

Abstract

HEMLINGER, TERESA ANN. The Essence of Centennial Campus:
A Public/private Strategic Alliance that Responds to Corporate Core Values of
Innovation

Evidence suggests that public research universities, especially land grant institutions, can be instrumental in supporting a new kind of economic vitality. The university can serve as a ready pipeline for discovering, and then commercializing, new knowledge for industries. Meanwhile, companies that locate a business on a university campus are willing to pay a premium, because locating their business within close proximity to a university and its resources provides value to the business. This collaborative process of companies working closely with universities, the essence of strategic alliance theory, allows for interactive consumption of intellectual assets. These collaborations can be quite resource-intensive and can be better managed by finding ways to make the process more efficient. Accordingly, the overall purpose of this research is (1) to better understand the factors involved in the creation of a series of these public/private strategic alliances and (2) to find ways to make the process more efficient and effective.

Specifically, a qualitative study was conducted to determine why companies are interested in locating on the Centennial Campus of North Carolina State University in support of a strategic alliance between the university and a cadre of local economic development agencies. Companies locate on the campus for the opportunities presented in the strategic alliance that has been established by the campus. They expect to invest in

and form many of their own alliances that intersect and are supported by that which is presented by the alliance of the campus. They pay an opportunity cost for the potential of these alliances. They cannot necessarily specify the opportunities that they expect, but they are committed to investing the premium in the price to locate on the campus and in additional resources to make these alliances real. In exchange, they expect a reciprocal investment from the university in the resources it devotes to ever-expanding and more robust alliance-building.

The companies that are located on the campus in order to take advantage of this bi-lateral proposition have consistent corporate values. These companies have core values of innovation, adaptation, and creativity. Because of these core values, investing in the potential for expanded innovation through a strategic alliance with Centennial Campus is a cost of doing business. The expected benefit of this investment includes the obvious opportunity of shared intellectual capital and the equally important opportunity presented by the networked support of an entrepreneurial community.

**THE ESSENCE OF CENTENNIAL CAMPUS:
A PUBLIC/PRIVATE STRATEGIC ALLIANCE THAT RESPONDS
TO CORPORATE CORE VALUES OF INNOVATION**

By
Teresa A. Helmlinger

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Dedication

This dissertation is dedicated to my sister, Paula Helmlinger Clagett, who died far too prematurely and in the midst of my dissertation preparation. I have pushed forward through my studies with the vision of the pride that my entire family will have for me on the day of my hooding. Paula's impish smirk of a smile was a core piece of that vision. Since her death, her spirit and her mantra, 'life's too short', have inspired me.

Biography

Teresa Ann Helmlinger was born in San Antonio, Texas. Her youth was spent as an “Army Brat” meaning she called many places home while growing up. Among other places, she grew up in Texas, Kentucky, and California. After spending the first two years of high school at the American high school in Heidelberg, Germany, she graduated from Leavenworth High School in Leavenworth, Kansas. She obtained her BS in Engineering Operations from North Carolina State University in 1978. While working full-time, she completed a Master’s in Business Administration from Duke University through their Executive MBA program, where she was named a Fuqua Scholar. She is a licensed Professional Engineer in the state of North Carolina. She is a 1995 graduate of Leadership South Carolina and a 2001 graduate of Leadership North Carolina.

Upon completing her undergraduate degree, Ms. Helmlinger began work at Carolina Power & Light Company, later Progress Energy. Over a twenty-year period, she moved through numerable positions within that company. Her experience included Raleigh Division Marketing Manager, Eastern Division Engineering Manager and District Manager of the Sumter, SC district area. In her final position with that company she was the Director of the Commercial/Industrial Market Development Department. In this position she was responsible for directing growth strategies, product management, and new product development.

Ms. Helmlinger is currently the Assistant Vice Chancellor of Extension and Engagement and Executive Director of the Industrial Extension Service at North Carolina

State University. The Industrial Extension Service is the nation's first university engineering extension service. It offers technical and technology management assistance to business and industries across the state of North Carolina and beyond.

She is a recognized professional in many respects. In 2004, she was the first woman president of the National Society of Professional Engineers. She is a Fellow of the National Society of Professional Engineers and the Professional Engineers of North Carolina. Other awards include the 1986 Distinguished New Engineer of the National Society of Women Engineers, the 1988 Young Engineer of the Year for the Professional Engineers of North Carolina, and the 2003 recipient of the NC State University's Equity for Women Award. She has served on numerous boards, including many professional societies, two chambers and several non-profit organizations. She currently serves on the National Advisory Board for the National Institute of Standards and Technology's Manufacturing Extension Partnership.

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been my primary contact, despite the heavy responsibility of being the stabilizing presence in the office through unusual personnel shifts. I relied on her quick and consistent availability to the project. In return, I am committed to being a better campus partner and a regular ambassador of the Centennial Campus Development Office.

I am also indebted to Dr. Nino Masnari, Dr. Stephen Jones, and Dr. Ted Morris. Drs. Masnari and Jones were my bosses during this endeavor. They encouraged me to pursue this graduate work as a means of professional development. Their pride in my progress encouraged me. Further, Dr. Jones determined a means to “paste two of my hats” together by identifying the potential for my participation in the project. He left the responsibility of determining how I would participate to Dr. Ted Morris. Dr. Morris is the NC State University principal investigator for the overall joint project with the Wake County Economic Development Unit. He used due diligence to determine a way that my study and support could meaningfully contribute to the project. I hope that my product will serve to affirm his trust in my contribution.

My professional network extends to staff members of the Industrial Extension Service. They have been enthused with the organization’s contribution to the project’s progress. Their support of me in the project was a significant part of that contribution. Indeed, they are professional colleagues, but they are also part of my huge personal network of support. Without that personal network, none of my accomplishments would be possible. This effort has been one of many challenges supported by friends and family. Their support constantly sustains me.

This effort has required particular sacrifice by my family. I will be eternally grateful for the emotional sacrifices made by my parents, Bob and Deniece Helmlinger, and my two surviving sisters, Donna Pierce and Trish Nicely. Our loss of my sister, Paula has not curtailed their constant spiritual presence in my effort. I look forward to realizing the vision of their pride.

Last but not least, I must single out my husband, Doug Ratcliff. He has come back into my life at a most challenging time. He has taken this whole alien process in stride and has nurtured me through it. Any recognition of his support seems trite in comparison to the real contribution he made to my well-being, both physical and emotional. However, his support has, in all respects, been “the wind beneath my wings.”

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CHAPTER 1: INTRODUCTION

“Economic development, indeed business development in general, has moved from the responsibility of being “rainmakers” to the responsibility of being coalition builders.”¹
Jim Fain, Secretary, North Carolina Department of Commerce

Strategic alliances have proliferated as a means for more effectively conducting business both in the private and public sectors. The powerful potential of leveraging resources through strategic alliances includes private/public partnerships. Local economic development communities, recognizing the importance of knowledge intensive industries as a catalyst for economic prosperity, are using industry clustering to attract these knowledge intensive industries.

Evidence suggests that public research universities, especially land grant institutions, can be instrumental in supporting this new kind of economic vitality. The university can serve as a ready pipeline for discovering, and then commercializing, new knowledge for these industries. Meanwhile, companies that locate a business on a university campus are willing to pay a premium, because locating their business within close proximity to a university and its resources provides value to the business. This collaborative process of companies working closely with universities, the essence of

¹ Remarks made by Jim Fain, Secretary of the NC Department of Commerce, in a speech given to the North Carolina Economic Development Associations’s 2005 Annual Conference in Pinehurst, NC, on March 11, 2005.

strategic alliance theory, allows for interactive consumption of intellectual assets which adds value to the company and to the university.

The business of making these collaborations, or producing a match between government, university, and industry interests for a win-win circumstance can be quite resource-intensive. Hence, resources for all parties can be better managed by finding ways to make this process more efficient. Accordingly, the overall purpose of this research is (1) to better understand the factors involved in the creation of a series of these public/private strategic alliances and (2) to find ways to make the process more efficient and effective.

Defining Processes and Players

These collaborative processes, between a local government and a university as well as between a university and a corporation, are a demonstration of strategic alliances. While the term strategic alliance may have many different meanings, it is generally considered a joint cooperative effort between two or more independent organizations working together towards agreed-upon goals. Strategic synergies between these independent organizations can be targeted at a number of areas of mutual interest to include joint product development, joint research, intellectual property development, and co-marketing arrangements. The alliance can be structured in a number of ways, but is usually constructed through a series of interdependent agreements where each party makes commitments as to its contributions.²

² This definition was developed through the use of an on-line resource entitled “AllBusiness: Champions of Small Business.” The definitions were drawn from their AllBusiness.com Business Guides.

As eluded to in Secretary Fain's remark, the process of economic development has come to be one of building alliances. There has been a large shift in our understanding of economic development. Conventionally, particularly for those less involved in the process, economic development is considered a set of outcomes. These outcomes rely heavily on discrete performance indicators such as the number of jobs brought into a region or the increases in the economic status of a community.

However, those within the economic development arena itself understand that successful economic development is a long term process involving a multitude of supporting activities. These supporting activities require the formation of strategic alliances coordinating multiple players with varying sets of skills and attributes. More and more, economic development requires strategic alliance-building which could include collaboration with a university. It is this type of strategic alliance that is our focus.

North Carolina State University was established in 1887 as a land-grant institution in the state capital at Raleigh, NC. Nearly a hundred years later, the university had become "land-locked" with no place left to grow. Land belonging to other agencies in the state of North Carolina south of the main campus, known as the "Dix property," offered an ideal solution. The initial grant of 355 acres, made in 1984, was augmented with additional grants, trades and purchases to end with a total campus land mass of 1,350 acres (Meszaros, 2004).

The land-grant tradition contains a clear understanding that NC State University would be used to support an economic transformation in the state. Though it required the vision and contribution of many state and university leaders, Governor James B. Hunt is considered one of the most significant forces behind the transfer of land for the campus. In a 2004 interview for the campus' 20th anniversary, Governor Hunt said,

“...I'd been thinking so much about how to compete with the world, how we transform our economy, knowing that universities have to be the key to that, and in particular North Carolina State University. So I decided, 'Listen, we ought to have a place where we can have business and universities and the best thinkers all working together, working alongside each other, parking in the same parking lots, having lunch together.'”³

Though unclear as to how this concept would become a reality, its implementation was the university's part of the pact for the land grant. This “academic city,” soon dubbed a “technopolis” had a rocky start. Resulting discussion led to a confirmed agreement that the campus would be guided by a principle that all projects on the campus would be mission-driven in order to reflect the research and teaching capabilities of the university. In the tradition of a land grant university, NCSU agreed and promised to cultivate the campus into a culture of innovation by transforming the way the university and industry work together as an economic engine for the region. It has required the formation of many strategic alliances to accomplish these lofty objectives under stiff scrutiny. In fact, we could say that the Centennial Campus' core competency is strategic alliance-building.

A fresh, new layer of strategic alliance-building has been realized in a joint project between North Carolina State University's Centennial Campus and the Wake

³ Interview with James B. Hunt by Ron Kemp of NCSU Creative Services, January 22, 2004.

County Economic Development Unit. Leaders in and champions of the economic development process in the area designated as the Research Triangle Park Region (RTPR) convened in 2000 to develop a strategic plan designed to identify and capitalize on the existing assets in their communities within the partnership territory. Ken Atkins, the Economic Director of the Wake County Economic Development Unit (WCEDU) was part of the plan development. Ken describes the process and how the strategic alliance at NC State University came about.⁴

”It is all related to Michael Porter’s report, ‘Clusters of Innovation.’ After that report was made, the RTPR started a process to determine what should be done with that report. The process ultimately led to ‘Staying on Top.’ It was a process that lasted one and half years. There were all of these people involved... Molly Broad (University of North Carolina System President), Charlie Moreland (NCSU Vice Chancellor of Research and Graduate Studies) and a number of other university officials. They were involved throughout the whole process. I think the reason they were involved is because we all understood that universities are so critical to our success in North Carolina.

We started talking about these eight clusters, and as we started talking about them, I’m thinking to myself, ‘Man, I don’t know anything about half of these things that they are talking about. I mean, what are they talking about?’ They were talking about these eight technology clusters, and I am going out and selling metal-working and printing technologies and stuff like that. So I started talking to university people about the fact that the people that know this stuff are in the university – they understand this stuff. I told them that we need to figure out a way to engage the university.

I mean, there are companies that sponsor research at the university. These companies are paying NCSU to develop their products. The faculty knows these people, and they can introduce them to us. Otherwise there is no mechanism to get introduced. Well, we started meeting with the deans so that they could start introducing us. You know the university is like a castle. It is huge and there are lots of ways of getting in, but you don’t know how to get to the knowledge. We needed to do more than just talk; we needed to be pro-active.”

From this start emerged this strategic alliance project at NC State University (Precision Marketing Project). The Precision Marketing Project is a joint venture

⁴ Interview conducted with Mr. Ken Atkins by Teresa Helmlinger in March, 2005.

between North Carolina State University and a cadre of local economic development professionals which is intended to leverage the value of university/industry collaborations and build regional industry clusters. (The service agreements to support this collaboration is attached as Appendix A.) Using the research strengths of North Carolina State University and the unique qualities of the Centennial Campus, the project is designed to target a manageable number of strong prospect companies for recruitment to the campus or region.

Centennial Campus is a centerpiece of the project because it is the only university research park in the country that requires collaboration with the university as a condition of locating at the campus park. It is designed to bring together university, government and private interests that seek to reach the cutting edge of technology through mutual collaboration.

Much more than an ordinary university research park, Centennial Campus creates and fosters a culture that engenders new economic development strategies. Obviously, the Centennial Campus is a model for incubating new start-up companies that build on the intellectual property being developed at the university. Beyond that, however, there is opportunity to layer additional public/private alliances by using Centennial Campus as part of a palette of offerings from the region as a whole. For example, Margaret Mullins, the former Director of the Downtown Raleigh Alliance, expressed interest in building an alliance with the campus as a solution for companies who want to locate their headquarters in a downtown environment while having their research facilities close by in

the thriving research facility offered by Centennial Campus.⁵ Another combination (which actually exists on campus today) is having the research arm of a company located on Centennial Campus with manufacturing facilities elsewhere in the region.

As a result, the Precision Marketing Project is designed to extract the potential of these combinations with an overall interest in building industry clusters. To build industry clusters around Centennial Campus, the project team determined it was best to work with university faculty to identify and very precisely target companies that would have an interest in building collaborations around research and/or research potential at NC State University. This study is designed to directly support that effort. The purpose of this study is to examine and understand the decision factors that lead companies to locate on Centennial Campus. The study outcomes will be used by project participants to scale the efforts of identifying and marketing at a higher level of precision.

Theoretical Basis

Debates among theorists about appropriate models to apply to public management reform have raged since the 1970's. In 1962, Buchanan and Tullock proposed that whether an individual participates in market activities or political activities, as a voter or as a customer, the individual makes decisions from alternative choices, seeking to maximize his or her own utility. Diverging from this "rational-comprehensive" theory and focusing on decision-making, Lindblom (1979) offered an incrementalist model of public management reform, suggesting that public policy and decision-making occurred

⁵ These opportunities were discussed in meetings and informal conversations between Ms. Mullins and Bob Geolas, the former Centennial Campus Development Coordinator, and are documented in the archival files of the Centennial Campus.

incrementally in order to accommodate cautious steps and mutual persuasion by the main stakeholders. In 1992, David Osborne and Ted Gaebler provided an even more divergent model of public management reform in their book, *Reinventing Government: How the Entrepreneurial Spirit is Transforming the Public Sector*. In this work Osborne and Gaebler suggested that reform in the USA was more strategic and sweeping than suggested in the incrementalist model.

Christopher Pollitt and Geert Bouckaert conducted a review of public management reform and compared the appropriateness of reform models. Based on their review of public management reform in ten countries they concluded, “With few exceptions... nature of public management reform is ‘bitty,’ ad hoc and specific, not strategic, comprehensive and driven by generic models (185).” They used reform in New Zealand and the USA as representative of the contrasting spectrum. They cite the reforms in New Zealand as a single case of sweeping change and based on more strategic models. They specifically point to responsible attributes in New Zealand; New Zealand is a small country, “with an unusually compact elite and equally unusual absence of checks and balances (185).” On the other hand, 1990’s reform in the USA, called the National Performance Review, was conducted with much hype, leading to particular improvements and energetic participation (186). Pollitt and Buchaert showed that the highly pluralistic system of government in the USA led to departures from the original vision.

In 2000, James R. Thompson provided more definition and clarity to the assessment of the National Performance Review. His review of the specific outcomes pointed to dampened accomplishment of overall change. He found that reinvention did occur in pockets of agencies where strong leadership and congruent implementation strategies existed. Thompson concluded that strategic, sweeping reform is possible in small or narrow circumstances when led from top leadership. In fact, Thompson's findings on the organizational structure that has potential for reinvention closely paralleled Pollitt and Bouckaert's findings about the fertile ground in New Zealand.

Similar circumstances exist with the strategic alliance involved in the Precision Marketing Project. Recalling Ken Atkins' remarks, it is obvious that a record of unified leadership and congruent objectives have occurred in the conception and the implementation of the joint project between the Wake County Economic Development Unit and North Carolina State University. This strategic alliance and, in fact, Centennial Campus have demonstrated more strategic shifts in mode of operation and, therefore, exemplify many attributes of the new public management model provided by Osborne and Gaebler (1992). As a result, this model offers an ideal platform on which to build this research. Osborne and Gaebler provided ten principles that can act as a template of change and reform in the public sector. Many of the ten principles are embedded throughout both the joint project implementation and the Centennial Campus development. However, the principles of catalytic government and market-driven government can be specifically and readily identified in both cases.

Catalytic government is a local government that is steering versus rowing. Osborne and Gaebler discuss the importance of building coalitions with many groups, including academia, to leverage the tax dollar toward higher levels of taxpayer expectations. The Wake County Economic Development Unit formed coalitions to develop the strategic plan that ultimately spawned this project. The project itself has built a partnership between a local government unit and the university.

At the same time, the approach taken in this joint project exemplifies a market-driven government or a local government that is leveraging change through the market. Targeting prospects with such precision is an indicator of a more market-driven government. This research is specifically designed to identify a structure or a “market” that appeals to the targeted prospects. Joining the Centennial Campus community and participating in its culture will be an incentive for prospects to locate some part or all of their businesses here.

The new public management model does provide a sturdy framework for the members and/or units of the public sector studied in this research. However, the research also involves private component members in these partnerships. Therefore, a blend of theoretical frameworks is required. In this research, target organizations are identified by using a different framework than that employed by the vast majority of public administration researchers. That is, this research emphasizes techniques intended to illuminate core values within businesses that are conducive to locating on Centennial Campus and therefore this facet of the research requires an additional, complimentary

framework. Treacy and Wersema provide a good foundation on which to build that additional framework. Their book, *The Discipline of Market Leaders*, identified successful companies that build a business culture around one of three value disciplines – operational excellence, product leaders, and customer intimacy. Once a value proposition is established, operating models follow the value discipline, regardless of industry (30).

Specifically, companies that are product leaders focus on product development (35). These companies encourage imagination and creativity. They must be learning organizations because they value their employees and encourage their organization and employees to constantly reach for more creativity (36). In other words, they expect their employees to learn from the environment in which they exist. In fact, because these organizations value the innovation that is created by their human resource, they value their human resource as the true primary resource that leads to their success (37). The hypothesis is that these learning organizations are likely the kind of companies that value a place like Centennial Campus. Their core values and perhaps their entire culture are probably a match to those companies that are resident on the campus. The value discipline defines the very nature of a company. As a result, this value discipline will complete the construction of the full theoretical framework.

Research Question

Centennial Campus has created a business climate that serves the interests of the corporate cultures that hire people who Richard Florida has called the “creative class”

(2002, 15). Florida defined the creative class much more broadly to include anyone who “creates” knowledge (18). In addition to artists, his definition included workers in the “future knowledge economy” (33) such as people skilled in the existing and emerging computer and “e” technologies. The definition also included more traditional yet refreshed functional professions such as engineers and attorneys. Florida posited that economic development techniques should move toward attracting companies that employ the creative class.

Florida further argued that future robust economies will be those which have become attuned to the fact that the United States is now becoming the long-predicted knowledge economy. Companies that operate in the knowledge economy are different from those that existed in the manufacturing economy. A community needs to understand and construct places attractive to the different “creative class” companies. Florida described places that have successfully built communities to attract a creative class. He pointed to a number of communities that had done some of the right things, but highlighted Austin, Texas and Dublin, Ireland as the most successful (298-302). Centennial Campus has positioned itself to be such a community.

In the meantime, any organization, particularly a private organization, is willing to spend resources only when the value proposition for that expenditure is worthwhile. Organizations that need support for their “creative” corporate values understand the value proposition associated with locating on Centennial Campus. Again, the purpose of this study is to determine why certain companies are willing to pursue corporate relocation to

a university campus and to pay the premium price that such relocation requires. Indeed, firms pay prices that are above the average real estate purchase/lease price to locate on this campus. Accordingly, the attributes of locating at NC State University and participating in campus culture must be judged significant enough to justify the premium price. As a result, that culture match is an important link to the significance of the campus location. So in order to understand the business culture that is attracted to this campus, one can identify these organizations' values and develop a typical company profile. As a result, other organizations with similar values and attributes to those in this profile could be targeted as future campus partners.

At the heart of the issue is the hypothesis that the premium price a firm pays to be proximate to a university and/or a university/industry collaboration is the cost of doing business to the firm because the culture match supports its values. Firms that embrace these values and embody this kind of culture will be an optimum target. Armed with this evaluation, local economic development activities can more effectively develop a targeted university-catalyzed industry cluster. Economic developers can target their market with much more precision, making their efforts more efficient. At the same time, the university can better identify its investment of resources in these economic development activities. Therefore, this proposed research would be conducted to determine empirically the cultural attributes that add value hypothesized as reflected in the "price." More precisely, the research will

- determine if and what consistent reasons private organizations have for locating on Centennial Campus.

- determine whether organizations located on Centennial Campus have consistent corporate values that match that which has been created on Centennial Campus.
- determine whether values supported by Centennial Campus are of most significance to these organizations.

This research is intended to make the recruitment process in this joint economic development strategic alliance more efficient. This study will determine why companies locate on Centennial Campus and further, in the process, will determine a profile of companies likely to make the decision to locate here to take advantage of the innovation assets of Centennial Campus. The remainder of this dissertation presents findings from the literature search and the qualitative research. It concludes with summaries of the findings and suggestions for further research opportunities.

Chapter Descriptions

Chapter 2 contains the literature review. It begins with a background review of the references used to build the research's theoretical framework and methodology. As mentioned in the discussion about the research's theoretical basis, New Public Management is a derivative of rational choice theories. Literature from foundational theories is reviewed as well as Osborne and Gaebler's work. In addition, references used to construct the research methodologies are reviewed. The remainder of the literature review concentrates on the context of the research subject matter.

Limited research has been undertaken to examine the new economic development partnerships between local agencies and universities. Therefore, the literature review was used to develop an understanding of some foundational characteristics of emerging economic development strategies. The review examines four areas of interest: economic development trends in the Southeastern part of the US; university partnerships in economic development; public/private partnerships and strategic alliances; and success stories. Studying these four areas offered insight to the challenges faced by economic developers and provided a good backdrop for the important outcomes of the project and, in fact, for the dissertation. Studying these areas also provided good background to determine the path the research should take. To further that background and to enrich the second phase of the research, which concentrates on companies resident on campus, a brief review of corporate culture literature is provided.

The third chapter describes the research design used for this study. This includes a detailed discussion of the processes used, describing the methods used to gather and analyze data. The study has two separate aspects of research. The two phases of the research were partially conducted in parallel. The process used for each of the two phases is described. The chapter also includes a description of and justification for the organizational sites selected for the cross-site case study analysis.

Chapter 4 concentrates on the findings related to Centennial Campus. The chapter begins with background history of the campus and the important development of creating an institution of collaboration. Detail about the campus and its environs are

provided before a report on the study's interactions is given. Through an analysis of these interactions with people in and surrounding this institution, including corporate leaders of tenant partners, the tangible and intangible benefits of the campus are identified. Based on this analysis, an evaluation is made of the value proposition to companies locating on Centennial Campus. The chapter ends with insights to the important aspect of networking in recruiting and retaining these companies.

The findings in Chapter 4 lead the research to a conclusion that the profile of companies that would be attracted to Centennial Campus is consistent with the profile of companies that are resident on campus. Therefore, a comparison of companies that are resident on Centennial Campus is reviewed in Chapter 5. Through a cross-site analysis, common characteristics among these companies are determined. These characteristics draw a consistent profile of these companies. A typology of company approach to campus resources is determined based on the companies' preference priorities. The typology leads to a full evaluation of the approaches to which each company category exploits these opportunities.

The dissertation is concluded in Chapter 6. The chapter begins with a summary of findings. Based on these findings, conclusions are drawn. The conclusions include an assessment of the response to the research questions. Part of this response outlines a set of action agendas for university stakeholders. These action agendas specifically establish the recommended priorities for maintaining the value of opportunities for companies on campus. Finally, implications of the research are made. First, implications are itemized

for the joint Precision Marketing Project. In addition, implications for future research are discussed.

CHAPTER 2: REVIEW OF LITERATURE

The literature review begins with background references used to develop and design the research. The theoretical framework for this research was built on a complex series of related theories. A review of references on the entire series is provided. In addition, a review of background materials used to design the research and methodologies is provided.

Further, while a literature review of the subject matter yields little about university/industry partnerships that involve relocation of companies to university campuses, it does reveal information about trends in economic development practices in the Southeastern region of the United States, trends in university involvement with economic development strategies, public/private partnerships and strategic alliances, success stories in applying strategies to attract and expand businesses, and the nuances in studies of corporate cultures. Once the theoretical and methodological background is established, I begin the subject matter review by looking at trends in economic development. This background information develops an appreciation of the need for strategic alliances. Strategic alliances are a product of the process that attempts to establish clusters of innovation that benefit from university involvement. To effectively match a cluster strategy, I examine the issues of organizational culture and climate. We begin with the review of the theoretical background.

References for Theoretical Basis

The basic tenets of Rational Choice Theory suggest that individuals are rational, greedy and self-interested maximizers and have a fixed hierarchy of preferences. In other words, individuals will choose more rather than less, want the least amount of intrusion on their liberty, and the least costs involved. In a 1962 work, Buchanan and Tullock proposed that whether an individual participates in market activities or political activities, as a voter or as a customer, the individual makes decisions from alternative choices seeking to maximize his or her own utility. Thus, they posited that political action must be understood as the outcome of the actions of motivated individuals whose interests typically differ from one another. Further, they explained the assumptions of Rational Choice Theory as:

- promotion of individualism,
- maximization of individual utility and cooperation versus coercion,
- efficiency as a measure of the equation by which net individual utility is calculated,
- value criteria to judge the goodness of institutions determined by the extent to which they promote freedom and utility among aggregates of individuals,
- unanimity as the best course of action because it entails least costs,
- trading and decentralization as efficient.

In 1959, Lindblom built on this theory and diverged from a comprehensive rational theory. He posited that organizations are incremental structures and they “muddle through” changes incrementally. As a result of a twenty-year debate among theorists, he followed his first article with an update in 1979. In this follow-up work, he distinguished three elements of the incrementalist model.

- Incremental politics whereby outputs and outcomes are changed cautiously in small steps.
- Incremental analysis is the process of analyzing policy problems one at a time rather than attempting grandiose, synoptic or comprehensive reviews.

- A process of partisan mutual adjustment in which political decision-making is fragmented and/or decentralized. Resultant policies are the amalgam of attempts at mutual persuasion by the main stakeholders, rather than the decision of a single, unitary body.

In a 1992 book, David Osborne and Ted Gaebler examined more sweeping strategic changes in “entrepreneurial” public sector examples of New Public Management. In a 1999 follow-up article, Osborne and Gaebler demanded that American government systems reinvent themselves using New Public Management as a template for change. They reviewed the pitiful state of affairs in prolific government waste and bloated bureaucratic mazes. They recommended transformation to entrepreneurial governments using ten principles. They named, described, and illustrated these ten principles as follows (1999, 351-360):

1. Catalytic government: Steering rather than rowing
2. Community-owned government: Empowering rather than serving
3. Competitive government: Injecting competition into service delivery
4. Mission-driven government: Transforming rule driven organizations
5. Results-oriented government: Funding outcomes not inputs
6. Customer-driven government: Meeting the needs of the customer, not the bureaucracy
7. Enterprising government: Earning rather than spending
8. Anticipatory government: Prevention rather than cure
9. Decentralized government: From hierarchy to participation and teamwork
10. Market-oriented government: Leveraging change through market

Having established this “map” for transformation, they challenged governments to begin change. As discussed earlier, these principles established the theoretical framework for the study of Centennial Campus. The framework will be elaborated in a subsequent section.

