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THE DEVELOPMENT AND STATISTICAL TESTING OF A NASCENT ORGANIZATION STRUCTURE SEQUENCE MODEL

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ABSTRACT

This study identified episodic stages of growth used by nascent hyper-growth firms. Based on the literature, an 11-stage hypothetical episodic Nascent Organization Structure Sequence (NOSS) model was postulated. Sixty-two Inc-500 fastest-growing "gazelle" entrepreneurs identified which of the 11 stages they used or would use to build their business. One-sample chi-square analysis per NOSS stage found that nine of the growth stages were identified as significant (p < .05), resulting in a revised Verified Nascent Organization Structure Sequence (VNOSS) model of high-growth, emerging organizational development. See Figure 1 for a list of the 11 NOSS stages, and Figure 2 for the resulting 9 VNOSS stages. The model contributes to the development of a research foundation that can aid entrepreneurs in changing their structures as they grow their businesses, as well as consultants who help them grow.

INTRODUCTION

The importance of organizational development patterns for nascent firms (beginning to existing and developing new firms) is supported in the literature. Mintzberg (1979) accentuated the significance of an organization's structure to its effectiveness. He stated, "An understanding of how new entrepreneurial firms are structured, what processes are operational, and what sequence of hierarchical structures are utilized by the majority of new firms is desirable and will supplement the limited knowledge in this area. A general assessment of how the firm changes as it goes through the nominal sequence of structures would advance the field of entrepreneurship."

A general punctuated evolution paradigm is supported by authors (Churchill & Lewis, 1983; Gersick, 1991; Greiner, 1998) for mature firms, but a generally accepted confirmation of a similar standard for emerging firms has not yet been developed although it would be beneficial to the domain of entrepreneurship. Greiner (1998) and others developed a portrait of episodic organizational growth but called for further research. The currently recognized "stage models" are conceptual and have minimal empirical testing using inferential statistics on nascent organizations.

LITERATURE REVIEW

Researchers agree that nascent organizations can be differentiated from existing mature firms and that firms don't grow without entrepreneurial intent (Katz & Gartner, 1998; Greiner, 1998). The proposed NOSS is based on these thoughts. The review of literature is organized in three parts:

Milestone events as firms grow, Foundations for NOSS model, and The NOSS model.

Milestone Events As Firms Grow

As firms emerge, there are business-formation "event" sequences of emerging organizations addressed in the literature. Milestone event sequences could be used as indicators of perceived-value of the firm. One popular model is proposed by Vesper (1990). The 12 milestone events as a firm grows stages include:

1. When the desire for entrepreneurship is recognized.
2. When the idea for what the new venture is to be, occurs.
3. When the break is made with former employment.
4. When contracts are made with a potential partner, lawyer, banker, accountant or other outside advisor.
5. When legal papers for partnership, incorporation, or business licenses are filed.
6. When the first dollars are invested in the new venture.
7. When the firm becomes ready to accept orders.
8. When the logo is first displayed.
9. When the first order arrives.
10. When the first delivery or performance is done.
11. When the company breaks even.
12. When the first profitable year has been accomplished.

However, these are singular events and are not thought to be part of important on-going processes. Pinchot (1985) gives another interesting view of 12 intrapreneuring milestones, as follows:

1. Idea.
2. Customer feedback.
3. Prototype.
4. Business plan.
5. Start up.
6. Trying the plan.
7. Background research.
8. Rapid adjustment to reality.
9. Replication of a semi-stable pattern (rapid growth).
10. Incremental changes only.
11. Maintaining by the book.
12. Running down the installed capital base.

Pinchot's view of the entrepreneurial process from within another organization includes the entire cycle from idea to the demise or liquidation of the venture. Pinchot postulated that the entrepreneur or intrapreneur would play a central role in stages 1 though 9 only and managers would supervise ventures in stages 10 through 12. This implies that there are identifiable phases of nascent organizational development and the model outlines a dichotomy between entrepreneurial and managerial tasks.

Carter, Gartner and Reynolds (1996) outline a list of 14 start-up activities important as milestone events, as follows:

1. Organized team.
2. Prepared plan.
3. Bought facilities/equipment.
4. Rented facilities/equipment.
5. Looked for facilities.
6. Invested own money.
7. Ask for funding.
8. Got financial support.
9. Developed models.
10. Devoted full-time.
11. Applied for license/patent.
12. Formed legal entity.
13. Hired employees.
14. Saved money to invest.

Carter et al. found that entrepreneurs who complete more of the 14 tasks within a shorter time frame have a greater chance of being successful. However, it is unclear if the path of causation is reversible in this case, and/or whether it is the presence of successful opportunities that cause, enable, or induce the entrepreneur to quickly complete the required set of activities in order to capture the value perceived. The relationship between attainment of these milestone events and the creation of economic value was not found in the literature. Similarly, the state of unity or state of gestalt of the organization, as an operating and on-going sustainable entity, and economic value were also not found in the literature.

There are other sequence-models of entrepreneurship milestones in the literature, but they all are seen as somewhat arbitrary and primitive for use in the current study because these milestones have not been related to the intrinsic value of the organization. Mintzberg and Van Der Heyden (2000) denounced these events as mere "tests" of an organization's persistency but not representative of the on-going organization's value. MacMillan and Katz (1992) noted that entrepreneurial events are often idiosyncratic, obscure, and infrequent. Using an analogy, footprints left in the snow are not the people who made them. These milestone events or "footprints" are only a small and abstract part of the dynamic entrepreneurial process. In addition to milestone events, researchers have identified stages of firm growth.

