

**THE COMMONS PROBLEM AND THE EVOLUTION OF INDUSTRY LEGITIMACY
IN EMERGING INDUSTRIES**

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ABSTRACT

We extend our understanding of industry legitimacy in emerging industries by integrating the work on the ‘Commons Problem’ with the existing literature on legitimacy to develop a conceptual model for the creation and destruction of industry legitimacy. Our model — *entrepreneuring* as collective/individual process — relates industry characteristics to predict the conditions under which actors within an emerging industry will act collectively to create and maintain industry legitimacy, and when they will act opportunistically to destroy it.

INTRODUCTION

There is a growing consensus among organization scholars that the ability to achieve and maintain legitimacy is critical to understanding the emergence and development of new industries, but that is also an area in which our research is underdeveloped (Aldrich & Fiol, 1994; Aldrich, 1999; Jones, 2004; Rao 2004). Legitimacy in this context is defined as a social judgment of acceptance, appropriateness, and desirability, that enables organizations to access other resources needed to survive and grow (Zimmerman & Zeitz, 2002). Industry legitimacy, in contrast to firm level legitimacy, is defined as the legitimacy accruing to a population of organizations and is a resource that is equally available to any organization within this population. It has long been a premise of organization theory that new industries require constitutive legitimacy to thrive (Stinchcombe, 1965; Meyer & Rowan, 1977). Recently, industry legitimacy has come to be characterized as a basic firm resource, which is needed for firms within the industry to acquire other necessary resources (Zimmerman & Zeitz, 2002). Emerging industries generally have to develop this basic resource, since during emergence they lack widespread understanding and acceptance among their constituents. The lack of legitimacy makes it difficult for actors in these industries to gain access to the capital, human resources, markets, and government protection that are critical to the survival and success of the industry (Aldrich, 1999). But how industries go about acquiring, maintaining, and in some cases losing

legitimacy is unclear. As noted by Aldrich (1999: 258) the successful emergence and the unsuccessful emergence of new industries deserves greater theoretical attention from organization researchers because of both the persistence of the impact of events during this period on the organizations in an industry and “because the current economic explanations... have given very little weight to the social context within which those decisions [new industry entry] are embedded.”

The recent events of the dotcom bubble serve to illustrate both the beneficial and deleterious impacts of the ebb and flow of industry legitimacy on actors in an emerging industry. At the heights of the bubble resources gushed in to the Internet industry, funding seemingly every semi-cogent venture that in some manner was related to the Internet. External constituents were easily convinced of the legitimacy of the actions of both ventures and actors within the emerging e-industry. Investors were frequently in competition for the right to invest in a venture, which was reflected in the ever soaring valuations placed on nascent ventures. However at its depths the funding rushed out with equal fury indiscriminately leaving dead and dieing dotcom's scattered across the industry landscape desperately seeking capital at ever lower valuations, like fish trapped on the beach by the rapid retreat of the ocean's tide.

These impacts are not limited to simply the dotcom's, but can be seen in the laser cartridge recycling industry's inability to grow and gain market share because of a failure to

collectively agree on quality standards (Aldrich, 1999). The effects of declining industry legitimacy is also visible in the imposition of strict regulation of the pay per call telephone industry by the government due to the industry's inability to act collectively to establish uniform standards and police itself (Aldrich, 1999) as well as the rapid decline of the agricultural biotechnology industry after it failed to effectively respond to the withering attack of environmental activists. In each of these cases enough constitutive legitimacy was initially created to allow for formation and emergence, much of this legitimacy was also lost due to either the failure of collective action on the part of those in the industry and/or opportunistic action by some actors within the industry.

These examples lead us directly to the key question that we address in this paper: How is industry legitimacy enhanced and destroyed during the emergence of a new industry? What are the characteristics of the emerging industry which are likely to increase its legitimacy? What are the characteristics of an emerging industry which are likely to lead to the destruction of its legitimacy? These are critical questions which must be addressed if we are to understand the emergence of new industries.

While previous work on the challenge of legitimacy in emerging industries has relied on the frameworks of institutional theory (Meyer & Rowan, 1977; Meyer & Scott, 1983), ecological theory (Hannan & Freeman, 1989) and the evolutionary approach (Aldrich, 1999) we extend

current theory by bringing the insights from the study of the “commons problem” to bear on the issue. Our model (Figure 1) expands our understanding of industry legitimacy by exploring the characteristics of the emerging industry which encourage firms to act collectively and the characteristics which are encourage firms to act opportunistically to exploit the industry’s legitimacy.

Insert Figure 1 about here

THE TRAGEDY OF THE COMMONS

The “tragedy of the commons” was originally outlined by W. F. Lloyd (1833). Its rebirth was fostered by Garret Hardin’s (1968) seminal work, and interest in the problem is rapidly expanding with the growing literature on the “commons problem” in economics and the “collective-action problem” in sociology. Hardin (1968) defined the problem occurring from the inability to balance individual profit versus total wealth as the “tragedy of the commons.” He clarified that this problem occurs because of rational self-interest maximization and opportunism under open-access. In an environment in which all parties have open access to the shared public resource, the rational self-interest maximizer faces the prisoners’ dilemma. This dilemma leaves each actor with a choice of whether to take cooperative action and accept less individual profit maximizing the shared benefit of the resource or to act uncooperatively and maximize their own

personal profit in turn lowering the collective benefit provided by the resource. In these circumstances, the long term outcome is generally the destruction of the resource or the capture of the resource by a single or limited number of individuals, who are able by some means to restrict access to the resource, to in essence remove it from the public sphere.