The theoretical frameworks established in both the incrementalist and the new public management models have been examined through actual experiences. For example, Christopher Pollitt and Geert Bouckaert conducted an extensive evaluation in their 2000 book, *Public Management Reform*. They began the work by describing public management and public management reform. They conclude this description with the assertion that though sweeping transformation is intended, not every reform managed the full breadth of strategic change models. Reform experiences in Australia, Canada, Finland, The Federal Republic of Germany, The Netherlands, New Zealand, Sweden, the United Kingdom, and the United States of America were reviewed. They concentrated their evaluation on the important support or “acquiescence of leading politicians” (19) in each country. That support or the lack thereof often dictated the extent to which a transformation or “re-engineering” (20) of government services occurred. At the end of the book, they asserted that most reforms follow an incrementalist model of change rather than a more fulfilling strategic shift in conducting business. New Zealand is an exception, but New Zealand is small and has the important features of unified leadership demanding true reform. As a contrast, they found the “hyped” National Performance Review reform in the USA insufficient in its strategic impact.

For the most part, James R. Thompson (2000) agrees with Pollitt and Bouckaert’s assessment of the National Performance Review (NPR). He conducted a complete evaluation of the impact of NPR on a single agency, the Social Security Administration. He used government-wide survey results to conduct this evaluation of impact. The surveys articulated mixed success on first, second, and third level objectives in the Social

Security Administration. He did find exceptions in slices of the organization, in individual regions. He concluded that leadership is key to the success of an individual region. More broadly, based on his analysis of the survey results and the experience of individual regions, he concluded that “implementation strategies must be congruent with the nature of the reform being implemented (519).” He suggested that individual agencies should be the relevant unit of analysis in change and the direction should come from these units. Direction from the “micro elements of administration can accomplish change characterized as reinvention (518).”

With the theoretical background established, we transition to a review of background material for the research’s design.

References for Research Design and Methodology

Coursework in qualitative methodologies provided guidance on the research design and many of the methodological techniques. *Ethnography: Principles in Practice* by Martyn Hammersley and Paul Atkinson (2003) was among the textbooks for that coursework. This textbook provided a thorough guide for the appropriate use of qualitative techniques. Further, Hammersley and Atkinson provided a comprehensive template for conducting research using ethnographic design. This template covers the important aspects of access, field relations, insider accounts, documents, recording and organizing data, the process of analysis, writing conclusions and ethics.

This coursework was augmented with additional references. *Handbook of Qualitative Research* (Denzin and Lincoln, 2000), a compendium of articles on qualitative methodologies, provided many references. One of the articles written by Robert E. Stake (435-454) provided a tutorial on case studies. He described a case study as a “concentrated inquiry” (435) around a system. He suggested cross-case study analysis as a means of interpreting larger systems of interest or general issues (439). He offered suggestions as to how to construct interview guides. He also discussed the importance of using triangulation for validity purposes.

Robert Yin is a renowned expert in conducting case studies. His 1994 book, *Case Study Research: Design and Methods*, provided a comprehensive guide to designing, conducting, and reporting case studies. The guide was geared for the conduct of the most complex cases, discussing multiple case studies, embedded case studies, and semi-quantification. Yin’s validity discussions provided the most significant insight to this review.

We will now turn our attention to literature related more specifically to the dissertation’s subject matter.

Trends in Economic Development

Conventionally, economic development has focused on economic outcomes or the potential improvements in a community’s economic status. Advice as to how to measure these economic outcomes abounds. For example, Wolman and Spitzley (1996) offer insights in measuring fiscal outcomes such as an increase in per capita income and a

reduction in unemployment rates. Sharp (1990) suggests a different line of thinking, namely that outcomes should be gauged according to the relative economic status of a community relative to similar communities. This narrower approach of thinking about economic development only in terms of a set of outcomes is restricting, however, and leads to missed opportunities. Instead, economic development should be considered a “multistage, dynamic process that occurs over time (Hoyman 1997, 8).” Measuring the effects of development initiatives over several years has many benefits; it sets the stage for a richer understanding of the entire community and factors that affect its economic vitality. This more inclusive approach allows for the consideration of trends and of the range of activities needed to support those trends. The more comprehensive approach of thinking on economic development as process is the reference for this study.

Trends in the practice of economic development specific to the Southeastern part of the United States have followed the recognition that, with the waning of the agri-economy, there is a paramount need to become more creative about the use of the area’s indigenous attributes. In the 1980’s and 90’s, this pattern manifested itself in states vying for “the big game” manufacturing facilities through providing hefty incentive packages to companies for siting manufacturing facilities in their states. Of late, the use of these incentive packages has received much criticism. While still engaging in these “buffalo hunts,” states have developed more comprehensive strategies to include industry clusters, regional economic development, and community partnerships.

Discussions about economic development in the Southeastern part of the United States often begin with a review of the region's history in agri-economy. Ronald C. Wimberly of North Carolina State University and Libby V. Morris of the University of Georgia have dubbed this part of the United States the "Southern Black Belt" (1997). They pointed out that this part of the United States prospered for years from its rich agricultural resources. Large tracts of land with readily available cheap labor led to a caste system of landowners and farm workers. Small vital communities supported the commerce of these predominantly rural areas. As mechanization and corporate farming transformed the region, a crescent of economically noncompetitive counties spreading from Virginia to the eastern part of Texas have been left wanting. The economies suffered from persistent poverty, poor employment, low incomes, low education, poor health, high infant mortality and dependence. Youth born and reared in the area flee upon graduation, seeking opportunities that are no longer available in their home areas, continuing the spiral of poverty-stricken economies.

These states' immediate responses have been their well-publicized participation in "hunting for the big game" – the large manufacturing facility – through offering substantial incentive packages for those willing to invest new facilities in the area. These packages have indeed landed real catches, including the BMW plant in Spartanburg, South Carolina, and the Mercedes plant in Tuskegee, Alabama. In North Carolina, the Nucor plant in Windsor, North Carolina, came to the area because of an incentive package. Competitive pressure to conform to the high-dollar incentive packages made the stakes even higher. This pressure, however, eventually led to closer introspection about the value of this strategy. Consistent criticisms were made about the return on tax

dollar expenditures. In August 1993, the National Governors' Association (NGA) adopted a policy on Economic Growth and Development Incentives that emphasized state actions to enhance the general climate for new business investment and expansion of existing firms. To provide governors with information about the impact of the policy in the “real world,” the NGA Committee on Economic Development and Commerce commissioned a study to determine how states exemplify the policy and how cost-benefit analysis is used to consider these public subsidies for private investments. The study found that more states than not employed strategic planning to obtain a comprehensive, long-term view of the state's economy and to identify steps for strengthening the state's economic outlook. In addition, states based public subsidies on more specific development objectives and used objective criteria and cost-benefit analysis to justify subsidies (Kayne and Shonka, 1994).

This difference in approach to industrial incentives was apparent in Alabama. On April 2, 2002, the state of Alabama announced that the Hyundai Motor Company would be locating to Montgomery, Alabama, and building a \$1 billion automotive assembly plant. The state of Alabama gave Hyundai approximately \$253 million in incentives. These incentives were not presented to Hyundai lightly. Through Value Driven Management in the Alabama Incentive program, economic developers and public decision makers in the state were required to conduct a cost benefit analysis when providing millions of dollars in financial and tax incentives to prospective industry.

Industrial incentives for Hyundai were analyzed against eight facets of economic value (Hamilton, 2004).

In a recent *North Carolina* article, the success of a new version of “incentives” was heralded. The state of North Carolina was late in developing incentives when they introduced the William States Lee Act funding. Not only was the legislation late in coming, but the potential of the incentives being introduced was considered anemic by many in the economic development world. Rather than participating in the “incentive spiral,” the state instead developed financial incentives that could be directly linked to the economic benefit of the companies’ location decision. The best example of these new recruitment tools is the Job Development and Investment Grant (JDIG), whereby the companies are rebated all taxes that are levied on the company for a designated period. This rebate includes all sales tax and employer taxes. The financial incentives can yield millions for a company that quickly moves in and starts running. It has had dramatic impacts in allowing the state to recruit ideal industrial partners to the state (Bivins and Tuttle, 2004).

Re-trenching economic strategies has gone beyond the differential analysis of industrial incentives. In 2002, Michael Porter led the Council of Competitiveness in studying what he called “Clusters of Innovation.” He outlined the economic development challenges as being regional in nature. He divided the economic engines of a region between traded, resource-driven, and local industries. Porter acknowledged that

traded industries are the dynamic core of a regional economy. He further stated that the current challenges must be met with two sets of measurements. Accordingly, he proposed not only the traditional overall economy measures, but also the new measures of innovation output. He posited that a region is failing when it concentrates merely on the traditional overall economy measures. Further, he made a strong point that regional economic development must also incorporate the proliferation of innovation. Institutionalizing innovation rationalizes innovation measures. In addition to this important point about innovation, he provided two important definitions in this report.

First, Porter distinctly introduced the notion of “industry clusters.” A cluster is a network of interconnected businesses that draw off common pools of skilled labor, suppliers, and customers. Although firms within a cluster may compete with each other, they also help create business conditions that broadly favor their industries and provide a boost to local economies. The common factor in all these relationships is the premise that such relationships benefit from geographic proximity. He also introduced the concept of “institutions of collaboration.” Institutions of collaboration help build regional economies by facilitating the flow of information, ideas and resources among firms and supporting institutions. These institutions can be both formal and informal. Porter’s main report ends with a template of action agendas for both the public and private sectors. There are action agendas listed for the federal government, state government, regional and local government, universities and research institutions, cluster-specific institutions for collaboration, and firms. The pertinent action agenda items are outlined in the remainder of the “clusters” study.

Porter identified five regions that have historically benefited from clusters of innovation: Pittsburgh, Research Triangle, Atlanta, Wichita, and San Diego. He included an extensive report on each of the five regions. The report on the Research Triangle covered the success of the Research Triangle Park in developing clusters related to pharmaceutical/biotechnology and communication equipment. It also included an abbreviated review of the clusters around traditional chemical, textiles, and plastics industries. Interestingly, in the review of the assets for this region Porter lists the North Carolina State University Centennial Campus as a public/private institution of collaboration in support of future ventures.

Industry clustering has become a means of improving industry targeting efforts because it provides a set of tools to help define economic development strategies. Industry clustering can improve short-term industry attraction efforts through identification of prospect sectors and definition of specific advantages (Economic Development Review, 1994). The Research Triangle Park Region report, “Staying on Top” (2004) and the subsequent activities are specific examples of this kind of strategy building.

In fact, industry clustering has become prevalent in North Carolina. Bio-technologies have emerged as a means to blend the agricultural legacy of the state with future economic trends. Computing technologies have a strong base in the university system. The Centennial Campus of North Carolina State University has indeed become

an important facet in industry clustering and has served as a model for the state and the region. Model status has not come easily to the campus. It has developed through turbulent times. In recognition of the campus' 20th anniversary, Paige Meszaros wrote a campus history (2004). "The History of North Carolina State University's Centennial Campus for the Twentieth Anniversary Celebration" drew from oral histories and archives to develop a comprehensive record of events. (A timeline summarized the history and is attached as Appendix B). In it, the author detailed the difficulties in establishing this unique campus of collaboration and its credibility as a core for industry clustering.

Once an industry cluster core is established, many benefits for a variety of businesses are realized. Industry clustering has also enhanced support for small businesses. In the most recent waves of economic growth, eighty percent of all jobs were created by small businesses. Small business is an important aspect of economic development. Hence, small businesses that are truly successful, that is, the high growth companies called the gazelles, are those that develop niche markets concentrating on business to business opportunities (Bee, 2004). Industry clustering has provided the opportunity to concentrate on purchasing policies within the cluster, leading to a more robust small business support strategy. State Small Business Administrations in the southeast are targeting their efforts more keenly on the gazelles that will support clusters.

Industry clusters depend on the vitality of regional economic development. Regional economic development has grown increasingly important to the economic well-

being of communities. Where economic development was once primarily a matter of local interest, it is now a global undertaking. In fact, it is unlikely that local economies will thrive in the 21st Century unless they can hold their own in a worldwide economy. As a result, many regional development organizations are expanding their boundaries and creating new alliances with public, private and nonprofit development groups (Grossman, 1998). Community partnerships are a focal point of these alliances. Partnerships and collaboration clearly demonstrate the ability to leverage resources and enhance restricted and limited governmental funding (Trenton, 2004).

Community partnerships and regional economic development planning are expanding strategies that go beyond industry. The structural shift of the US economy to non-manufacturing in relative terms is documented historically and is expected to continue for the foreseeable future. Conventional wisdom holds that as manufacturing jobs tend to be higher paying than those in non-manufacturing, the shift has been accompanied by declining average payroll earnings. These findings suggest that a realistic revitalization effort would call for devoting energy to the attraction and support not only of manufacturing industries but of service industries, particularly those in which the services are exportable in nature (Peck, 1996). In short, economic development requires a much more comprehensive and collaborative effort than ever before. Evaluating communities, development planning and economic targeting are necessary components of any successful endeavor.

University Involvement in Economic Development

The involvement of universities in economic development has significantly evolved in the last twenty years. In fact, universities are becoming an important facet in economic development strategies. In his 1988 article, “Economic Development: The University and Commercialization of Research,” James Gibson articulated the evolution of university involvement in economic development. He differentiated between the old and new methods of involvement, moving from relying solely on scholarship to a new emphasis of cash flow and constituency building tasks. Gibson categorized this involvement into four new methods -- evaluation of innovations, commercialization of innovations and technology transfer, entrepreneurship, and incubator activities and research parks. He cited the Research Triangle Park and Route 128 in Boston as exemplars of this new form of involvement. He appropriately discussed the importance of new revenues to the university as the reason for the interest and cautions against the risk of diffusing the focus of teaching and research responsibilities.

At the same time Gibson wrote his article, the importance of university involvement in economic development was also noted in a report from the Kellogg Commission on the Future of State and Land-Grant Universities (1999). The Kellogg Commission evaluated the importance of universities being fully engaged in the regions that hosted them. The report, *Returning to Our Roots: The Engaged Institution*, demanded that effective universities take responsibility for solutions to the problems of the regions in which they reside.

The importance of university involvement drew the attention of financial and political communities at about the same time. In 1987, universities in the Federal Reserve System's Tenth District (New Mexico, Missouri, Nebraska, Kansas, Colorado, Oklahoma, and Wyoming) were directly impacted by shifts in the agricultural and energy industries. State allocations to university budgets were improved so that universities could expand their role in economic development, allowing them to help shape these economic transitions. Each university had a differing approach, but the approaches could be summarized in Gibson's categories outlined in the article reported above (Smith, Drabenstott, and Gibson, 1987).

The development of public policy in utilizing technology transfer as an economic engine has been a key contributor to the expansion of university involvement. In a 1957 article, Robert Solow established that an extremely large percentage of economic growth was explained by something other than conventional inputs such as capital and labor. Since then, researchers have shown statistical correlates with technological advancement or change. Public policy in the United States has been built on this understanding and has led to a rising importance of universities as research partners. In a 2002 article, David Audretsch stated that though the literature on universities as research partners is sparse, some stylized conclusions can be drawn. Firms that interact with universities generally have greater R&D (research and development) productivity and greater patenting activity.

The Bayh-Dole Act was an important shift in public policy that supported universities as research partners. This act eased restrictions on universities' becoming involved with licensing and patents. As a result, dramatic increases in licensing, patenting and associated revenues were seen at American universities. The increases have been particularly strong in biotechnologies and technologies associated with computers. Other factors in universities and public policy have also contributed to this significant increase. At the same time as the passage of the Bayh-Dole Act, the research activities in these technologies matured, and they were determined to be patentable. This convergence has led to better infusion of innovations and technologies in industry (Nelson, 2001).

There is a body of work that quantitatively explored the value of the attributes of research parks (Audretsch, et.al., 2002). Most of this work showed a tie to public policy that generates or re-generates interest in research being commercially applied or commercially grown. There was some distinction made in these studies between research parks that are university research parks and those that are not affiliated with a university, showing that there is generally more interest and success with university research parks (Link and Link, 2003). Interestingly, one study tried to identify attributes that lead to success in university research parks (Gibson, 1988). The study proved that the university research park is more successful in terms of filling space in the park, the closer the proximity is to the university campus.

In a recent *Prism* article (2004), NCSU's Vice Chancellor of Research and Graduate Studies, John Gilligan outlined four categories of economic benefit that public engineering schools can provide to their states: well-educated and trained graduates that attract industry to nearby locations; sponsored faculty research that has direct relevance to new product development; direct outreach services and training that help companies improve productivity; and innovation creations that become the basis of new spin-off companies or the renewal of existing companies.

Most research on partnerships between universities and the economic development community concentrated on the importance of higher education systems as part of the education component of the region's offering. The associated research does reflect a "build it and they will come" mentality, but does not explore the value of that mentality to either the university systems or the businesses involved (Smith and Gibson, 1997). There is a belief that strong science and engineering schools will spawn businesses for local areas or states. Additionally, there is a belief that strong higher education systems will attract business centers and headquarters to areas so that the business center can better utilize the talent that is graduating from the university systems. Regional development around a university can be much more proactive by first understanding the benefits the university can bring to a partnership and then precisely marketing these benefits to the strongest target audience.

Key characteristics or attributes of a potential collaborative relationship with the university contribute to a firm's objectives. Characteristics of university partnerships that

are universally acknowledged as contributions or value to economic vitality can be categorized (Audretsch 2000, Nelson 2001, Audretsch, et.al. 2002, Link and Link 2003, Gibson 1988, Gilligan 2004, Smith and Gibson 1997):

- Expertise is readily available from the university on an immense variety of topics. Faculty and graduate students can subsidize knowledge bases of a firm with the newest expertise on technologies and the use of technologies. This expertise can be shared in an explicit manner through a formal partnership to expand knowledge in a specified arena. It can also be shared tacitly by involving faculty and students in the process. A refreshed approach to problems can be emulated by including faculty and students in the workforce.
- Accessibility to technologies is enhanced when a firm is closer to a university. These technologies could be as simple as technical laboratory equipment used in the research laboratories. Laboratory equipment is often highly specialized and too expensive for a firm that cannot fully utilize it for intermittent testing of product or processes. Equipment used for university research that is not operated at full capacity can be shared with a local industry with the benefit of a cost share arrangement to the university. An added benefit is the personnel already trained on this highly specialized equipment. For those firms that can justify the purchase of their own equipment, the best and most up-to-date technologies are typically modeled and demonstrated in a university laboratory allowing a firm to make the best investment for its own use. Trained university personnel are available to assist in the transition to new technology purchases.
- Ready access to education affords opportunities for existing employees to sharpen and enhance skills or to update and refresh knowledge. The proximity to the university allows employees to take easy advantage of part-time enrollment in classes, which adds value through tacit exchange of knowledge. Too, the company challenges can become student projects, allowing once again for the explicit use of university intellectual assets.
- Access to students offers a business a source for a flexible employee base. Students can and will work unusual patterns. They can also bring a refreshed perspective to the work. Often students are more adept at utilizing current technologies.
- The cultural diversity of a university community can expand the region's base of the arts. This expansion of the arts and culture is often viewed by industry as important to attracting a strong employee base to a better standard of living.

In his “Clusters of Innovation,” Porter (2002, 83-85) tied all of these attributes together in a call for action by universities. In the report, he recommended a set of very specific action agendas for universities. According to Porter, they should:

- Recognize the important role of universities in regional economic development.
 - Take the lead on, and participate in, regional and cluster development efforts.
- Create and support technology transfer offices.
 - Work with firms and venture capital to streamline the technology transfer process.
 - Benchmark the commercialization of university-created intellectual property measures that promote efficient dissemination of knowledge.
- Actively participate in cluster development efforts.
- Align university curricula and research to meet the needs of local clusters.
 - Create cluster-specific institutions to support collaboration between academia and industry clusters.
 - Work with local industry to create areas of excellence within universities that differentiate the university and complement local industry strengths.
 - Integrate research and training efforts with the needs of local industry.
 - Participate in the recruitment of companies.
- Support company start-up efforts by professors and students through mentorship, entrepreneurial education, and financing.

Apparently, the leadership of the higher education systems in North Carolina is taking Porter’s advice to heart. An article in the March 7, 2005 edition of the News & Observer, the Raleigh, NC newspaper, reported a joint initiative between the state’s public university and community college systems to identify ways the higher education system could better respond to the fundamental shift in the state’s economy.⁶ This joint initiative resulted, in part, from state legislative edict. The state legislature has established a joint commission to study the potential for enhancing higher education concerns in the state’s economic development initiatives. Molly Broad, the President of the University of North Carolina System, and Martin Lancaster, the President of the North Carolina Community College System, met this legislative challenge through the joint initiative. The two

⁶ This article was written by Tim Simmons of the News & Observer.

Presidents conducted a listening tour of the state to hear and understand the needs of industry throughout the state. An overhaul of the state's higher education system is anticipated. It is likely that strategic alliances will be an imperative of the upcoming changes.

Public/private Partnerships and Strategic Alliances

Public/private partnerships have become fairly prevalent as a means to transform public sector offerings. The literature review of public administration interests provides articles of successful partnerships to produce and manage urban services (Hoffman-Martinot and Kosinski, 2002), to develop and operate infrastructure systems (Price, 2002), to focus on public welfare reform implementation (Prince and Austin, 2001), to replace Commerce Department offerings in the state of Florida (Pope and Howard, 1996), and to deploy technologies to combat potential terrorist activities (Rothkopf, 2002). Each of these partnerships grew in the last decade as a means to improve or enhance significantly the capabilities of public agencies. In all cases, the problems at issue were escalating into an accelerating critical circumstance. At the same time, the public agencies were experiencing pressures to lower or stabilize the expense of programs. Agencies determined that their incumbent resources were incapable or too far short of fully capable to make the changes required. Instead of expending precious resources to build or reinforce their own capabilities, the agencies decided to partner with a private sector and/or non-profit organization that had better capabilities and far more flexibility to deal with the problem at hand. Each partnership developed innovative solutions with extraordinary success. The partnerships allowed policy to be established

by the public sector entities to support the efforts. Oversight of programs and outcomes was a joint effort and, in fact, maintained the partnership rationale.

Brinton Milward and Keith Provan (2000) thoroughly evaluated these partnership characteristics in a series of four community mental health networks. They established the context of a “hollow state” (360) whereby central government is devolved to state and local governments and complex principal-agent relations are formed with private firms and voluntary agencies. The thrust of the research was the effectiveness of various types of mechanisms, structures, and incentives on promoting strong contracted services. They concluded that effectiveness is highest when mechanisms of fiscal control are direct and when the network is integrated and centralized through a powerful core agency.

Paul Light (2000) made similar observations of organizations that must “harness the environment as a force of change (58).” In his book, *Sustaining Innovation*, Light introduced “surviving innovation organizations (60).” These organizations are distinguished by their commitment to making the external environment a partner in innovativeness (65). Drawing on the experiences of several governmental and non-profit organizations in Minnesota, he concluded that collaboration and partnerships sustain an organization through the turbulence of market and political change. He viewed the market as a “hidden hand” that exerts pressure (69) from the outside of surviving innovation organizations. He believes that these markets drive governmental and non-profit organizations to public-private partnerships of some description. He refined partnerships into three categories, cooperating, coordinating, and collaborating,

depending on the level of needed commitment from partners. He finished this discussion with insights to using these partnerships to fully harvest external support. He showed how the partnerships enhanced fund-raising, both from external markets and on political fronts.

The most compelling public/private partnerships in recent times have been those that have been established to effect significant changes to state technology-based economic development programs (Coburn, 1990). Interestingly, Governor James Hunt of North Carolina is cited as one of the strongest performers to embark on ambitious programs that pursue a new agenda. The most successful program cited is the Edison Program in Ohio. Using a \$32.4 million appropriation, the state of Ohio established a multi-faceted approach to turn the economy around. These bold programs were designed to take advantage of two of the state's greatest assets, the university system and a history of innovation. A majority of the appropriated funds went toward establishing eight Technology Centers that pull on academic, governmental, and business interests to provide low-cost services to start-up technology businesses. Numerous success stories exist about this effort, and it has received positive evaluations from independent, external review panels of national experts. The Edison program is an example of a state developing a strong science and technology infrastructure using a public/private partnership.

Technology centers in Ohio and similar partnerships in many other states are not called, and apparently, are not considered strategic alliances. This point is important

because these states have taken initiative to build models in which the marketplace makes decisions and the governments follow. As a result, these partnerships are examples of real strategic alliance. In fact, the service agreement between NC State University and the Wake County Economic Development Unit is an example of a real public strategic alliance. The joint Precision Marketing Project is only part of this even larger strategic alliance. Despite this kind of evidence however, based on this extensive review of literature, the strategic alliance model in public administration is only considered pertinent in the realm of international agreements. The public sector would be wise to recognize and build on the strategic alliance models that occur in the private sector.

Private sector examples were reviewed to reflect good practices. For example, in 1999, Debra Sparks (in New York is specified) posited in *Business Week* that the defining deal for successful business in the next decade and beyond may well be the alliance, the joint venture, and the partnership. She concluded that alliances are an imperative, particularly for media, entertainment, airlines, financial services, pharmaceuticals, biotech, and high tech. She made this recommendation despite the high failure rate of alliances in business. Sparks concluded that any industry in the business of rapid change will need to become savvy in establishing these new and unique alliances. She offered that alliances work for many reasons, including the flexibility that they promote and the opportunity for rivals to work in harmony toward a common goal. Key to this research is the stated belief that alliances can pull together multiple partners possessing multiple skills who share risk and expense to create major synergies.

Varghese George agreed with Sparks relative to circumstances in which interfirm cooperation thrives (2004). Using an US economy-wide alliance dataset, he distinguished the conditions with which interfirm cooperation becomes prevalent. He presented statistically significant findings that show the most prevalent predictor of the formation of interfirm alliances is the R&D (research and development) intensity. His conclusions are linked to the Sparks evaluation in pointing out the importance of rapid and effective innovation which is required in research today.

After an evaluation of private sector collaborative relationships, Wymer and Samu (2003) concluded that success is defined by an appropriate alliance which is fitting of partner motives and expectations. Collaborative relationships of this nature require real work and commitment to continuously craft the blend of talents and resources. Finnie (1998) agreed that partners must share a common set of values and the key people must be committed to the success of the partnership. Two reviewed articles (Chi Cui, et.al., 2002 and Herring et.al., 2002) examined and showed the importance of the leadership style of the key people in partnerships. At a macro level, strategic fit and cultural fit of the partners is obviously important. Surprisingly, these two studies showed that the fit at the micro, interpersonal relationship level is also critical.

Success Stories

The literature review finds three good examples of strategies centered on a comprehensive review of the economic conditions. In the late 1980's, South Carolina's existing business trends and implications were analyzed and reviewed for the state's

economic developers. The South Carolina data showed that significant competitive investment opportunities were within the set of existing South Carolina manufacturers who were considering expansion. The national business trend of consolidating corporate manufacturing capacity increased the frequency and investment magnitude of competitive expansions, providing opportunities for South Carolina economic developers. They determined that community leaders and economic developers operating under the assumption that once recruited, a corporation is destined to expand, were missing valuable economic development opportunities. As a result of this parallel strategy, South Carolina's existing business sector showed a forty percent increase in capital intensity, after adjustments for inflation, in a nine-year period (Williams, 1993). This is a remarkable improvement when considering the potential of the Southern Black Belt.

An even more remarkable implementation of an economic development strategy is the comprehensive effort carried out in St. Louis, Missouri. Almost an entire 2004 issue of *Economic Development Journal* was devoted to this highly involved effort and demonstrated the multi-faceted approach needed to be truly successful. It begins with strong regional collaboration. The St. Louis region is known for having one of the most geographically dispersed and fragmented networks of governments of any metropolitan area in the US. The city's complex region ranks second in the nation in ratio of local governments to citizens; third in the nation in ratio of metro area municipalities to citizens; and second in the nation in ratio of school districts to citizens. Yet, when it comes to issues relating to economic and community development, such as new business

recruitment, existing business retention and expansion, funding for major arts and cultural organizations, transportation and parks and trails, and infrastructure development, the St. Louis private and public sectors joined together to develop unique collaborative strategies and best practices that are regional and even national models. The solution to this problem in St. Louis has been not to create a new regional government, but to encourage community and economic development collaborations in this context of local government (Fleming and Leonard, 2004).

Downtown re-development became and remains a priority. Despite the decline of the city, downtown St. Louis was long able to retain its position as the focal point of the region by staying at the forefront of several waves of urban redevelopment and reinvestment. In 1997, an implementation-oriented initiative was launched to undertake a sustained and pro-active series of developments to restore and sustain downtown's role as the vital heart of the region. Building on a strategic plan adopted four years earlier, the Downtown Development Action Plan identified specific program and policy actions to be enacted over a six-year period. Lead responsibility for implementing the plan was assigned to Downtown Now!. The organization led a consortium of private corporation partners, community organizations and the City of St. Louis. In the period since the city adopted the Downtown Development Plan in 1999, new projects representing over \$2.5 billion in public and private investment have been completed (Cloar, 2004). As a result, the city has blended beautiful old architecture and new commerce to make for a robust downtown that sprawls to the many area municipalities attached to St. Louis.

