Who Changes the Rules? Paying Attention to the Process of Patent Reform

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Abstract

Change in the law does not happen instantaneously or in a vacuum. The process of legal change is fraught with uncertainty, complexity and cost, and the path selected for legal reform can have a significant impact on the outcome. But despite vigorous and prolonged debate over the content of patent reform, Congress and commentators alike have failed to consider the impact of legislating change rather than relying on judicial or agency law making. I ask the question of how alternative processes for patent law change impact the cost and outcome of patent reform. Filling a gap in the literature on legal change (particularly that relating to patent reform), I provide a framework for comparing legislation, judicial decisions and agency rule making as alternative mechanisms for changing patent law. The process of legal change is described in terms of four dimensions - variance, specificity, speed, and participation. Alternative processes for changing patent law are characterized along these four dimensions and then compared in terms of their impact on transition costs. The analysis shows that for many of the proposed reforms, judicial decision making may be the most efficient (i.e. least costly) mechanism for law change. Courts have the ability to introduce targeted, incremental change, they can accommodate changing market circumstances, and they are limited in their ability to deviate too quickly or unpredictably from existing norms. Courts cannot substitute for Congress and agencies when significant shifts in underlying policies or institutional structure are needed, however, and the analysis therefore also identifies when legislation or expanded agency rule making may be the best, or the only, mechanism for accomplishing certain types of law change. The analysis is a normative one, leaving any divergence in the behavior of Congress, the Federal Circuit and U.S. Patent and Trademark Office from institutional norms for future research. I conclude that by neglecting the impact of process on outcome when considering the scope and content of patent reform, Congress may lose opportunities to improve the performance of patent law.

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I. Introduction

If we believe the popular press the United States patent system is in a state of crisis that threatens U.S. innovation and undermines U.S. competitiveness.[1] In response to the perceived crisis, Congress has proposed sweeping legislative change to U.S. patent law. Proposals for reform abound, and Congressional debate over how to change the patent system is now stretching into its fourth year. Change in the law does not happen instantaneously or in a vacuum. The process of legal change is fraught with uncertainty, complexity and cost. But despite the extended discussion about almost every aspect of the content of reform, proposals for patent reform have failed to incorporate the cost of change or to consider alternative mechanisms for bringing about the proposed reforms. Similarly, while much has been written about the content of the proposed patent reforms and commentators have eagerly contributed their own proposals, they have paid little attention to the costs inherent in change itself or to the implications of relying on alternative processes for law change. By neglecting the importance of transition costs, and opportunities for minimizing these costs through legal design, Congress may limit the performance gains that it seeks through reform legislation. Congress must therefore critically re-examine proposed patent reforms in light of the efficiency implications associated with alternative processes for patent law change.

In this Article I argue that the effects of legal change depend not only on the content of the law, but also on the characteristics of the process by which the law is changed, and I ask the question of how alternative processes for patent law change impact the cost and outcome of patent reform. Part II builds on the existing literature addressing legal change to explore the context of legal change and to identify when and why different characteristics of the legal process might have substantive impact on law change. Scholars have suggested multiple ways in which the path of legal change influences the outcome, including theories of path dependence, lock-in effects, structural rigidities and feed back effects, and they have also suggested ways in which legal change can be inefficient and costly. The literature indicates that different characteristics of the legal process may have varying significance depending on the context of the legal change, and suggests when certain feature of legal change may produce substantial costs or benefits. But the question of how to think about and incorporate characteristics of the process of legal change into designs for patent reform (and, more generally, other types of legal reform) remains unanswered.

Part III seeks to address this gap by providing a framework for characterizing and comparing alternative law making processes. This framework builds on the foundation provided in Part II, using the features of legal change highlighted in the existing literature to inform the characterization of the legal process. The process of legal change (i.e. a process by which a new law or legal regime is introduced) is characterized in terms of four dimensions: (a) variance - the scope for deviating from existing laws and the limitations on doing so; (b) speed - the speed with which laws can be changed and implemented and the speed with which they are understood and adopted by those

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impacted by the law; (c) specificity - the extent to which the law change is limited to or contingent on specific facts and circumstances; and (d) participation - the extent to which the law making process reflects and takes into account the interests of different constituencies and the type of information that informs the law making process. Differences in the "levels" of each characteristic (e.g. lower or higher speed, lesser or greater specificity and variance, broad or narrow participation) are examined in terms of resulting differences in the nature and magnitude of the transition costs associated with legal change. Higher transition costs impair market performance and reduce social welfare. The analysis indicates when and how alternative processes for legal change, compared in terms of these four dimensions, might produce relatively lower or higher transition costs or yield benefits unavailable through other processes, depending on the context of the law change.

Part IV applies this framework to evaluate judicial decision making, legislation and agency rule making as competing avenues for patent reform, applying the framework to specific proposals for reform included in the proposed Patent Reform Act. The analysis highlights the costs associated with any legal change, and shows that for many of the proposed patent reforms, judicial decision making may be the most efficient (i.e. least costly) mechanism for law change. Courts have the ability to introduce targeted, incremental change and can respond to changing market conditions, the process of judicial change is shielded, to some degree, from interest group pressure and conflicting agendas for change, and courts are limited in their ability to deviate too widely or unpredictably from existing norms in the absence of new circumstances. The courts cannot substitute for Congress or agencies where a significant shift in public policy, institutional infrastructure, or broad patterns of resource allocation, are required. The analysis therefore also suggests areas in which legislation and/or expanded agency rule making may be the best, or the only, mechanisms for accomplishing a desired law change. Part V concludes with a warning that the failure by Congress to consider the importance of the process and cost of legal change in evaluating reform proposals could limit the performance gains that it seeks through legislation.

In drawing these conclusions, I recognize that the application of the framework is based on normative assumptions about the behavior of courts, agencies and legislators, and I leave for a subsequent paper the study of whether the Federal Circuit and Supreme Court, Congress (particularly the committee and subcommittees charged with managing the patent reform legislation), and the U.S. Patent and Trademark Office function in accordance with the normal guiding principles for judicial, legislative and agency decision making in the context of patent law. The framework in this Article can accommodate the divergence of law makers from normative models of law making, but with potentially different conclusions about the relative merits of alternative processes for law change.

II. Understanding When and Why Legal Process Matters

> "The substance of the law at any given time pretty nearly corresponds, so far as it goes, with what is then understood to be convenient; but its form and machinery,

> and the degree to which it is able to work out desired results, depend very much upon its past." -- *Oliver Wendell Holmes, Jr., The Common Law (1881)*

Change in the law does not occur in a vacuum, nor does it take the form of a discrete or costless jump from one legal regime to another. Moving from one legal regime to another is a dynamic process, and the alteration of laws and behavior takes place over time and through different mechanisms which influence the predictability, durability, speed and other effects of the law change. But when, why, and how do characteristics of the legal process impact the cost and outcome of legal change? Scholars have focused predominantly on modifying the content of the law to address problems, neglecting the costs and complexity inherent in change itself and the efficiency implications of alternative mechanisms for legal change.[2] This neglect of legal process in evaluating law change is particularly pronounced in the patent law literature despite the sensitivity of technology markets to the ways in which patent law is changed.[3] Those scholars who have focused on the implications of legal change have approached questions of why and how the process of change matters from a variety of angles, drawing on tools for studying dynamic systems selected from economics, biology and other fields. These studies provide a foundation for understanding when and why the process of legal change may have substantive effects and what these effects are likely to be. But the question of how alternative law making processes compare in terms of cost and outcome in different contexts remains unanswered. The discussion below draws from the existing literature to explore when, why, and how characteristics of the legal process might impact the cost and outcome of legal change. Part III builds on this foundation to identify key characteristics of the legal process and to suggest when and why differences in these characteristics may matter when considering specific changes in the law.

1. Legal Change as a Dynamic Process

The path by which a change in the law is developed, introduced, and implemented may influence the characteristics of the outcome, creating a path dependence of the process on the outcome. The notion of path dependence - that the outcome depends on the characteristics of the path followed - has figured prominently in the study of common law.[4] Legal scholars have applied economic, political and biological models of path dependence to explain the evolution of common law,[5] but the concepts also have

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[2] See Michael P. Van Alstine, *The Costs of Legal Change*, 49 UCLA Law Review 789, pp. 789-870.

[3] Technology markets, construed broadly to include patent markets as well as the markets for innovations, products and processes that rely on patented inventions and the transfer, licensing, acquisition and use of such inventions, are closely intertwined with and dependent upon patent law. Patent law defines the boundaries and enforceability of patents and influences the cost of infringement. Patent law impacts investment decisions and private party agreements relating to the development and use of technology.

[4] See e.g. Hathaawy, Oona A. 2001, "Path Dependence in the Law: The Course and Pattern of Legal Changes in a Common Law System." 86 Iowa Law Review 606. Hathaway explores path dependence and the law to explain the influence of history on common law.

[5] See, e.g. Hathaway's framework, which emphasizes the importance of three different kinds of path dependence - "increasing returns path dependence" (once a decision is made, deviating is costly), "evolutionary path dependence" (evolution is constrained by history, characterized by stability

application to more general processes of legal change. Where the outcome of a change in the law is path dependent, it becomes essential to consider the characteristics of the process as part of legal design. The approach that I take to legal change includes an inherent recognition and acknowledgement of path dependence in legal change, seeking to identify when differences in legal process might have substantive effects on the cost and results of law change.

Susceptibility to lock-in (i.e. to situations in which there are increasing returns to following a path once taken regardless of whether the conditions making this path efficient later change) has been suggested as an important factor to consider when comparing avenues for social regulation.[6] Lock-in can arise in many different settings, including situations in which institutions incur structural costs when adapting to a particular legal regime that make future change more costly, economies to scale in decision making, and network effects.[7] But path dependence can take many other forms and manifests itself in different ways depending on the context of the change in the law and the mechanism(s) used to bring about change.

Path dependence may take the form of differential speeds of adjustment to a change in law. If alternative processes for legal change vary in terms of the speed with which private actors are informed and allowed to respond to the change, for example, the result could be a difference in the balance of public and private adjustment required to reach a new "equilibrium" and a difference in the balance of public versus private enforcement of the new law. More generally, a change in the law alters the legal, technological and institutional landscape through iterations of institutional and private actor adjustments.[8] Information about legal change and about how other actors are adjusting to this change will diffuse through a variety of channels at different rates, providing those impacted by the law with varying information about the legal change at different points in time. Even with the same information about the law, institutions, entities and individuals will have varying capacities to adjust and will do so at varying speeds.[9] The heterogeneity of information and differences in capabilities to adjust could create coordination problems and lead to temporary inefficiencies in market operations, as well as increasing the

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punctuated by rapid adjustment), and "sequencing path dependence" (the order in which alternatives are considered effects the outcome) - in explaining how "the path of the law shapes the law." Pp.606-617; Hathaway, pp. 606-617.

[6] See Clayton P. Gillette, Lock-In Effects In Law and Norms, 28 B.U.L. Rev. 813 (1998).

[7] See e.g. S.J. S.J. Leibowitz & Stephen E. Margolis, Path Dependence, Lock-In and History, 11 J.L. Econ. & Org. 205 (1995); but also see Mark A. Lemeley & David McGowan, Legal Implications of Network Economic Effects, 86 Cal. L. Rev. 479 (1998).

[8] See, for example, the model of lawmaking proposed by Grajzl and Dimitrova-Grajzl. They emphasize features of the lawmaking process to evaluate when a jurisidiction should develop its laws indigenously rather than transplanting them from other jurisdictions. Lawmaking is seen as a sequential process that is influenced by the decisions of private actors at different stages of the process. Peter Grajzl and Valentina Dimitrova-Grajzl, "The Choice in the Lawmaking Process: Legal Transplants vs. Indigenous Law", May 2008, ssrn. See also the literature on evolutionary laws, discussed in footnote XX. REFS – see papers on litigation as sequential process

[9] Markets are often the most rapid to respond to change, for example, meaning that processes which favor private market adjustments are more likely to adjust quickly to a new outcome.

magnitude and duration of public and private adjustment costs. If change is systematic but incremental, on the other hand, those changing the rules and those responding to the rule change will have opportunities to assess and reevaluate their actions in multiple stages. Non-incremental changes may leave less room for speculation as to the intended outcome of the process and may facilitate discrete shifts in behavior, but with potentially higher and more broadly spread adjustment costs and less opportunity for correcting errors.[10]

Path dependence may also occur as a result of feed-back effects. As those impacted by the law change respond, their actions will have feedback effects on others within the relevant market or community, as well as influencing future changes within the legal system. These feedback effects will vary depending on the characteristics of the legal process. If the law is changed through the judicial process, for example, the change will alter the landscape for legislators considering whether to enact statutory change and the decisions of private litigants and potential infringers, as well as changing future judicial lawmaking through precedent.[11] If the law is altered through agency rule making, changes will be concentrated at earlier stages in the patenting process (where agency activity is concentrated) and on a more limited group of market participants, altering the nature of the down stream issues and concerns faced by courts, legislators and markets. Allowing private markets to adjust without regulatory intervention could lead to evolving market structures that remove the need for intervention.

Theories of efficient evolution of the law offer an alternative but related perspective on legal change, presenting legal change as a process that is shaped by the actions of individual market participants. Much of this literature focuses on the effects of private litigant decision making and the role of precedent on the evolution of the common law.[12] The costs inherent in legal change are also examined.[13] Blume and Rubinfeld extend this approach to reflect the dynamic nature of the common law process by investigating the efficiency of the time path that is followed in common law rule change. The time path in their model is determined by the weight that judges give to precedent when deciding new cases. They argue that where there are transitional costs and a positive rate of time discount, a dynamically efficient path for rule change can be identified, determined by the optimal weight assigned to precedent.[14] To the extent that there are limiting variables

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[10] Change made by common law favors incremental adjustments, particularly where the decisions are fact specific, whereas change made by statute is typically broad and often sweeping in its coverage. Agency rule making can take either form.

[11] See literature on evolutionary law, discussed in footnote XX.

[12] See e.g. George L. Priest, The Common Law Process and the Selection of Efficient Rules, 6 J. Legal Studies 65 (1977); John C. Goodman, An Economic Theory of the Evolution f Common Law, 7 J. Legal Stud. 393 (1978); Richard A. Posner, Economic Analysis of Law (2d ed. 1977). See also Karl N. Llewellyn, The Bramble Bush, Section 4 (1960) (discussion of evolution of common law and legal process).

[13] Gillette focuses, for example, on the role of transition costs in the comparison of existing and proposed laws and the lock-in effects of laws as a result of the transition costs of adopting new laws. See Clayton P. Gillette, Lock-in Effects in Laws and Norms, 78 B.U.L. Rev. 813, 821 (1998).

[14] Lawrence E. Blume and Daniel L. Rubinfeld, The Dynamics of the Legal Process, 11 J. Legal Stud. 406, 1982. "Our argument is that static notions of optimality tell only part of the story. Given that

constraining the pace, scope and unpredictability of change in other rule making processes, these discussions of efficient legal evolution generalize beyond common law and suggest the importance of participation (e.g. through the role of the market in guiding areas of legal change) and variance (e.g. through the effects of stability, as well as lock-in effects and transition costs) in determining the efficiency, or inefficiency, of legal change.

In addition to the specific time path and efficiency of law change, the systemic effects of a change in law need to be considered and incorporated into models of legal change. In economics, equilibrium theory offers concepts and tools for comparing the system wide effects of change. Equilibrium theory typically starts with the actions of individual agents and markets and examines the effects of a change in activity on the stability of the system and the potential for shifting from one equilibrium (resting state) to another. This approach has been used to evaluate legal change as a function of the context within which the change is introduced, with application to questions such as the retroactivity of rules.[15] Equilibrium theory is used to examine stability within a legal system in response to legal change, with the measure of disturbance caused by a rule change used as criteria in determining the appropriate characteristics, or limits, of rule change. This notion of legal change as context dependent, and as introducing disturbances into an existing system in ways that need to be measured and incorporated into decisions about legal change, supports my focus on the institutional context of legal change and the adjustment costs stemming from law change.

2. Uncertainty & Imperfect Information

One of the prominent characteristics in models of legal change is the role that information and uncertainty play in the efficiency (or inefficiency) of the process. Information – who has it, how it is obtained and transferred, the cost of obtaining it, the ability to use it to advantage, and its imperfections or limitations, play important roles in the study of rule design and implementation. In general terms, uncertainty often results in higher costs and potential inefficiencies in resource allocation (e.g. through delayed investment decisions and higher negotiation costs). There is an extensive literature examining the selection and enforcement of legal rules in the face of imperfect information, risk and uncertainty.[16] Models of litigation rely heavily upon assumptions about information

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the social and technological milieu of common law changes over time, it is meaningful to ask what the optimal rate of change of legal rules – the optimal weight given to precedent – ought to be. In our model, the optimal time path of legal rules depends upon the importance society places on the future (the discount rate) and on adjustment costs (how individuals respond to changes in legal rules and changes in technology). It is evident that individuals' (or society's) attitudes towards risk will also play a role in the determination of the optimal time path, although we have not explicitly examined that here." (p.418)

[15] Jill E. Fisch, Retroactivity and Legal Change: An Equilibrium Approach, 110 Harvard Law Review 1055, 1058. "Rather than evaluating new legal rules I isolation – in terms of their novelty or forseeability – equilibrium theory focuses the inquiry on the regulatory structure and seeks to characterize that structure in terms of its stability." P.1058.

[16] Uncertainty relates to the absence of information about a particular event or occurrence, and risk deals with the probability that certain events will occur. See e.g. Kaplow, Louis. 1992. "Rules versus

asymmetries and uncertainty, and strategies for handling imperfect information and risk are widely explored by legal scholars and economists in the context of private party investment and contracting decisions. Imperfect information also plays a significant role in the literature on optimal rule design. While the challenges of imperfect information and uncertainty for rule design and enforcement have been widely examined, less attention has been paid to how the characteristics of the process of change influence and are impacted by imperfect information and uncertainty.[17]

Uncertainty can arise both before and after a change in law. There can be ex ante uncertainty about the nature, scope and timing of the law change and the likelihood that the law change will be completed. The heterogeneity of the decision makers and agendas involved in making the rule change, the volatility of preferences, and the proposed scope of the change will play important roles in determining the level of uncertainty that arises prior to and during the law making process. The lawmakers may face uncertainty about the outcome of their efforts to change the law as well as about the actual effects of the law change. Institutional structure will play a role in the indeterminacy of the law making process itself. Indeed, much of the literature on the legislative process views the outcome of lawmaking and institutional reform as inherently uncertain.[18] Courts and, except where driven by legislation, agencies, are more limited in their ability to enact wide spread structural change and the judicial process is typically seen as more predictable.[19] Nonetheless, questions about the accuracy of judicial decisions, differences of opinion and procedures among district courts, and divergence of the Federal Circuit from precedence, create uncertainty in the judicial process. [20] The scope for uncertainty in agency rule making is constrained by the administrative law requirements for rule making and the limits of delegated authority, but radical changes can be proposed and explored nevertheless.[21]

Uncertainty also arises during the ex-post implementation of the law change through interpretation and application of the laws, variations in enforcement practices, and the potential for future modifications to the law.[22] Changes in related institutional actors and

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Standards: An Economic Analysis." Duke Law Journal, 42, pp. 557-629. Where individual actors and regulators have asymmetric information about the costs and benefits of alternative activity levels, for example, regulators may favor rules that set fixed penalties and leave activity adjustments to more informed individual actors. Uncertainty about the magnitude of risks associated with particular activities and the costs of reducing these risks may lead to the use of standards rather than rules.

[17] Interesting empirical questions include whether and how insurance costs respond to alternative mechanisms for rule change. See Van Alstine, Michael P. 2002. "The Costs of Legal Change." UCLA Law Review, 49, pp. 789-870.

