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Why does Soft Law Have any Power Anyway?

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Abstract

This paper explains why so much soft law is widely adopted and followed despite lacking legal and coercive force. It argues that legal standards are susceptible to network effects. Network effects occur when the value of a standard to a user increases as the number of other agents using the same standard grows, which in turn draws more users to the standard. This can trigger a spontaneous coalescence around a standard in a "snowball effect" fashion. The paper argues that many areas of soft law exhibit strong network effects, rendering such soft law uniquely calibrated to induce voluntary adoption and even compliance. The model helps explain why certain soft law gains traction, and has important implications for international governance. Finally, the paper argues that policy-makers can strategically harness this dynamic to stimulate legal harmonization, but cautions that policy-makers must also remain mindful of the negative consequences that network effects can generate.

What gives soft law its power? By "soft law" I am referring to quasi-legal instruments that have no legal force, such as non-binding resolutions, declarations, and guidelines created by governments and private organizations.[1] How is it that these instruments, despite possessing no legal force and wielding no coercive mechanisms, are nevertheless often widely adopted and, even more perplexing, generally followed?[2] This question is of particular relevance to international law, which lacks a centralized legislative authority, yet which has seen a growing body of quasi-legal documents called "protocols", "guidelines", "codes of conduct", "communications", "checklists", and "rules".[3] This body of soft law is gradually gaining international recognition and acceptance.[4] Situated somewhere in the ill-defined and nebulous hinterland between

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1. The term "soft law" first emerged in diplomatic language in the 1980s, and has since become a common term in international law circles.
2. Paul F. DIEHL and Charlotte KU, *The Dynamics of International Law* (Cambridge: Cambridge University Press, 2010) at 123.
3. For an excellent overview of soft law in relation to arbitration, see Lawrence W. NEWMAN and Michael J. RADINE, eds., *Soft Law in International Arbitration* (New York: JurisNet LLC, 2014).
4. Georg NOLTE, ed., *Peace Through International Law: The Role of the International Law Commission* (Berlin: Springer-Verlag, 2009) at 186.

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hard law and non-law, the power of soft law has important implications for international governance.[5] The discussion that follows helps explain why so much soft law has power.

This paper argues that international law—specifically international commercial law—is susceptible to network effects (also called "network externalities" in the literature),[6] and that this helps to explain why so much soft law is widely followed despite lacking genuine coercive force. I argue that soft law that exhibits strong network effects is better positioned to induce both adoption and, in certain circumstances, compliance. The model which the discussion lays out helps to explain why some soft law is robust while other soft law instruments fail to gain traction. Of course, not all successful soft-law instruments gain traction because of network effects. There are many variables that go into this equation. However, it is argued that the impact of network effects underlie many of the soft-law instruments that do gain traction and that, where network effects are present, soft law stands a far better chance of succeeding.

Identifying the presence of network effects with respect to soft law is useful on both descriptive and prescriptive fronts. It not only provides an explanatory account of the process through which certain soft law gains ascendancy, but several important considerations of a prescriptive nature flow from this insight. After making the case that a great deal of soft law derives its power from network effects, I go on to argue that it is in fact possible for policy-makers to strategically harness this dynamic to stimulate legal harmonization. For instance, there are concrete steps that international bodies, such as the United Nations Commission on International Trade Law [UNCITRAL] can take to promote the standardization of the rules and practices of arbitration.

Network effects, however, can also give rise to significant problems. The last part of the discussion considers some of these potential problems at length, and cautions that policy-makers need to be mindful of these dangers. One final point should also be noted; while specific examples of soft-law instruments are referenced—such as soft law's impact with respect to shipping law or international arbitration—this is done only for expository reasons. The model may be more generally applied to many areas of international law. It is impossible to exhaustively explore the model's implications within the constraints of a single paper. That being the case, a broader application of the model across a wider range of soft law is strongly invited.

I. WHAT ARE NETWORK EFFECTS?

The basic concept of a network effect is not difficult to grasp. A network effect appears when the value of a product or service increases as the number of other agents using the

5. For a good, in-depth treatment of soft law's significance for international governance, see Gregory C. SHAFFER and Mark A. POLLACK, "Hard vs. Soft Law: Alternatives, Complements, and Antagonists in International Governance" (2010) 94 Minnesota Law Review 706.

6. I use the terms interchangeably here. The basic definition of a network effect is an increasing-return dynamic that arises "where current users of a good gain when additional users adopt it": Paul KLEMPERER, "Network Goods (Theory)" in Steven DUNLAUF and Lawrence BLUME, eds., *The New Palgrave Dictionary of Economics and the Law*, 2nd ed. (London: Palgrave Macmillan, 2008), 915.

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same product or service grows, which in turn draws more users.[7] Network externalities arise from the need for compatibility between standards.[8] The classic example of a network effect is language.[9] Because the value of a language is to facilitate communication between users, it is fundamentally predisposed to a network effect.[10] For example, the more people who speak English, the more useful English is to each one of its speakers. This creates a positive externality. As English grows in popularity, so too does its value, encouraging further growth—a classic network effect.[11]

There are countless other examples of network effects—telephone networks, railway gauges, computer software and operating systems, credit cards, videotape standards, time zones, currencies, electrical outlets, or screw thread sizes. It is not necessary to examine more examples as the basic principle is the same in all these cases: the value of the thing in question grows with each additional user, because this enhances the user's ability to synchronize with other users, which attracts more users and ultimately gives rise to a unified standard. Any system that possesses the following four criteria will produce a network effect:

1. The utility of the thing in question lies substantially in its ability to allow users to interface with other users;
2. The standard must be compatible to achieve this end;
3. Agents frequently interact with a large pool of other users (the larger the pool and the more frequent the better); and
4. Agents can choose the standards under which they wish to operate. If these conditions are present, a network effect will arise.[12]

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7. See S.J. LIEBOWITZ and Stephen E. MARGOLIS, "Network Effects and Externalities" in Peter NEWMAN, ed., *The New Palgrave Dictionary of Economics and the Law* (London: Palgrave Macmillan, 1998), at 671. This and the section that follows partially draws upon earlier research published as a book chapter. See Bryan DRUZIN, "Spontaneous Standardization and the New Lex Maritima" in Miriam GOLBY, ed., *Oxford International Arbitration Series: The Continued Development of Shipping Law* (Oxford: Oxford University Press, 2016), 63–79 (arguing that network effects manifest powerfully in shipping law as a consequence of the high level of natural interconnection implicit in shipping networks, and that this helps spontaneously standardize the legal practices of the *lex maritima*). In the present paper, I extend my analysis to soft law, expanding the model's breadth of application.

