

Princeton Entrepreneurial Multi-Mode Longitudinal Investigation Program [PEMLIP]

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Abstract

Scholars have emphasized population analysis, panel studies, and detailed ethnographic assessments to understand entrepreneurial phenomena. Of particular value are ethnographic studies that detail the underlying processes reflected in population analysis and panel studies. A multi-mode project integrating these three complementary approaches around a five-year longitudinal panel of business start-ups would make a unique contribution to the understanding of business creation. Input from entrepreneurial scholars on the details of the research protocol would facilitate wide spread use the resulting data in analysis of entrepreneurial phenomena. This initiative will be the next major advance in the understanding business creation, with substantial scholarly, applied, and policy relevance.

Contributions of Entrepreneurship, Business Creation

The entrepreneurial processes that lead to business creation are a major source of adaptation and change, particularly in contemporary market economies. They are one of the major sources of new products and services, which often creates new economic sectors, as well as productivity enhancements. These contributions often lead to the creation of new jobs, frequently associated with new occupations.

In addition to these positive contributions to the economic system, business creation is a major attraction for a considerable proportion of those in the work force. In addition to twelve million nascent entrepreneurs in the United States, there are another 500 million in the rest of the world. Business creation is not only a major source of upward mobility, it provides many in marginal situations—such as minorities, women, and immigrants—a path for participation in the economy. For the very poor and desperate, it may be a better option than dangerous migration, criminal undertakings, terrorism, or suicide.

As one of the most significant features of modern life, a better understanding of the entrepreneurial process can facilitate the contributions and reducing the individual and societal costs of business creation.

Understanding Entrepreneurship

Serious efforts to understand entrepreneurial phenomena include broad population assessments, the implementation of longitudinal data collection on start-up ventures, and detailed observations of individual cases. Each approach provides useful information about different aspects of business creation and a different sense of understanding.

Population assessments generally involve the use of administrative records or large scale cross sectional surveys to track ventures at different stages of the start-up process. Initial work utilized new entries in commercial credit rating files, the Duns Market Identifier files, as an indication of new firm creation. Current programs emphasize new entries into comprehensive registries of employer firms, such as the federal social security files or the state unemployment insurance files, as an indicator of business creation. Self-reports of self-employment, identified in the Current Population Surveys, are also used as a surrogate for entry into business creation.

Entrepreneurial activity is often represented as prevalence rates, the number of nascent or new firms per 100 existing firms or per 1,000 adults. As a rule, these rates tend to be relatively stable for a given city, labor market area, state, or country. In some assessments different economic sectors or markets are compared. While prevalence rates may shift in reaction to macro-economic conditions, the relative rankings among geographic areas are remarkably stable. Attention to contextual factors, in either geographic regions or market sectors, facilitates models that predict variation in prevalence rates. Diverse regions with younger populations, a larger proportion of smaller businesses, and increases in the demand for goods or services seem to have rates of new firm creation.

While these efforts provide useful information about the impact of the context, or eco-system, on the prevalence of new firm creation, there are limited details about the nature of the nascent venture, the start-up team, and steps taken to implement a new firm. Furthermore, as these different efforts capture new initiatives at dissimilar stages of the start-up process, comparability among projects is complicated and reduces the potential for replication. This leads to diversity in estimates of new firm survival, as the time from identifying a new initiative and determining when it is no longer active is very much affected by the stage when it is first identified.

Longitudinal assessments have been developed to track how start-up teams manage the firm creation and development process. Programs creating cohorts representative of U.S. business creation include the Kauffman Firm Survey (KFS) and the Panel Studies of Entrepreneurial Dynamics (PSED I, II). For the KFS a representative sample of new entries into the Duns Market Identifier file were identified

for the cohort to receive detailed interviews. The PSED projects started with representative samples of the adult population; those active in business creation were selected for the cohorts of nascent entrepreneurs. Once the cohorts are identified in both projects, structured interviews covering a wealth of details are administered on a regular basis, generally annually. These interviews provide information about the background, motives, and structure of the start-up team, the activities implemented to create a new venture, the origin of the business idea, the sources of expertise and financial support, competitive strategy, reactions to the competition and entrepreneurial climate, and major problems anticipated in creating a new firm. Follow-up interviews provide information on the outcome of the effort, whether the nascent venture reaches initial profits or is abandoned. Useful information about the basis reasons for disengagement are obtained for the still-born ventures.