To define the problem more succinctly, the commons problem is the frequently observed phenomenon of the destruction of a shared/public resource through individual profit maximizing and is generally observed when three factors are present in the environment surrounding the shared resource. The first factor is open-access to the resource which creates uncertain/undefined ownership of the resource. Open-access occurs when it is impossible to exclude people from using the resource and therefore impossible to enforce a property right. Uncertain or undefined ownership exists when no single individual or cohesive group of individuals is able to enforce an ownership right to the shared resource. The existence of this factor leads to the free-rider problem. The free-rider problem is present when individuals are able to benefit from investment in the provision of a good or a service without investing themselves. In this situation each agent bears the full costs of providing the collective good, but receives only a fraction of the benefits from her actions because all agents can use the public good after the investment. This condition leaves individuals with little incentive to invest in the provision and maintenance of the resource leading to less than optimum investment in the resource from a collective perspective.

Traditional examples of this have been common pasture land, fishing grounds, clamming beds and water resources.

The second factor is the potential for negative externalities from individual exploitation of the common resource. Stated succinctly, individual action must have the potential to degrade or even destroy the resources' productive capacity. Under these conditions each agent's actions will reduce the resources availability for all other users, but each agent benefits fully from her own efforts to exploit the resource. Baring any ability to regulate access to the resource or monitor use of the resource there will be excessive collective effort to appropriate the value from the resource. This creates the need to invest in the maintenance of the resource, but guarantees a low rate of return for investment in the resource, which leads to under investment and the deterioration and eventual destruction of the common resource (Faysse, 2005). Common examples of this type of situation are overgrazing of public lands or over fishing productive fishing grounds.

The third condition is that opportunistic individual profit-maximizers must exist among the population with access to the shared/public resource. These individuals will calculate the maximization of their private returns from using and investing in the resources and conclude that free-riding and maximizing their own individual exploitation of the resource is their optimal strategy. The existence of these members within the population creates the potential for

degradation of the resource and under-investment in the provision and maintenance of the resource. This is the foundation of the downward spiral of over-exploitation. If the population is filled with altruists who are able to agree and abide by rules to manage the resource to optimize the population's benefit then the commons problem is avoided. However, individual maximizers create a substantial risk of over exploitation and the degradation of the shared resource, which in turn increases the incentive for everyone in the population to maximize their personal benefit at the expense of the long-term health of the resource, since the future benefits from the resource are at higher risk.

Over the last few decades insights from the study of common goods have been applied to the study of traditional areas where common goods exist, such as fisheries, forestry, agriculture, and ranching. A significant portion of the study of the common's problem has been in the area of resource economics and the economics of environmental protection. The application however, has not been limited solely to these areas, with applications of the commons problem showing up in studies of the academic commons (Hellstrom, 2003) and the mobilization of social movements (Vasi & Macy, 2003) among others.

While the preceding has laid out the commons problem and where it has been applied, we have yet to establish its applicability to legitimacy of emerging industries. We turn to this issue in the next section.

LEGITIMACY IN EMERGING INDUSTRIES AS A COMMONS PROBLEM

Industry legitimacy is by definition a shared resource that reflects society's and key constituents' views of the appropriateness of an industry's endeavors. However, as a shared resource, it is our contention that it is subject to the "tragedy of the commons" as outlined in the preceding section. In order to substantiate this claim we will begin with a discussion of industry legitimacy as a collective action problem. This will be followed by an examination of whether industry legitimacy is subject to the three issues (open access, negative externalities, and opportunism) laid out as pre-requisite conditions for a commons problem.

Participants in an emerging industry begin with the challenges posed by the problems of inadequate organizational knowledge, and low levels of both cognitive and socio-political legitimacy. The organizational knowledge problem stems from participants in an emerging industry being uncertain of how to accomplish what they are attempting to do. The cognitive legitimacy problem exists because their external constituents do not really understand what they are attempting to do. Finally, the socio-political legitimacy challenges arises because the industry's constituents are not convinced that these emerging entrepreneurs can do what they are attempting or that what they are attempting is beneficial and appropriate (Aldrich, 1999). Without successfully overcoming the hurdle of illegitimacy an emerging industry will be unable to gain the resource commitments required to succeed.

The creation of legitimacy in the eyes of their constituents requires the pioneering entrepreneurs in the emerging industry to act collectively to create a sense in their constituents that what they are attempting to do and how they are attempting to do it is positive, beneficial, and appropriate (sociopolitical legitimacy). They also must achieve an acceptance among their constituents such that their actions are simply ‘taken for granted’ as a feature of the environment (cognitive legitimacy). How can the pioneers of an emerging industry achieve these beliefs among their constituents? In their work, “Fools Rush In?” Aldrich and Fiol (1994) placed the creation of industry legitimacy as the collective action problem at the center of the emergence of new industries. In a later work, Aldrich (1999: 239) states that “learning and legitimacy are both facilitated by population-level collective action,” and that “... legitimacy is more likely if a critical mass of founders discovers a way to unite...” (1999: 242). Of equal importance to our model is the argument that “sociopolitical approval maybe jeopardized if collective action fails” (Aldrich, 1999: 250).