8. Note that I am referring here to what is known as direct network effects, as opposed to indirect network effects. For a deeper explanation of this distinction, see Bryan DRUZIN, "Buying Commercial Law: Choice of Law, Choice of Forum, and Network Externalities" (2009) 18 Tulane Journal of International and Comparative Law 131 at 149–51.

9. For a very good overview of other network effect examples in a wide range of contexts, see Joseph FERRELL and Paul KLEMPERER, "Coordination and Lock-In: Competition and Switching Costs and Network Effects" in Mark ARMSTRONG and Robert PORTER, eds., *Handbook of Industrial Organization—Volume 3* (Amsterdam: Elsevier, 2006), at 46–54.

10. Mark LEMLEY and David MCGOWAN, "Legal Implications of Network Economic Effects" (1998) 86 California Law Review 479 at 494 ("Language, for example, is the fundamental medium of communication and could be said to have both negligible inherent value to the first speaker and increasing value over the range of additional speakers."). See also S.J. LIEBOWITZ and Stephen E. MARGOLIS, "Network Externality: Uncommon Tragedy" (1994) 8 Journal of Economic Perspectives 133 at 136; Amitai AVIRAM, "A Network Effects Analysis of Private Ordering", Berkeley Program in Law and Economics, Working Paper Series, 2003. For a more in-depth analysis of the network effects of language, see e.g. Jeffrey CHURCH and Ian KING, "Bilingualism and Network Externalities" (1993) 26 Canadian Journal of Economics 337.

11. See Druzin, *supra* note 8 at 151.

12. These four criteria are based upon direct network effects. Indirect network effects (network externalities mediated indirectly though the market) require less stringent structural requirements; see Druzin, *supra* note 8.

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II. NETWORK EFFECTS AS APPLIED TO LEGAL STANDARDS

I argue that legal standards[13] are susceptible to network effects in the exact same fashion as certain products in the market-place. The "market" for legal standards possesses the constituent elements for a network effect. Because legal standards are instruments that facilitate interaction with a larger group, the inherent value of a legal standard as a means to that end increases as other actors employ the same legal standard. Legal standards, specifically that of a transnational commercial flavour, meet the four criteria for network effects outlined above:

1. The usefulness of a legal standard is that it allows those who subscribe to it to successfully interact with other users;
2. Legal standards must be compatible, i.e. they must be commonly employed (at the very least by the two parties involved in the interaction);
3. Commercial legal standards often relate to interactions involving vast numbers of people who frequently interact; and
4. In a transnational context, actors can choose the standards that will govern their interaction.[14]

Thus, left to its own devices, network effects will induce standardization within the market for commercial legal practices. I have argued elsewhere that the impact of network effects may be discerned with respect to choice of law and choice of forum clauses in transnational contracts.[15] However, this holds true for any regulatory environment that lacks a monolithic rule-setting authority, is sufficiently interconnected, and meets the criteria for network effects described above. Because legal standards facilitate interaction, as with a language, the value of a standard increases as the number of people who use it grows. Accordingly, there is an implicit value in adopting legal practices that are commonly employed because this reduces what is known in the literature as "switching costs" (the costs associated with switching between standards). Merchants learn to use a legal practice as one would learn to use a language, and, like learning a language, this entails a certain investment in terms of gaining a proficiency and familiarity with these legal practices.[16]

13. I am using the term "legal standard" in an expansive sense: it is not restricted to merely the rules of domestic legal systems but includes in its sweep rules promulgated by private, non-state institutions as well.

14. For this reason, network effects are unable to manifest with respect to most domestic laws where actors do not have the luxury of choice. However, network effects may take hold in contract in that actors can select relevant contract provisions. See Michael KLAUSNER, "Corporations, Corporate Law, and Networks of Contracts" (1995) 81 Virginia Law Review 757 (arguing that network effects help shape the prevalence of common contract provisions).

15. See Druzin, *supra* note 8 (arguing that network effects induce standardization in choice of law and choice of forum clauses in transnational commercial contracts). See also Bryan DRUZIN, "Anarchy, Order, and Trade: A Structuralist Account of Why a Global Commercial Legal Order is Emerging" (2014) 47 Vanderbilt Journal of Transnational Law 1049 at 1076–83 (discussing the impact of network effects upon merchant practices).

16. See Clayton P. GILLETTE, "Harmony & Stasis in Trade Usage for International Sales" (1999) 39 Virginia Journal of International Law 707 at 723 ("As courts begin to interpret the vagaries of such terms,

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There are transaction costs involved in having to adopt a new and unfamiliar legal-business practice with each new commercial transaction. It is thus beneficial to avoid having to switch between standards. If all else is equal, it makes sense to keep to one standard. Thus, provided that no specific legal practice boasts an inherent advantage beyond that of simply agreeing on a predetermined rule to regulate the transaction (like agreeing on left- or right-hand drive vehicles), there is every reason to adopt the standard practice that is employed by the majority of other merchants with whom one interacts (or has the potential of interacting with) in that its value is enhanced through wider recognition.[17] In fact, even where an alternative legal standard offers an advantage of some kind, the fact that the dominant standard already possesses a large user base may offset this advantage, allowing it to maintain its dominance as a preferred standard.[18] Merchants become habituated to these standards. In network-effect markets, once "a product has become established as an industry standard, and once consumers or users have invested time or money in learning a particular system or becoming comfortable with a traditional practice, they will be less likely to try a rival process, even if over time it proves superior".[19] This is not to deny that users may at times have exogenous incentives that cause them to switch standards. However, when spread across vast numbers of agents busily interacting within a network-effect market, network externalities will reliably induce standardization because the number and importance of these deviations diminish into insignificance.