These longitudinal efforts have clarified the high risk associated with business creation, only about one-third of nascent ventures reach initial profits six years after entry into the process. Early initiation of more start-up activities seems to facilitate profitability. More subtle has been the considerable diversity found in how teams proceed to create new firms; there is no one way to produce a new business.

On the other hand, details on the origin of the business idea, how the start-up teams interact and make decisions about allocation of resources, and adjustments in the competitive strategy must be inferred. There is no direct observation of the principals as they react to new information obtained during the business creation proceeds.

Ethnographic research involves on-site observations of the principals as they pursue business creation. It facilitates detailed, day-to-day descriptions of how the start-up team interacts, pursues the activities required to implement a new firm, and responds to additional information as the entrepreneurial process unfolds. The result can be a recording of the principle's definition of a business opportunity and their rationale for the strategy developed to profit from this situation. If field observations provide a record over time, it can provide a contemporaneous description of the adjustments than provided by the entrepreneurs. There is a tendency to mis-remember the past to provide a more romantic and engaging scenario.

The major advantage—a detailed description of the start-up dynamics and perceptions of the principals—is associated with a major disadvantage. Such efforts are very labor intensive such that the number of cases that can be carefully tracked is limited. Leading to uncertainty about the extent to which the descriptions represent the entire population of nascent ventures or reflect unique, idiosyncratic business creation efforts.

Overview: These approaches are clearly complementary, as illustrated in Table 1. Most significant, each approach emphasizes different aspects of entrepreneurship and provides a different sense of understanding. Large scale population analysis provides a potential for predicting how context affects the nature of populations, which many find useful. Attention to the systematic information on the processes and activities involved in business creation appeals to other groups of scholars. A third group considers knowing the perceptions and reactions of those intimately involved in the entrepreneurship process a satisfying outcome. All three strategies for understanding are complementary, a “full understanding” would involve attention to all three perspectives.

Table 1. Characteristics of Alternative Research Strategies

	Population Analysis	Longitudinal Data Collection	Ethnographic Assessments
OPERATIONAL FEATURES			
Number of cases	Tens of thousands	Thousands	Dozens
Cost per case	Very low	Moderate	Very high
Representativeness	Strong	Potential	Unclear
Information/case	Limited	Moderate-High	Very high
TYPES OF INFORMATION			
Context	Maximizes	Limited	Unique, limited
Nature of the business	Limited	Some details	Extensive details
Start-up process	Inferred	Some details	Extensive details
Entrepreneur's perspectives	Inferred	Partial, much inferred	Extensive details

Model and Focus

Conceptualization of the entrepreneurial process is illustrated in the model presented in Figure 1. The two major sources of start-up teams are those that take independent action to create a new firm, nascent entrepreneurs, and those that do so as part of their work assignments for an existing firm, nascent intrapreneurs. One they enter the process the initiative can either become a viable business or it may be abandoned. The new firms may take several trajectories, growth, persistence and stability, or—eventually—termination. The start-up team responsible for creating the new venture may continue

to manage the new firm or may disengage to pursue other interests, perhaps another start-up opportunity. The entire process occurs within a specific social, political, economic or competitive context or entrepreneurial eco-system.