The strategy implementation addressed the important utilization of local university resources as a part of the collaboration. Four universities anchor the region's economy – Saint Louis University, Washington University in St. Louis, the University of Missouri-St. Louis, and Southern Illinois University-Edwardsville. Priority was given to unleashing the local economic development capacity of these institutions in order to replace the stereotype of tense town-gown relations. The St. Louis region is rich in its ability to call upon these private and public academic institutions to play significant roles in economic development. They have had a profound and lasting positive effect on the region's economy. As with all universities, of primary importance are the contributions these institutions have made to the intellectual capital and quality of the workforce, to the region's prestige and self-image, and to the ability of employers to access cutting edge technologies in support of their missions (Domahidy and Ward, 2004). These contributions are important to the foundation of the economic development strategies.

A key foundation of the St. Louis region's economic development strategies and programs was the cultivation and capitalization of a set of distinctive industry clusters. The St. Louis region clearly demonstrated the value of cluster-based economic development. The region has three principal technology clusters – plant and life sciences, advanced manufacturing, and information technology. Together these clusters employ approximately 113,000 St. Louisans (Bezold, 2004).

The success stories in South Carolina and St. Louis cited above confirm that economic clustering serves the interests of both business and city/regional planners. But, they do not spread to instances in which knowledge economy workers, have profited through interactions with universities.

However, Richard Florida would hail the robust strategy of blending legacy resources with new economic trends as successful illustrations of some of the recommendations he makes in his 2002 work, *The Rise of the Creative Class: And How It's Transforming Work, Leisure, Community, and Everyday Life*. As earlier mentioned, he spent a majority of his book describing the “creative class”. He argued that the “creative class” is an emerging, important and powerful economic force that requires attention by economic development professionals. He further argued that a community must be established to foster a creative economy. He statistically constructed a protocol of technology, talent, and tolerance for defining a creative economy (249). He recommended a core of a technology university, when possible. Among many other examples, he discussed the potential of the Research Triangle Park in North Carolina, “Route 128” in Massachusetts and California’s Silicon Valley.

In 1994, AnnaLee Saxenian contrasted two of these regions, “Route 128” in Massachusetts and “Silicon Valley” in California. Both regions had grown economic

powerhouses from the same legacy of military research contracts with and around universities. Both powerhouses became economic engines around new computer technologies. Saxenian provided a history and a status of the two regions to show that, unlike Route 128, Silicon Valley was able to sustain economic success (2). Based on the comparison, she believed that the contrast in business climates of the two regions made the difference in outcome (6).

Saxenian pointed to the community that was built in Silicon Valley as being the core of the region's success:

“Silicon Valley has a regional network-based industrial system that promotes collective learning and flexible adjustment among specialist producers of a complex of related technologies. The region's dense social networks and open labor markets encourage experimentation and entrepreneurship” (2).

She went on to specify the components of the Silicon Valley that sum to this successful region. It began with the flexible and technologically dynamic intrafirm relationships (38). The learning was not confined to individual firms. Firms were “embedded” in the economy, leading to nimble adaptation (7). Mutually beneficial inter-dependencies existed across the region supported by both formal and informal networks. Everyone involved was committed to sustaining the region's success through collaborative practice and constant review. The combined efforts created a demand for needed changes in policy (54). Local government responded to the demand for change in policy.

Corporate Culture and Climate

In order to describe intrafirm relationships in her 1994 work, Saxenian often referred to the differences among the characteristics of companies that are located in Silicon Valley and those of companies located in the Boston area. Although she never specifically referred to either “corporate culture” or “business climate” when she described the characteristics of the firms, intrafirm relationships, the networks, or any other part of the communication infrastructure, in fact she described traits of both culture and climate.

The concept of a corporate culture was comprehensively introduced by Deal and Kennedy in their 1982 work, *Corporate Cultures: The Rites and Rituals of Corporate Life*. In that book they made the case that corporate culture parallels the prescriptive traits of an ethnic culture. They showed how cultural traits like “rules” (3), “values” (21), “heroes” (37), “rites and rituals” (59), and “communications” (85) exist within the confines of a corporation and, when studied, can identify the culture that is unique to that organization. Taken collectively, the spoken and unspoken instructions for conducting day-to-day business, the things that are held dear to the company’s existence, the people that are idolized, the things that are celebrated, and the way communication occurs, convey a corporate culture.

Deal and Kennedy posited that in order to make changes in a corporation, the culture needs to be understood and used to execute change (114). They proceeded with insight to reading cultures and to reshaping corporate cultures as necessary. Since this 1982 introduction, interest in corporate culture has been developed in some specific

arenas. Some of this literature was reviewed by the researcher in order to inform and guide the research in framing the second phase of the research. That is, this literature offered some experience with ethnographic discussions of corporate cultures that can be modeled in the study of the companies resident on campus.

Corporate culture provided a basis for recommending more powerful strategies to compete in the marketplace in *The Discipline of Market Leaders: Choose Your Customers, Narrow Your Focus, Dominate Your Market*, written by Michael Treacy and Fred Wersema in 1995. Based on a review of numerous market leader corporations, Treacy and Wersema proposed that successful companies distinguish themselves in the market by strictly conforming to one of three value disciplines – operational excellence, product leadership, or customer intimacy. They posited that customers are loyal to a company when the product or product delivery adheres to one of these three value disciplines. They further proposed that a company will succeed by choosing and staying disciplined around the appropriate value proposition provided to the appropriate customer target market.

With this introduction, Treacy and Wersema provided a stylized company form of each of the value disciplines. They proposed that these corporate descriptions were consistent regardless of differences in company industry, size, or product types. The remainder of the book provided recommendations to company leadership on how to capture market share successfully by strictly constructing company culture around the appropriate value discipline. The description of companies that follow product

leadership provide a sturdy template for evaluating Centennial Campus corporate partners and is, therefore, used in this study as a theoretical framework.

While Treacy and Wersema's book was directed primarily at using corporate culture as a management tool, anthropologists have offered instead, discussions of corporate culture as it has been illuminated through long-term field studies. *Spectacular Nature: Corporate Culture and the Sea World Experience*, written by Susan Davis in 1997 was one of the ethnographic studies reviewed. This book gave an extensive view of the culture that has been developed by Sea World, an amusement park owned by a large corporate conglomerate. Sea World in San Diego was originally built as a public park to provide a tourist attraction which would highlight the local feature of San Diego's location on the ocean. The "Oceanarium" (23) was designed to be a museum that delivered educational material in an amusing fashion. After a long history of struggling to make the enterprise viable, Anheuser-Busch purchased Sea World and poured huge sums of capital into making the park more attractive. Through years of participant observation and then interviews, Davis illuminated the persistent tension between the legacy of educating the public and the need to make the "education material" attractive enough for people to buy.

A second book which relates corporate culture, adds to the background of ethnographic studies. In *Moral Mazes: The World of Corporate Managers*, R. Jackall (1988) reported his experiences in dealing with the "moral code" of large corporations (1). He clearly stated that he does not make any judgment about the subject at hand, but

is simply reporting the phenomenon (3). He used interviews and observation, but also spent a lot of time reviewing written company archives. The shifting tone in this written material cued him to changes in the organization and the likely reasons behind the changes. He followed the archival review up with refined interviewing of the people who were part of the experiences. Based on these reviews and the follow-up interviews, he drew conclusions about the hidden but very expected “evaluative rules” (4) of those managers in the corporate environs he studied. Interestingly, the author refers to Treacy and Wersema’s work on corporate cultures when discussing the use of consultants to communicate values in these large corporations (142). The principle investigator’s personal experience in the executive ranks of a corporation can confirm his incredible insights.

Allen Batteau (2000) addressed the importance of recognizing the study of organizational culture in a way that will allow anthropologists and management theorists to contribute to each other’s understanding of the subject. He examined the difference in the concepts between the two arenas of study. He concluded that attributes of culture can be studied in organizations: rites of passage, personhood, gift-exchange, and totemism. He emphasized that studies of organizational culture will continue to be conducted by practitioners of both disciplines, and recommended methods to minimize the tension between the two arenas. Primarily, Batteau suggested that the disciplines learn to appreciate the value each brings to the enrichment of the subject.

This study will build on the strengths of both approaches to the subject of corporate culture. This part of the literature review did not necessarily inform the researcher on the background of the research question in this study. Instead, as hoped, the review of this particular literature provided a real roadmap for the second phase of the research.

Summary

No research could be found on joint efforts between a university and the local economic development units to create a targeted marketing effort at companies interested in university/industry collaborations. Nor was any research found that outlines a set of factors designed to provide a basis for a positive and effective strategic alliance between a university and a set of private sector organizations. However, this literature review provided insight to the potential of these collaborations and the anatomy of successful alliances. The review of partnerships and strategic alliances offer significant findings to build the analysis of this study. The review of corporate cultures, climate and values offers a platform to review the corporate partners on campus.

CHAPTER 3: RESEARCH DESIGN AND METHODOLOGY

This qualitative study comprised data collection, analysis, and presentation that focused on two key dimensions of the partnerships resident on Centennial Campus. The first part is the Centennial Campus business climate. The second is the values of organizations that locate on the campus. As is true with any business community, Centennial Campus exudes a business climate, both explicitly and implicitly. Business climate is an atmosphere that prevails, creating a certain environment with particular conditions. Business climate can effectively support a company's organization culture. Organization culture, founded in corporate values, is the essence of a company's philosophy, providing a sense of common direction and guiding day-to-day behavior (Allen and Kennedy 1982, 21). Values, specifically corporate values, are the accepted principles or standards of the organization. Therefore, the methodologies used in this study had to be constructed to gather data not only from the obvious "surface" sources, but also from sources that provided views from under the surface.

Data collection occurred through the use of the qualitative research techniques of semi-structured and formal interviewing, observation, participant observation and ethnography. An analysis of a sample of companies resident on campus showed the relationship between them and the Centennial Campus culture. Data gathered from the campus organization and the sample companies supported the analysis of why companies decide to locate on the campus. Finally, a series of resultant corporate case studies

supported the analysis to determine the commonalities and differences of companies that decide to locate on the campus.

Background on Research Design and Implementation

By nature of the project's objectives, the Precision Marketing Project required specific research that would provide a better understanding of "incentives" available to prospects for locating on Centennial Campus. Intuitively, people involved in the project understood the benefits of the collaborative potential on the campus; however, that understanding did not have enough form for effective use in the project targeting and marketing phases. This aspect of the project became the purview of this research's objectives.

Initially, project leadership and the principle investigator seriously considered a preference toward quantitative methodologies. Preliminary research obviated the appropriateness of qualitative techniques. On the surface, quantitative techniques were considered inappropriate because the experience of recruiting companies to Centennial Campus did not allow for a significant sample size. In simple terms, the "n" was not large enough. Much more importantly, the nature of the research objectives drove the study to qualitative techniques. As noted in a qualitative handbook:

"The word *qualitative* implies an emphasis on the qualities of entities and on processes and meanings that are not experimentally examined or measured (if measured at all) in terms of quantity, amount, intensity, or frequency. Qualitative researchers stress the socially constructed nature of a reality, the intimate relationship between the researcher and what is studied, and the situational constraints that shape inquiry. They seek answers to questions that stress *how* experience is created and given meaning." (Denzin and Lincoln 2000, 8)

Having determined the appropriateness of qualitative methodologies, ethnography became central to the study. Ethnography involves close inspection of a subject matter by a researcher. As noted by Hammersley and Atkinson (1995), “We see the term as referring primarily to a particular method or set of methods.... involving ...the ethnographer participating, overtly or covertly, in people’s daily lives for an extended period of time, watching what happens, listening to what is said, asking questions – in fact, collecting whatever data are available to throw light on the issues that are the focus of the research (1).” A key aspect of ethnographic design is fieldwork that is a “reflexive process (24).” As an example, research begins with a “foreshadowed problem” (25) that in the pre-fieldwork and early stages of data collection, is turned into “a set of questions to which an answer can be given, whether this be a narrative description of a sequence of events, a generalized account of perspectives and practices of a particular group of actors, or a more abstract theoretical formulation (29).” It was during this phase of the study that research questions were clarified and design was formulated. However, the reflexive process was maintained throughout the study, because it is important to “begin with some formal analytic notion and seek to extend or refine its range of application in the context of a particular substantive application (31).”

Effective fieldwork is best accomplished when the researcher puts “him- or herself into the position of being an ‘acceptable incompetent’ (Hammersley and Atkinson 1995, 99),” with complete participation as the ideal. As a resident of the campus, the researcher is, in fact, a complete participant in the activities of the Centennial Campus, but not specifically in the recruitment activities. The dynamics of the recruitment process

or how and why companies come to Centennial Campus was the foreshadowed problem. Therefore, an agreement for participant observation was made with the development office. This participant observation as a “quasi-development officer” allowed intimate insights and access to the recruitment process. This experience clearly illustrated that there was a palpable difference in companies that were interested in the campus for its collaborative potential and those that were just interested in space. The reflexive nature of the process allowed the researcher to refine the design to include a collective case study of companies that had decided to locate on campus and who were taking full advantage of the benefits of the campus. These companies could illuminate answers to the questions of why a company locates on campus and how that location decision has benefited them. According to Robert E. Stake (2000, 437) a collective case study is appropriate when a researcher wants “to investigate a phenomenon, population, or general condition.” Further, he suggested that it “...is instrumental study extended to several cases. Individual cases in the collection may or may not be known in advance to manifest common characteristics. They may be similar or dissimilar, redundancy and variety each important.”

Data collection in both ethnography and case study review must be composed of a collection of appropriate techniques (Denzin and Lincoln 2000, Stake 2000, Hammersley and Atkinson 1995, and Yin 1994). Beyond participant observation, simple observation, watching what people do, either overtly or covertly without interaction, is a foundation. Interviewing is an important source of data and is used to “illuminate” (Hammersley and Atkinson 1995, 131) the subject at hand. Formal interviewing is structured with pre-

specified participants and timing. An interview guide is often used to maintain the structure. Semi-structured interviews occur more spontaneously and are usually used to gain insight to a more narrow interest area. Semi-structured interviews often result as a follow-up routine to some data collection. In fact, in general, these informal interviews are conducted to support the more formal techniques. Importantly, document review and the collection of archives consistently amplify data collection.

Ethics creates a heavy burden throughout qualitative studies (Denzin and Lincoln 2000, Stake 2000, Hammersley and Atkinson 1995, and Yin 1994). Prior to the start of interaction with any subject, these studies required submission to and approval by the Institutional Review Board for the Use of Human Subjects in Research (IRB). Both phases of the study were reviewed by the IRB. The IRB application forms and the constituent consent forms are attached as Addendum C. Anonymity and confidentiality of sources were required as part of the agreement. Pseudonyms were developed and used for company names and interview subjects in all fieldnotes and jottings. Therefore, references to interviewed and observed subjects are necessarily made with non-specific identities in this dissertation and any future reports.

Methodology Used to Analyze the Climate of Centennial Campus

The bulk of the research to evaluate the campus began with attention to the important role of Centennial Campus development officers who recruit companies. These people are a combination of “real estate agents” and “development officers” for the campus. They are the primary contact for entities considering a site location on the

campus. Their role is intended to exemplify the partnership mentality of the campus from the beginning of a corporate partners' experience with NCSU. They were vital in the research. Observations of how they conducted their jobs on a day-to-day basis offered great insights to the recruitment process, the nature of the prospect inquiries, and the dynamics of the value proposition offered to the prospects. These development officers served as informants throughout the study, even after the research moved beyond the participant observation.

These two informants opened the way for this researcher to observe and participate in a vast spectrum of Centennial Campus activities. Part of my time with these officers was spent while they were recruiting companies. The recruitment process consists of many stages. The participant observation was conducted in each stage with a combination of prospective organizations. Some of these companies have proceeded to locate on the campus while others were eliminated.

The majority of participant observation time was spent in activities that are supportive of the recruitment and retention processes. As part of the participant role, the researcher spent numerous hours in meetings used to develop strategies and plans for marketing, partner recruitment, and community building. Participation was robust enough to include serving a lead role in an early recruitment effort of a national non-profit organization.

As an official partner resident on the campus, the principle investigator easily participated in some of the campus' community building activities. Opportunities to participate in campus community activities were extraordinarily rich in that the campus celebrated its 20th anniversary. A dual participant purpose of resident and researcher informed the research in a unique way. Being the lead person of a campus partner organization made interviews and conversation easy with campus officials and company leadership. As such, the interviews had the candid nature of peer-to-peer discussions. In fact, at times company leadership appeared to be too deliberate or too cautious in their response due to their perception of the researcher's role as an NC State University representative. However, initial reticence was eventually overcome with the more natural candor.

Parallel to the participant observation, oral and documented histories were gathered from those individuals that were involved with the Centennial Campus conception, ideation, and initial development phases. The research timeframe spanned three Directors of the Centennial Campus Development Office – Bob Geolas was the Director until February, 2004, Dennis Kekas served as Interim Director from February, 2004 until October, 2005, and David Winwood became the Director in October, 2005. Contact was maintained and data was gathered from all three of these directors. The ongoing process of marketing, prospecting and locating companies to Centennial Campus involves a variety of key people, both inside and outside the university community who are not directly associated with the Centennial Campus Development Office. Interviews and observations included several of these key actors in the decision-making process.

In the study year Centennial Campus celebrated its 20th anniversary. Accordingly, events, independent data-gathering and people were unusually concentrated around the celebration activities. This concentration of effort provided rich and easy access to much of the review materials and people that needed to be reviewed, observed and interviewed.

This extensive review was designed to provide insight to the business climate created on the campus and the anatomy of the partnerships on the campus. At the same time, data-gathering was conducted about companies that have participated in a site decision that included consideration of the Centennial Campus. The characteristic make-up or the demographics of the current partners located on campus became clear from this aspect of the research.

The literature review and data-gathering provided a preliminary understanding of why companies locate on Centennial Campus. It also became clear that there is likely a consistent profile of companies that do make the decision to locate on campus. This preliminary understanding directed the research toward an appropriate blend of companies for the case studies and an appropriate interview template to build the case study database.

Methodology Used to Analyze the Partner Companies

The significance of organizational culture as a way of understanding, describing and explaining complex social phenomena has been increasingly acknowledged by students of organizations. Some believe that the influence of globalization will converge with political and economic factors in a way that will make organizational culture more important in determining values (Batteau, 2000). The research proposed here makes an intimate exploration of how the cultures, or more specifically the corporate values, of five organizations allowed them to consider the premium price of locating on Centennial Campus as a cost of doing business. Private organizations that have been involved in a potential Centennial Campus location decision fall into one of three categories: (1) companies that considered locating on the campus and decided not to come, (2) companies that located on the campus and have since moved off the campus, and (3) companies that have moved on the campus and stayed. The research concentrates on examining the values of companies in the third category, because it is these company values that we hypothesize are a match for the campus location and, that match sustains and supports a flourishing company on Centennial Campus.

The research approach used in this phase of the research is a collective case study approach (Stake, 2000). It includes a longitudinal, multi-site case study of organizations that have located on Centennial Campus. The sites were selected to provide the greatest potential for revealing the cultural match or the Centennial Campus partnership at work. To the extent possible, the researcher became immersed in a single company at a time and evaluated each case study independently.

The immersion process followed the “diagnosis” roadmap outlined in Allen and Kennedy’s *Corporate Cultures: The Rites and Rituals of Corporate Life* (1982, 129). The process involved: studying the physical setting, reading what the company says about its culture (131), testing how the company greets strangers, interviewing company people (132), and observing how people spend their time (134). To begin each company immersion process, an extensive review of the company and its history were conducted. At the same time, Centennial Campus personnel were interviewed about each company and university records on that company were reviewed. Company internet home pages and written materials, such as annual reports, were reviewed. Articles published about the company were also examined. Archives, such as company products and marketing materials, were collected. This background work allowed for interviews to be focused on the more intangible characteristics of each company.

Interviewing was the most critical piece of this phase of research and composed the primary method of data collection. The purpose of the interviews centered on key actors reflecting on their behaviors and decisions. In addition, it allowed the researcher to discuss corporate values and the decision to locate on Centennial Campus in detail. The early research and a pilot interview yielded an interview guide shown as Appendix D – Interview Guide. Without exception, the guide questions provided a good start to earn trust in the interview process while providing a solid platform for more penetrating discussion.

Identifying the appropriate company personnel for interview offered another challenge for strengthening the research. The formal interview subjects were selected based on their position in the organization located on campus and their influence in decisions related to selecting and/or maintaining their location on campus. If appropriate, individuals responsible for the human resource and product or technology functions were also included. The majority of these subjects were identified with the help of Centennial Campus personnel. However, a significant number were identified by the first set of interview subjects. Once their own interviews made the objectives and ease of the process clear, the majority of these subjects became very generous in suggesting and establishing other avenues of communication and data. In each case study, a primary source of information was designated. This primary source of information was the owner, the company Chief Executive Officer, or in a key management post of their company. All other sources of information were used to affirm, amplify, augment or contrast these primary sources. The report findings reflect this approach to data-gathering and are structured to sharpen the analysis.⁷

Centennial Campus or the other referring contacts made the initial contact with the interview subjects. A follow-up phone call using the guide attached as an appendix (Shown as Appendix E -- Script for Telephone Contacts to Establish Interviews) initiated the personal contact with the subjects. Interestingly, nearly all of the subjects preferred to

⁷ In the following report, when interview or observation data is used to support the analysis, priority is given to quotes from the primary sources of information. Accordingly, quotes from these primary sources are not specified and it should be assumed that they are from these primary sources. Quotes from other sources are distinguished and are specifically identified.

communicate via e-mail, so e-mail correspondence followed phone calls. The follow-up e-mail was requested even in the cases where the person was contacted one-on-one.

In total, thirteen formal interviews were conducted with company partner personnel. Numerous informal interviews completed this facet of data collection. The formal interviews included between one and four individuals from each site. The number of personnel interviewed at each site depended solely on the needed depth and breadth of personnel to obtain sufficient data on that particular company. Each interview lasted between thirty minutes and two hours. The formal interviews were taped and professionally transcribed.

These techniques were augmented by on-going observations. These observations occurred while waiting for and between interviews. Office space and conference rooms were often made available to the researcher between interviews. Much was learned by simply waiting in the lobbies for the start of interviews. Tours of facilities were provided by many of the interviewees. Without exception, interviewees would provide introductions to additional important contacts in the company. Many of these contacts included key people that were not necessarily located on the campus but had much to do with the decision to locate on campus. To complement the research effort, the principle investigator's resident status allowed periodic site visits for unstructured observations. These unstructured observations and numerous follow-up phone calls allowed data verification.

The independent time with each organization site allowed the research methodology to be optimally customized to become intimately familiar with the company beneath the surface and with key actors. It also allowed time to explore the development and maintenance of the values match to the campus.

Because it is so difficult to generalize from single cases, the research also includes cross-site analysis that identifies major patterns (Stake, 2000). The approach recognizes both the need to inform and the importance of organizational variation. That variation cannot be explored without case comparison. Thus, while preserving holistic data from specific sites, the conduct of more general, comparative analysis became critical.

Selected Organization Sites

According to Treacy and Wersema (1995), organizations with like value disciplines have the same cultures, regardless of differing demographics (29). In other words, companies that grow from the value discipline of product leaders will have the same culture regardless of their size, their product, their corporate structure or their ties to the university. In other words, if the companies that locate on the campus do indeed share a common value discipline around their product or the research on their product, a discernable likeness in their corporate values and cultures emerges. Therefore, in order to enrich the cross-site analysis, the selection of organizational research sites catered to the diverse representation of organizations on campus. Table 1 on the next page shows the diversity offered by the research sites.

Company Type	Number on CC	Year Began on CC	Corporate Structure	University Relationships
Food science	6	2000	Sole proprietorship	Faculty: 3 Students: 2 Graduates: 4
Pharmaceuticals	13	2003	Independent start-up	Faculty: 1 Students: 1 Partnership with a Microbiology professor
PDM Software	35	2001	Sole proprietorship	Faculty: 2 Students: 12 Graduates: 9 Regularly participate in Senior Design projects
Product realization	47	1999	Subsidiary of a publicly-held firm	Faculty: 1 Students: 3 Graduates: 7
Software	300	2001	Publicly held firm	Faculty: 7+ Students: 10 Graduates: many Member of a center

Table 1: Selected Organizational Sites

Fair representation exists in other dimensions. Diversity in the background and the history of the companies' locating to Centennial Campus, the recruiting efforts to bring the organization to campus, and the history of retaining the companies on campus are all represented. Only one of the companies started their enterprise on the campus. All of the others had locations in the Raleigh-Durham area before moving to Centennial Campus. One company licensed a technology at NCSU and later moved to the campus to be closer to important resources. Three of the companies moved here as a result of previous networking by some sort of university relationship. These relationships introduced them to the potential of being located on the campus. Only one was recruited "blindly" through a typical marketing process. In the past two years, two of the

companies have seriously considered complete evacuations off of campus to other locations in the area.

Other interesting distinctions among these companies occur. All of the companies have grown in number on campus. Two companies have expanded their physical space on campus. Two companies are currently in the process of new physical expansion on campus. One company has expanded employees and physical space elsewhere in the area. All but one of the companies has facilities in other parts of the United States and overseas. Three of the companies are “headquartered” on campus. The remaining two companies are both headquartered in other states in the United States.

Clearly, the companies that are on the campus have clustered for reasons outside the surface demographics of the companies, any consistent business objectives, or “boiler-plate” recruitment efforts. This multi-faceted diversity will strengthen the research reliability and validity.

Validity

Triangulation of data across sources and through multiple techniques provides the central assurance of the research’s internal validity (Stake, 2000 and Yin, 1994).

Establishing strong connections to the right people, peer review of the interview guide and techniques, pilot interviewing, and ongoing analysis of data also served to prevent potential threats to reliability and internal validity.

Relationships established early with the Centennial Campus Development Office allowed for easy access to the five site locations and other people that participate in location decision-making. These relationships, personal reputation, and the extensive study of each company prior to interviews formed an immediate credibility with people being interviewed. This credibility allowed for a focus on which to gain an in-depth understanding of company values and their match to the business climate created by Centennial Campus.

The interview guide and the mode of interviews were reviewed by peers. Two pilot interviews of additional corporate partner organizations were conducted. Appropriately, Robert Yin (1994, 33-37) strongly encouraged pilot interviews to strengthen the reliability of the interview method of data collection. Modifications and refinements resulted from both the reviews and the actual pilot interviews. Significant input from the committee refined the interview guide structure and questions. Of particular note was the question that asked each person to describe the company in three words. This description and its match provided a solid basis for the triangulation of data.

Persistent review and analysis of data allowed a view of missing data or data that appeared to be stranded. Constant communication with the Centennial Campus Development Office kept data flowing in throughout the study.

By nature, qualitative research methods, especially case studies, are not considered externally valid or generalizable to other situations (Stake, 2000). In

exchange for the in-depth and intimate information gained from this kind of study, researchers sacrifice external validity. However, a sample of this size may be broad enough to allow for generalizations among similar corporate tenants of similar university research parks. Certainly, the results can create a framework for more extensive research.

Data Analysis Procedures

Fieldnotes and the deployment of two coding systems made up the core of the data analysis. The extensive data-gathering yielded hundreds of pages of fieldnotes. Any interaction with data was organized and typed into fieldnotes. This included all observations, review of materials, any side conversations, and, of course, all of the interviews.

Two coding systems ferreted out findings in the two aspects of the research. Coding systems help the research in defining categories of interest from the data-gathering. By putting gathered data in these categories, analysis can be conducted to determine similar and/or dissimilar frequency of thoughts and ideas. As a simple illustration of a coding system, consider the example of rating a restaurant. Assume that you could keep copious notes of every aspect of the restaurant experience as it occurs. After the experience, a coding system would be developed to include such aspects as food, service, and ambiance. Food would be further subdivided into taste and presentation, etc. Further assume that you want to evaluate the taste of the food. Notes are coded and all of those items coded as “Food taste,” are gathered. By reviewing all of the food taste coded entries, you could factually determine the taste of the food across all

courses. Coding a set of ongoing notes allows you to capture the sentiments of the entire experience, which minimizes the bias of recalling only the impeccable taste of your favorite steak or a particularly foul taste of spice in the soup. In the case of many experiences over an extended period of time, coding not only serves to group similar experiences for review, it also serves to organize enormous amounts of data for easier analysis. Returning to our simple example, if the restaurant rating depended on several experiences at the same restaurant, coding would allow an analysis of a trend of experiences or cross-case study analysis. If a trend of a foul taste of spice persistently appears in the category of “Food taste,” you could determine that the chef is too heavy-handed in his use of spices or that the chef staff uses spices improperly.

The needed coding is assumed fairly early in the research. Table 2 shown on the following page depicts the coding scheme used to analyze and define the business climate created on Centennial Campus. Constant refinement occurred on the coding categories throughout the analysis. This coding system was used on the entire set of fieldnotes. That is, these codes were applied to fieldnotes from both interactions related to Centennial Campus and to the corporate partner organizations.