The core benefit of standardization—the ability of agents to synchronize their interactions—is known in the literature as "synchronization value".[20] Because they facilitate trade between large numbers of people, commercial legal practices possess an inherently high synchronization value, and are thus particularly susceptible to the effects of network externalities. Provided that there is no strong incentive not to embrace the existing standard, there is every reason to adopt the prevailing standard as one "plugs into" a new network of legal norms. Again, this is not to deny the influence of other factors; however, over the long run, once network effects arise, they inexorably drive towards convergence. It is also important to note that network effects will not only play out on the micro-level of private actors (and non-state institutions), but can also manifest—although less obviously so—on the macro-level of state actors.[21] Network effects, however, will manifest more powerfully in the case of

parties can use them with confidence (relative to novel terms) about how they will be construed in both commercial and legal environments.").

17. Because legal practices in such settings are usually selected by both parties, they will not typically inordinately favour one side over the other, and so in this sense are comparable to rules of co-ordination like left- or right-hand drive.

18. I revisit this idea in Part III below.

19. William BARNES, Myles GARTLAND, and Martin STACK, "Old Habits Die Hard: Path Dependency and Behavioral Lock-in" (2004) 38 Journal of Economic Issues 371 at 371.

20. S.J. LIEBOWITZ and Stephen E. MARGOLIS, "Should Technology Choice be a Concern of Antitrust Policy?" (1996) 9 Harvard Journal of Law & Technology 283 at 292.

21. For instance, the International Monetary Fund [IMF] Santiago Principles are pure soft-law mechanisms that lack enforcement mechanisms but which have been increasingly adopted as a regulatory benchmark since 2008 because of the clarity they provide with regard to standards that states may want to apply to sovereign wealth funds. See J. CHAISSE, "Demystifying Public Security Exception and Limitations on Capital Movement—Hard Law, Soft Law and Sovereign Investments in the EU Internal Market" (2015) 37 University of Pennsylvania Journal of International Law 583.

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private actors because the dynamic involves vast numbers of actors trying to co-ordinate. The micro-level of private actors in this respect conforms very well to the third ingredient for a network effect—that parties frequently interact with a large pool of other users (the larger the pool and the more frequent the better). This is less true in the case of state actors.[22] The smaller number of actors involved renders the impact of network effects not as readily observable. However, state actors are, in principle, also susceptible to network-effect pressures, albeit to a less pronounced degree. Huge numbers of private commercial actors flow in and out of their jurisdictions. Conflicting minority legal standards can undermine the attraction of their jurisdiction to these actors. To this end, all things being equal, it is in the greater interests of these state actors to embrace common standards. To the extent that policy-makers consider such things, network effects will have an impact.

Nevertheless, regardless of whether network pressures play out on the micro-level of private actors or less forcefully on the macro-level of state actors, network effects push towards standardization. Just as there is no need for a central judicial body to legislate the rules of English grammar, there is no need for a centralized authority to legislate legal standards—legal standards can self-standardize purely as the result of network effects and increasing returns in the market for legal standards.

III. NETWORK EFFECTS AND THE POWER OF SOFT LAW

Legal systems are networked systems. A legal standard is comparable to any other networked product that facilitates interaction. As such, a large part of the value of a legal standard is determined by the size of its user base. In the same way as certain products emerge as natural monopolies in commercial markets as the result of network effects, legal standardization can emerge within networks of commercial actors. Network effects can induce both standardization and compliance with those standards. Let us now look at how network effects may trigger widespread adoption of standards and, in some situations, compliance with those standards.

A. *Network Effects Help Drive Adoption and Compliance*

As with any networked market, given sufficient interconnection, one standard will eventually win total market share.[23] The same path-dependent process that, for example, produced the dominance of VHS video-recorders over its rival Beta can engender large-scale adoption of and compliance with a legal standard. Given its highly

22. Although the importance of soft law is unmistakable on the state level. See e.g. Julian CHAISSE and Mitsuo MATSUSHITA, "Maintaining the WTO's Supremacy in the International Trade Order—A Proposal to Refine and Revise the Role of the Trade Policy Review Mechanism" (2013) 16 Journal of International Economic Law 9 (demonstrating the importance of soft-law principles and mechanisms in the legal order created by the World Trade Organization, and which mainly applies to states).

23. Economists have long pointed out that network effects "inhibit multiple equilibria and the market will finally lock-in to a monopoly situation with one standard gaining total market share". Tim WEITZEL *et al.*, "Reconsidering Network Effect Theory" in Kurt GEIHS, Wolfgang KÖNIG, and Falk VON WESTARP, eds., *Networks: Standardization, Infrastructure, and Applications* (Springer Science & Business Media, 2012) at 6.

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interconnected structure, it should not surprise us to find network externalities present in the market for legal standards. Network externalities imply a host of structural properties unique to network-effect markets. For our purposes, however, the most interesting among these is that network externalities induce self-standardization. Network effects render an interconnected system unable to sustain multiple equilibria for long periods because the pressure of network effects pushes the market towards a single dominant standard. As such, identifying network effects may yield a great deal of explanatory power regarding the mechanics that underlie the power of soft law.

It may be tempting to conclude that soft law possesses very limited force because such instruments lack concrete coercive mechanisms.[24] Yet only the second part to this statement is true. It is certainly true that soft law typically comprises voluntary standards with weak or no monitoring mechanisms.[25] When network effects underlie soft law, however, soft law documents can exert significant adoption and compliance pressure (although their ability to spur adoption outstrips their ability to engender compliance). For the reasons outlined above, actors are often already eager to employ a unified standard. They are simply unable to co-ordinate due to a lack of clarity. Soft-law instruments derive a significant degree of power from the fact that they allow actors to co-ordinate around common standards by providing this clarity. Indeed, in network-effect markets, actual enforcement is often not as important as the mere act of codification—a point easily missed. Codifying an existent practice is itself useful in that it clarifies the rules for participants already willing to comply but unable to successfully co-ordinate. In game theory, this is understood as a co-ordination game.[26] This aspect to codification holds special significance for systems of informal codification as found in soft law. Typically, the focus is upon the enforcement advantages of hard law; however, codification—something soft law is perfectly capable of providing—serves a critical function in creating focal points (à la Thomas Schelling[27]). Just making the rules clear often yields a meaningful impact in terms of compliance, much like how the *Oxford English Dictionary* clarifies the English language for speakers already eager to comply with whatever the lexiconic rules of the day are. Dictionaries boast no enforcement mechanisms yet nevertheless serve a potent regulating function in that they codify systems of spontaneous linguistic order. An example of the above point is law formally recognizing left- or right-hand drive (a good illustration of a co-ordination game). The simple act of codification (and thus clarification) of the rule is enough to trigger large-scale compliance, as all drivers (for obvious reasons) are eager

24. For a succinct overview of soft-law theories in relation to financial markets, see Chris BRUMMER, *Soft Law and the Global Financial System: Rule Making in the 21st Century* (Cambridge: Cambridge University Press, 2012) at 128–30.