[18] See e.g. Fiorina, Morris. 1982. "Legislative Choice of Regulatory Forms: Legal Process or Administrative Process." Public Choice, 39, pp. 33-66; Morris Fiorina, 1986, "Legislator Uncertainty, Legislative Control, and the Delegation of Legislative Power." Journal of Law, Economics and Organization, 2:1, pp. 33-51; and Matthew McCubbins and Talbot Page, 1986, "The Congressional Foundation of agency Performance." Public Choice, 51, pp.173-190..

[19] Ref – judges and predictability

[20] REF – variability in fed circuit

[21] See e.g. Matthew Stephenson, 2006, "Legislative Allocation of Delegated Power: Uncertainty, Risk,, and the Choice between agencies and Courts." Harvard Law Review, 119, pp. 1035-1070

[22] Van Alstine, Michael P. 2002. "The Costs of Legal Change." UCLA Law Review, 49, pp. 789-870

market responses to the rule change will expand uncertainty and induce subsequent rounds of adjustment. Indeed, a change in one area of law can often have unforeseen or unpredictable effects on other areas of law and behavior, leading to unexpected consequences for a broader range of actors that play out over time. The breadth of the law change and the extent of variation from existing practices, as well as the specificity and transparency of the law change and the extent to which it requires further rule making in implementation, will be important factors in determining the ex post uncertainty generated by the law change. Institutional competencies will determine the likelihood of error in making and enforcing laws, and differences in competencies may suggest different approaches to changing the law.[23] Moreover, legal design may itself reflect the deliberate use of uncertainty. Examples include the use of vagueness in a statute to leave room for discretion.[24] In a dynamic context, there may be advantages and disadvantages to introducing uncertainty at different stages of the process of law change, either limiting or expanding the discretion of those implementing, or impacted by, the rule change.

Administrative law scholars have devoted considerable effort to the question of how to handle uncertainty in regulation, including the study of optimal precision in rule design, a question which turns largely on the availability of information and ways of handling uncertainty in rule design. Models of regulatory precision involve considerations of the cost of obtaining and ability to obtain the information required to increase rule precision and the trade-offs involved in narrowing or broadening rules.[25] Many of these models involve a comparison of different dimensions of rules or rule making processes, an approach which I apply to the study of the process of law change.[26] Like studies of

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[23] Hadfield has argued, for example, that in light of their limited competence, courts and legislators should sometimes fashion vague standards rather than bright line laws. A vague standard allows individuals more leeway in adjusting behavior to reduce the probability of liability – vagueness softens the impact of judicial error on individual incentives while retaining some deterrence function.Gillian K. Hadfield, Judicial Competence and the Interpretation of Incomplete Contracts, 23 J. LEGAL STUD. 159 (1994).

[24] Hadfield offers a framework for thinking about the role played by uncertainty in legal design. She suggests that we think of legislation as a contract that determines the tasks that will be delegated to the judicial system. Vagueness in a statute is analogized to incompleteness in a contract, which provides the delegated actors with residual discretion. Gillian K. Hadfield, Weighing the Value of Vagueness: An Economic Perspective on Precision in the Law, 82 CALIF. L. REV. 541 (1994). Hadfield, p. 547. "An economic analysis of vagueness is worthwhile because it leads us to consider explicitly the costs and benefits of precision in legislation….An economic analysis of vagueness [also] makes explicit the role that vagueness plays in the design of a legal system." Hadfield, 82 Calif. L. Rev. at 554.

[25] Diver, for example, offers a model of precision in rule design in which the appropriate degree of regulatory precision is determined based on the challenges and cost of obtaining information and trade-offs between the purposes served by competing characteristics of the law. Diver identifies three dimensions of a law that determine its precision – "transparency," "accessibility," and "congruence," and compares laws in terms of the mix of these elements. See Colin S. Diver, The Optimal Precision of Administrative Laws, 93 YALE LAW JOURNAL 65 (1983). Diver p. 66 – 67. Diver, p. 74. Laws are compared in terms of social welfare based on four categories of costs and benefits: rate of compliance; over and under inclusiveness, costs of lawmaking and cost of applying the law.

[26] Diver's framework extends naturally to a dynamic setting, where the "optimal precision" of a process will depend on factors such as specificity and participation in the process of change, with a balance between characteristics depending on precision as well as cost. My framework borrows from

optimal precision, comparisons of alternative processes for legal change will vary depending on the nature and context of law change. Characteristics which may be important in the context of a change in how damages are calculated in patent law (such as variance and the associated uncertainty about the "price" of infringement), may be much less important when considering a change in how priority of ownership over inventions is determined, for example. The type and magnitude of uncertainty about the law change and the new legal regime will also vary, both with context and with the legal process used to bring about change.

3. Transition Costs

The models discussed above focus on dynamic features of change often neglected when considering a shift in legal regime, suggesting the potential disruption that can occur as a result of change. Indeed, the cost and friction of legal change more generally is often neglected when considering substantive legal change.[27] Van Alstine seeks to fill this gap in the literature by categorizing the different types of costs inherent in legal change, which he refers to as transition costs, and arguing that lawmakers and scholars should apply a broader calculus that reflects transition costs when considering change in the law.[28] Transition costs are categorized as: (a) learning costs - the costs associated with the process of learning the law, including determining the content of the law and its scope and exploring its complexities; (b) uncertainty costs, including negative costs associated with loss of accumulated experience with a given legal regime, positive costs associated with contending with new legal norms and with new conflicts over institutional allocations of authority, and opportunity costs associated with deterring desirable activities where legal actors are unwilling to bear the increased risk that accompanies uncertainty in the law – and the resulting planning, negotiation, and dispute resolution costs; (c) private adjustment costs – costs arising from the need to adjust internal norms and practices and external practices and conventions in response to changes in their validity, meaning and impact driven by underlying law change; (d) error costs – costs arising from mistakes or inaccuracies in the articulation or application of the law; and (e) public transition costs – costs arising from the administration and application of the new law, such as litigation and other dispute resolution processes.[29]

Diver's approach towards the characterization and comparison of legal rules. Processes are compared along four dimensions, and classifying the consequences of alternative process characteristics is used to identify situations in which one factor may exert strong pressures for a particular "level" of speed, variance, specificity and/or participation.

[27] Van Alstine, Michael P. 2002. "The Costs of Legal Change." UCLA Law Review, 49, pp. 789-870, 795.

[28] Van ALstine, p.795 Van Alstine argues that an "increasingly fragmented and complicated political-legal regime has spawned an increase in the breadth, complexity, and velocity of legal transitions" and that "[w]hat has been overlooked in this acceleration of law is the derivative increase in the friction associated with change itself.…These costs of simple adjustment will arise, significantly, whatever substantive policy goals the norms pursue and however well they are crafted to achieve those ends." (p.812).

[29] Based on his exploration of transition costs, Van Alstine argues for a preference for targeted change over comprehensive reform (i.e. higher specificity), a renewed support for the doctrine of star decisis (a limit on variance), and attention to the ways in which mediating institutions (such as courts and

Van Alstine also highlights the interaction between legal norms and private norms in his framework – with private norms emerging to supplement, implement and (to the extent allowed) adjust the positive law.[30] Related approaches focus on the concept of transaction costs (the cost of using a contractual solution to facilitate a desired activity), including information costs, negotiation costs and enforcement costs,[31] and the coordination effects of alternative laws (where coordination refers to the process by which individuals interact with each other to perform a particular activity efficiently).[32] This interaction between public and private actors, and the implications of public rule change on private market adjustment and cost, is a critical component in the study of the process of legal change.

Legal change will also require institutions (both public and private) to engage in structural adjustments to accommodate the rule change. Structural costs could include changes in organizational structure, administrative procedures, reporting structures, information collection and storage practices, and similar changes to the process of change. There may be significant institutional variations in the cost of making structural changes. Change through agency rule making may require changes in the way the agency is organized and functions, involving sunk cost in infrastructure, whereas changes made through courts may require less institutional change and more private party adjustment. Markets may be better able to adjust to changes in the law at a lower cost than public institutions, in which case a process that shifts the burden of change to the private market will have lower transition costs. Markets may also have the ability to make more efficient adjustments to a change in the law, resulting in lower efficiency costs for processes that favor market response. In addition, alternative legal processes may either concentrate or separate the decision to change the law from the cost of implementing it, with implications for efficient choice in legal change. Legislation will shift the cost of adjustment to other entities, whereas agencies may well bear the full cost of their proposed changes.

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administrative agencies) work to ameliorate the impact of new laws through fine tuning of the law (again, a limit on variance and an increase in specificity of the process of change). Van Alstine, Michael P. 2002. "The Costs of Legal Change." UCLA Law Review, 49, pp. 789-870.

[30] Van Alstine, p.836.

[31] See Heald, Transaction Costs and Patent Reform, p. 453. Heald suggests that patent reform should be evaluated in terms of its effect on transaction costs. See Heald's definition of transaction costs – "transaction costs encompasses all the costs of using a contractual solution to facilitate creation including: Information costs (identifying potential users of the invention; signaling the inventive capacity of the inventor, and valuing the invention); Negotiation Costs (pricing the invention; legal costs and opportunity costs; and obtaining financing); and Enforcement Costs (monitoring the parties to the contract; and preventing intra-firm opportunism)."

[32] See F. Scott Kieff, Coordination, Property & Intellectual Property: An Unconventional Approach to Anticompetitive Effects & Downstream Access, Working paper, ssrn Kieff examines intellectual property rules in terms of their effects on the cost of coordinating to achieve efficient outcomes, suggesting that clear, strong intellectual property rights reduce the coordinating costs of achieving "good" coordination.

The framework proposed in Part III suggests a way of incorporating considerations of alternative processes for legal change, and their implications for different costs associated with legal change, into the broader policy making calculus proposed above. Where particular costs are likely to dominate, legal processes can be compared in terms of their relative impact on such costs.

4. Institutional Interaction & Enforcement Costs

Decision making hierarchies and institutional interdependencies can have significant effects on the cost and outcome of legal change. In some cases a change in the law will give rise to new discussions about the allocation of lawmaking and law enforcing authority among participating entities. Overlapping bodies of law and legal mandates may create conflicts between rules, as has been the case with recent International Trade Commission (ITC) and Federal Circuit opinions regarding patent infringement and imports.[33] International treaty obligations can constrain Congress, leading to costly compromises in one area of law to secure changes in another. The likelihood of interventions by other institutions will have implications for the predictability, stability, and cost of changing the law. As discussed in more detail in the context of patent law reform, the interaction and interdependencies between law making institutions and their interested constituencies complicates the analysis of legal change and can result in substantial cost and outcome differences when different law making processes and are employed.

How a law is changed may influence not only the content of the law and its likelihood of being altered, but also how the new legal regime is enforced. The relative costs of enforcing law change may vary depending on the process by which the law is changed, and these costs need to be included in the evaluation of legal change. Alternative enforcers include the courts, agencies, and private markets (as well as the executive branch under limited circumstances). Drawing from the administrative law literature, principles of optimal institutional design suggest conferring power on decision makers who are best able to make and properly act upon complex, contingent and context specific policy judgments.[34] Stephenson looks at the optimal delegation by Congress to agencies of the right to create and define private enforcement rights based on a comparison of four dimensions of institutional competence – expertise (most expertise and best information regarding likely effects of decision), incentives (incentive to adopt normatively desirable policies), accountability (political accountability for consequences of choices) and flexibility (how easily can policy change in light of new information or political circumstances).[35] The model is used to guide Congress in its balancing of public

[33] REF – recent case by ITC that held that diff. outcome from Fed. Circuit

[34] Matthew C. Stephenson, Public Regulation of Private Enforcement: The Case for Expanding the Role of Administrative Agencies, 91 VA. L. REV. 93, 97 (2005). (Application of principles of optimal institutional design to address appropriate role of executive branch in determining availability and scope of private actions to enforce federal law)

[35] Stephenson examines the characteristics of institutions which make them efficient at enforcing laws, focusing on the balance of public and private enforcement mechanisms. He looks at the benefits of delegation of the right to create and define private enforcement rights to agencies as compared to Congress and the courts Stephenson, 91 Va. L. Rev. 93 Stephenson, 91 Va L Rev at 126

and private rights of enforcement,[36] and in the context of our discussion raises the important point of paying attention to the allocation of enforcement costs and responsibilities in the analysis of law change.[37] Changes in agency procedures or change through judicial decision making may leave a wider role for private enforcement that statutory change, with important implications for the cost of legal change in the context of complex, relatively efficient and adaptive private markets (such as technology markets). Where markets are efficient, private actors may be the best able to adjust to changes that impact market conditions, with back up from the courts, whereas in the context of broad market failures, targeted agency enforcement may be appropriate.

5. Behavioral Response to Legal Change

The ways in which change effects individual behavior, and individual attitudes towards and responses to risk, uncertainty and other features of change, inform our understanding of how differences in legal process might have substantive effects on cost and outcome. Some scholars have focused on behavioral responses to change as a way of understanding and evaluating aspects of law design, drawing on tools from behavioral economics, cognitive psychology, and even psychotherapy to expose the ways in which individuals are affected by and respond to change and uncertainty.[38] The literature on decision making under uncertainty explores how individuals handle risk and uncertainty, including problems caused by "behaviorism" (the ways in which human beings deviate from perfect rationality) and implications for the costs of coordinating to achieve efficient outcomes.[39] The study of social norms adds to the understanding of how groups react and adapt to legal change.[40] Law and economics scholars look at the incentive effects of alternative rules on individual decision makers – typically in the context of comparing the efficiency effects of alternative laws, such as comparisons of strict liability, negligence and other liability rules, use of liability versus property laws, and laws versus standards.[41]

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[36] Stephenson argues that "[b]ecause of the executive's relative expertise in matters related to public law enforcement, its greater ability to adapt and experiment with various private enforcement systems, and the political accountability associated with executive lawmaking, Congress ought to consider …delegating the power to fashion private rights of action to administrative agencies…"Stephenson, 172

[37] Stephenson's focus on public-private interactions is also important when analyzing the process of change, which involves the interaction of public law making with private market activity and the interaction of public laws with private decisions. Stephenson discussed potential benefits of private enforcement of public laws such as more enforcement resources and improved efficiency of allocating public resources, checks on agencies, and fostering innovation litigation strategies and settlement techniques. See Stephenson, 91 Va. L. Rev. at 106.

[38] Need ref – behavioral response to legal change/change more generally

[39] See Kieff, Coordination, Property & Intellectual Property, p. 36; Oliver Williamson, Markets and Hierarchies: Analysis and Antitrust Implications (1975) (wide ranging discussion of transaction costs and behaviorism)

[40] Need ref – evolution of social norms and law change

[41] See e.g. Steven Shavell, Strict Liability versus Negligence, JOURNAL OF LEGAL STUDIES, Vol. IX, 1-25; William M. Landes and Richard A. Posner, A Positive Analysis of Products Liability, JOURNAL OF LEGAL STUDIES, Vol. XIV, 535-67 (1985); Steven Shavell, Liability for Harm versus Regulation of Safety, JOURNAL OF LEGAL STUDIES, Vol. XIII, 357079 (1984).
See e.g. Louis Kaplow, Laws Versus Standards: An Economic Analysis, 42 DUKE L. J. 557 (1992).

The models share a common approach of focusing on how different legal structures alter the response of individual actors. Although these models typically avoid the complexity of institutional structures and the interaction between legal change, institutional change and market response that are essential to an understanding of legal process, they provide insights into the study of how characteristics of a legal process might influence individual behavior.

As an example, the different ways in which a change in the law is introduced to the public, including the message communicated by the law maker and the media role in presenting and framing the law change, can alter perceptions, beliefs and expectations about market performance in ways that have substantial market impact.[42] A legislated change may carry a different message than a judicial opinion or agency action, for example, even though the resulting substantive change in the law may be comparable - a message that the government is engaging in sweeping patent reforms is likely to create more uncertainty about the benefits of developing and disseminating inventions than a message that the U.S. Patent and Trademark Office is revising its rules for evaluating and granting patents. The dispersion of information about the law change and the willingness to adapt to the change will also vary depending upon the normal paths for informing the public about the decision. Participation may also have significant effects on the cost of legal change, particularly enforcement costs. Perceptions of fairness may influence the willingness of private parties to adhere to the new law, whereas participation in law change that is limited to special interest groups and seen as widely unfair may require higher enforcement costs.

The above discussion of the different aspects of legal change suggests how, when, and why the process of legal change may have significant effects on the cost and outcome of legal change. It also suggests that the effects of a particular legal process will depend on the context. A critical part of any analysis of legal change, therefore, is to identify what characteristics of the legal process are most likely to have substantive effects, under what conditions they will be important, and where they are important, how they will impact cost and outcome. The existing literature provides a foundation for identifying key characteristics of the legal process and suggesting when they might be important, but leaves unanswered the question of how to incorporate the characteristics of legal process into designs for legal reform and, more specifically, how to determine when a particular legal process will yield a significant advantage or result in higher costs because of these characteristics. Part III provides a framework for addressing these questions.

III. Determining Who Should Change the Rules

[42] See Lisa A. Dolak and Blaine T. Bettinger, The United States Patent System in the Media Mirror, Workig Paper 2008, http://ssrn.com/abstract+1084420. Dolak and Bettinger make the point that what the media say about the patent system matters, shaping public understanding and potentially impacting legal policymaking; points to the negative imagery provided by headlines such as "Supreme Court Tackles US Patnt Pandemic", "Court Eases Patent 'Doomsday'", and "Patent System has Run Aground" and the role of the press in selecting, framing and emphasizing certain aspects of patent markets, such as the problem of "patent trolls". See also Robert A. Armitage, The Conundrum Confronting Congress: The patent System Must be Left Untouched While Being Radically Reformed, 5 J. MARSHALL REV. INTELL. PROP. L. 268 (2006)..

This Section provides a framework for characterizing and comparing alternative law making processes. The dimensions of the legal process introduced below – variance, speed, specificity and participation – are designed to capture key features of the process of changing the law that are likely to influence market performance. As Part II suggests, the effects of legal change will depend on the context of the change, including the type of law and the nature of the change required. The importance and effects of the different characteristics discussed below will vary with the context of legal change, meaning that a particular process (such as legislation) may be an efficient mechanism for law change in some circumstances but not others. The framework provides a way of comparing alternative legal processes to determine conditions under which certain legal processes may yield comparative efficiencies, gauged here in terms of lower transition costs. Part IV applies the framework to compare the efficiency of alternative legal mechanisms for changing patent law.

A. The Framework

A process for changing the law is characterized in terms of four dimensions: (1) variance – the scope for deviating from existing laws and the restrictions on doing so; (2) speed – the speed with which laws can be changed and implemented and the speed with which the laws are promulgated, understood, and adopted; (3) specificity – the extent to which the law change is limited to or contingent on facts and circumstances and the types of information which can or must inform the decision; and (4) participation – the extent to which the law making process reflects and takes into account the interests of relevant (and other) constituencies.[43] Legislating, judicial decision making, and agency rule making are characterized along these dimensions and then compared in terms of the "levels" of these characteristics (e.g. lower or higher speed, more or less specificity) and the resulting implications for costs associated with legal change.