Stages of Firm Growth

A model of very early organizational development was not found in the literature although it is generally agreed that new firms go through growth stages. Koberg, Uhlenbruck, and Sarason (1996) stated that as the organization evolves, it becomes more formalized, primarily because of a need for increased efficiency. In an early-stage firm, the entrepreneur, typically an owner or founder, is often the chief innovator. The absence of a hierarchy allows the entrepreneur greater freedom to be assertive and to commit resources. Among later-stage firms, a hierarchy develops and power becomes decentralized. The current authors imply an episodic organizational structure characteristic to the entrepreneurial firm.

The notion that organizations commonly pass through stages or phases was influenced by Greiner (1998), who stated that we can identify a series of developmental phases through which companies tend to pass as they grow. Greiner stressed that organizations are created and grow until they reach a breaking point, or "crisis." Organizations often show a tendency to fixate within a stage or structure due to internal inertia or rigidity. Exogenous factors such as slowing sales volume or waning market shares, or endogenous factors such as employee unrest, repeatedly and predictably break the rigidity of the current operational structure. Hence, Greiner's theory predicts consistent episodic "evolution" as a firm grows, based on a series of "revolutions" produced as a firm outgrows its prevailing structure.

Greiner (1998) outlined five phases of organizational growth: 1. creativity, 2. direction, 3. delegation, 4. coordination, and 5. collaboration. Four "crises", or crisis phenomena, emerge to "cause" the organization to mutate as the firm grows in size. The four "crises" causing revolution are: the leadership crisis, the autonomy crisis, the control crisis, and the red-tape crisis. A crisis may also occur to move the organization beyond the "collaboration" phase, but that turning point remains unspecified by Greiner. Although McMullan and Long (1990) described Greiner's archetype as a "post-launch" model, the phases of creativity, direction, and possibly delegation may occur within the "entrepreneurial" phase of the nascent organization's life.

The speed or time interval in which the organization passes through these phases depends on the industry, the capabilities, and the intent of the leadership. During its early start-up years, FedEx experienced annual growth in excess of 50% and would have passed from phase to phase in short time periods.

Greiner (1998) also outlined five organizational practices per phase of growth, which change with each phase:

1. Management focus.
2. Organizational structure.
3. Top management style.
4. Control system.
5. Management reward emphasis

See Table 2 to understand how these five practices change over the five-stage growth process. The applicable practices outlined by Greiner were adapted as an emergent process in the nascent phases of the nascent organizational model developed in this current research.

The focus of the current study is on the nascent or emerging formative phases. From Greiner's (1998) work, the relevant phases for the nascent stage of growth are thought to be "creativity" [phase 1] and "direction" [phase 2]. The first phase, "creativity," is characterized by Greiner when he wrote, "In the birth stage of an organization, the emphasis is on creating both a product and a market ... communication among employees is frequent and informal ... work (is) rewarded by modest salaries and the promise of ownership benefits. Decisions and motivation are highly sensitive to marketplace feedback."

Higher demand usually necessitates larger production runs and a larger organization, with a wider span of departments or divisions. When the organization reaches a sufficient size, the very structure and processes that made the creativity (birth) stage work cause the instability or crisis that brings about the next phase.

The second phase is "direction." The installation of a "business manager" and the placement of a functional structure, budgets, accounting and control systems characterize the "direction phase." This phase is also characterized by the placement of lower-level functional specialists, policy and strategy directed from above, and a more formal communication system.

Eventually, as the firm grows, Greiner outlined another crisis. He wrote the "lower-level employees find themselves restricted by a cumbersome and centralized hierarchy. They come to possess more direct knowledge about markets and machinery than do their leaders at the top; consequently, they feel torn between following procedures and taking initiative. This tension leads to a "crisis of autonomy" where lower-level staff managers need to make decisions. The "direction" phase is represented in the current study when lower level managers take control of the resource exchange processes because they can, because they must, and because the founding entrepreneur cannot continue to perform that critical function effectively.

The crisis of autonomy leads most firms to phase three; delegation. If it successfully manages the transition, the organization gives more responsibility to staff-management, allows top-level management to begin to manage by exception, and communication to become more infrequent. Greiner's phases of coordination and collaboration [phases 4 and 5] occur beyond the nascent formation time frame and are disregarded in this analysis.

Eggers, Leahy, and Churchill (1994) also listed six phases of small business growth:

1. Conception.
2. Survival.
3. Stabilization.
4. Growth.
5. Rapid growth.
6. Resource maturity

Morrison, Rimmington, and Williams (1999) commented on Eggers et al.'s work, stating that each of the five stages of growth is characterized by index of size, diversity, and complexity, and described by five management factors—managerial style, organizational structure, extent of formal systems, major strategic goals, and the owner's involvement in the business.

These parameters are seen as important theoretical components in the model of the nascent organization developed in this present study. The appropriate processes were integrated into the model. Eggers et al. (1994) also listed phases of management per phase.

