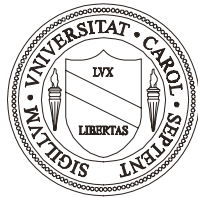


*The Feasibility of a
Small Business Incubator
at UNC-Chapel Hill*

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Introduction

A successful incubator at UNC-CH promises to benefit university-based enterprises, students, and the regional economy.

Unlike some other leading research institutions, UNC-Chapel Hill does not own and operate an incubator facility designed for start-up companies funded by and/or affiliated with UNC-CH. (Such incubators have been developed in North Carolina by N.C. State and Wake Forest universities, among others.) An incubator at UNC-CH could capitalize on the inventiveness of faculty in applied science departments (such as biomedicine, chemistry, computer science, and environmental science) and on the expertise in its schools of business and law. A successful incubator at UNC-CH promises to benefit university-based enterprises, students, and the regional economy.

Previous studies invariably found incubators to have negative benefit-cost ratios. However, they typically did not include intangible benefits, such as the creation of a new entrepreneurial culture or an increase in the ranking of the university

In the spring of 1999, the Office of Economic Development (OED) completed two reports on the feasibility of a small business incubator of a particular type (described in the following section), focusing on its likely net benefit to UNC-CH. Those reports followed a more general study prepared by the Small Business Technology Development Center.

The OED study departs from the incubator literature in some significant ways. Previous studies invariably found incubators to be cost-inefficient (i.e., with negative benefit-cost ratios). However, they typically did not include intangible benefits, such as the creation of a new entrepreneurial culture or an increase in the ranking of the university

The OED approach recognizes that incubators almost always appear to be infeasible using only tangible costs and benefits, but may have additional value that needs to be considered.

The Office of Economic Development does not use a benefit-cost framework to generate a ratio that determines whether to proceed. After calculating the net cost (negative benefit) of incubator development, OED asks whether stakeholders believe the itemized intangible benefits are valued sufficiently at least to balance the equation. That approach recognizes that incubators usually appear to be infeasible using only tangible costs and benefits, but may have additional value that needs to be considered.

To meet the university's demand for incubator space, planners proposed a three-stage solution, to be developed over the next 10-15 years.

The types of incubators considered

To meet the university's demand for incubator space, planners proposed a three-stage solution, to be developed over the next 10–15 years. PHASE I would consist of approximately 20,000 sq. ft. of temporary space on the university's Horace Williams property, accessible from Airport Road. Its function would be to address the immediate shortage of space for university faculty to use for commercially oriented activity. When the second stage is completed the "temporary" facility either would be decommissioned or continued in some related use, depending on demand.

PHASE II would consist of 15,000-20,000 sq. ft. of space added as additional floor(s) to proposed medical/health facilities on south campus. It has been referred to as the "green door" incubator: academic researchers would go through a door in the same building to work on projects with potential commercial application. When stage three is complete, that space either would continue in use as labs for pre-commercial R&D, or would become available for other university purposes, depending on demand.

PHASE III is conceived to be a permanent research campus, presumably on the Horace Williams tract. That stage itself would be phased over time, growing in size to well over 50,000 sq. ft. PHASE III would be modeled after Centennial campus at North Carolina State University in its focus on research areas related to university research, perhaps in biotechnology and infomatics (as examples). Stress will be placed on university-private sector partnerships in the development and management of the facility.

All phases of incubator development would be geared toward: (1) activities of scientists, engineers, and technicians who are affiliated with the university, engaged in ***pre-commercial activity***; (2) start-up companies based on UNC-CH-owned inventions; (3) other start-up companies funded and/or having an affiliation/connection with UNC-CH (alumni and students, for example); (4) other local researchers with business plans and projects with commercial potential; and (5) other tenants suitable to the university. The allocation of space to these uses will depend on demand and the availability of other space on campus and near the university.

Pre-commercial activity is applied research with some prospects of commercial payoff, but which bears enough risk for private capital to remain on the sidelines.

OED's "enhanced" benefit-cost analysis

[The leasing] alternative was not recommended by OED, since it would not add directly to the supply of space. Even if the private sector responded by building commercial lab space, the university would not have control over its configuration and timing.