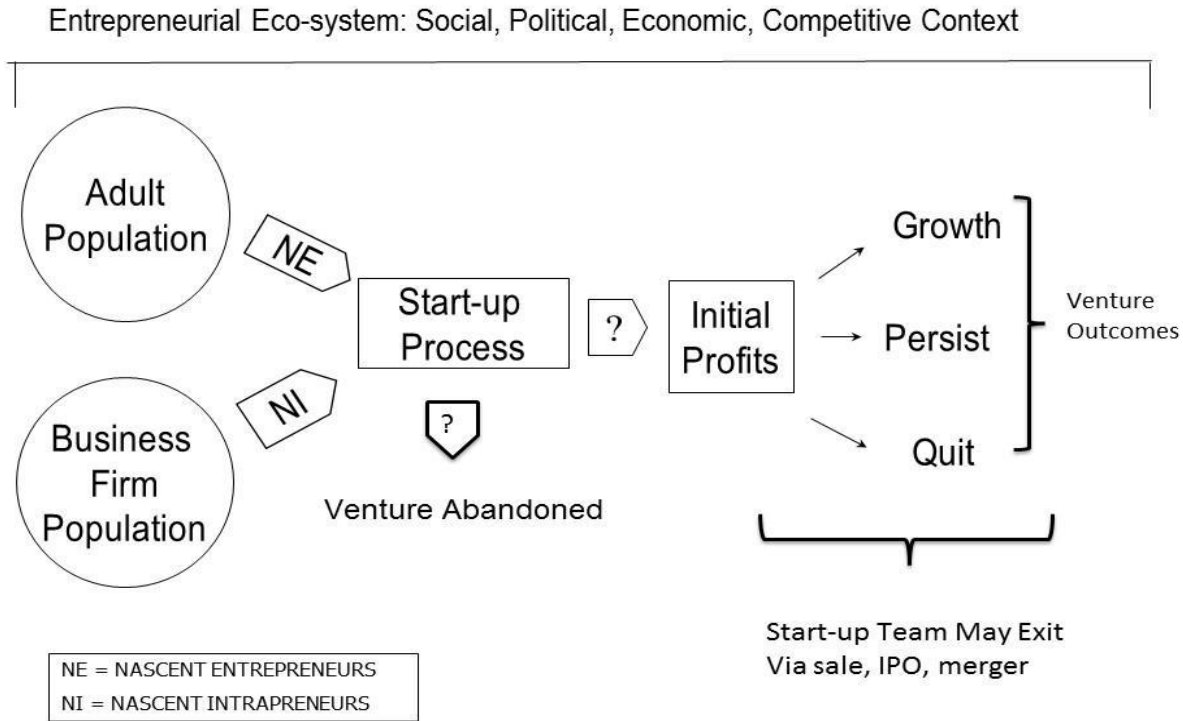


Figure 1 Entrepreneurial Process Model

The research project is designed to provide precise measures of several critical features of this process. Clear operational criteria for a date for entry into the start-up process will minimize ambiguity about when business creation was initiated. While the primary measure of creating a viable new firm will be initial profits, or positive monthly cash flow, data will be collected to provide measures of a firm birth used in a range of assessments, including the amount of time devoted to the start-up by the principals, initial economic transactions associated with the nascent venture, and registration in administrative and commercial data bases (state unemployment insurance files, federal social security register, applications for an Employer Identification Number, legal registration of the venture, and inclusion in the Dun and Bradstreet files).¹ Given that the majority of nascent ventures do not become profitable businesses,

¹ Such as state unemployment insurance files, federal social security register, applications for an Employer Identification Number (EIN), legal registration of the venture, and inclusion in the Dun and Bradstreet files.

resources can be allocated to track the post-quit activities of the members of the start-up team. Finally, for those ventures that become operational during the project field period, it will be possible to track whether the start-up teams continue with the venture or disengage to pursue other opportunities.

In addition to measures of the outcomes, there is the potential for collecting substantial information on the start-up process itself. The current interests of the entrepreneurial research community will be a major resource in developing the protocols for capturing the details of the start-up process.

Research Objective

The primary objective of the project is to facilitate understanding of the entrepreneurial process by utilizing all three complementary research strategies. It will have three components:

- 1) Selection of two or three diverse industry, geographic sectors that will facilitate standardization of the context, or eco-system, for assessment of business creation.
- 2) Creation of a panel or cohort of nascent ventures in each sector. Once identified early in the start-up process they will be a source of annual structured interviews over five years.
- 3) Selection of representative cases from each cohort for detailed, ethnographic field observation during their participation in the project.

The result will be a public data base that will be available to all entrepreneurial scholars at the completion of the data collection. This unprecedented resource will be a unique contribution to increasing understanding of entrepreneurial phenomena.