The concept of spasmodic and episodic organizational change is supported by Eggers et al. (1994), Gersick (1988), Greiner (1998), Katz (1993), and Larson and Starr (1992). Greiner's theories are especially important to the episodic model developed here; the often-utilized term "revolution" implies that distinct phases in the nascent growth period exist. The Greiner paradigm implies that process/structure change with growth is necessary, inevitable, and non-revocable. These issues also make the episodic characteristic of the model developed within the current study essential, inescapable and in a Weickian sense, non-equivocal. Greiner stressed the need to extend his work, (as is done in this current research) "... scholars have not attempted to create a model of the overall process." (p. 56)

Churchill (1997) developed another important stage-change model, proposing that seven identifiable stages of growth in the new entrepreneurial organization exist. The seven stages are:

1. Conception
2. Survival
3. Profitability/stabilization
4. Profitability/growth
5. Take-off
6. Maturity
7. Possible ossification

Stages one through five are thought to occur within the entrepreneurial period of the emerging organization's life. Churchill graphed the varying importance of management factors through stages one through six of seven.

Morrison et al. (1999), adapting from Greiner (1998), outlined three formation stages that may occur during the early entrepreneurial period of the organization's life. These stages were named:

1. The pioneer
2. Unplanned
3. Formalized structures

Although the authors never specifically linked these three phases as growth paths, it is assumed that organizational evolution occurs from the pioneer (simple) to the more complex structure (formalized). In all of these points, the entrepreneur is the central decision-maker in all of these structures. Morrison et al. suggested that the average entrepreneur would only institute more advanced formalized structures when there is clear indication that an unstructured organization is causing a crisis.

THE NASCENT ORGANIZATION STRUCTURE SEQUENCE (NOSS) MODEL

The models of the emerging organization reviewed are thought to lead to the centrality of the entrepreneur as the focus of the resource exchange process. It is proposed that the archetypal entrepreneur may use a fairly standard sequence of structures as the firm grows over time. The proposed characteristic stages and the sequence of the emerging commercial organization stages are termed collectively as the Nascent Organization Structure Sequence, or NOSS model. The stages are discussed below and presented in Figure 1, following the suppositions upon which the model is based.

The NOSS model to be tested, is an integration of the resource-based value and episodic organizational behavior views of the firm. Founded in the literature discussed above, the NOSS model is built on the following suppositions:

- There are nominal episodic stages in the emerging life interval of the archetypal new venture.
- The nascent organization has characteristics of a living entity and requires resources from its external environment in order to start-up and grow.
- The entrepreneur is the central agent who identifies the opportunity to be pursued.
- The entrepreneur attempts to delineate what resources are required to successfully pursue that opportunity through the emerging growth phase.
- The entrepreneur will identify the list of resources "lacking" and must initiate, successfully seek, and negotiate the resources missing in order to create and sustain the organization.
- Efficiency dictates that the entrepreneur will exchange the least costly resources for the required resources missing for the firm to operate. This implies that a low-cost resource, such as "fame," may be employed in the exchange process before funds if the supply of funds were limited.
- The term "resources" is used here in the broader context of assets and required competencies or capabilities. These resources are either created by an internal process, initiated by "new combinations," or bought "in the marketplace" by a direct purchase or exchange.
- In order to fulfill the psychological needs as outlined by Maslow, the entrepreneur will maintain central power until the growth of the firm causes inefficiencies or crises that force evolutionary change in the structure of the organization.

Therefore, it is concluded that the nascent firm will generally go through identifiable growth stages. Those stages are the proposed NOSS. The NOSS is a behavioral model built on the assumptions of the centrality of the entrepreneur.

The need for greater elaboration of the models currently in the literature was found in Katz and Garner (1988): "Researchers might benefit from increasing the degree of detail in traditional theories of organizational stages to include important within stage events... " (p. 436). Testing for, and identification of, the NOSS model will be accomplished by surveys of entrepreneurs' actual experiences.

Additional literature support for the NOSS was summarized by Katz and Gartner (1988): "Organizations emerge from the interaction of agents (individuals, partners, groups, parent organizations, etc.) and the environment. This particular type of interaction is unusual because it reflects a synergy of agent and environmental connections. In more recent form, "the outcome of the synergy has been called emergent properties by Katz and Kahn..." (p. 430-431). Katz and Gartner's important work focused on what they call the four properties of emerging organizations. These properties were defined as intentionality, resources, boundary, and exchange. The property of resource exchange is important to the NOSS model developed here.

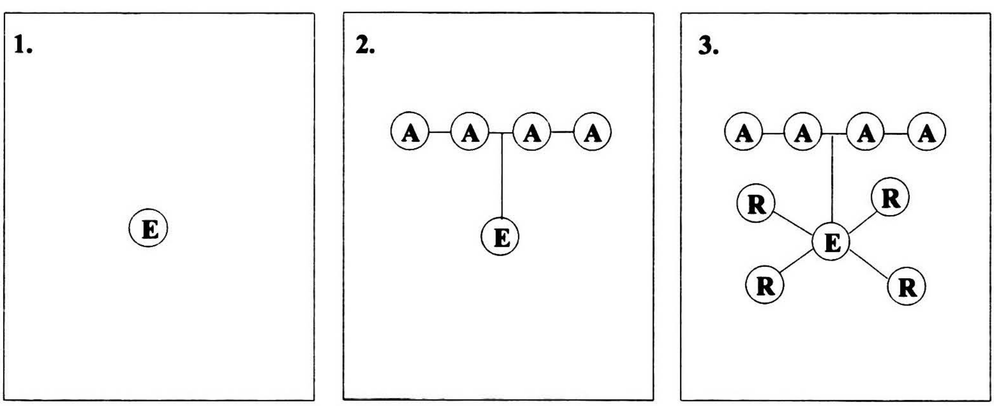
Each of the 11 expected nominal NOSS stages is presented below in an anticipated sequence. Each stage is named to indicate its function and to facilitate discussion. The expected NOSS relevant phases are presented in Figure 1. The key to the model and a fuller description of each phase name is contained in Table 1.

