Why Are Colleges Not Organized As Public Companies? Should They Be?

A Research Proposal

by *Andreas Ortmann*

The problem

It is widely recognized, that many, if not most, institutions of higher learning have fallen on fiscal hard times. Colleges and universities were forced to consider downsizing. Unfortunately, downsizing requires stark austerity measures and, due to the labor intensive character of institutions of higher learning, drastic personnel reductions. In their attempts to balance budgets, administrators in institutions of higher learning have therefore chosen to resort to myriad revenue-enhancing strategies. These include: Increases in fees and tuition above the rate of inflation, increased withdrawal from endowments, expansion to capture alleged economies of scale or scope and/or grow out of inefficiencies, accelerated sequencing of capital drives, and the tacit abandonment of need-blind admissions policies. These strategies are being sold to an increasingly skeptical public as the only viable solutions.

The importance of the problem

Are there viable alternatives to revenue-enhancing strategies? An answer to that question is of utter importance for the simple reason that the resources commanded by institutions of higher learning are already immense. According to a recent NBER working paper, "In 1989 the aggregate expenditures of all two and four-year undergraduate colleges and post-graduate institutions came to $134.4 billion. For purposes of comparison, this sum exceeded the sales of any three-digit manufacturing industry except petroleum refining and motor vehicles and of any three-digit service industry except hospitals." (Rothschild and White.) If indeed institutions of higher learning can be organized in more efficient ways, then the resources thus saved could be made available for urgently needed reforms, for example, in inner city schools. The question of viable alternatives to revenue-enhancing strategies is thus addressing the efficient allocation of resources in our society.

Purpose of the proposed research

Specifically, I will study claims that a significant share of the resources currently spent on higher education are wasted as a consequence of organizational structures that prevent urgently needed innovations. This inefficient allocation of resources has been attributed to the misalignment of incentives in both the academic and administrative part of institutions of higher learning.

Arguments along these lines have been made in the past by, among others, Chubb and Moe, and more recently, Massy (1991, 1992), Massy and Warner, and Zemsky. Since then, dramatic changes have swept through corporate America, both in manufacturing and service industries alike (Davidow and Malone; McKinsey Global Institute 1992, 1993); it is my implicit contention and premise that institutions of higher learning will not be able to avoid similar changes.

In pursuing the proposed research, I will benefit from a number of developments earlier authors could not draw upon. Among the relevant reference points are:

- the increasing acceptance of the fact that organizational forms have, driven by dramatic advances in communication technologies, become a strategic variable.

As Daft and Lewin put it in a recent editorial essay in *Organization Science:* "The trend appears to be moving away from the paradigm within which organizations strive for mass production efficiencies, hierarchical organization, and bureaucratic structures that provide central control over activities divided into small parts. The new paradigms may have as their premise the need for flexible learning organizations that continuously change and solve problems through interconnected coordinated self-organizing processes. ... Characteristics of these new organizations seen to include flatter hierarchies, decentralized decision making, greater capacity for tolerance for ambiguity, permeable internal and external boundaries, empowerment of employees, capacity for renewal, self-organizing units, and self-integrating coordination mechanisms. Leadership in these new organizations seems to reflect a shift from maintaining rational control to leadership without control, at least in the traditional sense."

- the "no-excuses management" of one of the leading semiconductor companies in the U.S.A, *Cypress Semiconductor,* whose philosophy and techniques successfully implement what much of the relevant economics literature on organization and management (to be discussed below) has suggested about the reasons for, and the consequences of, the paradigm shift so aptly described by Daft and Lewin.

If Cypress's management philosophy and techniques (and that of other virtual or learning corporations[1]) work so well, why not implement them in universities and colleges?

- the philosophy and practices of *Education Alternatives,* a public company that seems to have achieved stunning success in managing public elementary and middle schools in Baltimore city and elsewhere[2].

If *Education Alternatives*, drawing on the model of virtual or learning corporations, can succeed in managing public schools, is it possible that universities and colleges could be organized as, or run, by public companies?

I take as a given that organizational forms are a strategic variable. A key component of the new organizational forms are new information technologies whose impact on manufacturing and service industries has been well documented (McKinsey Global Institute studies); their impact on universities and colleges B the status quo as well as the potential B has not been analyzed with the tools of modern economic theory. I will therefore investigate

- which aspects of the philosophy and techniques of virtual or learning corporations can be transferred to universities and colleges;

- the advantages and disadvantages of organizing virtual or learning institutions of higher education as public companies.

The proposed research will result in a detailed study of these two major issues. Before I

[1] See Davidow and Malone, Garvin, and Rodgers.