A separate coding system, shown on the following page in Table 3, was developed to conduct the cross-site analysis of the case studies. As mentioned earlier, to the extent possible, an independent case study review was conducted and completely organized on each company. The experience of the interviews once again offered some early indications of important trends to be analyzed. The categorical coding shown in Table 3 on the following

Subject	Code	Color
Old world vs. new world University of the future Convergence of cultures Reputation Constant change	Co cou cocc Cor Coc	Yellow
Responsibilities Of NCSU (brokering) To NCSU	Cr Cro Crt	Green
Value proposition Enrichment Opportunity Facilities	cvp cvpe cvpo cvpf	Lt. blue
Relationships Networks Collaborations On-going	Cr Crn Crc crog	Pink
Community-building Affiliate services Activities Between partners	Ccb ccbas ccba ccbp	Dk. Blue

Table 2: Coding System for Centennial Campus

page developed the analysis across sites. Again, constant refinement of both coding systems occurred based on an ongoing review of fieldnotes. These refined coding schemes focused analysis on important aspects of the data.

Typewritten fieldnotes in MS Word[®] software afforded the opportunity to use many of the software features to support the analysis. Specifically, a devised system used the bookmark and highlighting features of the software. Fieldnote coding used the

bookmark system. The bookmark feature in Word allows the user to “tab” entries as the user designates. The tabbing on each bookmarked item involved the coding designation shown in the two coding tables. Using the series of codes to find the specified bookmarks, entries were found and pulled into the coding table. This grouping exercise created a database of collated entries.

Subject	Code	Color
Company mission and values Descriptors Corporate values Vision of the future Philanthropy International connections	ocm ocmd ocmc ocmv ocmp ocmi	Teal
Product Descriptors Creative force Champions	op opd opcf opc	Purple
Environment Facilities People “Feel”	oe oef oep oefe	Khaki
Leadership characteristics Style Personality Look	ol ols olp oll	Gray

Table 3: Coding System for Campus Partners

While entries were found and collated, the data analysis procedure included the opportunity to put tabbed data in context as necessary. The highlighting feature of Word allowed this opportunity. As tabbed data was located, the appropriate highlight color, according to the coding scheme, designated the code association. This companion highlighting allowed the researcher to quickly identify and understand the context of remarks made. The resulting analysis occurred by shifting between the collated data in the coding tables and the fieldnotes coded by companion highlights.

The interview template used for the formal interviews provided an opportunity to compare and contrast consistent issues across case studies. The grouped data allowed focused analysis of issues and trends in both aspects of the research.

CHAPTER 4: BACKGROUND AND FINDINGS ON CENTENNIAL CAMPUS

“The real action at today’s top universities takes place at the interface – where ideas, people and technology from the industry, government and universities come together to solve problems and create new products, better service, and smarter workers. Centennial Campus is Master Planned to use that interface to create a win-win environment for NC State and its partners.”⁸

In its simplest form, Centennial Campus is a 20th century land grant made to North Carolina State University, building on its tradition as a land-grant institution. However, conceived as “something unique,” the new campus has become a model of real collaboration. At the recent Centennial Campus 20th anniversary celebration, George Worsley, former Vice Chancellor of Business and Finance said, “Centennial Campus is not just a place, but more a process of collaboration.”⁹ The essence of this collaborative spirit has become renowned as Centennial Campus.

Centennial Campus Development

In the 1990’s, Chancellor Larry Monteith took aggressive steps to invigorate the slow progress of the campus’ development (Meszaros, 2004). It was under his guidance that much of the alliance-building began. With the help of numerous stakeholders, he recreated the master plan to better differentiate Centennial Campus and to make it more appealing to more partners. It was also under his leadership that a partnership office was created.

⁸ 1999 Promotional Booklet for Centennial Campus, North Carolina State University Archives, Box UA 3.10.1.

⁹ This event was held on April 19, 2005.

The Partnership Development Office, later named the Centennial Campus Development Office was created to serve as a liaison between NCSU and tenants, or partners, of Centennial Campus. The partnership developers work with representatives from corporate and government organizations on issues related to locating and maintaining space on the campus. One important role of the developers is to act as a screen for potential tenants. The university established five evaluation criteria used to determine the potential tenant organizations' adherence to programmatic requirements of the faculty and departments at NC State University:

- The organization should have an established relationship with some unit of the University, or there must be expressed interest by the organization and the University in establishing such a relationship.
- The organization could have an interest in the University's intellectual property, i.e. patent or copyright.. or in the unprotected research produced by our faculty and/or graduate students.
- The organization could have been a sponsor of research or a member of one of the University's established centers or institutes. These multi-disciplinary units, with their corporate members, are a natural precedent to resident partnership status.
- The organization should have as its principal activity the conduct of research or research related management in their facilities on Centennial Campus. Research and Development is a logical extension of research. If manufacturing is involved, it should be in a pilot or limited units of production.
- The organization should present evidence of financial stability to the University in negotiating for space on Centennial Campus. Other factors such as quantity of space (a suite vs. a complete building), length of lease commitment and other financial considerations will be addressed on a case-by-case basis.

These criteria are used by the developers to confirm the potential tenant's intent for authentic partnership.

The master plan lays out seven categories of land use associated with Centennial Campus: research and development facilities, multi-tenant office space, special-use office space, retail establishments, incubator facilities, residences, hotel and executive conference center. (The Master Plan Summary is attached as Appendix F along with the URL to the entire document.) Progress on construction has been good in many of these categories. Others lag, primarily because the continuous balance in the financial, legal, and public relations arenas must be maintained.

The financial and legal balance overcame a major obstacle when the State Legislature passed a law allowing, ‘...the Board of Governors of The University of North Carolina to issue revenue bonds, payable from any leases, rentals, charges, fees, and other revenues with no pledge of taxes or the faith and credit of the State or any agency or political subdivision thereof, to pay the cost, in whole or part, of buildings, structures, or other facilities for the Centennial Campus...’¹⁰ As a result, the Centennial Campus model has created a pool of money from indirect costs that supports research throughout the university. It also allows the land to be leased rather than sold to corporations and government. Much of the construction progress comes from the lease of land to corporations such as Craig Davis Properties who built the Venture properties. The Venture Center with its four office buildings is Class A multi-office space that houses a major portion of the private sector partners on campus.

¹⁰ Centennial Campus Financing Act, June 10, 1987, NCSU Archives.

Centennial Campus – the Place

The Centennial Campus of North Carolina State University is as much a concept as it is a physical space. It was designed as a blend of college campuses, a university research park, and a constructed township. Those who developed the campus design dubbed it a “technopolis.” It is considered by policy-makers, university leaders, and economic development gurus to be a highly unique concept that has been very well executed. The designers planned it as a way to optimize partnerships in knowledge discovery and technology transfer. They felt that by blending private, governmental, and university partners in the same location, synergy would naturally occur. Just across the main entrance of the College of Textiles, the corporate logo for ABB, a Swedish electric power components company, is emblazoned at the top of a sleek building. The signage in front of the four Research buildings designates a blend of university units, non-profit organizations, and branches of federal government agencies. For example, Research I hosts the Institute of Transportation Research and Education, the Science House, and the Advanced Energy Laboratory.

Aesthetically-pleasing buildings are almost statuesque and gracefully spread across the rolling landscape. Every building has three apparent architectural features – red brick, pristine glass, and polished stainless steel. The combination is always striking and pleasant. The architectural committee has ensured that the buildings maintain a clean crispness that both distinguishes each building and unifies them to the campus culture. As you drive onto the campus, you pass new construction and perimeter parking lots. Eventually you reach the crest where there are a number of occupied buildings. Turning right or left onto one of the main campus roads, brings you to generous landscaped plazas

with sidewalks that seem to meander haphazardly around the plaza connecting seating areas. The elegant buildings are situated around each other in clean geometric shapes which mirror the quadrangle legacy of the main NCSU campus. The building communities are finished off with beautiful landscaping that incorporates those ample gathering spaces throughout. Clean and tidy roads wind easily through the buildings, punctuating the crispness of the campus design. Many of the roads lead into the undeveloped part of the campus, holding the promise of things to come.

Construction is a part of the vim and vigor of Centennial Campus. Traces of freshly turned red clay are everywhere. Buildings have been added to the campus on a regular basis over the last several years. The excitement surrounding the construction process is the level of activity that is immediately seen as a new building is finished. Within days of its completion, a building is fully occupied. People swarm to the new building like bees to a hive. Faculty members and corporate managers carry loads into the building. Construction workers carry loads out, cleaning the last vestiges of their work. Students and other visitors make their way over to check out the new location.

The real excitement of the campus, however, lies in the robust diversity of the people that occupy the campus. People of every description fill the campus at all hours for a variety of reasons. Students rush to class toting heavy book bags. Visitors with glazed looks make their way to assigned locations. Faculty and staff stroll to classes or work throughout the day. Corporate types pile out of their cars at the start of the day and around lunch, busily making arrangements on their cell phones while bustling to their

office or their next meeting. Professionals from all over the country come to visit this economic development and technology transfer exemplar. It is considered by many Raleigh's hidden jewel.

With all of the hype associated with the campus, one might expect disappointment when setting foot there. Instead, the experience always exceeds expectations. At Centennial Campus, students, faculty, business people, and designers congregate and exchange ideas in well-designed gathering spaces. It is here, with this knot of people from different worlds discovering their common interests, that the dream of the campus is realized.

A Unique Business Climate

Providing a place to successfully create this convergence, this dream, has been the “payoff” for the gift of land. The challenge of shepherding this convergence is obvious. However, the complexity of sustaining a business climate that supports that convergence is often minimized or entirely misunderstood. In fact, a complex, layered infrastructure sustains the campus. The essence of the campus has to be sold to many constituencies. Obviously, the space is sold to those who reside there, but that essence and the opportunities it brings must also be sold to the university that sustains it, to the city which acts as its home, to the elected and appointed state officials who continue to support it, and to the public who will ultimately benefit from it. The partnership begins with those who are a part of the campus, but it is supported by a set of concentric partnerships among these many entities. Without the buy-in from all of these constituencies, the

partnerships cannot be adequately formed to fully create the dream that was intended. This constantly evolving theme is at the heart of the challenge.

The essence of the campus is often called the university of the future. It was this concept that was originally sold and spawned Centennial Campus. The task of defining that concept is an important one, because it is that definition that captures the interest of the audience to which the campus is being sold. The former chancellor of North Carolina State University, Marye Anne Fox, was often quoted as saying that Centennial Campus is the university of the future because, “what our students experience with the companies on Centennial Campus is an advanced form of financial aid.” The focus of the future in this definition is on the opportunities for students to get paid while obtaining real life experiences paralleling their classroom experience. Apparently, the emphasis on providing “real world opportunities” to students has worked. In 2004, a student wrote the following to Chancellor Fox, “... I have been able to work with other NCSU students in real-world business scenarios. ... It has been a great inspiration, great opportunity, great experience. I owe it all to NCSU – truly a place to achieve.”¹¹ This definition of a learning experience beyond the classroom has appeal to many who support the campus concept because it promotes a richer and more significant college experience. But the campus essence is much broader and more universal than this definition promotes.

The importance of the “university of the future” has to have real value for the companies and research groups that choose to locate here. One of the development

¹¹ This is an excerpt from a letter written by a student to the Chancellor in March, 2004 and found in the NCSU archives.

officers said to a prospect, “Well, I think you will find that this is definitely the university of the future, it’s more than a classroom. We have built a place where small companies like yours can get some real value from our faculty and students. It’s a very unique place to be. If you are hiring the kind of people that I think you will hire, your presence here can be a real recruitment and retention tool for you.” A resident of the campus observed, “....it is the fresh, unobstructed view of business that these young people bring to the table.”

That value to companies must be braided into a story that can then be sold by the economic development engines of the community to prospective Centennial Campus tenants. Earlier in the report, Richard Florida’s work (2002) was discussed. His work and those remarks made about his work now become contributing factors in constructing the story for economic development. Florida suggests that an exciting and diverse community should be developed for the new creative class (294). The diversity of people and organizations on Centennial Campus is truly exciting. A company president said, “There’s a lot of energy, there’s a lot of new buildings and development, so it’s nice to be a part of that community.” This diversity is bound by the common value of “real life knowledge transfer.” Another company president agreed with this assessment and talked of its importance, “So, I absolutely 100% agree that you’ve got to create a fertile environment for good ideas.” That real life knowledge transfer is at the core of the “university of the future.”

More Than a Real Estate Deal

In years past, when demand for commercial real estate in Raleigh was high, Centennial Campus was an attractive option for many. Organizations were interested in locating on the campus simply because it was good space so close to the downtown area. Real estate prices were apparently not an issue at the time. These times were difficult for the Centennial Campus Development Office (CCDO). The space had to be protected for those genuinely interested in being part of this new university of the future from those who just needed the space. Even since the real estate market has changed, the space has to be protected from those who just want “the address” of Centennial Campus. A small company president confirmed, “There is definitely a cache’ about being here. It lends a lot of credibility for us, being part of the Centennial Campus...”

From the beginning, CCDO has been responsible for preserving the campus for organizations that will take advantage of university collaborations. Anyone who wants to become a partner must understand that they are negotiating for a value that is “more than a real estate deal.” In a sense, the responsibility for regulating the utilization of the real estate has always been the CCDO role. This regulation occurs as part of the recruiting process and beyond. At the beginning of the process, the companies have to sell themselves as being sincerely interested in university collaborations. One of the development officers said, “Like I said, it’s very interesting. There is a total role reversal. We are selling to them and then by the end of the interview, they are expected to sell to us.” Once a company has located on campus, CCDO maintains the “regulatory” role with visits to partner organizations three to four times throughout the year.

Maintaining the promise of the land grant for the campus means ensuring that partnerships exist on the campus. Throughout, university collaborations are a given.

As a result, the common theme in talking to people who are a part of, support and surround the campus is “more than a real estate deal.” Partnerships and entwined relationships are the real value that is sold on Centennial Campus. Development officers persistently emphasized this point in meeting after meeting:

- “Real estate here is more expensive, yes. But, there are reasons that they should want to come here and pay a higher price.”
- “There can be more in-depth partnerships that are real-time.”
- “That is really what it is about, the partnerships. It’s sponsored research versus enriching research. And when you enrich the research, you are adding to the Centennial Campus culture.”
- “Faculty like long-term, ongoing relationships with them; they like ‘getting in there.’ Money isn’t always the issue. Faculty likes the more practical applications of their research... not all of them, but you can find plenty that do. When you find the faculty that do, you build a relationship that’s more along the lines of a friendship.”
- “NC State University is interested in this campus because we want opportunities for our faculty and students. To do that we have to have relationships that are entwined.”

Key company leaders in partner organizations agree with this:

- “...plus it’s very convenient to the university, and we have a lot of ongoing collaboration with the university, so it makes a lot of sense to be here.”
- “If we don’t have Centennial and we were out in RTP somewhere, we wouldn’t have this kind of aggressive support or the campus Centennial partners. And we really do—the partnership office really goes out of its way to try and help us when we are looking for help, and to help us here at NC State.”
- “But there aren’t any that have it quite the same way as NC State does, I think, because this has an affiliation with NC State; it gives it a different dynamic, than

if it was a bunch of office buildings. There's more of a collaborative culture, maybe."

Building Community – The Job of Brokering the Campus

The role of the Centennial Campus Development Office has evolved to be much more than regulating the partnerships. In order to gain total success, CCDO has to be diligent about building and sustaining this institution of collaboration. Again, this role is emphasized often by development officers in meetings:

- "Well, that is a lot of the secret. The companies or organizations who come here have to show real initiative for wanting to be here. They have to really want it. We move forward with the relationships that brought them here, but we then work with them to find new ones."
- "No matter how good the intentions a company has of working with the university, it can be intimidating. So we make our services very available to everyone."
- "I oversee the development of the growth process with partnerships on campus. It's my job to put you in touch with the right university partners. I will navigate for you, because you know, it's a big university with a lot going on. This won't be a typical real estate transaction, so you need to be interested in those things that add value to your company."
- "This is our effort to farm and sustain partnerships on Centennial Campus. It is part of why we're trying to go through this process. We really want to drive the companies to Centennial Campus from our faculty's perspective. We want to magnify their opportunity to work with companies. That is our priority. As we move forward, we want to ensure that we effectively utilize our space, but our top priority is that these partnerships be the best advantage for our faculty and students."

In addition to fueling partnerships by providing these brokering services, the CCDO holds events that offer the opportunity for both companies and university faculty to broker their own collaborations. For example, the annual golf tournament, which they hope one day will be held on their golf course, is popular with both company executives

and faculty. In addition, the CCDO conducts quarterly partnership meetings for both administrative personnel and executives of the partner organizations. Similarly, the home page of the Centennial Campus is geared not only for recruiting companies but also for supporting the collaborations. Chat rooms are provided for talk among the organizations on campus. Announcements about events and “news” of organizations on campus are included in the partners section of the web site.

Additionally, the CCDO takes responsibility for organizing events and activities that make the partner companies feel that sense of community from the companies’ own perspective. For instance, a Career Fair conducted in 2001. The area was experiencing a tight job market and the partner companies on campus were universally having difficulty recruiting good talent from the university. The career fair was born as a service to the partners. It was limited to organizations on campus and was very successful. Three of the case study companies interviewed mentioned the career fair as an example of the strong support the CCDO provides. Since 2001, the job market has eased, which has postponed the need for another career fair. However, the office maintains a vigil as to the need for the next similar event. Another relevant example of community-building is the intramural softball league. CCDO established this league as a direct response to the needs stated by the partners. An interviewee mentioned, “We want to keep our employees happy and involved with the larger community. The partnership office did set up the softball league as a way of responding to that need.” Two additional companies mentioned their participation in the league.

As part of partner activities and beyond, the campus attempts to provide executive networking opportunities. Once a year, CCDO conducts a roundtable discussion between the chancellor and executives of partner companies. This roundtable serves to enrich the opportunities for the company and to enrich the role of the university's side of the partnership. CCDO follows up with regular meetings at colleges, in departments and with key faculty. These meetings are intended to identify "spin off" opportunities inside the university and to identify target external organizations for recruitment. These meetings inform CCDO about ongoing research. By identifying emerging research trends, the CCDO can broker the campus as a place for companies to house technology transfer opportunities.

The responsibility of the CCDO continues to amass and gain in importance. The importance of their work in building community adds more value than fully recognized to now. Companies located in the incubator get additional services specifically designed for start-ups. The president of a start-up company located in the incubator remarked, "...we do a fair amount of collaboration or discussion with the incubator and they are very responsive to our needs. I've been involved in some panel discussions, and helping other tenants, other start-up companies that are in this space, in terms of how to get some SBIR funding." He went on to say, "So, apart from that, there is informal collaboration and formal opportunities. All along this hallway there are a lot of biotech communities and we sort of informally share information and best practices." Company executives that are not in the incubator stated similar needs as part of the partnership office's expanding community-building activities:

- “I would agree with that, to have the resources available. I think that Centennial Campus could do more to establish relationships between the companies that are on Centennial Campus.”
- “Now we have to attract people who are collaborators. Collaboration has to evolve. The office has matured, but we cannot compromise our commitment to ensure that the collaborations happen.”
- “I mean, it’s just good old-fashioned hard work. If you want to do it quickly, if my job were to get an active collaboration going, going, not just introductions, but get it going, I would have to do the work. Centennial Campus Development Office does great at making introductions. And they keep doing better. That office does a great job. But, getting back to the sea of relevance, it can be tough and the tough part is on me. Then it gets down to an individual and I know what faculty is like.”

The brokering services and the community-building of the Centennial Campus

Development Office are at the core of the value proposition for companies.

The Value Proposition – A Strategic Alliance Between Public and Private Partners

In today’s market, a regular part of the lexicon is value proposition. A market exchange is based on all of the value components the buyer finds in the purchase. A “seller” must understand the value that is being offered. In the case of Centennial Campus, the value is a business and programmatic proposition. The current tag line for the campus exemplifies this value proposition – “Building a community of partners today for tomorrow’s innovations.” Today’s premium price of locating on Centennial Campus includes the community-building services of CCDO. The value of this community, this culture on Centennial Campus, is embedded in the price. The campus will not be sold to anyone who does not consider this value an important aspect of the campus. The CCDO understands this difference in their approach to prospects. A development officer said, “There has to be something sweet here. There are a lot of development companies here, across the United States, and even off-shore. They’re getting into it now. I know we

have something sweet here if they need access to labs or equipment here. Or if they know faculty. It's a deal-breaker if they are overly concerned about square footage and the cost of square footage.”

So what precisely is the value proposition here? Why do companies come to this campus? How can it be described? As part of the twentieth anniversary preparation, CCDO has conducted their own case studies of companies who have taken full advantage of the campus' benefits.¹² The documented benefits in these case studies are the “knowns,” the obvious. They all make mention of the importance of being linked to the intellectual capital of the university. One company highly benefits from access to state-of-the-art testing facilities. This access provides the subject company with significant cost savings while garnering potential business by allowing the company to highlight its leading edge industrial testing capabilities. This company has also had numerous interns who perform professional work. Some of these interns have been later hired by the company. Another company is located on campus, primarily to get access to interns who perform professional work. While interning, the company grooms them to be trained, professional full-time staff.

A larger company says that they are on the campus for “Students, students, students.” The location for both students and the rest of their personnel is another stated benefit. This company is very concerned about employee satisfaction. In interviews

¹² Case studies have been prepared by the CCDO marketing personnel based on interviews with partner companies that occurred in the fall, 2004. These case studies are being used for marketing materials currently under development. Three of the five companies interviewed for the research were included in the case study preparations.

conducted for the benefits research they said, “Our employees are our business. We have to keep them very, very happy. We are not an IBM or a Cisco, so we have to be competitive in other ways.” This particular company does indeed work very hard at employee satisfaction, and have been recognized for it in the larger business community. Because of this emphasis on and pride in employee satisfaction, it is important to this company that their employees are in a place that is conveniently located close to downtown Raleigh. Of particular importance to their employees is the benefit of working for a technology company without having to fight the traffic of RTP. Their employees also highly value the affiliate privileges of being on Centennial Campus. As a Centennial Campus corporate partner, company employees can use the university library, the university gym, receive discounted tickets to NC State University arts and athletic events, and enroll in university classes through the TRACS system. The human resource manager of this company states that these privileges, “raise the quality of life for our employees and allows them to balance work and home.”

This particular company makes an important point in the rest of their case study response. They make it clear that not only are they benefiting from their presence on Centennial Campus, but also NC State University is benefiting from the company’s presence. The company points to the time they spend in providing industry feedback on engineering curricula, the career services they provide through their participation on employer panels, and the student employment they provide. This company is not alone in their paramount consideration of benefit reciprocity. Note that all of the companies interviewed for this study had at least one employee acting as faculty. In similar fashion,

the largest company interviewed for this study hired a person to be totally responsible for university relations a year ago. One of the leaders interviewed from this particular company said, “It’s part of being a good corporate citizen, but it’s also part of being part of this campus.”

In fact, all of the companies claimed equal responsibility for the only area of improvement that was suggested for the CCDO. As mentioned above, company leadership would like to see continued expansion of collaborations and alliances on campus. However, to a person, all of the corporate leaders interviewed said that they must do a better job of building collaborations with other university and campus partner organizations. One company leader stated, “I don’t want to sound negative, and I don’t believe that it’s Centennial Campus’s fault. I truly believe that we could be more proactive. That we could work to do more with the university.” A company president said, “There’s what we should have and what we could have. We’ve gotten a little less out of it, but I think there are opportunities there that we’re missing.” So, the value proposition is bi-lateral.

This bi-lateral value proposition is the core product of Centennial Campus. The core product or the core competency is the strategic alliance between this public institution and its private partners. The objective of the strategic alliance is to build symbiotic relationships. These symbiotic relationships are expected to enrich the conduct of business for these corporate partners. Company leaders in key management posts vocalized the objective:

- “So the challenge is how does one bridge this gulf between academicians and industry captains. These groups can’t talk to each other, in fact they have contempt for each other. I am treated differently here than presidents of companies are treated.”
- “So it was an easy choice for us to say, ‘This is how the company will grow,’ but also so we can link into university support to be able to maximize our opportunities with those people and knowledge.”
- “We don’t want to be large yet, and so in order for us to get our expertise, in order to get lab space, lab excellence, in order to get scientific knowledge, medical knowledge, veterinary medical knowledge, biological toxicological knowledge, marketing knowledge; there is all sorts of spheres where we can tap into individuals here and be able to fix some of our problems with heading up shared knowledge in our company.”
- “One of the things I’m excited about is the B-tech [Biotechnology Education Center], the worker training and consultation center that is going to be coming up on Centennial Campus. Our product is a bio product, and it goes through an implementation process; we’re excited about having a center on campus, because that gives us a lot of resources and students and expertise that we can potentially leverage as we develop our product. But then we can also offer some of our skills and expertise based on our research for that. So I think down the road, there are certainly a lot of opportunities along those lines for bioprocessing.”
- “If you are going to have real partnerships with the university, you have to be on the campus. The trick is to position yourself so that you can breakthrough the natural barriers.”
- “...moving to Centennial Campus showed a commitment to building the company.”

The most telling response of company leaders was that which came to the question, “Have your collaborations with Centennial Campus been what you expected?” There were many similar responses, but one company president put it most directly. He said, “I guess in the beginning our expectations were just nebulous; we didn’t know, really.” The expected outcomes or the opportunities that make a location on Centennial Campus valuable are nebulous and certainly difficult to quantify. The Centennial Campus has been created and continues to build an institution of collaboration to foster economic

development. The value to companies is the strategic pact with the CCDO and the rest of the community to identify and mine the opportunities. This is why companies locate on Centennial Campus.

The Importance of Networking

Interviews yielded another unexpected outcome important to the Precision Marketing Project. These companies are committed to helping grow the community because the growth of the community is a real benefit to them:

- “There’s some natural synergies that allow it. I think again it has to do with critical mass; if you start to get more tenants that are in this area and are getting more exposure in the press or in the investor shows and meetings, then that helps to generate interest and helps Centennial Campus by touching it up before we go to meetings, but at the same time, Centennial Campus helps us to give us more credibility as a good company.”
- “So we’ve leveraged that to the hilt. And it works both ways, because Centennial Campus gets the publicity, and we’re only too happy to oblige and tell them, tell others what Centennial Campus means to us, and I think it is, like you said, a unique opportunity. You look at the other campuses in the Triangle; there isn’t anything that’s comparable.”
- “People need to know people who have been through the experience, who say you’ve got to go this particular way because it will help you faster, and that can only come through time, when you actually have more impetus mass of small companies. We collectively come together and say, ‘We’re the NC State Centennial Campus crowd; look what we’ve been able to do. Whereas you outside have been an incubator space but you’re isolated.’ That type of thing, where you then can broadcast the success, either individually when you go to conferences and say we’re based on NC State Centennial Campus to do our biomedical research, because.... And then others might say, ‘Well, okay, they seem to have done something. How can we copy or emulate that?’”
- “So the opportunity is huge. We’re excited and want to help Centennial Campus grow because that is good for us.”

These companies are committed to being a part of the recruitment process because they believe that successful marketing and recruitment begins with networking. When asked, “Understanding the objectives of this study, what questions should I have asked that I did not ask?” one company executive responded, “Well, the project needs to understand how important networking is. Advertising is not going to do it here. You have to get out there and find companies that can be a natural part of this community.” Consider the fact that all but one of these companies were “recruited” to the campus as a result of a previous, positive experience with NC State University.

Ken Atkins, the Director of the Wake County Economic Development Unit and the Precision Marketing Project leader understands this:

“Our role is not to sell Centennial Campus, but to describe it. We need your help because we need to be sure that we accurately reflect what it takes to be on the campus. This is a partnership, not a real estate deal. We have real opportunities to talk about economic development more broadly.”¹³

Months later, Ken aptly framed the challenge of the project when he said, “You provide the steak; we provide the sizzle.”¹⁴ It is indeed a little difficult to describe the attributes of “this steak.” A company president said, “It’s like being a fish in water, I don’t think about it that much, but kind of set me away from that and I understand how important this environment is to my lifeblood. I think the Centennial Campus model needs to be explained a little bit better in the community.”

¹³ Remark made in a planning session with the Centennial Campus Development Office staff on November 23, 2004

¹⁴ Interview conducted with Mr. Ken Atkins by principle investigator on March 11, 2005.

The steak is the commitment to the strategic alliance of building this unique community. The opportunity itself has to be sold. The key to the sizzle requires an important facet of networking and networking is core to the alliance.

The Cost of Doing Business

In quantitative terms, in order to be on Centennial Campus a tenant partner pays for two components of their lease price:

$$\text{Lease price} = \text{Fair market price of office space in downtown Raleigh} + \text{Opportunity value}$$

Note that there are two variables in this equation. The lease price can be adjusted by pulling the “fair market price” lever or it can be adjusted by pulling the “opportunity value” lever. Both price components have to be nurtured. Often a company will compare prices of similar space and based on the analysis, consider a move. In fact, two of the companies interviewed have recently considered a move. One of these companies’ presidents said of their recent potential move, “Yes, we found a lot of space at really good prices, but we just couldn’t find anything that had what we have here.”

On the other hand, CCDO has significantly matured in its understanding of the limitations they can expect of the delta opportunity value. This maturation process has resolved their commitment to make opportunities better which will make the delta of the opportunity value more reasonable for a company. This study confirms that there are even more opportunities to leverage into the equation. All of these opportunities fall into two categories: enriching networks and growing community.

