



THE COMMUNITY DYNAMICS OF ENTREPRENEURSHIP: THE BIRTH OF THE AMERICAN FILM INDUSTRY, 1895–1929

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EXECUTIVE SUMMARY

This paper provides insight for practitioners by exploring the collective process of entrepreneurship in the context of the formation of new industries. In contrast to the popular notions of entrepreneurship, with their emphasis on individual traits, we argue that successful entrepreneurship is often not solely the result of solitary individuals acting in isolation. In many respects, entrepreneurs exist as part of larger collectives. First and foremost, there is the population of organizations engaging in activities similar to those of the entrepreneurial firm, which constitute a social system that can affect entrepreneurial success. In addition, there is also a community of populations of organizations characterized by interdependence of outcomes. Individual entrepreneurs may be more successful in the venturing process if they recognize some of the ways in which their success may depend on the actions of entrepreneurs throughout this community. Thus, we urge practitioners and theorists alike to include a community perspective in their approach to entrepreneurship. We also suggest that one way of conceptualizing the community of relevance might be in terms of populations of organizations that constitute the value chain. For example, in the early film industry a simple value chain with three functions—production, distribution, and exhibition—is a convenient heuristic for considering what populations of organizations might be relevant. As we show in our case study of that industry, a community model offers insights into the collective nature of entrepreneurship and the emergence of new industries.

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Our basic thesis is that the role of entrepreneurship in the creation of new industries can be conceptualized in terms of the dynamics of a community of organizational populations. At least three implications of this view may be important for practitioners. First, the kind of widespread and fundamental economic and social change that has often been linked with entrepreneurship requires a variety of behaviors. While most definitions of entrepreneurship have recognized that entrepreneurship requires the introduction of innovation, they have tended to ignore the importance of behaviors that subsequently support that innovation. To encompass these important behaviors, we believe that a broad definition of entrepreneurial behaviors is justified. To capture this, the framework of entrepreneurial behaviors that we develop includes the variety of behaviors that are important to the success of a collective process of entrepreneurship. We believe that recognition of a variety of different behaviors that are important to the success of the entrepreneurial process can help practicing entrepreneurs to understand more fully the complex dynamics of new industry creation. In terms of our framework, the range of behaviors of potential importance to entrepreneurship includes all of the following: creating a firm that innovates, creating a new business that imitates the practices of others, innovating within an existing business, and imitating by creating change in an existing business. In addition, we recognize that the kinds of innovative change that support entrepreneurship in the context of new industry creation are not narrowly technological; other kinds of product and service changes as well as administrative innovations may also be relevant.

Second, entrepreneurship in one part of the community often creates the opportunity for entrepreneurial activity elsewhere in the community. For example, the founding of movie palaces did not begin until feature length films appeared. The challenge for entrepreneurs is to recognize these opportunities and act on them. Third, and related, the long-term success of entrepreneurial behaviors in one population of the community frequently requires that supportive entrepreneurial behaviors occur in other populations in the community. For example, the success of feature length films was hastened by the development of distribution organizations to replace traveling shows and localized markets. Their success was also hastened by the movement away from nickelodeons towards larger, more comfortable exhibition outlets, such as theaters and show palaces. When the interdependence among populations in the community is stated this way, another challenge to entrepreneurs becomes clear: the facilitation and encouragement of supportive behaviors in other populations.

We are not the first to propose that the community is important, but we contribute to this idea by showing in a specific context how various types of behaviors interact and ultimately promote entrepreneurship throughout the community. Our contribution for practitioners is twofold. We would urge practitioners to consider the variety of behaviors necessary to create, reinforce, and maintain fundamental and widespread change. Further, we would suggest that practitioners consider how activities in a broad community of organizations can set the stage for entrepreneurship and have a high impact on its ultimate success or failure. Thus, we would suggest that practitioners who seek to innovate should search broadly for opportunities and understand the importance of relations with businesses elsewhere in the community. The success of their entrepreneurial efforts may depend on the occurrence of supportive entrepreneurial changes in those businesses as well. Their ability to do this will be enhanced by a broad understanding of entrepreneurial behaviors and sensitivity to the opportunities that their entrepreneurial behaviors may create for others. © 2000 Elsevier Science Inc.

INTRODUCTION

The study of entrepreneurship has traditionally focused on the founders of new organizations, especially those that emerge as leaders in the creation of new industries. Much of this work follows what Gartner (1989) called the "traits" approach. Studies of this type posit a causal link between the founding and success of new organizations and the personal attributes of the entrepreneurs. However, research that is more recent has documented the many ways in which successful entrepreneurship requires more than just the "right" person. A multitude of factors, operating at both the organizational and environmental levels of analysis, also affects the success of entrepreneurial efforts. Ex-

amples include technological change (Shane 1996), changes in sources of firm capital (Cable and Shane 1997), changes in strategic alliances (Eisenhardt and Schoonhoven 1996), personal networks (Ostgaard and Birley 1996; Tjosudd and Weicker, 1993), national environments (Shane and Kolvereid 1995), location choice (Stearns, Carter, Reynolds, and Williams 1995), and national culture (Shane 1992).

As Stearns and Hills (1996) observed, the study of entrepreneurship is increasingly moving away from the focus on the individual entrepreneur by emphasizing process models that include the consideration of other factors. Such models explicitly recognize that entrepreneurs do not exist independent of organizational and societal contexts (Granovetter 1985; Van de Ven 1993a; 1993b); thus, their actions cannot be completely understood without attention to those contexts. We agree with Van de Ven (1993b) and Romanelli (1989) that while the individual entrepreneur is important, the study of entrepreneurship is incomplete if it ignores the collective process of entrepreneurship in the context of the organizational community (Astley 1985). In parallel with the more recent emphasis in entrepreneurship research on the role of social contexts, literature addressing the organizational (Lawless and Price 1992), social network (Abrahamson and Rosenkopf 1997), product family (Meyer and Utterback 1993) and cultural (Rao 1994) contexts of technology competition and innovation has also developed. We believe that both these literatures converge on an essential theoretical point: the importance of community context and dynamics. We emphasize the role of community dynamics (Wade 1995; 1996) in entrepreneurship and the emergence of new industries in the theory developed in this paper. It is our hope to integrate the literature on technological change and the emergence of dominant designs with the social systems model of entrepreneurship.

In particular, we believe that a study of the emerging film industry points to the importance of two concepts from this literature on technological change. A first is what Wade (1995) called second sourcing; we interpret our case study to suggest that second sourcing is an important concept even outside of the high technology context. Further, we believe that the importance of second sourcing in the emergence of new industries highlights the potential importance of imitation to successful entrepreneurship. A second important concept is that of related sourcing, also suggested by Wade (1995) in the context of a technological community. As was the case with second sourcing, we interpret our case study of the early film industry to suggest the generalizability of the phenomenon of related sourcing. While Wade (1995) was careful to suggest the high technology context of his study as a potential limitation to his findings regarding second sourcing and related sourcing, we believe that the importance of these concepts to the emergence of the early film industry suggests that they may have wide applicability. We use a review of the history of the early film industry to discuss some observations about how both second sourcing and related sourcing can provide benefits to particular entrepreneurial initiatives, especially in the context of an emerging industry. Further, our proposed definition of entrepreneurial behavior and our propositions formalize these observations, suggesting the importance of these concepts in the context of new industry emergence, not just in the context of technological communities.