[2] This view is not universally shared. *Education Alternatives* has been subject to harsh criticism recently; not surprisingly, much of the criticism is uttered by purveyors of vested interests like the American Federation of Teachers - See, for example, Albert Shanker/M. William Salganik's "The Coming Scandal," *New York Times* 12/25/1993.

detail the research program I will review research I will build on, both recent economic theories of organizational forms and culture and my own past and current research in this area.

Research to build on:

Economic theories of organizational forms and culture

Daft and Lewin title their recent editorial essay in *Organization Science* "Where Are the Theories for the 'New' organizational Forms?" To an economist, the question is a curious one. Ever since Coase's Nobel Prize winning work on the "The Nature of the Firm," organizational forms have been the major issue for Industrial Organization economists. Coase argued that the boundaries of firms are determined by the costs of using markets; these costs can be generically labelled information or coordination costs. The new information technologies have dramatically reduced the costs of coordination B between as well as within firms B, thereby systematically affecting the institutional choice between firm and market allocation of resources, as well as the organization of firms. Consequently, over the past few years the reliance on markets has increased (out-sourcing); simultaneously administrative hierarchies (whose major task was the collection and processing of information) have been flattened. Both these developments have been theoretically captured (and, in fact, predicted) in the remarkable work of Milgrom and Roberts and Malone and his colleagues.

In his paper with Smith, Malone develops a model of four different organizational structures (product hierarchy, decentralized market, functional hierarchy, centralized market) which are appraised in terms of production, coordination, and vulnerability costs (= the costs of unanticipated performance failure). Among the fascinating insights of the paper are the parallels between human organizations and computer architectures and the demonstration that changes in costs of production, coordination, and vulnerability force the substitution of one organizational form for another in a predictable manner. This process is made more intuitive in Malone's paper with Rockart where they conceptualize the impact of the introduction of coordination intensive technologies by pointing out how the introduction of the automobile led to transportation intensive structures (malls, suburbs, etc.).

Milgrom and Roberts, in a series of papers (1990a, 1990b), have formalized the notion that the implementation of modern manufacturing strategies cannot work in a piecemeal manner, but has to rely on the more or less simultaneous implementation of organizational changes in all aspects of the firm. Only under those circumstances can complementarities (i.e., increases in one activity that increase the marginal returns of other activities) be expected.

Closely related to the increase in out-sourcing and the flattening of hierarchies is the emergence of new organizational structures which depart radically from the top-down mode of management that has been the staple of American businesses. While Milgrom and Roberts and Malone et al. studied macrolevel "efficiency" measures such as production, coordination, vulnerability costs, and complementarities, they did not concern themselves with microlevel issues of incentives and culture. It is here that the equally important work of Aron and Kreps comes to bear.

Kreps's work builds on the insight that the standard description of the firm as a nexus of

contracts is not well grounded in reality. He formalizes the idea that external and internal reputation is the most important intangible characteristic of firms by expressing their external and internal relations as principal agent "games" between outside suppliers and the firm and the firm's managers and workers.[3] The essence of Kreps's early work is now the standard point of departure in modern theories of Industrial organization; as Holmstroem and Tirole put it in their survey of theories of the firm: "Reputation is the soul of the firm."

Aron, too, uses a principal agent framework to analyze the alignment of incentives; her work addresses, among other things how Just-In-Time (JIT) procedures and Total Quality Control (TQC) are important for observability and accountability of individual agents, thereby helping to avoid influence costs, i.e., costs of political behavior in institutions that have no clearly defined discussion and decision processes. (The issue of influence costs has also been addressed by Milgrom and Roberts (1990c).)

This remarkable body of recent theoretical work provides the urgently needed framework for a flurry of writings by practitioners or consultants who have provided huge amounts of casual (anecdotal) evidence. Noteworthy examples of that literature can be found in Davidow and Malone, Garvin, and Rodgers.

Taken together, the work of Aron, Kreps, Milgrom and Roberts, and Malone et al., to name a few, provides a complete set of powerful theories and analytical tools that explain well the developments that Daft and Lewin describe and that visionary managers like Rodgers have designed and implemented in a trial-and-error fashion.

Research to build on: My past and current research

In past research, I have analyzed the budgetary impact of expanding Bowdoin College, one of the nation's top liberal arts colleges. This research, conducted jointly with my colleague David Vail, identified economies of scale, inefficiencies, and diseconomies of income; the resulting study, "Growing Bowdoin College," is currently used to inform the expansion of Bowdoin College. In the study, we took the organizational structure of Bowdoin College as a given; the above considerations suggest that a radical re-structuring of Bowdoin College should be considered.

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[3] Principal agent games is a generic term for situations of strategic uncertainty where an agent, say a seller of a good or service, can supply either high quality or low quality, and a principal can either verify the quality (at a cost) or trust the agent's claims. This basic incentive alignment problem can be shown to underlie a broad range of problems; it has been extensively analyzed in the literature.