Once again, a bi-lateral responsibility rests with the partner companies. A tone of self-service can be detected from re-reading the remarks of company leaders about helping with the recruitment of companies:

- “There’s some natural synergies that allow it. I think again it has to do with critical mass; if you start to get more tenants that are in this area and are getting more exposure in the press or in the investor shows and meetings, then that helps to generate interest and helps Centennial Campus by touching it up before we go to meetings, but at the same time, Centennial Campus helps us to give us more credibility as a good company.”
- “So we’ve leveraged that to the hilt. And it works both ways, because Centennial Campus gets the publicity, and we’re only too happy to oblige and tell them, tell others what Centennial Campus means to us, and I think it is, like you said, a unique opportunity. You look at the other campuses in the Triangle; there isn’t anything that’s comparable.”
- “People need to know people who have been through the experience, who say you’ve got to go this particular way because it will help you faster, and that can only come through time, when you actually have more impetus mass of small companies. We collectively come together and say, ‘We’re the NC State Centennial Campus crowd; look what we’ve been able to do. Whereas you outside have been an incubator space but you’re isolated.’ That type of thing, where you then can broadcast the success, either individually when you go to conferences and say we’re based on NC State Centennial Campus to do our biomedical research, because.... And then others might say, ‘Well, okay, they seem to have done something. How can we copy or emulate that?’”

These companies are committed to being a part of the recruitment process because making Centennial Campus a larger community enlarges their opportunity. A company president sums it up, “Centennial Campus is a fine location, so in that regard Centennial Campus attracts neighbors, if you will, that are good neighbors for us.” An iterative expansion exists. Vibrant companies are reflected in a vibrant community which reflects onto a vibrant company and so forth:

Vibrant communities ↔ Vibrant companies

This simple reflective equation becomes critical in interpreting campus and partner needs.

When this study began, it was assumed that the opportunity value could be determined by understanding how much value could be associated with any one attribute of the campus and then summing the values to determine the potential cost benefit for any prospect. It was determined that the “n” was too small to determine this valuation. This study has instead examined the potential cost benefit through qualitative means, thinking that the potential dollar value could be mined in future research. This study has instead determined that a quantitative evaluation of individual attributes would be inappropriate for two reasons. First, recall that companies consider this a bi-lateral responsibility. Meaning that the opportunity value to a company includes not only the delta between their lease price and the lease price of a similar space, but it also includes the cost of the resources they devote to mining the opportunity.

Summary

Most importantly, the opportunities that will be sought once a company is located on campus are an unknown set of attributes and strategic alliances. As a company leader aptly stated, “It’s a dance.” Consistently, companies locate on the campus to take advantage of the opportunities that exist on the campus. The campus is sold and, in fact, “bought” as more than a real estate deal. Indeed, the “purchase price” to a company which locates on campus has two components:

Lease price = Fair market price of office space in downtown Raleigh + Opportunity value

The opportunity value is the premium the company pays in order to locate on Centennial Campus and to conduct business in the unique climate that is created by the campus.

This unique business climate provides the opportunity to establish a myriad of strategic alliances.

In selling the campus, the development office describes the opportunities these strategic alliances offer to create and enhance innovation. In fact, part of the negotiation process preliminarily defines the collaborations with the university that are possible and expected of the company. However, for the most part the full and real potential opportunity for alliances is “nebulous” to those locating on the campus. Partner companies new to the campus pay a premium price for the hope of future collaborations. A persistent commitment from the company and a promise from the university are required to find and exploit collaborations. These collaborations include expected and obvious opportunities such as access to students, faculty, research, and research facilities. These expected and obvious innovation outcomes are a result of the ability to tap more readily into the intellectual capital of the university.

Campus partners believe that community breadth will lead to more credibility for the campus. Their interest in an iterative process has some dimension of self-interest. This credibility lends the partner companies more credibility while making the campus more attractive to even more credible companies that then lend the campus more credibility.

Vibrant communities ↔ Vibrant companies

The commitment to this iterative process is the most influential strategic alliance. This alliance includes everyone resident on campus, the university administration including the Centennial Campus Development Office, and now, the local economic development

community. This project is the direct result of the realization that this campus may be used to enrich and expand vibrancy beyond the boundaries of the campus.

The uniqueness of the campus is reflected in the uniqueness of the companies that locate there. A company must be suited to this strategic alliance. The company must consider the opportunity “delta” a cost of doing business. Like the prince using a shoe to look for Cinderella, the perfect fit must be made. So the challenge expands to determine the company footprint for this perfect fit. Companies that will identify the value of Centennial Campus need to be the targets for “pursuit teams”. What is the profile of organizations resident on campus who readily identify and exploit the value of the Centennial Campus culture? Developing the profile of those resident organizations created the next step in this study.

CHAPTER 5: FINDINGS ON CENTENNIAL CAMPUS PARTNERS

*“First they ignore you, then they laugh at you, then they fight you, then you win.”
Mohatma Ghandi*

The above quote is proudly presented to all that enter the main entrance of one of the buildings of the campus’ partners. It metaphorically describes the consistent attitude found in all of the case study companies. All of these companies are proud, capable, highly intelligent, very savvy, scrappers. A sense of urgency and passion wrapped in an easy-going and open demeanor mark interactions with these companies. Regardless of size, industry type, or product, distinct consistencies emerge among this sample of companies.

Corporate Values – Technology, Adaptation, Creativity, and Innovation

Corporate values establish a firm foundation of consistency across case studies. Innovation is at the heart of every company studied and is reflected in their documented value statements. Most of the companies interviewed have formal, written corporate values that are easily accessed. Companies that do not have published corporate values easily articulate and regularly communicate their corporate values through posted materials and written communications with employees. The documented corporate values of four of the companies interviewed included the word innovation. The fifth included the word creativity.

In fact, creativity infuses the companies in many ways. A review of company histories shows a consistent trend of corporate adaptation. Creative change has ensured that these companies not only survive but also flourish under stress from their markets. Two of the company executives interviewed in the case studies could personally report on a difference in approach to change. These company executives, one the key manager of the study and the other a Director of Technology had previously been employed by two companies formerly located on Centennial Campus. Neither executive wanted to discuss the differences in detail; however, they both reported that the failure of their previous company was due to a lack of this ability to make nimble change.

In contrast, despite long company histories and/or more structural density, companies that remain on Centennial Campus have been nimble enough to change business strategies through extraordinary shifts in their markets or in the markets of their primary customers. Two companies rode the rocky roller-coaster ride of the dot-com world. One company managed through shifts in the automotive and airline industries. Another experienced the shifting effects of the communication equipment industry. The younger and, typically, smaller companies find themselves resource-challenged from fast growth and needed shifts demanded by regulatory and/or financial stakeholders. Companies tend to change quickly around “serendipitous discoveries” in order to take advantage of higher potential markets or strategies.

When asked to describe their company in just three words, company leaders used the word “dynamic”, an astounding eight times. Other descriptors used were

“entrepreneurial” (5 times), “creative” (3 times), “innovative” (3 times), “revolutionary” (2 times), “cutting-edge”, “adaptive”, “responsive”, and “bright”. In one of the pilot interviews conducted, a company Vice President who leads the research arm of an international concern on Centennial Campus described the importance of his company’s research presence on the campus as being very “American”. He said, “Americans do well at this innovating. It’s like putting the family on the wagon heading to Ft. Laramie – that’s what America is all about.” However, the real stunning consistency is across remarks made by company leadership about the interchange of creativity, adaptation, and innovation.

- “It’s ever changing, like I said, where we are now, it’s different from where we started from, and in the next year or two it may be different, but again, we’re able to change with the time and the needs.”
- “Ideas become reality here.”
- “[E Company] definitely breaks the mold on how we approach problems and our financial backers have come to expect that.”
- “We are certainly willing to challenge the status quo. And we have fun doing so.”
- “We get presented with problems everyday that I honestly couldn’t tell you how we are going to solve. I can’t tell you what we’ll be working on tomorrow. We have to be very responsive to market changes, customer needs, wherever we are going.

Product Leadership – Selling Innovation

These companies, all successful in their own right, are product leaders in their fields. They sell innovation in one form or another. Company marketing materials herald the companies’ leadership in innovative products and the use of technology. They refer to their products as “novel technologies”, “novel application of existing compounds”, “creative techniques”, and “unique production of engineering.” Innovation

begins with a creative force that either develops or manages technology designed to adapt to ever-changing needs of the market. The companies are structured and motivated to allow innovation driven by the market.

At this point, a review of the principles of Treacy and Wersema in their 1995 book, *The Discipline of Market Leaders* is important, because, as predicted, our companies show a consistent construction around the value discipline of product leadership (35). In Treacy and Wersema's lexicon, a value proposition of product leaders has been established (20). Accordingly, a consistent operating model will emerge, defining the very nature of the companies (30). Companies that are product leaders focus on product development (35). They constantly lead their industry with the newest products. They are adept at creating new products and will do so to lead the market, even if it means cannibalizing their own successful markets. Open-mindedness to new ideas requires the organization to avoid bureaucratic pathologies and make decisions quickly (36). Not much time is spent on detail so there is fast reaction time and a high tolerance to mistakes. Indeed, mistakes are amply made, but the fast reaction time equally applies to recognizing mistakes and taking corrective action (37).

Product leadership companies have cultures that encourage imagination and creativity (37). A vested interest exists in protecting the entrepreneurial spirit. As a result, the business structure is loose and ever-changing and management systems are results-driven. Employees of product leadership companies utilize "right-to-left thinking" in that they are expected to turn ideas into clear targets (91). Talent is the

primary resource because the people become emblematic of the organization's carefully nurtured culture. As a result, product leadership companies must be learning organizations (89). Inside these companies, there are only a few people at the top that set direction (88). These visionary leaders keep people on track, create business structures that do not oppress, and stress procedure only when it pays dividends to do so. Note how closely we track these attributes throughout the remainder of these partner findings.

Turning our attention once again to the case study companies, these companies are driven by a value discipline of product leadership. Most importantly, they are driven by product leadership undergirded by innovation and creativity. In fact, the companies are structured to shepherd some creative force. That creative force has many variations. For example, in one company it is a single researcher located on the other side of the world who is developing new chemical applications to combat a number of cancers. In many other companies interviewed, the creative force is composed of an entire staff of creative people. The companies' objectives are to marshal that creative force into a marketable product. Creative staffs are often developing products in parallel, keeping new generations of product constantly in the funnel. A company president shared one of his significant challenges, "We know that the minute our new application is on the market, it will be hacked. So, we have to be ready with the next version." In short terms, an innovative product or the product of innovation is what distinguishes these companies in the market. As one company president put it, "So it really is unique. You know, we are selling uniqueness as opposed to price."

More on Product – Finding “The Cracks”

Throughout the study of target sites, references were often made to innovation that crosses disciplines of academic study. Participants in a campus prospect meeting put it well when they remarked, “You need to find research that is ‘between the cracks.’ That’s where you can find the real opportunities for applied research and commercialization.”¹⁵ Michael Porter also discussed the potential of finding success in blending technologies through the cluster strategy. He stated, “... new firm and cluster opportunities arise at the intersection of existing clusters (77).” Our resident companies have found benefit from the opportunity to blend disciplines that are unique to NC State University. Every single company interviewed extensively uses inter-disciplinary resources. In fact, the majority of these companies use university resources that transcend college boundaries. They take advantage of developing innovations that span strict research arenas. Their product is found “between the cracks.” The products are either tied to developing disruptive technologies spanning typical innovations or take advantage of the convergence of emerging trends in separate arenas of innovation. The innovation resources at NC State University are perceived as valuable because of the unique blend of resources that support product development “between the cracks.”

The benefit of tapping into a unique blend of technology-centered resources at NC State University should be fully exploited. A pharmaceutical executive was asked why his company chose to locate and partner with NC State University as opposed to one of the local universities that has medical facilities. He responded:

¹⁵ Prospect meeting conducted by Teresa Helmlinger on January 28, 2005 included research directors from five different departments of the College of Engineering. The exchange was intended to help the prospect determine what potential for collaboration with NCSU existed if they were to locate on Centennial Campus.

“Well they both have excellent medical schools with outstanding resources. But we have that expertise here. There are two MD’s and four Chemistry PhD’s. Here we are working with a micro-biology professor on the application of our chemistry. We have tapped into the Nuclear Engineering department for the same reason. We are establishing a memorandum of understanding with the Vet School. And we are using foreign students from the science curriculums to help us with translation and communication with our constituents.”

Another company executive makes an appeal to understand and further exploit the blend of NC State University intellectual capital. He says that it would be valuable for his company if the university’s basic research could be explained to them in “a vision of the future when their research is tied with the research of this group over here.”

Supporting Innovation Values

Collectively, this study required a fairly comprehensive review of twelve different companies on campus. Only five of these twelve companies were actually put through the full case study review. However, the extensive preliminary review of all twelve companies allowed deeper insight to some of the more overt characteristic trends. One of these overt characteristic trends is what we will describe as the primary domain in which innovation is developed or exploited inside the company. In all twelve companies, there were two important, but different, resources from which innovation builds. The first resource is early research and the second is people. Both the early research and the people that manage or interact with the research are important to the companies’ process of developing or exploiting innovations. However, one of the two resources, research or people, take precedence in building innovation. The other resource, research or people, will support the precedent approach to innovation. For simplicity, we will designate these two different approaches as research-intensity and people-intensity.

Research-intensive companies are those that are primarily concerned with transforming early research into some application or commercialization. These transformations occur with the highly important corporate resource of smart and passionate people. However, without early research as a foundation, the human resource can be ineffective. The research-intensive companies on Centennial Campus are generally smaller and younger companies. Large companies do indeed have research-intensive representation on the campus. However, these organizations are not resident in whole on the campus. Instead, they have smaller, more nimble arms of their organizations as residents of the campus.

The primary opportunity interest of these research-intensive companies is to tap into the intellectual capital resource at NC State University. So, they want to make their companies seem larger by extending their company reach to include the vast research resources at NC State University. Naturally, the research resources include the potential for technology transfer, but it can also include lab space, equipment and other research facilities.

Alternatively, people-intensive companies on campus are companies who essentially sell the creative work of their human resource. The creative work of their staffs relies on understanding the most current trends in technology. In a sense, these companies rely on early research as feedstock for the creativity of their human resource. Two case study companies express the corporate reliance on people.

- “My product is the people that work for this company. Without them I have nothing, and it’s not—it’s a bit of a cliché for some companies. For me it is absolutely the truth. Our revenue comes from our people being billable, not from selling the products they make, but selling their services. And so they are our product, their intellect, their intelligence, their ability to solve problems in the industry. Quite honestly, their engineering ability is what we sell every day.
- He (the president of this large company) would say that the greatest asset, if this is a business about intellectual property then it has got to be about people.

These people-intensive companies tend to be larger and have significant parts of their organizations on Centennial Campus. If the company is not resident in whole, the part of the organization that is on campus is a significant subset – a division or a branch of the company. The primary opportunity interest for these companies on campus is the “feel” of the campus for the sake of their employees’ satisfaction. Part of this employee satisfaction has to do with the effect of being close to teaching and research interests. However, the more important facet of Centennial Campus for people-intensive companies is the opportunity to be part of the larger and broader community. In a taped interview for a promotional video, Matthew Szulik, president and CEO of Red Hat said, “We came to Centennial Campus because a core part of our environment is collaboration. We needed to be in a place that focuses on solving problems of the 21st century.”¹⁶

The importance of this distinction or typology of companies resident on Centennial Campus is that there is a difference in their preferences. Universally, companies locate on Centennial Campus to expand their company capacity by tapping into the broader networks of Centennial Campus and of NC State University. The

¹⁶ The promotional video was prepared for the Centennial Campus’ 20th anniversary celebration and was presented as a part of the celebration event held on April 19, 2005. However, the videotape is being used in other venues to promote the campus.

distinct difference in the two types of companies is the difference in their definition of valuable networks on Centennial Campus. Both the research-intensive companies and the people-intensive companies tap into innovation resources but the value of the innovation resources has different and distinct purposes.

For example, take the opportunity of the learning environment of NC State University. Research-intensive companies see the learning community as a network or an opportunity to build or expand their intellectual capital. This remark by a company president is representative of this approach: "...day one we're in good shape, but in a very short time we are starting to fall behind, so how do we make it better. That will come — we will be talking with the faculty, computer science faculty, so we'll continue to get the best advised direction for our new work." The people-intensive companies however, see the opportunity or the network of the learning environment as a way to influence or enrich their employees work experience through a broader community. A people-intensive company president defines the importance: "The more comfortable you are with learning, the more comfortable you are with change. So we really tried to create a learning culture. Why not get us as close to where learning takes place, which is part of the business? So that's why we're located on the campus."

For companies, there are two benefits to the innovation culture created on Centennial Campus. On the one hand, it is important to expand the intellectual capital of the company. On the other, it is important to broaden the community. Though both of these benefits are important, one takes precedence. There is a primary opportunity,

depending on whether the company is research-intensive or people-intensive. Table 4 below best depicts the difference.

	Research-intensive	People-intensive
Primary Opportunity	Intellectual Capital	Broader Community
Secondary Opportunity	Broader Community	Intellectual Capital

Table 4: Benefits Analysis of Corporate Partners

With either type of company, it is important that the partnership status allows them to tap into innovation resources of intellectual capital and broader community. However, there is a difference in the resource pool that is considered the primary opportunity, depending on whether the company is more research-intensive or people-intensive. There are also slight differences in how the company expects to take advantage of the benefits from these resource pools.

A research-intensive company wants to be able to tap into the intellectual capital to expand their resource base. They want to be able to access the expertise of professors, laboratories and centers. They also use the facilities to give them more credibility without having to expend the enormous resources required for the facility. Equipment and laboratories that are only needed for a fraction of time can tremendously enrich their product development or research with minimal costs. On the other hand, they want a

broader community in order to have opportunities for business networking. They want to know what others on campus do and how they conduct business. They want to be able to find benchmarks and colleagues. They want to find new opportunities to build more alliances.

By the same token, a people-intensive company does want to tap into the broader community for the business networking. However, they want ever-expanding and inclusive networks. The most senior leadership would like to network with other senior executives, but that is only the beginning. Senior leaders would like for their functional leadership to have the same opportunities. As an illustration, functional leadership opportunities would include such things as human resource and financial roundtables. Beyond that, people-intensive companies want their employees to have the social opportunities of working for a large company. Employees of companies on Centennial Campus are young and often single. Company functions or company-like functions are a social core for many of these employees. Social opportunities that are embedded in the campus community activities could surrogate a larger company environment in this regard.

The approach to early research by people-intensive companies is just as complex. The research at NC State University is generally further away from application or commercialization than is needed for immediate use by these companies. Despite this relative immaturity, early research is still an important resource to be tapped for the companies. These companies want to know where and how technology is developing.

To the extent that they could be affected by an emerging trend in research or product development, they want to be involved in a constructive way. As necessary, the companies are willing to pay for the privilege, such as existing or potential research center consortia. The important missing link for tapping into the resources is knowing about existing or potential established forums. In addition, they would like for more free-wheeling opportunities to augment the established forums. They want social networks like those identified by Saxenian (1994, 34) in the Silicon Valley, which will naturally create insights to emerging technologies and innovation. One company executive suggested a brown bag lunch where “we hear about what all is going on behind the closed doors of the labs on this place.”

In all cases, the companies want to see the Centennial Campus community grow beyond a collection of office buildings. One company Director of Technology said,

“I think that would be more beneficial if people would understand who they are. And I think that’s what separates us, even if you have to go look at RTP. There you’ve got these great big campuses, you’re pulling the Nortel campus or Ericsson’s campus or Cisco or IBM or whoever. They are isolated and they don’t know anybody except for the people on that campus. If you go to a business park, Regency, Weston, Parkwood, you start to get a little bit closer to the idea, the community ideal behind a Centennial Campus. It’s still tenant-landlord in those situations. There is no effort for community. And I think we see a little bit more than that here, but probably not.”

They all support the addition of eating establishments, business centers, and the hotel/convention center as a means of building community. A key company leader said,

“It has the vision of turning us into more of a campus in terms of having more chances to work together with more a food courts, social kind of things and health service kinds of thing. Being part of a community helps a 50 person design center that’s part of a 6,000 person organization. This gives us some part of that feeling. That is what has been missing in terms of not being with that big organization.”

They are all motivated by the opportunity of being located on a place that has become a destination and lends their location on campus more credibility. Another key manager stated,

“Here are some of things you need to be doing. The biggest thing is you have got to figure out a way to get people to come here for some reason other than to go to school or to go to work. If you ever figure out how to do that and get them doing it, you will make big inroads. The biggest gripe from people on the campus is that there is nowhere to eat. So that is why we’re very excited about the prospects of a conference center and all that. Because not only would that solve some of that problem of eating establishments, but on top of that there are a lot of people that would come here.”

An expanded community will provide many informal networking opportunities mentioned above. A company owner said,

“So one of the things that we wanted to get here was being able to hang out so somebody could feel like they work for a bigger company.”

Corporate Textures

Despite the differences in preferences for how benefits are exploited by the companies or in how well those preferences are met by the campus, the case study companies are interested in exploiting innovation resources for the overall benefit of expanding their creative capabilities. However, consistency exists far beyond the use of campus resources. A consistent corporate texture abounds across these companies.

To begin the view of company comparisons, simple observations detected real similarities in the environments the organizational research sites create in their office spaces. All of the offices are open, functional, and fluid spaces that exude a maverick

mentality. The observations of company environments from the individual case studies, excerpted from the researcher's fieldnotes follow:

- “Their offices had the look of a newlywed home. Everything was neat and new, but things are kind of cobbled together. Everything smells good and fresh. It is clear that cleanliness and sterility are paramount. The atmosphere is very casual and very relaxed. People are polite and professional, but dressed very casually. The office is very much an office-like environment, but it has more of a club atmosphere in the way meeting rooms are situated around cubical office space.”
- “The interview process here was incredible. The building is very slick. You walk in and there is a fresh, neat and professional appearance.... It is very young-looking. There is “new” art everywhere. There is a spacious waiting area with comfortable chairs to the right of the lobby. A very attractive lady dressed casually greets me pleasantly and asks me to have a seat. She invites me to help myself to the bottled water. In the corner of the waiting area is a glass-faced refrigerator stuffed with bottled water that has a company label. I later found out that this company-labeled water is available for free for employees as well as guests. These little college dorm refrigerators are scattered everywhere.”
- “The B offices are in a fairly small lab space. Everything is neat and functional. Cubicle office spaces open widely to the lab space. The cubes have no distinction between a technician and the company president.”
- “Behind a non-descript door tucked at the end of a hidden hallway, the office space is one big cavernous area. The cavern is divided into neat cubicle spaces. Everyone is in a cube, including the company president. He escorts me to one of the meeting spaces along the wall. The meeting space is equipped with every “gee whiz” capability known.”
- “We always met in a huddle room. All of the offices are in cubes in the middle of the space with the perimeters saved for these “huddle rooms.” As I walked up this time, I noticed that there was a cardboard figure that had been decorated and was set up to stare out of one of the upstairs windows. I was once again amazed at the open environment that had no visible signs of hierarchy.”

The open and easy environment goes beyond a description of the physical space. People are made to feel like they are a member of a club or part of a family. The mode of operation feels very open and committed to making employees feel comfortable and part

of “the cause.” Differences in the levels of management are minimal. This “feel” of company environment was often reported in interviews:

- “But based on my experience of how other organizations are run, I feel that E company is run like a family, and that is a very nice environment to be in.”
- A company vice president said, “Now, it’s not always a good thing as you know from your own family. They can drive each other crazy sometimes. But the vast majority of the time it is a very friendly environment—a very open environment. Everyone can feel comfortable, regardless of where they are in the company’s structure. They can approach Dr. F who is the head of this office, or they can approach our CEO when he is visiting us. I’m a little biased because I’ve known them all for quite awhile, but I believe that the rest of our staff here, the newer members of our staff, also find them to be quite approachable.”
- Excerpted from researcher’s fieldnotes: “He referenced a meeting he had witnessed between my old employer and his current employer. He referred to it as ‘old world vs. new world’.”
- Excerpted from researcher’s fieldnotes: “I asked him if he were in the same place when it was owned by the previous company. He said, “Oh, yes”. I asked him if it were different and he said ‘it’s not just a house; now it’s a home.’”

Another interesting and unexpected similarity among these companies is the vast numbers of international connections. These connections extend far beyond the places that company products are sold. Even the smallest company interviewed is developing product by tying together research being conducted in three other far-flung countries. One company is gaining in prominence because its leading product is helping international business connections. This product is distinguished because it protects the electronic transmission of product design to customer sites around the world. This global-connectedness includes the connection of the people involved in the companies’ business. Offices and whole functions for three of the companies are spread world-wide. As the leader of one of these companies observed, “Our operations ‘run around the clock’; it’s kind of like the old adage about the United Kingdom, the sun never sets on

our operation.” The people in these companies located on Centennial Campus are from a diverse background. Three of the company presidents are ex-patriots hailing from other countries in North America, Europe and Asia. With this diversity of business opportunities from all over the globe, comes recognition of the special nature of Centennial Campus from other parts of the world. One company president made note, “Centennial Campus is better known in Beijing than it is in downtown Raleigh.”

Leadership that Puts People at the Core

People were diverse in background but not in demeanor. All of the employees interviewed and/or observed in these case study companies were truly young or showed a vitality of youth. Their manner was relaxed and friendly, yet sincerely engaging. A wide range of subjects were of interest to these people. To a person, they were passionate about the companies that employed them. Even the administrative employees that escorted and guided the researcher to appointments were effusive with their enthusiasm for the company that employs them. The human resource specialists that were interviewed referred to their employees as being “committed to the cause.” Employees are made to believe that they are making a real contribution to a larger concern. Employees of the case study companies reflected this belief in contributing to a larger cause in their remarks.

- “[J] says that we are creating therapies for all.”
- “That’s what we see our technology being, practical and useful and a benefit to all of mankind.”
- “But part of [M’s] motivation and interest is that not only would this be a viable business for [F company], but that it would be an economic engine for the area.”

Employee likeness in demeanor reflected the common traits among company leaders. Leaders of case study companies share distinct leadership style. That leadership style captures both a calm demeanor and an intensity of intellect and purpose. There are no “bubbas” among them. They are clearly intelligent with respected business savvy. Employees take pride in their leaders and often consider them the ultimate product champion. In fact, those employees in the case study companies who have to sell and/or make convincing pitches to financial stakeholders, state that they would choose to take their president or CEO to their most difficult presentations. Company leaders are considered the first in the company to be committed to the cause and they are highly disciplined around that commitment. Employees and colleagues see these leaders as the people that work the hardest and most earnestly to achieve the company objectives. Their passion exemplifies the cause for employees and that passion captures the imagination of everyone who surrounds them. These entrepreneurial company environments are filled with passionate people that are led by passionate and savvy executives. These leaders are the lead “scrappers” in companies that want to maintain the edge of “scrappiness.”

Summary

Definite, consistent attributes exist across the case study companies. These common attributes contribute to and form a consistent company profile of companies that are resident on Centennial Campus. In short, these companies appear to be entrepreneurial enterprises that want to maintain the “scrapper feel” of being entrepreneurial. At the same time, they want to present a more expanded business feel in

their business interactions. They tap into the resources of NC State University and use the community of Centennial Campus in order to accomplish this expansion. The common profile of these companies includes:

- A value discipline of product leadership,
- Corporate values of innovation and creativity,
- Products that heavily rely on technology that spans strict academic and/or research discipline,
- A corporate environment that is open, creative and free of the strictures of bureaucracy and hierarchy,
- A global-connectedness,
- Employees that reflect the open and creative environments and are committed to the cause,
- Leadership that is almost heroic in their leadership of an entrepreneurial spirit.

Further, the companies fall into one of two categories in their approach to taking advantage of the benefits of the innovation resources at NC State University. They are either research-intensive or people-intensive. Research-intensive companies are those that are primarily concerned with transforming early research into some application or commercialization. Their primary opportunity interest is to tap into the intellectual capital resources at NC State University. People-intensive companies on campus essentially sell the creative work of their human resource and are primarily concerned with the potential of employee satisfaction that is incumbent in the broader community opportunities. Importantly, though both categories have a primary set of opportunities, their preferences include both sets of innovation opportunities.

Opportunities for intellectual capital collaborations include access to students, faculty, research, and research facilities. Research-intensive companies rely heavily on the ability to interact with the research community and often collaborate with research facilities. People-intensive companies use students and faculty. These companies want to include the research community as a means for broadening the business network.

Opportunities that are provided through a broader community are just as important to the campus partners. This set of opportunities includes forums for real interaction with and between many groups that are represented on campus. Campus partner leadership wants a regular chance to interact with their colleagues on campus, the chance for their functional leaders to interact with their own colleagues, their young employees to socially interact with other young people, the opportunity to interact with university operations, and the ability to understand the future potential for intellectual capacity at the university. Research-intensive companies want established business networks for benchmarking and the opportunity to build further business opportunities. People-intensive companies want networks for the same reasons but they have more reasons. They want business and social networks that will support employee satisfaction.

A real sense of community is important to all of the companies, regardless of primary opportunity approach. Everyone wants to be a part of a community rather than just being tenants in a building that happens to be part of a larger office complex. That sense of community includes more “living” amenities, like eating establishments and business services.