Each stage of the design requires a range of decisions regarding the selection of industry sector and location, identifying the modules for the structured interviews, and design of the ethnographic assessments. Critical for comparative analysis is designing harmonized procedures that will standardize all data collected across all cohorts. In addition, critical markers will be measured to facilitate comparison with large scale administrative data sets, such as the descriptions base on Federal Social Security, state unemployment insurance, or Dun and Bradstreet registries.

As the project is to be a resource for the entrepreneurial scholarly community, the design should take advantage of the best expertise currently available. To this end, the research community will be invited to contribute in two ways. First, they will be invited to submit topics, issues, modules or factors to be obtained in the creation of a public data set. Presumably these will reflect hypotheses or research questions of interest. The range of issues that may be explored is quite broad, a preliminary list is

provided in Table 2. Consultation with experienced scholars will facilitate identification of the most significant issues for attention.

Table 2 Entrepreneurial Process: Topics for Assessment (Preliminary)

Opportunity Identification	Financial structures and controls
Skill set and level of mastery	Work-life balance
Social networks	Precipitating events
Personal relationships	Supply chain
Relevant life/work experience	Customer acquisition
Educational background	Operations, controls, metrics, processes, & quality
Role models	Planning and accountability
Psychological profiles	Leadership
Aspirations & motivations: Implicit & explicit	Change management: skills & strategies
Physiology	Crisis management
Health & well-being	Stages/phases of enterprise maturity & evolution
Partners and co-founders, formal and informal	Innovation
Staffing, teaming, and organization	When, how & why entrepreneurs learn new things
Enterprise culture	

Second, three advisory committees are to be established, each composed of 6 to 8 experts with diverse perspectives.

- Sector design committee: To advise on the critical features of the entrepreneurial eco-system and sectors selected as a context for the cohorts.
- Longitude panel design committee: To advise on the timing and content of the structured interviews.
- Ethnographic design committee: To advise on the selection of the field work cohort and the procedures and content of the field observation protocols.

As it is most likely that the proposals for data collection will exceed the available resources, the committees will also be asked to prioritize the suggestions for data collection.

Research Design

The research design has three features:

- Selection of industry sectors
- Selection and design of the longitudinal panel cohorts
- Selection of the cases for ethnographic assessment

Each aspect involves two operational issues. Selection of the cases and identification of data to be collected.

Entrepreneurial eco-systems vary by economic sector and regional location. As the focus of the project is tracking business creation success by a cohort of nascent ventures, there is a limit to the number of contexts that may be pursued. It is proposed that three cohorts will be developed. Two would be representative samples of well-defined sectors in well-defined geographic regions. A third would be a high technology, high potential sample of convenience. Table 3 summarizes the features of three diverse sectors with different eco-systems; number of cases identified for panel studies and ethnographic assessments are the basis for budget estimates and the proposed work schedule.

Table 3 Entrepreneurial Eco-systems (Preliminary)

Manhattan Restaurants (Representative sample)	
	NAICS (2012) Code 722.
	New York County, New York State (Manhattan Island) (FIPS 36061)
	Approximately 2,000 new start-ups per year
	Business to consumer market emphasis
	Draw sample from business permits or National Establishment Time-Series (NETS) Database
	Access to Princeton facilitates supervised, coordinated ethnographic assessments
	Initial panel of 550, 20 selected for ethnographic assessment)
Motor Vehicle Parts Manufacturing (Representative sample, n= 550)	
	NAICS (2012) Code 3363
	Restrict to major auto industry states (IL, IN, KY, MI, OH, & TN)
	Business to business market emphasis
	Draw samples from new entries in National Establishment Time Series (NETS) Database
	Restricting to geographic locations minimizes ethnographic assessment costs
	Initial panel of 550, 20 selected for ethnographic assessment
New Technology/High Potential (Convenience sample, n= 100)	
	Partner with NSF I-Corp Program
	Identify new I-Corp program applications selected for sponsorship
	Restrict attention to specific areas (Research Triangle; Greater Washington, DC; SF Bay Area)
	Restricted geographic locations minimizes ethnographic assessment costs
	Initial panel of 100, 20 selected for ethnographic assessment

Longitudinal, panel studies involve a number of operational decisions; identifying cases early in the start-up process, determining how many members of the start-up team are to be interviewed, content of the initial and follow-up interviews.