As discussed in Part II, the cost of legal change can take a variety of forms and can be categorized in a variety of different ways. While I borrow Van Alstine's use of the term "transition costs," in my framework the cost of legal change is construed broadly to include all public and private costs associated with a change in legal regime, including the costs of uncertainty, public and private learning and other adjustment costs, efficiency costs arising from distortions in resource allocation during the adjustment from old to new legal regime and the cost of errors, structural costs incurred by institutions, and the social costs incurred from making and enforcing the new laws. While the term is broad,

[43] These dimensions, and their relationship to technology markets, reflect the criteria suggested by studies such as the National Academy of Science's Report, as well as the objectives proclaimed by policy makers. In their response to the proposed patent reforms, the Administration emphasized that "[a] robust intellectual property system is built upon and relies on fundamentals of predictability, clarity, timeliness, and fairness. Downstream litigation costs can be minimized through patent clarity – offered through such early elucidation mechanisms as applicant quality submissions and post-grant procedures. Flexibility in assessing damages ensures that results can be tailored, avoiding a "one-size-fits-all" approach that pleases no one." Letter to Committee on the Judiciary from Nathaniel F. Wienecke, U.S. Department of Commerce, Assistant Secretary for Legislative and Intergovernmental Affairs, February 4, 2008.

the breakdown of transition costs into different categories, such as Van Alstine's categories of learning costs, uncertainty costs, public and private adjustment costs, and error costs, can be usefully applied to our comparison of the processes of legal change.[44] Learning costs, for example, are likely to increase with an increase in the ambition, novelty, and complexity of the law change and to be lower where change is incremental – suggesting lower learning costs for processes that involve lower variance and higher specificity. Uncertainty costs associated with the loss of accumulated experience will be lower where rule change is limited by legal precedent, and uncertainty costs associated with the unknown parameters of new regimes will be lower where the rule is more rigid and precise and higher where the rule is more flexible and open ended – again suggesting that the variance and specificity of rule change will impact cost. Error costs will increase where the laws are broad and vague or ambiguous, where there are multiple opportunities for (erroneous) interpretation, and where private actors are not aware of the law or its implications. The variance and specificity of the law, and the participation in the process and application, will influence these types of costs. The concepts of transaction and coordination costs also play a useful role in highlighting the intersection of legal process with cost. An important component of the cost of legal change arises from the effects of different processes for legal change on transaction costs (the costs incurred by parties seeking to make an economic exchange) and coordination costs (the costs of and impediments to cooperating to achieve a beneficial result), which impact economic activity between technology producers, owners and users. Alternative processes of legal change are compared in terms of their impact on transition costs. Higher transition costs will harm the performance of technology markets, thus reducing social welfare. The magnitude of the costs or benefits associated with a higher or lower "level" of each dimension of the legal process, and the relative importance of each dimension as compared with other dimensions of the law making process, will vary depending on the nature of the law and the activities it is directed to. Law making processes that are efficient for some types of law change may not be efficient for others.

1. Variance

The "variance" of the law making process refers to the scope of divergence from existing laws and the requirements and constraints imposed on such divergence. Constraints may be externally imposed (e.g. by constitutional limits on the scope of decision making) or may result from internal features or principles of the law making process (e.g. by principles of star decisis, or high structural costs of administrative change). Variance also includes the volatility of laws (how often laws can change), which will depend in part on the ability to modify or overrule the existing law and the reversibility of the law. In addition to deviation from existing laws, variance also encompasses the extent to which law change in one area can deviate from existing laws in other areas of law or decision making. Variance across jurisdictions and circumstances can allow for experimentation and comparison of alternative law change, providing information that has useful content for evaluating alternative laws. But such variance can also lead to conflicting authorities and uncertainty as to the nature and application of the new law.

[44] Ref – Van Alstine

How does variance impact transition costs? There is a voluminous literature on the importance of stability and reliability in the law, with a premium placed on law making mechanisms that promote stability and predictability and generate clear, stable legal norms.[45] "Not unlike the function of rules of grammar, a settled legal regime provides a framework for efficient communication between transactors."[46] Applying this analogy to the process of legal change, different processes for legal change will differ in the "language" used to communicate the change and the extent to which the existing language is modified or rendered in need of further interpretation. The variance of a law making process will impact the stability and predictability of laws. High variance will be associated with lower predictability and higher uncertainty about the nature and effect of the new legal regime. Restrictions which limit the basis for law change, such as a requirement that the existing statute be vague or silent on an issue or the requirement to give reasoned support to any change, will increase the predictability of the law change. Limits on the magnitude of the change will also increase predictability and reduce uncertainty. The variance of the change in law will play a significant role in determining how wide spread and unpredictable the effects of change will be. The proposed reform legislation threatens to have wide spread, unpredictable and unanticipated effects that evolve over time.[47] Higher uncertainty and lower predictability will generally increase transition costs, with negative efficiency effects on technology markets.

Higher variance will also be associated with higher learning and adjustment costs. The variance of a law may also impact the cost of law making and the cost of enforcing the law. Where variance is high, the law making and implementation process could be more costly because of factors such as greater demands for information about what the law change should be and the time and effort required by market participants to understand and adjust to the law change. The enforcement costs could be higher where the private adjustment costs are higher and parties are reluctant to incur them. The cost of making and enforcing laws is also likely to be higher when variance is high.

Although in many cases higher variance may be associated with higher transition costs, this is not always the case. Higher variance may avoid the need for incremental changes, facilitating a substantial shifts from a lesser to a more efficient market equilibrium. High variance is required to achieve those reforms which require a paradigm shift – such as the shifts in U.S. patent law required to achieve harmonization with international norms. High variance may also minimize the negative effects of lock-in (situations in which institutions do not adjust even when the conditions making a legal rule efficient change) and the tendency to slip back to prior legal norms inherent in the legal system.[48]

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[45] See e.g. …; See also Frank H. Easterbrook, Stability and Reliability in Judicial Decisions, 73 Cornell L. Rev. 422 (1987).

[46] Van Alstine, p. 813

[47] It can be argued that the landscape governing basic research and development is still adjusting to the changes introduced by the Bayh-Dole Act, for example, and the Federal Circuit's role in shaping patent law remains in flux.

[48] see Frank H. Easterbrook, Stability and Reliability in Judicial Decisions, 73 Cornell L. Rev. 422 (1987) (suggesting why judicial decision making based on precedent may not promote stability).

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2. Speed

The "speed" of the law making process refers to how quickly new laws can be approved and implemented and how fast the law change is communicated to and adopted by those affected by the law. The speed of the law making process will impact the uncertainty associated with law change. It will also impact the learning and negotiation costs and other expenses involved in adjusting business and investment strategies. The speed with which the law is changed should be distinguished from when the law becomes effective, since in some cases a period of transition is beneficial to reduce transaction costs as long as the nature and scope of the new rule is understood ahead of time. The visibility and transparency of the process can play an important role in determining the speed at which a new law is adopted, particularly where public perceptions and expectations are important in determining market impact of the law change. Where the legal process has differential effects on market participants, the variation in adjustment to the new law can have potentially costly effects. Moreover, where interactions between law makers are important, and in the absence of coordination between the law makers, the relative speed with which changes are made by alternative processes can be critical in facilitating, or preventing, coordination and avoiding conflicting actions. The PTO, courts, market participants and legislators are all taking actions that alter the patent system, and the relative speed with which these different players act can result in outcomes that were not intended.

Speed may have varying effects on transition costs. The longer the period of debate over the content and timing of law change, for example, the longer the period of uncertainty about what the change will be, but also the greater the opportunity to prepare for a change in law. There is generally an optimal pace of change, and a cost to accelerating adjustments from one regime to another if change is too rapid. Even basic costs such as revamping rules and regulations online and in print will be more expensive if accelerated. There are also costs attendant on change that drags out over time. Where slow speed is accompanied by predictability of outcome, the result could be either lower or higher transition costs. To the extent that slow speed is accompanied by uncertainty about the law change, however, it may dampen investment incentives and impede business transactions and will generally result in higher transition costs – particularly higher transaction costs. Differential speed in adjusting to legal change will increase coordination costs, not only between parties who can influence the legal regime, but also by parties engaged in transactions that will be effected by the legal regime change.

3. Specificity

The "specificity" of the legal process refers to the breadth of the law change and the degree to which it is contingent upon or limited to particular facts and circumstances. The specificity of a law making process will determine the reach of the law within the market place, whether changes are incremental or take the form of discrete jumps, and the precision with which the law is directed at the specific behavior motivating the law change. Specificity relates not only to the narrowness or breadth and level of detail of the resulting law, but also to the type of information and agendas that can factor into the law

change. Higher specificity may allow for change which is incremental and for more flexibility to address changing market needs, but highly specific laws may also have limiting effects on market adjustment and may require additional law changes to accomplish intended goals. Higher specificity may also limit the type and number of agendas that form part of the decision making process driving law change.

Incremental changes to the law will be useful where law makers have limited information about the effects of the law change and where adjustment costs increase with the magnitude and speed of the law change. The cost of making and implementing laws and a lack of sufficient information about what the law change should be may dictate lower specificity. Limiting the effects of the law change to specific facts and circumstances will be beneficial where market conditions, practices and needs are changing rapidly. For some types of law changes, broader laws will allow for flexibility, whereas in other cases more specific law changes preserve flexibility. Flexibility in application of the new law will allow parties to adjust to the same law in different ways. Higher specificity will generally reduce learning costs and public and private adjustment costs, as well as minimizing the scope of structural changes required. Higher specificity may increase transition costs where the change in legal regime is broad and sweeping and there are benefits to a faster, more discrete shift from one legal regime to another.

4. Participation

"Participation" in the legal process refers to the different interests which inform or are reflected by the law making process. At the most basic level, participation refers to who can initiate, participate in, and/or influence the law making process. Participation might occur through a process that is representative of a broad selection of market participants, one that requires a balancing of divergent interests, and/or one that provides opportunities for participation by those impacted by the laws and by those not directly impacted, but nonetheless interested. Considerations include impact on legitimacy and fairness, the effects of heterogeneous and volatile preferences on cost and outcome, potential for capture by special interest groups, and the cost of collection and diffusion of information relevant to law change.

Participation can have implications for the perceived and actual legitimacy of the law. Legislation includes broad based participation (at least theoretically). Law makers are elected and must consider voter support, as well as the support of internal constituencies, when making decisions. Agencies are also sensitive to the electorate through their close relationship with the Administration, and for formal rule making they must engage in a procedure that includes opportunity for public comment and dissent. Concerns have been raised about the appropriate role of courts as law makers, however, in light of constitutional and democratic limits. The "counter-majoritarian" concern challenges the legitimacy of judicial review where unelected judges use their power to nullify the actions of elected executives or legislators.[49] This concern rests on assumptions about the degree to which voters can effectively constrain the government to act in the expressed

[49] Alexander M. Bickel, THE LEAST DANGEROUS BANCH: THE SUPREME OURT AT THE BAR OF POLITICS 16-23 (1962).

interest of the majority and the extent to which voters are informed about legislation - where voters are not well informed or where the government is not responsive to general voter interests, courts may do little to subvert the majoritarian will.[50] Nevertheless, the perception of legitimacy must be considered when comparing alternative processes of legal change, and a decrease in legitimacy could result in higher transition costs.

In addition to concerns about legitimacy, the nature of participation will impact perceived and actual fairness of process and outcome. As markets evolve and as laws change, there will inevitably be winners and losers. A robust law making mechanism is one that is not overly responsive to either the winners or the losers, but rather one that can focus on protecting the operation and further growth of the market. A robust law making process also needs to be perceived as a fair one, and the fairness of the system will be judged in part by the ways in which diverse interests are accounted for. A process that provides for fair and balanced participation should lower transition costs in most cases, particularly once enforcement costs and the need for future modification to remedy imbalances are taken into account.

Alternative mechanisms for changing the law will draw upon different decision makers, interest groups, and agendas for change, with consequences for the cost and outcome of legal change. Different degrees of heterogeneity and volatility of preferences may dictate preferred forms of law making.[51] The legislative process draws upon a broader and more heterogeneous group of participants, either directly or indirectly through lobbying and voter interests, whereas courts and agencies have a more particularized and narrower group of participants and more restricted agendas. Broader participation can be helpful in some contexts, such as rule changes that must integrate a range of interests and trade offs as part of a broader agenda (e.g. in the context of international negotiations relating to intellectual property). On the other hand, processes which require broad participation, particularly with heterogeneous preferences, may lead to law making with features of more questionable value, such as an increase in vagueness. Legislators may find that precisely drawn statutes are more likely to concentrate interests, for example, and if the likelihood of passing legislation diminishes as the parties opposed to the legislation become more concentrated, legislators will introduce vagueness to diffuse opposition.[52] Vague statutes may facilitate blame shifting,[53] and more transparent laws may raise the costs of securing agreement among those involved in law making because greater

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[50] Indeed, one commentator has argued that if voters are not voting based on knowledge of legislation, the limits on government power imposed by judicial review could actuall strengthen majoritarian democracy by decreasing the number of issues they need to consider and thus decreasing their knowledge burden.See Ilya Somin, Political Ignorance and the Countermajoritarian Difficulty: A New Perspective on the Central Obsession of Constitutional Theory, __ Iowa Law Review __ (___).

[51] See Peter Grajzl and Valentina Dimitrova-Grajzl, "The Choice in the Lawmaking Process: Legal Transplants vs. Indigenous Law, SSRN May 2008. They look at the comparison of adopting foreign laws versus indigenous law, emphasizes features of law reform that include the sequential nature of lawmaking, the presence of uncertainty, considerations over ex-ante promulgation and ex-post adjustment costs, and the role of political context.

[52] See e.g. William N. Eskridge, Jr., Politics without Romance: Implications of Public Choice Theory for Statutory Interpretation, 74 VA. L. REV. 275, 289095 (1988).

[53] Hadfield, 82 Calif. L. Rev. at 547.

precision sharpens value conflicts.[54] Concerns about regulatory capture of decision making by special interest groups may similarly dictate preferred processes for rule change. The role of special interest groups, lobbying, and regulatory capture can be important in the legislative context, but are perhaps more of a concern in the context of agency rule making, which operates within a narrower political context involving close proximity between regulator and the regulated.[55] While courts also have a more restricted framework for participation, they are less likely to be the subject of regulatory capture.[56] Higher probably of regulatory capture leads to higher transition costs.

Participation also encompasses the ways in which issues driving or shaping law change are presented and the information that is taken into account when selecting among alternatives. Media plays an important role in this broader view of "participation." Media coverage of the patent system has an important influence over how the public and policy makers respond to proposed changes in the patent system, a role that is even more pronounced in patent law than in other areas due to the technical and esoteric nature of patent law. Popular media provides (or even constructs) the frame of reference within which the public understands and debates the issues surrounding the patent system.[57] The public debate is shaped through media selection of which aspects of the patent system to report, modes of defining and presenting the issues, and differential emphasis on facts and circumstances relating to patent markets. A good example of the role that popular media can play in stirring up public concerns over the patent system is the media on "patent trolls"[58] and the notion that the patent system is in a state of crisis.[59] Moreover, policy makers must appear responsive to issues identified by the media as being critical to public welfare, allowing media to play a role in agenda setting (particularly in the political realm). Professional and scholarly writing effect the expectations, beliefs and norms of market participants and influence policy makers. Different forms of law making will garner different kinds of media coverage and attention. To the extent that a process of change encourages accurate and broad diffusion of information about rule change, it will lower transition costs.

B. Characterizing Agencies, Courts and Congress

The U.S. Constitution provides the framework for the exercise of legislative, executive and judicial powers, expressly giving Congress the power to make the laws and the judiciary the power to engage in constitutional scrutiny of the actions of the other branches of government.[60] In reality, each of the three bodies - the legislative body, judicial body, and executive body, are involved to some degree in law making. Courts have the power to make common law and also play a role in law making through their

[54] See Diver, at 73.
[55] REF – agencies and regulatory capture
[56] REF – courts less subject to regulatory capture
[57] See Dolak.
[58] See e.g. Raymond P. Niro, Who is Really Undermining the Patent System – "Patent Trolls" or Congress?, 6 J. MRSHALL REV. INTELL. PROP. L. 185, 185-87 (2007)
[59] REF
[60] "All Legislative Powers herein granted shall be vested in a Congress of the United States, which shall consist of a Senate and House of Representatives." U.S. Const. art. I. Section 1.

interpretation of statutes and through engaging in constitutional scrutiny of the actions of other branches of government. Legislators can delegate regulatory powers to agencies, who can engage in law making. Moreover, the executive branch plays an indirect role through control of leadership appointments, thus shaping legislative agendas, as well as through its role in determining enforcement priorities. The relevant decision makers for patent law are the courts (primarily federal, with the Federal Circuit and Supreme Court playing dominant roles), the U.S. Patent and Trademark Office (and to a much lesser extent the International Trade Commission), Congress, and the Administration. Other institutions such as the Federal Trade Commission and the Department of Justice play a role in regulating and enforcing rules with intellectual property components. Increasingly, patent law is also influenced by international players through the international norms and laws imposed by international treaties such as TRIPS (the Trade Related Intellectual Property Agreement) and other bilateral and multilateral agreements.

Congress can determine how it wants to bring about change in patent law through its ability to enact statutes that are broad or narrow (leaving more or less decision making for the courts) and by delegation of its authority to the PTO and, indirectly, to other agencies with overlapping reach. Rather than jumping immediately to legislation as the primary mechanism for change, Congress needs to consider the effects of bringing about change through alternative law making processes.

1. Legislating Change

The chief function of Congress is the making of laws, and in contrast to the executive and judicial branch, the ability of the legislative branch to make and promulgate laws is relatively unconstrained. As long as they operate within the procedural and substantive limits imposed by the Constitution, legislators can base their decisions on political, ideological, or other considerations and are free to enact laws of their choosing. The process of legislating is shaped not only by the substantive and procedural requirements imposed by the Constitution,[61] however, but also by the need to secure continued support from the electorate and by the complex structure of political decision making and internal constituencies.[62] The internal organization of Congress is based on a system of committees and sub-committees that work on legislation before it is presented to Congress, and the law making process is largely shaped by the nature and composition of these committees, which control whether and when a proposed bill reaches the floor for debate as well as determining much of the content. Once a bill reaches Congress as a whole, the interaction of law makers seeking coalitions to support or veto proposed bills

[61] The Constitution limits the areas in which Congress may make laws to those enumerated in the Constitution, leaving the other areas to state law makers. Patent law is firmly within the domain of Congress. Constitutional provisions such as the Bill of Rights place further limits on how law making can be conducted and on the content of laws, such as limits on the abridgment of free speech and providing equal protection under the law. Notwithstanding the views of some scholars that patent law raises important first amendment and other constitutional issues, these provisions rarely constrain the making and enforcing of patent law.

[62] The structure of the legislative process further shapes and limits lawmaking. To become law, a bill must be passed by majorities in both the Senate and the House and signed by the President U.S. CONST. art. I, Section 7, cl.2.

adds complexity to the law making process.[63] As a further layer of complication, the role of special interest groups and industry-specific concerns also cannot be ignored in this law making process.[64] As Easterbrook points out, the structural features of government make it hard to introduce new laws.[65] Congress cannot be viewed as a homogenous or continuous decision maker, coalition building is complex and time consuming, and it takes less political support to block a law than to get one accepted. The process of introducing and passing legislation is fraught with uncertainty and delay. Once the legislation is passed, courts have the opportunity to weigh in on the interpretation of the legislation, leaving open the potential for a new round of legislation.[66]

While the law making activities of Congress could be explored through a variety of different angles and at varying levels of depth, the focus here is on characterizing the general process of making law through legislating in terms of the variance, speed, specificity, and participation inherent in the process.

Variance Congress is relatively unconstrained in its ability to change patent law, meaning that the process of law change allows for high variance in comparison with court and agency change. Congress has the ability to make high level changes in the patent system, applying these changes uniformly, allowing for a shift from one paradigm to another. Given the cost and effort involved in enacting new legislation, changes to the existing law will tend to be substantial. Congress may change patent law without providing reasons or justifications and may enact changes that are not anchored to specific facts or circumstances and/or which deviate significantly from prior laws. The constraints on change are likely to be more flexible in this area of law, since the general voting public is unlikely to have strong views about the content of existing laws in what is perceived as a technical and esoteric area of law, since views about patent law are not drawn as tightly along partisan lines, and since there are few Constitutional constraints that specifically implicate or constrain patent law.