1. **Singularity**: The entrepreneur is in the pre-emergence or conception stage of thinking about going into business. The

Table 1 – Nascent Organizations Structure Sequence (NOSS) Model Key

○	=	An Individual
◻	=	A Function or Task
(E)	=	The Entrepreneur, Leader, or Initiator
(A)	=	Advisor, informal or formal professional providing ideas, encouragement or advice. Friends, family or social acquaintences
(M)	=	Management, executive, top, senior
(S)	=	Staff or Labor
(R)	=	Resource Sources. External resources required for start-up or continued existence. Examples are labor leaders or suppliers, ad agencies, auditors, investment bankers, partners or financiers. Any knowledge, capital or labor sources
(L)	=	Line management
——	=	Control, power, communication, authority or exchange processes

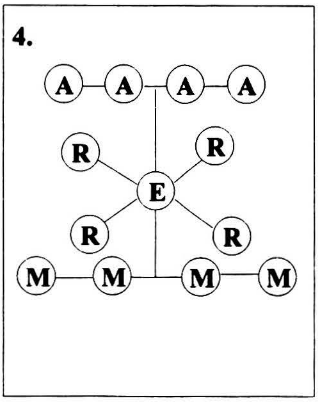
Figure 1 - The Nascent Organziation Structure Sequence (NOSS) Model

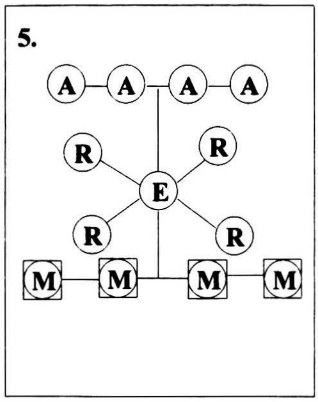


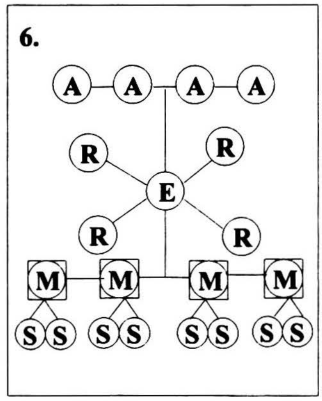
1. The entrepreneur is in the conceptual or thinking stage about the business.

2. The entrepreneur seeks the exchange of knowledge (advice) from advisors (A), fiends, family, financiers, partners, etc. Some of these people become a formal or informal board, and the entrepreneur is, to some extent, answerable to them.

3. The entrepreneur has made the decision to go into business and looks for and exchanges resources (money, skills, labor) with the environment. The entrepreneur is responsible for acquiring most of the resources necessary to operate the company.



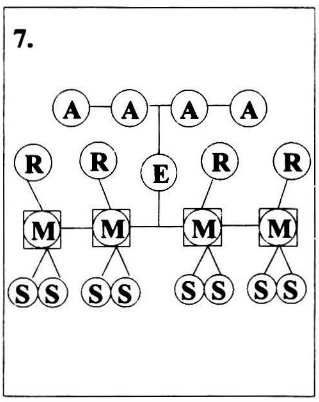


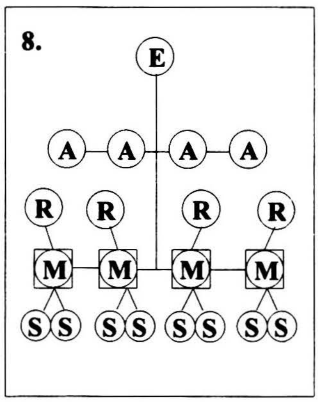


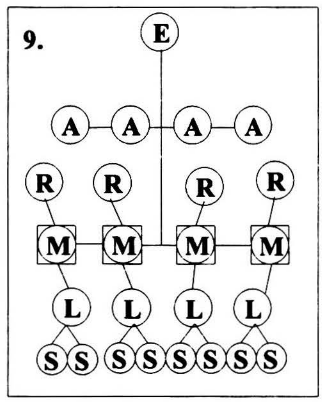
4. The first management team (M) is hired but the prime resource acquisition remains with the entrepreneur.

5. Functions are assigned management. (Finance, accounting, operations...)

6. As the firm grows, layers of staff (S) are hired.



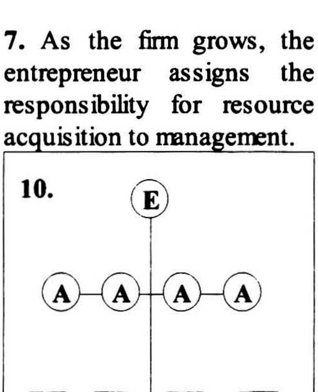




7. As the firm grows, the entrepreneur assigns the responsibility for resource acquisition to management.

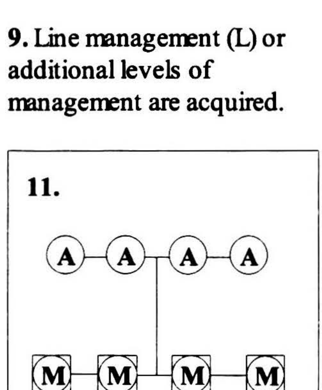
8. When the firm is successful, the entrepreneur "ascends"above the board of directors in power.