Our focus on community dynamics reflects an underlying assumption that communities are comprised of unique populations of firms. We believe that focusing on events at both the population and community levels enhances our understanding of the role of entrepreneurship in the emergence of new industries. A number of researchers have noted the benefits gained in using an ecological perspective to study the entrepreneurial

environment (Shane and Kolvereid 1995; Baum and Singh 1994a; 1994b; Aldrich 1990; Reynolds 1991; Romanelli 1989), but there are also those who are critical of using an ecological perspective. For example, Bygrave and Hofer (1991) questioned the value of ecology to the study of entrepreneurship, pointing out that ecological findings cannot deterministically predict the future and are uninformative regarding crucial aspects of process. We do not dispute that there are limitations in using an ecological approach for the study of entrepreneurship. However, these limitations do not necessarily mean that the ecological approach is not useful for understanding entrepreneurial activity. We believe this is especially true when drawing from an evolutionary perspective (Baum and Singh 1994a), which admits organization level change as an important mechanism in population dynamics (Mezias and Lant 1994).

We develop two applications of an evolutionary perspective to the field of entrepreneurship in this study. First, we argue that many of the findings of population ecology research, especially those related to the population dynamics of foundings can augment our understanding of entrepreneurship (Romanelli 1989). This focus fits with other work that has examined both foundings (Aldrich 1990) and survival as variables in understanding entrepreneurship (Bruno, McQuarrie, and Torgrimson 1992; Carter, Williams, and Reynolds 1997; Stearns et al. 1995; Harmon, Ardishvili, Cardozo, Elder et al. 1997). Second, we argue that both the population and community levels of analysis are useful in the study of entrepreneurship. We believe that extant theory can be augmented by locating entrepreneurial activity in the larger setting of a community of organizational populations. Entrepreneurial behaviors in a focal population can have effects on evolutionary processes not only within their own populations, but in other populations within the community as well.

The remainder of this paper illustrates the importance of community dynamics in the emergence of the American feature film industry during the period from 1895 to 1929. We develop a community dynamics model and use this specific application to provide some illustrative discussion of the kinds of assumptions, mechanisms, and propositions that are suggested. To do this, we organize the subsequent sections as follows. The next section introduces the social systems framework (Van de Ven 1993b; Van de Ven and Garud 1989) and establishes the relevance of this framework in the context of the early American film industry. The third section discusses the evolution of the early American film industry as necessary background leading to theory development. The fourth section emphasizes the social systems framework and the role of community dynamics in new industry creation and the study of entrepreneurship. In this section, we use examples from the history of the early American film industry to suggest the need for a broad definition of entrepreneurship, which would include second sourcing. We also derive two propositions concerning related sourcing and the community dynamics of entrepreneurship in the context of new industry creation. We close with a discussion of some of the implications of our study for both the practice and theory of entrepreneurship.

THE EMERGENCE OF NEW INDUSTRIES: A COMMUNITY DYNAMICS MODEL

It is our contention that a better understanding of the roles of entrepreneurship in the emergence of new industries can be developed by applying a social system framework

(Van de Ven 1993a; 1993b). This theoretical framework, drawn from earlier work by Van de Ven and Garud (1989), depicted the industrial infrastructure supporting entrepreneurship in terms of three primary components—institutional arrangements, resource endowments and proprietary functions. We focus on one component of the industrial infrastructure of entrepreneurship, proprietary functions, which Van de Ven (1993b, pp. 2147–2215) considered to include technological development functions, the commercialization of innovation and the creation of markets and consumer demand. There are at least two justifications for this focus. First, as evidenced in the early American film industry, these functions are especially important in the creation of new industries. Second, we believe that we can augment Van De Ven's (1993a; 1993b) earlier work by incorporating related literatures to form a community dynamics model of proprietary functions in new industry creation. Thus, the primary focus of this paper is to broaden the social systems framework by developing a model of the community dynamics of proprietary functions and examining the implications of this model for the study of entrepreneurship.

Proprietary functions including technological development functions, the commercialization of innovations, and the creation of consumer demand and markets have been studied in a variety of different industry settings (e.g., Abrahamson and Rosenkopf 1997; Anderson and Tushman 1990; Dosi 1984; Utterback and Abernathy 1975; Utterback and Suárez 1993; Wade 1995). Nonetheless, we believe that the early American film industry is particularly interesting in that it is both “low tech” and first appeared a full century ago. Compared to the emerging industries of the late 20th Century, e.g., microcomputers, technological change in the early film industry was relatively slow. In terms of the literature of technological change and dominant design, it will be interesting if community dynamics appear to be important despite the relatively slow pace of technological change. Similarly, the institutional environment at the turn of the century was simple by today's standards. In terms of the social systems framework, it will be interesting if the social setting appears to be important in the early American film industry despite the absence of powerful governmental regulatory bodies, industry associations, or other institutional actors. In fact, the early film industry may be a particularly revealing setting for understanding the community dynamics of entrepreneurship precisely because it was relatively “low tech” and occurred when the institutional environment was still fairly weak in comparison with later years. This observation is not meant to imply that we disagree with authors who have argued that social setting becomes more important as the rate of technological change increases and as entities in the environment become more organized and powerful. Rather, we believe that a closer study of the early film industry may allow insights into basic processes that are operative even in the presence of rapid technological change and high levels of institutionalization.

According to Van de Ven (1993b, p. 219) the social infrastructure of entrepreneurship emerges “. . . through the accretion of numerous institutional, resource, and proprietary events involving many entrepreneurs located in the public and private sectors over an extended period.” The weak institutional environment during the early years of the American film industry allows us to de-emphasize institutional events and focus on how resources were acquired as a result of proprietary events largely in the private sector. Following Van de Ven (1991, p. 214), our focus “. . . is on the actions of individual entrepreneurs and firms who typically appropriate basic knowledge from the public domain and transform it into proprietary knowledge.” By developing a community dynamics model of these proprietary functions, we attempt to both augment the social systems

framework and demonstrate its applicability to the creation of the American film industry.

In delineating a community to study the dynamics of proprietary events, we followed Van de Ven (1993b, p. 214), who characterized proprietary events as incorporating "... the traditional industrial economic definition of an industry." In industrial economics literature, a simple but typical industry value chain would include three fundamental functions - production, distribution, and retailing. In the early American film industry, researchers (e.g., Allen and Gomery 1985) have typically identified three analogous functional tasks - production of films, distribution of films, and the exhibition of the films. Not surprising given the emerging nature of the industry, these functions tended to be entirely separate in the initial years of the industry. Thus, it is reasonable to model the early film industry as consisting of three populations of different kinds of firms that formed the larger film industry community:

1. Production—This function involves the production of films that will be shown to the public.
2. Distribution—This function involves activities that included the storage, promotion, and physical distribution of films.
3. Exhibition—This function involves the showing of films to paying audiences.

For purposes of the remainder of this paper, the community where we will study the dynamics of new industry emergence consists of these three populations, which pursued the three proprietary functions in the industry value chain. We will emphasize their roles in the development of an infrastructure for entrepreneurship in the early American film industry. We delineate the period encompassing the emergence of the film industry in the United States as the years between the emergence of the first firms producing films for commercial presentation and the emergence of the giant studios that we now collectively know as "Hollywood."