The preceding has established that legitimacy in an emerging industry is indeed a collective action problem, requiring the industry’s pioneering entrepreneurs to engage in collective action. What the proceeding fails to develop is an understanding of the conditions under which these pioneering entrepreneurs are likely to be able to active collectively. In order to address this issue we will need to look to work on the tragedies of the commons in order to deal

with the key challenges of collective action: organization and opportunism.

As noted earlier, the work of Garrett Harding (1968) and others on the tragedy of the commons deals directly with the issue of organization and opportunism. Bringing the work on the tragedy of the commons to bear on the issue of industry legitimacy brings new insight into the conditions under which collective action among actors in an emerging industry is likely to occur and when opportunistic action by individual actors may occur. However, before we can apply the commons problem to the legitimacy of emerging industries, we must first establish that an industry's legitimacy faces the challenges (open access, negative externalities, and opportunism) that create the commons problem.

The challenge of open access depends upon the inability to exclude any actor from using the common resource and the impossibility of establishing a property right to the common asset. This leads us to the question of whether it is possible to exclude anyone from capitalizing on the legitimacy of an emerging industry. In order to exclude some one from capitalizing on the legitimacy of an emerging industry existing players in the industry must be able to control who can claim to be part of the industry. It is possible through government regulation to restrict entry via regulations that require licensing, education/training, and/or bonding of individuals claiming to be a member of an industry. However, in the emergent stage of the industry these barriers are unlikely to exist, since as noted by Aldrich (1999:250) "nascent entrepreneurs, building

organizations with little or no precedent are not terribly well placed to win regulatory approval.”

In fact, without either substantial political power or the threat of some serious consequences from accidents, the government is likely to encourage entry to foster both the growth of the industry and economic competition.

So without the government providing regulatory barriers to entry is there other means by which an emerging industry can restrict entry? The only other feasible means would appear to be the tight control of key intellectual property. In order for this to be applicable an industry must operate with key intellectual properties that are protected under a strict appropriability regime with strong intellectual property protections (Teece, 1987). In the case of the biotechnology industry, this might have been feasible if the Cohen-Boyer patents had been tightly held by Stanford University, however, with broad licensing of those patents these presented no barriers to entry. In the case of the Internet, there was neither key intellectual property nor strong appropriability to deter entry. So while it remains possible that intellectual property barriers could be erected to restrict entry under very specific circumstances, most emerging industries will be unable to restrict entry and in turn access to the industry’s shared resource, legitimacy.

The problem of negative externalities, that is the ability of bad acts or overgrazing by one party to degrade the common asset, is well established in emerging industries. Deeds, Mang, and Frandsen (2004) found empirical evidence of the impact of acts by one member of the

biotechnology industry on the valuations and resource flows into other industry members.

Aldrich (1999) also notes that new populations are vulnerable to illegal and unethical acts by some members which pose a threat to the entire industry's legitimacy and very survival. In the case of the emerging Internet industry in the late 90's numerous stories about twenty-something dotcom millionaires, lavish parties, extravagant expenditures on office furniture, expensive and ineffective marketing campaigns all contributed to the rapid decline of the legitimacy of the industry (Tokic, 2002; Cassidy, 2002; Munroe, 2004). These examples and numerous others clearly indicate the legitimacy in emerging industries is at risk for negative externalities.

Finally, we have the problem of opportunistic actors willing to maximize their personal benefit at the expense of the larger industry. The existence of opportunistic actors is a common assumption of most theories of economic action and a central tenet of both transaction cost economics (Williamson, 1975) and agency theory (Jensen & Meckling, 1976). So the question of the existence of opportunistic actors in emerging industries turns not on whether they exist, but if there is any reason to assume that they can be excluded, easily weeded out or by other means kept from entering an emerging industry. In light of earlier discussion about open access, it is hard to find a basis on which to argue that opportunistic actors would be any more or less prevalent in an emerging industry than in the rest of the economy. Therefore, in an emerging industry the risk of opportunistic actors attempting to benefit individually at the expense of the

industry as a whole by exploiting the common asset of industry legitimacy is non-zero, fulfilling the requirements of the criteria for a commons problem.

Having completed a review of the literature on industry legitimacy and established the applicability of the commons problem to the challenge legitimacy in an emerging industry, we can turn to our key question: How is industry legitimacy maintained and destroyed during the emergence of a new industry? What are the characteristics of the emerging industry which are likely to enhance its legitimacy? What are the characteristics of an emerging industry which are likely to lead to destruction of industry legitimacy? In the following sections we will directly address these questions using the logic of the commons problem to develop a model explaining the evolution of legitimacy in emerging industries.