Speed As evidenced by the current patent reform act, legislating law change is a slow process, even in comparison with court and agency driven change. It is slow both at the stage of proposed law change and at later stages of finalizing and enacting the law. To the extent that the laws are broad or vague, further time is needed to clarify what the laws mean and who they apply to, further extending the law making process.

Specificity The legislative process has low specificity. Legislation is a blunt instrument for responding to changing market conditions. Laws take the form of blanket changes to the patent statute. Legislators are not anchored to specific facts or situations, and laws

[63] Ref – committee structure of legislation, specifics relating to IP laws
[64] REF
[65] Easterbrook, p.427.
[66] As Easterbrook comments, "[t]reatments that portray the Court and Congress as partners I a dialogue, producing a form of "constitutional common law" or "statutory common law" …disregard the nature of Congress as a divided and discontinuous institution, in which a single house ,sometimes a single member, can block action." P.422, fn.20.

are generally not contingent upon or limited to market circumstances. Low specificity limits the responsiveness of law change and laws to industry differences, with potential negative impact on transition costs – including the potential for over-reach of the law change and broader adjustment costs. Where the proposed legislation has the effect of limiting the scope for law making by the courts and/or for limiting private market response, the law change may have the long run effect of reducing the flexibility of the patent system to respond to change. Since legislation is typically based on information about how the market has responded rather than on anticipation of future changes, where changes are not limited to particular facts and circumstances, they could impede market adjustment. Barfield and Coffee emphasize the concern that Congress will supplant the self-correcting forces of the patent system and will intervene in a manner that is more likely to have unintended, negative market consequences.[67] On the other hand, low specificity enables high level, uniform changes to the patent system. Since the patent statute applies uniformly to all technologies, changes to the patent statute will be made across the board and will impact all industries. The uniformity of the patent system has been defended against critics arguing for a patent system with industry specific laws, based on the argument that the uniform system provides markets with the flexibility to make the specific adjustments dictated by specific market needs.

Participation Ideally the political process ensures that law making is informed by the interests of a broad constituency. Direct participation in the legislative process is limited primarily to the members of the House and Senate, but these bodies are comprised of elected officials with their own agendas and need to secure support from both other members of the House and Senate and their own voter constituencies.

Congress is constrained in the exercise of its lawmaking powers by the need to secure continued support from voters by responding to their concerns and by solving problems that the public perceives as being important. Legislators also need to be sensitive to the needs of internal constituencies. As a result, the process of legislating can be a long one and is subject to the vagaries of shifting political interests and alliances as well as shifts in popular support for certain proposed changes. Where voters are educated about the laws being proposed and the likely effects, where the lawmaking process is transparent, and where Congress is responsive to the general interests and views of the voting public, this process should yield laws that have broad public support, are perceived as legitimate and fair, and serve the public interest. Legislating will diverge from this ideal where there is little public understanding or interest in the issues, a lack of transparency, and where voting influence is concentrated in special interest groups. The challenges of balancing the interests of multiple constituencies is one explanation for why reform bills continue to stall despite bi-partisan support. Some argue that the proposed legislation has created dividing line between industries, with many in the tech industries interested in patent reforms and many in the life sciences concerned about the impact on patent

[67] See Claude Barfield & John E. Coffee, Congress's Patent Mistakes, WALL ST. J., Oct. 29, 2007 at A18 ("Congress should not overlook the surprising ability of self-correcting forces in the patent system and elsewhere to adapt to change in ways less susceptible to the unintended, negative consequences of the blunt force – and heavily lobbied – legislative process.") (Check quote)

strength.[68] Moreover, the proposed patent reform legislation has been criticized by some as failing to strike the appropriate balance between those seeking to enforce valid patents and those seeking to challenge questionable ones.[69] Some scholars suggest that Congress has focused on the wrong agenda for reform (lawsuit abuse allegations), due at least in part to the influence of specific constituencies, and that reforms should be left to the courts and should be refocused on the proposals for reform suggested by the National Academy (focusing on the expense, unpredictability and uncertainty inherent in the U.S. Patent System).[70] As a further concern about how participation impacts the legislative process, the proposed legislation includes some provisions that are clear reflections of special interests.[71]

In examining the information and agendas informing the legislative process, one of the concerns is the type of information that is informing both the policy maker's and the public's views about the patent system and the implications of change. The role of the media in sensationalizing problems of reform and the limitations of the current "evidence" supporting reform provide a poor basis upon which to make sweeping legislative changes. When asked for specific evidence of harm, patent critics point to the dangers of patent trolls and the abuse of monopoly power, concerns with large damage awards, and the proliferation of poor quality patents. Upon closer scrutiny, many of the dangers are either overstated or inadequately measured, and the counter-veiling costs associated with changing the law are ignored. Moreover, as with past changes to the patent system, the current patent reforms are driven by general concerns about US productivity and competitiveness based on the relationship between patents and

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[68] See e.g. Matthew Sag & Kurt Rhode, Patent Reform and Differential Impact, 8 MINN. J. L. SCI. & TECH. 1 (2007)(suggesting that there are too many patent reform proposals and proposing differential impact analysis for prioritizing among proposals); Robert A. Armitage, Now that the Courts Have Beaten Congress to the Punch, Why is Congress still Punching the Patent System?, 106 MICH. L. REV. 43 (2007) (arguing that current pending legislation is unnecessary and ill advised and will result in misguided policies driven by the debate among competing constituencies).

[69] Robert A. Armitage, Now That the Courts Have Beaten Congress to the Punch, Why is Congress Still Punching the Patent System?, 106 MICHIGAN LAW REVIEW FIRST IMPRESSIONS 43, 44 (2007).

[70] Armitage argues that the House-passed bill was motivated by concerns about lawsuit abuse, particularly specific contentions about the danger of "patent trolls," unfair leverage for patent owners in asserting their patents, and bias against infringers in litigation proceedings (Armitage asks if "the aforementioned 'lawsuit abuse' allegations [are] so persuasive that they justify Congress enacting legislation that many believe represents a devastating retreat from decades of consistent US support for strong and effective patent laws - many may have highly undesirable consequences for US innovators seeking to profit from their innovations in markets outside the United States? P.45 ; Robert A. Amritage, Now that the Courts Have Beaten Congress to the Punch, Why is the Congress still punching the Patent System?, 106 Michigan Law Review First Impressions 43 (2007)

[71] The Senate's version of the Patent Reform Act includes a provision that restricts the enforcement of patent laws against financial institutions using a check collection system in a way that currently constitutes infringement. This effectively protects banks involved in a patent battle with Data Treasury Corp., the owner of patents covering electronic check imaging, from paying damages if Data Treasury Corp. is successful. Jacqueline Bell, Patent Reform Could Protect DataTreasury Defendants. IPLaw360, Feb 14, 2008. The Administration, in its opposition to this provision, indicated that it "does not support exceptions to patent protection based on a particular technology." The provision raises a question about the role of special interests in driving the reform agenda.

innovation, a relationship that is periodically called into question and then reinstated. Scherer points to the consistent failure of legislators to pay attention to the mixed empirical evidence linking patenting to expenditures on R&D and productivity trends and the danger of basing broad legislative change on general assumptions about patents and innovation.

On the other hand, broad participation includes the ability to introduce agendas into the process of law making that are not directly related to specific issues of U.S. patent law. The drive for international harmonization of intellectual property laws does create some important issues that need to be handled at the level of the legislature. Determining how best to adjust to the needs and demands of other countries in a global market place requires a level of policy making and policy change that is best handled by law makers who are able to adjust the legal framework and make the tradeoffs necessary to reach international agreement on multiple fronts and with multiple agendas.[72]

2. Judicial Law Making

Judges make laws.[73] Although there is debate about the appropriate role and limits of judicial law making, it is generally accepted that courts do make laws that govern us. They do so when statutes are vague or require a framework to implement,[74] through application of the law to new situations, and through judicial review. The focus in this Article is on the lawmaking function created by the role of judicial decisions, whether through interpretation or implementation of statutes or applications to new areas, as creating precedent for future cases.[75] Leaving aside the debates about the appropriate role and limits on judges as law makers,[76] it is generally accepted that courts make laws and there are general principles and constraints governing judicial decision making that apply to most if not all accepted theories of judicial decision making. The following features are of particular importance in characterizing the process of judicial decision making.

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[72] The importance of international agenda in driving domestic change can be seen in the TRIPS negotiations, for example, where negotiating higher standards of intellectual property protection at the international level threatens to undermine the balance of public interests that underlies intellectual property policy at the national level. REF - See Doha article.

[73] Adam N. Steinman, A Constitution for Judicial Lawmaking, 65 UNIVERSITY OF PITTSBURGH LAW REVIEW 545, 547 (2004). See also Christopher J. Peters, Adjudication as Representation, 97 COLUM. L. REV. 312 (1997) (courts as law makers); Edward L. Rubin & Malcolm M. Feeley, Judicial Policy Making and Litigation Against the Government, 5 U. PA. J. CONST. L. 617 (2003)(role of courts in making public policy).

[74] As U.S. Court of Appeals Judge Richard Posner has explained, often statutes "are so vague that they merely provide an initial impetus to the creation of frankly judge-made law." He cites the federal antitrust laws as one example; judges have been forced to devise specific laws in order to honor the statute's pro-competition, anti-monopoly purpose. John W. Dean column.

[75] Steinman, p. 553; Schauer, at 5-6 points out that courts perform law making through adjudicating the dispute and through promulgating norms for the guidance of lower courts, legislatures, executive departments, public employees and the public

[76] Ref – examples include the counter-majoritarian arguments against judges as subverting legislation and judicial activism – making decisions beyond the scope of the case in front of the judge.

First is the role of precedent and the principle of stare decisis in common law. The principle of stare decisis limits a court's ability to change law that has already been made by a prior court, giving legal decisions prospective legal force.[77] Courts build upon existing decisions and are limited in their ability to depart from the decisions of courts with higher jurisdiction (and even those with comparable jurisdiction).[78] Beyond the actual role of the judicial action as binding precedent, it may have persuasive authority for other tribunals or serve as a guideline for how the same or other courts think about similar problems. Second, judicial power extends only to "cases and controversies" arising under the Constitution.[79] Courts are constrained to deciding cases that are properly brought before them, and must wait for parties to bring the cases before they can initiate their law making process. This means that not only are decisions fact specific and tied to context, but also that private parties shape the evolution of the law through their activities and their litigation and settlement decisions. Furthermore, courts are limited to decisions that reasonable relate to the issues posed by the case. Third, courts are constrained to some degree by their need to provide reasons for their decisions. "A judge who announces a decision must be able to demonstrate that he began from recognized legal principles and reasoned in an intellectually coherent and politically neutral way to his result."[80] Finally, courts are constrained by statutes and by limits on judicial activism (judges acting as legislators). To the extent that judges are acting more like legislators, the differences between legislation and judicial law making could narrow.

Before moving to a characterization of judicial decisions in terms of dimensions of the process of change, it is important to recognize that judicial law making in patent law is

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[77] "In a judicial system such as ours, in which judges are bound, not only by the text of code or Constitution, but also by the prior decisions of superior courts, and even by the prior decisions of their own courts, courts have the capacity to "make' law." See Antonin Scalia, The Law of Law as a Law of R ules, 56 U. CHI. L. REV. 1175, 1176-66 (1989). In contrast to legislation, which is suppressive – when it enacts a new statutory scheme it can jettison the old one entirely: Christopher J. Peters, Foolish Consistency: On Equality, Integrity, and Justice in Stare Decisis, 105 YALE L. J. 2031, 2073-74 (1996)

[78] The Supreme Court test for determining whether a court may overrule a prior decision is: "[W]hen this Court reexamines a prior holding, its judgment is customarily informed by a series of prudential and pragmatic considerations designed to test the consistency of overruling a prior decision with the ideal of the law of law, and to gage the respective costs of reaffirming and overruling a prior case. Thus, for example, we may ask whether the law has proven to be intolerable simply in defying practical workability, whether the law is subject to a kind of reliance that would lend a special hardship to the consequences of overruling and add inequity to the cost of repudiation, whether related principles of law have so far developed as to have left the old law no more than a remnant of abandoned doctrine, or whether facts have so c hanged, or come to be seen so differently, as to have robbed the old law of significant application or justification." Planned Parenthood v. Casey, 505 U.S. 833, 854-55 (1992)(Check cite)).[78] "Judicial decisions make prospective law because of the doctrine of stare decisis" Steinman, p.552; – acquiring a permanence characteristic of laws. Adam Steinman, A Constitution for Judicial Lawmaking. REF for law making…Christopher Peters, Adjudication as Representation, 97 COLUM. L. REV. 312, 361 and n.179 (1997) ("Court decisions thus can serve as laws in much the same way that statues do, encouraging and discouraging certain kinds of conduct with the promise that such conduct will bear particular legal consequences.")

[79] Article III, Section 2 of the Constitution.

[80] Robert H. Bork, THE TEMPTING OF AMERICA: THE POLITICAL SEDUCTION OF THE LAW 2 (1990)("

not a uniform process, and includes decision making by federal district courts, the Federal Circuit Appeals Court, and the Supreme Court, as well as other appellate courts and state courts indirectly through ruling on issues such as licensing and contracts that impact markets for technology. Moreover, there is variation within the Federal Circuit and divergence between Federal Circuit and Supreme Court approaches to patent law. Current intervention by Supreme Court in Federal Circuit decisions could be viewed as a push back against the Federal Circuit's efforts at formulaic law making, which could be seen as a form of legislating. The Supreme Court has instead returned to the traditional court role of balancing equities based on common law principles. This complexity in what we mean by the "court" as law maker should be reflected in the evaluation of the judicial law making process, although a deeper exploration of the positive characteristics of these judicial decision makers and the implications for the process of law change through courts is left for future study.

The features of judicial decision making have the following implications for characterizing the judicial law making process.

Variance Judicial decision making exhibits relatively low variance. Variance is limited in large part by adherence to the principle of star decisis and the constraining role of precedent. Once courts have resolved question of existence or scope of particular right, that decision is unlikely to change. Much has been written about the role of stare decisis plays an important role in the process of legal change.[81] The advantages of star decisis promoted by legal scholars include increased predictability and stability, increased probability of equitable treatment, and lower cost of judicial decision making.[82] The benefits of stability of the legal process and the role of common law in supporting stability has been widely discussed – as aptly summarized by Judge Brandeis, "[s]tare decisis is usually the wise policy because in most matters it is more important that the applcable rule of law be settled than that it be settled right."[83] Critics of star decisis point to problems of lock-in and a lack of flexibility.[84] There is some limited ability for variance when new facts and circumstances arise. Diversity and ability to experiment can be important benefits to judicial decision making. The court system offers diversity of views at the district court level. This diversity has been limited to some degree by the formation of a specialized court of appeals (the Federal Circuit Appeals Court, formed in 1984) and the dominant role that this court has played in setting the laws for patent decisions. State courts can also weigh in on matters such as licensing issues that escape preemption but nonetheless impact patent law, adding a further element of diversity to the evolution of patent law. Low variance will generally result in lower transition costs, although where significant legal change is needed, there may be costs attached to an approach anchored on past decision making.

[81] See William M. Landes & Richard A. Posner, Legal Precedent: A Theoretical and Empirical Analysis, 19 J. Law & Econ 249 (1976).
[82] See Blume & Rubinfeld, p. 409.
[83] Burnet v. Coronado Oil and gas Co., 285 US 405 (1931).
[84] REF – critics of star decisis as efficient form of rule change

Speed Judicial decision making is relatively fast in comparison to legislation, although it can sometimes be slower than agency rule making. The speed is further limited by the fact that judges must wait for private parties to bring cases and are limited to incremental change, cummulative over time.

Specificity Judicial decision making has high specificity. This high specificity is linked to the case and fact based nature of judicial law making. Law making is tied to the adjudication of cases, and the decision is based on the facts and circumstances of the case. Market players determine when and whether to bring suit. Courts are limited in what information they are allowed to consider in making their decisions, and they are limited to the facts and circumstances before them. Courts must give reasons for their decisions, and their decisions must reasonably relate to the specific case they are deciding. Judges also have the ability to rely on equitable determinations rather than laws applied independent of context. As a result, change through common law is fact based and incremental and allows for responsiveness to market circumstances and to the needs and concerns of private parties. These features allow for incremental change and the ability to respond narrowly to the facts and circumstances of different cases, leaving room for different decisions in the face of changing technology and market conditions.

High specificity may increase the flexibility of the patent system by providing law changes that leave open avenues for adjustment to new circumstances. Laws with high specificity are linked to data (the facts and circumstances of cases), and where there is limited information about the actual effects of the law change at a broad level, incremental processes for law change allow for the actual cases to dictate the application of the law. High specificity includes the ability to draw on tools from other areas of law to address problems where appropriate. Patent laws need to be evaluated in the context of impact on patent markets and market players and the ability of markets to create private orderings of actions. Courts can take into account multiple facets of markets through tools drawn from contract law, competition law and antitrust law. Parties who are impacted by the patent laws can introduce these different elements through their claims. High specificity has its own limitations, however. Courts can only make common law in response to cases that are brought before them, and this could limit or distort the nature of the changes made. The comment that "hard cases make bad law" could have application here, if courts anchor on cases that are not representative of broader market conditions. Courts must also wait for the cases in order to make their law change. The extent to which judges may go beyond the specifics of the case before them ties into the debate over the appropriateness and legitimacy of "judicial activism" - actions taken by judges who "legislate" from the bench by establishing laws that apply broadly to issues not presented in the individual case before them or by gong beyond reasonable interpretations of laws to create their own versions of the law.[85]

[85] The term "judicial activism" has received a variety of different meanings, many vague and not clearly defined. See Keenan Kmiec, 2004 Comment in the California Law Review, "The Origin and Current Meaning of 'Judicial Activism.' Based on an empirical review of usage, Kmiec found that the phrase "judicial activism" has at least "five core meanings: when the court at issue has (1) invalidated an arguably constitutional action by another branch; (2) failed to adhere to precedent; (3) legislated from the bench; (4) departed from accepted interpretive mythology; or (5) engaged in result-oriented

Participation Judicial decisions involve participation by private parties and respect for private party contracts. The role of private actors in structuring their own deals is missing from the legislative agenda and the agency system. Some theories of law suggest that the private participants involved in law making play a central role in legal change. As discussed earlier, the evolution of common law is driven in part by the role of private party litigants and the court's adherence to precedent.[86] Posner argues that judicially created rules have a comparative advantage over legislation in creating efficient rules because of the role of evolutionary selection of cases and the cumulative impact on precedent.[87] Rubin explains this efficiency by suggesting that parties are more likely to litigate inefficient rules than efficient ones, creating pressure for case law to evolve efficiently.[88] This literature emphasizes the impact that the selection of participants can have on the process of law change.

Participation also reflects the ability to take into account and reflect the needs of markets and the interaction of changes in laws in one area on the actions and laws in other areas of law or behavior, including recognition of and coordination with related decision makers. Courts make decisions using bodies of law that are interrelated. The bodies of law sometimes come into conflict and are mediated through court tools such as preemption doctrines. Ideally, courts make decisions taking into account an ecosystem of different market variables, including contract laws, antitrust laws, intellectual property laws and related laws of unfair competition and fair business dealing. They have some limited ability to select and frame the issues that are raised – some issues are most appropriately dealt with as matters of unfair competition or breach of contract, for example. Courts are thus (at least theoretically) best able to serve as law makers for patent markets, operating with the tools of different bodies of law to refine decisions in response to market changes.