THE EARLY AMERICAN FILM INDUSTRY

The struggle to develop a first commercially feasible technology in the film industry began shortly after basic moving picture technology was invented. As suggested by Aldrich and Fiol (1994), entrepreneurs who participated in the birth of the industry faced considerable difficulty in creating the cognitive and sociopolitical legitimacy that would allow success. Indeed, the development of a first commercially feasible technology might sometimes be as great a struggle as the subsequent competition among technologies for the establishment of a dominant design (Anderson and Tushman 1990; Dosi 1984; Utterback and Abernathy 1975).

It is our contention that the period prior to the emergence of a dominant design is, to use the words of Utterback and Suárez (1993, p. 17), "... predominantly entrepreneurial." Two implications of this contention are central to this study. First, this predominantly entrepreneurial activity is worthy of closer study because it helps us to understand what Utterback and Suárez (1993, p. 2) characterized as "... the creative synthesis of a new product innovation." Second, both generally and in the specific case of the early American film industry, a social systems framework is useful for understanding this activity.

In the early American film industry, this entrepreneurial period begins in 1894 with Edison's commercialization of the peephole kinoscope. It ends sometime in the 1920s

TABLE 1 Key Innovations in the Emergence of the Film Industry

Year	Production Function	Distribution Function	Exhibition Function
1894	1) Peephole kinoscope introduced		1) Films exhibited in a variety of outlets
1897	2) Projectors appear		
1899			2) Films begin to appear in vaudeville programs
1905			3) Nickelodeons begin to appear as dedicated exhibition outlets for films
1906		1) Local exchanges appear	
1909	3) Motion Picture Patents Corporation is created 4) Multi-reel films appear	2) Traveling road shows and the states rights system appear as distribution alternatives for multi-reel films	
1910		3) Distribution companies appear following earlier cartel activity	
1912	5) The first feature film is released	4) Independent distribution companies with more proactive roles begin to appear	4) Movie theaters begin to displace nickelodeons
1914	6) Producers and distributors begin to vertically integrate	5) Producers and distributors begin to vertically integrate	5) Movie palaces begin to appear
1916	7) The central producer system is introduced		
1920s			6) Studios begin buying theaters

with the creation of the studios, which incorporated all three of the industry value chain activities within a single corporate entity. It is not possible to pick a precise date for the end of this period, and, in fact, some consolidation, particularly of theater chains, continued into the 1930s. However, by the end of the 1920s it is clear that the industry had matured beyond its initial entrepreneurial period: All of the primary organizational forms that we are familiar with in the modern era of filmmaking had been established (Mezias and Mezias, forthcoming). The remainder of this section discusses the history of the early American film industry, providing the raw material for later theoretical discussion. Key innovations in each of the populations that make up the community are listed in Table 1 along with the approximate year in which they were introduced.

Edison Manufacturing Company was the first commercial film company, inventing the peephole kinoscope in 1892 and commercializing it for operation in 1894. As the name implies, patrons viewed movies individually through a peephole, a technology that was more of a novelty than a commercial success. At the same time, Louis Lumière was working in France on an alternative technology, film projection, and was documented to have made a workable projector as early as 1895 (Rhode 1976). By 1897, both Edison and an American competitor, Biograph Co., had developed projectors as well. In these early years, film exhibition took place many different locations, including church socials, fairs, music halls, penny arcades, and traveling road shows. Although

the superiority of projection over a peephole machine in terms of audience size for a single run of the film was immediately obvious, during the first several years of the industry, both peephole machines and projectors were in use. The problem for film projection was simple: There were few reliable venues for projecting a film to a large audience. Perhaps this was because the itinerant exhibitor population was largely unwilling to make the site-specific investments that creating such venues required.

Realizing the potential for greater audiences with projection, producers searched in these early years for a more stable exhibition outlet, and, in 1899, Biograph pioneered a critical change in industry dynamics. The company solved their demand problem by marketing their revolutionary entertainment product to vaudeville theaters. This linkage of film production companies with vaudeville theaters allowed for negotiated long-term agreements that both increased the demand for films and stabilized that demand for producers. By 1899, the linkage between moving pictures and vaudeville was well-established (Musser 1990, p. 273); films could now be viewed regularly by mass audiences as part of vaudeville theater presentations.

At this point, projected films became enormously popular, and the kinoscope rapidly faded from importance. Albert E. Smith (1952, p. 254), the founder of Vitagraph, one of the largest producers of films during this period, characterized this era as follows: "The first ten years of this century were the heyday of the one-reeler." During these years, virtually all firms that produced films concentrated their energies on making single reel, short subject films (henceforth shorts). Each of these shorts tended to have its own story line and ran for approximately twenty minutes; even those shorts produced by the same company had no connection in story or content to other shorts.

As the popularity of shorts in the vaudeville venue became established, it was not long before film exhibition as a separate and distinct business from vaudeville developed. Most film historians (Musser 1990; Rhode 1976) credit Harry Davis, a leading vaudeville magnate, with opening the first dedicated film exhibition hall in 1905. To enter his theater and be entertained by shorts, patrons were charged a nickel; thus, the theaters that he and legions of imitators founded were called nickelodeons. A *Saturday Evening Post* article in 1907 offered the following description of these early film exhibition outlets:

The nickelodeon is usually a tiny theater containing 199 seats, giving from twelve to eighteen performances a day, seven days a week. Its walls are painted red. The seats are ordinary kitchen chairs which are fastened to the floor . . . Nickelodeons which seat 199 people have only to take out amusement licenses whereas theaters which seat two hundred or more people must take out theatrical licenses costing \$500 a year (Writers' Program—NY 1985, p. 305).

Following their introduction in 1905, the population of nickelodeons quickly grew at an amazing rate. In 1907, *Moving Picture World* estimated that 2500 to 3000 nickelodeons were in existence (Writers' Program—NY 1985, p. 303); by 1910, the total was approximately 10,000 (Bowser 1990, p. 81). With all the new exhibition outlets, film production grew as well. New subject footage released by all production companies combined increased from approximately 7000 feet per month in January 1906 to 30,000 feet per month just 20 months later in August 1907 (Musser 1990, p. 449). This rapid increase in both film production and the number of exhibition outlets created an obvious opportunity for entrepreneurs to become more active in the distribution function and provide some necessary organization. Both producers and exhibitors had an interest

in creating more structure within the community. Producers wanted to increase their market reach by selling to as many nickelodeons as possible. Nickelodeons had an even more pressing need. Because the potential audience for a brief program of shorts shown repeatedly throughout the day was exhausted quickly, rapid turnover of films was the only way to continue to attract audiences. They had to be able to turn products over relatively quickly in order to thrive, and this could be facilitated by more formal organization of the distribution function.

The first formal distribution organizations developed when entrepreneurs, some of them nickelodeon owners, organized exchanges to serve as intermediaries between producers and nickelodeons. Exchanges were libraries where nickelodeon managers would go to rent new products. They simply served a warehousing function and had no influence over either production or promotion. These early exchanges were essentially localized spot markets and did not provide a vehicle for the coordination of distribution across larger regions or nationally. Bowser (1990, p. 103) described how the system was organized. A producing firm:

. . . advertised and distributed its product by the brand. Under the system of the release day and the standing order, exhibitors, exchanges, and the public were expected to request films by company names, not by specific titles or stars. The price to the exchange was the same for any brand and any film. Competition among producers consisted of selling a greater number of prints to the exchanges . . . Such a system depended upon the uniformity of the product manufactured.