THE CYCLES OF LEGITIMACY IN EMERGING INDUSTRIES

Earlier we established that legitimacy is a critical factor influencing new venture growth and survival and that in emerging industries, such as the dotcom's, agricultural biotechnology, and others, there is strong evidence of the ebb and flow of industry legitimacy. But what factors determine the dynamics of industry legitimacy across time? Based on the work on the commons problem and prior work on legitimacy we've developed a dynamic model (Figure 1) in which industry characteristics (size, diversity, the presence and actions of large firms), the rate of new

entrants, and the firm specific legitimacy of leading firms influence the level of industry legitimacy through their impact on collective action and opportunistic action in an industry.

Our model begins with the entrepreneurial act of opportunity exploitation by the founders of the industry. We build on the work of Hannan and Freeman (1989) and begin with the entrance of the founding entrepreneurs into the industry through the creation of a new venture to pursue the opportunity. Entry begins the legitimation process for the industry by creating a basic level of legitimacy and the initial resource flows into the industry. Resources in turn draw new entrants into the industry. This is the central portion of the model presented in Figure 1 and underpins the basic dynamics of industry populations laid out in ecological theory (Hannan & Freeman, 1989). Once this process is initiated, we theorize that the characteristics and actions of these founding actors and those that follow, determine their ability to act collectively, their propensity to act opportunistically and in turn the legitimacy of their industry. If the industry founders are able to achieve collective action they can enhance legitimacy for the industry and erect deterrents to opportunistic action by actors in the industry (Aldrich, 1999). Increasing their legitimacy with their external constituents will enhance the resource flow into the industry. If they fail to act collectively legitimacy is likely to stagnate or decline, and so will the resources flowing into the industry.

Within the larger model we posit two sub-cycles, that we call the creation cycle, which

leads to an increase in industry legitimacy, and the destruction cycle which leads to the destruction of existing industry legitimacy. The creation cycle (Figure 2) is driven by the factors which either directly increase the industry's legitimacy, such as firm specific legitimacy or new entrants, or enhance the probability and effectiveness of collective action by the actors in the industry, such as the existence of firms that can lead the industry and geographic concentration.

The destruction cycle (Figure 3) revolves around the factors which deter collective action, such as the size of the industry, exit options being available to industry leaders or the development of firm specific legitimacy by industry leader, or encourage opportunistic action by actors in the emerging industry, such as new entrants. Opportunistic exploitation of the industry's legitimacy by actors within the emerging industry will lead to a decrease in the industry's legitimacy.

There are several recent examples of industries which have experienced significant declines in their legitimacy including the dotcoms, the Russian banking industry (Spicer & Markoczy, 2006), and agricultural biotechnology (Calkins, 2002). In each of these cases the decline is at least in part attributable to the opportunistic exploitation of the legitimacy of these industries by players within the industry. In the case of the dotcoms, the frivolous expenditure of resources, and their willingness to knowingly make promises and projections that were impossible to honor, lead to a rapid decline in society's and their key constituents' faith that they

were doing the right thing. This resulted in a rapid decline of resource commitments and the respective wholesale failure of actors in this industry. In essence much of the legitimacy of the industry was destroyed by the actions of a few within the industry, which lead to the withdrawing of society's resources from the industry and the failure of all but the strongest most legitimate players. Similar rapid declines in legitimacy and resource investments can be tracked in the Russian banking industry (Spicer & Markoczy, 2006) and agricultural biotechnology (Calkins, 2002) industries at different points in time over the last decade. These examples highlight a critical point that is missing from the current discussion of industry legitimacy — it can be destroyed through its exploitation by opportunistic actors within the emerging industry. This path is highlighted in our model by what we term as the “industry legitimacy destruction cycle” in Figure 3.

In essence, in our model the process of industry legitimation is a race between the forces of creation that lead to collective action and deter opportunistic action and the forces of destruction that deter collective action and encourage opportunistic action. Several industry factors appear in both the creation cycle and the destruction cycle. Foremost among these is the number of new entrants into the industry, but the firm specific legitimacy of the industry leaders also acts in both cycles. In order to simplify the presentation, rather than present propositions directly relating to the creation and destruction cycle, we will first present a discussion of the

complex impact of the number of new entrants and the firm specific legitimacy of industry leaders on the legitimacy of emerging industries and then turn to a discussion of the impacts of certain industry characteristics on the propensity and effectiveness of collection action and the propensity for opportunistic action within an emerging industry.

Insert Figure 2 & 3 about here

INDUSTRY CHARACTERISTICS AND EMERGING INDUSTRY LEGITIMACY

The Number of New Entrants

New entrants play a complex and contradictory role in the legitimation process of emerging industries. An increase in the number of entrants can have both a direct positive impact on the legitimacy of the industry (Hannan & Freeman, 1989) and an indirect negative impact on the legitimacy of the industry caused by a higher possibility of opportunistic action and a lower probability of collective action.

