.

We build on the framework for the relationship of IS and law in Knackstedt et al. (2012), which aims to describe the perceptions of members of regulatory-driven IT projects, such as e-government or compliance projects. By investigating the individual perceptions in an e-government project, the authors developed a framework to structure the perception of the complex relationship of IS and law. The framework consists of three dimensions: Perceived Influence Direction, Perceived Influence Impact and Perceived Influence Character (Knackstedt et al., 2012).

In cases where the law is perceived as given and unchangeable and IS has to react on that situation, the influence direction is called ‘Law influences IS’ (Law → IS). When innovations and new IS artifacts force the law to react, the perceived influence direction is called ‘IS influences Law’ (IS → Law). Situations, in which project members perceive the states as modifiable are conceptualized as “mutual influence” (IS ↔ Law) (Knackstedt et al., 2012, p. 6). We adopt this dimension in our model to describe the perspective of IS research on the relationship of IS and law (Figure 1) but omitted the “mutual influence” direction because we found that this characteristic was not applicable while coding the data of the literature analysis.

The dimension perceived influence impact is characterized by the attributes restricting, demanding, and enabling (Knackstedt et al., 2012). A restricting impact constrains behavior and limits possibilities. When we think, e.g., about data protection law, a limitation to design IS artifacts can be observed. A company that wants to move customer relationship management applications into the cloud will most likely violate current data protection laws and is, therefore, restricted by it. IS can also restrict the law. A German law proposal for blocking websites with child pornography, e.g., was dropped because it was just not feasible on a technical level to enforce such a blockade in the internet. Law can also serve as enabling for a certain behavior that would not be possible without it. In our model, we adopt the concept from (Knackstedt et al., 2012) and define the enabling impact as the enhancement of possibilities and opportunities. One example is the enactment of SOX 404, which leads to a reassessment of internal reporting and control structures in almost all U.S. companies. Without the enactment of SOX, firms probably would not have reassessed its internal control mechanisms because at a first glance this would lead to additional investment costs. As well, IS can also have an enabling effect on law. Financial planning systems, e.g., can enable different and innovative tax policy making (Johnson et al., 1977). Considering situations, in which the law neither restricts nor enhances possibilities, a third impact character is defined by (Knackstedt et al., 2012), called demanding. These situations occur when the influence is a demand for action. E-Government initiatives, like the online car registration project in Germany (Heller & Richter, 2010), provide cases, where technological solutions are not mature enough to fulfill all regulatory requirements (e.g., security and data protection law). Here, law demands from IS to develop new and innovative solutions that are able to fulfill these legal requirements.

The dimension perceived influence character “provides an indication for the basic perception of the relationship of IS and law in a certain situation” (Knackstedt et al., 2012, p. 6). According to these authors, this perception might be positive, negative, or ambivalent. In our model, we do not use this dimension because it is quite hard to interpret an author’s opinion about character of the relationship of IS and law in a particular situation. Further, positive, negative, and ambivalent are concepts that are subject to personal perception and, therefore, nearly impossible to compare in a structured literature analysis.
Instead, we introduce another third dimension called *domain*. Thereby, we aim to distinguish between different application domains in our analysis. We want to learn more about the distribution of research at the intersection of IS and law regarding the application domain. Where lies the focus of this research? Are there application domains that are less strongly investigated than others? We distinguish between *IS applied in the legal domain*, such as, e.g., legal information systems or IS in courts, *IS applied in a governmental context*, such as e-government systems, and *IS applied in economy*. This final distinction resulted from the literature analysis procedure and proved sufficient to cover all analysed articles.

![Figure 1. Framework for the mutual influence of IS and law (cf. Knackstedt et al. (2012))](image)

### 3 Research Method

In order to describe the perspective of IS research on the relationship of IS and law, we conducted a systematic empirical literature analysis. In our methodology we lean onto the literature review approach suggested by Webster and Watson (2002). The coding frame for the literature analysis is, thereby, based on the modified and adopted framework for the relationship of IS and law (Section 2). Figure 2 describes the procedure we applied in order to get a reproducible sample of articles for our analysis.

![Figure 2. Literature analysis procedure](image)

**Step 1: Identification of Search Terms**

We used different sources to put together a list with relevant search terms. First, an initial set of terms was collected in a brainstorming session by three IS researchers. The resulting list was completed with the terms from the Glossary of Legal Terms of the U.S. Courts. More terms were collected during the reading phase of the presented literature analysis method. Different combinations of information systems and law terms resulted in articles that explicitly dealt with regulations and standards, causing the list of terms to being updated iteratively during the first method steps (cp. Figure 2).