Several factors came together in this period of rapid growth between 1905 and 1909 that directly hurt the profits of producers. First, as a direct result of organizing within the community in the manner described above, the films themselves became commodity products. Second, demand growth was also slowing as the novelty of short films was fading quickly by the end of the decade. A third problem for American producers was the influx of imported films; in 1909, approximately half of the total industry production was by foreign companies (Bowser 1990, p. 23). In sum, producers faced the challenge that their product had become a commodity at the same time that the growth in demand was slowing and new entrants were plentiful. The net effect of these factors was that those operating in the distribution and exhibition functions were making the greatest profits (Bowser 1990); in essence, producers were being squeezed.

The major production companies, led by Edison and Biograph, responded to the situation by forming a cooperative cartel called The Motion Picture Patents Corporation (MPPC). The cartel was intended to reduce competition among producers and increase their power relative to producers outside the cartel as well as both distributors and exhibitors (Burt 1980; Pfeffer and Salancik 1978). After over a year of bargaining and negotiating, eleven producers, including the two largest foreign producers, came together in January 1909 to form the MPPC. This production cartel was organized as a holding company with shares equally owned by Edison and Biograph, the two companies that controlled all the major patents. They agreed to license the use of their patented equipment exclusively to the nine other producers who joined the cartel.

The MPPC created production quotas and scheduled release dates for each member company. The organization also instituted a policy requiring the exclusive licensing of all exchanges receiving product from any of the eleven firms affiliated with the MPPC. The object was to force exchanges and nickelodeons to book product from only member companies at a price determined by the cartel. This policy was based on the belief that

neither exchanges nor nickelodeons could find sufficient film product from any other source except the MPPC. In addition, member companies also challenged nonmember producers in other ways, especially in terms of litigation alleging patent violations.

To avoid being effectively frozen out, producers that were not affiliated with the MPPC had to demonstrate to the exchanges still independent of MPPC control that they were capable of supplying sufficient product. The response of non-MPPC producers was not to organize as a production cartel, but to create a central distribution organization in April 1910 called the Motion Picture Distributing and Sales Company. This entity was essentially the first distribution company, and it engaged in many functions that had not been performed by exchanges. It took shorts from independent producers and, in essence, marketed them to the exchanges. This distribution company provided independent producers with market reach for their product and, even more importantly, gave exchanges independent confidence that there was a sufficient volume of films from producers outside of the MPPC to satisfy their needs.

Later that year, the MPPC, both in recognition of the new competition and to manage the licensed exchanges more effectively, organized their own distribution cartel, The General Film Company. Similar to the distribution company founded by the independent producers, General Film exerted central control over the distribution of shorts produced by MPPC members. In addition, it functioned as an umbrella organization for the acquisition of all exchanges that purchased MPPC films. Eventually, the organization also attempted to extend its control over exhibitors by setting guidelines for pricing and film changeovers. Clearly, these organizations represented a significant transformation of the distribution function, rendering it more proactive and moving it beyond the simple role of a film warehouse. Because of this transformation, coordinated national distribution became a reality. At least initially, the formation of production and distribution cartels was a successful response to the decline in the popularity of shorts.

Ultimately, however, these attempts at market control were doomed to fail because they did not address the fundamental problem: the declining popularity of shorts. Albert Smith (1952, p. 254), Vitagraph's founder, diagnosed the situation as follows: "Public apathy toward 'galloping tintypes' daily became more marked; some sort of move had to be made. In 1909, Vitagraph pioneered a new strategy for overcoming audience disinterest with its release of *The Life of Moses*. Although still in the short film format, this production attempted to maintain audience interest by building bridges across the narratives of a series of short films, maintaining characters, and allowing for story lines that are more complex. This series of shorts, along with the few that followed in its immediate wake, were initially shown according to MPPC rules in installments one reel at a time. Eventually, however, the very existence of these films offering a longer narrative had a ripple effect leading to other changes throughout the community.

Most producers were initially unwilling to make serials or multi-reel films; only Vitagraph and some foreign companies such as the world's largest producer, Pathés Frères, were producing multi-reel films (2–3 reels) in 1909. Certainly, some producers of shorts simply lacked the capabilities to think and operate at the level of complexity and sophistication needed to produce serial shorts or multi-reel films as opposed to shorts. However, there was another and we believe more important, problem for producers of these films: Although these films were popular with the consumer, they were not popular with the distribution cartels. This is perhaps not surprising given the mindset of industry control governing the two cartels that dominated distribution during this period. Their refusal to distribute multi-reels or feature length films created an opportu-

nity. By taking advantage of this opportunity, two new actors, road show operators and states rights distributors, became central players in distributing serial shorts and eventually multi-reel films. Bowser (1990, p. 192) described how this occurred:

Feature films [term is used in this context to indicate any multi-reel production] could be road-shown, as plays were, with stock companies playing the provinces. Features were shown as special attractions in the local opera houses and town halls and legitimate theaters at advanced prices and stayed for as long as there was enough business to support them. If the film was not being road-shown, or if that tour was completed, it could be sold by states rights . . . The 'states rights' system meant that individuals or small companies could buy the rights for a specific territory and then charge whatever the market would bear.

The proliferation of states rights distributors and road shows between 1909 and 1912 helped to ensure that serials and multi-reels were available to audiences, preventing the cartels from blocking the emergence of longer films and serials. During these years, it became increasingly obvious that multi-reel films were much more popular with audiences than shorts. Longer films soon followed, culminating with the release of films that set the industry standard for a feature-length film (henceforth features), now recognized as a minimum of four reels or approximately 4000 feet (American Film Institute, 1988). By this definition, the first features did not appear until 1912, but the product was received enthusiastically in the marketplace and adopted quickly by producers. From this point, the popularity of features grew extraordinarily quickly, evidenced by a rapid increase in the number of firms making features. In 1912, only one firm released a feature; by 1914, there were 114 firms producing features (American Film Institute; 1988).

The emergence of features reflected a pronounced shift in consumer attitudes toward an increased recognition of stars and directors. Benjamin Hampton, a noted producer and director for the period, estimated that by 1917 only five percent of American features were without the protection of a star name (Koszarski 1990, p. 260). The unique production qualities and star appeal that separated features from earlier multi-reels and shorts forced producers to develop many new organizational and creative skills. This included learning new approaches to functional tasks such as writing and directing, learning how to acquire and develop talent, and learning how to promote their films. Dependent on stars and substance, features could not be scheduled as shorts had been, using quotas like a commodity on an assembly line. Thomas H. Ince is credited with developing the 'central producer system', an administrative innovation that nearly every major producer soon adopted (Koszarski 1990, p. 108). This system treated each film as a unique product, allowing for enhanced creative quality, but also monitored costs, controlling the financial threat posed by the greater capital expenditures required in the production of features.

