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**21st European Regional ITS Conference
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Abstract—Questions of Internet jurisdiction have attracted research ever since the Internet has become popular. Despite a long track of existing work in the area, a number of key issues remains unanswered to date. In particular, the subject matter of Internet jurisdiction has to be presented from an integrated international viewpoint. A structured, embracing, and consistent approach in assessing the subject matter needs to be determined. And a focus specific to characteristics of the Internet and electronic business in the Internet as of today needs to be adopted.

Consequently, this paper conducts a comparative Private International Law study considering connecting factors and service provider market activities constituting jurisdiction in major Internet markets (European Union, United States of America, China). Identified connecting factors are related to market activities and assessed by means of a common structuring scheme developed. This is followed by the set of market activities-driven challenges determined. These challenges are identified based on a scenario reflecting a service provider with connection to several markets. An in-depth discussion reveals by which connecting factors — and the respectively reflected market activities — a service provider might avail itself to jurisdiction in a market. This is complemented by the respective recommendations developed on how to address techno-legal implications with respect to Internet jurisdiction.

Index Terms—Internet Jurisdiction, Private International Law, Electronic Business

I. INTRODUCTION AND MOTIVATION

JURISDICTION is a key contractual parameter for any contract with international connection, including contracts for commercial electronic services in the Internet [64, 62, 63]. Jurisdiction determines which state's courts have the authority to hear and decide on a potential dispute arising from a concluded international service contract. National or supranational Private International Law (PIL) legislation decides for an international contract of civil and commercial matters by means of which facts, called connecting factors, a contract shall be related to a state (or multiple states). A cornerstone on the path to a successful determination of jurisdiction in a PIL-conforming way is, thus, found in the correct identification and handling of the respective contract-, contract party-, and service obligation-specific set of connecting factors [62, 64].

Since every sovereign state is entitled to adopt its own PIL and to conclude bi- or multi-lateral PIL agreements,

there is no standard set of connecting factors accepted and established internationally or globally. Instead, there is a multitude of jurisdiction-specific sets of connecting factors. Some connecting factors may be shared among a wide range of jurisdictions — jurisdiction here in the sense of legal domains —, while others may be found in rare cases only. In general, comparative studies are needed to develop an integrative viewpoint on connecting factors originating from different areas. Such consideration of a particularly interesting connecting factor category is at the center of this study, namely market activities constituting jurisdiction for international contracts of commercial electronic services.

When looking at an example PIL source, that of the European Union (EU) Brussels I regulation [8] (Brussels I hereafter), a specific notion of market activities is outlined in Art. 15(1)(c). This article determines in relation to consumer contracts the according extent by which activities of a service provider constitute a valid connecting factor to establish jurisdiction. Jurisdiction is substantiated in the Brussels I member state of consumer domicile in case a service provider “[...], by any means, directs such activities to [...]” that state. Of note here are two things. First, not only is it important to know what market activities (“such activities”) are *per se*, but it is important to know the set of jurisdictions to which market activities are directed. In other — less formal, instead interpreted — terms, this means, a service provider's target markets need to be known.

Furthermore, “any means” refers to an embracing understanding of activities. According to Brussels I, thus, an activity that a service provider performs in a Brussels I member state or targets to such a state might give sufficient reason to attribute jurisdiction to that state — irrespective of the means used to become active or to target that state. This implies that, for example, an on-street marketing campaign advertising a service is handled the same way as a campaign for the same service managed by an on-line advertiser company. While Brussels I addresses market activities in a technology-neutral manner, it is important to note that there are technical implications to be tackled in the on-line advertisement example given. Most importantly, geographic location information of Internet users is not easily obtained. There are means to approximate a geographic location to an IP address, but the

respective methods used are prone to error and less likely to deliver a user's exact and correct location than in the on-street campaign where locations of posted bills are known. Even though this represents a single example only, the key generalizable message here is that there is potential technical impact caused by legal requirements on market activities to be studied.

In summary of these different observations made with respect to market activity and jurisdiction, this paper aims to answer a number of challenging questions as follows:

- What is the respective comparative understanding of connecting factors in different markets and according to different PIL sources?
- What is the impact of a service provider's market activities on jurisdiction in international service contracts?
- Which of these impact areas show considerable technical implications, and which?
- Which are promising strategies to address technical challenges raised by PIL-driven requirements in relation to market activities?
- Which recommendations for both, service providers and policy makers, may be derived?

Accordingly, this paper addresses three areas of concern as follows: First, the respective topic of connecting factors in different markets is investigated and presented. This happens in a selective though representative manner and it covers primarily a comparative PIL point of view. This implies a collection of established notions of market-specific connecting factors originating from different legal sources to be compiled. Focus in collecting different connecting factors is put on (national and supra-national) PIL sources from major European, American, and Asian jurisdictions. Collected connecting factors are characterized, assessed by means of a common structuring scheme developed, and related to the according notion of service provider market activities.

Second, the set of key technical market activities-driven challenges is determined and presented. This is done in a manner that assumes all considered connecting factors as given and invariable in the first place. Based on a scenario depicting a service provider with connection to several markets, application of those connecting factors identified is discussed. This discussion reveals by which connecting factors — and the respectively reflected market activities — a service provider might avail itself to jurisdiction in a market. Furthermore, the scenario determines a number of resulting technical challenges.

Third, these technical challenges determined are discussed in a focused and highly structured manner. This means that technical challenges in relation to on-line advertisements are selected for a detailed investigation in order to identify potential mitigation strategies and related recommendations targeting service providers and policy makers. Developed strategies and recommendations shall clearly depict available (technical) options to address (legal) challenges raised — including dimensions of opportunities, risk, and limits to be expected.

II. RELATED WORK

Questions of jurisdiction in the Internet have attracted many research efforts mainly in the legal domain. Since a border-less infrastructure like the Internet, however, might relate in multiple ways to different jurisdictions, a longer track of previous research alone does not imply a consistent, internationally harmonized viewpoint on Internet jurisdiction. Accordingly, this section conducts a gap analysis to identify open, so far partially addressed issues. This gap analysis bases on the respective scope definition and on the state-of-the-art discussion conducted as follows. As for scope, the specific service and contract notion applicable here is introduced. This is followed by an outline of seminal research work in Internet jurisdiction over time. Finally, dimensions of risk for electronic business in the Internet by PIL are discussed.

A. Service and Contract Notion

In previous work, an elaborate methodology to identify, assess, and formally model relevant PIL sources as UML activity diagrams was developed and documented [62, 64]. This law modeling method was completed in [62] by the accordingly determined implementation method to produce jurisdiction and applicable law recommendations in an automated and legally compliant way. Furthermore, an example implementation reflecting Brussels I was found to be fully functional [62] (*cf.* Section III-A for a detailed discussion of connecting factors related to Brussels I).

Previous research efforts were based on a distinct service and contract notion applicable. In order to establish a consistent context and to allow for a focused perspective — PIL covers a wide selection of legal topics ranging from family law to very specific aspects such as insurance contracts — two fundamental notions have to be emphasized as introduced previously, namely the applicable understanding of the contract type focused as well as the underlying notion of a service. As for the former, contracts of electronic services are looked at exclusively. Services are assumed to be provided commercially, *i.e.*, for monetary compensation between a single service provider and a single service customer.

Of note here is that, in general, the contractual relation focused is a bilateral (as opposed to a multilateral) one. Furthermore, relations are assumed to have an international (as opposed to intra-national) connection. The contract itself shall endorse a civil and commercial matter. Thus, a contract under private law is envisioned. Private law is typically differentiated from public law, including international public law (often referred to as international law), and from penal law (also referred to as criminal law). From a legal systematic perspective, the type of contract foreseen falls under PIL (also known as Conflict of Laws). The requirement of an international relation may imply international service provisioning (*e.g.*, between two service customer offices) or it may mean that contract parties have international connection (*e.g.*, by means of domicile in different nations).

With respect to the contractual object focused, services are envisioned to embrace electronic provisioning of the contracted object exclusively. Purely electronic provisioning

of the contracted electronic service implies that a service performed does not include any physical or material good at all. Consequently, legal sources considering material goods are excluded. Any considered PIL must be applicable to contracts covering the contractual object focused. The main reason for this selection is to narrow scope on to those services which are exclusively virtual in the sense of non-material, *i.e.*, services which are at the core of “Internet services”. By this specific, narrowed service scope, an equally narrow scope is outlined for “Internet contracts”.

B. Internet Jurisdiction

At the time the Internet became widely used as a media means for the masses, a couple of general, fundamental questions from the legal domain in relation to jurisdiction in the Internet were raised. In [48], which is exemplary for a number of similar viewpoints and expectations expressed at that time, the question was discussed whether the Internet should have a separate legal jurisdiction. The main criterion to answer this question was based on whether or not there is a “*natural*” jurisdiction in or of the Internet. And if yes, what would be the legal consequences.

One possible way to address this question funds in the nature of the Internet as a global information infrastructure [52]. This understanding allows for comparison with those separate international conventions governing sea and admiralty law. However, [48] concludes, based on the idea that stakeholders in the Internet are forming a community (cybercommunity, networked community), that there is no need for a separate cyberlaw and a separate jurisdiction in the Internet. The authors suggest that involved groups such as the Internet Engineering Task Force would lay down (community) rules which are used as “*guidance for courts and governments*”. Such analysis does not appear — seen from today — conclusive as it clearly did not happen in such a way that problems of conflicts are inexistent or diminishing by means of such community guidelines, neither has the determination of jurisdiction become any clearer.

In a comprehensive overview of different emerging jurisdictional issues [67] concludes that the principle of territoriality will prevail as states consider it a core principle of sovereignty, while [52] anticipates the territoriality principle and with that national borders lose in importance in the Internet. [67] further observes a number of harmonization efforts and further concludes that even though “*states will face seemingly insurmountable problems in their efforts to domesticate a network of computers, they will gradually find solutions*”. Both, the ongoing effort to harmonize jurisdiction in international contracts as well as the still prevailing territoriality principle, can be judged true from today. However, it must be noted that from these many international harmonization efforts no convention or similar act has resulted which is specific to jurisdiction in the Internet. Possibly this is due to the fact that community influence on a legal level is highly limited, contrary to what [48] was suggesting to happen.

In more recent articles, more focused approaches to PIL issues in the Internet are observed. For instance, [3] addresses

the question of jurisdiction in relation to committed civil wrongs. This application scope might not fit the applicable scope of this work, whereas the article’s results and its conclusion are of interest as [3] presents a simple rule-set (methodology) to determine jurisdiction — similar to what this work is aiming at — and [3] concludes that “*private international law is sufficiently developed to overcome the challenges posed by the internet*”. This conclusion, quite fundamental in nature, needs to be assessed by this work with regard to this work’s distinctive scope, but even without such a final assessment ready, this work can be said to adopt a similar basic approach in that it takes the provisions of PIL as given and it attempts to develop a methodology for jurisdiction determination based on it, whereas potential changes and issues are reserved.