CHAPTER 6: SUMMARY, CONCLUSIONS, and IMPLICATIONS

“We have shown our relevance; it is time for growth. We need to make Centennial Campus a destination...”¹⁷

David Winwood, Director, Centennial Campus Development Office

The essence of the Centennial Campus of North Carolina State University is founded and maintains core strength around strategic alliance-building. This core has sustained the campus through turbulent times. Most importantly, the potential for strategic alliances with unique groups has become the draw for partners locating on the campus. The bright future of the campus rests on the continued proliferation of ever-expanding collaborations with even more varied and extended sets of partners.

Summary of Findings

Consistently, companies locate on the campus to take advantage of the opportunities that exist on the campus. The campus is sold and, in fact, “bought” as more than a real estate deal. Indeed, the “purchase price” to a company which locates on campus has two components:

Lease price = Fair market price of office space in downtown Raleigh + Opportunity value

The opportunity value is the premium the company pays in order to locate on Centennial Campus and to conduct business in the unique climate that is created by the campus.

This unique business climate provides the opportunity to establish a myriad of strategic alliances.

¹⁷ Remarks made by Dr. Winwood in a presentation at the Centennial Campus’ 20th anniversary celebration on April 19, 2005.

In selling the campus, the development office describes the opportunities these strategic alliances offer to create and enhance innovation. In fact, part of the negotiation process preliminarily defines the collaborations with the university that are possible and expected of the company. However, for the most part the full and real potential opportunity for alliances is “nebulous” to those locating on the campus. Partner companies new to the campus pay a premium price for the hope of future collaborations. A persistent commitment from the company and a promise from the university are required to find and develop collaborations. These collaborations include expected and obvious opportunities such as access to students, faculty, research, and research facilities. These “known” innovation outcomes are a result of the ability to tap more readily into the intellectual capital of the university.

However, the opportunities provided through the broader Centennial Campus community are just as important to the campus partners. This set of opportunities is more difficult to articulate, understand, organize, and maintain. It includes forums for real interaction with and between many groups that are represented on campus. Partner company leadership wants a regular chance to interact with their colleagues on campus, the chance for their functional leaders to interact with their own colleagues, their young employees to socially interact with other young people, the opportunity to interact with university operations, and the ability to understand the future potential for intellectual capacity at the university. They want a real sense of community rather than just being tenants in a building that happens to be part of a larger office complex. That sense of

community includes more “living” amenities, such as eating establishments and business services.

Campus partners believe that community breadth will lead to more credibility for the campus. Their interest in an iterative process has some dimension of self-interest. This credibility lends the partner companies more credibility while making the campus more attractive to even more credible companies that then lend the campus more credibility.

Vibrant communities ↔ Vibrant companies

The commitment to this iterative process is the most influential strategic alliance. This alliance includes everyone resident on campus, the university administration including the Centennial Campus Development Office, and now, the local economic development community. This project is the direct result of the realization that this campus may be used to enrich and expand vibrancy beyond the boundaries of the campus.

The innovation opportunities of intellectual capital and a broader community are important to all companies resident on the campus. However, companies fall into one of two categories depending on how their business concern approaches and relates to these two sets of opportunities. Research-intensive companies are those that are primarily concerned with transforming early research into some application or commercialization. Their primary opportunity interest is to tap into the intellectual capital resources at North Carolina State University. People-intensive companies on campus essentially sell the creative work of their human resource and are primarily concerned with the potential of employee satisfaction that is incumbent in the broader community opportunities.

Importantly, though both categories have a primary set of opportunities, their preferences include both sets of opportunities. Despite distinction in their priorities, there is consistency in their total set of preferences. The way in which these preferences are expressed do vary but with some consistency within the category.

Beyond these distinctions, companies resident on campus show consistent attributes. In short, they are entrepreneurial enterprises that have a common profile that includes:

- A value discipline of product leadership,
- Corporate values of innovation and creativity,
- Products that heavily rely on technology that spans strict academic and/or research disciplines,
- A corporate environment that is open, creative and free of the strictures of bureaucracy and hierarchy,
- A global-connectedness,
- Employees that reflect the open and creative environments and are committed to the cause,
- Leadership that is almost heroic in their leadership of an entrepreneurial spirit.

This entrepreneurial spiritedness around corporate values of innovation and creativity offers a well-defined target for recruitment efforts. It also offers a stiff challenge to those organizations who must maintain the strategic alliance by building a business climate that can match the spirit of these companies.

Conclusions

This research answers the questions posed to frame the study. As hypothesized, a consistent reason private companies locate on Centennial Campus has emerged. Broadly, companies locate on the campus for the opportunities presented in the strategic alliance that has been established by the campus. They expect to invest in and form many of their own alliances that intersect and are supported by that which is presented by the alliance of the campus. They pay an opportunity value for the potential of these alliances. They cannot necessarily specify the opportunities that they expect, but they are committed to investing the premium in the price to locate on the campus and in further resources to make these alliances real. In exchange, they expect a reciprocal investment from the university in the resources it devotes to ever-expanding and more robust alliance-building.

Also as hypothesized, the companies that are located on the campus in order to take advantage of this bi-lateral proposition have consistent corporate values. These companies have core values of innovation, adaptation, and creativity. Because of these core values, investing in the potential for expanded innovation through a strategic alliance with Centennial Campus is a cost of doing business. The expected benefit of this investment includes the obvious opportunity of shared intellectual capital and the equally important opportunity presented by the networked support of an entrepreneurial community.

Finally, as expected there are some insights as to the importance and significance of the values supported by Centennial Campus. The partner company leadership consistently offers compliments and support for the many right things done by the university to create the collaborative climate on the campus. They are particularly appreciative of the efforts made by the Centennial Campus Development Office.

However, they expect the university to maintain investment priorities around building a more robust institution of collaboration. Put in the format of Michael Porter's action agendas, recommendations can be drawn from the specific remarks made during the interviews of company leaders. These recommendations are put in the context of the communities that are recommended by Florida and the community that is reflected in the Silicon Valley (Saxenian, 1999).

- Expand the expectation of the “institution of collaboration” mentality among university, state and federal program partners on campus. There should be a significant shift in their commitment to building alliances with corporate partners. University and government partners should be finding their own ways of investing in collaborations rather than seeing private sector partners simply as a means of furthering their own program resources.
- Tie technology transfer closer into the institution of collaboration. The technology transfer function should be at the center of creating new opportunities which define new developments spanning multiple disciplines.
- Build forums for exploiting new technology opportunities and for benchmarking among organizations.
- Build and support social networks to enrich these formal forums. These social networks will also respond to the need for more mingling amongst all partner employees giving the campus the feel of a larger community.
- Continue to emphasize services that provide a more defined community with a better quality of life. Partners on campus feel that they live in their own little community carved out of the City of Raleigh. An economic development expert

recently aptly put it when he said, “As it relates to knowledge workers, quality of life is back on the front burner.”¹⁸

These expanded opportunities will enhance and enrich the strategic alliance of being a part of Centennial Campus. By doing so, it will be easier for companies locating on the campus to justify the opportunity value component of the campus’ “purchase price.”

Implications for the Joint Project

This research is intended to make the recruitment process in the strategic alliance called the Precision Marketing Project more efficient. There are two parts of the process that can be improved from the results of this study. Clearly, understanding the opportunity of strategic alliances and the profile of companies that most likely will respond to these alliances will focus the targeting effort. In addition, this research can further crystallize the needed marketing approach.

The study results are being immediately applied to more precisely scale down the companies being currently considered for “pursuit.” The project is now in the midst of one of the prospect winnowing stages. This study’s insights have been incorporated in the process of identifying ideal company profiles. The project process includes scaling the “nifty fifty”¹⁹ company names down to three or four companies that will be sought by the “pursuit teams.” This part of the process relies on input from university faculty and administrators. Rather than simply asking university personnel to cut the list down to a

¹⁸ Remarks made by Mark M. Sweeney, Senior Principal – McCallum Sweeney Consulting, a national consultant to companies who are locating new or expanded facilities, in a speech made at the The North Carolina Manufacturing Summit: A Call to Action on Wednesday, April 13, 2005.

¹⁹ This term is used by the project team to designate an interim stage in winnowing the list from 200 possibilities down to the final list of three or four.

specified size, a rating system has been devised to focus their effort. The process is attached as Addendum G and includes a survey and interview process that guides and focuses faculty thinking. This guide will refine judgment in evaluating the companies and will allow consistency across evaluators. This expected efficiency will shorten the time spent on the effort and will add reliability.

Future deliberations in targeting companies will further increase efficiency. Consider the company typology. The current focus of the project is on recruiting research-intensive companies. Appropriately, the province of growing companies organically from inside the university remains with the university. The collaboration with economic developers will significantly enhance this effort. This is particularly true for those companies that want a palette of location choices in the area. That is, a full collaboration with the Wake County Economic Development Unit will be required for those companies with location specifications that differ for research, manufacturing, and/or headquarters facilities.

A similar approach with the economic development professionals taking the lead should be made for people-intensive companies. These companies will find benefits of locating on campus, but the networks for identifying them are in circles that are peripheral to the university. These networks are the province of local and state governments and will be the path to these people-intensive companies.

These refinements will improve the prospect-targeting aspect of the recruitment process. Additional support can be offered to the marketing aspect of the recruitment process. Understanding the nature of the companies being recruited will refine the marketing strategies and materials. The study results determine an appropriateness of an emphasis on networking. However, beyond that insight, communications can be better designed to speak to the very nature of the companies being recruited. Company profiles will designate the needed language in the marketing materials. Clearly, these study results require a re-write to speak to the marketing experts involved in the project.

Implications for Further Research

This research was designed and implemented for a very particular purpose. It has met the objectives of that particular purpose and has implications for the project that it is supporting. In addition, it adds to the body of knowledge related to the dynamics of creating a unique business climate.

This research also advances some understanding of strategic alliances that build institutions of collaboration, communities of knowledge workers or communities for the creative class. This better understanding and the discipline around which this understanding is built is important to the creation of future similar communities. For instance, it can accelerate the development of the emerging Millennium Campuses slated for the other universities in the University of North Carolina system. This better, more efficient path of creation and development can help the new campuses side-step some of the turbulence Centennial Campus experienced.

More thorough understanding can build a platform for further more, general research. The most intriguing avenue for further examination is opportunity cost. At this time, there is not enough experience with companies on Centennial Campus to quantify the opportunities that are presented on campus. To start, the total number of companies that have located on campus is too small. There have been far fewer that have been faced with the chance to make a decision to stay or re-locate based on the opportunities of being resident on campus. Some companies have left because of a change in their total business venture. Some companies have left because the opportunity cost was too high. Some have decided to stay because the opportunity cost was reasonable relative to the benefits they receive. Those that have made the decision can only report anecdotal evidence of the benefits they receive. They cannot yet readily point to a financial outcome in their records that shows the benefit.

However, increased experience with companies that make the decision to stay on campus to take further advantage of the resident benefits may make quantification possible. A well-designed process will be required to ferret out the multitude of financial improvements from varied exploitations of benefits. This challenge represents the challenge of quantifying innovation in general. The ability to measure this attribute will have wide-ranging implications.

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Appendix A – Service Agreements

STATE OF NORTH CAROLINA

8/98

Rev: 8/04

WAKE COUNTY

ECONOMIC DEVELOPMENT PARTNERSHIP AGREEMENT

This Agreement entered into by and between the North Carolina State University, c/o _Economic Development Partnership, Office of Extension and Engagement, Campus Box 7902, Raleigh, North Carolina, 27695-7902, (hereinafter referred to as "UNIVERSITY"), and _Wake County Economic Development with a principal place of business at Greater Raleigh Chamber of Commerce, 800 South Salisbury Street, Raleigh, NC 27601, (hereinafter referred to as "SPONSOR").

WHEREAS, the project contemplated by this AGREEMENT is of mutual interest and benefit to the UNIVERSITY and the SPONSOR, and will further the instructional, research, and public service objectives of the UNIVERSITY in a manner consistent with its status as a public educational institution; and

WHEREAS, SPONSOR desires to provide funding in support of the project;
NOW, THEREFORE, the parties hereto agree as follows:

(1.) **SCOPE OF PROJECT:** The UNIVERSITY will use its best efforts to undertake the project protocol as described in Attachment "A", hereby made a part of this AGREEMENT, and hereafter referred to as "PROJECT".

(2.) **PROJECT COORDINATOR:** The project shall be under the supervision of Dr. J. Ted Morris, Director, Economic Development Partnership, Office of Extension and Engagement, who shall serve as University Project Coordinator. If for any reason the Project Coordinator shall be unable to continue to serve, and a successor acceptable to both parties is not available, this AGREEMENT shall be terminated as hereafter provided.

(3.) **PERIOD OF PERFORMANCE:** The activities of this PROJECT shall be conducted during the period beginning January 1, 2004 through September 30, 2004. This period will be subject to modification or renewal only by mutual written agreement of the parties hereto.

(4.) **FIXED PRICE:** In consideration of the UNIVERSITY'S performance hereunder, SPONSOR agrees to support the UNIVERSITY'S activities as stated in Attachment "A", in the amount of Thirty Thousand Dollars (\$30,000.00).

Payments shall be made by the SPONSOR according to the following schedule: Single payment to be made September 25, 2004.

(5.) **REPORTS:** UNIVERSITY shall deliver to the SPONSOR a final report showing the results of the activity performed. Said report shall be due within thirty (30) days of completion of the PROJECT. UNIVERSITY hereby grants SPONSOR an unlimited, royalty-free, non-exclusive right and license to use the data and information developed under the Project. UNIVERSITY'S use of such data and information shall be consistent with the terms of this Agreement.

(6.) **RIGHTS IN DEVELOPMENTS:**

(a.) Title to all intellectual property, data or information, owned, developed, conceived and reduced to practice by SPONSOR prior to the start of the work under this AGREEMENT shall remain the sole property of the SPONSOR (hereinafter referred to as SPONSOR's Pre-Existing Technology).

(b.) Intellectual property rights in all other inventions, designs, techniques, innovations, or other discoveries not designated as being the property of the Sponsor pursuant to Subparagraph (a) above, conceived or reduced to practice under this AGREEMENT by one or more employees and/or students of UNIVERSITY, shall belong to UNIVERSITY.

(c.) SPONSOR shall have an option to negotiate for a royalty-bearing, exclusive license to any such intellectual property rights belonging to UNIVERSITY under subparagraph (b) above, provided SPONSOR must exercise its option by notice in writing within three (3) months of the disclosure to it by UNIVERSITY of the discovery, or within three (3) months following the completion of the PROJECT.

(d.) If any material produced by employees of the University during the course of the research program is in the nature of copyrighted works owned by University, then University grants to Sponsor a nonexclusive, royalty-free, nontransferable right and license to use, reproduce, display, translate, modify and distribute such copyrighted material.

(7.) **WARRANTY: UNIVERSITY MAKES NO WARRANTIES, EXPRESSED OR IMPLIED, AS TO ANY MATTER WHATSOEVER, INCLUDING WITHOUT LIMITATION, THE OWNERSHIP, MERCHANTABILITY, OR FITNESS FOR A PARTICULAR PURPOSE OF ANY GOODS OR SERVICES PROVIDED.** The UNIVERSITY makes no representation or warranty regarding the actual or potential infringement of patents or copyrights of third parties, and SPONSOR acknowledges that the avoidance of such infringement in the use of the services related to this AGREEMENT shall remain the responsibility of SPONSOR.

(8.) **TERMINATION** Performance under this AGREEMENT may be terminated by either party upon sixty (60) days written notice. Upon termination by either party, UNIVERSITY will be reimbursed for all costs and noncancelable commitments incurred in performance of the

PROJECT prior to the date of termination in an amount not to exceed the total commitment set forth in Paragraph (4).

(9.) **LIABILITY:** The liability of the UNIVERSITY, as an agency of the State of North Carolina, for bodily injury, property damage, infringement of proprietary rights and patents, and other items is limited by the North Carolina Tort Claims Act, Article 31, sec. 143-291.

The SPONSOR will indemnify and hold harmless UNIVERSITY, its trustees, officers, employees and agents from and against any liabilities, damages, or claims (including attorneys' fees) arising out of injuries (including death) or property damage suffered by any person as a result of SPONSOR's negligence or willful misconduct in the performance of this AGREEMENT or from SPONSOR's use or possession of the results produced hereunder.

(10.) **PROPRIETARY INFORMATION:** Any proprietary information disclosed by one party to the other, including invention disclosures made by UNIVERSITY to SPONSOR, shall be disclosed in writing and designated as proprietary, or if disclosed orally, shall be confirmed in writing and designated proprietary within thirty (30) days of such disclosure. A party receiving proprietary information hereunder, hereafter referred to as "RECIPIENT", agrees to use the proprietary information only for the purpose of this AGREEMENT and further agrees that it will not disclose or publish such information except that foregoing restrictions shall not apply to:

- (i) information which is or becomes publicly known through no fault of RECIPIENT;
- (ii) information learned from a third party entitled to disclose such information;
- (iii) information already known to or developed by RECIPIENT prior to receipt hereunder, or information independently developed, at any time, by RECIPIENT personnel not privy to the proprietary information, as shown by RECIPIENT's written records;
- (iv) information which is published in the necessary course of the prosecution of patent applications based upon inventions developed pursuant to this AGREEMENT; or;
- (v) information required to be disclosed by operation of law (including, but not limited to, the NC Public Records Act) or court order.

The obligation of confidentiality imposed by this provision shall expire three (3) years following the expiration or termination of this AGREEMENT. Each party will use a reasonable degree of care to prevent the inadvertent, accidental, unauthorized or mistaken disclosure or use by its employees of proprietary information disclosed hereunder.

(11.) **USE OF NAMES:** Neither party will use the name, marks, or symbols of the other for any commercial purpose without the express written permission of the other party.

(12.) **NOTICES:** Any notices required to be given or which shall be given under this AGREEMENT shall be in writing, delivered by first-class mail or facsimile, addressed to the parties as follows:

for SPONSOR
Kenneth M. Atkins, C.E.D.
Executive Director, Wake County Economic
Development
Greater Raleigh Chamber of Commerce
800 S. Salisbury St., Raleigh, NC 27601
Facsimile 919-

for UNIVERSITY
J. Ted Morris, Ph.D.
Director, Economic Development Partnership,
Office of Extension and Engagement
Campus Box 7902
Raleigh, NC 27695
Facsimile 919-515-8585

(13.) **INDEPENDENT PARTIES:** For purposes of this AGREEMENT, the parties hereto shall be independent contractors and neither shall at any time be considered an agent or employee of the other. No joint venture, partnership, or like relationship is created between the parties by this AGREEMENT.

(14.) **ASSIGNMENT:** This AGREEMENT shall be binding upon and inure to the benefit of the parties hereto and may be assigned only to the successors of these parties. Any other assignment by either party without prior written consent of the other party shall be void.

(15.) **GOVERNING LAW:** This AGREEMENT is acknowledged to have been made and shall be construed and interpreted in accordance with the laws of the State of North Carolina, provided that all questions concerning the construction or effect of patent applications and patents shall be decided in accordance with the laws of the country in which the particular patent application or patent concerned has been filed or granted, as the case may be.

(16.) **CONSULTING:** In the event that the University Project Coordinator and/or the SPONSOR shall seek a consulting arrangement with each other on the subject of this study during the period covered by this AGREEMENT, such arrangement shall be reported to the UNIVERSITY according to the Conflict of Interest and External Pay Policies of the UNIVERSITY.

(17.) **ENTIRE AGREEMENT:** Unless otherwise specified herein, this AGREEMENT embodies the entire understanding of the parties for this project and any prior or contemporaneous representations, either oral or written, are hereby superseded. No amendments or changes to this AGREEMENT including, without limitation, changes in the activities of the program, total estimated cost, and period of performance, shall be effective unless made in writing and signed by authorized representatives of both parties. If any provisions stated in this AGREEMENT, resulting purchase orders, and the project proposal are in conflict, the order of precedence, beginning with the first to last shall be (1) this AGREEMENT with attachments, (2) the project proposal, and (3) the purchase order, it being understood and agreed that any purchase order or similar document issued by SPONSOR will be for the sole purpose of establishing a mechanism for payment of any sums due and owing hereunder. Notwithstanding any terms and conditions contained in said purchase order, the

purchase order will in no way modify, or add, or take precedence to the terms of this AGREEMENT.

IN WITNESS WHEREOF, the parties hereto have executed this AGREEMENT effective as of the date last hereinafter written.

Wake County Economic Development

North Carolina State University

By: _____

By: _____

Title: _____

Richard Best, Assoc. Director
Sponsored Programs and
Regulatory Compliance

Date: _____

Date: _____

APPENDIX A

PRECISION MARKETING INITIATIVE

Contract for Fiscal Years 2003-04 and 2004-05

By and between:

Wake County Economic Development &
NC State's Economic Development Partnership

July 1, 2003

The Initiative

Wake County Economic Development ("WCED") and NC State's Economic Development Partnership ("EDP") are:

- 1) Developing a precision marketing program to directly engage and leverage the core competencies of NC State University to attract new businesses, government agencies and non-profits to Wake County and Centennial Campus; as well as
- 2) Implementing precision marketing strategies targeting industry clusters, selected companies, real estate brokers and developers, and site location consultants to catalyze new investment and job creation within Wake County and North Carolina.

EDP Responsibilities

To these ends, WCED desires to contract with NC State's EDP for research, management and implementation services required to support the Precision Marketing Initiative. For amounts received the EDP will:

- Manage research by NC State faculty, staff and students to identify suitable companies, government agencies and non-profits for recruitment to Wake County and or Centennial Campus;
- Prepare premarketing materials capturing research findings for use by CapStrat in its preparation of recruiting and public relations materials;
- Facilitate access to the NC State community by WCED personnel and other partners including those organizations targeted for recruitment;
- Coordinate activities of the Precision Marketing Initiative both on and off campus in cooperation with WCED's Executive Director;
- Provide business development activities linking NC State colleges, faculty and programs with industry, government and other partners; and
- Lead federal research and economic development fundraising efforts to enhance the goals and visibility of the Precision Marketing Initiative, WCED, Wake County and NC State.

Deliverables to WCED

Annually, NC State's EDP, working with faculty, students and staff, will;

- Identify 10 to 20 organizations for proactive, targeted recruitment;
- Develop one-of-a-kind precision marketing materials for recruitment of targeted organizations;
- Participate in marketing and sales calls on identified companies and other organizations;
- Coordinate all Initiative related activities at NC State in consultation with WCED's Executive Director.

Benefits to NC State

- Research, education and economic development opportunities for faculty, students and staff;
- New partners for University programs and Centennial Campus;
- Increased awareness and visibility of the economic development impacts of NC State;
- Sustainability of NC State's Economic Development Partnership and achievement of the University's vision to become the premier economic development land grant in the Nation.

Contract Budget FY 2003-04

<u>Item*</u>	<u>Budgeted Amount</u>
<u>Research to identify target organizations for recruitment</u>	
Economic Development Research Intern (160 hours, Spring 2004)	\$ 1,280
Economic Development Research Intern (240 hours, Summer 2004)	2,400
<u>Preparations of pre-marketing materials for delivery to CapStrat</u>	
Graduate GIS Specialist (80 hours, Summer 2004)	1,800
<u>Research of organization location decisions involving universities</u>	
Doctoral candidate – Political Science and Public Administration	5,000
<u>Precision Marketing Partnership management</u>	
Director, NC State EDP (16.5% FTE)	<u>19,520</u>
TOTAL	\$30,000

* Please see Appendix A for descriptions of personnel activities and work products. Over this initial contract period, WCED's Executive Director and the Director of the EDP have met with each of NC State's top administrators including the ten college Deans, as well as EDGE members, CapStrat and other advisors to refine the operational models needed for the Precision Marketing Initiative. As a result, significant research has already been conducted to commence recruiting of nonwoven, bio- and medical textile companies in partnership with NC State's College of Textiles. These activities directly support numerous of the eight industry clusters identified by Research Triangle Institute as critical to the economic vitality of the region including pharmaceuticals, pervasive computing, Nanotechnologies and advanced materials.

While these colleges represent areas of focus, work is already underway to recruit specific companies identified by the College of Design and the College of Agriculture and Life Sciences. Additionally, resources will often be drawn upon from across the University and the region when recruiting target companies given the multidisciplinary nature of many of these companies and their products.

For additional information please contact:

Ken Atkins, C.E.D., Executive Director, Wake County Economic Development 919-664-7041

Dr. Ted Morris, Director, NC State Economic Development Partnership 919-515-9433

Research to identify target organizations for recruitment

Economic Development Research Intern (Spring 2004):

Mr. Jason Beale is an NC State Honors Program student, double majoring in computer science and economics, and was engaged over the Spring Semester 2004 as an EDP Research Fellow to conduct premarketing research on 17 applied life science/biotechnology firms companies connected to NC State through intellectual property agreements. These companies were:

Dow AgroSciences	Aracruz
Arborgen	Monsanto
Pioneer	Bodger Seed
Daehnfeldt (Sakata Seed)	Park Seed
Pfizer	Abbot
DeKalb	Rhodia
Profigen	Fort Dodge
Johnson & Johnson	Idexx
Heska	

The output of this work is a database including for each company general product and contact information, facility locations, market trends impacting major company units, current connections to NC State and North Carolina, and any information available regarding possible relocation of company units and/or headquarters. WCED and the EDP will utilize this information to prioritize recruiting targets in partnership with NC State's College of Agriculture and Life Sciences.

Economic Development Research Intern (Summer 2004):

Mr. Jason Beale continued to serve the Precision Marketing Initiative during the summer of 2004. Working with another intern, Tremaine Britt (funded by the Dean of the College of Textiles), the two identified more than 320 companies representing the worldwide

nonwoven, bio- and medical textile industries. While the majority of these companies are outside Wake County and North Carolina, nearly half have existing ties to NC State and most are located within the U.S., thus representing a significant number of recruiting targets for the Precision Marketing Initiative.

Preparations of pre-marketing materials for delivery to CapStrat

Graduate GIS Specialist (Summer 2004)

Ms. Wendy Reid is completing her Masters Degree in Geographic Information Systems at NC State. During the summer of 2004, she was engaged to conduct industry cluster research on the nonwoven, bio- and medical textile industries present in the Research Triangle Region and worldwide. The output of this research include graphic and presentation materials for use by CapStrat depicting the dominant role of NC State and the Research Triangle Region in cutting edge textile research, development and manufacturing and the significance of this \$3 Billion (and growing) industry sector to the future of North Carolina

Research of organization location decisions involving universities

Doctoral candidate – Political Science and Public Administration

Mrs. Terri Helmlinger, Director of the North Carolina Cooperative Extension Service, is conducting her doctoral dissertation research on the decisions processes of companies and other organizations to locate R&D units, as well as headquarters operations to Centennial Campus. Using a qualitative case study approach, Mrs. Helmlinger, will identify key factors that support corporate decisions to partner with NC State and locate on Centennial Campus and areas for strategic investments by the University and its economic development partners to enhance the selection of Wake County and Centennial campus by companies relocating.

Precision Marketing Initiative management

Director, NC State EDP (14% FTE)

NC State's Economic Development Partnership is tasked with forging partnership with industry, government and communities to foster economic growth. To these ends, Dr. Ted Morris, Director of NC State's EDP, serves as the University's point-of-contact for NC State's research, education, programmatic and facility resources. For the Precision Marketing Initiative, Dr. Morris serves as the primary liaison between NC State and both WCED personnel and the public and private supporters of WCED's economic development activities. Dr. Morris is responsible for the management of faculty and student researchers identifying companies and other organizations for targeted recruitment, preparing premarketing materials for use by CapStrat, organizing needed campus-based events, serving on recruiting pursuit teams with WCED personnel, leveraging WCED funding to develop additional Initiative resources, and providing partnership development services between recruiting

AMENDMENT TO ECONOMIC DEVELOPMENT PARTNERSHIP AGREEMENT

AMENDMENT #1

The **ECONOMIC DEVELOPMENT PARTNERSHIP AGREEMENT** entered into for the period of January 1, 2004 through September 30, 2004, by and between Wake County Economic Development (hereinafter called "Sponsor") and North Carolina State University, on behalf of its Economic Development Partnership, Office of Extension and Engagement, (hereinafter called "University") is hereby modified as follows:

Paragraph 1. **SCOPE OF PROJECT**, is amended to add the following:

"University will use its best reasonable efforts to perform the additional PROJECT work as described in the continuation proposal and budget attached and made a part hereof as Appendix A-1."

Paragraph 3. **PERIOD OF PERFORMANCE**, is deleted and replaced with the following:

"The activities of this PROJECT shall be conducted during the period beginning January 1, 2004 through September 30, 2005. This period will be subject to modification or renewal only by mutual written agreement of the parties hereto.

Paragraph 4. **FIXED PRICE**, is amended to add the following:

In consideration of the UNIVERSITY'S continued performance hereunder, SPONSOR agrees to support the UNIVERSITY'S activities as stated in Appendix A-1 in the amount of Forty-Five Thousand Dollars (\$45,000.00), bringing the total PROJECT funding to \$75,000.

Payments shall be made by the SPONSOR according to the following schedule: Single payment to be made on or about April 1, 2005.