To that end, I worked with Richard Squire on a related research project. In our paper, "The Organization of the Liberal Arts College: A Game-Theoretic Approach," to be presented at the ISA World Congress in July 1994, we show that liberal arts colleges can be modelled as a cascade of principal agent games with the Student/Alumni body serving as the ultimate agent, and the Overseer and Administrator serving as either a principal or an agent, depending on whether they are studied in relation to the player above or below them. The results of a case study of Bowdoin College, with which we illustrated the power of our game-theoretic approach, showed a dramatic failure of alignment of incentives in both the academic and the administrative areas of the College, thus supporting the results of Massy and Zemsky regarding the administrative lattice and faculty productivity.[4] Our study also illustrates that the College's soft budget constraint, made possible by its generous endowment, had devastating consequences for fiscal discipline which in turn allowed the misalignment of incentives to persist and become entrenched.[5] Finally, our research suggests why the changes suggested by modern economic theories as well as the reality of manufacturing and service industries will not easily be implemented as long as liberal arts colleges are organized as not-for-profit companies that rely (or, at least, believe they can rely) on endowments and revenue enhancing strategies of the kind described in the problem description.

Our game theoretic analysis provides the first complete model of the major constituencies of a liberal arts college; by studying the goals of the major classes of individuals and the conflicts that result, we can appraise the success of various organizational forms widely used in liberal arts colleges. To make the project manageable, we assumed the state of information technology to be a given. We were aware that this assumption was a rather heroic one.

In joint work with Derek Benner, I am, in the process of visualizing "The Virtual Liberal Arts College," i.e., a college which has applied the lessons taught by innovative companies and undertaken a comprehensive adoption of information technologies. In essence, this work is the continuation of the game-theoretic analysis of liberal arts colleges discussed above, now ameliorated by the analysis of the impact of information technologies. As a case study we continue to, use Bowdoin College. Derek Benner Is work is supported by a Surdna undergraduate research fellowship.

In joint preliminary work with Akiba Scroggins, presently to be submitted for funding through another Surdna research fellowship, I am currently pursuing the topic of this grant proposal. A grant would allow the continuation of this work in the academic year 1994/1995 during which I will be on sabbatical leave.

As documented in more detail on my resume, I am by training an Industrial Organization economist who contributes to the emerging game-theoretic literature on organizational forms, conventions, and corporate culture. I have significant experience in leadership functions in a

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[4] See also Forrester for an enlightening discussion of MIT's systematic overcommitment of resources. While his analysis identifies the same problems that we identified for Bowdoin College, he employs a macro-level analysis somewhat along the lines of Malone and Milgrom and Roberts.

[5] In a recent article, Hansmann asked the interesting question "Why Do Universities Have Endowments?" That seemingly innocent question is indeed a rather fascinating one. It is a well established principle in the theory of finance that debt-financing is one means of guaranteeing a minimum concern for fiscal discipline on the part of a firm's managers. There is reason to believe that endowment may have detrimental effects.

variety of organizational units. In addition, as a student, I attended, and was deeply involved in the conceptualization and administration of, Germany's premier experimental college at that time, The Oberstufen-Kolleg at the University of Bielefeld. Thus, I bring to the project not only academic qualifications, but a thorough understanding of organizational realities and difficulties of implementing dramatic changes from a variety of perspectives.

Synopsis of the proposed research

As mentioned, I take as a given that organizational forms are a strategic variable. A key component of the new organizational forms are new information technologies whose dramatic impact on manufacturing and service industries has been well documented (McKinsey Global Institute studies); their impact on universities and colleges B the status quo as well as the potential B has not been analyzed with the tools of modern economic theory. I will investigate

- **which aspects of the philosophy and techniques of virtual or learning corporations can be transferred to universities and colleges;**
- **the advantages and disadvantages of organizing virtual or learning institutions of higher education as public companies.**

The proposed research will result in a detained feasability study of a virtual liberal arts college. Building on my previous research, in particular the game-theoretic modelling of a liberal arts college as a cascade of principal agent games, I will study whether monitoring and commitment strategies that have been successful in the context of manufacturing and service industries can be transferred to liberal arts colleges and universities. (While I have taken in my past and current work the analysis of a liberal arts college as point of departure, I expect that most results will transfer to universities.) Special attention will be paid to monitoring and decision systems that avoid the systematic overcommitment of available resources that institutions of higher education seem to be prone to and that restrain their ability to finance those pioneering activities that make them leaders in their segment of the higher education industry. It is in this context that I will investigate whether the virtual liberal arts college has to be organized as a public company.