In another more recent article, a conclusion of particular interest to this work is made, that of how the risk of multiple jurisdictions of relevance may influence counter-measures taken by service providers in the Internet [53], namely that it “*is likely to stimulate creativity and new Internet services such as more accurate and selective filtering technologies, stronger security zones and more robust, customized compliance capabilities*”. Such tendency can be observed today in service provisioning where market separation is key, such as in commercial provisioning of copyrighted content. For example, a service provider might be entitled to stream episodes of a TV series to customers domiciled in its home market only. Filtering based on IP address ranges is an often used method. However, this method is, in principle, prone to errors and involves manual overhead, while those very same input parameters (connecting factors) needed to determine jurisdiction may be used for the purpose to filter legitimate customers.

C. Risk for Electronic Business by PIL

In addition to these questions of separate Internet jurisdiction, territoriality, and international harmonization efforts as discussed, [1] represents a prominent example of those many articles addressing issues of jurisdictional risk, forum shopping, and the threat of long-arm jurisdiction to businesses doing transactions in the Internet. [1] admits that the risk to fall under jurisdiction of an unattractive court is inherent to Internet businesses. In order to limit the risks of long-arm jurisdiction [1] gives a number of specific advises to Internet businesses. These comprise to limit the interaction possibilities where possible, since interaction of some sort may lead to jurisdiction under certain circumstances already. This is in-line with the advise to undertake limitations with respect to unwanted customer segments — such as to limit locales on a web site. This might, in general, be reasonable thinking, it however seems applicable and reasonable only if a limitation in customer relations is wishful *per se*. This may often be an unrealistic assumption, especially in case a service in the Internet shall be offered to an international audience.

Further advises of [1] include to choose an ISP which operates within the same state as the business itself. Similarly, it is doubtful whether this may reflect operational and business characteristics of Internet businesses of today — at least to

those targeting international customers. Finally, [1] suggests to have jurisdiction and applicable law clauses included in a contract. This, again, seems reasonable a measure in terms of general advice. And it is the standard case today. However, there are cases where choice of jurisdiction and choice of law is not allowed. Furthermore, the static clause of jurisdiction and/or applicable law might not withstand a court's inspection (thus it might be invalid) as its determination is complex and shows dependencies on the service to be contracted and on the respective contract party's connecting factors.

Overall, it can be concluded that the advice in [1] is generic and in general showing ways to limit risks, but in case an Internet business is targeting international markets with its services, these advice seem mostly obsolete. Thus, such a business has to meet the risk of jurisdictional issues anyway so that it is well advised to determine jurisdiction/applicable law in the right way (considering service and contract party specifics).

[18] acknowledges these mentioned risks for service providers in the Internet in relation to PIL, while [18] proposes a three factor targeting test which focuses on the criterion of foreseeability. The three factors of the targeting test comprise contracts, technology, and actual or implied knowledge. The first involves, for instance, choice of jurisdiction clauses in a contract, the second, *e.g.*, geo-location technology, and the third subsumes that knowledge can be derived with respect to targeted jurisdiction such as that it “*assesses the knowledge the parties had or ought to have had about the geographic location of the on-line activity*”.

[65] outlines in a comprehensive recent comparison between US (United States) and EU PIL that “*in comparison to the EU special jurisdiction approach, the US specific jurisdiction approach is different. Whilst the US employs 'Zippo', 'effects' and 'targeting' tests, the EU adopted classical general and special jurisdiction approaches concerning special jurisdiction in the Brussels Regulation, in an effort to bolster confidence in E-commerce.*” Even though factors of the targeting test proposed in [18] are not implemented in European PIL, they still find partially expression in the European procedures to determine jurisdiction (and applicable law). Brussels I, for instance, embraces connecting factors covering contractual clauses considered, aspects with direct implication to technology (even if these aspects are not technology-driven) as well as considerations that incorporate contract party knowledge about intended/targeted jurisdictions [64, 62].

Driven by a comparable argument that predictability is needed for businesses in the Internet, [55] withdraws initial approaches to address PIL aspects in the early days of the Internet, such as the Zippo approach. In contrast, [55] proposes to stay with the traditional approach to PIL, despite its acknowledged challenges faced in and by the Internet. Thus, better predictability is argued to favor for an application of established, albeit non Internet-specific procedures to network-mediated contacts. While it is unclear whether this argument is the actual reason, it can be observed today that there is no separate PIL specific to those many issues raised and discussed in relation to contracts and the Internet.

D. Preliminary Conclusions and Gap Analysis

For a long period, a plethora of research efforts on jurisdictional issues in the Internet has shown different, sometimes diverging, ways to address challenges raised. Nonetheless, fundamental questions remain essentially unanswered. Existing research lacks, in particular the following:

- 1) Presenting the subject matter of Internet jurisdiction from an integrated international viewpoint.
- 2) Using a structured, embracing, and consistent approach in assessing the subject matter.
- 3) Adopting a focus specific to characteristics of the Internet and electronic business in the Internet as of today.

The first point relates to work that is typically presenting Internet jurisdiction questions out of the background of a single jurisdiction representing a single market. Comparative analyses exist and gain more attention in recent research. This direction of comparative analysis seems highly promising in questions of jurisdiction relating to a global infrastructure like the Internet, but it needs further attention. In particular, those markets and the respective jurisdictions with highest Internet adoption constitute a focus area of primary interest, since electronic business and, with that, the conclusion of international service contracts is presumably most pronounced in these markets.

The second point relates to work that assesses, *e.g.*, single cases observed in court and aims to draw general conclusions out of that. Due to the fact that there are multiple legal traditions in the world which do not always seem to converge in fundamental areas [20], case-based analyses can contribute essential insight of relevance to certain jurisdiction(s), while it may only be regarded as a single driver for input besides other methods and other sources for insight. Thus, when aiming at a comparative analysis covering the subject matter more embracingly, the according set of jurisdiction-relevant analysis methods has to be determined and applied, and results from different jurisdictions have then to be put into a comparable context allowing for a consistent picture to be drawn.

The third point relates to the now long history of research work on Internet jurisdiction as well as to changes Internet usage went through in recent years. Widely adopted electronic business and the commercial provisioning of electronic services in the Internet as defined in Section II-A are relatively young phenomena in the Internet. If reported net profit numbers [29] of Google (founded in 1998) may serve as an indicator here, then the year 2005 might be seen as an economic cornerstone for this company — which is the leading on-line advertiser today — as in 2005 annual net profits reached more than a billion USD for the first time (around 1.5 billion USD, more than tripling 2004 profits of around 399 million USD). This is a single example only, but the main holding is that Internet jurisdiction research conducted in the 1990s saw a considerably different environment for electronic business than today.

For these reasons and gaps identified, this paper draws the following preliminary conclusions:

- Out of the first point mentioned above, a comparative analysis covering PIL and Internet jurisdiction reflecting

those markets in the Internet with a high importance in electronic business is conducted. Namely, connecting factors substantiating jurisdiction from a US American, European, and Chinese perspective are investigated. China receives growing impact with an ever increasing number of Internet users in recent years. The International Telecommunication Union (ITU) outlines China's market weight [35] by summarizing that "[m]ore than half of fixed broadband subscribers in the developing world are in China, which overtook the United States as the largest fixed broadband market in the world in 2008". Section III documents results from this comparative analysis.

- Out of the second point mentioned above, a common scheme for comparison is developed and applied by use of which identified connecting factors constituting jurisdiction in those markets investigated are brought into a consistent frame. This scheme is structured after a service and contract life cycle-driven angle. By this focus, the complete time range of relevance may be covered, and market activities may be attributed to the respective life cycle phase. Section III-D documents this scheme and assigns identified connecting factors to life cycles and to the according understanding of market activities.
- Out of the third point mentioned above, this paper derives specific market activities-driven challenges for a service provider. These challenges are determined in the area of cross-border transactions in the Internet and the formation of international service contracts. To that aim, urging jurisdiction-oriented and market activities-driven challenges are introduced (*cf.* Section IV) and discussed selectively (*cf.* Section V) in greater detail.

III. COMPARATIVE VIEW ON CONNECTING FACTORS IN DIFFERENT MARKETS

Out of those preliminary conclusions drawn in the gap analysis conducted, this section addresses two aspects. On the one hand, it investigates and compares the respective perspectives on PIL from a European, US American, and Chinese angle. For each PIL perspective looked at, the relevant set of connecting factors in relation to jurisdiction is determined. This includes in particular connecting factors with respect to market activities substantiating jurisdiction. On the other hand, a comparative approach is developed and adopted in order to bring these connecting factors identified into a common scheme for comparison, structured according to service and contract life cycle phases. Connecting factors are attributed to life cycle phases of relevance, and they are valued with respect to how closely related to the applicable understanding of a market activity they are.

A. European PIL Perspective

In Europe, two main regulations define jurisdiction and applicable law. Applicable law is covered by the Rome I regulation [14] (replacing the older Rome Convention [34]). Jurisdiction, on the other hand, is governed by the already introduced Brussels I regulation (replacing the older Brussels Convention [33]). While Brussels I applies to its member

states, which embraces basically the set of EU member states as of today (Denmark initially opted out, but adopted the regulation in 2005), the Lugano Convention ([42], currently in transition to its 2007 revision [43]) constitutes a parallel convention to Brussels I. The Lugano Convention was originally ratified by the old members of the EU, Poland, and the members of the European Free Trade Association (EFTA) [58]. As new EU members acceded Brussels I [10], the Lugano Convention is effectively applicable to the EFTA member states Norway, Iceland, and Switzerland.

Brussels I determines jurisdiction in civil and commercial matters — in principle, irrespective of the “*nature of the court*” [8], Art. 1 (*cf.* subject matter and territorial jurisdiction discussion in Section III-B).

Figure 1 reflects Brussels I formally modeled under application of the respective method defined in [62] as a UML activity diagram. The diagram covers Brussels I provisions in relation to jurisdiction in consumer contracts (upper part in Figure 1), choice of jurisdiction clauses (lower left part) as well as special and general jurisdiction (lower right part). In general, jurisdiction is determined according to facts by which an international service or one of the involved contract parties may be connected to a Brussels I member state. These facts are termed connecting factors. The primary connecting factor in Brussels I is domicile. Domicile, however, is not the only relevant connecting factor. By assessing Figure 1, a list of connecting factors may be determined as follows [64, 62]:

- Related to a contract party
 - Domicile
 - Establishment(s)
 - Habitual residence
 - Customer role (consumer or professional buyer)
- Related to a choice made
 - Choice of jurisdiction
- Related to a service
 - Location of performance
- Related to market¹ activities
 - Target states

As can be seen in decision input c7 in Figure 1, Brussels I foresees an influence of a service provider's market activities on the respective statements on jurisdiction (covered primarily by action c10) explicitly in case of consumer contracts. As discussed in the introduction section of this paper, the connecting factor of service provider target markets endorses a most wide notion of activities by formulating “by any means”. This phrasing was added to the regulation in order to comply with new circumstances arising from use of the Internet [66], more precisely to include e-commerce and web sites [66, 39], as well as on-line advertising [19]. In contrast, in the Brussels Convention, which defined jurisdiction before Brussels I became effective, either a specific invitation toward the consumer, or advertising in a consumer's domicile was needed to allow the consumer's home jurisdiction to be applied [66].