Hannan (1986) identified increasing numbers of organizations as a primary force raising the legitimacy of the population. He focused on industry size as a crucial condition, and explained the pattern of population growth where low founding rate and high disbanding rate were exhibited in early years, followed by a gradual increase in founding rates and a decrease in disbanding rates. Population density is the most frequent means of assessing an industry's level

of legitimacy. Numerous studies (Carroll & Hannan, 1989a, b; Carroll & Swaminathan, 1991; Hannan & Freeman, 1989) have established a relationship between the density of firms in an industry and the rate of firm births and survival. Research has also established a link between the population density in an industry and the flow of resources into individual firms within the industry (Deeds et al., 2004). The underlying rationale for these findings is that the increase in the number of organizations in the industry leads to the spread of knowledge and understanding about the industry increasing its acceptance among its constituents (Hannan & Freeman, 1989). Therefore,

Proposition 1a: An increase in the number of entrants will be positively associated with the creation of industry legitimacy.

As knowledge and the visibility of an industry increases more entrepreneurs are attracted by the potential of the industry, which in turn increases the rate of new entry. However, these new entrants' heuristics and previous experience have not been shaped by the norms of the emerging industry, nor have they invested in industry legitimacy. Therefore, they may be more willing to challenge the industry norms (Baumol, 1990; Teal & Carroll, 1999) and be more willing to engage in opportunistic behavior that is unacceptable to incumbents and the emerging industry's constituents. Furthermore, when attractive opportunities are identified, the timing of any response is crucial, since there is always the risk of being too early or too late in seizing an

opportunity (Abell, 1978). Since new entrants are by definition behind the incumbents in their pursuit of the opportunities created by the industry they face greater pressure to act quickly, which in turn may move the new entrants to push ethical boundaries (Hall & Rosson, 2006). Finally new entrants are generally resource constrained and have only a limited time in which to prove their value to their constituents and gain the additional resources necessary to continue operations (Hisrich, Peters, & Shepherd, 2005). These constraints shorten the time horizon of the entrepreneurs, since valuable future cash flows are unlikely to exist beyond the time at which their resources run out. Therefore, the value of any future benefit to the firm from the shared resource, the industry's legitimacy, approaches zero. This creates incentives for new ventures to act unethically or opportunistically to exploit the industry's legitimacy or at least removes any incentives to considered the potential harm their actions might inflict on the industry's legitimacy beyond the point in time at which their venture will run out of resources. This situation creates incentive for short term exploitation of the industry's legitimacy by new entrants in an attempt to secure access to resources regardless of the potential damage to the industry's legitimacy. These factors make the probability of new entrants acting opportunistically higher than the current actors in the industry. This leads to the conclusion that increasing numbers of new entrants increases the likelihood of opportunistic action by members of the industry and the resultant decline in industry legitimacy. Accordingly,

Proposition 1b: An increase in the number of entrants will be negatively associated with the creation of industry legitimacy because of the greater likelihood of opportunistic action on the part of new entrants.

An increase in the number of industry participants increases the complexity and difficulty of the coordination required to achieve collective action leading to a decrease in the likelihood of collective action. Beyond the coordination challenge presented by larger numbers, as noted above, new entrants have not been socialized in the industry and are likely to have a diversity of values, opinions and goals that increase the heterogeneity of industry along several dimensions, which, increases the difficulty of achieving collective action. Finally, collective action depends on the notions of trust and reciprocity among those acting collectively. However trust and reciprocity accrue across time over the course of multiple interactions, so an increase in the number of new entrants into an industry, who have not had time to establish trust and reciprocity, decreases the average level of trust and reciprocity among the industry participants. This makes it more difficult for industry members to active collectively.

Proposition 1c: An increase in the number of entrants will lead to a decrease in the probability and effectiveness of collective action by members of the industry.

The Firm-Specific Legitimacy of Industry Leaders

Much of the research on legitimacy has focused on the role of the legitimacy of the firm. Several authors have found firm specific benefits to the halo-effect affiliation of new ventures

with high status partners (Aldrich & Auster, 1986; Baum & Oliver, 1991; Deeds et al., 2004).

Researchers have also been able to document the legitimizing impact of press coverage on new ventures (Fombrun & Shanley, 1990; Pollock & Rindova, 2003) as well as the importance of the performance of other ventures in their industry on firm legitimacy (Deeds et al. 2004). However, the question we are interested in is the impact of the firm specific legitimacy of the leaders of an emerging industry on the legitimacy of the industry. One benefit of an industry leader developing constituent legitimacy is the ability of others in the industry to imitate the effective routines and strategies of the industry leader. This in turn encourages the creation of dominant designs and process and development of standards that enhance the industry's constituent legitimacy (Aldrich, 1999). In addition the emergence of an industry leader(s) with strong firm specific legitimacy provides a 'halo effect' for the rest of the industry through their association with the legitimate actor. Firms are now able to sell themselves to their constituents as participating in the same industry as Amazon, e-Bay, Amgen, or Genentech, and being like these firms only better, more innovative, etc. These benefits lead directly to our next proposition.

Proposition 2a: As leading firm(s) within an emerging industry develop firm-specific legitimacy the overall industry legitimacy will increase.