Even before features had become readily available, some nickelodeon owners had begun a transformation process that would result in the displacement of nickelodeons by movie theaters. Following the introduction into the marketplace of multi-reel films and serials, some nickelodeon owners had begun to experiment with programming. Innovative operators were quick to substitute multi-reel films and serials, as these products became available, for a string of unrelated shorts. Because customers stayed for longer periods, the comfort of the exhibition hall became increasingly important. This resulted in the development of movie theaters with enhanced comfort, e.g., restrooms, carpeting,

better seating. These establishments began to raise prices to a dime in order to recover capital improvement costs and, even more importantly, to compensate for revenues lost due to the reduced audience turnover that resulted from expanded programs (Bowser, 1990, p. 199). Given the popularity of extended multi-reel programs, almost all exhibitors were soon forced by competition to either close or renovate their nickelodeons into theaters. Thus, as multi-reels and eventually features replaced shorts, nickelodeons were replaced by movie theaters.

The final major innovation in exhibition venues occurred in 1914 with the opening of the Strand Theater in New York City. The Strand Theater marked a dramatic variation in theater design resulting in the emergence of what came to be known as the movie palace or show palace. These show palaces, patterned after large Broadway playhouses, were the most opulent of theaters with seating capacities in the thousands. Bowser (1990, p. 126) described them as follows:

All kind of amenities were brought in to make the new theaters comfortable, elegant, and refined . . . Marble, beveled glass, polished oak and walnut, dazzling electric lights, lavish carpeting, and huge mirrors began to appear in newly redecorated theaters. Rest rooms became a necessity rather than a luxury with longer programs, and these were finer facilities than many customers had at home.

The popularity of these opulent movie theaters proved undeniable, and they diffused quite rapidly (Kosarski 1990).

The appearance of multi-reels and features also was creating opportunities for change in the distribution function. The distribution cartel formed by independent producers in 1910 was an uneasy amalgamation formed only as a response to actions by the MPPC. By 1912, the threat of the MPPC to independent producers had diminished; in fact, independent film production was nearly equivalent to the total MPPC production (Bowser 1990, p. 85). In addition, during that same year, the first suit under the Sherman Anti-Trust Act was brought against the MPPC. In addition to the diminished threat of the MPPC, the appearance of multi-reels had increased the ability of producers to differentiate their products. These factors provided an incentive for some larger independent producers to leave the distribution cartel and look for their own distribution arrangements. The eventual result was the creation of independent distribution companies that were very different entities than the cartels that preceded them. Distributors worked for their producer clients by actively engaging in new functions such as marketing, promotion, and product placement (e.g., first run vs. second run theaters). In particular, the longer showing time of features meant that larger audiences needed to be attracted; this led to an explosion of advertising expenditures. In 1913, the industry was spending five million dollars on advertising; a figure that increased to sixty-seven million dollars by 1925 (*Wid's Film Daily*, 1926, p. 3). In some cases, these new distribution companies even helped arrange financing to help producers meet the increased costs incurred in the production and promotion of features.

The increasingly strong relationship between production and distribution companies culminated in 1914 with the appearance of the first vertically integrated companies. Universal, a large independent producer, began to distribute its own films in 1914. In the same year, World Film Corporation, backed by extensive Wall Street financing, was started as a vertically integrated producer-distributor. The next several years saw the proliferation of these producer-distributor firms. In 1915, Pathé became the first MPPC producer to leave General Film and vertically integrate into distribution. That same

year Fox Film Corp. (the predecessor to Twentieth Century Fox) also vertically integrated into distribution. In 1916, several production companies led by Famous Players (founded by Adolph Zukor) merged with their distributor, Paramount, to form the dominant company in the industry. As the industry entered the 1920s, the integrated production and distribution organizations had come to dominate both the production and distribution of feature length films in the U.S. market. It is estimated that six integrated producer-distributors, the studios as they came to be called, accounted for 80% of total film production in 1923 (*Wid's Film Daily*, 1924, p. 7).

Having consolidated their hold over both production and distribution, some of these studios turned their attention to exhibition. By the mid-1920s, the final trend to complete the creation of the studio system that still dominates the American film industry today began with forward integration of the studios to acquire theaters. Within the decade, a few studios came to control the production, distribution, and exhibition of feature length films in the United States. This development, which marks the end of our discussion of the emergence of the industry, created an oligopolistic system that remained in place until a 1948 anti-trust decision forced the studios to divest of their theater chains.

THE COMMUNITY DYNAMICS OF NEW INDUSTRY CREATION

This section relates important activities in the emergence of the early American film industry to the social systems model of entrepreneurship (Van de Ven 1993b), ultimately suggesting a community dynamics model of proprietary functions. We begin by showing how the development of the industry seems to follow and support many of the propositions put forward by Van de Ven (1993b) as well as offering an opportunity for demonstrating the relevance of some related literature. We then go on to suggest how a community dynamics model of the development of proprietary functions augments our theoretical understanding of entrepreneurship in a social systems framework.

The Early Film Industry and the Social Systems Framework

The theoretical framework proposed in this paper begins with the social systems perspective of community-wide entrepreneurship discussed by Van de Ven (1993a; 1993b). The relevant aspects of this infrastructure for entrepreneurship emerge "... through the accretion of numerous institutional, resource, and proprietary events involving many entrepreneurs located in the public and private sectors over an extended period." In the years following the introduction of film projection technology, we find that the infrastructure discussed by Van de Ven (1993b) was central to the process of entrepreneurship that created the American film industry. Indeed, many of the important activities that led to the development of the American film industry can be understood in terms of many of the propositions of the social systems framework.

Van de Ven (1993b, p. 221) predicted that the success of entrepreneurs would in part be determined by their progress in building institutional arrangements and resource endowments for a new technology. This point is well illustrated by the process that led to the emergence of shorts, the first commercial film product to become widespread. With short films, which began commercial production in 1895, there was initial widespread confusion about how to present a novel product to the public. Very early on, film exhibition took place in locations such as church socials, fairs, music halls, penny

arcades and traveling roadshows. The linking of films with vaudeville theaters represented an important institutional arrangement that guaranteed film production companies greater demand stability, resulting in greater and more reliable resource endowments. This was followed by the development of exhibition outlets devoted exclusively to the viewing of short films. However, these outlets, called nickelodeons, did not become widespread until after 1905, more than ten years after the initial commercialization of short films. Thus, the success of short films was not assured until institutional arrangements had been developed and resource endowments stabilized.

Van de Ven (1993b, p. 222) also argued that a novel product like short films would face greater problems in developing a social infrastructure for entrepreneurship than an incremental development like moving from shorts to features. Indeed, the fact that it took so much longer for shorts to integrate fully into the consumer marketplace versus the time it took for features to become fully accepted lends support to this proposition. As discussed above, it was nearly ten years between the initial attempts at commercialization of shorts and the creation of a network of dedicated exhibition outlets. By contrast, the early producers and distributors of features immediately understood the importance of dedicated exhibition outlets and quickly realized the shortcomings of nickelodeons as outlets for longer films, which demanded a different philosophy on the part of exhibitors. Capitalizing on the institutional arrangements and resource endowments created during the shorts era, the development of theaters and even the much more expensive movie palaces happened in fairly short order.

Van de Ven (1993b, p. 223) predicted that the social infrastructure that promotes current technology can become an inertial force during technological transition (Cooper and Smith 1992). This is borne out during the transition from short films to more elaborate multi-reel productions and eventually to feature length films. This is apparent in the activities of the MPPC and the two distribution cartel companies. Leading producers, through their distribution cartels, imposed policies that delayed the diffusion of multi-reel films. They actively resisted the transition from shorts to features, even after the preference of the market for the latter became apparent. Albert Smith (1952, p. 254) described this resistance to the replacement of shorts by longer films as follows: "A new era was in the offing, held back by the old order." Ultimately, only one MPPC producer from the shorts era, Vitagraph Co., the first mover headed by Smith himself, went on to become a major producer of features.