¹Markets and states might not be equivalent. The term market, thus, is used as a collective term here.

Figure 1. Activity Diagram for Brussels I [62]

Although Brussels I addresses on-line activities now clearly, a definition of what a directed activity is, is not provided. The definition of such an activity could include actions clearly addressing a target market, as for example any kind of advertising, but it may also include less “active” actions, such as a web site available world-wide. The latter is not to be interpreted as a market activity [15, 51] (as this would lead to a situation where having a web site would mean a service provider could potentially be sued in every country the web site is available), but where to draw a line is still arguable.

A distinction between relevant activities in this discussion becomes even more complex when analyzing on-line markets. It may be widely accepted that advertising in a state provides, in general, ground for indicating intentions to aim that state’s market, but the same situation becomes more ambiguous when talking about on-line advertisement. Can a person domiciled in France assume to be part of an advertisement’s target audience when seeing it on a German web site?

In summary, Brussels I determines a PIL source which considers market activities directly as a potential fact to constitute jurisdiction. Moreover, and by adopting a wider understanding of being active in a market, the remaining connecting factors listed can be interpreted as market activities as well. For instance, showing presence (having domicile, establishments, habitual residence) or accepting to perform an electronic service in a market may be seen as a market activity of a service provider and, thus, may constitute jurisdiction from a European perspective.

B. US American PIL Perspective

The US American framework is characterized by [59] as a “*federal, multistate, plurilegal system*”. [59] goes on to summarize that “*there is no single American conflicts law. Rather there are as many conflicts laws in the United States as there are states or ‘jurisdictions’ that constitute the United States.*” Four categories of conflicts of laws are identified and listed in [59] accordingly:

- US federal law conflicting with US state law (vertical conflict)
- US federal law conflicting with foreign law (federal-international conflict)
- US state law conflicting with (another) US state law (interstate conflict)
- US state law conflicting with a foreign country (state-international conflict)

In comparison with the European PIL perspective discussed previously, a similar set of conflict types may be determined, in principle, for European PIL (federal level being reflected by Brussels I for jurisdiction and state level being reflected by Brussels I member states legislation on jurisdiction). Despite such similarities in principle, the state-international conflict case is more pronounced in the US than in the EU. Brussels I Art. 4(1) governs vertical issues explicitly in a way that jurisdiction is determined according to member state legislation only in case neither party has domicile in a member state. The only other cases in which member state legislation applies instead of Brussels I are related to special cases of

jurisdiction choices (Art. 23) and to specific cases of exclusive jurisdiction in relation to legal transactions not considered here (Art. 22). This results in a situation where, in general, Brussels I applies in all four conflict types mentioned (*i.e.*, the analogous conflict cases adapted to European levels of legislation). Consequently, jurisdictional questions have to be assessed in a more fine-granular way in the US than in the EU: due to state sovereignty in the US federal structure, a state may obtain jurisdiction in international disputes. This leads to a situation where state courts as well as federal courts can have jurisdiction over international disputes, and even may have concurrent jurisdiction.

When analyzing jurisdiction in relation to the US perspective, it is important to differentiate three types of jurisdiction [32, 47]:

- Territorial jurisdiction
- Subject matter jurisdiction
- Personal jurisdiction

Territorial jurisdiction is concerned with the geographical range in which a court is empowered to hear and rule a case. This may relate, for example, to a state’s borders and to events that happened within that state. Subject matter jurisdiction relates to the dimension of content of a case. There are specialized courts for, *e.g.*, criminal law. According to the service and contract scope defined in Section II-A, subject matter jurisdiction is limited here to courts that deal with civil law matters. For the question of whether a state or federal court has jurisdiction — granted that subject matter jurisdiction is given on both levels — section 1332 [49] of the US Code lays down the fundamental criteria of diversity and amount in controversy:

“(a) *The district courts shall have original jurisdiction of all civil actions where the matter in controversy exceeds the sum or value of \$75,000, exclusive of interest and costs, and is between—*

- (1) *citizens of different States;*
- (2) *citizens of a State and citizens or subjects of a foreign state;*
- (3) *citizens of different States and in which citizens or subjects of a foreign state are additional parties; and*
- (4) *a foreign state, defined in section 1603 (a) of this title, as plaintiff and citizens of a State or of different States.*

For the purposes of this section, [...], an alien admitted to the United States for permanent residence shall be deemed a citizen of the State in which such alien is domiciled.”

This essentially means that alienage cases for which parties do not reside in the same (US or foreign) state and in which the matter of dispute exceeds the value of USD 75,000 are handled on federal level. Depending on the defendant’s residence a case may be moved to a federal court even if a dispute does not exceed the mentioned value [61]. As there are no specific jurisdictional provisions for international disputes, the same principles apply to alienage cases as to cases involving different US states [61, 45]. Which state’s

court has jurisdiction over a dispute is defined by a party's nationality, whereas an alien having permission for permanent residence is treated as if she or he was a US citizen.

However, and similarly to other geographies, the US have a concept of "close enough connection", which is referred to as minimum contacts [61, 45]. Minimum contacts were defined by courts through different terms, such as "*purposeful availment*", "*substantial connection*", "*reasonably anticipat[ing] being haled into court*", or "*hav[ing] fair warning*" [21]. Advertising, having business offices, or doing business may be criteria for minimum contacts [61, 12]. The concept of minimum contacts is closely related to the third type of jurisdiction listed, that of personal jurisdiction. Personal jurisdiction is concerned with whether or not a court has power over a person in a given case [32]. Two types of personal jurisdiction notions are differentiated in the US [61]:

- General personal jurisdiction. This type of jurisdiction applies when a defendant has "continuous and systematic" contacts with a forum. In cases of personal jurisdiction the dispute cause does not need to be related to those contacts.
- Specific personal jurisdiction. This type of jurisdiction is only exercised when the dispute arises out of the defendant's contact with the forum.

In the Internet realm some difficulties arise from the distinction between general and specific jurisdiction. Whether a service provider is invoking "continuous and systematic" contact by having a web site, or whether a web site is invoking actions leading to a dispute, is open to discussion and not all courts agree on a single definition [61]. Even when no minimum contact exists, the defendant's physical presence at the time of service or its consent to jurisdiction are strong enough factors to impact jurisdiction [9].

Personal jurisdiction is characterized as "*largely a doctrine of fairness*" [32]. This understanding is substantiated by several Supreme Court rulings referring to fairness in questions of jurisdiction. Fairness takes into account the following aspects [9]:

- Burden on defendant (for example because of a long distance she or he has to travel)
- Interest of state (if one party is from a state in question or if a plaintiff affects that state)
- Interest of plaintiff (due to availability of witnesses or other evidence)
- Efficient resolution (to not split a case on different places when multiple parties are involved)
- Furthering social policies (in cases where an alternate forum would not recognize a plaintiff's claim)

Dimensions of fairness are reflected by the Federal Rules of Civil Procedure [7], in particular in Rule 12(b) with respect to motions of a defendant upon a plaintiff filed a claim:

"[...] a party may assert the following defenses by motion:

- (1) lack of subject-matter jurisdiction;
- (2) lack of personal jurisdiction;
- (3) improper venue;
- (4) insufficient process;

(5) insufficient service of process;

(6) failure to state a claim upon which relief can be granted; and

(7) failure to join a party under Rule 19."

Hence, a defendant may file a motion in response to a claim challenging a court's subject matter and/or personal jurisdiction. For the latter, this would refer to a lack of minimum contacts (specific personal jurisdiction) or a lack of systematic and continuous contact (general personal jurisdiction). Based on defense (3), a defendant may refer to a *forum non conveniens* out of those fairness-driven reasons listed above, e.g., burden on defendant. Finally, defenses (4) and (5) are related closely to fairness as well if a defendant states that she or he was not serviced appropriately.

Over time, two standard tests to determine minimum contacts and, by those, (specific) personal jurisdiction over foreign residents have emerged. These tests embrace the Zippo sliding scale test and the Calder test (often referred to as effects test) [65, 6]. While detailed aspects are discussed in later sections of this paper, each test is shortly summarized as follows: Zippo is a minimum contacts test specific to web sites. It is characterized as a sliding scale test since web sites are deemed to fall into one of three categories [65] as follows:

- Active web sites: The main criteria to render a web site an active web site is found in a repeated cross-border file exchange. Based on such exchange, a US court may substantiate personal jurisdiction over foreign residents based on a purposeful availment argument.
- Passive web sites: A web site is termed a passive web site if it is accessible for information only, lacking any interactivity. Hence, "[p]assive web sites do not conduct business, offer goods for sale, or enable a person visiting the web site to order merchandise, services, or files" [65].
- Interactive web sites: Interactive web sites go beyond pure information provisioning to users outside the US as they allow for interactivity. If the specific level of interactivity is interpreted as closer to the characteristics of a passive web site, there is no reason for personal jurisdiction. In case of an interactivity level close to what makes an active web site, however, personal jurisdiction by purposeful availment is substantiated.

The effects or Calder test constitutes an alternative test to the Zippo test. It is based on the idea that personal jurisdiction is substantiated if a defendant is claimed to intentionally establish harmful effects — hence effects test — on a plaintiff which is resident in a given US jurisdiction. The Calder test consists of three criteria [56]:

- Intentional conduct
- Expressly aimed at forum state
- Focal point of conduct's effect (harm suffered) in forum state

If all criteria of intent, direction, and focal point are met, then a defendant must "*reasonably anticipate being haled into court there*" [56]. [65] assesses successful approval of harmful effects to be more likely in tort cases involving natural persons than in tort cases involving "[...] a larger, multi-forum corporation [...]", since there is not a single

location in which such a corporation could suffer harm. It must be emphasized here, that the effects test is mostly used to establish personal jurisdiction for tortious actions such as defamation or copyright infringement.