The firm legitimacy accruing to the leaders also presents a risk to the ability of the industry to achieve and maintain collective action. Firms with substantial legitimacy of their own

(firm-specific legitimacy) can distinguish themselves as quality actors distinct from the rest of the players in the industry. Amazon employed this strategy beginning in 1999 by encouraging their comparison, not to other dotcoms, but to Wal-Mart (Sosnoff, 1999). This was a specific attempt to differentiate itself from the rest of the dotcom industry and reposition itself as part of the larger mainstream retail industry. This strategic action decreased its dependence on the overall legitimacy accorded the dotcom industry. A similar strategy was employed by Steve Case and America On-Line when it leveraged its firm specific legitimacy, reflected in its stock price, to acquire a well established legitimate actor — Time-Warner. By lowering their dependence on the legitimacy of the industry the leaders reduce their incentives to act to enhance their industry's legitimacy. In response to these incentives industry leaders will decrease their investment and support for collective action among industry members. The loss of leadership in the industry will lead decrease the ability of the industry to mobilize collective action to increase the industry's legitimacy or to deter opportunistic actors from within the industry. Accordingly,

Proposition 2b: As leading firm(s) within an emerging industry develop firm-specific legitimacy the probability and effectiveness of collective action in an emerging industry will decrease.

Industry Size

Group size can have implications for collective efficiency (Hardin, 1982; Olson, 1965; Sandler, 1992). Originated by Olson (1965), a seminal contribution was made by arguing that

“the smaller the group the better will be the collective efficiency.” Empirically, Bardhan (2000) in his econometric studies demonstrated that the degree of cooperation is negatively correlated with the size of the group. Faysse (2005) also examined the impact of group size as one of the important characteristics and found that the smaller the group the better will be the collective efficiency.

The impact of size on collective efficiency can be drawn from the potential share for the actors, contribution from the actors, and the associated costs such as transaction costs, coordination and monitoring costs (Ostrom, 2000). Baland and Platteau (1996) examined factors conducive to a more successful collective action and concluded that the smaller the group size the stronger its ability to perform collectively because of lower coordination costs. Ostrom (1998) found that social interactions in small groups increase the possibility and quality of communication and sharing of information about past actions which increased reputation effectiveness and trust building among the group. These past studies clearly identify the ease of coordination and monitoring costs as drivers for collective efficiency.

Smaller size also influences the share, and in turn, the motivation of actors to invest and contribute. Farrell and Scotchmer (1988) analyzed how small groups effectively gather themselves despite different ability-levels of investment. Their theoretical argument explains how the small size of fisher groups can be better motivated to share their effort to search for fish.

As size increases, incentives for collective action also become problematic. Increasing the number of actors decreases the size of the individual's contribution relative to the aggregate contribution made by others. This in turn decreases the investment the individual has in the maintenance of the commons which reduces their motivation to act collectively to protect the commons (Baland & Platteau, 1997). These results from the study of the commons make a strong case that emerging industries with fewer actors have a higher probability of effective collective action. Accordingly,

Proposition 3: The smaller the number of firms within an emerging industry at a given time the greater the probability of them being able to act collectively to create and enhance the industry's legitimacy.

Geographic Concentration

Geographic clustering is a well documented and well studied phenomenon among emerging industries. The benefits of labor pooling, specialized suppliers, and knowledge spillovers underpin most geographic clustering research (Marshall, 1920; Krugman, 1991). The benefits accruing to firms from clustering have been well established (Jaffe, 1989; Jaffe, Trajtenberg, & Henderson, 1993; Mansfield, 1995; Zucker, Darby, & Armstrong, 1998). Research results also suggest that there is a higher propensity for inter-organizational linkages, both formal and informal, to form between actors in a region than between actors outside a region (Deeds, DeCarolis, & Coombs, 1998; Liebeskind, Oliver, Zucker, & Brewer, 1996;

Saxenian, 1994; Sorenson & Stuart, 2001; Stuart & Sorenson, 2003). Evidence for the localization of links also comes from studies of alliances and supply contracts (Von Hippel, 1995) and employee transfers (Almeida & Kogut, 1999). Research also has established that industries in which new knowledge is critical to the development of competitive advantage and subsequent superior performance have a greater propensity to cluster than other industries (Audretsch & Feldman, 1996; Audretsch & Stephan, 1996). This close proximity of organizations with similar interests and expertise promotes the natural exchange of ideas through both formal and informal networks (Deeds et al., 1998; Saxenian, 1994) and with the exchange of ideas comes trust and reciprocity, which are the basis for collective action. Accordingly,

Proposition 4: The level of geographic concentration among the ventures in an emerging industry is positively related to the probability of collective action.

Presence of Large Firms (Leaders) in the Industry

While size and homogeneity have influence on collective efficiency, the social structure, especially the preexisting authority also matters (Faysse, 2005). The presence of the “richer” in this regard has critical implications for collective action (Faysse, 2005). In fact, the inequality of groups (i.e., ability to invest, ability to profit, wealth inequality) is often associated with the presence and actions of the “richer” (Baland & Platteau, 1997; Faysse, 2005). Management studies have shown that an industry champion often emerges to energize efforts towards

collective action (Aldrich & Fiol, 1994). The champion bears an outsized share of the costs of coordination required to achieve and maintain the industry's legitimacy. There is a greater likelihood of a champion arising if there are incentives for assuming the role of the champion. Larger firms, who are positioned to receive greater benefits from the increasing legitimacy of the industry, have these incentives. Prior work on the common's problem has found that the greater the share of the benefits from a common's large incumbent firms can reap, the greater propensity for them to bear total cost (Olson, 1965: 33-34), including investments in the coordination required for collective action (Baland & Platteau, 1997). Olson (1982) also found that the presence of a dominant shareholder enhances the monitoring of managers by shareholders, since there is a greater return to their efforts of monitoring managers. An example of this phenomenon is that the participation of well-off farmers in rural cooperatives has been found to enhance their efficiency (Sandler, 1992).