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Step 2: Literature Search

The goal of this paper is to determine the IS research perspective on the relationship of IS and law. Therefore, only IS journals were included into the analysis. To include also law journals and, thereby, determine the law perspective on this topic, comprises the next step in this line of research. Two journal rankings, VHB-JOURQUAL2 and AIS Ranking, were applied to determine a list of relevant IS journals. The list of journals includes the VHB-JOURQUAL2’s top-ten journals and the top journals from AIS Rankings, each average ranking 11.00 or less. Table 1 provides an overview about all considered journals and corresponding hits. Six different search queries were applied to the research publication database EBSCOhost (each query with a different focus, see Appendix A for the six different queries). The first query has a strong focus on specific regulations (e.g., Sarbanes-Oxley Act). The second query has a focus on specific regulations in an explicit legal context. The third query focuses on research results in the context of the relationship of IS and law (e.g., explicitly looking for models and theories). The fourth query is problem orientated in the context of the relationship between IS and law. The fifth query focuses on standards (e.g., de jure standards) and the sixth query had a focus on different application areas (e.g., finance or health).

Step 3: Selective Reading

The third step is to take a closer look at the articles resulting from Step 2. Some articles were identified as not relevant while others were marked as highly relevant. Depending on the results of the search queries from Step 2, it was sometimes necessary to iteratively modify the list of terms or to adapt the search queries. This usually happened if there were not enough search results or if the articles that were found were not relevant to the topic.

Step 4: Terms Matrix Construction

The goal of our procedure is to derive the one combination of search terms from step 1 that produces the largest number of relevant articles. Therefore, the list of terms from the first step and the list of selected articles were used to construct a matrix with two dimensions: articles and terms. The presence of a term in titles, abstracts and keywords was marked. This matrix was then used as input for the next step.

Step 5: Search Query Finalization and Application

Based on the results from previous steps, a single search query containing two clauses was derived (see Figure 3) from the terms matrix. The first clause represents the article’s connection to the field of information systems and the second clause represents the article’s connection to the field of law. The two clauses are connected with a logical AND. As one can see, in the search query presented below, such terms as “legal*”, “scien*” and “regulat*” contain a “*”-character at the end. This indicates a search for all different endings of the term such as regulation, regulations, regulator etc. Furthermore, there are no specific terms like Basel, SOX or any names of standards used in the expression. The reason for this is the existence of a more comprehensive terms combination. This combination does not require the inclusion of any other specific terms. As a result, the search query provides the largest number of articles and uses only the terms identified during the first steps of the described literature search method. The final search expression is an expression in conjunctive normal form (CNF).

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3 Available at http://ais.affiniscape.com/displaycommon.cfm?an=1&subarticlenbr=432.

4 EBSCOhost was set to search in all available databases.
The application of this search query in the literature databases EBSCOhost and ScienceDirect resulted in 164 articles. By reading these articles selectively, we were able to sort out those articles that had obviously nothing to do with the topic at hand (although they contained the respective search terms from the query). The number of relevant articles is 53 (Table 1).

Table 1. Results of the application of the final search query

<table>
<thead>
<tr>
<th>Top-Ranked Journal</th>
<th>EBSCO</th>
<th>Science Direct</th>
<th>Relevant</th>
</tr>
</thead>
<tbody>
<tr>
<td>AI Magazine</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Artificial Intelligence</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Communications of the ACM</td>
<td>28</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Decision Sciences</td>
<td>3</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Decision Support Systems</td>
<td>18</td>
<td>10</td>
<td>5</td>
</tr>
<tr>
<td>European Journal of Information Systems</td>
<td>10</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Harvard Business Review</td>
<td>18</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>IEEE Transactions on Engineering Management</td>
<td>3</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Information Systems Journal</td>
<td>2</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Information Systems Research</td>
<td>12</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>INFORMS Journal on Computing</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Journal of Management Information Systems</td>
<td>13</td>
<td>8</td>
<td>11</td>
</tr>
<tr>
<td>Journal of Strategic Information Systems</td>
<td>5</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>Journal of the ACM</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Journal of the Association for Information Systems</td>
<td>3</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Management Science</td>
<td>8</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>Mathematical Programming</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>MIS Quarterly</td>
<td>22</td>
<td>0</td>
<td>12</td>
</tr>
<tr>
<td>SIAM Journal on Computing</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>53</strong></td>
<td><strong>Total</strong></td>
<td><strong>53</strong></td>
</tr>
</tbody>
</table>

* including duplicates from EBSCOhost

Step 6: Coding

We analyzed the sample of articles from the previous step regarding the influence of IS and law and coded our results by using the dimensions of the model from Section 2 (direction, impact, and domain) as a coding frame. The codes for the dimension ‘direction’ are ‘IS→Law’ and ‘Law→IS’. For the dimension ‘impact’ the codes are ‘Restricting’, ‘Demanding’, and ‘Enabling’, and for the dimension ‘domain’ the codes are ‘Economic domain’, ‘Governmental domain’, and ‘Legal domain’.