25. Andrew T. GUZMAN, *How International Law Works: A Rational Choice Theory* (Oxford: Oxford University Press, 2007) at 138.

26. For a fascinating treatment of legal emergence without enforcement mechanisms, see Richard H. MCADAMS, "A Focal Point Theory of Expressive Law" (2000) 86 Virginia Law Review 1649 (explaining how, without the need for enforcement, stable order can emerge from law through the creation of focal points around which actors' behaviour then converges). McAdams's approach borrows conceptually from the work of Thomas Schelling on focal points. For the idea of focal points and salience, see T.C. SCHELLING, *The Strategy of Conflict* (Cambridge, MA: Harvard University Press, 1960) at 57.

27. See Schelling, *ibid.*

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to comply with whatever the rule is. Driving on a particular side of the road rarely needs to actually be enforced—it simply needs to be declared.

Under such conditions, it is relatively easy for network-effect pressures to trigger large-scale convergence around a particular standard. Like left- and right-hand drive, it is often the case that parties have no strong preference for which rules are adopted so long as they are *commonly* adopted. In such circumstances, parties merely require gentle direction as to which rules they should adopt in order to successfully co-ordinate. Driving on the left- or right-hand side of the road is an example of a *pure co-ordination game*. In a pure co-ordination game, both parties have no incentive to deviate from the standard (e.g. no one wants to drive on the "wrong" side of the road). Under such conditions, network effect pressures are more than sufficient to push actors towards a single standard. However, not all soft law benefits from such opportune conditions. Under international law, there is soft law dealing with all kinds of issues—many of which are not pure co-ordination games (international tax or trade law, climate change, etc.). Where rules have deep distributional effects, there are often strong incentives to defect from the agreed-upon standards in certain situations. Where this is the case, network effects may no longer be sufficient to generate adoption or compliance.

However, network-effect pressures are capable of inducing adoption and compliance even in situations where interests are not perfectly aligned. This is the case with non-pure co-ordination games, such as the "Battle of the Sexes".[28] In a Battle of the Sexes, the parties' preferences are only partly out of whack. The standard example involves a husband and wife (hence the name) who prefer to do different activities—the husband wants to attend a football game and the wife wants to see the opera. However, both would prefer to do the other's activity if the alternative is to do their activity alone.[29] Many of the areas in which soft law relates can be modelled as non-pure co-ordination games. Where soft law gains traction under such conditions, it is often because network effects prevent a non-co-operative equilibrium from forming. They may occur because the mere existence of a widely recognized standard established by entrenched network effects can nudge actors' expectations, and thus their behaviour, in the direction of an equilibrium of compliance by producing focal points that help channel the behaviour of actors in mixed-motive games such as the Battle of the Sexes.[30] Indeed, "even within a game with conflicting interests, there may be some common interests in coordinating and a focal point may facilitate this coordination to the benefit of both parties".[31] As parties comply with a standard, the impression that the standard is robust grows stronger, drawing more users, and thus reinforcing the standard's ability to function as a focal point in mixed-motive games.

In this way, network effects widen the spectrum of situations where compliance may hold beyond pure co-ordination games. Even where actors harbour divergent

28. See McAdams, *supra* note 26. McAdams similarly argues that his model continues to be applicable in games other than games of pure co-ordination.

29. Stanley BESEN and Joseph FARRELL, "Choosing how to Compete: Strategies and Tactics in Standardization" (1994) 8 Journal of Economic Perspectives 117 at 124–6.

30. See Schelling, *supra* note 26.

31. See McAdams, *supra* note 26.

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preferences (as in non-pure co-ordination games), network effects push actors towards an equilibrium where the actors comply with the standard. There are, however, limits to the ability of network-effect pressures to counter incentives to not adopt or not comply with a standard. The present model does not deny this. Network effects will exert their greatest impact in situations that may be modelled as co-ordination games (both pure and non-pure). As we leave the realm of co-ordination games, the influence of network effects will wane as incentives to abandon or not comply with a standard increase in intensity. Where such incentives grow too powerful, and blunt the co-ordinating impact of network effects, soft-law instruments will encounter greater difficulty gaining traction.

In terms of preventing actors from abandoning a standard after adoption—even where incentives to do so arise—network effects can at times, however, exert considerable force. If either the synchronization value conferred by the network effect or the transaction costs of switching standards is high enough (or both), private preferences that would otherwise cause actors to abandon a standard for another can be effectively offset. The ability of network effects to do this depends on the strength of the incentive to abandon the standard relative to the loss of synchronization benefit and switching costs that would come with dropping a standard for an alternative. Network effects will thus increase the likelihood that a standard will be maintained across a range of conditions with incentives to switch to an alternative legal standard. Even in the face of fairly strong incentives to adopt a competing standard, extremely robust network-effect pressures can elicit continued adoption—the more powerful the network effect, the greater the ability to offset incentives to abandon the standard, and thus the greater the sweep of conditions where the standard can hold firm. In some situations, the transaction costs of switching to an alternative standard may be debilitatingly high. Depending on the character of the standard in question (i.e. how much it depends upon plugging into a larger network of users and the start-up cost of creating a new standard if an alternative is not already available), a user wishing to use a different standard may be as powerless to do so as an individual is powerless to create her own currency or change the words of the English language. Even where new exogenous factors suddenly cause incentives to abandon the standard to become quite powerful, these new incentives may be successfully neutralized so long as the user base is sufficiently locked into the standard.[32]

This allows us to predict in what situations soft law is most likely to engender compliance.[33] Where soft-law instruments tap into pre-existing network-effect pressures and the conditions resemble that of a pure co-ordination game, soft law should not encounter much difficulty gaining traction. Just as the rules of English grammar do not require coercion to achieve adoption and compliance, in many situations the standards created by soft law likewise do not require enforcement to achieve adoption and compliance. Soft law will enjoy the greatest success where actors

32. The technical term for this is "lock-in". I revisit the concept of lock-in in greater detail in Part IV, discussing its negative implications.