My strong prior, based on my previous research, is that a virtual liberal college whose organizational form is that of a public company is feasible and desirable. My suspicion is that such a college will be impossible to implement in a piecemeal fashion for the same reason outlined in the work of Milgrom and Roberts as well as the opposition of constituencies with vested interests. (See Massy and Warner, Ortmann and Squire, and Wilger and Massy.) In the end, the implementation of a virtual liberal arts college will quite likely require an approach similar to that of *Education Alternatives,* i.e., the implementation of an alternative which has been designed *de novo*, and which then has to prove itself in direct competition with the established institutions of higher education. I am convinced that in the face of direct competition, virtual liberal arts colleges organized like public companies will emerge as the survivors. Given the current state of higher education, and the alleged inefficient allocation of resources in higher education (See Forrester, Massy (1991, 1992), Massy and Warner, Ortmann and Squire, Pew Higher Education Roundtable, Zemsky, and Wingspread Group on Higher Education), the proposed research is timely.

References

Aron, Debra J. (1990): "Firm Organization and the Economic Approach to Personnel Management." ***American Economic Review.***

Chubb, John E. and Terry E. Moe (1990): ***Politics, Markets, and America's Schools.*** **The Brookings Institution.**

Daft, Richard L. and Arie Y. Lewin (1993): "Where Are the Theories for the 'New' organizational Forms? An Editorial Essay." ***Organization Science.***

Davidow, William H. and Michael S. Malone (1992): The Virtual Corporation: Structuring and Revitalizing the Corporation for the 21st Century. Harper Collins.

Forrester, Jay W. (1993): Sustaining Leadership at MIT. ***MIT Faculty Newsletter, October and November 1993.***

Garvin, David A. (1993): "Building a Learning Organization." ***Harvard Business Review.***

Hansmann, Henry (1990): "Why Do Universities Have Endowments?" ***Journal of Legal Studies.***

Holmstroem, Bengt R. and Jean Tirole (1989): "The Theory of the Firm," in Schmalensee, Richard and Robert D. Willig (eds.), "Handbook of Industrial Organization. Volume 1." North-Holland.

Kreps, David M. (1990): "Corporate culture and economic theory," in Alt, James E. and Kenneth A. Shepsle (eds.), "Perspectives on Positive Political Economy." Cambridge University Press.

Malone, Thomas W. and John F. Rockart (1991): "Computers Networks and the Corporation." ***Scientific American.***

------- and Stephen A. Smith (1993): Modelling the Performance of Organizational Structures. ***Operations Research.***

Massy, William F. (1991): Improving Academic Productivity: The Next Frontier? ***Capital Ideas,*** **Stanford Institute for Higher Education Research, Stanford, CA.**

------- (1992): "Measuring Performance: How Colleges and Universities Can Set Meaningful Goals and Be Accountable." Working paper, Stanford Institute for Higher Education Research, Stanford, CA.

------- and Timothy R. Warner (1991): "Causes and Cures of Cost Escalation in College and University Administrative Support Services," Discussion paper, Stanford Institute for Higher Education Research, Stanford, CA.

McKinsey Global Institute (1992): "Service Sector Productivity." McKinsey & Company, Inc.

------- (1993): "Manufacturing Productivity." McKinsey & Company, Inc.

Milgrom, Paul and John Roberts (1990a) "Rationalizability, Learning, And Equilibrium in Games with Strategic complementarities *Econometrica.*

------- and ------- (1990b): "The Economics of Modern Manufacturing: Technology, Strategy, and Organization." *American Economic Review.*

------- and ------- (1990c): -'The Efficiency of Equity in Organizational Decision Processes." *American Economic Review.*

------- (1992): *Economics,* organization *&* Management. Prentice Hall.

Ortmann, Andreas and Richard C. Squire (1993), "The Industrial organization of a Liberal Arts College." Working paper, Bowdoin College.

Pew Higher Education Roundtable (1993): *Policy Perspectives,* November, 1A-12A.

Rodgers, T.J. (1990): "No Excuses Management." *Harvard Business Review.*

Rothschild, Michael and Lawrence White (1991): "The University in the Marketplace: Some Insights and Some Puzzles." NBER working paper no. 3853.

Vail, David and Andreas Ortmann (1993): "Growing Bowdoin College." Mimeo, Bowdoin College.

Zemsky, Robert, Ed. (1992): "Testimony From the Belly of the Whale," *Policy Perspectives,* Pew Higher Education Roundtable, September, 1A-BA.

Wilger, Andrea K. and William F. Massy (1993): "Prospects for Restructuring: A Sampling of the Faculty Climate," *Policy Perspectives,* Pew Higher Education Roundtable, November, 1B-4B.

Wingspread Group on Higher Education (1993): An American Imperative: Higher Expectations for Higher Education. The Johnson Foundation.