9. Line management (L) or additional levels of management are acquired.



10. The responsibility for resource acquisition is re-assigned lower in the company.

11. The entrepreneur leaves the firm.



conceptual basis for the enterprise is formulated at this stage. The initial and critical "opportunity recognition" entrepreneurial process occurs at this stage. Actual plans made at this stage may be revised later.

2. T-Formation: In this phase, the entrepreneur is in a "testing" stage and commits to a course of entrepreneurial action. The entrepreneur discusses the idea with advisors, mentors, counselors, or friends. The entrepreneur seeks "validation" in this learning process in order to reduce risks by assessment. The entrepreneur seeks to build possible commitment for future resource exchange with people who are likely to remain external but important to the organization. The entrepreneur seeks "advice" to reduce the risk of a loss and reduce pre-emergent expenses in a "misconceived" venture. Such pre-emergent "sanctioning" by the advisors may become critical to the subsequent resource exchange process. Within this stage, the entrepreneur seeks corroboration of the perceived level of effort and risk required to pursue the perceived market opportunity. This risk/reward tradeoff ratio is weighted against the entrepreneur's propensity to undertake the venture. The decision is expressed as the intention to become a long-term, committed entrepreneur.

3. Resource Exchange: The entrepreneur begins the resource exchange process. The entrepreneur identifies resources, assets, or capital that he or she has access to and compares this inventory to the resource/assets that are required for operation. The entrepreneur is the central figure of this resource exchange process, and this exchange process is the prime function of the entrepreneur. An exchange of tangible and intangible resources begins to take place, but the entrepreneur is usually held responsible to the "advising" board.

4. Teaming: The first management team is acquired and formed. Expected growth often makes it impossible for the entrepreneur to fulfill all sales demands. Advisors and investors are expecting legitimization, which is enlarged by the entrepreneur building a staff. The entrepreneur is often at the hub of the resource exchange process and maintains control in order to reduce risk of loss and to control the developing and precarious process.

5. Functionalism: As the sales level grows, the management staff gains experience and the management team comes to expect the office, titles, and accountability that come with the assignment of functions and departments. Additionally, second round financing may depend on the formation of standard management functions. Additional financing is required to meet sales demands as the firm grows. Bankers and "venture angels" often expect that standard titles and functions to be in place. This requirement stimulates this formalization process. The first routine tasks/functions are delineated and assigned by the entrepreneur, but the entrepreneur maintains the existing resource exchange relationships that he or she has developed in order to limit the power of the emerging executive staff, and to reduce the risk of coup and/or to limit the damage to the emerging firm if a team member decides to leave.

6. Staffing: As sales grow, the quantity and demand for quality of work and the functions outstrip the first entrepreneurial management team. Management begins to acquire a further staff. Operational and routine tasks are transferred from the original management team to the staff. Authority for the staff is at the management team level. Communication between the staff and the founding entrepreneur is infrequent and formal. The entrepreneur retains control of all critical resource exchange processes.

7. Institutionalization: As the quantity of the resource exchange functions outstrip the entrepreneur's capabilities and the experience of the executive management team grows, the entrepreneur relinquishes some or all of the resource relationship exchange tasks and transfers the responsibility for such processes to the executive team. The entrepreneur assigns "contacts" and sets standards and directives to his/her executive management team in order to continue the exchange process. An example of the exchange-relationship reassignment is the introduction of an important banker who controls a line of credit to the CFO, as the entrepreneur "bows out" by announcing semi-retirement. At this point, the exchange process becomes a general task of the organization and the entrepreneur's prior central role is "*institutionalized*" throughout the organization.

8. Ascension: The success of the entrepreneur generates fame that can be at the national, local, intra-company or family level. The strength of organizational performance implies that the entrepreneur's original vision was legitimate. This creates a level of notoriety and associated power. Celebrity allows the entrepreneur to ascend (in relative power) above the advisors and the board of directors and to act as an independent agent. The Board of Directors or advisors may desire to retain association with the entrepreneur and continue exchange processes based on his or her fame and power. The Board is now dependent on the entrepreneur's leadership and aspirations and that entrepreneur has "ascended" above them.

9. Line Management: As the quantity of exchange functions continue to grow and outstrip the executive management's capabilities, a second level line management is acquired or promoted from within. A second or third level of management is built in a hierarchical manner in response to sales growth or pressures of production volume.

10. Resource Exchange Submergence: As the quantity of the required exchange functions continue to grow, they outstrip the capacity of the executive management. The entrepreneur has become a figurehead and "authority distance" has increased considerably. The power of the executive management has grown. The executive manager's resource-exchange tasks have been transferred downward to the line manager level. For example, a banking relationship that was operational at the personal relationship level is now operational at the staff level. Such processes are now perfunctory and are based on the creditworthiness of the organization rather than the personal recognizance of the founding entrepreneur.

11. Trans-mission: The entrepreneur is removed or leaves the organization. Under various arrangements, the entrepreneur's original intentions, mission or vision continues to have influence by indoctrination into the culture of the organization, but without the presence of the entrepreneur. Trans-mission occurs by story telling, company literature and training. An example is Ray Kroc's conviction of the importance of restaurant cleanliness to the success of the McDonalds organization. Similar personal values continue to be institutionalized after his death by the management team that continues to exchange such "lore" in order to bolster the sought culture and to increase the market value of the organization.

Carter et al. (1996) lent support for the earliest NOSS phase, the "singularity," when they stated, "Organization creation involves those factors that lead to and influence the process of starting a business" (p. 152), and gave support for the second phase, the "T-formation" or legitimization stage of the model when they wrote, "... entrepreneurs seek to gain cognitive legitimacy for their organizations by developing trust among those involved in the start-up" (p.154). The following NOSS model is thought to incorporate all of these factors.