While targeting determines a criteria in the Calder test already, targeting is argued to be more emphasized in recent years [18, 65]. Geist, for instance, proposed a three-part targeting test [18] which “[...] tries to establish the intent of the defendant by examining the steps taken to enter or avoid a jurisdiction and asserts jurisdiction only if the forum was targeted” [6]. This targeting test was designed to reflect questions of Internet jurisdiction explicitly. It covers three factors considering dimensions of contract, technology, and actual or implied knowledge [18]. Relating contract, the targeting test includes any jurisdictional provision, such as choice of law or choice of jurisdiction, included in a contract in terms of a non-exclusive factor. Technology covers mechanisms allowing for some sort of targeting, such as user identification by means of geo-location, self-identification, or off-line identification based on credit card data and similar means. The third dimension considers what “[...] knowledge the parties had or ought to have had about the geographic location of the on-line activity” [18]. Neither of these three factors are foreseen by [18] to be decisive as of their own. Instead, a combined analysis of all three factors is assumed. The targeting test is content-wise highly relevant to questions of market activities-driven challenges as discussed here. However, it does not reflect binding law, nor is it an established test in court. As such, it is referenced here as a proposed test to explicitly address questions of Internet jurisdiction, but it is not further considered beyond this point.

In order to complete the picture, choice of jurisdiction (forum selection) clauses need to be considered. As seen in the discussion related to territorial, subject matter, and personal jurisdiction already, the situation with respect to choice of jurisdiction in the US is a more diverse one than in the EU, too. Brussels I embraces all jurisdictional questions, including choice of jurisdiction, in a single framework (*cf.* Figure 1, lower left part). Basically, Brussels I accepts choice of jurisdiction provisions in a contract if it is a contract between a professional service provider and a professional service customer (Business-to-Business relation, *cf.* Art. 23). In case of a consumer contract (Business-to-Consumer relation), and if the service provider targets the state of customer domicile (Art. 15), forum selection is possible, but factually limited to the state of customer domicile. However, if a consumer contract prevails, but a service provider does not target a customer's state of domicile or that customer has not domicile in a Brussels I member state, the contract is treated with respect to choice of jurisdiction as if it was reflecting a Business-to-Business relation.

In contrast, in the US, “[...] there are significantly differing approaches in various U.S. jurisdictions to the enforceability of forum selection clauses” [4]. Montana and Idaho are listed by [5] explicitly as two US states to not accept forum selection provisions in case a forum outside these states is agreed. Furthermore, [5] refers to some (not referenced) US states which would, in general, accept choice of jurisdiction, but

would consider such clauses “[...] as one factor in an open-ended ‘reasonableness’ or ‘forum non conveniens’ analysis [...]” — thus, relating choice of jurisdiction to fairness. However, [5] concludes that “[...] in the vast majority of cases, U.S. courts will treat international forum selection clauses as presumptively enforceable, subject only to limited exceptions [...]”.

Overall, the US PIL perspective is found more diverse than the EU PIL perspective. Nonetheless, the US perspective on PIL is summarized as follows. Under the assumption that subject matter jurisdiction (a civil matter) is granted, a state or federal court may base territorial jurisdiction on presence, *i.e.*, a contract party's domicile (residence). While citizenship is the primary connecting factor in this aspect, domicile alone (*i.e.*, without citizenship) is enough to substantiate territorial jurisdiction. By means of personal jurisdiction, a court may extend its geographically limited reach. In particular, personal jurisdiction may be established over foreign persons by use of long-arm statutes. Hence, connecting factors substantiating personal jurisdiction are of particular interest to questions of Internet jurisdiction. General personal jurisdiction bases on an assessment of a service provider's continuous and systematic contact with a market, while special personal jurisdiction bases on a positive assessment of minimum contacts into a market. Minimum contacts are determined by one of the tests (Zippo, effects) presented or a mix thereof. In addition, for both types of personal jurisdiction, a requirement of fairness applies. Accordingly, a court may be found to be a *forum non conveniens*. Finally, as for choice of jurisdiction (forum selection clauses), enforceability seems to be granted in the majority of US states and on federal level.

Consequently, a short list of connecting factors, similar to the one compiled for the European PIL perspective, substantiating jurisdiction is determined:

- Related to a contract party
 - Domicile²
 - Citizenship
 - Fairness
- Related to a choice made
 - Choice of jurisdiction³
- Related to market activities
 - Systematic and continuous contact
 - Minimum contacts
 - * Purposeful availment by active or sufficiently interactive web site (Zippo)
 - * Purposeful direction by intentional and expressly aiming conduct as well as focal point of harm known (Calder)

C. Chinese PIL Perspective

For questions of jurisdiction in China, the Civil Procedure Law of the People's Republic of China [46] constitutes the major legal basis, in particular, chapters II and XXV. Accordingly, the European and Chinese approaches to PIL are comparable

²Used as a synonym for residence

³Used as a synonym for forum selection

in the sense that there is a primary legal source to be looked at. The set of connecting factors based on which a decision on jurisdiction is determined in the EU and in China, however, is not the same. There are also differences in connecting factors of relevance when comparing China and the US.

Chapter II in [46] is concerned with jurisdiction from a basic point of view. It refers to both, domestic and international jurisdiction. Subject matter jurisdiction and territorial jurisdiction are addressed in chapter II section 1 (Art. 18 to Art. 21) and section 2 (Art. 22 to Art. 35), respectively. Subject matter jurisdiction is defined by a focus on civil cases (Art. 18). This matches the respective notions of service and contract adopted in this paper.

Art. 19 treats vertical issues of subject matter jurisdiction. It determines courts of first instance in dependence of a case's impact and on the fact that a case involves a foreign element. While a basic people's court has jurisdiction of first instance in general, an intermediate people's court has jurisdiction of first instance in "*major cases involving foreign element*" (Art. 19(1)). High people's courts have jurisdiction of first instance in cases of "*major impact*" (Art. 20), and the supreme people's court has jurisdiction of first instance in cases with "*major impact on the whole country*" (Art. 21). An interpretation of what the term major might include is not given. Through a system of appeal (chapter II section 3, Art. 36 to Art. 39), a case may be tried in courts of hierarchy levels higher than the court of first instance. Overall, vertical issues of subject matter jurisdiction are found pronounced similarly in China and in the US.

Section 2 addresses territorial jurisdiction. Art. 22 denotes a number of connecting factors based on which territorial jurisdiction in China is established. If the defendant is a Chinese citizen, jurisdiction is at the defendant's domicile or habitual residence. If locations of domicile and habitual residence are different habitual residence obtains priority. For claims against a legal person, jurisdiction is at the defendant's domicile in China. While provisions of Art. 22 are not specific to any type of dispute in civil matters, Art. 24 defines territorial jurisdiction specifically for contract disputes — the type of dispute of primary interest in this paper. For contract disputes, jurisdiction is at a defendant's domicile in China or at the location of contract performance in China. Finally, for choice of jurisdiction provisions in contracts, contract parties have several options at hand should they want to attribute jurisdiction to a Chinese court. Art. 25 lists these options, all of which have to be in China:

- Defendant's or plaintiff's domicile
- Location of performance
- Location of contract signature
- Location of the object of an action

Questions of jurisdiction in relation to cases involving a foreign element are dealt with in [46], chapter XXV. This chapter does not feature sections. It embraces Art. 243 to 246, out of which the first two are of particular interest here. Art. 243 refers (among other disputes) specifically to contract disputes when a defendant does not have domicile in China. In such a case, jurisdiction is substantiated in China at the

respective location if at least one of the following is located in China:

- Contract signature or contract performance
- Object of action
- Distainable property belonging to a defendant
- Representative office

Those provisions of Art. 25 for choice of jurisdiction contract clauses are concretized accordingly in Art. 244. Choice of jurisdiction is granted in cases of contract with a foreign element, in principle. Contract parties may choose to attribute jurisdiction to a Chinese or foreign court if that court sees "*practical connections*" with a dispute. The law does not explain acceptable reasons for practical connections any further. [31] refers to the Minutes of the Second National Judicial Meeting Regarding Foreign Elements in Commercial Maritime Cases which list domicile, place of registration, contract performance, and subject matter of a dispute as factors to establish practical connections. Even though no complete and specific list of connecting factors is available, those factors referenced allow to conclude that the directly comparable set of well-known connecting factors as discussed previously applies.

In China, cases including a foreign party are called *shewai* cases [16, 57]. Although several definitions exist as to what constitutes a *shewai* case, a case is typically considered a *shewai* case if [57]:

- One or both contract parties are foreigners,
- if the relationship between the parties is established, changed, or is suspended outside of China,
- if the subject matter is located outside of China.

This is of importance, as a license to operate is required to do business in China [57]. This requirement applies even if only servers are located within China, meaning that a litigation including a business having servers within China will not fall in the scope of a *shewai* case, since such a business is considered Chinese [57]. If a dispute, however, takes place between a foreign web site owner and a Chinese party, or if a contract was formed on a server located outside China (even if both parties are from China), the dispute will fall within the *shewai* category [57].

Consequently, and similar to the respective lists for the EU and US perspectives, a short list of connecting factors substantiating jurisdiction in relation to contract disputes is determined:

- Related to a contract party
 - Domicile⁴
 - Distainable property
 - Establishment(s)⁵
- Related to a choice made
 - Choice of jurisdiction⁶
- Related to a service

⁴In case a business is required to obtain a license to operate in China, that business is regarded as if it was a Chinese business.

⁵Used as a synonym for representative office

⁶Practical connection is expected as contract parties are assumed to make a choice of jurisdiction only if either side sees a close connection to the forum agreed upon.

- Location of performance
- Location of signature
- Object of action

D. Connecting Factor Comparison and Relation to Market Activities

For all three markets investigated, a list of connecting factors constituting jurisdiction has been determined. This section develops and applies a common scheme for comparison by use of which the identified connecting factors are brought into a consistent frame. This scheme follows a service and contract life cycle-driven structuring principle. The reasoning behind this approach to structuring is that all connecting factors identified — as diverse they might be — show a shared characteristic. Each connecting factor considered here is in relation to a contract. Such contract was defined to be a contract of an electronic service. Thus, each connecting factor is, by definition, related to both, a contract and a service. Therefore, it makes sense to use a contract- and service-oriented notion for structuring.

Connecting factors differ, however, with respect to a factor's time-wise relevance to a contract or a service. Fairness, for instance, is relevant only at the time a contract dispute is brought into court, long after that contract was concluded and the accordingly contracted service was provided. On the other hand, knowledge about a contract party's domicile might be relevant to jurisdictional questions already at the time a contract was formed. Therefore, it makes sense to use a contract/service life cycle approach for structuring. By this structuring approach, not only the complete time range of relevance is covered, but market activities are attributed to the respective life cycle phase.