33. The claims that follow have the benefit of being falsifiable and open to empirical inspection. See also *infra* note 45.

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simply wish to co-ordinate and there is no compelling reason to not adopt the standard. All things being equal, the benefit of network synchronization will be sufficient to tip large networks of actors into embracing and complying with the standard. Soft law is also likely to gain traction, although less so, in areas that resemble non-pure co-ordination games. Issue areas that do not produce significant distributional outcomes or other incentives to prefer a particular standard are also hospitable to soft-law declarations, although significantly less so than dynamics that resemble pure and non-pure co-ordination games. Finally, where soft law produces deep distributional disparities and parties have strong incentives to defect—as is the case with, for example, soft law related to international environmental governance—it is difficult for such soft law to gain substantial traction. There are of course environmental soft-law instruments that have proven highly influential, for example the 1972 Stockholm Declaration.[34] However, when soft law succeeds under such inhospitable conditions, it is not due to network effects. Factors exogenous to the model are at work. Most soft-law instruments that fall into this last category face a significant uphill battle because network externalities that would otherwise help drive adoption and compliance are offset by powerful disincentives to ignore or abandon the standard.

When the conditions are right, however, soft law is very good at homogenizing markets for legal standards. The clarity that soft-law instruments provide reinforces the power of pre-existing network effects implicit in the market. Standards underpinned by these network effects frequently need only be enunciated clearly to trigger a large-scale coalescence around them and an abrupt abandonment of competing standards. This is true even where such markets are highly fragmented, possessing competing standards. Let us examine this ability of soft law in greater detail.

B. *Soft Law Helps Solve Market Splintering*

In commercial markets exhibiting network effects, multiple equilibria are often a problem for users of the standards. If networks overlap significantly—that is, if there is a high degree of connectivity—multiple standards cannot co-exist indefinitely. Competing network effects supporting conflicting standards can persist for some time; however, if there is sufficient interconnection the market will eventually tip in the direction of one network standard.[35] If there is a high degree of network insulation, however, the market will remain "splintered". In such cases, soft-law instruments can exert a decisive influence by tipping markets experiencing multiple standards towards a specific standard.

As a natural consequence of the structural constraints of international trade, commercial interconnections will invariably possess degrees of network insulation.

34. See Bryan DRUZIN, "The Parched Earth of Cooperation: How to Solve the Tragedy of the Commons in International Environmental Governance" (forthcoming) 27 Duke Journal of International and Comparative Law (noting the proliferation of international environmental agreements following the 1972 Stockholm Intergovernmental Conference).

35. David DRANOVE and Neil GANDAL, "Surviving a Standards War: Lessons Learned from the Life and Death of DIVX", CEPR Discussion Paper No. 3935, June 2003 at 9.

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The naturally tangled and labyrinthine structure of trading networks causes legal practices to standardize in a fragmented, polycentric fashion. Even a cursive examination of the networked structure of commercial relations reveals its astounding complexity: network connections overlap and intersect in a matrix of intricate complexity. Indeed, it is impossible to chart the precise pathways of standardization. Fortunately, a precise structural analysis is not necessary. It is sufficient to simply note that multiple localized network effects will emerge, producing degrees of polycentricism (multiple centres of isolated standardization) as a result of this fragmented structure.[36] In the literature on standards, this condition is known as a *local network effect*.[37] Local network effects can be distinguished from *global network effects*, which encompass the entire (or at least a larger conglomeration of a) networked system.[38] Local network effects may be exasperated (and in many cases directly caused) by discordant national laws.[39] Such laws splinter a networked market by corralling actors around localized legal standards. This produces insulation that weakens the impact of a global network effect. In such cases, multiple standards will persist if "network effects are primarily localized within subgroups of adopters, segmenting the market".[40] This condition, in which the market is splintered and unable to co-ordinate, is often "a dysfunctional equilibrium with multiple small and consequently unsuccessful networks instead of one large and successful one … the solution to this dilemma requires a leadership-like ability to focus on 'let's all do X instead'".[41] Without this ability to co-ordinate, a splintered market will remain stuck in a sub-optimal equilibrium.[42] A state of competing network standards can be quite inefficient for actors forced to switch between them.

This problem often arises in commercial markets in the form of a protracted battle between competing standards. These "standards wars" are sometimes resolved by standards-setting bodies, such as the International Organization for Standardization [ISO], directing and thereby tipping the market towards a single standard. For our purposes, the ISO is of particular interest because it boasts no coercive mechanisms yet wields considerable influence in determining international standards. Network effects can account for this authority. The logic of network externalities "suggests that the opportunity cost of

36. Lon Fuller famously used the term to describe the difficulty of tinkering with interlocking complex networks with the image of pulling on a net of connected spiders' webs. See Lon FULLER, "The Forms and Limits of Adjudication" (1978) 92 Harvard Law Review 353.

37. There is a relatively new and bourgeoning literature in economics on *local* network effects. For some early contributions in this vein, see Arun SUNDARARAJAN, "Local Network Effects and Complex Network Structure" (2007) 7 B.E. Journal of Theoretical Economics 1; Bhaskar DUTTA and Matthew JACKSON, eds., *Networks and Groups: Models of Strategic Formation* (Heidelberg: Springer, 2003); Mark Y. AN and Nicholas M. KIEFER, "Local Externalities and Social Adoption of Technologies" (1995) 5 Journal of Evolutionary Economics 103.

38. Jacob GOLDENBERG, Barak LIBAI, and Eitan MULLER, "The Chilling Effects of Network Externalities" (2010) 27 International Journal of Research in Marketing 4 at 5.

39. Given that the international community is growing increasingly less insulated with the ever-accelerating pace of globalization, legal polycentricity (at least with regard to commercially oriented law with its built-in propensity towards interregionalism) is arguably fated to disappear but for the artificial insulation generated by national legal systems.