Greiner's (1998) "evolution and revolution" episodic organizational growth model does the best job of integrating prior research, and it is thought to support the proposed NOSS model. The general processes per NOSS stage outlined below are largely coincident with the early phases of Greiner's (1998) organizational practices. The NOSS stages 1, 2 and 3 correspond with his "creativity" stage. The NOSS stages 4 and 5 correspond with his "direction" phase. In addition, his "delegation" phase corresponds well with NOSS stages 6, 7, and 8. His "coordination" phase corresponds with NOSS stages 9, 10 and 11. The organizational decision *processes* that are thought to generally characterize each phase of the NOSS are outlined in Table 2.

Based on the literature, the NOSS model manifests the construct of "entrepreneurship" as "organizational emergence," as suggested by Gartner, Bird, and Starr (1992). The NOSS model represents a semi-permeable (exogenous) Resource-Based-View (RBV) of the firm, as well as an internal structural/process view supported by the literature. The need for testing for the NOSS model is supported by a call for new survey methods as found in Gartner et al., "...more diverse data collection methods... would add valuable and unique insights to understanding entrepreneurship" (p. 21).

As discussed, intentions, milestone events and cognitions do not directly cause changes in *value* or wealth, but hierarchical structures support processes that, in turn, produce cash-flow do. Therefore, an organization's structural/processes may be the most appropriate dimension of successful "entrepreneurship." The NOSS model of new organizations incorporates Katz and Gartner's (1988) view that "organizations emerge from the interaction of *agents* (individuals, partners, groups, parent organizations, etc.) and the environment" (p. 430) and McKelvey's (1980) categorization of an organization with four major attributes: intention, resources, boundaries, and exchange.

The resulting view of the emerging organization is more complex than a single-dimensional view as it combines the RBV exchange process, cognitive decision processes, and structural hierarchy. Also, the NOSS model places the entrepreneur at the axis of the model. The NOSS model deals primarily with the nascent period when the entrepreneur is central to the decision-making processes.

The NOSS model as outlined above serves to move stage growth research towards hypothesis testing. It is based on direct observation and on Weick and Quinn's (1999) and Greiner's (1998) episodic organizational change observations. However, it is acknowledged that not all new firms will use all stages or transition through the NOSS model stages of development. It is acknowledged that there is variability in a specific firm's transition through the nominal structure-states, and that organizational change may occur in a graduated, transient manner. Furthermore, organizations that evolve as substructures of existing firms are expected to progress differently.

Weinzimmer (1997) addressed organizational growth in a small business context and found that the Top Management Team (TMT) is an independent predictor variable for firm growth. Weinzimmer found significant support for the idea that the growth rate of small firms is positively related to the level of a TMT's heterogeneity of functional experience and that the larger the size of the team, the faster the firms grew. Weinzimmer concluded, "if a small-business owner wants to achieve growth, the firm should have a formalized TMT, because a small business owner may not have sufficient knowledge and skills to ensure significant organizational growth" (p. 6). Weinzimmer's findings seem to support the NOSS model hypothesis that the interactions between the central entrepreneur and the advisors are a critical component of the emerging organization at an early stage. These views are incorporated into the

Table 2 - Nascent Organization Structure Sequence (NOSS) Model Processes compared to L.E. Greiner (1998)

NOSS Stage	Processes per Greiner		Characteristics
1 Singularity			
2 T-Formation			
3 Resource Exchange	*Creativity [Phase 1]*		
		Management focus:	Make and sell
		Organizational structure:	Informal
		Top management style:	Individualistic and entrepreneurial
		Control system:	Market results
		Reward emphasis:	Ownership
4 Teaming			
5 Functionalism	*Direction [Phase 2]*		
		Management focus:	Efficiency of operations
		Organizational structure:	Centralized and functional
		Top management style:	Directive
		Control system:	Standards and cost centers
		Reward emphasis:	Salary and merit
6 Staffing			
7 Institutionalization			
8 Ascension	*Delegation [Phase 3]*		
		Management focus:	Expansion of market
		Organizational structure:	Decentralization
		Top management style:	Delegative
		Control system:	Reports and profit centers
		Reward emphasis:	Bonus and stock options
9 Line Management			
10 Resource Exchange-Submergence			
11 Trans-mission	*Coordination [Phase 4]*		
		Management focus:	Consolidation
		Organizational structure:	Line staff and product groups
		Top management style:	Watchdog
		Control system:	Plans
		Reward emphasis:	Profit sharing

second, or "T-Formation" stage of the NOSS model. Mintzberg's work implied that firms that start with a single person (singularity) progressively grow into hierarchies with some standardization of structure and authority. Such growth and sequence of expansion is also expressed in the NOSS model.

METHODOLOGY

Sample

A sample database of the *Inc-500* entrepreneurs was developed from the *Inc.* lists made public in its magazine. The *Inc-500* companies are the fastest growing new firms in the United States, as identified by the *Inc.* magazine survey. *Inc-500* data has been utilized in entrepreneurial studies and published in journals (Bhide 2000; Markman & Gartner, 2002). Cook (2002) stated that these firms are also known as gazelles or entrepreneurial ventures. These firms are relatively new and are thought to be in the nascent phase [i.e., beginning to exist or develop, subject to rapid evolution, where management is involved with entrepreneurial functions] of emergence.