Table I
MAPPING BETWEEN CONNECTING FACTORS AND CONTRACT/SERVICE LIFE CYCLE PHASES

	Pre-offer	Contract formation		After conclusion	
		Offer and negotiation	Contract conclusion	Fulfillment	Litigation
EU	Invitation to treat	Domicile			
		Establishment(s)			
		Habitual residence			
			Choice of jurisdiction		
USA	Target states			Location of performance	
		Domicile			
		Citizenship			
					Fairness
			Choice of jurisdiction		
		Systematic and continuous contact			
China	Purposeful availment	Purposeful direction			
		Domicile			
		Distrainable property			
		Establishment(s)			
			Choice of jurisdiction		
				Location of performance	
			Location of signature		
					Object of action

Table I facilitates a mapping between identified connecting factors for the EU, US, and China and phases of a contract/service life cycle. There are different ways to structure a contract/service life cycle. One way to do it is to look at the

process of contract formation. [63] includes a formal model of this process in accordance with the United Nations Convention on Contracts for the International Sale of Goods (CISG) [60].

Contract formation, which forms the central part in Table I, starts with one of the parties making an offer to the other party. Although not part of contract formation, other activities preceding an offer may lead to an offer being made. It is important to distinguish between these activities and an actual offer. An offer is binding as, once accepted by the respective other party, it will turn into a contract. In contrast, preceding activities — referred to as invitation to treat (*invitatio ad offerendum*) — have no binding effects. They are part of pre-contractual information seeking. Advertisement on the Internet or on a web site does not usually constitute an offer, but an invitation to treat [30]. Accordingly, Table I differentiates a pre-offer phase and invitations to treat from a time-wise subsequent contract formation phase.

An advertisement is considered to constitute an offer if it “contains words expressing the advertiser’s commitment or promise to sell a particular number of units, or to sell the items in a particular manner” [13]. A similar criterion applies to on-line shops. Generally offering items in an on-line shop is not considered an offer. An offer, however, is given when a (future) customer places a specific order: in this moment the terms necessary for an offer are verbalized. These terms embrace contract parties, subject matter, time of performance, and price [13]. Once an offer is issued, an offeree may either accept the offer as it is, alter the offer substantively, or reject the offer. These three alternatives have different legal consequences. Acceptance renders an offer into a binding contract. Substantive changes result in a counter-offer replacing the initial offer. Rejection invalidates the offer and seizes contract negotiation [60, 30]. Accordingly, Table I differentiates offer and negotiation and contract conclusion within the contract formation phase.

Once a contract is concluded, it needs to be fulfilled, *i.e.*, both, service provider and service customer, must fulfill their mutual obligations. Fulfillment is, thus, closely related to service provisioning. If a contract dispute arises during or after contract fulfillment, and if that dispute is brought to court, litigation phase is entered. For contracts with an international connection, as foreseen here, this covers a court’s investigation into the question whether it has jurisdiction to hear and decide on the respective case. This question is answered by help of those connecting factors identified and listed in Table I. Accordingly, Table I sees a life cycle phase which reflects the time frame after contract conclusion and which considers fulfillment and litigation as sub-phases.

When it comes to map connecting factors to one or multiple of these life cycle phases explained, groups of single connecting factors may be determined. Fairness (US) and object of action (China) are factors of relevance during litigation only. Whether a contract party is provided with sufficient service becomes only visible in litigation. Similarly, only once a claim was deposited, the object of that claim becomes revealed.

Location of performance (EU, China) starts to play a jurisdictional role during fulfillment, not earlier. Location of contract performance may be speculated upon in earlier

phases, but it is during fulfillment when an contract is first interpreted as performed or not performed. As location of performance is one of the connecting factors to determine jurisdiction with, it is of importance during litigation — the same argument holds for all other connecting factors identified.

Choice of jurisdiction (EU, US, China) and location of signature (China) form a group of connecting factors that are of initial relevance to jurisdiction during contract conclusion. What contract parties have agreed in a contract with respect to forum selection enters into force with contract conclusion. Choices of jurisdiction are typically made at contract conclusion. Nonetheless, a later choice may be possible as well. With regard to the location where a contract was signed, the moment of contract signature is during contract conclusion. Additional acts of signature in relation to the first signature may be possible at a later stage. Conceivable scenarios requiring additional signature include a substantive change in the original contract, the conclusion of an additional contract under the frame of the original contract, or an amendment of contract.

The largest group of connecting factors sees first impact on jurisdiction during offer and negotiation. This group embraces domicile (EU, US, China), establishment(s) (EU, China), habitual residence (EU), citizenship (US), purposeful direction (US), and distrainable property (China). Most of these factors are related to a contract party's presence, status, or property. While a contract party is assumed to have, *e.g.*, domicile somewhere before contract formation already, the applicable domicile during contract formation phase is relevant to jurisdiction and a specific contract. This may include offer and negotiation when, based on the set of the according connecting factors, suited jurisdiction(s) may be determined [62, 64]. Later phases may be of importance as well as presence or property might change.

A comparable argument applies to purposeful direction. As long as purposeful direction refers to conduct in relation to a contract⁷, the according minimum contacts test is, by definition, contract-specific. As such, only intentional conduct during phases in which the contract of question exists or is negotiated may be considered. In contrast, the group of three remaining connecting factors is perceived as unspecific to a single contract. This group covers target markets (EU), systematic and continuous contact (US), and purposeful availment (US).

Unspecific does not mean that any litigation is not specific to a contract. It means that these connecting factors effectively consider facts and events before entering contract formation phase for a single contract. Systematic and continuous contact implies that facts beyond the scope of a single contract, such as the number of customers in a market, are taken into account. This includes the number of customers a service provider had before a contract in question was formed. In a similar way, an assessment of target states and the Zippo test (purposeful availment) may incorporate considerations outside the focus of a specific contract.

⁷Purposeful direction and with it the Calder test is typically used to determine personal jurisdiction outside a contractual relation, such as in copyright or defamation cases. Nonetheless, it may be used within the context of a contract, too.

Of special note in discussing those connecting factors covered by Table I is each factor's relationship to the market activities of a service provider. Market activities may be interpreted in a strict and in wider sense. *Stricto sensu*, market activities refer to connecting factors which assess what a service provider *does* in a market or in which ways a service provider *directs* its actions to a market. Accordingly, these connecting factors are perceived as market activities, *stricto sensu*:

- Target markets
- Systematic and continuous contact
- Purposeful availment
- Purposeful direction
- Choice of jurisdiction
- Location of performance
- Location of signature

Lato sensu, market activities refer to connecting factors which are not directly related to an activity, but rather to what a service provider *has* in a market. Having covers presence and property by which a service provider may be connected to a market. Presence and property are seen as a service provider's active choice in a context of economic freedom. In this light, a service provider chooses where to have property and where to be present. Presence and property, thus, imply activities of a service provider. For example, property is acquired. By means of such property- or presence-driven activities, a service provider avails itself to jurisdiction in a market. Hence, these presence and property connecting factors are perceived market activities, *lato sensu*:

- Domicile
- Establishment(s)
- Habitual residence
- Distrainable property

Out of those three connecting factors of Table I which have not been attributed to either market activity category — citizenship, fairness, and object of action —, only object of action may be seen as a service provider's activity in or targeting a market. In case a service provider files a claim and argues this claim's object is so closely related to a market that jurisdiction in that market is substantiated, the action of arguing in this sense may be interpreted as a market activity itself. In contrast, if a service provider is defendant, object of action cannot be seen as a service provider market activity. Similarly, fairness and citizenship are not perceived to be related in any way to an active service provider activity.

IV. MARKET ACTIVITIES-DRIVEN CHALLENGES

Table II sketches an international service provisioning scenario from a service provider's perspective. It embraces market activity dimensions as determined *stricto sensu* and *lato sensu*. In particular, the service provider is characterized by means of its presence and property in multiple markets. This includes, for instance, establishments of different types (sales and development offices in China and the US), besides main operations being located in Germany. Accordingly, the service provider disposes of property (of different type) in those markets it is active in.

Table II
INTERNATIONAL SERVICE PROVISIONING SCENARIO

		Value	Remark
Presence, property	Domicile	Germany	Place of incorporation and main operations (including customer support, local staff in Germany)
	Habitual residence, citizenship	n.a.	Not considered since service provider is a legal person
	Establishments	China	Sales office ("representative office") including customer support (mainly by e-mail, local staff in China)
		US	Development office (no customer contact)
	License to operate	China	Required by establishment
	Property	Germany	Office infrastructure
		Germany	Server infrastructure
		US	
China		Office infrastructure	
Markets	Customers of type	Consumers	Business-to-Consumer offering
	Main markets	European countries	By number of customers
		China	
	Secondary Markets	Other countries (including US)	Service provider allows customers from these markets
On-line shop	Domain	.com	-
	Currency	Dynamic	By use of geo-location data
	Localization	English	User selects language
		German	
Chinese			
Contract	Choice of Jurisdiction	Germany	Choice included in general terms and conditions
		Exclusive choice	
		Explicit customer agreement required	
Marketing	Google Advertisement	Main markets selected	Secondary markets not selected

The service provider is further characterized by means of main (Europe, China) and secondary (other countries) markets as well as by the type of customers (consumers) addressed. The scenario goes on to describe attributes of the service provider's web presence in terms of an on-line shop to offer its services through. The on-line shop makes use of a .com domain, applies currencies dynamically, and it offers its web site in three languages.

In order to lower the risk of being exposed to jurisdiction in states other than Germany, the service provider includes an exclusive forum selection clause accordingly in its general terms and conditions. Customers are required to explicitly agree when they subscribe to a service. Finally, the service provider markets its services by help of Google advertisement services. Only main markets are selected for on-line advertising purposes as the service provider only wants to target these markets.

This scenario is used as a common frame for discussion in subsequent sections. On the one hand, the scenario is investigated in order to determine jurisdiction according to those market activities and the according list of connecting factors determined in Section III. On the other hand, technological implications are presented as a connecting factor-driven jurisdiction assessment leads to a number of challenges raised.

A. Challenges in Determining Jurisdiction According to Connecting Factors

The scenario sketched in Table II characterizes a service provider's market activities from multiple angles. In accordance with the list of connecting factors determined, the scenario is discussed subsequently by assessing the respective jurisdictional impact of a connecting factor.

1) *Domicile and Establishments*: As the service provider in the scenario has domicile in Germany, Brussels I applies to possible litigation, in principle. As per Brussels I Art. 4(2), the service provider clearly avails itself to German jurisdiction. The establishment in the US does not have any customer contacts as it is a development office only. In the US, only domicile was found to be of relevance. However, whether the US distinguishes between an office in a provider's domicile and an office in other locations remains unclear. If both are considered domicile, a US court could have jurisdiction over a possible litigation. If US jurisdiction however handles the two cases differently — as it is handled by Brussels I — then the office in the US would not impact jurisdiction.

The service provider has a license to operate in China. It, thus, does not fall in the *shewai* scope. From a Chinese perspective the service provider is not a foreign actor, but Chinese jurisdiction would handle the case as if the service provider had its residence (domicile) in China. This makes the service provider a possible subject to jurisdiction in China. Server location however could change this: servers are located outside of China (in Germany), in which case, even if Chinese jurisdiction considers the service provider to be domiciled in China, a possible litigation would be a *shewai* case. If preconditions for Chinese jurisdiction in relation to a *shewai* case are given, China would have jurisdiction over a case involving the service provider.