Except as modified above, all other terms and conditions of the ECONOMIC DEVELOPMENT PARTNERSHIP AGREEMENT remain unchanged.

IN WITNESS THEREOF, the parties hereto have caused this AMENDMENT to be signed by the respective officers duly authorized as of the date and year written.

Wake County Economic Development

North Carolina State University

By: _____

By: _____

Name: _____

Name: _____

Title: _____

Title: _____

Date: _____

Date: _____

APPENDIX A-1

The UNIVERSITY'S activities under ECONOMIC DEVELOPMENT PARTNERSHIP AGREEMENT dated September 17, 2004 and modified by AMMENDMENT #1: AMMENDMENT TO ECONOMIC DEVELOPMENT PARTNERSHIP AGREEMENT dated October ____, 2004 shall include equivalent effort and similar deliverables as described in Appendix A of ECONOMIC DEVELOPMENT PARTNERSHIP AGREEMENT dated September 17, 2004.

The additional budget for the additional period October 1, 2004 to September 30, 2005 in the amount of Forty-Five Thousand Dollars (\$45,000.00) is comprised as follows:

Contract Budget FY 2004-05

<u>Item</u>	<u>Budgeted Amount</u>
<u>Research to identify target organizations for recruitment</u>	
Economic Development Research Interns	6,500
<u>Preparations of pre-marketing materials for delivery to CapStrat</u>	
Graduate GIS Specialist	5,000
<u>Research of industry/government/academe technology roadmaps</u>	
Masters or Doctoral candidate	5,000
<u>Precision Marketing Partnership management</u>	
Director, NC State EDP (24% FTE)	<u>28,500</u>
TOTAL	\$ 45,000

Appendix B – Centennial Campus Timeline

Centennial Campus Timeline

1887- NCSU founded as a land-grant college to improve the agricultural and industrial skills of the post-Civil War laboring classes.

1970s- NCSU develops research centers (precursors to Centennial project) to encourage government and private funding for university.

1984 Fall-Winter- Governor James B. Hunt gives series of speeches about the importance of state funding for biotechnology, microelectronics, and a school of textiles for NCSU.

1984, Dec.- First 385 acres allocated to NCSU out of Dix property by Hunt administration.

1985, Feb.- Additional 450 acres allocated from State Farm Operations Commission by Martin administration.

1985, July- UNC Board of Governors approves request of NCSU Board of Trustees for permission to hire a firm to develop a Master Plan for the use of the Dix property.

1985, Oct.- NCSU Board of Trustees selects Carley Capital Group as the Master Planner/Development Adviser to project.

1986- NCSU helps to charter AURRP or the Association of University Related Research Parks.

1986, April- NCSU Board of Trustees approves Land Use Master Plan (which involved lands which had not yet been re-allocated or purchased). College of Textiles site selected.

1986- Sept.- NCSU Board of Trustees votes to establish a committee “to coordinate and receive reports from the NCSU Board of Trustees, and [to provide] a place where members of this Board who are interested in the

development of the new campus will have an opportunity to talk to their colleagues...”

1986, Nov.- Research I Building site chosen.

1986, Dec.- 1.4 acre lot (formerly site of H.B. Harris house) purchased by NCSU Endowment Board of Trustees for Centennial Campus.

1987, Jan.- Ground-breaking for Research I Building. UNC Board of Governors approve Land Use Master Plan.

1987, April- 2.5 acre purchase of land by NCSU Endowment Board of Trustees from UNC-Greensboro.

1987, May- Land totaling 118.9 acres exchanged with the North Carolina Department of Agriculture and reallocated by the Council of State.

1987, June- The Governor and Council of State conduct a formal review of the Master Plan for the Centennial Campus. Both parties unanimously approve and adopt the plan.

1987- Faculty and administration of the College of Textiles vote unanimously against moving to Centennial Campus.

1988- Additional 75 acres purchased by NCSU Endowment fund from the Catholic Diocese of Raleigh for \$7.5 million (other small purchases and land trades eventually raise total to 1,000 acres).

1988, Feb.- First occupants of first permanent building in NCSU’s Precision Engineering Research Center.

1988, April- The Precision Engineering Center in Research I, the first Centennial Campus building is inaugurated. 8.1 acres of Centennial Campus property leased to the Tammy Lynn Center until 2017. Site selected for future Engineering Graduate Research Center.

1988, May- Ground broken for estimated \$31 million College of Textiles.

1988, June- Design contract and document approved for the Engineering Graduate Research Center.

1988, July- Claude E. McKinney leaves post as Dean of the School of Design at NCSU to become the Special Assistant to the Chancellor for the Development of Centennial Campus.

1988, Aug.- Sept.- Raleigh City Council and N.C. Council of State rezoned area as a “mixed-use thoroughfare district.” Phase I Master Plan and Open Space Recreation Plan submitted to city.

1988, Oct.- NCSU Endowment Board of Trustees purchases 75 acres of land from the Catholic Diocese of Raleigh.

1988, Nov.- Site chosen for Research Building II.

1988, Dec.- NCSU Endowment Board of Trustees purchases 2.1 acres of land from Eastman Development.

1989, April- Chancellor Bruce R. Poulton dissolves Centennial Campus Management team as project grows.

1990, Feb.- Ground is broken for Research Building II.

1990, March- Centennial Parkway is approved by NCSU, NC Department of Agriculture, NC Department of Transportation, DCH, and NC Department of Human Resources.

1990, April- Environmental Impact Assessment approved by the Department of Environment and Natural Resources.

1990, May- Asea Brown Boveri (ABB) Power Transmission Technology Institute submits letter of intent to NCSU.

1990, June- Site chosen for future ABB building.

1990, Aug.- Wolfline adjusts its routes to include Centennial Campus.

1990, Dec.- Construction begins on ABB building.

1991, March or June- Dedication of the College of Textiles.

1991, April- National Weather Service confirms lease contract with Centennial Campus for new Forecast Office in Research Building III.

1991, July- ABB becomes the first corporate tenant at Centennial Campus.

1992, April- City of Raleigh annexed part of Centennial property and adjoining Trailwood Knoll neighborhood to comply with new zoning needs. Research Building III site chosen.

1992, June- Dedication of ABB's 70,000-sq. ft. Transmission Technology Institute.

1992, Sept.- Chancellor Larry Monteith orders development of new Master Plan in the face of slower than expected growth.

1992, Nov.- Site chosen to build the Centennial Campus electrical substation.

1993, Feb.- Construction of Research Building III begins. Move in begins in January 1994.

1993, Nov.- \$310 million in university bonds approved by North Carolina voters; \$35 million earmarked for NCSU's Engineering Graduate Research Center.

1993, Nov.- National Weather Service establishes a Forecast Office in Research Building III and becomes the first government partner at Centennial Campus.

1994, May- Centennial Parkway included in Governor Hunt's Transportation 2001 Plan.

1994, Aug.- Construction of \$35 million Engineering Graduate Research Center begins.

1994, Sept.- Dedication of Research Building III.

1994, Oct.- Centennial Campus 10-Year Celebration.

1995, June- Research Building IV construction begins. It is occupied in August 1996.

1995, Aug.- Construction of first Partners Building. It is occupied in January 1997.

1996, Nov.- Selected departments from the College of Engineering begin to move to Centennial Campus.

1997, Jan.- The 1.9 miles Centennial Parkway access road opens at a cost of approximately \$5 million.

1997, Feb.- Construction of Partners Building II begins.

1997- Construction of Centennial Magnet Middle School begins.

1998- Dedication of the Engineering Graduate Research Center.

1990s, late- Centennial begins to market to incubator companies.

2000, Fall- Centennial Magnet Middle School opens.

Addendum C – IRB Forms

**North Carolina State University
Institutional Review Board for the Use of Human Subjects in Research
SUBMISSION FOR NEW STUDIES**

Title of Project: *Corporate Cultures That Afford Premium Prices on Centennial Campus*

Principal Investigator: *Teresa A. Helmlinger* Department:

Source of Funding (required information): *None*

Campus Address (box number): *Campus 7902*

Email: *terri_helmlinger@ncsu.edu* Phone: *515-3891* Fax: *53-0517*

Rank: ☐ Faculty

☒ Student: ☐ Undergraduate ☐ Masters; or ☒ PhD

☐ Other:

If rank is not faculty (i.e. student or other), provide the name of the faculty sponsor overseeing the research: *Anne Schiller*

Faculty Sponsor's email: *Anne_Schiller@ncsu.edu* Campus Box: *8107* Phone: *515-9015*

Investigator Statement of Responsibility

"As the Principal Investigator, my signature testifies that I have read and understood the University Policy and Procedures for the Use of Human Subjects in Research. I assure the Committee that all procedures performed under this project will be conducted exactly as outlined in the Proposal Narrative and that any modification to this protocol will be submitted to the Committee in the form of an amendment for approval prior to implementation."

Principal Investigator's Signature*

Date

Faculty Sponsor Statement of Responsibility

"As the Faculty Sponsor, my signature testifies that I have reviewed this application thoroughly and will oversee the research in its entirety. I hereby acknowledge my role as principal investigator of record."

Faculty Sponsor's Signature*

Date

* electronic submissions to the IRB are considered signed via an electronic signature

PLEASE COMPLETE IN DUPLICATE AND DELIVER TO:

Institutional Review Board, Box 7514, NCSU Campus (lower level of Leazar Hall)

For IRB office Use Only

Review Received: ☐ *Administrative* ☐ *Expedited* ☐ *Full Board*

Review Decision: ☐ *Approve* ☐ *Approve with Modifications* ☐ *Table*
 ☐ *Disapprove*

Reviewer _____ Signature _____ Date _____

North Carolina State University
Institutional Review Board for the Use of Human Subjects in Research
PROPOSAL NARRATIVE

If at any time you have questions or difficulties while completing IRB forms, please feel free to contact Deb Paxton at debra_paxton@ncsu.edu or 919-515-4514.

In your narrative, please address each of the questions below. Keep in mind that the more details that you provide, the easier an IRB reviewer will be able to understand your research and reach a prompt decision.

A. INTRODUCTION

1. In lay language, please briefly describe your research, its purpose, procedures, and expected contribution to its field or to the general population.

The purpose of this class project is to construct and conduct a pilot qualitative interview series with representatives from a private partner company on Centennial

Campus. Centennial Campus is a unique university research park that is designed to bring together university, government and private interests to develop the most leading edge of technology. Any concern, particularly a private concern is willing to spend resources only when the value proposition for that expenditure is worthwhile. There is a value proposition for locating on Centennial Campus for private companies that supports their corporate culture. This class project would work toward constructing a qualitative means by which to extract that value. The purpose of this study is to determine characteristics of corporate culture that create a willingness and enthusiasm to pay for university collaborations which has specifically led to corporate location decisions with known premium prices. The research will extract the value of specific attributes of university/industry collaborations from decisions being made to locate a business in close proximity of a research university.

An overall study of the value of the Centennial Campus collaborations is part and parcel of a larger project that North Carolina State University is conducting for the Wake County Economic Development part of the Raleigh Chamber of Commerce. Wake County Economic Development is interested in developing university-catalyzed industry clusters of agriculture biotechnology and non-woven textile companies in and around the Centennial Campus of North Carolina State University. This project will support research that will ultimately be used for marketing and recruiting efforts of the joint venture by identifying the value a location decision to the Centennial Campus can bring to the companies' culture. This research to build the marketing message will also serve as a dissertation for the project's principal investigator. This class project will develop the starting components of the overall dissertation research.

This class project comprises data collection, analysis, and presentation that will evaluate the corporate culture of companies that have considered siting a location on the Centennial Campus of North Carolina State University. Using the qualitative research techniques of semi-structured and formal interviewing, participation observation, and ethnography, an analysis of commonalities and differences in organizational practices in a sample of these companies will be conducted. Ultimately, the dissertation research will thoroughly analyze a series of resultant corporate case studies. Therefore, there will be two periods of field research and data collection. The research on this class project which will end by December, 2004 will build a foundation for the dissertation research.

This class project research will begin with participant observations of the Centennial Campus development officers who recruit companies. Part of this time will be spent while the officers are recruiting companies, part of it will be spent while they are developing strategies to recruit, and part of it will be spent while they are developing plans for company recruiting. Oral and documented histories will be gathered from those individuals that were involved with the Centennial Campus conception, ideation, and initial development phases. At the same time, data-gathering will be conducted about companies who have participated in a site decision that included consideration of the Centennial Campus. Results of the data-gathering will direct the research toward an appropriate blend of companies to interview for the case studies. The case study interviews will require interview templates in order to build the case study database.

A company interview series will inform the researcher as to the appropriate interview template. This class project will allow for that company interview series. Using the literature review, attributes of locating near a university will be preliminarily scoped. Interviews will be used for participants to comment on how important these attributes were in locating a business close to this specific university. They will also be asked to answer the question, "Why did you come?" Based on these, the attributes will be specified and an interview template will be built to be used for the dissertation case study interviews.

2. If this is student research, indicate whether it's for a course, thesis, or dissertation.

As indicated above, this particular piece is for a course but further research will build on this student promject toward dissertation research.

B. SUBJECT POPULATION

1. How many subjects will be involved in the research?

It is estimated to involve no more than 20 subjects to include informants and interviewee -- the likely number is 5 or 6.

2. Describe how subjects will be recruited. If flyers, advertisements, or recruitment letters will be used, please attach copies of those documents.

Mostly, by phone and through other colleagues.

3. List specific eligibility requirements for subjects, describe screening procedures, and justify criteria that will exclude otherwise acceptable subjects.

The people selected will be known as individuals heavily involved currently or in the early phases of Centennial Campu.s

4. Explain and justify and sampling procedures that exclude specific populations.

N/A

5. Disclose any relationship between researcher and subjects, such as teacher/student or employer/employee.

Colleagues

6. Check any vulnerable populations that you will intentionally include in the study:

- ☐ Minors (under the age of 18) – if you will involve minors in your study, you must make provisions for parental consent and minor assent to the research
- ☐ Pregnant women
- ☐ Persons with mental, psychiatric, or emotional disabilities
- ☐ Persons with physical disabilities
- ☐ Elderly
- ☐ Students from a class taught by the Principal Investigator
- ☐ Prisoners
- ☐ Other vulnerable populations:

If any of the above are used, justify the necessity for doing so. Please indicate the approximate age range of minors to be involved.

C. PROCEDURES TO BE FOLLOWED

1. In lay language, describe completely and with good detail all the procedures involving human subjects that will be followed during the course of the study. Provide sufficient detail so the committee is able to adequately review the research.

The major facets of this research fit snugly into the overall joint project and therefore must conform to the broader project plan. The expected progress of this class project is outlined in a plan of action. The first two tasks, identifying the decision criteria and modeling the decision process will be done through participant observation, data collection, and semi-structured interviewing. Interviews will follow that focus primarily on the target respondents. These interviews will be more structured and formal.

2. How much time will be required of each subject?

Thirty (30) minutes for most of the participants; however, the participant observation of Centennial Campus development officers will occur for 10 to 20 hours.

D. POTENTIAL RISKS

1. State the potential risks from the research (psychological, social, financial, legal, physical, or otherwise). State how you plan to minimize these risks.

None

2. Will there be a request for information that if accidentally made public could embarrass the subjects or reasonably place them at risk of criminal, social, or professional harm?

No

3. Could any of the study procedures or information collected produce stress, anxiety, or psychological harm? If yes, please justify the need for such procedures or information, and describe methods you will take to minimize the harm a subject encounters (e.g. you will provide or arrange for psychological counseling for those subjects who experience distress due to your study).

No

4. Describe methods for protecting your subjects' confidentiality. How will data be recorded and stored? Will any identifiers be collected? If so, how and why? If you will collect identifiers, will you destroy the link between subject identity and data at some point? If you are collecting audio or video recordings, do you plan to destroy the recordings after the research is complete?

This phase of the study will be anonymous.

5. If your research will be reported in a case study format, how will you protect individual subjects' responses/information?

Anonymous for this phase

6. Is there any deception of subjects in this study? If yes, please describe the deception, justify it, and provide a debriefing procedure.

No

E. POTENTIAL BENEFITS

Please address benefits expected from the research. Please note that this does not include compensation for participation, in any form. Specifically, what, if any, direct benefit is to be gained by the subject? If no direct benefit is expected, but indirect benefit may be expected (i.e. to general society), please explain.

These companies and individuals take pride in being a part of the growth of Centennial Campus. This research will lead to further growth and development of the Campus.

F. COMPENSATION

Explain compensation that subjects will receive for participating in the study, as well as provisions for the withdrawal of a subject prior to completion of the study.

None

1. If class credit will be offered for participation, list the amount given and alternate ways to earn the same amount of credit.

None

G. COLLABORATORS

If you anticipate that additional investigators (other than those listed on the cover page) may be involved in the research, list them here indicating their institution, department and phone number.

N/A

H. ADDITIONAL INFORMATION

1. If a questionnaire, survey, or interview instrument is to be used, attach a copy to this proposal
2. Attach to this document a copy of the informed consent document that you will use
3. If your study involves minors, attach a copy of the parental permission and child assent documents that you will use.
4. Please provide any additional materials or information that may aid the IRB in making its decision.

North Carolina State University
INFORMED CONSENT FORM for RESEARCH

Title of Study: Corporate Cultures that Afford Premium Prices on Centennial Campus

Principal Investigator: Teresa A. Helmlinger

Faculty Sponsor: Anne Schiller

We are asking you to participate in a research study. The purpose of this study is to develop a sense of the value an enterprise gains from locating on Centennial Campus.

INFORMATION

If you agree to participate in this study, you will be asked to:

- Allow me to participate in your recruitment efforts
- Help me to locate archives on Centennial Campus
- Identify contacts for further research
- Participate in semi-structured interviews

These steps will compose approximately 3 hours/week for approximately 4 weeks. Of that time, I expect that only 5 hours will be devoted to activities other than your normal work duties.

RISKS

A pseudonym will be used to identify you in all documentation so that any and all of your activities and comments will be totally confidential.

BENEFITS

Study results will be accessible to the participants. These results will help to frame recruitment efforts in a way that enhances the corporate culture, making the appeal of Centennial Campus better.

CONFIDENTIALITY

The information in the study records will be kept strictly confidential. Data will be stored securely in a locked drawer in my personal office. No reference will be made in oral or written reports which could link you to the study.

CONTACT

If you have questions at any time about the study or the procedures, you may contact the researcher, Teresa A. Helmlinger, at Campus Box 7904, Raleigh, NC 27695, or 919-515-3891. If you feel you have not been treated according to the descriptions in this form, or your rights as a participant in research have been violated during the course of this project, you may contact Dr. Matthew Zingraff, Chair of the NCSU IRB for the Use of Human Subjects in Research Committee, Box 7514, NCSU Campus (919/513-1834) or Mr. Matthew Ronning, Assistant Vice Chancellor, Research Administration, Box 7514, NCSU Campus (919/513-2148)

PARTICIPATION

Your participation in this study is voluntary; you may decline to participate without penalty. If you decide to participate, you may withdraw from the study at any time without penalty and without loss of benefits to which you are otherwise entitled. If you withdraw from the study before data collection is completed your data will be returned to you or destroyed at your request.

CONSENT

“I have read and understand the above information. I have received a copy of this form. I agree to participate in this study with the understanding that I may withdraw at any time.”

Subject's signature _____ Date _____

Investigator's signature _____ Date _____

**North Carolina State University
Institutional Review Board for the Use of Human Subjects in Research
SUBMISSION FOR NEW STUDIES**

Title of Project: *Strategic Alliances That Allow A Match to Corporate Values*

Principal Investigator: *Teresa A. Helmlinger* Department: *Public Administration*

Source of Funding (required information): *Wake County Economic Development Unit*

Campus Address (box number): *Campus 7902*

Email: *terri_helmlinger@ncsu.edu* Phone: *515-3891* Fax: *513-0517*

Rank: ☐ Faculty

☒ Student: ☐ Undergraduate ☐ Masters; or ☒ PhD

☐ Other:

If rank is not faculty (i.e. student or other), provide the name of the faculty sponsor overseeing the research: *Michael Vasu*

Faculty Sponsor's email: *vasu@social.chass.ncsu.edu* Campus Box: *8107* Phone: *515-9015*

Investigator Statement of Responsibility

"As the Principal Investigator, my signature testifies that I have read and understood the University Policy and Procedures for the Use of Human Subjects in Research. I assure the Committee that all procedures performed under this project will be conducted exactly as outlined in the Proposal Narrative and that any modification to this protocol will be submitted to the Committee in the form of an amendment for approval prior to implementation."

Principal Investigator's Signature*

Date

Faculty Sponsor Statement of Responsibility

"As the Faculty Sponsor, my signature testifies that I have reviewed this application thoroughly and will oversee the research in its entirety. I hereby acknowledge my role as principal investigator of record."

Faculty Sponsor's Signature*

Date

*electronic submissions to the IRB are considered signed via an electronic signature

PLEASE COMPLETE IN DUPLICATE AND DELIVER TO:

Institutional Review Board, Box 7514, NCSU Campus (lower level of Leazar Hall)

For IRB office Use Only

Review Received: ☐ *Administrative* ☐ *Expedited* ☐ *Full Board*

Review Decision: ☐ *Approve* ☐ *Approve with Modifications* ☐ *Table*
☐ *Disapprove*

Reviewer

Signature

Date

North Carolina State University
Institutional Review Board for the Use of Human Subjects in Research
PROPOSAL NARRATIVE

If at any time you have questions or difficulties while completing IRB forms, please feel free to contact Deb Paxton at debra_paxton@ncsu.edu or 919-515-4514.

In your narrative, please address each of the questions below. Keep in mind that the more details that you provide, the easier an IRB reviewer will be able to understand your research and reach a prompt decision.

I. INTRODUCTION

1. In lay language, please briefly describe your research, its purpose, procedures, and expected contribution to its field or to the general population.

The purpose of this research is to conduct a qualitative review of the strategic alliances that are created on Centennial Campus. Centennial Campus is a unique university research park that is designed to bring together university, government and private interests to develop the most leading edge of technology. Any concern, particularly a private concern is willing to spend resources only when the value proposition for that expenditure is worthwhile. There is value to private companies for locating on Centennial Campus, for being part of this community culture. This project will identify the corporate values of existing campus partners or residents of Centennial Campus that make a strategic alliance with the campus an important facet of doing business. Therefore the purpose of this study is to determine characteristics of corporate culture that create a willingness to pay for university collaborations, leading to corporate location decisions with known premium prices. The research will also extract an understanding of the value of specific attributes of these university/industry collaborations or important facets of the Centennial Campus culture.

This study of the value of the Centennial Campus collaborations is part and parcel of a larger project that North Carolina State University is conducting jointly with the Wake County Economic Development Unit of the Raleigh Chamber of Commerce. Wake County Economic Development is interested in developing university-catalyzed industry clusters of agriculture biotechnology and non-woven textile companies in and around the Centennial Campus of North Carolina State University. The results of this research will be used for the marketing and recruiting efforts of this joint venture. The results will also be used by the university for justifying resource allocations on the campus.

Case studies will be developed on five private companies resident on Centennial Campus. In order to build the case studies the research will comprise the qualitative research techniques of semi-structured and formal interviewing,

observation, and ethnography. The case studies will be used in an analysis of commonalities and differences in organizational practices of these companies

2. If this is student research, indicate whether it's for a course, thesis, or dissertation.

Dissertaion research

J. SUBJECT POPULATION

1. How many subjects will be involved in the research?

It is estimated to involve no more than 50 subjects to include informants and interviewees.

2. Describe how subjects will be recruited. If flyers, advertisements, or recruitment letters will be used, please attach copies of those documents.

Mostly, by phone and through other colleagues.

3. List specific eligibility requirements for subjects, describe screening procedures, and justify criteria that will exclude otherwise acceptable subjects.

The people selected will be known as individuals heavily involved in the decisions to locate or otherwise participate in an alliance with Centennial Campus.

4. Explain and justify and sampling procedures that exclude specific populations.

N/A

5. Disclose any relationship between researcher and subjects, such as teacher/student or employer/employee.

Colleagues

6. Check any vulnerable populations that you will intentionally include in the study:

- ☐ Minors (under the age of 18) – if you will involve minors in your study, you must make provisions for parental consent and minor assent to the research
- ☐ Pregnant women
- ☐ Persons with mental, psychiatric, or emotional disabilities
- ☐ Persons with physical disabilities
- ☐ Elderly
- ☐ Students from a class taught by the Principal Investigator
- ☐ Prisoners
- ☐ Other vulnerable populations:

If any of the above are used, justify the necessity for doing so. Please indicate the approximate age range of minors to be involved.

K. PROCEDURES TO BE FOLLOWED

1. In lay language, describe completely and with good detail all the procedures involving human subjects that will be followed during the course of the study. Provide sufficient detail so the committee is able to adequately review the research.

Some observations of company activities will be conducted to include needed data collection when the data cannot be gathered independently. Most of the procedures involving human subjects will be conducted through structured and informal interviews with targeted respondents.

2. How much time will be required of each subject?

An hour for formal interviews. No more than three hours with each person being observed.

L. POTENTIAL RISKS

1. State the potential risks from the research (psychological, social, financial, legal, physical, or otherwise). State how you plan to minimize these risks.

None

2. Will there be a request for information that if accidentally made public could embarrass the subjects or reasonably place them at risk of criminal, social, or professional harm?

No

3. Could any of the study procedures or information collected produce stress, anxiety, or psychological harm? If yes, please justify the need for such procedures or information, and describe methods you will take to minimize the harm a subject encounters (e.g. you will provide or arrange for psychological counseling for those subjects who experience distress due to your study).

No

4. Describe methods for protecting your subjects' confidentiality. How will data be recorded and stored? Will any identifiers be collected? If so, how and why? If you will collect identifiers, will you destroy the link between subject identity and data at some point? If you are collecting audio or video recordings, do you plan to destroy the recordings after the research is complete?

The subjects in this study will be kept anonymous.

5. If your research will be reported in a case study format, how will you protect individual subjects' responses/information?

They will be kept anonymous.

6. Is there any deception of subjects in this study? If yes, please describe the deception, justify it, and provide a debriefing procedure.

No

M. POTENTIAL BENEFITS

Please address benefits expected from the research. Please note that this does not include compensation for participation, in any form.

Specifically, what, if any, direct benefit is to be gained by the subject? If no direct benefit is expected, but indirect benefit may be expected (i.e. to general society), please explain.

These companies and individuals take pride in being a part of the growth of Centennial Campus. This research will lead to further growth and development of the Campus.

N. COMPENSATION

Explain compensation that subjects will receive for participating in the study, as well as provisions for the withdrawal of a subject prior to completion of the study.

None

1. If class credit will be offered for participation, list the amount given and alternate ways to earn the same amount of credit.

None

O. COLLABORATORS

If you anticipate that additional investigators (other than those listed on the cover page) may be involved in the research, list them here indicating their institution, department and phone number.

N/A

P. ADDITIONAL INFORMATION

1. If a questionnaire, survey, or interview instrument is to be used, attach a copy to this proposal
2. Attach to this document a copy of the informed consent document that you will use
3. If your study involves minors, attach a copy of the parental permission and child assent documents that you will use.

4. Please provide any additional materials or information that may aid the IRB in making its decision.

**North Carolina State University
INFORMED CONSENT FORM for RESEARCH**

Title of Study Strategic Alliances That Allow a Match to Corporate Values

Principal Investigator Teresa A. Helmlinger
applicable) Michael Vasu

Faculty Sponsor (if

We are asking you to participate in a research study. The purpose of this study is to develop a sense of the value an enterprise gains from locating on Centennial Campus.

INFORMATION

If you agree to participate in this study, you will be asked to allow me to conduct scheduled interviews with you and to observe some of your work activities. In total, these activities will compose no more than three hours of your time. Of that time, I expect only an hour will be devoted to activities other than your normal work duties.

RISKS

A pseudonym will be used to identify you in all documentation so that any and all of your activities and comments will be totally confidential.

BENEFITS

Study results will be accessible to the participants. These results will be used to enhance the benefits of the Centennial Campus.

CONFIDENTIALITY

The information in the study records will be kept strictly confidential. Data will be stored securely in a locked drawer in my personal office at home. No reference will be made in oral or written reports which could link you to the study.

CONTACT

If you have questions at any time about the study or the procedures, you may contact the researcher, Teresa Helmlinger, at Campus Box 7902, Raleigh, NC, 27526, or 919-515-3891. If you feel you have not been treated according to the descriptions in this form, or your rights as a participant in research have been violated during the course of this project, you may contact Dr. Matthew Zingraff, Chair of the NCSU IRB for the Use of Human Subjects in Research Committee, Box 7514, NCSU Campus (919/513-1834) or Mr. Matthew Ronning, Assistant Vice Chancellor, Research Administration, Box 7514, NCSU Campus (919/513-2148)

PARTICIPATION

Your participation in this study is voluntary; you may decline to participate without penalty. If you decide to participate, you may withdraw from the study at any time without penalty and without loss of benefits to which you are otherwise entitled. If you withdraw from the study before data collection is completed your data will be returned to you or destroyed at your request.

CONSENT

“I have read and understand the above information. I have received a copy of this form. I agree to participate in this study with the understanding that I may withdraw at any time.”