40. See Ferrell and Klemperer, *supra* note 9 at 85.

41. *Ibid.*, at 60.

42. This is sub-optimal from the perspective of agents having to switch between these standards.

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producing to purely national standards (for example, U.S. standards) increases as more countries (and especially large developing countries, such as China and Brazil, that are coveted export markets for American and European producers) switch to ISO standards".[43] In the market for legal standards, soft law can play a comparable role. Soft law can function as a *de facto* standards-setting body, providing a powerful signal to the market that can cause a cascade of users to coalesce around a specific standard. In this fashion, international documents and understandings that have no actual legal authority or enforcement mechanisms can nevertheless unify an otherwise splintered market.

There are numerous examples of this. Consider some drawn from the world of international shipping. Soft-law documents such as BIMCO bills of lading, standard-form charter-parties, and the York-Antwerp Rules 2004 on General Average have self-standardized as *de facto* industry standards. This process of self-standardization may occur with respect to instruments at all levels of interaction. The soft-law document need only provide a focal point for actors within a network seeking to co-ordinate. International bill of lading and charter-party forms, couched in universal terms and practices widespread throughout the shipping world, do not require any formal legal codification precisely because—and this is a crucial point—they are already robustly supported by network-effect pressures. The market need only be properly co-ordinated, a function soft law can achieve. Indeed, "many bill of lading forms have been adopted for international use, with internationally accepted meanings, without the benefit of any intervention by national or international governments".[44] Other examples of soft-law documents forging standards in the international shipping community include the Uniform Rules for Sea Waybills 1990 of the Comité Maritime International [CMI], and the Voyage Charter Party Laytime Interpretation Rules 1993. Such instruments exist without any national legislation.

In the case of international arbitration, the UNCITRAL Arbitration Rules are a good example of the ability of soft law to co-ordinate a standards market. This applies equally to the UNCITRAL Model Law on International Commercial Arbitration. However, the Model Law is aimed at law-makers at the national level, while the Arbitration Rules are directed at the parties to a dispute. Network-effect pressures are, for reasons already discussed, more robust with respect to the Arbitration Rules because private actors are more susceptible to network-effect pressures than state actors. Prominent soft-law instruments can co-ordinate a market even more powerfully (as a result of their high degree of salience). As a consequence of their prominence, the UNCITRAL Arbitration Rules and the UNCITRAL Model Law on International Commercial Arbitration represent particularly powerful co-ordinating soft-law documents. Similarly, UNICITRAL's model laws and legislative guides can co-ordinate splintered markets with respect to legal standards beyond the realm of arbitration.

In markets exhibiting network effects, standardization is not merely possible, but inevitable so long as there is sufficient interconnection and the freedom of participants

43. Network effects have been identified with respect to ISO standards; see e.g. Walter MATTLI and Tim BÜTHE, "Setting International Standards: Technological Rationality or Primacy of Power?" (2003) 56 World Politics 1 at 42. See also Barnes *et al.*, *supra* note 19.

44. William TETLEY, "The General Maritime Law—The Lex Maritima" (1995) 20 Syracuse Journal of International Law and Commerce 105 at 134.

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to choose the standards under which they wish to operate. Network effects help explain why so much soft law is adopted and followed despite lacking the enforcement trappings of formal law. However, this is not to say that all successful soft law is underpinned by network effects; rather, it is to say that where network effects are present, soft-law instruments will be more likely to gain traction. Not all soft law benefits from network effects. Nonetheless, where soft-law instruments do gain traction, it is likely that network effects are present.[45] As I will show, understanding this may prove very useful on a practical level. A clearer understanding of the impact of network effects can help policy-makers identify the conditions in which soft law is most likely to gain traction. Policy-makers may learn how to capitalize on this and other aspects of the model. It is to this idea that I now turn.

IV. CONSIDERATIONS THAT FLOW FROM A NETWORK EFFECT MODEL OF SOFT LAW

Several important insights arise from an understanding of how network effects induce standardization and the properties unique to network-effect markets. These implications of the model are both positive and negative. In this final section, I first explore some of the opportunities to exploit network effects, after which I discuss the potential dangers imposed by network effects that policy-makers would be wise to consider.

A. *Learning how to Deal with Polycentricity*

On the opportunity side of the ledger, policy-makers can learn to surf this structural undercurrent and strategically harness network effects to promote legal harmonization.[46] For example, in the case of international arbitration, there are concrete steps that may be undertaken by international bodies such as UNCITRAL to exploit the structural regularities of network-effect markets and further the harmonization of the law of international trade.[47] First, because of the ever-present potential for polycentricity and spontaneous fragmentation, arbitration-related law on the national level should strive for general consistency. International bodies such as

45. This provides another opportunity to make the model falsifiable. We may do this by articulating a set of precise predictions: (1) where network effects are strong, soft law will tend to gain traction—while there may be exceptions as a result of exogenous factors, a strong correlation should be present; (2) the success rate of soft law should begin to stumble as incentives to cheat or not adopt a standard begin ratcheting up, offsetting the co-ordination gains offered by network effects; and (3) soft law should tend to gain the greatest traction where actors possess largely indifferent attitudes regarding what standard to use, and the impact of network effects in these circumstances are therefore most robust. If these three predictions—particularly the first—prove wrong, the inference we can draw is that the model is flawed.

46. The analysis that follows assumes legal harmonization to be a desired end. Of course, the fact that policy-makers can exploit the energy of network effects to advance legal harmonization does not entail that they should. The first claim is descriptive, while the second is prescriptive. However, the point is that network effects may serve as a powerful tool to help achieve legal harmonization if it is deemed desirable.

47. Indeed, this is the very mandate of UNCITRAL. The United Nations describes UNCITRAL's mandate as follows: "The General Assembly considered it desirable to [sic] that the process of harmonization and unification of the law of international trade be substantially co-ordinated, systematized and accelerated and that broader participation by States be secured." *UNCITRAL: The United Nations Commission on International Trade Law*, UN Doc E.86.V.8 (1986).