3. Agency Rule Making

Administrative agencies combine limited executive, judicial and legislative functions, occupying an interesting middle ground between legislators and courts. Agencies are arms of the government, led by executive branch appointees and exercising duties pursuant to delegation from Congress. Historically, they were established as boards of experts who would make public policy in complex areas of science, economics and/or

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judging." See also John W. Dean, What Exactly Is Judicial Activism? The Charges Made Against the President's Judicial Nominees, Findlaw column, June 17, 2005.

[86] See, for example, Vincy Fon, Francesco Parisi and Ben Depoorter, "Litigation, Judicial Path-Dependence, and Legal Change", SSRN. They consider the role that litigation and case selection play in the evolution of legal rules, focusing on the effect of judicial path dependence on liability rules and remedies. See also Paul H. Rubin, 1982. "Common Law and Statute Law." Journal of Legal Studies, 11:2, pp. 205-223; Paul H. Rubin, Christopher Curran and John F. Curran. 2001. "Litigation versus Legislation: Forum Shopping by Rent Seeksers." Public Choice, 107:3 – 4, pp. 295-310.

[87] See Elrich, I. and Posner, R. A. (1974) An Economic Analysis of Legal Rulemaking. Journal of Legal Studies 3:257-286; Posner, R.A. (1994), "What Do Judges and Justices Maximize? (The Same Thing Everybody Else Does)," Supreme Court Economic Review 3:1.

[88] Paul R. Rubin, 1977, Why is the Common Law Effiicient? Journal of Legal Studies, 6: 51-63.

social policy independent of (but accountable to) the legislature, and delegation to agencies is still generally justified in terms of superior expertise, flexibility and political accountability.[89] Their actions are proscribed by the delegation of power and the statutory framework within which they make their decisions.[90] But within these limits, they can promulgate their own rules and regulations, subject to a public notice and comment rule making procedure. More flexibility is provided for informal rule making, and agencies have some discretion over whether to engage in formal or informal rule making to accomplish rule change.[91] While agencies are similar to legislators in the breadth and variance of their rule making within the scope of their mandate, agencies must provide reasons for their decisions, which some have argued is an important constraint on rule making, and their decisions are subject to limited judicial review.[92]

Unlike many other agencies, the U.S. Patent and Trademark Office (PTO) does not have substantive rulemaking authority.[93] It's mandate is confined to procedures for implementing the patent statute, including administering the patent laws as they relate to the examination, processing, granting and issuing of patents and related duties such as publication and recording of assignments. While it is limited to making rules on procedural matters as well as a few substantive matters, such as the ability to provide regulations governing continuing applications, in practice many of its regulations and decisions have substantive, rule-like impact.[94] Procedural rules and the implementation of existing substantive rules can both have substantive effects, and the PTO's authority to evaluate and award patents effectively results in PTO influence over laws governing

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[89] See David J. barron & Elena Kagan, Chevron's Nondelegation Doctrine, 2001 SUP. CT. REV. 201, 203, 223-25 (2002).

[90] The limits on delegation are grounded in Article I's vesting of legislative power in Congress . U.S. Const. art. I, 1 ("All legislative Powers…shall be vested in [the] Congress of the United States…"); Congress is required to supply sufficient "intelligible principles" for the administrative agency to follow, but beyond that has relative freedom in determining the scope of power that it wants to delegate to the agency. Courts have a limited ability to intervene. Principle, well established in Chevron USA, Inc. v. Natural Resources Defense Council[90], Inc. that judiciary should presume an implicit delegation of authority to responsible agency whenever a statute fails to address conclusively some issue necessary to the implementation of the statutory mandate

[91] Agency ability to choose between formal and informal law making (James T. Hamilton & Christopher H. Schroeder, Strategic Regulators and the Choice of Lawmaking Procedures: The Selection of Formal vs. Informal Laws in Regulating Hazardous Waste, 57 Law & Contemp. Prob. 111 (1994).

[92] Mashaw -- **70 Fordham L. Rev. 17** Nor has reason colonized judicial decision-making as an exclusive ground for legitimacy in the way that it inhabits administrative law. At first blush this may seem an odd claim. Law talk as it is carried on in the profession as well as in the academy is almost maniacally fixated on the reasons given by appellate judges as justifications for their decisions. Yet the law treats the necessity and the importance of reason-giving in judicial dispute resolution very differently than it treats the force of reason in administrative law. The bulk of all private adjudication is settled prior to judgment. The judge need give no reason for failing to render a decision other than that the parties themselves decided to forgo judicial intervention. For anyone committed to adjudication as the preeminent rational discourse for the development of law the ubiquitousness of settlement is deeply disturbing.

[93] See Merck & Co. v. Kessler, 80 F.3d 1543, 1549-50 (Fed. Circ. 1996).

[94] But see recent attempt to make such rules…

patentability. Moreover, the line between procedural and substantive rule making can be blurry, as illustrated by the outcry in response to the PTO's recent proposed rule making.[95]

The agency law making process (specific to the PTO) can be characterized as follows.

Variability As suggested above, agencies operate in a middle ground between courts and Congress, the boundaries of their ability to change the rules drawn by the scope of delegated authority, the details of the statutes they are required to enforce, the public comment and rule making procedure, and the potential for judicial review. The PTO has the ability to make decisions that exhibit high variance within certain limited (procedural) areas, although this variance is dampened by a proliferation of administrative guidelines and the need to account internally, to applicants, and to judges about decisions made. High variance may also exist within more specific realms of decision making, such as the individual decisions about patentability. Significant attention is focused on the boundaries constraining PTO decision making. As an example of these limits on variance, the recent proposed laws on continuation applications resulted in an outcry from private parties that the PTO had overstepped its legal bounds in law making by seeking to make substantive changes in patent law. The new laws were motivated by the PTO's efforts to streamline its patent application process and deal with a growing backlog of patent applications. Arguments revolved around whether the proposed laws contravened the patent statute or implemented it.[96]

Speed The speed with which an agency can make rule changes is variable, depending in part on whether the agency needs further resources or approval from Congress and on the public response to its proposed rule changes. Where structural change is required to implement the rules, the nature and expense of the change will also influence the speed of change. For simple, uncontroversial changes within an agency's mandate and budget and with limited structural changes required, the speed of change can be rapid – limited only by the notice and comment rule making requirements. While some scholars have argued that these procedural requirements have hindered agency decision making, others suggest that agencies can and do issue rules relatively quickly in many cases.[97] Since the agency does not need to wait for private parties to bring a case in order to address rule change, it can act more quickly than a court in some cases, and the process of change may be similar to that of court decision making. In the face of public challenges to the rule making, the pace will be slower than court decision making, but still likely to exceed the speed of legislation. For changes requiring resources and structural change or requiring

[95] REF re propsed rule making re continuations; 72 Fed. Reg. 46716

[96] The USPTO attorney argued in support of the USPTO efforts rrgued that the laws were nt substantive because patent applications were not retroactive and did not involve the transfer of policy rights. (Wetlzer, IP Law 360, Ron Zapata, After packed hearing, Judge Ponders PTO Laws, Feb 8, 2008. Question – do the laws limit statutory rights under the Patent Act?

[97] Yackee, J.W. and Yackee, S.W. (2007) "Is FederalAgency Rulemaking Ossified? The Effects of Procedural Constraints on Agency Policymaking", *Paper presented at the annual meeting of the Midwest Political Science Association, Palmer House Hotel, Chicago, IL* Online Retrieved 2008-06-26 from http://www.allacademic.com/meta/p196711_index.html

an expansion of its delegated power, the speed can be more akin to (and indeed requires) legislation.

Specificity Agency decision making can in many cases be the most specific form of law making in terms of ability to target rule making to a particular and relatively detailed issue.[98] But it is also disentangled from the facts and circumstances of specific cases, making it less specific in this sense than judicial decision making. Agencies can and do implement policy changes in response to new information, changing circumstances and shifting preferences. This type of flexibility is particularly useful where the effects of policy choice or underlying preferences are uncertain and variable and decision maker's incentives likely to track social incentives. In contrast, Congress has institutional features that are not well suited to an experimental, adaptive, trial-and-error approach to policy making, whereas agencies can engage in such flexible practices.[99] Some scholars have argued that courts are similarly limited in their ability and competence to engage in adaptive, policy-based decision making, what he terms "social cost accounting," because they lack the agency's "presumed investigative resources, analytic competence and technical literacy and their view of social policy issues is filtered through the lens of judicial review."[100] Where specificity is important, but flexibility to deviate from past practices is also important, agency rule making offers an alternative to judicial decision making. While offering the benefit of stability and predictability, common law can also result in inflexibility and resistance to change.[101]

When considering the process of rule change, questions have been raised as to whether it is efficient to devote more resources to decision making up stream (at the agency level) versus down stream (at the court level).[102] This will depend in part on the likelihood of future changes and on the comparative structural costs involved in adjusting to new rules. Once in place, changes at the administrative level are in some cases the most enduring. The agency sets up procedures and systems that implement policies at the micro-level; these changes often stay in place even if the original policy goal changes. When

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[98] There is a requirement that to satisfy due process requirements, agency regulations "must be sufficiently specific…that a reasonably prudent person, familiar with the conditions the regulations are meant to address and the objectives the regulations are meant to achieve, would have fair warning of what the regulations require." Freeman United Coal Mining Co. v. Fed. Mine Safety & Health Rev. Comm'n, 108 F.3d 358 (D.C. Circ. 1997)

[99] Stephenson, 91 Va. L. Rev. at 141

[100] See J. Mashaw, Administrative Due Process as Social-Cost Accounting, 9 HOFSTRA L. REV. 1423, 1435-36 (1981); J. Mashaw, The Supreme Court's Due Process Calculus for Administrative Adjudication in Mathews v. Eldridge: Three Factors in Search of a Theory of Value, 44 U. CHI. L. REV. 28 (1976). See also J. Mashaw, How Much of What Quality? A Comment on Conscientious Procedural Design, 65 CORNELL L. REV. 823 (1980)(relationship between the closeness of a case and its cost).

[101] See e.g. Hathaway, p. 605, discussing how path dependence theory raises the question of when the doctrine of stare decisis should govern – "when, that is, the deleterious consequences of path dependence that stare decisis engenders might justify modifying or relaxing this central tenent of our legal system."

[102] See Mark A. Lemley, Rational Ignorance at the Patent Office, 95 NW. U. L. REV. 1495 (2001); but see John R. Thomas, "The Responsibility of the Rulemaker: Comparative Approaches to Patent Administration Reform," 17 Berkeley Tech. L. J. 727.Mark A. L

considering agency law making as a process for change, the potentially more enduring effects of administrative law changes need to be considered. Courts can occupy a middle ground by having decisions that are persistent over time but which do not entail such level of sunk costs.

Participation Agencies occupy a middle ground between courts and legislators in terms of the breadth and scope of participation in agency decision making. Theoretically, agency decision making provides a substantial degree of public involvement. Agency heads are typically appointed by the President and confirmed by Congress, offering indirect voter accountability. Agency rule making must follow a public notice and comment procedure that allows for public discussion and input into proposed rules. Final decision making remains with the agency, but the agency must provide reasons for its decisions and is subject to judicial scrutiny and review. On a practical level, however, agencies tend to work most closely with, and be most directly influenced by, the constituency they regulate. While delegation to agencies is often perceived as desirable because the agency has superior information about the issue and because the agency can alter its policy more easily as information and circumstances change, the flip side of this specialization and expertise is a concern about tunnel vision and regulatory capture – concerns not unique to agencies, but often more pronounced in the agency context.[103] Through participation rights, the public and, in particular, interest groups, can contribute information to the rule making process, and the nature and quality of this information can be an important determinant of the quality of the ultimate rule making. Concerns with the undue influence exerted by special interests can be handled through broadening the spectrum of interested participants (sometimes hard to do). Thus, participation rights can be a mixed blessing.

In the case of the PTO, reconsideration of participation in agency decision making has been the subject of proposed reforms. The current PTO patent application process involves a dialogue between patent examiner and patent applicant and an exchange of information between them, with judicial doctrines such as inequitable conduct governing the implications of this "conversation" for patent validity down the road. Many patent applicants are repeat players – even when patent applications are denied, the subject matter often resurfaces in new and modified ways, or follow on subject matter forms the basis for a new application. Scholars suggest that the PTO too readily approves patents and has a "pro-patent" bias, although many practitioners disagree and complain about perceived arbitrariness or unfairness in patent rejections.[104] In its examination of individual patent applications, the PTO does not follow a formal adjudication process, although rejected applications can be appealed to the Board of Patent Appeals where a more formal procedure is applied. There are very limited opportunities for third party

[103] See Stephenson, 91 Va. L. Rev. at 111 (discusses concerns with regulatory capture - tendency of agencies to under enforce certain statutory requirements because of political pressure, lobbying by regulated entities, or laziness or self-interest)

[104] REF re relationship between USPTO and patent applicants

participation in the patent application and appeal process, and this limited participation has become the subject of the proposed patent reforms.[105]

C. Limitations: Normative Theories of Courts, Agencies and Legislators

The framework for characterizing processes of law change is a normative framework based on assumptions about the institutional process and the motives and capabilities of law makers, and it is important to recognize that the law making process is also shaped by the characteristics and idiosyncracies of the law makers and by imperfections in the information on which they base their decisions. There is an extensive literature characterizing the different ways in which decision makers may depart from the normative boundaries of neutral decision making processes. Law makers are often limited both by the resources and information available to design and implement laws and by a divergence of their own private preferences from social preferences. These limitations need to be factored in when evaluating alternative law making processes.

There are a variety of ways of factoring limited rationality and divergence of public and private interests into a normative framework without disturbing the results of the normative model. Theories of error correction and bounded rationality suggest that laws will evolve towards efficient outcomes despite the divergence of private and social preferences through informal mechanisms by which social costs are communicated to law makers in ways that create costs for them.[106] Similarly, institutional design can, and should, be designed with the objective of addressing and managing the divergence of private and socially desirable outcomes. Recognizing that the cost of legal change impacts the lawmakers as well as those effected by the law change, the extent to which the costs associated with different rule choices are external or internal to the entity selecting the laws needs to be considered, but can be included in the decision making framework.[107]

Within the framework that I have proposed, areas of divergence from normative assumptions can be reflected in variations on the dimensions of the legal process.

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[105] See John R. Thomas, 17 Berkeley Tech. L. J. 727 But see Thomas….Thomas argues, in contrast to views about the responsibility of the PTO for problems of patent quality, that the role of the PTO in the patent system is quite limited, with no role in enforcing or adjudicating patent infringement disputes, and that by delegating the enforcement of patents to private parties through litigation, the Patent Act essentially involves a transfer of power to private parties. He argues for an increased rule making responsibility on the part of private parties, and discusses the role that the PTO can play in this process by, for example, shifting examination burdens onto patent applicants.

[106] Given the relatively narrow scope of delegated authority to the PTO, its ability to engage in law change is too narrowly constrained to make it an efficient process for law change. Views diverge over whether the PTO should have expanded authority to make substantive regulations. Since the PTO is dealing with the parties at the most fundamental level, the question of what role they should play in the process of reform also relates to arguments over whether more resources should be devoted to initial patent applications and the patent application process.
(Diver p.99)

[107] Diver suggests, for example, that if the burden inflicted by sub-optimally precise laws, the cost of law enforcement, and the level of law making effort and accountability for the law are external rather than internal, law makers will have less incentive to correct the precision of the laws.

Divergence driven by collective action problems and special interests, for example, will depend on the participation in legal change, and the influence of unrelated agendas (such as tying patent reform to trade deals) will depend on the specificity and variance of the legal process. While the framework can handle departure from normative assumptions, however, the evaluation of alternative legal processes and their relative merits may change. Thus, it is important to keep in mind that the application of the framework is based on normative assumptions about the behavior of courts, agencies and legislators, and leaves for further discussion the performance of the Federal Circuit, the U.S. Patent and Trademark Office, and the legislative committees who have spearheaded patent reform.

IV. Application to Patent Reform

Interest in changing the patent system is not new. Initiatives for patent policy change have occurred periodically in response to swings in perceived and actual U.S. productivity and competitiveness.[108] But although there have been a number of amendments and codifications to the patent system in its more than two hundred year old history, including many since 1952 when the basic structure of the current Patent Act was adopted, none in modern times have attempted the sweeping foundational changes that Congress has been considering.[109] The calls for reform are based on concerns about proliferation of poor quality patents, the high cost and abuse of the litigation process, disconnect with international patent norms, and resulting harm to the competitiveness of U.S. technology markets.[110] Despite the announced concern with market efficiency and competitiveness,[111] however, Congress has not paid sufficient attention to the complex structure of the technology markets and the potential effects of the law making process on adjustments in those markets.[112] Legislation has been focused narrowly on achieving a patent system "that will improve patent quality and limit unnecessary and counterproductive litigation costs" as a way of improving market performance.[113] By

[108] See F. M. Scherer, The Political Economy of Patent Reform in the United States, Harvard University Faculty Research Working Paper Series, RWP07-042, October 2007. Examples include the passage of the Bayh-Dole Act and the Stevenson-Wydler Act in 1980 to stimulate the commercialization of industrial innovations, the creation in 1982 of a new Court of Appeals for the Federal Circuit with exclusive jurisdiction over patent appeals, and the passage of the Hatch-Waxman Act in 1984 to reform certain aspects of patenting in the pharmaceutical industry. Scherer, p. 17-18.

[109] Pub. L. 82--593 (chapter 950), 66 Stat. 792; Title 35 U.S. Code.

[110] REF – policy literature explaining concerns motivating reforms

[111] Support for the proposed patent reform legislation is justified in terms of general concerns that the U.S. patent system is hindering U.S. competitiveness and innovation. See 110th Congress Report, Senate, The Patent Reform Act of 2007, p.4 ("If the United States is to maintain its competitive edge in the global economy, it needs a system that will support and reward all innovators with high quality patents. The time has come for Congress to reconsider the 50 year old patent statute …[to] produce a balanced set of changes that will move the patent system into the 21st century.)

[112] The fact that there is wide spread agreement on the patent system "problems" that need to be solved (poor patent quality, costly and abusive litigation, harmonization with international norms) but continued disagreement about the specific nature and contents of the provisions to address them could be caused in part by the failure of those debating the reforms to consider, let alone pin down, the complex interaction between the patent system, innovation, and market performance.

[113] 110th Congress, Senate Report introducing bill, p.4.

viewing legislative objectives through the relatively narrow and static lens of patent quality and litigation costs, legislators may enact law changes which achieve narrow objectives at substantial market costs. This section applies the framework developed above to identify where legislation, court decision making and agency rule making might be desirable (or undesirable) processes for bringing about key reforms.

A. The Evolution of the Patent Reform Legislation

Concerns with patent proliferation, patent quality and the cost of litigation have been growing, prompting an increasing number of policy studies, reports, and proposals for reform.[114] Two influential reports – a 2003 Federal Trade Commission Report focusing on the intersection of competition, antitrust and patent policy as mechanisms for promoting competition and innovation[115] and a 2004 National Academy of Sciences Report focusing on the performance of the U.S. patent system and its effect on innovation, recommended certain foundational changes to the patent system, sewing the seeds for many of the measures subsequently incorporated into patent reform bills.[116] Pressure from key industry lobby groups helped to attract lawmaker interest in the push for reform. The FTC and National Academy reports emphasize the important role that the U.S. patent system plays in stimulating technological innovation, while expressing concern about growing strains on the patent system as the number of patent applications and the costs of acquiring patents and patent licenses and defending against infringement allegations increase and as the use of patents by some market participants, particularly large corporations amassing patent portfolios for defensive or offensive purposes, departs from the traditional role of patenting.[117] These reports evaluate the patent system as a whole, placing it within a broader legal, economic, and political context that includes consideration of how patent law change might impact uncertainty in the application of the laws, flexibility to respond to different market circumstances, transaction costs, and other efficiency effects on technology markets – particularly at the level of international markets and in the area of research and development. [118] The proposed legislation, in contrast, has focused on targeted issues linked to patent quality and litigation costs with less attention to systemic changes.[119]

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[114] See e.g. CRS Report for Congress, Patent Reform: Issues in the Biomedical and Software Industry, 2006.