Inc. Magazine did not make the specific *Inc*-500 proprietary address data available. However, *Inc*. did publish the names and the city location of each company. The database used in this study was constructed by a search of the national white and yellow pages. 353 surveys were mailed and 62 were returned for a response rate of 18%. This is an acceptable sample size and response rate, as it has been reported that 62% of prior studies included no sample at all, or a sample with less than 100 businesses, and 66% of these were convenience samples (Bird, Welsch, Astrachan & Pistrui, 2002). In the top three small business or entrepreneurship-oriented journals (*Entrepreneurship Theory and Practice, Journal of Business Venturing, and Journal of Small Business Management*), around one-third of the articles had a response rate of less than 25 percent (Dennis, 2003).

Data Collection

The entrepreneurs were presented with a hypothesized sequence of organizational structure options (the NOSS model in Figure 1) and were asked to choose the episodic structures that matched their firm's historical development or, in the case of stages they have yet to transition through, stages that they think will occur. The entrepreneurs were instructed to focus on the firm's early structure and development. The entrepreneurs were asked to circle (verify) the growth stages to be retained and sequenced. They were instructed to disregard variances in the "span" of the organization. The instrument was pilot tested with 30 content experts and entrepreneurs.

Measurement and Statistical Analysis

The nominal dichotomized measure asked if each stage was or was not used. Inferential analytical statistical techniques that could be used to analyze the characteristics and the *sequence* of events for cross-sectional data were not found in the literature. Carter et al. (1996) stated that the analytic techniques that could be employed to address this issue were limited and that they used descriptive median values to examine the sequencing of activities initiated. Thus, the inferential one-sample chi-square test was employed in order to determine if the frequency of selection by the respondents for each NOSS stage was significantly greater than random selection.

Respondents were asked if each of the 11 stages did occur or was expected to occur in the future. The NOSS stages that have or would occur (significant at the .05 level) were included in the final "validated" NOSS model, and those that were not were excluded. The final "validated" NOSS model (Figure 2), which is called the VNOSS, is postulated now to be a "nominal" episodic organizational growth model, as used by the entrepreneurs of high-growth ventures to build their organizations.

Results and Discussion

Nine of the 11 (82%) stages were found to be significant at the .05 level. Two stages were found to be not significant. Thus, stages 4 teaming ($p = .399$) and 10 resource exchange submergence ($p = .155$) were dropped from the proposed NOSS model to create the 9 stage verified or VNOSS model. Respondents were also asked if the proposed NOSS model represented their notion of the emerging structure of their firm during the early years. Most answered in the affirmative (82%).

Support for the VNOSS (Verified) Model Of Early Organizational Development

Evidence was found to suggest that episodic stages of development (the VNOSS model) exist for a sample of high-growth entrepreneurial firms during their nascent growth period. These stages are primarily identifiable as changes in hierarchy and those stages of hierarchy are sequenced from simple to complex. Knight's (1921) observation that organizational development occurs with increasing divisions of labor, task functions, and roles seems to be supported for emerging firms from the present data. Greiner's (1989) episodic logic for organizational developmental may apply to emerging firms. Nine stages of growth showed significant use.

A set of selected episodic organizational structures for new organizations was found, and hence, a suggested nominal sequence of organizational structures and processes during the emerging growth period was found. However, two stages in the original proposed NOSS model [Teaming and Resource exchange submergence] were not found to be significant and were eliminated from the model. The remaining validated stages were delineated as the VNOSS model as nine stages of episodic growth. The VNOSS model stages are shown in Figure 2.

The results suggest that entrepreneurs found NOSS stage 4 and 10 an unnecessary specification of the process of building new organizational structures. Subsequent informal discussions with a few entrepreneurs via telephone suggest that NOSS stage 4 [Teaming] was not required to be specified in the model because entrepreneurs hired their first management team with functional tasks defined. Hence, NOSS stage 4 [Teaming] was not required and VNOSS stage 4 [Functionalism] was sufficient specification of this phase, for a valid model.

NOSS stage 10 [Resource-exchange submergence] was thought to be unnecessary by some entrepreneurs because the responsibility for the "resource acquisition" task is possibly not reassigned that low in the new organization. Hence, NOSS stage 10 was eliminated from the NOSS model to obtain the VNOSS model.