The "richer" also have greater incentive to act to deter opportunism. Industry leaders are put at greater risk by opportunistic actors in their industry, because they have more to lose if the industry fails. Leading firms have placed larger bets on the industry by committing more resources. Justifying this commitment to an emerging industry requires the continued growth and prosperity of the industry, making it in their best interest to protect and enhance the industry's legitimacy. Under these circumstances large firms will be pressured by their

constituents/investors to minimize their risks through the deterrence of opportunistic actors within the emerging industry (Meyer & Rowan, 1977). To accomplish this they will engage in collective enforcement activities, such as certification programs, lobbying for regulatory oversight and bonding requirements. Large actors may also engage in punitive actions against opportunistic actors such as targeted price competition, advertising wars or perhaps even acquiring the opportunistic actor to simply remove the threat. These actions serve to eliminate current opportunistic actors and serve as a credible threat deterrent to future opportunism.

Accordingly,

Proposition 5a: The existence of a leading firm(s) in an emerging industry increases the probability of collective action in an emerging industry.

Proposition 5b: The existence of a leading firm(s) in an emerging industry will decrease the level of opportunistic action in an emerging industry.

The Exit Options of Industry Leaders

Not only the presence of large firms but also their exit options can have critical implications for collective action. Empirical evidence tends to show that exit options weaken the prospects for collective efficiency (Bardhan & Dayton-Johnson, 2002). Bardhan and Dayton-Johnson (1996) find that exit options of leading firms weaken the prospects for collective efficiency as these incumbents become less concerned about maintaining common resources. In a study of the exploitation of fisheries, Bardhan and Dayton-Johnson (1996) find

that when larger fishers acquire more sophisticated boats that allow them to move easily to more distant fisheries — an exit option — they become less concerned about maintaining the original fishery and are less willing to support collective action. This is analogous to leading firms gaining the option to diversify into new markets and industries. The existence of this exit opportunity for the industry leaders in an emerging industry decreases their reliance on the emerging industry's legitimacy and makes them less willing to bear the coordination and monitoring costs required to foster collective action in the emerging industry (Baland & Platteau, 1997). Therefore,

Proposition 6: The ability of the leading firm(s) in an emerging industry to diversify into other markets and industries decreases the probability of collective action.

DISCUSSIONS AND CONCLUSIONS

Recent experience highlights the critical importance of emerging industries to the overall performance of the economy. Industries which emerged over the last thirty years, such as personal computers, biotechnology, Internet, wireless services, have been critical drivers of the growth and expansion of the economy. However, as noted by Howard Aldrich (1999), our current explanations for the emergence of these industries and the failures of others are simply unsatisfying because they fail to consider the social context from which these industries emerge. In this paper, we have attempted to address at least part of this shortcoming by developing a

theoretically driven model which relates the characteristics of the social context of an emerging industry to the probability of that industry achieving legitimacy.

We began by reviewing and building on the prior work in the area of industry legitimacy, institutional theory, and ecological theory. We then established the applicability of the commons problem to the legitimacy process in emerging industries. Finally, we presented a model that extends our current understanding of industry emergence by bringing the insights from research on the commons problem to bear on the question of industry legitimacy. The integration of the commons problem literature allowed us to develop a theoretical model that provides new insights into the impact of some very basic characteristics of an emerging industry, such as the rate of new entrants, size, geographic concentration, and the existence and actions of industry leaders, on the ability of actors in an emerging industry to legitimate their activities.

The model points to a way forward for those interested in empirically and/or qualitatively studying emerging industries by highlighting the importance of collective action and opportunistic action in an industry's quest for legitimacy. It also provides insight into emerging industry legitimacy by viewing it as a dynamic process — entrepreneuring as collective/individual process. The model stresses the evolving nature of industry legitimacy and the existence of cycles, which act to create or to destroy the legitimacy of an industry by encouraging or discouraging collective action and opportunistic action. Given the evolving

nature of the industry legitimation process the model encourages those interested in this area to think in more detail about the processes we have highlighted and other factors of the social context which may act within the cycles of creation and destruction that we have not incorporated.

The homogeneity of industry characteristics such as product/service offerings, strategy, organization culture, founder's demographics, etc. may have an impact on the ability of firms in an emerging industry to act collectively. The relative impact of individual and collective action on an industry's legitimacy is also an area that merits further study. Anecdotally, it seems that legitimacy is one of those assets that is built slowly a piece at a time, but can be squandered quickly by the actions of a few or even one. These are important areas that future research needs to explore. The critical role emerging industries play in economic growth should motivate further research and theoretical development in this area. Future research that leads to a greater understanding of this phenomenon will inform practitioners and policy makers involved in fostering an emerging industry.