In discussing the role of individual entrepreneurial firms in the development of a social infrastructure, Van de Ven (1993b, pp. 223–225) emphasized the notion of running in packs. In fact, going it alone was a rare event during the early years of the American film industry. Entrepreneurs located their production organizations in concentrated areas, principally New York City and Los Angeles. Actors, technicians, and directors moved between production companies frequently. Cooperative and competitive ties between firms (Van de Ven 1993b, p. 224) were rife, with producers frequently making films of similar content, selling that product to the same exchange markets, and having their products exhibited in the same nickelodeons. Entrepreneurs in this industry did not simply settle for this informal level of cooperative ties; they went further with the formation of cartels. The MPPC was the first cartel, instituting standardized policies for all eleven members and marshaling resources to litigate alleged patent violations by non-members. In response, producers "frozen out" by the MPPC began to cooperate, resulting in the creation of a distribution cartel. The response of the MPPC was to create a rival distribution cartel. For approximately two years, virtually all films in the United

States were distributed through these two cartels. Both the formation of the MPPC and the quick response of non-MPPC members epitomize the strategy of running in packs.

Finally and again as Van de Ven (1993b, p. 226) predicted, the dominant technological design that prevailed early on did not go on to become the dominant design that ultimately was most profitable. The kinoscope was the first film technology; it is clear that its commercial variant, the peephole kinoscope, did not fare well in competition with the subsequent technology that allowed films to be projected. A similar squeezing out of an older technology by a new technology is illustrated by the emergence of features. By the time shorts had become widespread, producers had become stagnant and ceased to make either technological or aesthetic advances. In 1909, Vitagraph introduced multi-reel films, and within three years, the first feature was released. In a remarkably short time, shorts were nearly completely displaced by features; parallel changes occurred in distribution (remaining exchanges and distribution cartels becoming distribution companies) and exhibition (nickelodeons were being displaced by theaters and movie palaces). The whole form of the movie industry community changed immensely as the underlying product shifted from shorts to features.

As this discussion demonstrates, many of the developments in the emergence of the American film industry are consistent with the social systems framework. The next two sections of the paper establish our claim that the social systems framework can be augmented by a community dynamics perspective. In the first, we argue for a broad definition of entrepreneurship based on events that occurred in the community dynamics of the emerging film industry. In particular, we believe that the importance of second sourcing (Wade 1995) to any emerging industry suggests that even purely imitative activities must be considered for a fuller understanding of successful entrepreneurship. In the second, we focus on how the success of entrepreneurial behaviors in one population of a community may depend on entrepreneurial behaviors in another population in the community. We believe that this process of cross-population entrepreneurship is analogous to the related sourcing activities discussed by Wade (1995) in the context of technological communities.

Community Dynamics and a Broad Definition of Entrepreneurial Behavior

Many researchers have noted the confusion that exists over the definition of entrepreneurship (Bygrave and Hofer, 1991; Gartner 1990; Hornaday 1992; Lant and Mezas 1990). However, there is a common element to most existing definitions of entrepreneurship: Entrepreneurial activity in the literature is often conceptualized as the search for and discovery of alternative possibilities. Often, it involves the discovery of opportunities that have not yet been noticed (Kirzner 1979) or fully exploited (Lant and Mezas 1990). This broad definition is also consistent with Schumpeter's (1950, p. 72) conceptualization of entrepreneurship. He argued that the essential requirement for an activity to be entrepreneurial was that it results in new combinations of productive activity. He described it as follows: "...the function of entrepreneurship is to reform or revolutionize the pattern of production..." In this conceptualization of entrepreneurship, change is the important variable, not the specific activities that lead to change. In this paper, we emphasize the role of entrepreneurship in creating change at a community level and recognize that many activities contribute to change.

On the basis of a review of the historical literature, Hornaday (1992) identified three dimensions that he felt were consistently used in the literature to characterize

the entrepreneurship process—economic innovation, organization creation, and profit-seeking in the market sector. Only profit-seeking firms are included in this study, so that dimension will not be discussed further. We agree that both economic innovation and organization creation are consistent with entrepreneurial activity, but believe that a fuller appreciation of their role can result by treating them as dichotomous variables.

On the basis of the discussion of the history of the early film industry, we conclude that the concept of economic innovation necessary to understanding the emergence of a new industry must be inclusive. Thus, we use this terminology to refer to a broad range of activities that produce change. In particular, we agree with Williamson's (1983) assertion that change in the characteristics of existing organizations is as crucial to our understanding of economic change as technical and product innovation. This is especially well illustrated in the film industry with the transformation of producing organizations following the displacement of shorts with features (e.g., story development, the creation of star power, and the central producer system). It is further illustrated by the transformations of nickelodeons into theaters and theaters into movie palaces. This emphasis on organizational as well as technical and product innovations is echoed by Arrow (1969) and Chandler (1977), and expressed succinctly by Cole (1968, pp. 61–62). He stated the argument as follows: "[I]f changes in business procedures and practices were patentable, the contributions of business change to the economic growth of the nation would be as widely recognized as the influence of mechanical innovations or the inflow of capital from abroad." This broad definition of economic innovation implies that it can be conceived of as not only product or technological innovation; it also includes innovation in organizational structure and process (Mezias and Glynn 1993).

Having defined economic innovation, there is still the question of whether economic innovation is necessary for a behavior to be considered entrepreneurial. We suggest that economic innovation is not necessary when entrepreneurship is considered not as an individual act but as a community-wide innovation process. Imitative activities also contribute to the innovation process; for example, Swann (1987) and Wade (1995, p. 112) have provided evidence that imitation enhances the probability of success of a technological standard. Wade (1995, p. 112) noted that the literature of technological competition suggests that foundings of microprocessors using a particular standard "... serves as an information externality indicating the status of the product." We believe that a similar process occurs during the development of new industries, rendering imitation a crucial activity even in the absence of an analogous battle over technological standards.

Repeatedly, rapid contagion, involving extensive imitation, was central to the success of entrepreneurial innovation in the early film industry. The quick spread of links between early producers of shorts and vaudeville theaters is one example. The incredibly quick diffusion of nickelodeons and the rapid development of exchanges is another. Projected films would likely have been no more successful as a product than films for the peephole kinoscope if there had not been rapid imitation of vaudeville contracts, the nickelodeon, and local exchanges. Similarly, the ability of features to prevail as the dominant product despite the obstructionist efforts of the distribution cartels depended heavily on imitative behaviors. Innovative entrepreneurs in the distribution function created mechanisms such as traveling road shows and 'states rights' systems to promote multi-reel films. However, without imitative follow-up activities by others, the form may never have reached the audience necessary to make it a viable alternative to shorts. Similarly, the transformation of nickelodeons into theaters and theaters into show pal-

TABLE 2 Four Categories of Entrepreneurial Behavior

	Economic Innovation	No Economic Innovation
New Firm	Innovative founding: Most entrepreneurial	Imitative founding: Moderately entrepreneurial
No New Firm	Product or service innovation: Moderately entrepreneurial	Product or service imitation: Least entrepreneurial

aces, driven in large part by imitation, were important to the success of features. We believe that a community dynamics model of the emergence of new industries suggests that imitation is an important aspect of entrepreneurship. Thus, we include activities that are both high and low on the dimension of economic innovation in our typology of entrepreneurial behaviors.