Selecting cases from new entries into registries and data sets (such as new restaurant licenses, new lists in the Dun and Bradstreet files, or sponsored applicants to a program providing financial support) has the advantage of simplicity. The major disadvantage is that it identifies nascent ventures midway through the start-up process. Those that devoted time and resources to an initiative that never reached this stage of the process will not be identified or selected for the cohort. Nevertheless, selection from registries may be appropriate for the project goals.

Selection of modules and design of items is greatly facilitated by the extensive experience from the Kauffman Firm Survey and the Panel Study of Entrepreneurial Dynamics. Both used extensive phone interview schedules which have been widely utilized for analysis. Robust procedures for capturing the nature, structure and background of the start-up team; initiation of start-up activities; character and origin of the business idea and strategic plan; status and expectations regarding the financial support and structure; expectations about the future of the venture; and other topics have been developed.

Follow-up interviews focus on the current status of the initiative, changes since the previous interview, and for those that have reached initial profits, information about the venture as an operating business. Those cases where the venture has been abandoned lead to queries about the reasons for this decision and the future plans of the principles.

Ethnographic observations will be utilized to provide greater details about the day-to-day relationships and activities of the principals and their employees. For each of the three eco-systems it is expected that 20 cases will be selected for systematic observation. As much as possible and based on the initial data collection, for each of the three panels ten cases will be identified as “typical” and ten cases as “high potential.”

Project Implementation

The PEMLIP is designed as a seven-year project with five years of data collection. The work schedule is presented as Appendix A. It assumes that it will take a year after funding is assured to consult with the design teams, develop operational details, and complete the pretests before finalizing the research protocols. After five years of data collection a seventh year provides for cleaning and documenting the data sets and preparing the initial reports on the project. Annual meetings of the design teams will facilitate interaction between the coordination team and the scholarly community.

Project administration assumes a core staff of a Principal Investigator and two Associate Principal Investigators, one to supervise the ethnographic fieldwork and the other the structured data collection. Several graduate research assistants will be required to manage a range of details and creation of user-friendly data sets, secretarial staff will facilitate tracking resources and other necessary regulatory requirements. Structured data collection is to be completed under sub-contracts with established survey research vendors. A cadre of ethnographers, expected to be graduate or post-doctoral students, will work directly for the project to complete harmonized field work assignments. Final preparation of all data sets with full documentation will be the responsibility of the coordination team, who will also

prepare progress reports. Those on the project design committees will be invited to participate in preparing initial assessments of the findings.

Assuming a total of 1,200 nascent ventures in three cohorts, with 60 chosen for ethnographic observation (all to be tracked for five years), preparation of all data for public distribution, and creation of preliminary reports leads to a cost estimate, including not-for-profit overhead, of \$8.3 million. Details are in Appendix B.

Potential Impact

The PENLIP, as the first multi-mode project providing a comprehensive overview that captures details of the eco-system, the business creation process, and detailed ethnographic observations will have a major impact on advancing understanding of entrepreneurial processes. The public data sets will give a wide range of scholars the resources to explore a diversity of topics. Incorporating both traditional and high technology initiatives, which may create new economic sectors, will facilitate a broad perspective on the entrepreneurial process. The focus on successful outcomes will facilitate identification of best practices for future generations of nascent entrepreneurs. PENLIP will identify those issues and complications that either retard or prohibit successful creation of new firms, providing empirical support for adjustments in public policy.