To apply these codes rigorously, we implemented several analysis guidelines: We coded the articles on the level of statements. A statement can be one sentence or several connected sentences that address the same issue. All articles were analyzed twice by two IS researchers. By using the four-eye principle, we diminished the possibility that statements and sections were interpreted differently. Every statement that was coded differently by the two researchers was discussed until reaching consensus. Thereby, the wording in a sentence was acting as a first indicator for a relevant passage (e.g., the word “enabling”). But the passages were always interpreted in their context of meaning in order to get to the author’s underlying opinion. Statements and references to other articles were not considered since we solely were looking for the perception of the relationship of IS and law in the papers of our sample and not in other publications. Statements of authors that were indefinite have been skipped. Only statements that were unambiguous were considered in the analysis. In the
following, we present the results of the literature analysis and, thereby, describe how the relationship of IS and law is treated in IS research.

4 Literature Analysis Results

The results of the literature analysis shed light on the perception of IS research on the relationship of IS and law. After analyzing the 53 articles that resulted from the literature search, we aggregated the findings. A summary is presented in Table 2. In the following, we provide three examples from the result set of articles in order to illustrate the classification of statements:

The paper of Marston et al. (2011), e.g., contains the statement: “if some private data is stored in a country other than its owner, which country's privacy laws would be followed by the cloud's parent organization? Issues like these make it necessary for an active and informed role of national and international regulatory agencies” (Marston et al., 2011, p.183). This statement refers to cloud computing in a business-related context and was, therefore, assigned to the economic domain. It is stated that cloud computing IS and the associated private data storage demand an active and informed role of regulatory agencies. Therefore, this statement was classified as a demanding influence of IS on law in the direction IS → law.

Another relevant statement was found in Bordoloi et al. (1996). “Further, the threat of injury has caused federal and state agencies and legislatures to consider courses of action to inhibit the more injurious effects of such systems” (Bordoloi et al., 1996, p.162). Again, this statement refers to the usage of IS (in general) in the economic domain. Here, state agencies and legislatures take actions (regulations on legal liability) that inhibit and, thereby, restrict IS (in general). The statement is therefore classified as a restricting influence in the direction law → IS.

The statement “As a result, we conclude that legislative efforts contribute to increasing awareness of the importance of information security and to arousing attention to information security investment announcements” (Chai et al., 2011, p.659) describes how the Sarbanes-Oxley Act (SOX) positively influences IS security awareness in companies. The statement is, therefore, assigned to the economic domain and describes an enabling influence (investments in IS security are enabled that probably would not have been made without SOX) in the direction of law → IS.

<table>
<thead>
<tr>
<th>Domain (IS)</th>
<th>Direction and Impact</th>
<th>IS→Law Restricting</th>
<th>IS→Law Demanding</th>
<th>IS→Law Enabling</th>
<th>Law→IS Restricting</th>
<th>Law→IS Demanding</th>
<th>Law→IS Enabling</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Economic Domain</td>
<td>0</td>
<td>34 (14%)</td>
<td>7 (2.9%)</td>
<td>23 (9.5%)</td>
<td>78 (32.1%)</td>
<td>50 (20.6%)</td>
<td>192 (79%)</td>
<td></td>
</tr>
<tr>
<td>Legal Domain</td>
<td>2 (0.8%)</td>
<td>0</td>
<td>16 (6.6%)</td>
<td>0</td>
<td>6 (2.5%)</td>
<td>2 (0.8%)</td>
<td>26 (10.7%)</td>
<td></td>
</tr>
<tr>
<td>Governmental Domain</td>
<td>0</td>
<td>2 (0.8%)</td>
<td>6 (2.5%)</td>
<td>2 (0.8%)</td>
<td>12 (5%)</td>
<td>3 (1.2%)</td>
<td>25 (10.3%)</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>2 (0.8%)</td>
<td>36 (14.8%)</td>
<td>29 (11.9%)</td>
<td>25 (10.3%)</td>
<td>96 (39.5%)</td>
<td>55 (22.6%)</td>
<td>243 (100%)</td>
<td></td>
</tr>
</tbody>
</table>