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FIGURE 1

The Cycle of the Creation & Destruction of Industry Legitimacy

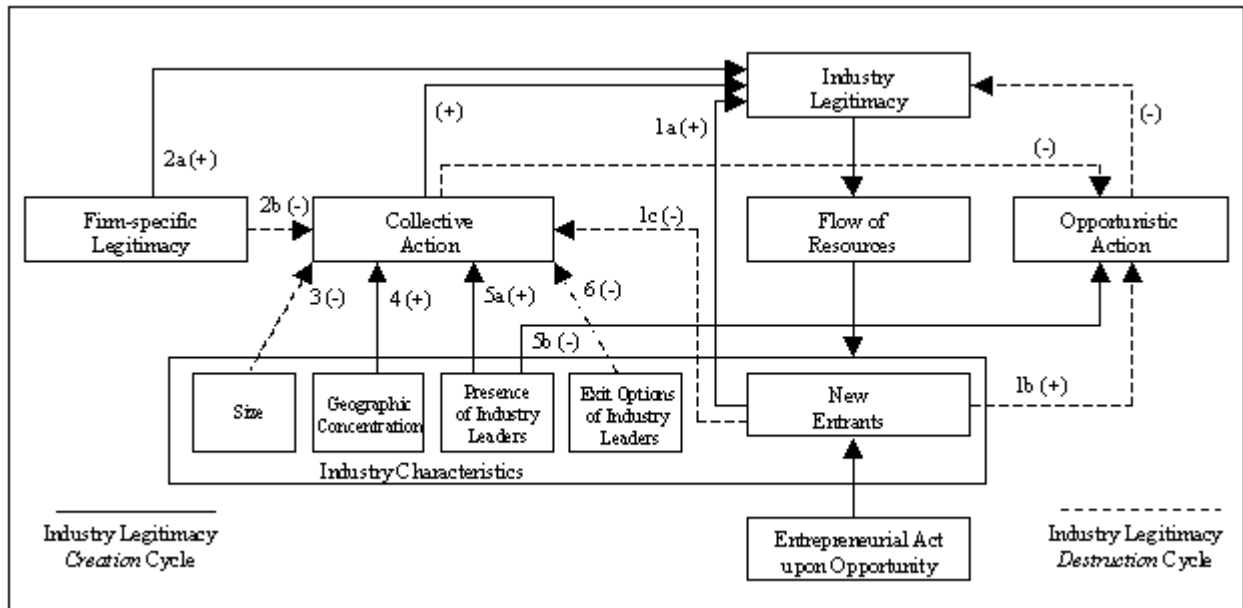


FIGURE 2
The Creation Cycle of Industry Legitimacy

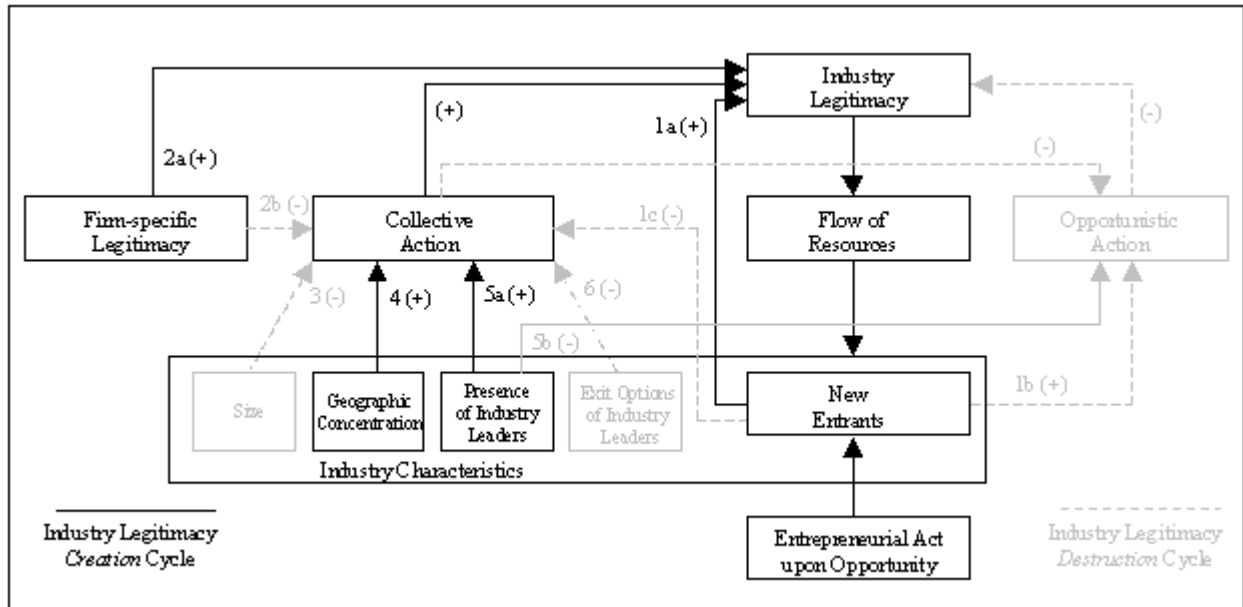


FIGURE 3
The Destruction Cycle of Industry Legitimacy