Limitations and Recommendations for Further Research

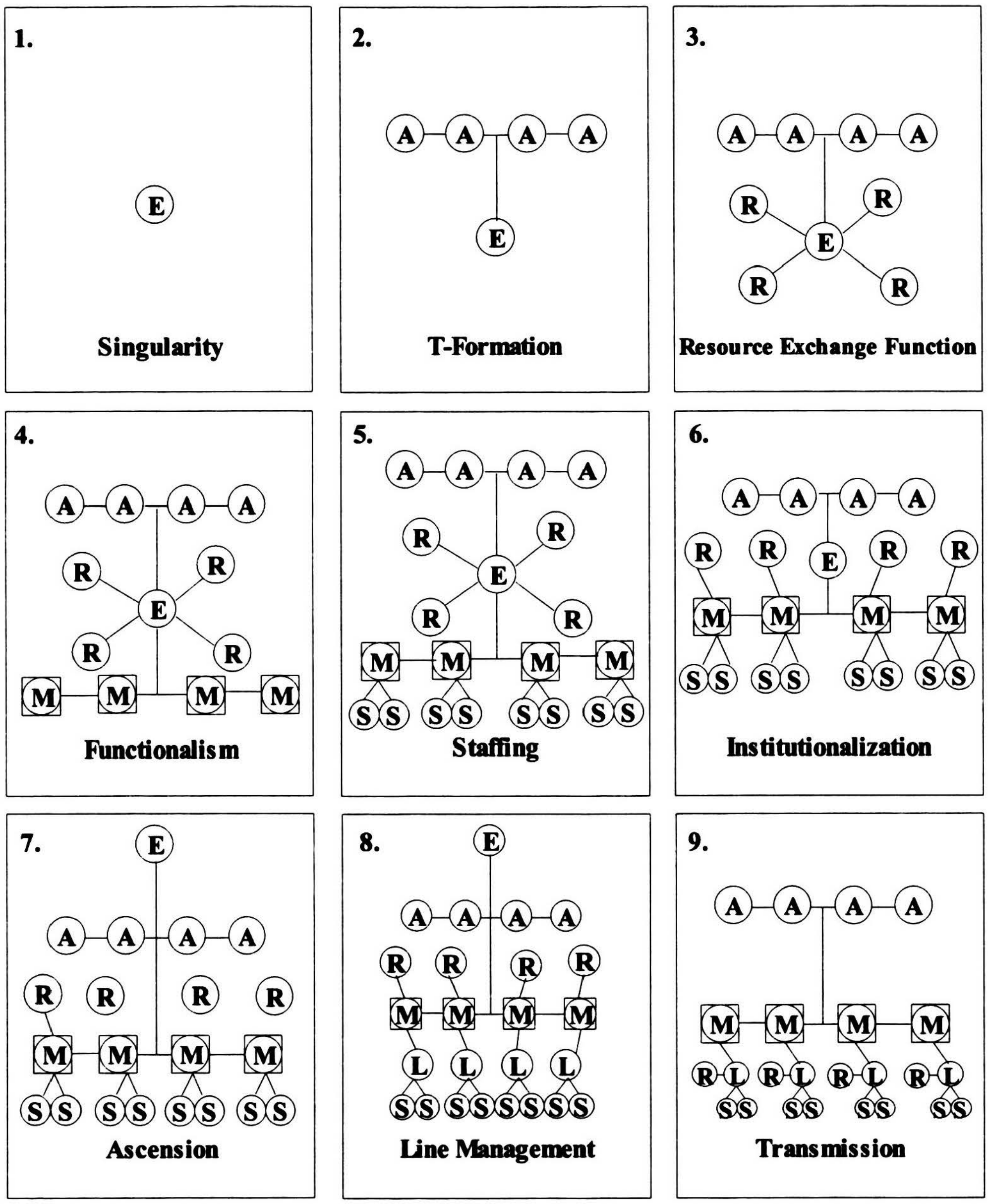
It is acknowledged that a single sample study presents limitations. Being an early empirical inferential statistical analysis, replication of the study will help to validate the results. The exploratory finding regarding stage 10 may necessitate a change in the VNOSS stage 9 structure, leaving the resource exchange function with the executive management team. However, further research with a larger sample size is needed to make this determination. Thus, there is need for additional research to validate the VNOSS or to identify additional growth stages used in differing industries or geographic areas.

Further samples could also include moderate and low-growth firms. The high-growth sample includes entrepreneurs, many from high technology companies, so testing with samples containing small business owners of low technology data is suggested. As pointed out by Cook (2002), the most popular business start-ups in America are construction, restaurant, and retail, and although important to the economy, they are not generally entrepreneurs found on *Inc*-500 lists.

IMPLICATIONS

A NOSSM can aid entrepreneurs in changing their structures as they grow their businesses, as well as consultants who help them grow. Entrepreneurial educators can teach the model, and investors and bankers can use the model to aid in financial decision-making. Since one motive to entrepreneurship is the creation of high rates of return through economic growth, some quantifiable measurement of organizational structure development is important to the process of managing these firms. Such information

Figure 2 - The Verified Nascent Organziational Structure Sequence (VNOSS) Model



would clarify a set of goals leading to success in the development of new firms and also provide a new model of early "value emergence" for investors of emerging firms. Fledgling entrepreneurs may employ the identified and verified structures as a guideline of how to plan for the growth of a new company or the enhancement of potential value. These plans for business may increase the probability of funding if the entrepreneur can delineate how the firm will achieve certain VNOSS stages.

Furthermore, the prediction of a swift progression through the stages may predict what and when the "harvest value" stage may be achieved. Investors wishing to quantify the "sustainability" of a new firm may match the progress of a nascent firm against the stages of the VNOSS model to measure pertinent growth. Small business/ entrepreneurship educators can teach the model to college students to prepare them to manage firm growth. Training programs for entrepreneurs may also focus on the growth stages identified. Small business consultants can work with small business owners as they progress through the growth stages of the VNOSS model.

Financiers and venture capitalists should also consider identifying the VNOSS stages when evaluating the potential value of a firm. This approach would take the economic evaluation process beyond the nominal methods of discounting the extrapolation of projected cash-flow. The important prediction of future value (and hence present value) may be accomplished by assessing the probability of the new management team in achieving the later VNOSS stages. Sinceone motive to entrepreneurship is the creation of high rates of return through economic growth, some quantifiable measurement of organizational structure development is important to the process of managing these firms. The model can help clarify a set of goals leading to success in the development of new firms and also provide a new model of early "value emergence" for investors of emerging firms. Thus, general adherence to the VNOSS model may lead to more effective management of firm growth and in wealth harvest of entrepreneurial ventures.

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