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UNCITRAL must forcefully encourage this. While this is already largely the case, an understanding of how network-effect markets function infuses this project with an even greater sense of urgency. There has been a widespread adoption of the Model Law (or at least Model Law principles); however, certain aspects of arbitration law remain inconsistent across jurisdictions.[48] Of even greater import, however, is that several significant arbitration jurisdictions (e.g. France, England, the US, and the Netherlands) are not Model Law seats.[49] Given the importance of these arbitration seats, these jurisdictions represent powerful sources for market splintering. Conflicting rules on the national level create artificial network insulation and, as such, stymie the natural convergence of standards through network effects. What network effects tell us is that even small inconsistencies can trigger a rapid splintering in the market for legal standards. As such, inconsistencies, no matter how minor, need to be eradicated to the greatest extent possible. If the market for legal standards remains interconnected and party autonomy preserved, network effects will drive the emergence of unified standards in a spontaneous fashion. To this end, even minor legal inconsistencies significantly handicap policy-makers' ability to extract maximum advantage from network-effect pressures. Indeed, a clear and comprehensive understanding of network-effect-induced standardization more boldly underscores the need to strive for legal consistency so as to avoid market splintering.

B. *Learning how to Utilize Existing Network Effects*

Furthermore, soft law may be crafted to exploit pre-existing network-effect pressures in order to engender more robust adoption. This may be as simple as opting to codify prevailing standards, as opposed to promoting standards that do not already enjoy wide recognition. The value of promoting standards lacking the support of network effects, compared to embracing slightly less efficient standards that are undergirded by powerful network effects, would have to be carefully weighed.[50] Policy-makers would be wise to consider the logistical challenge of legislating against existing network-effect pressures. Standards entrenched by strong network effects may be very difficult to dislodge. As such, soft-law instruments may fail to gain momentum under such conditions. A choice between codifying an efficient standard possessing no network-effect pressures and codifying a slightly less efficient standard bolstered by powerful network effects would not be a simple calculation. While the more efficient standard would of course be preferable, any benefit is negated if adoption cannot be achieved or is critically diminished. Universal acceptance is far more easily attained where network effects are quietly promoting adoption. Indeed, policy-makers would be faced with a tough choice in such a situation. However, regardless of which decisions are reached, grasping the nature of network-effect pressures is an essential first step in determining the optimum course of action in terms of policy. Policy-makers can look to the presence

48. Loukas A. MISTELIS, ed., *Concise International Arbitration* (Leiden: Kluwer Law International, 2010) at 582.

49. *Ibid.*

50. Here the normative issue is even more compelling than in the case of the previous recommendation (as many may assert that legal harmonization is not an end policy-makers should pursue).

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of the four conditions that generate network effects cited earlier in this paper to judge how successful certain soft-law instruments may be. Based on this, policy-makers will be able to predict where soft law is most likely to gain traction.

Policy-makers may benefit from considering their decisions from the perspective of the network-effect model of soft law articulated here. A clear understanding of the network-effect pressures that often underlie markets for legal standards may better equip policy-makers to draft and employ soft law. Indeed, the presence of network effects may provide significant legislative opportunities. That said, let us now turn to the negative side of the ledger, and consider some of the potential dangers (from a governance perspective) suggested by the model.

C. *Cautions, Dangers, and "Structural Traps"*

Network-effect pressures lead to a host of peculiar dynamics.[51] Some of these properties (such as tipping, synchronization benefits, and switching costs) have already been discussed and their implications for soft law scrutinized. However, there are other properties unique to network-effect markets, some of which produce negative consequences with respect to soft law which policy-makers need to be mindful of. This final section discusses the more salient of these problems.

1. *Lock-in and sub-optimality*

Perhaps the most notable danger is what is known as "lock-in".[52] In commercial markets, lock-in occurs when a customer becomes dependent on a vendor's products or services, and as a result is unable to migrate to an alternative because of high switching costs. Users become "locked" into the prevailing system and are unable to adopt alternative, often more efficient, systems. Once the standard has become locked in, "no actor is willing to bear the disproportionate risk of being the first adopter of a standard and then becoming stranded in a small network".[53] This inability to challenge a locked-in standard is known as the "start-up problem". The effects of this "structural trap" may be quite pernicious. The phenomenon of lock-in predicts the possible persistence of sub-optimal legal standards as the consequence of network effects. Lock-in creates significant barriers to market entry. As a result, the market dominance of soft-law instruments, which, as the result of shifting conditions, are no longer optimal, cannot be successfully challenged by alternative, more efficient soft law. Soft-law standards may become stubbornly entrenched and resistant to improvement. As more users adopt a set of legal standards, the less likely users of those standards are to switch to new standards. This dark underbelly to network-effect markets perversely

51. Andreas KEMPER, *Valuation of Network Effects in Software Markets: A Complex Networks Approach* (Heidelberg: Physica-Verlag, 2010) at 72.

52. For the foundational work on the concept, see generally W. Brian ARTHUR, "Competing Technologies, Increasing Returns, and Lock-In by Historical Events" (1989) 99 Economics Journal 116; W. Brian ARTHUR, "Positive Feedbacks in the Economy" (1990) 262 Scientific American 92; S.J. LIEBOWITZ and Stephen E. MARGOLIS, "Path Dependence, Lock-In and History" (1995) 11 Journal of Law, Economics, and Organization 205. For a discussion of lock-in in relation to trade usages standards, see Gillette, *supra* note 16 at 711–12 (discussing lock-in in relation to trade usages standards).

53. Tim WEITZEL, *Economics of Standards in Information Networks* (Heidelberg: Physica-Verlag, 2004) at 16.

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flips the advantages of spontaneous standardization on its head: without a central authority to provide direction, a collective jump to a new standard is extremely tricky.[54] As a result, sub-optimal standards may dominate where they would otherwise be improved upon or replaced. Under certain situations, these inefficiencies may be very difficult to avoid.

There is considerable discussion regarding the potential of network externalities to generate Pareto-inferior market outcomes.[55] Indeed, the literature on standards roundly suggests that network-effect markets "may exhibit excess inertia and remain locked into a standard, even though an objectively 'better' standard is available".[56] But it is not all doom and gloom. The robustness of lock-in is in fact the subject of considerable debate. Liebowitz and Margolis question the notion that network effects induce a permanent monopoly, arguing that although there are indeed periods of persistent lock-in where one product dominates the market (they look at the market for computer software), the market will frequently tip towards a new monopoly[57] in a process they term "serial monopoly".[58] They argue that major product innovations and predatory pricing can successfully challenge a lock-in monopoly.[59] Applying this to the market for legal standards, innovative or more efficient rules may in principle dislodge a soft-law monopoly.