Hornaday's (1992) second dimension of entrepreneurial activity, depicted along the vertical axis of Table 2, is organization creation. As with economic innovation, we are interested in the question of whether firm founding is necessary for an action to be considered entrepreneurial. It is quite clear that many crucial administrative innovations have occurred in existing organizations. As an example, corporate venturing research (e.g., MacMillan 1986; Burgelman, 1983) has demonstrated the critical role of such innovation in the success of new product ventures. Areas of organizational innovation that have been studied include organizational culture (Kanter 1983; MacMillan, Block, and Narasimha 1986), top management commitment (Fast and Pratt 1981), strategic planning and strategy (Cooper 1979; Biggadike 1979), and the structure and design of the new venture effort (Burgelman 1983; 1985). Such innovation represents a case of organization re-creation rather than organization creation. Thus, we emphasize that entrepreneurial activity in existing organizations may also be an important source of innovative activity (Covin and Slevin 1994; Dougherty 1995; Dougherty and Hardy 1996; Hardy and Dougherty 1997; Shane and Venkataraman 1996; Tushman and O'Reilly 1996; Tushman and Rosenkopf 1996; Vandermerwe and Birley 1997).

We believe that this emphasis is justified by the fact that the transformation of existing organizations was also important in the emergence of the feature film industry in the United States. A vaudeville theater owner is credited with founding the first nickelodeon; subsequently, many vaudeville organizations branched out into nickelodeons. The first few organizations to make multi-reel and features were producers of shorts attempting to increase audience interest in their films. A rapid transformation of nickelodeons into theaters was included in the next wave of transformations, even as some traveling shows and state rights organizations were transformed into film distribution organizations. The remaining developments that culminated in the rise of the Hollywood studios were all heavily influenced by the transformation of existing organizations. These included the rise of the central producer system, the integration of production and distribution firms, and, ultimately, forward integration to acquire theater chains. We believe that entrepreneurial activity is possible even in the absence of the creation of a new organization.

Table 2 uses the dimensions of economic innovation and firm founding to define four types of entrepreneurial behaviors. We explain each of these four types in sequence, giving examples to clarify how we are using the labels we attach to each of these categories.

Innovative Founding: This type of behavior results in both economic innovation

and organizational creation. In the film industry, examples would include the creation of the first producers, first nickelodeons and the establishment of the first exchanges to distribute short films.

Imitative Founding: This type of behavior results in the creation of a new organization that is not innovative. It instead attempts to duplicate the processes of an existing organization and be its direct competitor in supplying a given good or service. In the film industry, examples include production company foundings that followed the early producers (i.e., Edison, Biograph, and Lumière), nickelodeon foundings that occurred in the years following the first establishments, and the development of competing exchanges after an area was already being served by one.

Product or Service Innovation: This type of behavior results in innovation, the introduction of a new product or service within an existing organization, but does not include organizational creation. An example of product innovation is Vitagraph in 1909, which began producing multi-reel films in addition to the single-reel films that had been their main product. By so doing, Vitagraph became the first company to be a producer of multi-reel films. An example of service innovation is the introduction within established nickelodeon operators of more advanced design concepts leading to theaters and movie palaces.

Product or Service Imitation: This type of behavior results in neither economic innovation nor organizational creation. It involves the decision by an existing organization to change its existing products or services through imitation. This behavior has an impact on entrepreneurship at the community level by supporting previously introduced innovation. As an example of product imitation, the rapid diffusion of feature films following Vitagraph's lead required that many existing firms be willing to adopt the new product form represented by features. As an example of service imitation, the rapid diffusion of theaters could not have occurred without the acceptance by existing nickelodeon operators of the new form.

While it is clearly possible to compare these behaviors in terms of the level of entrepreneurship from high to moderate to low, as indicated in Table 2, we believe that all are essential. A community dynamics model of the role of entrepreneurship in the emergence of new industries highlights the crucial role of second sourcing, whether it is the result of a product or service imitation within a new or existing organization. Thus, while economic innovation clearly makes an activity more entrepreneurial, we do not believe it is required for an activity to be considered entrepreneurial. Similarly, it is evident from the early film industry that important entrepreneurial events often occurred at existing firms. Thus, while organizational founding may render a particular behavior more entrepreneurial, we do not believe that founding is required for an activity to be considered entrepreneurial. To summarize, the community dynamics model of the role of proprietary functions in the emergence of new industries was interpreted to suggest four important categories of entrepreneurial behaviors. The occurrence of these behaviors across populations of firms in the community is the subject of the next section.

The Community Dynamics of Cross-Population Entrepreneurship

As we noted at the start of the paper, we have assumed that the film industry's value chain represents distinct populations of firms, especially in the early years of the industry when entrepreneurial activity is most intense. It is from this premise that we begin our discussion of the community dynamics of cross-population entrepreneurship. Van de

Ven (1993b, p. 219) asserted that the paths of independent entrepreneurs—acting out their own diverse intentions and ideas—intersect. We agree and interpret the early history of the American film industry to suggest that entrepreneurial behaviors can impact entrepreneurship not only in the population where the entrepreneurial behavior originated but also in other populations within the community. These spillover effects from one part of the value chain can have significant effects on both the occurrences of entrepreneurial activities in other parts of the value chain as well as on the ultimate success of those activities. Following Wade (1995), we will refer to these spillover effects as related sourcing.

As examples from the film industry illustrate, the open resource space (Astley 1985; Romanelli 1989) that facilitates entrepreneurial behavior often depends on earlier entrepreneurial behavior elsewhere in the community. One of the most important technological innovations allowing the commercialization of film was the introduction of projectors, which eventually displaced peephole machines. Following the introduction of projectors, the Biograph Co. was able to find a new and more dependable set of customers in vaudeville establishments. Thus, innovation in the production function, the introduction of projection technology, made possible innovation in the exhibition function, showing films as part of the vaudeville program. In the case of nickelodeons and exchanges, the innovation of nickelodeons in the exhibition function created an open area of resource space in the distribution function that allowed the introduction of exchanges. Exchanges served a warehousing function, facilitating exchanges between producers and exhibitors. Without the existence of strong and dedicated exhibition outlets, the creation of exchanges in the distribution function would have been unnecessary. Thus, innovation in the exhibition function, the introduction of nickelodeons, made innovation possible in the distribution function: the introduction of exchanges. The development of multi-reel films, directly resulting from Vitagraph's independent activities in experimenting with serials, fostered opportunities for innovation in exhibition, leading to the creation of movie theaters and movie palaces to replace nickelodeons.

Wade (1995) has provided evidence of one example of this spillover phenomenon, which he called related sourcing, in technological communities defined by both design and architecture. His evidence suggested that foundings in one population within a technological community could have a mutualistic effect on foundings in another population of the same technological community. We believe this is also true in the emergence of new industries. Entrepreneurial behaviors in one population of a community can create opportunities for additional entrepreneurial behaviors elsewhere in the community. In general, we believe that the following will be true:

Proposition 1: During the emergence of a new industry, entrepreneurial behaviors in one population of the community may create opportunities for entrepreneurial behaviors elsewhere in the community.