[115] Federal Trade Commission 2003 report…cite

[116] National Academy of Science Report; Armitage, p.44. The seven recommendations are: (1) preserve an open ended, unitary, flexible patent system; (2) reinvigorate the non-obviousness standard; (3) instate an open review procedure (i.e. procedure for third parties to challenge patents after their issuance in front of the US PTO); (4) strengthen U.S. Patent and Trademark Office (USPTO) capabilities; (5) shield some research uses of patent inventions from liability for infringement; (6) modify or remove the subjective elements of litigation (e.g. willfulness of patent infringement, disclosure of "best mode", and inequitable conduct); and (7) reduce redundancies and inconsistencies among national patent systems.

[117] National Academy of Science Report, Executive Summary, p.2

[118] REF

[119] The report focuses on the need for uniformity with international patent norms, the need for flexibility to meet changing market and technology needs, and the importance of minimizing uncertainty and cost in the operation of the patent system. The report recommended focusing on changes such as a shift to a first-inventor-to file system, a single window post-grant review of patents,

After several years of draft proposals and discussions, the Patent Reform Act of 2005[120] was introduced by Congressman Smith as "the most comprehensive change to U.S. patent law since Congress passed the 1952 Patent Act."[121] This bill was followed by a less ambitious Patents Depend on Quality Act of 2006[122] and a more ambitious Patent Reform Act of 2006,[123] before re-emerging in 2007 in a form closely resembling the 2005 bill. The Patent Reform Act of 2007[124] was introduced in the 110th United States Congress and the House and the Senate Judiciary Committees subsequently sent separate versions of the patent reform bill to the House and Senate respectively in July 2007. While the House and Senate bills as originally introduced were virtually identical, the bills that emerged from the judiciary committees included a number of differences. The House of Representatives version of the 2007 bill was passed in September of 2007 by a close vote. The Senate version of the bill did not pass, but was placed on the Senate calendar for 2008,[125] and then removed from the Senate calendar in mid-2008. If the Senate finally passes a version of the bill, and this version diverges from the House version, then the differences will either be ironed out by a private committee of legislators or the Senate bill will be put before the House for approval.[126] Or, of course, the debate could continue into 2009.

The proposed Patent Reform Act makes a number of key changes to the Patent Act designed to impact patent quality and litigation costs and achieve greater harmonization with international patent laws. The House bill[127] is similar in most respects to the Senate bill but with some key areas of divergence. The framework introduced in Part III is applied to examples drawn from the Senate bill[128] to suggest how the characteristics of the legal process should inform plans for reform.

B. Patent Reform Debate and the Missing Link of Process

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removing or modifying discretionary provisions such as the willfulness standard and inequitable conduct defense, requiring publication of all patent applications at eighteen months, and allowing the USPTO to retain fees collected. While borrowing from the proposals included in the Report, the Patent Reform Act of 2007 strays from the Report's focus on market efficiency, the specific recommendations for achieving this efficiency and the evaluative criteria used to support these recommendations. Areas of divergence from the changes recommended in the report include modifications to how damages are calculated, changes in venue laws, revised standards for willfulness and inequitable conduct. These departures reflect an inherent bias in the proposed legislation towards facilitating use of patented technology through weakening patent rights and a neglect of the National Academy's focus on removing the subjective elements from US patent law to reduce cost and increase predictability and stability.

[120] Patent Reform Act of 2005, H.R. 2795, 109th Cong. (2005).
[121] Dennis Crouch, Patent Reform: Patent Act of 2005, blog entry, Patently-O, June 9, 2005.
[122] Patents Depend on Quality Act of 2006, H.R. 5096, 109th Cong. (2006)
[123] Patent Reform Act of 2006, S. 3818, 109th Cong (2006).
[124] Patent Reform Act of 2007, H.R. 1908, S. 1145.
[125] Ref: Senate Reports 110-259.
[126] REF: AUTM summary
[127] H.R.1908
[128] S. 1145

Patent scholars have developed models of particular ways in which patent law might enhance or harm innovation,[129] proposed alternative schemes for evaluating, challenging, and enforcing patents,[130] and suggested alternative reward systems.[131] Proposals for patent reform abound, including reforms directed at the structure and functioning of the PTO, changes to court decision making, and instructions for Congress. While many of these contributions recognize the dynamic nature of technology markets and the complexity of the interaction between patent law, technology markets, and innovation, they often neglect the complexities of the institutional framework and do not incorporate the process or cost of change into comparisons of alternative patent rules. Indeed, only recently have scholars started to pay attention to the institutional aspects of the patent system and the evolution of private market structures in response to patent law.[132] Still missing from the literature is the study of the costs of patent law change and the relative efficiency of alternative processes for bringing about patent law change.

Although stopping short of providing guidelines for comparing alternative processes for changing patent law, the existing literature does suggest features of patent law, the institutions that make and enforce patent laws, and technology markets that are of particular relevance in making such a comparison. These features include: (a) the interdependence of patent law with broader economic and political agendas (with implications for variance and participation), (b) the complex interaction between patent law and market response (with implications for specificity, variance and speed), (c) competing theories to explain how patent laws impact innovation, with potentially conflicting implications for policy change (with implications for specificity, variance and participation); (d) a focus on institutional inadequacies (particularly at the agency level) and recommendations for institutional change; and (e) emphasis on the changing nature and needs of science and technology markets.

Concerns About the Politics of Reform Proposals for reform legislation are strongly influenced by public policy concerns about the performance of the U.S. economy, resulting from the perceived connection between patent policy and U.S. competitiveness and productivity.[133] Historically, proposals for patent law change have followed negative economic performance and challenges to U.S. technological superiority, and the linkage of patent policy with economic policy continues to be drawn by contemporary policy makers.[134] This tie between the patent system and concerns about innovation and

[129] E.g. through patent hold up. REF
[130] e.g. proposals for post grant review REF
[131] e.g. patent bounties, John R. Thomas, Collusion and Collective Action in the Patent System: A Proposal for Patent Bounties, 2001 U. Ill. L. Rev. 305 (2001).
[132] See e.g. Stuart Minor Benjamin and Arti K. Rai, "Who's Afraid of the APA? What the Patent System Can Learn from Administrative Law," Due Law School Legal Studies Research Paper No. 109, August 2006.
[133] See e.g. Hall et al, Prospects for Improving US Patent Quality via Post-grant Opopsition, p. 4-5 ("The US patent system…is very much a political creation. Its development and frequent alterations at the hands of the US Congress reflect changes in the balance of political power…).
[134] Senator Leahy's argument in support of his proposed reform bill, for example, is that "[i]f we are to maintain our position at the forefront of the world's economy and continue to lead the globe in innovation and production, then we must have an efficient and streamlined patent system to allow for

competitiveness persists despite a lack of empirical evidence supporting the causal link between patent rights, investment in R&D, and changes in U.S. productivity.[135] The intertwining of patent law and political agendas complicates decision making about patent law, and the result is a patent law system that is influenced by broad political and economic trends and shifting public views about how patents impact markets. [136] Since the connection between patents and innovation is poorly understood, there are few limits on this public policy pendulum. Criticism of Congressional intervention in patent markets has also focused on the influence of special interest groups on proposed reform legislation. Indeed, one explanation for the delay in enacting patent reform legislation is the pressure exerted by industry lobby groups, notably pharmaceutical and software companies, in support of different measures. Courts have been identified as a more objective, neutral arbiter of patent reform issues.[137] These concerns with the political economy of patent reform suggest the advantages of a legal process that offers protection from shifting public policy views, including limits on the variance of law change and guidelines for participation - determining what interests should be allowed to drive patent law change and for what purpose.

Patent "Problems" and Market Response While in many other areas of the law attention centers around the benefits of laws which facilitate strong, clear property rights despite the restrictions on public use, the focus of policy debates over patent reform and the focus of scholars in support of reform is often placed on the "monopoly" costs imposed on technology markets by poor quality or overly broad patents and the need for intervention to curtail monopoly power.[138] This dominant concern with market power persists despite research showing that the extent of monopoly power conferred by patents may in many (or most) cases be limited. Exclusive rights over a technology do not always create market power, for example, most individual patents have little market impact and fail to generate any significant return,[139] and where patent rights do have

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high quality patents that limits counterproductive litigation."Statement of Sen. Patrick Leahy on Introduction of The Patent Reform Act of 2007, April 18, 2007.

[135] Scherer REF

[136] See Mark D. Janis, Patent Abolitionism, 17 Berkely Tech. L. J. 899 (2002); Scherer; See e.g. Robert A. Armitage, Now that the Courts have Beaten Congress to the Punch, Why is Congress Still Punching the Patent System?, 106 Mich. L. Rev. First Impressions 43 (2007).

[137] Ref - Armitage – Congress/courts

[138] Patent law is premised on the existence of an economic system in which the private incentives to invent and disclose inventions conferred by property right protection are balanced against the gain from public dissemination and use of the inventions. See Beckerman-Radua p. 167 See RICHARD POSENR, ECNOMIC ANALYSIS OF LAW, 1—13)1st ed/ 1972)(importance of legal protection of property rights to create incentives for efficient resource use); Andrew Beckerman-Rodau, "The Supreme Court Engages in Judicial Activism in Interpreting the Patent Law in eBay, Inc. v. MercExchange, LLC" TUL. J. TECH. & INTELL. PROP. Vol. 10, 165, 167. But the focus is often placed on concerns about the monopoly power conferred by patents to the neglect of the benefits associated with strong, clear property rights. The unique concerns over patent "monopolies," in contrast to other forms of property rights, may be attributable in part to normative views about the appropriateness of restricting the freedom to use and share ideas, as well as practical concerns about granting private parties ownership rights in ideas and their application.

[139] See Radau, 169; James besen & Mchael J. Meurer, Lessons for Patent Policy from Empirical Research on Patent Litigation, 9 LEWIS & CLARK L. REV. 1, 2 - 8 (2005) (180,000 patents were

market impact, market solutions often emerge.[140] Concerns about patent monopolies have been fed by influential models of patent "problems" in the context of cumulative innovation, complex products incorporating multiple inventions (feeding concerns about patent hold-up and royalty stacking), and the activities of patent owners that focus primarily on exercising patent rights rather than making products (feeding concerns about patent "trolls"). A key argument levied against strong patent rights in evolving markets is that where innovation is cumulative, strong patents can impede innovation.[141] These concerns are particularly pronounced where patents are obtained for foundational technologies that may inhibit subsequent innovation, where patents cover interoperability and other standards, and where patents cover research tools that are essential or important to subsequent discoveries.[142] Concerns about patent rights and the remedies available for infringement also arise from models of patent hold up,[143] royalty stacking,[144] and patent thickets,[145]and these models have served as focal points for broader concerns about the abuse of monopoly power.[146] Finally, abuse of the litigation process by "patent trolls" has been a favorite subject of commentators.[147] [148] These patent "problems" have played an influential role in motivating patent reform, particularly reforms centering on the calculation of damages and the availability of injunctions.[149]

While the literature on patent hold up, cumulative innovation, and related anti-commons problems have highlighted important aspects of the patent system, resulting proposals for patent reform directed at "fixing" these problems have not included sufficient consideration of how the process of changing the law might impact the patent system and

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granted in 2000 but only about 3000 were involved in litigation; 10% of patents account for 80-90% of economic returns on patents); Mark Lemley, The Economics of Improvements in Intellectual Property Law, 75 TEX. L. REV. 989, 1041 (1997)(finds that most patents do not produce any market power);

[140] Schaprio/consortiums, cross-licensing etc. REF

[141] See Clarisa Long, Patents and Cumulative Innovation, 2 Wash. U. J. L. & Policy 229, 231 (2000).

[142] REF re cumulative innovation.

[143] Models of hold up illustrate problems that arise when a patent covers one component or feature of a complex product, including the ability of the patent owner to extract too much value for its patent rights by threatening to seek an injunction preventing the sale of the whole product.

[144] Models of royalty stacking examine situations in which excessive royalty charges arise where multiple patents cover a single product.

[145] Related concerns about "patent thickets" arise from anti-commons problems in patent ownership - a situation of over-ownership in which a particular area of technology is blanketed by multiple patents owned by multiple parties who block each other and prevent effective use of the technology.

[146] Mark A. Lemley & Carl Shapiro, Patent Holdup and Royalty Stacking. 85 Texas Law Review 1991 (1991).

[147] Related concerns about "patent thickets" arise from anti-commons problems in patent ownership - a situation of over-ownership in which a particular area of technology is blanketed by multiple patents owned by multiple parties who block each other and prevent effective use of the technology. Ref – articles on patent trolls.

[148] Related concerns about "patent thickets" arise from anti-commons problems in patent ownership - a situation of over-ownership in which a particular area of technology is blanketed by multiple patents owned by multiple parties who block each other and prevent effective use of the technology. See Matthew Sag and Kurt W. Rohde, Patent Reform and Differential Impact, Northwestern University, August 21, 2006.

[149] REF – other patent hold up literature ; influence on proposed legislation

how markets might adjust in the absence of intervention. Similarly, many of the responses to these patent "problems" have focused on limitations in the models rather than on the costs associated with change and alternative ways of correcting any potential inefficiencies in patent markets.[150] Once the interaction of patent law and market response is examined, the patent "problems" may be mitigated or, as some have suggested, in some circumstances may simply be part of creating liquidity in patent markets –features of a maturing market.[151] Patent thickets may reduce litigation where there are overlapping patents and each represents only a small part of the total product (and only a small part of the damages available), for example, since few patent owners would incur the cost of litigation to recover their share,[152] and "patent trolls" may create market liquidity.[153] A few scholars have suggested ways in which private markets will adapt to avoid inefficiencies created by patent rights through innovations in market structure.[154] Still neglected in this literature is the fact that change itself is costly, particularly law change that has the potential to impact long term investment and the diffusion of innovation. Also neglected are comparisons of judicial decision making and agency rule making as alternatives to specific legislative proposals, with attention to when, and why, each of these processes may offer comparative advantages. Specific proposals for legislative reform should reflect a consideration of the costs and benefits of alternative ways of bringing about legal change and, particularly where there is uncertainty about the appropriate type of reform, should consider the benefits to incremental change and flexibility and reliance on private market adjustments.

Alternative Views about Why Patent Law Matters Beliefs about the types of patent reforms that are (or are not) needed will vary depending on views about patents and their role in promoting innovation and efficient use of technology. Patent law is most often

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[150] Critics of the proposed reforms and of the underlying models of patent "problems" have approached the issues from both theoretical and empirical angles. Some argue that the political and public debate over paten reform is based to a large extent on misleading information about the scope and nature of the problems facing patent markets. Homer highlights the weak foundation on which attacks against patent markets as being dominated by patent trolls rest, for example.Homer points out that only four cases employ the term "patent troll" and only two cases attempt to define the term, and notes the lack of empirical evidence to support the attack. Aaron Homer, Comment: Whatever It Is..You Can Get it on EBay..Unless You Want an Injunction – How the Supreme Court and Patent Reform are Shifting Licensing Negotiations from the Conference Room to the Courtroom, 49 S. Tex. L. Rev. 235, 236 (2007). Homer suggests that highly publicized cases such as the Blackberry case (NTP, Inc. v. Research in Motion, Ltd., 418 F.3d 1282, 1287 (Fed. Circ. 2005) have "raised the profile of "patent trolls" and the potential harm from such trolls above that justified by litigation realties." Homer, 236. Others have challenged the results of models of patent hold-up and related "problems," suggesting, for example, that rather than generating excessive royalties because of hold-up and stacking problems, patent remedies instead create a problem of under-compensation. See Einer Elhauge, Correcting Current Models of Patent Holdup and Royalty Stacking, 4 Journal of Competition Law & Economics __ (2008)

[151] REF – why patent trolls are a good thing

[152] Doug Lichtman, article on patent thickets

[153] See e.g. James F. McDonough II, The Myth of the Patent Troll: An Alternative View of the Function of Patent Dealers in an Idea Economy. __ Emory Law Journal__ REF – scholarly critique of patent troll focus.

[154] Mirlees, standard setting.

evaluated in terms of the effects of patents on innovation, based on the traditional incentive theory of patents linking innovation activity to the patent "reward" and the trade-off between incentives to invent from strong patent rights and the cost of the patent monopoly. This incentive theory of patents is particularly prominent in studies of individual market actors and their decisions to innovate and invest in innovation. The models of patent hold up, thickets and the anti-commons discussed above involve a comparison of positive and negative incentive effects and efficiencies from the curtailment of patent "monopolies". Moreover, the increasing liquidity of patent markets, a feature of any maturing market, is seen by certain scholars and commentators as raising concerns about whether patents are performing a role as a reward to inventors for developing and disclosing their inventions.[155] Critics of patent reform from this angle examine how the proposed reforms will alter the decisions of economic actors considering whether to invest in R&D and/or whether to engage in infringing activities, pointing to potentially counter-productive results from patent law changes intended to improve investment incentives and reduce litigation.[156] But a failure to definitively pin down the relationship between changes in patent strength and innovation has called into question the invention theory of patents as a sufficient justification for the level of patent protection provided by the current patent system.[157] The lack of understanding about what drives innovation is illustrated by the mixed nature of empirical data examining links between patent protection and investment in R&D or patent protection and measures of productivity.[158]

Patent law is closely intertwined with the investment, production and trading decisions of participants in technology markets, and patent law and related bodies of law enter to constrain or facilitate private actions at multiple stages of the innovation, technology transfer, and production process. Laws and those making and adjudicating the laws influence not only the boundaries of patent assets but also the ways in which those boundaries can be enforced and other norms and guidelines for participating in technology markets. Moreover, patents provide a framework within which private parties can contract with each other for the development and use of technology and make efficient choices about whether to respect patent rights and whether to use or develop alternatives.[159] These features of patent markets have spawned a number of alternative

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[155] REF: Patent market liquidity paper.

[156] See Robert J. Shapiro and Aparna Mathur. The Economic Implications of Patent Reform: The Deficiencies and Costs of Proposals Regarding the Apportionment of Damages, Post-Grant Opposition, and Inequitable Conduct. Report for BIO. 2008.Their analysis shows that the proposed changes to damages may increase the costs of patent litigation while reducing the cost of patent infringement, thus encouraging more infringement and dampening investment in R&D and innovation. They also argue that the new post-grant opposition procedures and the proposal to codify the judicial doctrine of inequitable conduct could inhibit innovation by increasing investor uncertainties about patents and increasing the costs for innovators. While the empirical data is not conclusive, their work illustrates the importance of looking at how patent law reform will influence individual incentives and market activity.