Table 2. Results of the analysis (Absolute and relative occurrences)

The results in Table 2 show that most of the identified statements (79%) address the relationship of IS and law in the economic domain followed by the legal domain (26%) and the governmental domain (25%). This was somehow expected because the analyzed data came from IS Journals, which traditionally have a strong economic orientation. The statements found for the legal domain mainly originate from IS development and application in the legal sector. The statements for the governmental domain were mainly found in an e-government context.
A lot more statements were found for influences from law → IS (72.4%) than for influences from IS → law (27.6%). A possible explanation for this significant difference could be the general perception of law in IS research. Many IS authors may perceive the law as something prescribed which influences IS by restricting it, demanding special requirements or enabling the development and use of innovative IS. The opposite direction is often neglected, namely that IS development and use can also impact the law. We further discuss this impact in Section 5.

A high percentage of all identified statements in the direction law → IS was classified as demanding (54.5%), meaning that a legal event (e.g., the enactment of a specific regulation) demands a reaction (IS related) in another domain. 31.2% were classified as enabling and 14.2% as restricting. This was surprising at first because it was initially expected that legal regulations are usually perceived as restrictions in IS research. But obviously in IS literature the influence of law is rather perceived as a demand for action, which appears logical at second thought, because demands and requirements (including legal requirements) are the basis for information systems development and implementation.

Many articles in the sample contain more than one relevant statement. This may bias the results because the majority of statements might be found in a minority of articles. In order to get a better picture of the distribution, we investigate the influence direction on publication level. Therefore, we establish three categories applying two thresholds (35 and 65 percent) for the relative occurrence of statements within one particular article. Thereby, we get an indicator for the perception of influence direction in the whole analyzed article. The summarized results are depicted in Table 3. Articles containing mainly statements from the direction IS → law are assigned to the first category, those containing mainly statements from law → IS to the third category, and those with a mainly balanced distribution to the middle category. With a relative share of 64.1% of all analyzed articles (regarding the relevant statements) we observed a strong tendency towards the influence direction law → IS, 17% were rather balanced, and 18.9% were rather with a focus on the direction IS → law. This can again be explained by the basic perspective IS researchers usually have on legal regulations. As mentioned before, law is probably seen as something prescribed and unchangeable. The opposite direction, namely that IS (especially IS innovations) may also effect the law, is under-represented.

<table>
<thead>
<tr>
<th>Categories of influence direction</th>
<th>IS → law ≥ 65% (i.e., law → IS &lt; 35%)</th>
<th>35% &lt; IS → law &lt; 65%</th>
<th>IS → law ≤ 35% (i.e., law → IS &gt; 35%)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Count</td>
<td>10 (18.9%)</td>
<td>9 (17%)</td>
<td>34 (64.1%)</td>
<td>53 (100%)</td>
</tr>
</tbody>
</table>

Table 3. Classification of publications (regarding the influence direction)

The adapted model (Section 2) can also be applied to visualize the results of the analysis. Figure 4 depicts the distribution of the statements divided into influence direction and influence impact, aggregated over the domain. Larger arrows show more frequent occurrences. The figure depicts the relationship of IS and law as perceived by IS researchers in the IS top journals.

Figure 4. Visualization of the mutual influence of IS and law observed by IS researchers
5 Implications for Future IS Research

The results provide three major implications for future IS research. First, the analysis results call for more interdisciplinary research on the relationship of IS and law. It is necessary that researchers from the IS perspective and researchers from the legal perspective try to understand and consider each other’s perspectives on this interdisciplinary topic. Real interdisciplinary research is still very rare in this area.

Second, a bi-directional perspective on the relationship of IS and law is needed. Our analysis results indicate that a lot of research on the relationship of IS and law is still very much enrooted in its own discipline and has, therefore, a mono-directional perspective on the effects that both sides have on each other. We argue for focusing not only on one influence direction but on both directions (Law→IS and IS→Law) and all its facets (Restrictive, Demanding, Enabling) simultaneously. If future IS research would apply a bi-directional and multifaceted research approach (regardless of the specific topic), the overall quality of IS research in this area would improve significantly. This could, e.g., lead to the fact, that future research will consider law not only as a restriction or requirement to IS but also as something that is and/or can be influenced by IS as well. Usually, the question on how law can legally assess IS developments and how law should react to them is addressed by legal researchers. An interdisciplinary consideration of the mutual implications in this area is not only important but even necessary from a societal perspective because it leads to better solutions on both sides.