2. *Power-brokers and path-dependency*

Related to the problem of lock-in is the danger of power-brokers exploiting the path-dependent nature of network adoption to entrench standards that serve their private interests. This is of special concern when policy-makers are commercial actors who may deploy network effects as a business strategy. The anti-competitive practices of Microsoft is a well-known example of a first mover strategically exploiting vendor lock-in to inhibit competition and erect barriers to entry (in that case it was by bundling Microsoft's Explorer web browser with its Windows operating system).[60] Private business actors have an obvious incentive to do this; however, the problem does not disappear when standard setters are industry organizations. Such institutions may be tempted to introduce soft law that will lock in standards that favour certain players in

54. As one scholar describes it: "The negative implication of standardization … is that the incentive to produce an improved system is diluted because no single user within the existing network can be induced to shift to the new system without assurances that a critical mass of potential users will do likewise"; Clayton GILLETTE, "Lock-in Effects in Law and Norms" (1998) 78 Boston University Law Review 813 at 818.

55. Kemper, *supra* note 51. See also P.A. DAVID, "Clio and the Economics of QWERTY" (1985) 75 American Economic Review 332; Arthur, *supra* note 52.

56. William H. PAGE and John E. LOPATKA, "Network Externalities" in Boudwijn BOUCKAERT and Gerrit DEGEEST, eds., *Encyclopedia of Law and Economics* (Cheltenham: Edward Elgar Publishing, 2000), at 952, 961.

57. S.J. LIEBOWITZ and Stephen MARGOLIS, *Winners, Losers, and Microsoft: Competition and Antitrust in High Technology*, 2nd. ed. (Oakland: Independent Institute, 2001) at 227.

58. *Ibid*., at 10.

59. *Ibid*., at 110.

60. See *United States v. Microsoft Corp*, 87 F. Supp. 2d 30 (D.D.C. 2000). For a discussion of the case with respect to network effects, see Mark GEIER, "United States v. Microsoft Corp" (2001) 16 Berkeley Technology Law Journal 297; Samuel Noah WEINSTEIN, "United States v. Microsoft Corp" (2002) 17 Berkeley Technology Law Journal 273.

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their industry. Likewise, state actors may attempt to lock in standards that will disproportionately benefit their economies. This danger may be especially acute when the standard setters are powerful political entities, such as the US or the EU. It is very difficult to prevent power-brokers such as these from locking in standards that unfairly favour their own interests. The danger is exacerbated because it is often the case that powerful political actors are the ones that end up as standard setters precisely because of their political and economic clout.

3. *The problem of "over-standardization"*

Another problem that may prove significant is that greater degrees of standardization may not always be optimal. Yet, given the absence of network insulation, network effects push inescapably towards ever-greater degrees of standardization. The desirability of standardization will depend ultimately on the area in question. Clearly, a universally standardized railway gauge is beneficial; however, this may not necessarily be the case for a single minimum wage or one emissions target applied to each country the same way. Legal polycentricity also has its advantages. Lawyers often advocate standardization where economists recognize the advantages of polycentric law. It is often the case that many rules that are effective for one type of transaction or one trading community may not be effective for another. This may be the case for many areas of soft law. For example, with respect to international arbitration, a degree of diversity may actually be a good thing because it allows parties to "shop" for rules and fora they prefer, thereby injecting competition into the market. A proper understanding of network interconnection and insulation on the part of policy-makers may be required to avoid an "over-standardization" of the soft-law instruments they create. The growing field of network science—the study of complex networks—may aid policy-makers in controlling the progression of standardization. In a great many situations, however, the circuitry of social, geographical, economic, and institutional interconnections that determine the push and pull of network-effect pressures flowers into degrees of such complexity that is in practice impossible to accurately map.

V. CONCLUSION

The idea outlined in this paper is relatively simple: networks effects often infuse soft law with adoption and compliance pull, and policy-makers can take advantage of this fact. The theory does not deny that other factors also help induce or hinder the large-scale adoption of and compliance with soft-law instruments. A host of considerations unrelated to network externalities may influence actors' decisions, blunting the impact of network effects. However, on the macro-level of vast numbers of agents interacting, these exogenous considerations diminish in importance, allowing network effects to yield a discernible influence upon systems of supranational legal order. Nor does the present theory claim that all soft law is underpinned by network effects—merely that soft law reinforced by network effects will be far more robust, and that this helps to explain why so much soft law has a surprising magnitude of influence. This insight into the mechanics of soft law is especially valuable because the

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importance of soft law for international governance is growing. As one scholar notes, soft-law instruments illustrate "an increasing convergence in terms of law-making procedures and law-makers amongst the different courses of international law".[61] While the growing importance of soft law has been recognized by legal scholars,[62] what has hitherto not been recognized in the literature—indeed what has been completely ignored—is that network effects often inject a substantial degree of power into soft-law instruments.

The discussion also offered the prescriptive insight that network effects may be strategically exploited to stimulate legal harmonization. Several recommendations were offered. However, as a caution against an overly sunny analysis, the negative implications of network effects—lock-in, rent-seeking exploitation of path dependency, the drawbacks to "over-standardization"—were also fleshed out. These ideas, both the advantages offered by the model as well as the potential dangers to which it speaks, are all deserving of a far richer discussion than was provided here. Such examination is strongly invited. Indeed, it is my hope that this paper may provide a theoretical framework for further research along these lines and will prompt application of the model to areas of international law left unexplored by this paper.[63] Armed with a clearer understanding of how network effects play upon systems of soft law, policy-makers will be better positioned to capitalize on the process, harnessing the power implicit in network effects to the advantage of the international community.

61. Samantha BESSON and John TASIOULAS, eds., *The Philosophy of International Law* (Oxford: Oxford University Press, 2010) at 180.

62. James CRAWFORD and Martti KOSKENNIEMI, eds., *The Cambridge Companion to International Law* (Cambridge: Cambridge University Press, 2012) at 198.

63. The model articulated in this paper forms the basis of a lengthier empirical examination of network effects and soft-law adoption that I am currently drafting.

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