2) *Locations of Performance and Signature*: What remains unclear is whether servers are considered the place of performance when services are provided on-line (a server *performs* the service, *de facto*) or whether servers might be considered to constitute even an establishment (servers are stored in a building in the state where they are located). Location of performance is of importance in Europe and China, and there is no clear directive as to where an on-line business is performing its services.

It could be interpreted, as mentioned, as the place where servers are located. However also the place where a customer (as the party consuming a service) is or where a service provider (as the party providing a service) is, are possible candidates. The former would expose the service provider possibly to jurisdiction in every state where its services are accessible, *i.e.*, where potential customers reside. The latter, in contrast, would need a clearer definition of who is actually providing the service in question: In the scenario, this might be the service provider's registered office in Germany or it might be the representative office in China.

Similarly the place where a contract is signed — a connecting factor in Chinese jurisdiction only — is difficult to determine with respect to on-line contracts. This is due to the fact that usually no signed contract in writing is needed for an on-line contract to be legally binding. Whether offer acceptance takes place where the respective (digital) message is sent or where it is received is not clear.

3) *Choice of Jurisdiction*: To lower uncertainty in jurisdictional questions, the service provider includes a forum selection clause in its general terms. If a Chinese or US customer is involved, the question however is whether terms attributing jurisdiction to German courts would be accepted

and enforced by a court or whether the service provider would nonetheless be subject to jurisdiction in other places, such as at a customer's place of residence. A Chinese court may enforce the terms, as the business resides in Germany. In the US, however this depends on the actual US state involved in the litigation. In general, based on the discussion in Section III-B, US courts would probably enforce a choice made.

4) *Distrainable Property*: The service provider has distrainable property in all three locations, namely in China (sales office), in the US (development office) and in Germany (main office). However, only China takes property into account with regard to jurisdiction. Hence, although distrainable property is available in all three locations, this fact will only impact jurisdiction if all other elements required by [46] are given in China.

5) *Fairness and Object of Action*: The concept of fairness is only considered in the US and its outcome is difficult to foresee before an actual dispute arises. Fairness depends on characteristics of a dispute. There is typically no related knowledge available in advance. However, as the service provider has offices in the US the burden on the business to litigate in the US should not be considered unreasonable, *per se*.

Similarly, object of action, which is only considered in China, is usually not known in advance. The difficulty of defining the place of the object of action in the on-line environment is comparable to problems encountered in defining location of performance. A digital object might be located where it is created, altered, sent, or where it is finally being received.

6) *Minimum Contacts Tests*: In the US, special tests were developed by courts to address the special challenges of litigation over on-line business transactions. The first test, the Calder test, is mostly used in defamation and copyright infringement cases. It is, thus, improbable to be applied in its pure form in a contractual dispute. It, however, includes the motion of aiming at a forum state. Court decisions with reference to the Calder test may indicate a definition of targeting and market activities as a whole.

The Zippo test, in contrast, was especially meant to cover all cases related to the Internet. It suggests that by providing an active web site a service provider would purposefully avail itself to a forum in question. A web site allowing users to conclude a contract is most probably to be considered active, as it allows files to be exchanged. Thus, a US court applying the Zippo test would probably establish jurisdiction based on this argument.

As US courts have been considering targeting in a Zippo analysis recently, a web site's supposed targeting intent is taken into consideration when determining jurisdiction. A similar approach is adopted by Brussels I which considers targeting and directed activities broadly ("*by any means*"). In this light, targeting-oriented market activities in relation to web sites are discussed in greater detail subsequently.

B. Challenges in Determining Jurisdiction According to Web Sites and Targeting

A service provider's market activities might have an impact on where, in which states, a service provider avails itself to

jurisdiction. Targeting is a factor to potentially contribute to jurisdiction. It is, however, challenging to determine which markets a service provider is targeting by means of a web site. Accordingly, the key set of technological means and challenges for assessing targeting is introduced and discussed.

1) *URL, Currency, and Language*: Several indicators may determine whether a web site is targeting a market. These indicators vary from very simple setups, such as domain name, language, or currency in which prices are quoted, to more complex technical solutions, as for example preventing certain customers from buying or even accessing specific items or content. The ABA Global Cyberspace Jurisdiction Project, a workgroup on on-line international jurisdiction issues, stated in a report that a "[...] *[web]site in French, offering to sell securities at prices quoted in francs and supplying French tax information, is certainly targeted at least to France*" [2].

Two questions arise out of this statement. First, although it is probably accepted that French courts would establish jurisdiction over a potential dispute, the situation with respect to other potentially connected jurisdictions is unclear. For instance, French-speaking Moroccan citizens may be targeted as well. Indicators like languages, currencies, and top-level domains are not clear-cut, as they often apply to more than one state. Some are even used globally, *e.g.*, English language and .com top-level domains. These indicators do not necessarily imply a global target audience.

The second question arising out of the ABA example is what effort a service provider is expected to show in order to explicitly target a market so that the service provider is ensured to be no subject to jurisdiction in non-targeted (or not purposefully targeted) jurisdictions. The steps needed by a business to not fall in the scope of a foreign jurisdiction are not clearly defined. Brussels I, for example, aims to protect consumers from cross-border litigation with businesses they assumed to reside in their state [41]. Accordingly, any of these indicators discussed may be taken into account with respect to jurisdiction. None of them will, however, provide for certainty.

2) *Entry Page for Country Selection*: To be able to locate visitors, some service providers add an entry page to their web site where visitors can choose their home country. When targeting many markets, this procedure can be applied to provide different content, depending on a user's initial selection. For example, a web site owner could choose to not provide an on-line shop to citizens from countries it is not targeting, and to only provide "risk-free" information, *e.g.*, passive and purely informational web site content.

This solution may overcome the ambiguity several discussed criteria have, without having to completely exclude visitors from unwanted jurisdictions. However, it is questionable whether a visitor is aware of the consequences of his choice.

3) *Disclaimer and Agreements*: A further solution would be to place a disclaimer which might state that the services available on a site are not intended for citizens of certain countries [38]. In *Euromarket Designs Inc v Crate & Barrel Ltd.*, the court found that, although the defendant had posted a disclaimer on its site stating that goods would only be delivered in the Republic of Ireland, the defendant was in fact conducting commerce in the forum state. Reason was that

the on-line form, where users could fill in their shipping and billing address, was organized for a US-format address, and that at least one customer in the forum state had used the web site to buy something [54]. Thus, it is recommendable to take additional actions to demonstrate targeting intents besides placing a disclaimer.

In *Tech Heads Inc. v Desktop Service Center Inc.*, a federal US court commended that when doing business over the Internet, an enterprise could avoid unwanted jurisdictions by adding a disclaimer and an interactive agreement the customer has to accept before buying any products or receiving any services [54]. Different forms of interactive agreement exist. In the Internet realm usually either *click-wrap* (visitors are asked to click on “I agree”) or *browse-wrap agreements* (visitors do not explicitly need to agree) are applied [41].

Click-wrap agreements usually form a valid contract in the US, even when a customer has not read all of the terms included [41, 44]. The same applies in Europe [44]. Such an agreement could include a choice of forum clause. In the scenario sketched earlier, a choice of jurisdiction was included (Germany). As discussed, however, enforcement of such a choice, cannot be taken for granted in all cases.

4) *Exclusion of Customers:* The *Euromarket Designs Inc v Crate & Barrel Ltd.* case suggests that in order to avoid jurisdiction in the US, a business would need to prevent customers from buying from its shop. Where no physical goods are delivered, a business, however, does not know, *per se*, where a customer is located.

Information a service provider however possesses (unless it accepts other payment methods), is a customer’s credit card data. Credit card information may point to a person’s domicile or habitual residence. In Brussels I member states, for example, a provider can protect itself by stating that only credit cards issued in one (or more) specific countries are accepted [50]. On the other hand, credit card information, or the bank it was issued by, may be misleading, as it is possible to have a credit card issued by a foreign bank.

In the past, several US courts have taken into account the amount of contacts a business had with the forum when determining jurisdiction, thereby considering the amount of transactions that had actually taken place through the web site in that forum [37]. This suggests that a service provider would need to take necessary steps to prevent users from non-targeted states to access its web site to not be subject of jurisdiction in the US.

As per Brussels I, it is questionable whether a business was taking actions directed toward a state when it has in fact been applying filter technologies to prevent its citizens from accessing its offers. In fact, geo-location technologies allow to locate a user on a state level at a high accuracy. Databases allowing to look up locations of IP addresses to locate a user, such as IPInfoDB [36] or MaxMind [40], promise an accuracy of 99.5% or 99.8%, respectively.

C. Techno-legal Implications

The connecting factor-driven discussion of the scenario sketched has shown that the existence of a connecting factors

list alone does not make jurisdiction implications in either of the three markets investigated here any easier. Even connecting factors which might appear simple to handle in the first place constitute severe challenges when considering electronic business in the Internet.

Not even presence-related factors, such as domicile or establishment, allow for an assessment of jurisdiction in a problem-free manner. Questions of a *shewai* context in case of Chinese jurisdiction, for example, are complex in nature. And the other connecting factors identified are not less complex to judge. Locations of performance and signature are difficult to define in the Internet. These locations may be argued to be at either connection end point, or even somewhere in between. Similarly, choice of jurisdiction might or might not be enforceable in certain markets. And fairness or object of action is only to be assessed after a claim was filed. Essentially, most connecting factors and the related market activities of a service provider are found to be prone to speculation when it comes to an impact assessment.

This applies equally to the set of minimum contacts tests mentioned, including the targeting approach as applied in the US and in Brussels I member states. Targeting was found to see a number of severe implications to a service provider as described in the scenario. For example, by using a non-country specific top-level domain (.com) for its web site it is possibly targeting the whole world. Currencies are displayed based on the location a visitor’s IP address points to, and information is made available in English, German and Chinese. Thus, customers from all three geographies would feel to be in the target audience. A US court could probably have jurisdiction over a case where a US citizen is involved. Whether the web site is directing its activities towards Germany is less clear, but a service provider should clearly be aware of such risk. China, in contrast, does not explicitly consider targeting intents, so that a web site setup would not be a connecting factor for jurisdiction in China.

Also for those means presented to prevent customer access from unwanted jurisdictions, a number of challenges has been determined. In case of geo-location databases, for example, and despite high accuracy promised, a remarkable amount of customer IP addresses might not be correctly located when considering the high number of Internet users in absolute terms. The implications of a user accessing services she or he should be prevented from are not clear, however.