In order to illustrate this claim, we use the paper of Tractinsky & Jarvenpaa (1995) from our article sample as an example. The paper describes a study on the IT manager’s opinion on managing IT in a global context. Important factors in IT globalization are governmental constraints, especially “complying with government data sharing regulations and complying with government constraints on the purchase of computing equipment and services” (Tractinsky & Jarvenpaa, 1995, p.522). Here, the law is solely perceived as an influencing factor (demanding or restrictive) for IS (Law→IS). Research quality on this topic would increase (not necessarily in this paper but in research on this topic in general) if also the other direction would be considered (IS→law). How does the globalization of IS and IT effect the legal system(s)? Should law react to it at all, and if so, how? Which regulations in national and international laws are necessary to keep legal certainty in the context of IT globalization and what regulations are maybe outdated or unfitting? What are actions that can be taken by law to handle the increase in IS globalization (e.g., regulation by de facto or de jure standards)? Considering such questions, a bi-directional, interdisciplinary, and simultaneous perspective would lead to better solutions.

Third, IS research should focus on the investigation of IS in the legal and governmental domain. The literature search results indicate that less than a quarter of articles investigate the application of IS in these two sectors. One proper example for an IS artifact in the legal domain is the development of model-directed information systems for the management of courts (Buchanan & Fennell, 1981). The goal of the work is to provide a “particular model-directed system to track federal criminal cases” (Buchanan & Fennell, 1981, p. 887). Since it turned out that the legal and governmental domain are under-investigated in terms of IS artifacts, we strongly argue for considering these two domains in future IS research.

A common prejudice is that people from the IS perspective have difficulties with understanding the law and its underlying principles and people from the legal perspective have problems to grasp technical concepts. Considering the mutual influence of IS and law in IS research may also foster better communication between legal researchers and IS researchers and, thereby, support interdisciplinarity. This would especially benefit research in the field of e-government, since every e-government project is strongly influenced by law and legal regulations.
6 Conclusion and Limitations

In this paper, we investigate the perspective of IS research on the relationship of IS and law by conducting a systematic literature analysis. The basis for this analysis is the framework on the relationship of IS and law derived from Knackstedt et al. (2012). The framework was adapted to fit with the requirements of the literature analysis (Section 2). The adapted model consists of three dimensions, which are the influence direction (IS → law and law → IS), the influence impact (restricting, demanding, and enabling), and the domain in which IS is used (economic domain, legal domain, and governmental domain). 53 top-ranked IS journal publications, which addressed the topic of IS and law, were analyzed and classified with the adapted model on the level of text passages. It was observed that the relationship of IS and law is seen in most research articles (>80%) from a monodirectional perspective (either law → IS or IS → law). Most analyzed statements classified the relationship direction as Law → IS (>70%). Few articles (<20%) consider both directions simultaneously. The contribution of our work is twofold. First, we provide a description of the IS research perspective on the relationship of IS and law. Second, we discuss the implications for future IS research (see Section 5) and call for more interdisciplinary research in this area. Further, we used and adapted an existing framework for the relationship of IS and law from literature. This contributes to the general research on the relationship of IS and law and proves the applicability of the framework from Knackstedt et al. (2012).

We acknowledge some limitations to our approach. The empirical basis for our study consists of articles from leading IS journals. The analyzed articles provide a suitable foundation for insights into the perception of the relationship of IS and law in IS research but we have not considered other research results and publications, such as conference proceedings or lower ranked journals. Thus, the study results do not reflect the perception of IS and law in whole IS academia but only in a certain (although most important) segment. We also did not review law journal articles. A repetition of this study in the legal domain would shed light on the perspectives of legal experts, lawyers and law researchers. Further, some articles in the analysis sample do not specifically focus on the topic IS and law but rather talk about it in a side issue. They were still chosen because they contain at least one part, in which the relevance of the law is mentioned. We did not exclude such papers because, in our opinion, they still provide interesting insights into the perception of IS and law from an IS research perspective.

The article at hand is a first step towards a combined perspective of IS and law. Further research on IS artifacts that potentially influence the law or vice versa should consider the multifaceted relationship of IS and law in order to enhance research contribution in those research areas that are naturally affected by law and legal regulations (e.g., e-government research). Future research should also investigate the triangular relationship between IS, law, and organizations. Questions regarding the role of organizations in regulatory-driven IS research need to be investigated. The findings of this article are relevant for constituting an interdisciplinary research area at the border of IS and law.