Subject's signature _____ Date _____

Investigator's signature _____ Date _____

Addendum D – Interview Guide

Case Study Preparation Organization Executives on Centennial Campus

- Describe your company and its products.
- If someone asked you to describe your company in three words, what would they be?
- Do you have a company vision? Can you tell me about it? How did it develop?
- What distinguishes your product in the market?
- Who are the product champions in your organization?
- How do you think that affiliating with NCSU suits your company vision?
- Have your collaborations with Centennial Campus been what you expected?
- What future do you anticipate from your university collaborations?
- What have I not asked that I should have asked?

Appendix E -- Script for Telephone Contacts to Establish Interviews

- Introduce self and tie to qualifying call from CCPO staff. Thank them for agreeing to talk to me.
- Describe the Precision Marketing Project and the relevance to this project to it
- Describe the objectives of the research
- Tell them the importance of their role in understanding the core values of companies that decide to locate on Centennial Campus
- Ask for an appointment date and time
- Ask them if they need anything sent to them before we meet.
- Thank them again for their participation

Addendum F – Centennial Campus Master Plan

The entire plan is available at <http://www.ncsu.edu/facilities/univ-arch/1-physical.htm>

**A Campus of
Neighborhoods and
Paths**

NC State University
Physical Master Plan

Prepared by NC State University Community
Approved by Board of Trustees Trustees Buildings & Property Committee

Copyright 2000, NC State University

Acknowledgments



A Campus of Neighborhoods and Paths presents a campus vision that embodies NC State University's commitment to community, partnerships, and the efficient use of resources. It was crafted by faculty, students, staff members, trustees, neighbors, and the City of Raleigh and is dedicated to nourishing an innovative learning community. Ours is a large urban campus made up of many neighborhoods, each one home to unique activities. By strengthening and beautifying these neighborhoods and weaving them together with a system of pathways, we will continue to create a campus that is memorable and that inspires our endeavors.

– Chancellor Marye Anne Fox

Chancellor

Marye Anne Fox

Board of Trustees' Buildings & Property Committee

H. E. "Butch" Wilson, Jr., Chair

Flora H. Grantham

Wendell Murphy

C. Richard Vaughn

Advisory Team

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George Chapman, Planning Director, City of Raleigh

Jack Colby, Director, Facilities Operations

Fred Corbin, Faculty Senate, Professor, Crop Science

Flora Grantham, Trustee

Edwin F. "Abie" Harris, Jr., University Architect Emeritus

Michael Harwood, University Architect

Karen Helm, Director, University Planning and Analysis

Will Hooker, Physical Environment Committee, Professor, Landscape Horticulture

Charles Leffler, Associate Vice Chancellor for Facilities

Tim Luckadoo, Director, University Housing

Marvin Malecha, Dean, School of Design

Claude McKinney, Centennial Campus Coordinator

John Miller, Campus Neighbor, Oxford Mortgage Company

Rajesh "Raj" Mirchandani, Student Body President

Bill Padgett, Staff Senate, Assistant Director, Computing Center

Cathy Reeve, Director, Transportation

H. E. "Butch" Wilson, Trustee

Campus Design Review Panel

Michael Harwood, Chair, University Architect

Richard Robb, Trustee

Robert Burns, Professor, Architecture

Kenneth Hanck, Chair, Physical Environment Committee, Professor, Chemistry

David Rainer, Director, Environmental Health & Safety

Neil Olson, Professor, College of Veterinary Medicine

H.E. "Butch" Wilson, Jr., Trustee

Charles Leffler, Associate Vice Chancellor for Facilities

Mary Myers, Assistant Professor, Landscape Architecture

Thomas Conway, Associate Vice Provost, Division of Undergraduate Affairs

A'Shawn Hines, Student

Michael McDonnel, Vice President Human Resources, ABB Power T&D Company, Inc.

***A Campus of Neighborhoods and Paths* incorporates ideas generated in numerous campus precinct meetings, task forces, and committees. The university is grateful to all who have devoted their time and energy to the creation of this physical master plan.**

Frank Abrams, Senior Associate Provost for Academic Affairs • James Anderson, Vice Provost, Division of Undergraduate Affairs • Matt Andrews, Associate Professor, Genetics • John Atkins, Board of Visitors • Hoyt Bailey, Trustee • Bill Ballenger, Education & Psychology • Rhonda Barnes, Interior Designer, Purchasing • Durwood Bateman, College of Agriculture & Life Sciences • Dave Betts, Assistant Planning Director, City of Raleigh • Bill Blackmon, Command Digital Studios • Carlton Blalock, President, University Club • Mike Bolton, Alumnus • Paul Borick, Project Manager, Facilities Planning & Design • Steve Bostian, Project Manager, Facilities Planning & Design • James Brantley, Planner, City Of Raleigh • June Brotherton, Associate Director for Organizational Effectiveness, NCSU Libraries • Jim Brown, Project Manager, Facilities Planning & Design • Greg Cain, Transportation • Joe Campbell, Assistant Director, East Campus, University Housing • Ruben Carbonell, Department Head, Chemical Engineering • Philip Carter, Professor, Microbiology & Immunology • Jenny Chang, Student Government • David Chapin, Forma Design • George Chapman, Planning Director, City of Raleigh • Judy Close, Focus • Jack Colby, Director, Facilities Operations • Jill Coleman, Project Manager, Facilities Planning & Design • Sandy Connolly, Director, Business & Services, College of Textiles • Thomas Conway, Associate Vice Provost, Division of Undergraduate Affairs • Jon Cooper, Facilities Planning & Design • Fred Corbin, Chair, Faculty Senate • Edward Curtis, Campus Neighbor • Dick Daugherty, Executive Director, NCSU Research Corporation • Brad Davis, Land Design Inc • Ron Davis, Facilities Resource Specialist, Facilities Planning & Design • Barbara Doll, Water Quality Specialist, Sea Grant • C.L. Donleycott, College of Management • Jason Dotson, CADD Technician, Facilities Planning & Design • Mike Eckert, Web Technician, Facilities Planning & Design • John Fields, Construction Management • Oscar Fletcher, Dean, College of Veterinary Medicine • Warren Follum, Supervisor of Formal Projects, Facilities Planning & Design • Ray Fornes, Associate Dean, Physical Sciences Research • Marye Anne Fox, Chancellor • Ken Gallagher, Little & Associates • Bob Geolas, Partnership Development Specialist, Centennial Campus Development • Keith Giamportone, Brown Jurkowski Architectural Collaborative, PA • Ned Glascock, Raleigh News & Observer • Anson Gock, Assistant Director, Transportation Planning & Facilities, Transportation • Susan Grant, Associate Director, University Housing • Flora H. Grantham, Trustee • Adam Grygoruk, Project Manager, Facilities Planning & Design • SamHalstead, Associate Professor, Director, Intramural-Recreational Sports • Ken Hanck, Professor, Chemistry • Dan Harrell, College of Engineering • Howard Harrell, Director, Real Estate • Cynthia Harris, Catering Supervisor, University Dining • Abie Harris, University Architect Emeritus • Keith Harrod, Trustee • Kathy Hart, Treasurer • Michael Harwood, University Architect • Andrea Havens, Student • Karen Helm, Director, University Planning & Analysis • Joe Henderson, Director, State Property Office • Jenny Holden, Architectural Intern, Facilities Planning & Design • Will Hooker, Professor, Landscape Horticulture • David Horning, Associate Director, Athletics • Tom Hunter, Facilities Planner, Facilities Planning & Design • William Isler, College of Engineering • Denis Jackson, Assistant Vice Provost/Director, Encore Center • J. B Jett, Associate Dean for Research & Outreach • Lisa Johnson, Facilities Planner, Facilities Planning & Design • Sumayya Jones-Humienny, Project Manager, Facilities Planning & Design • Ron Kemp, Executive Director, Creative Services • Kristin King, Student • Sondra Kirsch, Associate Vice Chancellor, Outreach Extension & Continuing Studies • Duane Knudson, Manager, Environmental Affairs • Leslye Kornegay, Staff Senate, Support Administrator, Facilities Operations • George Kriz, Associate Director, NC Agricultural Research Service • Charles Leffler, Associate Vice Chancellor, Facilities • George Lemons, Warning Coordination Meteorologist, National Weather Service • Richard Lewis, College of Management • Margaret Link, Physical Environment Committee, Coordinating Librarian, Learning Resources Library • Bill Little, Little & Associates • Laura Lombardo, Water Quality Extension Associate, NCSU Water Quality Group • David Lombardi, Building Construction & Management Specialist, College of Engineering • Tim Luckadoo, Director, University Housing • Marvin Malecha, Dean, School of Design • Ken Manness, Planner, City of Raleigh • Jeff Mann, Associate Vice Chancellor for Business • Rod McCormick, College of Physical & Mathematical Sciences • Steve McEvoy, McEvoy Engineering Services, Inc. • Claude McKinney, Centennial Campus Coordinator • Jeff McNeill, Vice Chancellor, Chancellor's Office & Staff • Joan Michael, Dean, Education & Psychology • John Miller, Campus Neighbor, Oxford Mortgage Company • Rajesh Mirchandani, President, NC State Student Body • Larry Monteith, Chancellor

Emeritus • Charles Moreland, Vice Chancellor for Research, Outreach, Extension & Economic Development • Margaret Murray, Campus Neighbor • Chad Myers, Student Government President • Betty Oglesby, Student Housing Administration • David Ollis, Distinguished Professor, Chemical Engineering • Jon Ort, Associate Dean & Director, Cooperative Extension Service • Bill Padgett, Staff Senate, Assistant Director, Computing Services • Jim Pappenhagen, Assistant Director Administration, University Housing • Carmen Parkhurst, Professor, Poultry Science • Bob Parries, Executive Director of Development, College of Management • Judy Peel, Department Head, Physical Education • Katie Perry, Assistant Dean, College of Agriculture & Life Sciences • Bob Petters, Director, Music • Jaine Place, Partnership Development Specialist, Centennial Campus Development • Mike Pleasants, General Manager, North Carolina State Fairgrounds • J.C. Poindexter, Associate Director, Finance & Director Entrepreneurship • Cindy Privette, Administrative Assistant, Facilities Planning & Design • Maggie Puryear, Information Processor, Facilities Planning & Design • Jorge Quintal, Director, Facilities Planning & Design • David Rainer, Director, Environmental Health & Safety • Cathy Reeve, Director, Transportation • Douglas Reeves, Physical Environment Committee, Associate Professor, Computer Science • Randy Reggi, Project Manager, Facilities Planning & Design • Evelyn Reiman, Associate Vice Chancellor, Student Affairs • Sallie Ricks, Exterior Planner, Facilities Planning & Design • Jack Rose, Centennial Campus Property Manager • Jill Salter, NC State Graduate Student • Enrique Santacana, Director, ABB Electric Systems Technology Institute • Harvey Schmitt, President & CEO, Raleigh Chamber of Commerce • Joe Simpson, Real Estate • Dan Solomon, Associate Dean, Academic Affairs • Mindy Sopher, Director, Greek Life • Roger Spears, Architecture • Paul Stafford, Facilities Planning & Design • Tom Stafford, Vice Chancellor for Student Affairs • Debra Stewart, Vice Chancellor, Dean, Graduate School • Phillip Stiles, Professor of Physics, Provost Emeritus • Nina Szlosberg, Hillsborough Street Partnership • John Tector, Associate Dean of Undergraduate Studies & Academic Affairs, School of Design • Glenn Thomas, Project Manager, Facilities Planning & Design • Gary Thompson, Assistant Director for Facilities Division, University Housing • Alan Tonelli, Professor, Textiles & Engineering • Jim Vespi, Facilities Operations • Brinkley Wagstaff, Assistant Athletic Director for Facilities, Athletics • George Wahl, Faculty Senate, Professor, Chemistry • Joy Weeber, Graduate Student • Laura Whitfield, Assistant to the Chancellor for Special Projects • Jerry Whitten, Professor, Chemistry • Dick Wilkinson, Professor, Landscape Architecture • Curtis Williams, Centennial Authority • Steve Williams, S.D. Williams Editorial Service • Bill Willis, Provost's Office • Butch Wilson, Chair, Trustees Buildings & Property Committee • George Worsley, Vice Chancellor for Finance & Business • Terry Wright, Police and Public Safety Department Director • Rob Yaeger, Manager, Facilities Information Systems, Facilities Planning & Design • Smedes York, Chair, Board of Trustees, Trustees' Buildings & Property Committee • John Young, Mechanical Engineer, Facilities Operations • Robert Zimmer, Student Government • Ginger Zucchini, Facilities Operations • **The following contributed material in this document:** Brown Jurkowski Architectural Collaborative PA: architectural design standards, drawings, photographs • Command Digital Studios: Precinct Plan graphic rendering • Delineation Studios, PA: Patterson Court rendering • Edwin F. Harris, Jr., FAIA, University Architect Emeritus: sketches, illustrations, photographs, editorial review • Focus: architectural design standards, drawings, photographs • Forma Design: publication graphic design • NC State Archives: photographs • NC State staff: narrative writing, mapping, photographs • PR&S: Memorial Bell Tower roundabouts rendering • Reynolds & Jewell, PA: Hillsborough St. roundabouts plan rendering • S. D. Williams Editorial Service: narrative writing and editing • **In the preparation of this edition,** task force and committee members found language in Christopher Alexander's *The Oregon Experiment* (1975) and *A Pattern Language* (1977) very helpful in explaining two fundamental concepts about planning on this campus. "Shared open space" describes the very important public places between buildings, places in which occur numerous activities central to the life of the university. "Hearth" describes the natural gathering places that people are drawn to on campus. This plan uses the latter concept at a variety of scales: from a departmental coffee area to a large campus focal point, such as University Plaza (the Brickyard). Many of Alexander's other ideas and skillfully coined phrases are used in this plan, and the university acknowledges the substantial contribution that these make to *A Campus of Neighborhoods and Paths*.

Overview

A Campus of Neighborhoods and Paths lays out the future of physical development at NC State University. It presents a way to integrate the many parts of a large, urban campus into a coherent whole. This plan includes guidelines and standards for individual projects and directions for fitting those projects into the overall campus fabric.

The **Introduction** includes the university's acknowledgment of and thanks to all who participated in the crafting of this plan, the chancellor's introductory message, the Table of Contents accompanied by this Overview, and a description of the processes that led to the creation of *A Campus of Neighborhoods and Paths*. The latter section includes a brief history of the development of the campus to provide a context for the plan.



Proposed neighborhood on North Campus

The **Foundations** section begins with the Campus Vision—the NC State campus as it will become, drawing on the campus's successful existing parts. All development will advance this Vision. The subsequent Guiding Principles, on which the Vision is built, are the university's underlying values regarding campus development. Following these are the Design Guidelines ¹ and Standards, ¹ which begin by presenting the ² concepts of Campus Neighborhoods ³ and Campus Paths, ³ the fundamental concepts of this plan. The guidelines are conceptual development criteria that every development proposal must address. The architectural, landscape, and natural systems standards, which are coupled with their appropriate guidelines, present specific criteria for the design of buildings, the development of the exterior environment, and the sensitive management of storm water and vegetative buffers and the ways to integrate these networks into the campus fabric. These guidelines and standards tie the many parts of a large campus into a coherent whole that honors the Vision and the Guiding Principles.

The **Capital Improvement Plan** describes the university's working projections about its growth and presents proposals for accommodating that growth. It includes space assignments by college and activity type and describes the two phases of the university's ten-year Capital Improvements Plan. Maps are presented to illustrate the projected development of the campus based on the 10-Year Capital Plan.

The **Campus Design Plans** are maps depicting the many concepts presented in the Design Guidelines and Standards as well as other features of campus development, such as utilities infrastructure.

The **Appendices** include additional information related to the master plan, such as the university's land holdings in Wake County, a guide to Key Terms used in the plan, and others.

¹ **Design Guidelines and Standards:** *Conceptual definitions and development instructions in this plan to be followed in all projects.*

² **Campus Neighborhood:** *The key planning and fundamental physical building block of the campus. Neighborhoods may have diverse characters, but all contain a mix of uses, have a sense of self-contained place, and are focused around a Shared Open Space.*

³ **Campus Paths:** *Any transportation route, from a footpath to a major transit route. The word path is used when describing streets and transit routes to emphasize the point that the campus is, for the most part, pedestrian oriented.*



Proposed Riddick Stadium redevelopment

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To find *A Campus of Neighborhoods and Paths* on-line,
please go to **www.ncsu.edu/univ-arch/masterplan**

The Path to This Physical Master Plan

History: The Physical Development of NC State University

Few if any of NC State's founders foresaw the growth that the university has experienced. Early design efforts focused on a much smaller campus than today's two thousand acres and over 9.5 million square feet of built space accommodating a community of more than thirty-five thousand people. History also intervened in ways that often focused planning on near-term rather than long-term needs. Many of the courtyards, open spaces, and walkways in the older sections of the campus appear to have been part of an original intention but in fact were nurtured and developed piece by piece over the years.

From the university's pastoral beginning along Pullen Road, enrollment and facilities grew steadily and moderately until the end of the First World War, after which they accelerated. Plans of the 1920s called for grouping buildings that housed linked activities, such as the agriculture and engineering groupings on the North Campus, classrooms around the Court of North Carolina, the "executive group" near Holladay Hall, athletics around Riddick Stadium, and student residence halls south of the railroad.



The Court of North Carolina

During the Great Depression, the university lost several graduate programs, and its progress was in jeopardy. Planning for expansive growth was not a priority. After the Second World War, however, enrollment surged, many graduate and research programs were restored or started, and the university embarked on an optimistic course of growth that continues to the present.

NC State's first postwar physical master plan was created in 1958, the same year the university's first modern long-range strategic plan was written. The physical master plan brought some coherence to a burgeoning campus, but while it was meant to help the university achieve other strategic long-range goals, it did not become a formal part of the strategic planning process. Adherence to the master plan was desirable but not mandatory.

The 1958 plan divided academic activity from student activity into North and South Campuses, respectively. It established a central pedestrian area (University Plaza), suggested moving vehicular traffic to the campus's periphery, and dispersed some new construction into all areas of a six hundred-acre campus.

In 1960 the university established the Campus Planning Office, which updated the 1958 plan. It defined a compact, high rise, pedestrian-scaled campus based on a ten-minute walking radius—all essential services were to be within a ten-minute walking distance. The plan for the university's urban center was thus established.



1906 campus map

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In 1963, several points of the 1958 plan were reemphasized, including zoning of the academic campus around D. H. Hill Library and focusing student activities on a new South Campus student center and gymnasium.

"Campus Environment and Planning System," a 1968 in-house report, endorsed the compact campus center but also suggested some decentralization through dispersal of activities. This marked the emergence of the idea that the campus could be a group of neighborhoods. The



Early courtyard and paths

university was growing into an academic town parallel to Raleigh's growth into a mid-size city. As the decentralization of some activities started, campus planners also began to set aside open spaces around which clusters of buildings could be grouped and around which pedestrian and vehicular traffic could be directed. That concept was formalized in 1975 when "A Framework of Courtyards" proposed that the campus be viewed, and in the future be developed, as a system of interconnecting neighborhoods. Because of the university's continued growth, decentralization had become a fact of life as the campus expanded beyond the compact core. The open space network emerged as a means of giving coherence and unity to the campus.

The 1978 Physical Master Plan reemphasized the importance of courtyards and connectors to campus design and, for planning purposes, divided the growing campus into a series of precincts, based on the integration of geography and land use.

In 1982, the system of interconnected courtyards, with accompanying strategies for traffic flow, was used in the siting of new buildings. Decentralization continued, with substantial infill. The concept of decentralization with interconnection was reemphasized in the 1983 “Space Inventory and Potential” report, which also focused heavily on the development of the university’s satellite areas as well as the main campus.

When in 1984 the university announced its intention to build Centennial Campus on the state’s initial allocation of land from the Dorothea Dix property, which is immediately south of the original campus, it created a unique planning opportunity. Centennial Campus, unlike the original campus, would have the benefit of a far-reaching master plan from the start.

The Centennial Campus Master Plan, approved by the Board of Trustees in 1987, and its accompanying Design Guidelines formalized principles that had emerged on the original campus. The new campus would be composed of “related villages, neighborhoods and courtyards—each a distinctive place whose character is defined by a diverse architecture that provides life and animation and is connected to the site’s natural landscape. The campus composition intends to be a fabric with emphasis on the spaces between the buildings rather than on individual buildings.”

By formalizing the concepts that had emerged organically from the development of the original campus, the Centennial Campus plan guidelines laid the foundation for the *1994 Physical Master Plan*. Both call for the integration of institutional activities into mixed-use communities. The high quality of the development on Centennial Campus from its inception to the present represents the efficacy of the concepts and guidelines that were formally applied to the entire campus with the 1994 plan. These have shaped substantial new building not only by the university but also by public and private partners who have benefited by utilizing the planning standards. Centennial Campus is emerging as an exemplary model of mixed-use academic and research campus.



Centennial Campus

Process: The Crafting of This Plan

It was with the 1994 plan that the term Campus Neighborhood entered the vocabulary of the wider campus community. A *Campus of Neighborhoods and Paths* has grown directly from and was built on the 1994 plan via a campuswide planning process. In 1997, then Chancellor Larry Monteith initiated a process for North Campus that focused particularly on two large spaces with development potential: the Riddick parking area and the land occupied by the North Campus greenhouses. The North Campus Workshop produced specific plans for the new Undergraduate Sciences Teaching Laboratory and, perhaps even more important, established a collaborative model for campus planning. This model was used in five additional workshops covering the remaining campus precincts. All workshops were chaired by Smedes York, then chair of the Trustees' Buildings and Property Committee, and attended by a broad cross section of stakeholders representing the precinct and community.

The precincts, which had become the focus of campus development in the 1978 master plan, remain a useful division of the campus, and much infrastructure development is still based on existing precinct plans. Designers and planners continue to use many maps that divide the campus into precincts, and reference can be found to them in numerous planning documents. But it is the Campus Neighborhoods and Campus Paths that will determine the character of the NC State Campus.



Campus Precincts

The fundamental ideas underpinning this plan are the Campus Neighborhood as the organizing campus structure and the Campus Paths as a system connecting those neighborhoods, bringing a sense of coherence and beauty to NC State.

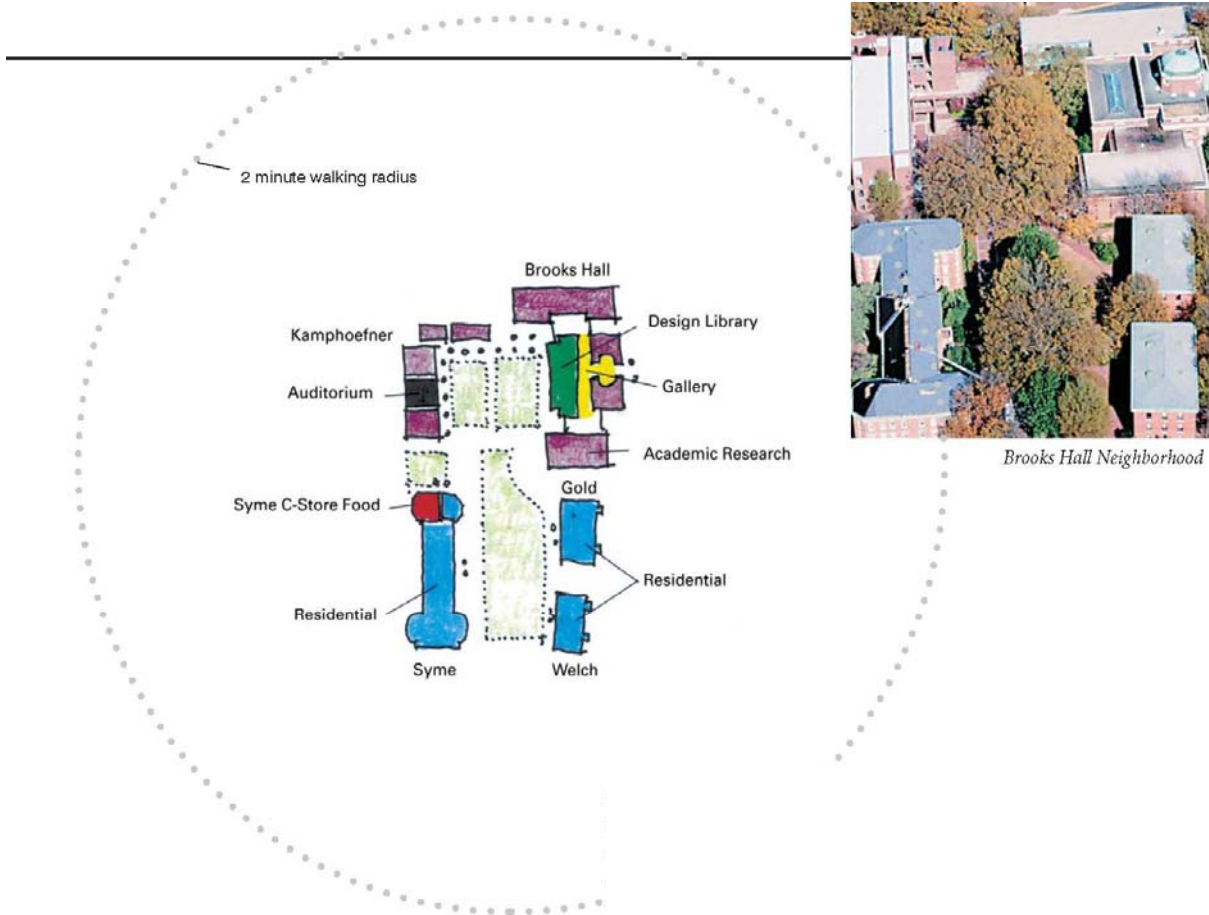
The precinct workshops became the basis for updating the 1994 master plan, and a significant theme arose from them—a clear demand for a more beautiful campus, one enlivened with more green space and oriented toward pedestrians. Participants also voiced overwhelming support for transportation alternatives, including the Triangle Transit Authority's proposed regional rail system and the envisioned campus fixed-guideway system. When work on *A Campus of Neighborhoods and Paths* started in 1998, these ideas became important principles. As the precinct workshops and the revisions of the master plan were under way, other significant physical planning events occurred that have had an effect on *A Campus of Neighborhoods and Paths* and the way it will be implemented. The Board of Trustees established the Campus Design Review Panel to monitor design decisions. Dean Marvin Malecha initiated a School of Design studio dedicated to campus planning. And the community collaboration generated in the workshops produced new partnerships, including the Hillsborough Street Partnership, which created a vision for that critical city-university interface.

The planning process also embraced long-running and growing trends at the university. It incorporated the life work of architect Ron Mace, a graduate of the School of Design, who defined the concept of universal design,⁴ which has been instrumental in the application of the Americans with Disabilities Act throughout the country. The environmental work of many faculty, staff, and students has also found a focus in the plan, as there has been a heightened consciousness of environmental stewardship for natural resources at NC State. The restoration of Rocky Branch and storm-water planning at Centennial Campus are examples of new environmental planning at the university.



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APRIL 2000



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During the past several years, the planning process has also been influenced by an increased role played by University of North Carolina—General Administration (UNC—GA) as space standards, and repair and renovation formulas have been established. A 1999 systemwide report identified substantial facility needs, which were included in a ten-year capital improvements plan. The inclusion in this master plan of the Capital

Improvement Plan ties the vision of a memorable campus to the concrete programmatic demands of a growing institution.

The fundamental ideas underpinning *A Campus of Neighborhoods and Paths* are the Campus Neighborhood as the organizing campus structure and the Campus Paths as a system connecting those neighborhoods. These ideas will guide the future physical development of the university. By adhering to this plan, the university can bring beauty and a sense of connection to a campus that has become a city of neighborhoods.

⁴ **Universal design:** *The design of products and environments so that they are usable by all people to the greatest extent possible without the need for adaptation or special features. The concept of universal design originated at NC State.*

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Addendum G – Action Plan for Selection Process

Centennial Campus Potential Partners Profiling Questions

Profile Characteristics

Most successful Centennial Campus enterprise partners exhibit these characteristics:

1. Exhibits high focus on innovated products
2. Is a research intensive organization
3. Searches for the crack in current technology to apply new technology
4. Shows a corporate culture of
 - a. Openness to innovation
 - b. Maverick environment
 - c. International scope
5. Has a leadership style that is
 - a. Energetic
 - b. Driven
 - c. Passionate
 - d. Disciplined, yet not stultifying
 - e. [No “Columbos” that play dumb or “Bubbas” that rely on good old boy techniques to achieve desired end]

Survey Profiling Questions

Use immediately for list of 52 from College of Textiles

Assign value of 1-5 in importance with 5 as highest value.

Qualitative survey questions for targeted companies:

1. This company relies on leadership of product as its distinguishing characteristic.
2. This company regards innovation and/or use of technology in its product as its most important value
3. This company considers itself research intensive.

Follow-up Interviews with Faculty

Total the scored results of the survey. Assume the top level of companies, 10-20 of the top scores. The top scores will distinguish the appropriate cut-off point. Winnow the list to the 3-4 final prospects by interviewing the faculty with these two questions:

1. Describe the personality of the decision-maker.
2. Describe the work environment of the organization.