On the one hand, a service provider might have done what is technically possible to prevent non-targeted customers from accessing its services. On the other hand, a customer might lose protection for reasons she or he has possibly no control over, or is even not aware of. The question, however, is whether businesses should reasonably apply measures to prevent users from access at all. Geo-location technology use is typically bound to expenses, which can constitute an entry barrier for small businesses. Furthermore, potential customers are not able to buy services, not because of legal restrictions in their country, but because of the possible risk of future litigation.

Overall, a service provider is found to be exposed to severe business risk when conducting electronic business in

the Internet. A jurisdiction implication assessment shows high uncertainty in assuming application of connecting factors in multiple markets. Service providers, thus, are forced to account for risk at highly speculative grounds, including a trade-off between expected business opportunities in the Internet and legal uncertainty. These issues are further deepened in Section V for the case of on-line advertising activities of a service provider.

V. DISCUSSION OF ON-LINE ADVERTISING CHALLENGES

In the off-line world, advertising in an on-street campaign is an activity possibly impacting jurisdiction in the US [11]. In Europe, Brussels I clearly considers advertising as a connecting factor. Advertising in the Internet, in contrast, is a market activity which has not been widely discussed. On the one hand, there are reasons implying it should be treated by analogy with classic advertising. On the other hand, the Internet does not provide an opportunity, *per se*, to specifically place an advertisement in a single state. This can make it difficult, if not impossible, to determine which state an advertisement was directed to.

Accordingly, this section explains why a targeted intent of an on-line advertisement is hard to identify and why advertisement should nonetheless be taken into consideration. It also presents differences between on-line and off-line advertisement from a customer perspective which should not be overlooked. To that aim, on-line advertising services offered by Google are presented and studied in detail with regard to an impact on jurisdiction. This leads to a discussion of the relevant set of jurisdictional implications identified.

A. Audience of an Advertisement

In the off-line world, advertising in a state is clearly an activity demonstrating targeting intent towards that state. If a seller places an advertisement on local media or on billboards it is performing directed activities. Advertising in its different forms is also very prominent in the Internet. The global on-line advertising spending in 2008, estimated by IDC research, was USD 65.2 billion and was projected to further rise in the following years [22]. Thus, on-line advertising is no longer a niche-product, but a branch big enough to provide enough revenue for a business to live on it. In fact Google, ranked number 155 on the Forbes Global 2000 ranking in 2009 [17], generates nearly all of its revenue from advertising [22].

Banners represent the “classic” form of on-line advertisement. In banner-based advertising, an advertisement is embedded into a different web site and is linked to the advertiser’s page or to further information on the banner’s topic. Similarly as for the mere use of a web site, on-line advertising is probably not indicating that an advertiser is actually targeting the whole world. To determine targeting intents of an advertiser, courts might take the target audience of the web site a banner is displayed on into account. However, many advertisers choose their audience based on demographics rather than based on their location.

Indicators that could nonetheless be used to identify a banner’s geographical target audience embrace a banner’s

language, currency (if any prices are mentioned on it), or the target audience of the web site a banner links to. The latter would imply to assume the audience based on assumptions on the linked web site. As discussed in Section IV, a web site’s target audience is hard to define, however.

A business advertising on the Internet should be aware that by doing so, it may attract customers from foreign countries, depending on the audience of the site it is advertising on. This in turn increases the risk of litigation in foreign jurisdictions, which is something the advertiser should consider when deciding to use on-line advertising. The broader the audience of the site where an advertisement is placed, the bigger the need for counter-measures to avoid being haled into court in an unwanted jurisdiction will be.

An advertiser should not rely on the fact that a site is targeting a broad audience. Broad audience shall not be mistaken for a lacking targeting intent. No clear-cut factor exists with which one could, without any doubt, say what states a web site is targeting. Thus, embedding an advertisement on a foreign web site may be an additional risk with respect to jurisdiction. The situation is even more unclear when dynamic banners or sponsored links are applied.

B. On-line Advertising Typology

Table III shows three different basic types of on-line advertisements. This typology has been determined based on the respective offerings from major on-line advertising companies.

Table III
BASIC TYPES OF ON-LINE ADVERTISEMENTS

Type	Description
Static banner	Banner, independent from user or input
Active banner	Banner, depends on information about a user
Sponsored links	Link on search engine results

The first type, as discussed above, represents an advertiser deciding to embed a banner on a different web site. A web site owner may choose to include different advertisements and select which advertisement is shown at a specific moment. Nonetheless this type of banner will be further referred to as static banner, as it does not depend on any external input influencing which banner will be shown at a given moment.

The second type of on-line advertisements embraces dynamic banners. Major on-line advertising companies offer a dynamic placement of an advertisement on different web sites, depending on a site’s content and on settings an advertiser has chosen [68]. The third type, called sponsored links, refers to links displayed next to search engine results. Whether a sponsored link is shown, depends on the respective keywords a user entered for its search.

The above description of dynamic banners and sponsored links is a simplifying one. In fact, the underlying algorithms are very complex and depend on different factors in addition to content and keywords. To further understand the mechanisms behind those advertising technologies, Google’s offerings, as the most prominent search engine and on-line advertising company, are presented subsequently. About one-third of global

on-line advertising is credited to Google [22]. Google offers both, dynamic banners and sponsored links, to advertisers.

C. Targeted On-line Advertising with Google

An advertisement placed through Google's placement-targeted advertising can potentially be visible to people from any state. The so-called Google Display Network includes web sites allowing Google to place advertisements on their sites [28]. A business willing to advertise on Display Network sites, can choose among different criteria based on which customers are targeted. Those criteria include Placement Targeting, Geographical and Language Targeting, Contextual Targeting, Exclusion options, and other settings [27]. Google invites advertisers to select the criteria they wish to best target their audience. However, jurisdictional implications of such settings remain unclear.

1) *Placement Targeting*: Placement Targeting lets an advertiser choose on what specific web sites, on-line videos, games, RSS feeds and mobile sites an advertisement will be shown [27]. This means that although an advertiser does not know on what sites an advertisement will actually be displayed [68], it does manually choose the web sites which will be considered for placement. This implies that advertisers have control over the placement and can specifically choose web sites. With respect to jurisdiction, choosing which specific web sites should display the advertisement is comparable to static banners. An advertiser can control on which specific web sites to advertise and on which not to.

This option can be combined with Contextual Placement. In that case, an advertiser can enter relevant keywords and let Google suggest some sites out of the Display Network which match those keywords given. At this point, an inexperienced advertiser may choose a targeted geography, for example, the word "Kopenhagen" as a keyword, assuming that suggestions would be related to that city. However, suggestions for many state names tested as keywords were not related to that state in the sense that its citizens would be expected to be the main target audience of those sites. For example when choosing Europe as target, one suggestion to the keyword "Kopenhagen" was *wetteron-line.de*, a German weather site.

2) *Contextual Targeting*: Google determines web sites it finds most suited for an advertisement based on keywords and themes, by analyzing text, language, links and page structure of sites where an advertisement can be displayed [27]. Similar to Placement Targeting, this could lead to an advertisement being displayed on unexpected sites. Even worse, if an advertiser does not apply Placement Targeting, not even the set of sites on which advertisements will be visible is known. Google will select sites matching the chosen keywords. Whether the keyword "New York" will make an advertisement appear on a New York news site (targeting New York citizens) or on a travel agency site selling trips to New York (targeting to non-residents of New York) is unclear.

3) *Geographical and Language Targeting*: Geographical and Language Targeting settings allow an advertiser to choose region, postal code, and language it wants to target [27]. Google does not provide any specific information on how the

exact region of a user is determined before a corresponding advertisement is chosen. Language refers to a site's language [26]. If an advertiser chooses to target a specific area, the targeting intent is clear. In this case, it is important to know about states from which users can see an advertisement on a page. If an advertiser for example chooses to target China, and if it selects Chinese as language and the keyword "China", *chinaseite.de* will be offered to be selected for Placement Targeting. This is a German site on China-related topics, primarily directed towards German citizens and written in German. An advertisement placed on this site may, thus, seem to be targeted towards Germany. However, an advertisement on this site may be visible to people living in China only, and it may target Germans living in China. Thus, in order to determine which state is targeted by an advertisement, it is not only of importance to know about where an advertisement is displayed, but also to whom it is made visible.

4) *Exclusion Options and Further Settings*: Google gives an advertiser the option to choose web sites it does not want an advertisement to appear on [27]. This option may be used to exclude sites the advertiser does not want to target in order to avoid litigation in certain jurisdictions. As an advertiser would, however, have to exclude each site individually, this option is probably too cumbersome to be used for this purpose. It does nonetheless provide an opportunity to select unwanted sites if the advertiser should notice to be advertising on them. Google also provides other settings, such as Demographic Bidding or Scheduling, which do not have an impact on the locations an advertisement is visible at.

D. Jurisdictional Impact by Complexity and Control Loss

For inexperienced advertisers, Google's tool for advertisement submission may be quite complex to assess with respect to jurisdictional impact. Many different settings and interdependencies make it hard to follow up. The following description provided by Google shows exemplarily how difficult it is to comprehend rules based which an advertisement is shown and how the billing⁸ is calculated [24]:

"If you have audiences and placements, the ad appears wherever the audience matches and if the user appears on the sites you selected, then the placements bid is used.

If you have audiences and keywords, then the ad appears wherever the keywords match and when both the keyword and audience match, the audience bid is used.

If you have keywords and placements (without audiences), then the ad appears wherever the keywords match and when both keyword and placements match, the placements bid is used.

If all three are selected and all three match (for example, a user on your remarketing list visits a page within a site you selected that also matches the keywords), then the placements bid is used."

⁸Prices for advertisements placed through Google are based on a bid an advertiser has previously made. Advertisers can place a bid for a keyword, for a web site, or for an audience.

The problem with a high level of personalization is that an advertiser may make choices leading to an advertisement being displayed in unwanted jurisdictions — not because an advertiser wants to target them, but because the advertiser may not be fully aware of what a setting implies. This gives rise to several questions. First, if an advertiser “targets” a country without wishing to do so, is it actually targeting it from a jurisdictional perspective? In practical terms this means whether there is, or should be, a difference between targeting intent and the actual directed targeting.

The second question is related to possible choices an advertiser can make for geographical targeting. On the one hand, it is possible to make very specific selections on region or even on postal code level. On the other hand, Google also recommends to “*target audiences across the entire Google Display Network without any additional restrictions, to reach the largest number of users possible*” [24]. Google makes it relatively easy to select all available territories as a single bundle. Such a choice might be crucial for any business selecting it. Would such a choice expose this business to jurisdiction in every state by application of targeting tests?