References


## Appendix A

### Search query representing a strong focus on regulations

| (TI("information systems") OR AB("information systems") OR SU("information systems") OR KW("information systems") OR TI("computer science") OR AB("computer science") OR SU("computer science") OR KW("computer science") OR TI("information science") OR AB("information science") OR SU("information science") OR KW("information science")) | AND | (TI("CISO") OR AB("CISO") OR TI("Serbanes-Oxley Act") OR AB("Serbanes-Oxley Act") OR TI("basel") OR AB("basel") OR TI("COSO") OR TI("COBIT") OR AB("COBIT") OR TI("OECD") OR AB("OECD") OR AB("information systems") OR SU("information systems") OR KW("information systems")) | Number of hits in EBSCO | 78 |

### Search query with a focus on regulations in the explicit legal context

| (TI("legal informatics") OR AB("legal informatics") OR SU("legal informatics") OR KW("legal informatics") OR TI("computer science") OR AB("computer science") OR SU("computer science") OR KW("computer science") OR TI("information systems") OR AB("information systems") OR SU("information systems") OR KW("information systems") OR SU("information science") OR KW("information science")) | AND | (TI("law") OR AB("law") OR TI("court") OR AB("court") OR TI("lawyers") OR AB("lawyers") OR TI("legal") OR AB("legal") OR TI("de jure") OR AB("de jure") OR TI("jurid*") OR AB("jurid*") OR TI("jurisprudence") OR AB("jurisprudence")) | Number of hits in EBSCO | 48 |

### Search query with a focus on research results in the context of the relationship between IS and law

| (TI("information systems") OR AB("information systems") OR SU("information systems") OR KW("information systems") OR TI("computer science") OR AB("computer science") OR SU("computer science") OR KW("computer science") OR TI("information systems") OR AB("information systems") OR SU("information systems") OR KW("information systems") OR SU("information science") OR KW("information science")) | AND | (TI("theory") OR AB("theory") OR TI("model") OR AB("model") OR TI("guideline") OR AB("guideline") OR TI("standard") OR AB("standard") OR TI("approach") OR AB("approach")) | Number of hits in EBSCO | 248 |

### Search query with a focus on standards

| (TI("information systems") OR AB("information systems") OR SU("information systems") OR KW("information systems") OR TI("computer science") OR AB("computer science") OR SU("computer science") OR KW("computer science") OR TI("information systems") OR AB("information systems") OR SU("information systems") OR KW("information systems") OR SU("information science") OR KW("information science")) | AND | (TI("law") OR AB("law") OR TI("base") OR AB("base") OR TI("legal") OR AB("legal") OR TI("de jure") OR AB("de jure") OR TI("jurid*") OR AB("jurid*") OR TI("jurisprudence") OR AB("jurisprudence")) | Number of hits in EBSCO | 62 |

### Search query with a focus on problem orientation in the context of the relationship between IS and law

| (TI("information systems") OR AB("information systems") OR SU("information systems") OR KW("information systems") OR TI("computer science") OR AB("computer science") OR SU("computer science") OR KW("computer science") OR TI("information systems") OR AB("information systems") OR SU("information systems") OR KW("information systems") OR SU("information science") OR KW("information science")) | AND | (TI("verification") OR AB("verification") OR TI("violation") OR AB("violation") OR TI("validation") OR AB("validation") OR TI("unreliable") OR AB("unreliable") OR TI("noncompliance") OR AB("noncompliance") OR TI("compliance") OR AB("compliance") OR TI("incident") OR AB("incident") | Number of hits in EBSCO | 57 |

### Search query with a focus on different research areas

| (TI("information systems") OR AB("information systems") OR SU("information systems") OR KW("information systems") OR TI("computer science") OR AB("computer science") OR SU("computer science") OR KW("computer science") OR TI("information systems") OR AB("information systems") OR SU("information systems") OR KW("information systems") OR SU("information science") OR KW("information science")) | AND | (TI("bank") OR AB("bank") OR SU("bank") OR KW("bank") OR TI("insurance") OR AB("insurance") OR SU("insurance") OR KW("insurance") OR TI("medical") OR AB("medical") OR SU("medical") OR KW("medical") OR TI("health") OR AB("health") OR SU("health") OR KW("health") OR TI("manufacturing") OR AB("manufacturing") OR SU("manufacturing") OR KW("manufacturing")) | Number of hits in EBSCO | 130 |