References

Appendix A: PEMLIP Work Schedule

	ACTIVITY: Project timeline	0 mt	6 mt	12 mt	18 mt	24 mt	30 mt	36 mt	42 mt	48 mt	54 mt	60 mt	66 mt	72 mt	78 mt	84 mt
	Program Development															
	Explicate program goals															
	Confirm financial support															
	Cohort Selection															
	Select sectors (ecosystems)	xxxxx														
	Identify nascent venture population	xxxxx														
	Select research cohort	xxxxx														
	Data collection design															
	Structured interviews	xxxxx														
	Ethnographic assessments	xxxxx														
	Secondary source data	xxxxx														
	Staffing and Training															
	Project coordination staff	xxxxx	xxxxx													
	Training structured interviewers		xxxxx													
	Training ethnographers		xxxxx													
	Scoping/Pretest															
	Implement with small cohorts			xxxxx												
	Revise data collection procedures				xxxxx											
	Project Launch: data collection timeline					0 mt	6 mt	12 mt	18 mt	24 mt	30 mt	36 mt	42 mt	48 mt	54 mt	60 mt
	Final cohort selection				xxxxx											
	Contact nascent ventures for cooperation				xxxxx											
	Complete initial structured interviews					AA										
	Implement ethnographic observations				xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx
	Complete follow-up structured interviews						BB		CC		DD		EE		FF	
	Data Set Development															
	Prepare Documentation on Procedures		xxxxx	xxxxx	xxxxx											
	Assemble, clean data					xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx
	Document data sets					xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx
	Assessment and Report Preparation															
	Identify analysis teams	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx										
	Implement, complete assessments						xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx	xxxxx
	Implement status conferences				I		II		III		IV		V		VI	
	Prepare policy implication reports												xxxxx	xxxxx	xxxxx	xxxxx

Appendix B: PEMLIP Preliminary Budget

	Activity	Per unit	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Row Total	Category Total
Administrative Staff											
	Senior investigators, 3 (\$1,000)	\$100	\$150	\$300	\$300	\$300	\$300	\$300	\$300	\$1,950	
	Research assistant, 2 (\$1,000)	\$40		\$80	\$80	\$80	\$80	\$80	\$80	\$480	
	Clerical, financial, 1 (\$1,000)	\$40		\$40	\$40	\$40	\$40	\$40	\$40	\$240	
	Clerical, administrative, 1 (\$1,000)	\$40	\$40	\$40	\$40	\$40	\$40	\$40	\$40	\$280	
	Office expenses (computers, phone, supplies) (\$1,000)	\$50		\$50	\$50	\$50	\$50	\$50	\$50	\$300	\$3,250
Data collection design/progress assessment											
	Stakeholder meetings, travel, etc. (\$1,000)	\$50	\$50	\$50	\$50	\$50	\$50	\$50	\$50	\$350	\$350
Cohort Selection											
	Select sectors (ecosystems)										
	Identify nascent venture population (\$1,000)	\$10	\$30							\$30	
	Select research cohort (\$1,000)	\$10	\$30							\$30	\$60
Structured Data Collection (sub-contracted)											
	Pretests		\$50							\$50	
	Structured interviews, with 15% attrition			1,200	1,020	867	737	626			
	Per interview (\$1/\$1,000)	\$200		\$240	\$204	\$173	\$147	\$125		\$890	\$940
Ethnographic data collection (direct supervision)											
	Training 30 ethnographers, 1 month at \$20/hr (\$1,000)	\$192	\$6							\$6	
	Number of cases, with 15% attrition			60	51	43	37	31			
	40 hours/cases/mth @\$20/hr-Year (\$1/\$1,000)	\$9,600		\$576	\$490	\$416	\$354	\$301		\$2,136	
	Travel costs: \$200/mth/case (\$1/\$1,000)	\$2,400		\$144	\$122	\$104	\$88	\$75		\$534	\$2,676
Assessment and Report Preparation											
	Editing, design (\$1,000)	\$20		\$20	\$20	\$20	\$20	\$20	\$20	\$120	
	Printing, dissemination (1,000)	\$20		\$20	\$20	\$20	\$20	\$20	\$20	\$120	\$240
Totals w/o overhead (\$1,000)											
	Not-for-profit overhead (\$1,000)	10%	\$36	\$156	\$142	\$129	\$119	\$110	\$60	\$752	\$752
Totals with not-for-profit overhead (\$1,000)											
			\$391	\$1,716	\$1,558	\$1,423	\$1,309	\$1,211	\$660	\$8,268	\$8,268