Thus, it is our contention that innovative foundings in one population can have a positive effect on innovative foundings in another population, e.g., the foundings of firms producing features positively impacting the foundings of theaters. Similarly, innovative foundings in one population can have a positive effect on other entrepreneurial behaviors in other populations. For example, the foundings of firms making features had a positive impact on the transformation of nickelodeons into theaters. The positive impact of traveling road shows on the transformation of producing firms to include multi-reel and feature-length film products. We could make analogous arguments concerning the

potential impact of all four categories of entrepreneurial behaviors in one population on the potential for all categories in other populations. Our fundamental point is that an understanding of how this related sourcing contributes to a contagion of entrepreneurial behaviors across populations is important to the understanding of the emergence of new industries.

Entrepreneurial behaviors in one population not only have an impact on the occurrences of entrepreneurial behaviors elsewhere in the community but also impact on the success of those entrepreneurial initiatives. For example, imitative foundings of exchanges in the distribution function helped enable nickelodeons in the exhibition function to flourish. Nickelodeons changed their films often, and many of the first nickelodeon owners faced substantial uncertainty regarding the supply of film product. The founding of exchanges reduced this uncertainty, providing nickelodeon owners with a place where they could find the variety and quantity of product needed on a regular basis. The existence of exchanges made the external environment faced by prospective nickelodeon owners more supportive. This allowed even more imitative foundings of nickelodeons and helped in ensuring the success of the nascent film industry.

Similarly, innovative foundings of states rights distributors and road show organizers in the distribution function helped in the success of multi-reel films in the production function. Following the introduction of multi-reels in 1909, distribution cartels and exhibitors were reluctant to deal with the new film product; they continued to prefer shorts. The appearance of states rights distributors and road shows between 1909 and 1912 helped in the success of multi-reels by providing producers with a known outlet and ultimately an early market for their new form of film product. Thus, innovative foundings of states rights distributors and road show operators were important variations in the distribution function that helped ensure the success of multi-reel films in the production function.

As these examples show, the ultimate success of entrepreneurial behaviors in one population within a community is often affected by behaviors of entrepreneurs in other parts of the community. Entrepreneurial behaviors in populations external to the focal population can render the environment of the focal population more munificent, affecting the success of entrepreneurial behaviors in the focal population. In general, we believe the following will be true:

Proposition 2: During the emergence of a new industry, the success of entrepreneurial behaviors in one population may be supported by entrepreneurial behaviors in other populations.

CONCLUSIONS

Traditionally, entrepreneurship has often been thought of and even studied as an isolated event, focused on the actions of individuals without paying sufficient attention to the context of both the event and the person. The primary goal of this study has been to augment models of entrepreneurship and the emergence of new industries that take a more social perspective. Towards this end, we focused heavily on the social systems framework (Van de Ven 1993a; 1993b) and developed a community dynamics model of proprietary functions. The history of events in the film industry's emergence strongly reinforces the value of a social systems approach and lends support to many of the propositions forwarded by Van de Ven (1993b). In particular, it points to the need to continue

working on a theory of entrepreneurship that considers it as both an evolutionary and a collective process taking place within a larger community context. We believe that this paper contributes to this research stream with its community dynamics model of the role of proprietary functions in the emergence of new industries. We believe it is important to highlight conceptual issues about the definition of entrepreneurship and cross-population effects in a community of organizations.

During the course of this research, it became clear that there are many meanings to the term entrepreneurship (Amit, Glosten, and Muller 1993; Bygrave 1993; Gartner and Shane 1995; Hofer and Bygrave 1992; MacMillan and Katz 1992; Sandberg 1992; Stearns and Hills 1996; Woo, Daellenbach, and Nicholls-Nixon 1994). Some consider it the act of organizational creation; others consider it an innovative activity. Still others would say that an entrepreneur necessarily engages in both economic innovation and organization creation (Hornaday 1992). In attempting to understand the role of entrepreneurship in the emergence of new industries, however, we believe that a broader definition is justified. Thus, we developed a four-quadrant typology of entrepreneurial behaviors and considered innovative behaviors occurring in both new and existing organizations. Further, the typology included imitative behaviors both in the context of new foundings and within existing organizations. It is often necessary that all these behaviors occur in order for entrepreneurship in a community setting to succeed. Van de Ven (1993b, p. 224) described it quite well: Running in packs means that entrepreneurs coordinate with others as they develop and commercialize their innovation.

Just as populations within communities are interdependent, so too are entrepreneurs within them. Van de Ven and Garud (1989) noted the importance of emerging social systems in their study of the cochlear implant industry. Stinchcombe (1965, p. 146) wrote that entrepreneurs find or learn about alternative, better ways of doing things that are not easily done within existing social arrangements. They thrive where variation around them is at a maximum, because this allows them to arrange a new social order that leads to new innovative opportunities. These social structures are constantly evolving as variations continue to occur throughout the various populations comprising the community. We found much evidence for these phenomena in the early film industry in the United States.

Specifically, we analyzed how entrepreneurial behaviors interacted in different parts of a community defined by the value chain. More entrepreneurial behaviors, as we have conceptualized them, resulted in innovation, the creation of new organizations, or both. Minimally entrepreneurial activities, product and service imitations by existing firms, while involving neither innovation nor the creation of new organizations, were still crucial to the development and success of the emerging film industry. Different types of entrepreneurial behaviors, constrained by the path dependent nature of change in this empirical setting, impacted one another at every stage in the emergence of this new industry. Even today, the American film industry has remnants of the exchange and distribution system, four reel features, and other more subtle influences that all have their roots in these community dynamics of the emergence of new industries.

In this paper, we focused narrowly on a single set of empirical developments in the hopes of developing an understanding of theoretical mechanisms that would apply more broadly (MacMillan and Katz 1992). The community that formed the early American film industry consisted solely of populations engaged in performing proprietary functions within the industrial infrastructure of the film industry. Based on our analysis of this community, two propositions were derived that we believe are generalizable be-

yond this specific case and can be extended to other industries. However, the implications of this research are not limited to the study of entrepreneurship; there are at least two other literatures for which our study has clear implications. First, the literatures of population ecology and evolutionary perspectives must be brought to bear on the emergence of new industries (Mezias and Mezias, forthcoming). The population and community dynamics of the four types of entrepreneurial behaviors, innovative foundings, innovative organizational level change, imitative foundings, and imitative product and service changes, are one area to begin this work. Second, the literature on competition for technological standards might look to broaden the range of applicability of the mechanisms and theoretical constructs that it has emphasized. In this paper, both second and related sourcing were shown to be important concepts in the emergence of the early film industry. We have suggested that many of the same processes that characterize competition among standards after an industry has emerged may also characterize the search for a first feasible technology that accompanies the birth of any industry.

Beyond these two literatures, we also believe that there may be general lessons regarding the role of entrepreneurial behaviors in producing innovation, the creation of new organizations, and the ultimate successful emergence of a new industry. Our propositions provide a summary description outlining how entrepreneurial behaviors in one population in a community can affect the possibilities for and success of entrepreneurial behaviors in another population in the community. We feel confident that the community dynamics processes we have described are crucial to the creation of new industries and economic change. We look forward to working with others in pursuing the empirical and theoretical work that will deepen our understanding of these processes.

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