None of this shall imply it is up to Google to protect its advertisers and inform them about possible jurisdictional implications. However, advertisers should consider that advertising in the Internet might have legal consequences. And these might differ from what to expect from an off-line on-street campaign. Different consequences are not only due to that a choice to target a state may not be as deliberate, but also that a customer’s perceptions may be very different. For instance, it remains unclear whether a customer seeing an on-line advertisement of a foreign business perceives itself as being within the target audience of this advertisement. Many customers may not expect a business to reside in their state and maybe even less to target them, in particular, when seeing an on-line advertisement. Thus, the question is how far customer protection should go. If the aim is to protect a customer from foreign jurisdiction, when a customer was assuming to conclude a contract with a business residing in the customer’s state, then maybe on-line advertisement should not be considered too important with respect to jurisdiction.

Even more difficult, however, is the loss of control an advertiser has to accept. Even when it is aware of the settings it makes and even if it clearly chooses to only target those areas whose market it really wants to target, it has no control over the states an advertisement is actually displayed in. Google provides some information on how it locates a user, but only with respect to sponsored links [25]. The advertiser, thus, can only assume which information applies to dynamic banners. A clear description on how users are located before displaying a banner is lacking. This means that, on the one hand, an advertiser has only limited knowledge of how its targeting intent is implemented and, on the other hand, should user location technology fail, the advertiser would unintentionally and unwillingly “target” a state.

E. Jurisdictional Impact by Context

A high ranking in search results of an Internet search engine can be of importance to a business. In addition to search

results, a search engine user is presented with advertisements — sponsored links — which are supposedly related to search terms entered. Where a sponsored link is actually shown on Google’s page depends on the bid an advertiser has placed for its advertisement as well as on a quality score Google calculates for the advertisement. The quality score depends on an advertisement’s quality, on keywords, and on other factors, which are not all publicly available [23].

With respect to jurisdiction, it is important to know how a geographical targeting intent is implemented by Google. The following factors determine whether an advertisement could eventually be displayed to a user [23]:

- 1) The Google domain a user accesses (*e.g.*, *google.de* or *google.it*)
- 2) The search term entered by a user
- 3) A user’s language preference setting for Google domains
- 4) The IP address through which a user is accessing Google

The most important factor used by Google is the Google domain a visitor is using to access Google. If a user goes to *www.google.fr* she or he will see advertisements (presumably) targeting France. This means that whenever a visitor uses a country-specific Google domain, information such as the actual location or language settings of this user are not of importance. Similarly, if a user enters a search term containing a region or city, this term will influence the advertisements the user will see. An advertisement originally targeted at New York City, hence, may not only be visible to people living in New York, but additionally to people googling the term New York.

If a user has a preferred language setting for the Google homepage, Google will only display advertisements in this language. If no language has been chosen, the domain determines the relevant language. In order to know where a user comes from, Google uses the IP address to locate a user’s computer. This technique, however, is only applied when a user is accessing Google through a country-unspecific domain, such as *www.google.com* [25].

These factors only determine whether an advertisement could eventually be displayed to a user. Whether an advertisement is actually displayed depends, as mentioned before, on its score. Given a score high enough for display, an advertisement will not explicitly be shown to users actually accessing the Internet from locations included in the advertiser’s target audience, but to users accessing a country-specific Google domain or entering a country-specific search term. This may be of benefit to a user that is aware of domain-specific search results.

An advertiser’s choice about target forum is matched by a user’s actual location only if no other information about a user’s behavior is available. Whether advertisers are aware of this and, and if they are, whether an advertiser could still be said to target specific states is questionable. After all, what an advertiser chooses is not citizens which will see advertisements, but search terms or a Google domain it wants to “target”. This is not geographical targeting in its jurisdictional sense.

F. On-line Advertising Implications

Based on those many considerations in relation to targeting and on-line advertising services observed and discussed, two key characteristics with jurisdictional implications have been identified as follows:

- Advertising placement is usually in the first place not based on geographical locations, and limitations exist to the accuracy of geo-location technologies.
- Advertisers using an advertisement placing service have only limited control over geographical locations where advertisements will be shown.

In questions of targeting, this implies that targeting intent and actual targeting have to be differentiated. The fact alone that an advertisement is visible to users from a specific state does not mean that an advertiser actually intended them to see the advertisement. Any approach only focusing on whether an advertisement is visible to a customer would expose an advertiser to potential jurisdiction in states it does not target knowingly or willingly. On the other hand, an advertisement on a web site or a sponsored link is not perceived in the same way as for example a street campaign by a user.

As for geo-location technology, there are two viewpoints to be considered. On the one hand, there is a service provider, the advertiser, that is doing what is technically possible to target markets of interest — and to avoid unwanted markets, and by that, unwanted jurisdictions. On the other hand, there are potential customers that, in most cases, are not aware of geo-location technology and inherent inaccuracy, that, however, risk to lose customer protection if an IP address is located incorrectly. Surely, this is a worst case scenario, but considering the amount of transactions and advertisement taking place on-line nowadays, this is in fact a scenario affecting not just a few hundred people on the globe.

In conclusion, thus, additional information — beyond targeting by means of on-line advertising — should be taken into account when determining jurisdiction for international service contracts formed in the Internet. On-line advertisements usually link to a service provider's web site and that is where a service provider should take necessary steps to only target wanted customers. On-line advertisements may constitute an additional indicator for courts in determining jurisdiction, but they should only be considered in combination with other market activities of the service provider in question.

VI. SUMMARY AND CONCLUSIONS

Questions of Internet jurisdiction have attracted a large number of research efforts ever since the Internet has become popular. As existing research, however, was found to be mostly state-focused, diverse in terms of methods used, and not specific to characteristics of electronic business as of today, this paper has adopted a three-fold perspective.

First, the subject matter of Internet jurisdiction was presented from an integrated international viewpoint. This was achieved by a comparative study of the respective PIL perspective in the EU, the US, and in China. Accordingly, for each, the relevant list of key connecting factors and the according market activities has been determined. Second, a common

scheme for comparison has been developed and applied to the set of identified connecting factors. This scheme adopts a service and contract life cycle-driven structuring approach so that the complete time range of relevance is covered, and connecting factors are attributed to the respective life cycle phase. Third, market activities-driven challenges for a service provider have been investigated. In doing so, market activities reflect a context of cross-border transactions in the Internet and the formation of international service contracts. In order to provide for a common frame in discussing jurisdictional implications an international service provisioning scenario has been sketched.

The scenario discussed has revealed, that even a fairly simple setup, in which a service provider has offices in different locations, may expose the service provider to jurisdiction in different states. Even worse, any actual outcome is very difficult to foresee. Even with a list of connecting factors for the EU, US, and China at hand, a clear definition of what connecting factor is substantiating jurisdiction undoubtedly in either market does not exist. Similarly, the applicable procedure based on which jurisdiction is determined, such as the type of minimum contacts test to be expected in a litigation, is not always known, *a priori*.

For a business that provides services through a web site, a number of critical business risk issues arises. Brussels I's policy on directed activities, for instance, remains essentially unclear. And what a web site shall or must include to fall within its scope would need clearer specification. While targeting is becoming an important factor in assessing jurisdiction in Internet-related litigation, there is a multitude of targeting "degrees" to be considered in the Internet. Targeting covers means ranging from the simple use of a country-specific domain to the extreme approach of denying customers residing outside the target forum access to a web site.

As diverse these means are in nature, they all have in common that neither is free from severe challenges. Furthermore, as was shown for the case of on-line advertising, a business cannot simply choose to not target a country with its web site, as it could do when advertising by means of an on-street campaign. With (on-line) marketing being a must for most service providers, and its legal implications being essentially open-ended, a service provider is exposed to essential business risk by legal uncertainty.

In contrast to the EU and the US, China does not explicitly look at the web site itself, but it adopts a more classical way in considering where it is located, *i.e.*, on which servers it runs and where these servers are located. Accordingly, targeting issues are less pronounced. Moreover, jurisdiction impact is more simple to predict if it depends on a single and easy to determine criterion rather than a test consisting of several less specific considerations.

On the other hand, the server location-based approach shows significant disadvantages as well. An on-line business may become subject to jurisdiction in a state it has no meaningful connection (beyond server infrastructure) to. Especially when considering service provisioning which leverages server infrastructure from a Cloud provider — for which a service provider

might not even know where servers are located exactly — this approach to jurisdiction bears risk.

These conclusions allow the respective set of recommendations for service providers and policy makers to be determined. Service providers are recommended accordingly the following:

- Awareness of techno-legal implications: This paper has revealed a list of relevant connecting factors for major Internet markets. It is crucial for a service provider to be aware of the respective market activities and the according connecting factors which might see techno-legal implications in either of these markets. Even though neither connecting factors nor market activities were found unambiguous in terms of jurisdictional implications, knowing about these dimensions means being prepared for any potential risk.
- Trade-off between business opportunities and risk: Based on knowledge about important techno-legal implications, a service provider may take counter-measures to diminish risks of foreign litigation. Since none of the discussed counter-measures nor any market activity (e.g., on-line advertising) discussed, however, offers a guarantee that only wanted jurisdictions are addressed, a service provider has to consider the business-specific trade-off between available business opportunities in the Internet and jurisdictional risks that come with electronic business. Knowing about how this trade-off looks for a given business, enables a service provider to assess which of the counter-measures and targeting activities discussed are most promising and cost-efficient, i.e., which of them offer a higher benefit than what they costs in terms of effort needed.

Accordingly, policy makers are recommended the following:

- Awareness of techno-legal implications: Policy makers have to realize that territoriality is severely challenged when it comes to legal aspects in the Internet. Fundamental questions of Internet jurisdiction remain essentially unanswered to date. It is highly challenging to come up with a list of connecting factors reflecting a single jurisdiction. It is even more challenging to assess connecting factors from different jurisdictions in a common scheme. It is, however, essentially open-ended an undertaking to conduct risk assessment of jurisdictional implications based on these factors. Knowing about these issues is a first step to accept that there is a problem which may not be solved efficiently by applying territorially bound legislation.
- Widened understanding of the Internet: The Internet is effectively a family of protocols and an aggregation of interconnected networks that make use of these protocols. The world-wide web is one of the Internet's most successful applications. But there is more to be considered than web sites only. With the Internet adopting more and more an "Everything-as-a-Service" approach (e.g., Infrastructure-as-a-Service, Platform-as-a-Service, Software-as-a-Service), ways to do business in the Internet become more diverse. A service provider's web site keeps to be a single instrument to be looked at, but

minimum contacts tests such as Zippo fail to address other ways of business transactions that do not require web site interaction.

Where minds of service providers and policy makers might meet in the long run, is in an internationally harmonized PIL for commercially provided electronic services in the Internet. Such legislation, if drafted in consideration of the respective technical and legal requirements, may overcome those many challenges raised by today's territorial approach to Internet jurisdiction. It is safe to assume that any move in this direction will take time. On the other hand, it is perceived the only way to essentially and fundamentally foster legal certainty in electronic business in the Internet. The United Nations Convention on Contracts for the International Sale of Goods (CISG) [60] proves⁹ that such an undertaking is feasible, in principle.

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