[157] REF

[158] Scherer, empirical data re patent protection and innovation

[159] See Edmund W. Kitch, "The Nature and Function of the Patent System," Journal of Law and Economics (October 1977); 265-290; Fritz, Machlup, An Economic Review of the Patent System,

explanations of the role of patents, including theories of incomplete contracting (e.g. patents facilitate the ability of parties to enter into incomplete contracts and sink investments in joint production opportunities), signaling firm quality (e.g. patents used as a proxy for signaling good investment opportunities), accounting function of patents (e.g. to facilitate joint production opportunities through clear allocation of rights and returns), and other explanations based on facilitating sunk costs, allowing the creation of new markets, and general benefits from clear definition and protection of property rights.[160]

Theories that focus on the ability of private parties to contract with each other, including a transactions cost approach emphasizing the role of patents in reducing information and related transaction costs and theories of coordination emphasizing the role that patents play in facilitating coordination among market players to accomplish efficient activities, have gained prominence as alternative (or synergetic) explanations for the importance of patent laws, with implications for patent reform.[161] If the patent law system is viewed as a mechanism for addressing transaction costs that might hinder inventive contracts, then changes to the patent should lower information, negotiation, or enforcement costs.[162]

The range of theories about patents and their relationship to efficient economic behavior becomes a challenge for policy makers since the evaluation of patent reform will vary depending on views about patents and their role in markets for innovation and technology. Law makers are given the task of balancing public and private interests in determining patent laws without a clear understanding of how their decisions about patent strength will impact market activity or innovation. Different views about the costs and benefits of patents result in different opinions about appropriate laws and law change, creating uncertainty and potentially inefficient rule changes.[163] An important question in this context is which entity will be the best at accomplishing the balancing required, and which process of change is likely to minimize errors. To the extent the patent literature

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Study No. 15 of the Senate Committee of the Judiciary, Washington, U.S. Government Printing Office, 1958.

[160] REFS

[161] Heald, a proponent of the transactions cost view of patent law, argues that one of the key benefits of intellectual property laws is to facilitate contracting between technology creators and technology users, and that the problem of innovation can be seen as one of reducing transaction costs. He examines proposals for patent reform in light of whether a change in legal rights increases or reduces the transaction and information costs that hamper this contract formation. Paul J. Heald, Transaction Costs and Patent Reform, 23 SANTA CLARA COMPUTER & HIGH TECH. L. J. 447 (2007). Kieff offers a related discussion of the role of intellectual property rights in facilitation coordination among market players, with stronger intellectual property rights reducing the coordination costs for achieving efficient outcomes. His discussion provides guidance similar to, and synergetic with, Heald, but also stops short of comparing the characteristics of alternative processes for changing the rules Kieff - coordination

[162] Although pointing us in the direction of how to evaluate alternative processes for legal change - through an evaluation of these different impediments or costs to contracting - Heald does not provide guidance on how to compare the transaction costs of alternative mechanisms for legal change within a changing legal and technological environment. Moreover, the transactional cost analysis must be carried one step further to evaluate how the process of change itself impacts transaction costs.

[163] This divergence of views was evident in the dissenting opinions of the recent Supreme Court decision in Metabolite. (expand/REF)

addresses the problem of error, it is to recommend favoring private market adjustment over public sector intervention.[164] The extent to which the process of changing the law allows for private market response - including factors such as flexibility and speed of regulatory response - thus becomes an important consideration in evaluating law change.

Institutional Change Although reluctant to delve into the administrative law aspects of the patent system, scholars have considered the question of where in the patent system to focus the efforts of reform. Concerns with poor patent quality have led to suggestions of reform at the agency level, including proposals ranging from additional resources for the PTO to expanded and enhanced opportunities for third party participation in providing prior art and challenging patent validity to a complete restructuring of the PTO.[165] Questions have been raised, in response, about whether it is efficient to devote more resources to this early stage decision making rather than leaving courts with a more significant role in correcting patent office errors.[166] Scholars have also considered the question of whether certain key administrative changes in the patent system might have contributed to contemporary concerns about patent quality and strength. In a widely cited study of the patent system, Jaffe and Lerner point to the confluence of two administrative changes to the patent system, the diversion of funds from the PTO and the creation of a specialized court of appeals with exclusive jurisdiction over most patent appeals,[167] to support their view that the United States has swung the pendulum too far in the direction of strengthening and expanding patent rights, creating thickets of strong patents of questionable validity that hamper innovation.[168] The surge in volume of patent

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[164] REF – allow private markets to respond rather than public intervention/market efficiency argument

[165] REF – third party opposition reforms

[166] Mark A. Lemley, Rational Ignorance in the Patent Office, 95 NW. U. L. Rev. 1495 (2001); but see Mark Lemley, Douglas Lichtman & Bhaven Sampat, What to do About Bad Patents? 28 Regulation 12 (2005) (suggesting a two tiered patent system that allows applicants to pay more for a higher level of scrutiny that accords their patent with a higher presumption of validity).

[167] Congress created a specialized appellate court, the Court of Appeals for the Federal Circuit (CAFC), in 1982. The CAFC is charged with hearing almost all of the appeals concerning patents from the district courts, the International Trade Commission, and the Board of Patent Appeals and Interferences. Jaffe & Lerner, Chpt. 4; Mirles, p. 717-718.

[168] Jaffe and Lerner reviewed over two decades of research on innovation policy as the basis for their analysis of the patent system in their book "Innovation and its Discontents: How Our Broken Patent System is Endangering Innovation and Progress, and What To Do About It." Adam B. Jaffe & Josh Lerner, INNOVATION AND ITS DISCONTENTS: HOW OUR BROKEN PATENT SYSTEM IS ENDANGERING INNOVATION AND WHAT TO DO ABOUT IT. Princeton University Press, 2004. See also Michael S. Mireles, Jr., The United States Patent Reform Quagmire: A Balanced Proposal, 6 MINN. J.L. SCI. & TECH 709 (2006). Rochelle Dreyfuss, *Pathological Patenting: The PTO as Cause or Cure*, 104 MICHIGAN LAW REVIEW ___, 2 (2006); Mireles. For recent work focusing on administrative law and institutional analysis, see e.g. But see Kali N. Murray, The Cooperation of Many Minds: Domestic Patent Reform in a Heterogeneous Regime, 48 IDEA: THE INTELLECTUAL PROPERTY LAW REVIEW __ (2008); Arti K. Rai, *Engaging Facts and Policy: A Multi-Institutional Approach to Patent System Reform*, 103 COLUM. L. REV. 1035 (2003). Jaffe & Lerner point to the transformation of the PTO from a tax based to a fee based office and the diversion of funds from the PTO as an explanation for problems of patent quality, arguing that Congress has impeded the ability of the agency to adequately respond to the increasing volume and complexity of patent applications by depriving the PTO of needed resources and distorting its incentives through required cost cutting and fee increases. They argue that the Federal Circuit has

application submissions, accompanied by the lack of sufficient resources at the PTO to deal with this higher volume, has been widely cited as a key reason for poor patent quality. The performance of the Federal Circuit has been likewise criticized for contributing to an over-expansion of questionable patent rights.

While the creation of a specialized court of appeals has been attacked on many fronts, critics have largely ignored the interdependence of institutions and the relative competence of each within the system.[169] Rai points to this neglect and argues that patent reform requires multi-institutional analysis – including an evaluation of the relative competence of the various institutions and their interdependencies.[170] In her bid for reform, Rai points to two institutional deficiencies – the absence of an institution within the patent system that has the requisite fact finding expertise, and the absence of an institution that takes responsibility for elaborating patent law in the policy-oriented manner that the statute encourages, and argues for a reallocation of responsibilities between the administrative and trial court levels.[171] More generally, the literature on comparative institutional analysis can be applied to suggest reforms to the patent system. This literature suggests that agencies have greater institutional competence than courts because of their greater expertise and focus and their greater ability to engage in data intensive decision making.[172] The benefit is also the danger, however, since with specialization comes the risk of regulatory capture and tunnel vision.[173] Applying these insights to patent law, Benjamin and Rai propose achieving change in patent law by combining new procedures with existing administrative law principles to alter the balance of decision making and deference between the Federal Circuit and the U.S. Patent and Trademark Office in a way which constrains bias and tunnel vision while realizing the

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encouraged the filing of patents by expanding the scope of patentable subject matter, weakening the standards of novelty and non-obviousness, and by increasing the enforceability of patents, the availability of injunctions and the size of damages from infringement.

[169] There are arguments countering this view based on the creation of greater certainty in patent law, and the related benefits stemming from having one appellate court interpret and apply patent law rather than having 12 courts with different views. See Mireles, p. 724.

[170] Arti K. Rai, "Facts, Law & Policy: An Allocation of Powers Approach to Patent System Reform," University of Pennsylvania Law School research Paper No. 02-20, p. 4. Rai argues that "Congress focused on the appellate courts even though the patent questions that require narrowly focused expertise are largely questions of fact, not law or policy. Indeed, the questions of law and policy are best suited not for specialists but for generalist judges who are likely to have the global perspective necessary to see the ways in which the patent system interacts with other areas of law – principally antitrust - to promote innovation goals." Rai, Facts, Law & Policy p.5.

[171] Rai argues for vesting greater fact finding expertise at the administrative and trial court levels, with a more appropriate role of appellate review informed by generalist input and guided by patent policy.

[172] See e.g. Thomas W. Merrill, "Judicial Deference to Executive Precedent" 101 YALE L. J. 969, 972-75 (1992); Cass R. Sunstein, "Law and Administrative Change after Chevron" 90 COLUM. L. REV. 2071, 2079 (1990).

[173] See discussion in Benjamin and Rai, APA, pp. 40-43 (summarizing literature comparing judicial and agency rule making).

benefits of specialization.[174] The study of institutional context and inter-dependence in decision making highlights the importance of participation in the process of change.

Recognizing the interdependence of institutions within the patent system becomes especially important where there are competing decision makers influencing the patent system. Patent law involves simultaneous law making by legislators, courts and agencies, and the current push for patent reform illustrates how the activities of these three entities intersect in shaping patent law. While Congress debates reform legislation, the Federal Circuit has been aggressive in policing and protecting patent rights, and the Supreme Court has been actively involved in pushing back some of the Federal Circuit decisions and in reshaping the patent law landscape more generally.[175] The PTO has taken a number of measures designed to improve its internal operations and reduce backlog, including a controversial set of new proposed laws designed to reduce the number of continuation applications and streamline the applications that are submitted.[176] Given the involvement and activity of these different law making entities in changing the patent system, it is critical to consider the process of law change, addressing agendas for change that are in potential conflict and identifying potential synergies in achieving what should be common goals.

Changes to patent law are not limited to the federal courts, PTO and Congress, however, roles are also played by "non-primary" institutional players (i.e. different administrative agencies beyond the PTO) in formulating patent policies, and patent policies can influence a wide range of constituencies.[177] Legal change can be made indirectly through the activities of administrative agencies such as the Federal Trade Commission (e.g. through its regulation of competition policy) and the International Trade Commission (e.g. through interpretation and enforcement of patent law in connection with trade and imports), through state courts (e.g. through contract laws impacting licensing and other agreements), and through markets (e.g. through the creation of norms and standard setting organizations). Changes in the primary patent institutions will influence the agendas and issues facing these secondary institutions, and vice versa. The ITC, an agency long neglected by intellectual property lawyers, has become increasingly prominent as companies shift their efforts to enforce patent rights towards ITC enforcement initiatives in the wake of a Supreme Court decision limiting the availability of injunctions at the federal court level.[178] There are also multiple bodies of law beyond the patent statute that impact patent rights both directly and indirectly, including both federal laws such as antitrust and competition law and state contract and unfair

[174] Stuart Minor Benjamin and Arti K. Rai, "Whose Afraid of the APA? What the Patent System Can Learn from Administrative Law." Duke Law School Legal Studies Reseach Paper, 2006.
[175] REF – court activity
[176] REF – agency activity
[177] Murray argues that patent law should be seen as a heterogeneous regime that attempts to structure patent law through the competitive roles played by diverse agencies. Kali N. Murray, "The Cooperation of Many Minds: Domestic Patent Reform In A Heterogeneous Regime," 48 IDEA __, 2008.
[178] REF re ITC activity

competition laws.[179] Proposed changes to patent law should be evaluated in light of whether the desired outcome of patent law change could be better achieved through change in some other body of law or through some other decision maker.[180] The availability of other legal tools, as well as the need to capture interdependencies among different bodies of law, argues for flexibility and specificity in the law making process. It also argues for participation by decision makers in interrelated areas of law and policy.

Patent Reform in the Context of Technological Change A final challenge in the examination of patent law change is the interaction between the organization, methodology and production of science and patent law.[181] Patents play a complex role in the production and use of science and technology. Patents can help to establish new technologies and technology markets by creating property rights around incipient product and process ideas and can help to define how people understand and use new technologies. As technology markets develop and mature, the cumulative nature of ideas creates challenges of boundary drawing between property rights that must be based on judicial interpretation of statutory grants and limits. But the ways in which science is generated and use are constantly changing, as are the institutions supporting it, and the nature of technology markets is also constantly evolving.

Scholars are quick to point to the need of the law to accommodate to a shifting scientific and technological landscape, but less forthcoming with ideas about how the patent system should adjust and respond to changes not only in science, but in the institutions that generate and disseminate scientific knowledge. [182] These institutional needs should be

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[179] Patent law intermingles with other laws, such as contract law, antitrust and competition law, and tax law, to shape and regulate technology markets, and changes in patent law must be considered in light of the interactions between patent law and other bodies of law influencing technology markets.

[180] As an example, antitrust law could be used to control monopolistic behavior of patent owners without altering the laws governing patent strength, thus narrowing in on the behavior that is of most concern without broad impact to all patent owners.

[181] Dreyfuss argues that the problems with the patent system raise "questions about institutional competence to grapple with the changing face of science." Dreyfuss points to the importance of institutional shifts in the organization, methodology and production of science in understanding change in patenting and the effects of patent law, suggesting that "[b]ecause these changes altered the factual bases on which patent law is grounded, a strong argument can be made that the observed problems are not caused merely by the implementation of the law, but also by its articulation, by an institutional failure to keep patent law and policy abreast with the developments at the technological frontier." Rochelle Dreyfuss, *Pathological Patenting: The PTO as Cause or Cure*, 104 MICHIGAN LAW REVIEW ___, p. 3 (2006).

[182] But see Lee. Lee proposes including a social feedback mechanism in patent law that relaxes exclusive rights on applications that have become indispensable to a broad variety of downstream uses (what he refers to as "infrastructure"). As his contribution to the patent reform debate, Lee proposes a case-specific social feedback mechanism for liberalizing access to patented infrastructure. Courts would be required to consider the infrastructural use of a patented invention at the time of enforcement, resulting in a relaxing of exclusive rights on inventions as they become important platforms for downstream developments. While his proposed reform reflects the interaction between patent law and the evolving needs of creative communities, however, he does not extend his analysis to a consideration of the costs of changing legal rules or a comparison of alternative ways of creating responsiveness in the law.
Peter Lee, "The Evolution of Intellectual Infrastructure," 83 Washington Law Review 39, 40.

considered when evaluating alternative processes for legal change. The complexity and rapid change of technology markets impose timing problems – laws need to be able to adapt to the pace and nature of technological change. Legal boundaries often need to be established before the nature of the underlying technology is fully understood. There are also industry differences in regulatory needs and benefits. Pharmaceutical markets rely on strong patent protection to a larger extent than many types of high tech markets, for example, and changes that are perceived as benefits by some industry players are perceived as costs by others. Law making processes that can adapt quickly, and flexibly, to the evolving needs of technology markets, and which can alter laws within the uniform patent system in a way that allows for industry differences, are critical. The specificity of the legal process will matter in allowing for responses to particular technological features or needs.

C. Paradigm Shifts and the Legislative Mechanism

Patent reform proposals include adjusting U.S. patent law to bring it more in line with that of other major market countries.[183] Proposals for harmonization include changing the way that U.S. law determines priority of ownership for patent applications, altering the grace period provided under U.S. law for filing a patent application after publication (or requiring other countries to provide such a grace period), and altering the exceptions provided under U.S. law to the rule that a patent application must be published after 18 months. The interest in harmonization has been driven by concerns about the complexity and cost of doing business in a global market place as well as questions about the relative effectiveness and efficiency of certain U.S. rules (such as the first-to-invent approach) as compared to international norms. Indeed, the National Academy report suggested going even further towards realigning U.S. patent law with international patent law concepts by removing what it argues are the highly subjective elements from U.S. patent law "and the expense, unpredictability, and uncertainty that those elements inject into the patent system."[184]

The idea of harmonizing international patent laws is not new to the international trade agenda of U.S. policy makers, where the U.S. has been a key player in the passage of an agreement requiring participating countries adopt a minimum level of patent protection.[185] But the notion that the U.S. should reform its own patent laws based on considerations of global norms and the complexity and cost of doing business in global markets is new, requiring a paradigm shift from internally focused to more globally focused patent reform. Moreover, principles of harmonization require not only a shift in policy approach, but also a shift in certain fundamental patent practices such as ways of determining patent ownership. Where legal change requires a clear and significant system-wide paradigm shift, particularly a shift that conveys a message to the market place, legislation is usually the best, if not the only, mechanism for accomplishing this

[183] See National Academy report, proposal; But see John F. Duffy, Harmony and Diversity in Global Patent Law, 17 Berkeley Tech. L. J. 65 (2002)(suggesting the potential benefits to innovation from diversity among national patent laws)
[184] National Aacdemy Report, Ex. Summary p.2
[185] (the Trade Related Aspects of Intellectual Property Rights (TRIPS) Agreement)

change. This is illustrated below in the context of the Senate bill proposal to change priority of ownership.

The Senate bill includes a proposal to shift from a first-to-invent to a first-to-file system for awarding patents.[186] The United States awards ownership of a patent to the first person or people to make the invention (i.e. "first-to-invent") rather than, as in most other major market countries, the first person or entity to file a patent application covering the invention (i.e. "first-to-file"). Disputes regarding priority between two inventors claiming ownership of the same invention are governed by a complex interference proceeding. In this case, where the rule change and desired outcome are clear, time may be needed to adapt to the new regime, and where broader political agendas are implicated but the role of special interest groups constrained or counter-balanced, legislation may be the best, if not the only, process for accomplishing the change. The characteristics of legislation – high variance, low specificity, and broad participation - will lead to lower transition costs than alternative processes for rule change (to the extent they are available). The proposed law change is relatively clear, taking the form of a change from one method of determining priority of ownership to another, and has international examples to use as guidelines. It involves a system-wide shift to accommodate the change, and conveys a message about the intent to harmonize U.S. patent laws with those abroad. Because the rule change is relatively clear and easy to understand, the higher learning costs and public and private adjustment costs typically associated with a high variance process are likely to be less significant. Lower specificity will lower transition costs since the application of this law change is not dependent upon specific market conditions (except to the extent it reflects international legal norms) and has broad applicability to inventions – the benefits associated with incremental, fact specific change are missing here and the rule change should be implemented uniformly and without too much in the way of case by case analysis. In the absence of uncertainty about the rule change, and where the change requires structural adjustment and shifts in patent filing strategies, lower speed will reduce transition costs. Finally, the changes involve coordination with multiple players and agendas, suggesting the benefits of broader participation.

In addition to having the characteristics required to accomplish the paradigm change described here most efficiently, legislation differs from other forms of rule making in the message that a "reform" act sends to the public. Characterizing legal change as "patent reform" has an impact on behavior and expectations about the patent system and technology markets that is independent of and broader than the actual changes proposed – making legislation a blunt but potentially powerful instrument for change. Although this impact can be negative – where the message of "reform" creates the feeling that the patent system is broken, and that US losing its competitive edge, for example, it can also be positive – such as where it leads to beliefs that after the legislation is implemented the patent system and technology markets will have improved performance. Positive effects on expectations could lead to an upward shift in activity and investment, leading to a more active technology market and a more robust patent system. In the context of harmonization, the message that the U.S. is streamlining its patent system and reducing

[186] See Congressional Research Services Summary of Bill for a summary of the proposed revisions.

global transaction costs could send a positive message to decision makers both within the U.S. and interested in investing in U.S. markets.