The opportunity cost of campus land is somewhat lower than the market cost of land in the community. Shorter travel time and other conveniences of an on-campus location have monetary value, . . . [and] the on-campus alternatives allow incubator space to be converted to academic uses, which can save the university construction outlays in the future.

Cash flow analysis indicated that the break-even point for PHASES I and II would be between years 5 and 6.

OED conducted an "enhanced" benefit-cost analysis of the first two phases of incubator development, using five-year time horizons. For PHASE I, OED examined several alternatives:

- Construction of a facility on campus,
- Construction of a facility off campus (two variations), and
- Leasing comparable space near campus.

As one would expect, the leased facility requires the least up-front monetary outlay. However, because lab space is in such short demand in the Triangle, that alternative was not recommended by OED, since it would not add directly to the supply of space. Even if the private sector responded by building commercial lab space, the university would not have control over its configuration and timing.

OED found the on-campus construction to be the next least expensive alternative. The opportunity cost of campus land is somewhat lower than the market cost of land in the community (because campus land is for restricted uses). Moreover, shorter travel time and other conveniences of an on-campus location have monetary value. Finally, the on-campus alternatives allow incubator space to be converted to academic uses, which can save the university construction outlays in the future.

Taking into account likely costs and benefits of the project, OED estimated a net cost to UNC-CH of between \$1.7 million and \$4.2 million for the project, spread over five years. The range reflects different assumptions about some key values. The question posed to the university was whether that could be justified in light of the potential intangible benefits that might accrue due to the facility's presence.

OED estimated costs for PHASE II for two different on-campus configurations (based on zoning statutes). As for PHASE I, a range of outcomes was generated, using best and worst case assumptions about key variables. PHASE II also would produce net costs for UNC-CH of between \$500,000 and \$3.7 million over five years, accounting for tangible costs and benefits. The question, again, is whether those costs are offset by the intangible benefits.

The net costs indicated for PHASES I and II are not necessarily cash outlays for the university. They represent a total valuation of the

Taking into account likely costs and benefits, OED estimated a net cost to UNC-CH of between \$1.7 million and \$4.2 million for PHASE I, and \$500,000 to \$3.7 million for PHASE II, spread over five years. The question posed to the university was whether those could be justified in light of the potential intangible benefits that might accrue due to the facility's presence.

facility's costs over and above their expected benefits for the five-year period. To the extent feasible, there was a full accounting of costs and benefits, without regard to who incurred them (even if they might in practice sometimes be subsidized, donated, or not counted). Costs include land and construction, parking, equipment and furniture, and personnel, both real and as lost opportunities. Benefits include increased research funding, licensing fees and royalties, investment revenue, rent receipts, and saved construction costs. The intangible benefits — that were not included in the calculations — would include such items as improved university image, better faculty recruitment, greater university and corporate interaction, and local increased employment.

Benefits to the region, not just UNC-CH

Incubators built to serve university needs do not necessarily generate a positive net cash flow. Nonetheless, universities such as Texas, RTI, and MIT have continued to invest in such facilities, presumably because of non-cash benefits. Moreover, university-owned incubators can generate economic benefits for the region and state, thereby advancing the university's public service mission. For example, benefits accrue to the community when incubator graduates relocate from the facility to other nearby locations. Incubator activities also require inputs that are supplied (to varying degrees) by nearby vendors. Spending by spin-off businesses set in motion economic multipliers within the region. Those multipliers are largest when the source of start-up funds come from outside the region, as they would if in the form of federal research grants. In addition, incubators contribute to the image of the region as "entrepreneurial," which could attract other types of businesses to the area.

Further Action

Timing is critical. If PHASE II is to become part of a new science building, more detailed analysis needs to be conducted, and the additional space needs to be factored into the final architecture and engineering phase of science building design.

Progress on PHASE II is important, as well, as a precursor for PHASE III. OED's judgment is that PHASE III development will be easier as a follow-up to PHASE II than as a stand-alone activity, since critical mass and precedent will have been established in several application areas. Since planning is progressing on the use of the Horace Williams tract, it is timely to introduce the incubator idea now.