Generalizing from this example, where the law change takes the form of a paradigm shift with general applicability and clear guidelines as to how the rules need to change, and connections to a broader political and economic message and agenda, transition costs will be lower for a process that has high variance (rather than gradual adjustment), low specificity (applying to all inventions, independent of context), broad participation (including coordination with other policy agendas), and low speed, favoring legislation as the process for law change. High variance will be a particularly desirable feature where there are strong benefits from making a substantial shift from one equilibrium point to another, particularly where the system has inherent tendencies to revert to the old equilibrium if change is attempted on an incremental, gradual basis, and where the change is to be uniformly applied at a system-wide level.

D. Stability, Predictability and Incrementalism: The Judicial Mechanism

Applying the framework to normative theories of the judiciary, judicial decision making offers low variance, high specificity, relatively high speed, and targeted participation. The stability and reliability of the common law, the efficiency effects of allowing change in the law to be driven by market participants, and the flexibilities associated with incremental change, all serve to minimize transition costs relating to private party negotiation and adjustment to rule change. Also, where there are questions about the potential negative impact of proposed reforms, there may be advantages to laws that are more limited or which leave more discretion to individual decision makers on a case by case basis.[187] These features of the judicial process are particularly important when considering the proposed reform of patent damages and suggested codifications to judicial doctrines relating to willful infringement and inequitable conduct.

The "reform" of patent damages has been driven largely by concerns about the high cost of litigation and overcompensation of patent holders.[188] Indeed, alleged abuses of the patent system by patent owners who are not also producers and by owners of patents to components or incremental improvements exerting leverage to extract large royalties have been cited as key driving factors in support of patent reform.[189] Modification of the rules for determining patent damages has played a key role in patent reform debates, and continued disagreement about proposed changes to patent damages has contributed to the continuing failure of the Senate to pass a reform bill.[190] Judicial discretion and the ability to engage in fact specific reasoning play central roles in the determination of patent damages, both directly through the application of reasonable royalty and lost profit determinations and indirectly through findings of willful infringement and inequitable conduct. Both the calculation of damages and the use of subjective concepts that involve

[187] See e.g. Grajzl, Peter and Peter Murrell. 2007. "Allocating Lawmaking Powers: Self-Regulation vs. Government Regulation." Journal of Comparative Economics, 35:3, pp. 520-545.
[188] REF
[189] REF
[190] Carlos M. Gutierez, San Jose Mercury News, May 11, 2008, www.siliconvalley.com.

ascertaining the state of mind of the patent applicant or infringer have come under attack and are the subject of proposed reforms. The Senate bill proposes modifications to the patent damages provision to codify how the judge and juries should determine reasonable royalty damages.

Patent damages are calculated based upon lost profits or reasonable royalties designed to reflect what the infringer would have paid in a hypothetical licensing negotiation at the time of infringement. Under the current law, courts have the discretion to award reasonable royalty damages based on a range of factors relevant to the infringed patent's market value. The proposed revision, in its current form, provides for reasonable royalties calculated on (a) the entire market value of an invention, if the patented invention's contribution over the prior art is the predominant basis for the market demand of the infringing good; (b) an established royalty based on marketplace licensing if sufficient prior licensing indicating general marketplace recognition of value exists, or (c) in the absence of the other conditions, on the proportional contribution of a patented component to the complete product or process. Among other things, judges and juries must conduct an analysis to ensure that a reasonable royalty is applied only to that economic value properly attributable to the patentee's specific contribution over the prior art. The apportionment criteria is designed to address concerns about excessive patent damages, particularly where patents cover one component of a larger product or reflect a small improvement over existing technology. As added measures to reduce the cost of litigation, the Senate bill also includes provisions revising determinations of willfulness and venue and jurisdiction requirements to restrict forum shopping.

Critics of the change to the damages provision, which include both the PTO and the Administration, argue that the proposed law reduces the court's discretion to consider broader economic aspects of infringement, that the formulaic approach proposed removes necessary flexibility to respond to economic factors relevant to determining economic value, is cumbersome and complex and introduces ambiguity, and in some cases could make it more cost-effective to infringe than license new technologies.[191] There is also concern over whether judges and juries should be charged with the complex task of establishing an invention's specific contribution over prior art.

Damage awards are central in determining the cost of infringement as well as the expected returns from licensing and sale of patented inventions. Damage decisions are by their nature fact specific and dependent on a variety of complex and changing circumstances and incentive effects, and stability and predictability in calculating damages is essential to reducing transaction cost and coordination barriers. Abrupt and/or significant changes in the calculation of damages will disrupt existing and future contracting and coordination efforts by market players. Broad or formulaic changes in the calculation of damages will lead to error, uncertainty, and unresponsiveness to market change. As with other types of pricing, determinations of the cost of infringement need to be responsive to market factors and the specific nature of the transactions at issue. Uncertainty about damage calculations can lead to challenges in negotiating contracts as well as an increase in infringement and related disputes, and errors in determining

[191] Shapiro, p.6

damages can lead to inefficient investment and technology use decisions. In light of these feature of patent damages, the transition costs for changing damage calculations will be lowest where the process has low variance and where change is predictable and incremental and can respond to specific facts and circumstances. This makes judicial decision making, which is characterized by low variance (stability and predictability) and high specificity (fact specific determinations, discretion in applying rules to facts) the most efficient avenue for introducing change in patent damages. The view that changes in damage determinations should be left to the courts is shared by both the Administration and the PTO, who argue for preserving judicial discretion in calculating damages, suggesting that judicial discretion in calculating damages can best promote certainty and accuracy in determining patent damages[192] and that the calculation of damages should turn on the facts of each particular case, as determined by courts.[193]

Proposals directed at codifying determinations of willful infringement and findings of inequitable conduct – both of which impact the "price" of infringement - also threaten to produce high transition costs. U.S. patent law jurisprudence includes certain concepts which involve the assessment of a party's state of mind as a basis for determining patent rights and the cost of infringing, including the determination of whether someone "willfully" infringed a patent and should be penalized with triple damages, whether a patent applicant failed to include the applicant's "best mode" for implementing an invention and should therefore face patent invalidation, and whether an inventor engaged in "inequitable conduct" by "intentionally" failing to disclose all prior art during the application process and should therefore face patent invalidation.[194] One of the recommendations proposed by the National Academy was to remove these discretionary principles, which are perceived as contributing to the high cost and uncertainty of litigation. Rather than remove them, the Senate bill proposes to codify them. As an example, the Senate bill codifies the judicial doctrine that enhanced damage awards are limited to willful infringement and requires a showing that the infringer intentionally copied the patented invention and had sufficiently specific notice of the infringement, and

[192] REF – letter from Administration opposing Senate bill It suggests that "[i]nnovation can and will be encouraged in all industries by giving Federal judges the flexibility to apply appropriate economic principles to the facts of each case, consistent with the business model or technology. To further ensure fairness in determining damages, judges should be given the explicit statutory authority and responsibility to identify all those factors the jury should consider in assessing damages and develop a sufficient evidentiary basis in the court record."

[193] "While the appropriateness of damages awards in a number of patent case may be subject to debate, the USPTO does not believe that a sufficient case has been made for a legislative provision to codify or emphasize any one or more factors that a court must apply when determining reasonable royalty rates…It appears that the courts have adequate guidance through Georgia-Pacific and, as a general matter, do in fact consider numerous factors in determining royalty rates…The amount of a reasonable royalty should turn on the facts of each particular case, as best as those facts can be determined."Statement of Jon W. Dudas, Under Secretary of Commece for Intellectual Property and Dirctor of the Untied States Patent and Trademark Office before the Committee of the Judiciary US Senate "Patent Reform" The Future of American Innovation" June 6, 2007, p.5

[194] NAS Report, p.7.

also provides a good faith belief of non-infringement defense.[195] The Senate bill also proposes to codify the inequitable conduct doctrine, specifying criteria for a finding of inequitable conduct, and modifying the remedies that the court may consider upon a finding of inequitable conduct.[196]

While supporters applaud the higher standard for showing willfulness, concerns have been raised that these changes go too far in curtailing willfulness, turning the decision to infringe into a normal "cost of doing business" rather than acting as a deterrent to infringement and an inducement to seek a license to use patented technology.[197] Similarly, codifying the doctrine of inequitable conduct could lead to incentive problems among patent applicants and potential infringers. Legal doctrines such as the doctrine of inequitable conduct provide for a response to industry and technology differences through the ability of courts to take into account specific facts and information about the parties to a dispute and the incentives informing their conduct.[198] Codifying the determinations reduces the flexibility of the law to respond to different circumstances. For reasons similar to those for damage determinations, changing the determination of willfulness should be left to judicial decision making, allowing judges to alter the doctrine and/or its application over time. Changes have in fact already been made to the standard for willfulness by recent court decisions, leaving open the possibility that delayed legislation will over-regulate an area of law that has already been adjusted by faster moving judicial decision making.

Generalizing from these examples, judicial decision making will be most efficient (i.e. least costly) where stability and predictability of outcome are important, there are benefits to incremental, fact specific determinations (such as where the rules relate to specific individual actions or incentives or determinations of the "price" of infringement), the flexibility to respond to changing market circumstances is important, and there are advantages to relatively fast decision making. More generally, once the potential costs associated with making these types of legal changes to the "price" of infringement and the consequences of acquiring and disclosing information and taking other actions relevant to determinations of inequitable conduct and willfulness, are taken into account,

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[195] This proposal was first proposed before recent changes made by the Federal Circuit to the willfulness standard – changes that have made it harder for plaintiffs to prove willfulness and which may well remove the need for this proposal. See In re Seagate, REF.

[196] The USPTO laws include Law 56, which imposes a "[d]uty to disclose information material to patentability." The doctrine of inequitable conduct is a judicially-created defense to patent infringement based on the requirements of Law 56 that holds that any patent secured by omitting or misrepresenting critical information or through fraud is unenforceable. Inequitable conduct regarding any part of a patent can render the entire patent unenforceable. The Senate bill seeks to codify the doctrine and to modify the remedies that a court may use upon a finding of inequitable conduct.

[197] See USPTO statement, p.5

[198] As expressed by the USPTO in response to proposals for codifying judicial doctrines such as inequitable conduct, "[w]e fully appreciate that not all industries are similarly situated, that market conditions change over time, and that practical matters – such as channels of trade- may be legitimate factors for consideration in a patent-infringement case. Therefore, we believe it is critical that litigation-management modernization efforts preserve discretion for courts that enables them to account for differences across industries, markets and time."

the benefits of any change at all become less clear. A process which allows for incremental change provides an opportunity for reassessment as well as flexibility for private sector adjustments that avoid the need for further change. Judicial decision making has the advantage of allowing incremental change, so that if the costs appear to dominate the benefits, the pace of change can be slowed and the rule change reconsidered.

E. Experimentation and Specificity: Agency Mechanism

The involvement of the public in examining patent applications and challenging patent validity has been seen as an avenue for addressing concerns with patent quality. A number of patent reform proposals from commentators, scholars and policy makers alike have focused on ways of including public knowledge and enforcement efforts in improving patent quality. Proposals for reform to improve patent quality through expanding the resources available to the PTO and improving the information used to evaluate patent applications and patents have included imposing stronger search and disclosure requirements on patent applicants, expanding the opportunities for third party submission of relevant prior art, and expanding third party opportunities to oppose patents both prior to and after issuance.[199]

Under the current system, originally introduced with the goal of providing a low cost alternative to litigation, third party participation in the patent application and review process is relatively limited and avenues for challenging patent validity are even more limited and costly. Third parties cannot provide input directly to patent examiners during the patent examination process without the permission of the patent applicant, although they can provide prior art to patent examiners within a two month window after a patent application is published, and the primary administration procedure for challenging patent validity is a fairly restrictive reexamination procedure.[200] Currently there is an "ex parte" reexamination system which limits third party participation primarily to submitting prior art and an "inter partes" reexamination procedure that allows third parties to submit briefs and participate in appeals, but with strict estoppel from pursuing future civil action. The proposed reform replaces the inter partes reexamination process with a post-grant review proceeding under which any person may request the PTO to cancel as unpatentable any claim of a patent within twelve months after issue or reissue when the petitioner establishes a substantial reason to belief that the continued existence of the challenged claim causes or is likely to cause the petitioner significant economic harm, or when petitioner receives notice from the patent holder alleging infringement by the petitioner. This significantly broadens the grounds and expands the time for challenging a patent.

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[199] See e.g. Bronwyn H. Hall, Stuart J. H. Graham, DIetmar Harhoff and David C. Mowery, "Prospects for Improving US Patent Quality via Post-grant Opposition," ;

[200] The European model, in contrast, allows for public submission of prior art and comment during the application process as well as a more fully developed opposition process available immediately after a patent issues. The current U.S. reexamination process allows a patent owner or any third party to request the PTO to reconsider the grounds on which it issued a patent based on relevant previously undisclosed or unconsidered prior art under certain (restrictive) conditions. If the patent examiner finds a "substantial new question of patentability," the patent is reexamined with no presumption that the patent is valid, and the patent may be subject to the cancellation of all or some of its claims.

Critics of the proposal argue that the changes will significantly reduce the strength and certainty of patent rights.

Where, as here, specificity is important but the ability to deviate from past practice is also important, where the specificity relates to targeted behavior but not the specific facts and circumstances relating to the behavior, and where adaptive, policy-based considerations need to drive the process and market forces are unlikely to facilitate the change, agency rule making may offer the most efficient avenue for legal change. Expanding the mandate of the PTO to include decision making over third party opposition and reexamination procedures and allowing the PTO to develop its own rules governing this area provides the most efficient mechanism for making the change.

The same reasoning applies to rule changes targeted at imposing additional information requirements on patent applicants. In an effort to improve the quality of patent applications and to shift the requirements for patent quality in part onto patent applicants, the proposals also include additional information requirements for those seeking patents. Currently, prior art searching is primarily left to the patent examiner, not the applicant. The patent applicant must submit prior art that the applicant is aware of, but there is no mandatory search requirement. As part of the Senate proposal, patent applicants would be required to submit prior art searches and an analysis of the prior arts' relevance to patentability as part of the patent application process. In this case, the costs and benefits of the proposed change are not clear, providing a case for incremental change to determine whether the benefits exceed the costs. The required changes are specific to particular procedures, but general with respect to the facts and circumstances of individual applicants, and the change requires a break from prior requirements for patent applicants. Participation should include input from those who will bear the cost of the change – primarily patent applicants. In light of these features, agency rule making – a process that has moderate variance, specificity with respect to certain aspects but not others, and participation by those who will bear most of the cost of the change - will minimize transition costs. Speed is unlikely to be a significant factor.

In addition, agency rule making allows for alternative approaches to and experiments with rule change that can be particularly useful in the context of public involvement in the patent process. The PTO has emphasized its commitment to focusing the patent examination process through measures designed to improve the information and reduce the cost of obtaining such information used to determine patentability. Efforts have included a pilot project done in collaboration with a university partner to allow technical experts in computer technology to submit relevant references about a patent application to a patent examiner before the patent is examined, based on voluntary participation by the patent applicant. The idea is to connect the PTO with an open network of scientific experts online, starting with this limited pilot project (now in its second year).[201]

More generally, agency rule making offers a process of law change that has relatively high variance, but can engage in the change at a varying level of specificity (limiting the impact of the variance). It offers a process that is subject to public participation and

[201] REF – peertopatent project

discussion at a variety of levels, including discussions of the rule change and ways of harnessing public input in the process of rule experimentation and change. The speed of the process can in many cases be relatively fast, although sometimes limited by the need to get legislative support.

V. Conclusion: Evaluating the Process of Reform

It is imperative to examine the case for legislation as the avenue of change in the law, particularly in areas such as patent law which have been the repeated subject of proposals for reform. Despite prolonged debate over every aspect of the content of patent reform, Congress and scholars alike neglect the transition costs associated with legal change and ignore the potential impact of legislating change rather than relying on judicial or agency law making. By failing to consider the effects of alternative processes for law change, Congress may impede the efficiency gains that it seeks through legislation.

This Article makes the case that the process by which laws are changed has significant market impact, and that proposals for patent reform must be considered not only in terms of content, but also in terms of the cost and impact of the process of law change. I have provided a framework for characterizing and comparing legislation, judicial decisions and agency law making in terms of four dimensions – variance, speed, specificity, and participation – and examined the implications of different "levels" of these characteristics on transition costs in the context of patent law change.

Legislation, characterized by high variance, low speed, low specificity, and broad participation, results in high transition costs in most cases but is an efficient law making process for changes that require a significant departure from an existing paradigm and integration with broader agendas and policy concerns. Legislation may be an efficient process for bringing about the changes required to harmonize U.S. patent law relating to priority of ownership of inventions with international norms, for example. But applying this law making process to other types of law change, such as the codification of patent remedies, can result in significant inefficiencies.

Judicial law making, characterized by low variance, moderate speed, high specificity, and targeted participation, generally provides a mechanism for change that minimizes transition costs. This result can be seen as an extension of the findings in the literature on the efficiency of the common law, with many of the same qualifications. Courts can engage in targeted, incremental change, are able to balance the equities of the parties, and have the flexibility to respond to the specific factors important in market performance. Low variance provides for stability and predictability, and high specificity and targeted participation allow for flexibility in response to market needs and circumstances. The speed allows for relatively fast but incremental steps towards broader shifts in legal regime. These characteristics make judicial decision making the most efficient way of bringing about many of the changes in patent law that are contemplated by patent reform. Examples include proposed changes to damages and to the judicial doctrines of willfulness and inequitable conduct. Consistent with this finding, the arguments launched by the Administration and by the PTO against certain provisions in the

legislation argue largely for letting the courts decide in areas of patent reform that do not require structural change at a broad level.[202]

Agency law making occupies a middle ground between judicial decision making and legislation, with moderate variance (high in some areas but limited by the scope of delegated authority and judicial review), speed that can be relatively high unless action from legislators is required, specificity that is high with respect to the subject of the law change but not with respect to the facts and circumstances of individual parties, and participation that is theoretically broad but more limited in practice.[203]

In conclusion, the analysis shows that for many of the proposed reforms, judicial decision making is the most efficient mechanism for law change, particularly where the effects of law change are uncertain. Courts have the ability to respond in a targeted and predictable way to changing markets and are limited in their ability to deviate too quickly from existing norms in the absence of new circumstances. Decision making can respond to changes in facts and circumstances. Legislation has a role to play where a paradigm shift is required and coordination with broader political agendas important. Agency rule making, which occupies a middle ground between judicial and legislative processes, provides an efficient process for legal change where adaptive, procedural change is important and departure from prior practices required. It is particularly important to rethink the basis for legislating reform where the potential effects of legal change are uncertain and markets are adjusting to address the problems motivating reform. The analysis is a normative one, leaving potential deviations of the Federal Circuit, Congress and the PTO from normative models of decision making for future study. The Article concludes that a failure to consider not only the content, but also the process, of patent reform could jeopardize the potential social welfare gains that are motivating the proposed legislation.

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[202] The Administration argues that while improvements in patent quality are desirable, changes to the patent system should be limited to those that will promote respect for patent rights, provide patent owners with sufficient compensation, and promote certainty in litigation. The Administration has objected to some of the key provisions in the Senate bill, focusing in particular on the changes proposed to damages The Administration "supports passage of patent modernization legislation that fairly balances the interests of innovators across all industries and technologies by improving patent quality, which will reduce excessive patent litigation costs and promote certainty among paten holders and users." Letter from Wieneke, Feb 4, 2008

[203] Given the relatively narrow scope of delegated authority to the PTO, its ability to engage in law change is too narrowly constrained to make it an efficient process for law change. Views diverge over whether the PTO should have expanded authority to make substantive regulations. Since the PTO is dealing with the parties at the most fundamental level, the question of what role they should play in the process of reform also relates to arguments over whether more resources should be devoted to initial patent applications and the patent application process.