LESSONS FROM BUILDING AN ACADEMIC-INDUSTRY PARTNERSHIP CONSORTIUM: A FRAMEWORK FOR DEVELOPMENT

Anil Kumar, Central Michigan University, kumar1a@cmich.edu
Robert Horton, The University of Wisconsin-Whitewater, hortonb@mail.uww.edu
David Munro, The University of Wisconsin-Whitewater, munrod@mail.uww.edu
George Sargent, The University of Wisconsin-Whitewater, sargentg@mail.uww.edu

ABSTRACT
To create the business leaders of the future, schools need access to significant resources that enable them to impart a quality education. Universities are increasingly faced with budget constraints that limit their abilities to acquire these resources. To meet this challenge schools create unique partnerships with corporate America to accomplish their goal of achieving academic excellence. These partnerships vary in scope, objectives and goals based on the partners involved. In this paper we present a framework for developing an academic industry partnership that provides significant benefits to both parties. Other interested institutions can set up similar consortiums by using this framework as a guideline.

KEYWORDS: academic-industry partnership, consortium, framework, architecture

INTRODUCTION
To create the business leaders of the future, schools need access to significant resources that enable them to impart a quality education. These resources include personnel (faculty and support); infrastructure and equipment; training and professional development; industry advisors and other technology based needs that are expensive to acquire. Universities are increasingly faced with budget constraints that limit their abilities to acquire these resources. To meet this challenge, schools create unique partnerships with corporate America to accomplish their goal of achieving academic excellence. These partnerships vary in scope, objectives and goals based on the partners involved. Doctoral granting institutions focus on research and their partnerships with industry are geared to promoting and conducting research (Burnham 1997, Cyert and Goodman 1997, Campbell and Slaughter 1999). For example, the Federal Express Cycle Time Center at the University of Memphis is involved in conducting cycle time research and publishes a quarterly journal to disseminate the results of the research conducted at this center.

Large software companies such as Microsoft, Oracle, and SAP R/3 etc. have a pattern of establishing academic alliances with universities. As a result of these alliances, universities get access to software products from these companies at a discounted rate, which are then integrated into the curriculum. For example the University of Wisconsin system has an academic alliance with Microsoft, which results in Microsoft products being used extensively in the courses taught in the UW system. Further faculty and students in the system can purchase a wide variety of Microsoft products at subsidized rates. SAP R/3 has developed a University Alliance Program (UAP) in the US that promotes use of their ERP product in participating universities, that include among others Central Michigan University and California State University @ Chico.

In this paper we discuss a partnership that was developed at a comprehensive Midwest university with several industry partners. This partnership is unique, as it is not based on conducting research or using the product of a specific company. There are multiple industry partners as participants with each contributing different products or services. In the following section we describe the key structure and organization of the partnership. The final section presents a guiding framework for developing such a partnership.

THE MCS BUSINESS PARTNERSHIP CONSORTIUM

The AITP top ranked undergraduate IT program at the University of Wisconsin-Whitewater has established a unique business partnership consortium that enables it to achieve academic excellence. This program known as the Management Computer Systems (MCS) program has been ranked as the top four year computer degree program in North America six times in the past fifteen years by AITP. PC World, in their September 7, 1998 edition, also ranked the MCS program at UW-Whitewater among the top nine undergraduate computer degree programs. One of the key factors that enables the MCS program to sustain academic excellence is the close knit relationship that has been established with local industry. In 1999 the *MCS Business Partnership Consortium* was established, which is a collaboration between the MCS program and a few, carefully selected member companies in Southeastern Wisconsin. Companies that are part of the consortium can participate as core or supporting members.

Core member companies have expressed an interest in long-term membership and have committed to ongoing involvement and support of the Consortium. Core members will have standing positions on each of the Consortium committees and will participate in all core activities. Currently, four Core member companies work with the MCS program faculty: *Case New Holland (CNH Global), Harley-Davidson Motor Company, TeamSoft, and Quad/Graphics.*

Supporting member companies are interested in Consortium activities but may not have the resources or desire to commit to long-term membership. This category includes companies that may make one-time contributions to the Consortium and companies that bring commercial projects to the Consortium. The Consortium has recognized three companies as supporting members due to recent one-time donations of equipment and cash. The supporting members include *Deluxe Data, IBM, and SC Johnson Wax.*
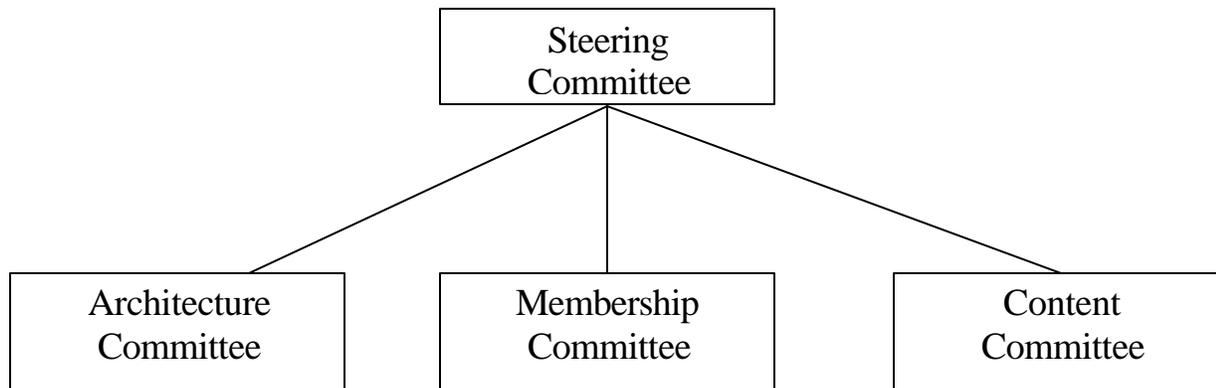
The Consortium is organized around four committees: Steering Committee, Architecture Committee, Membership Committee and Content Committee (Figure 1). The Steering Committee provides overall direction and oversight. It reviews and approves the computing architecture focus, project plans and recommendations, and any curriculum recommendations. It must forecast, plan and prioritize operating expenses using a 1 to 3 year horizon. It also has overall communication responsibility for Consortium status and the state of the Consortium.

The Architecture Committee is responsible for defining the Consortium's production "factory." It develops the overall technical architecture direction of the Consortium, sets specifications, and identifies and recommends technical options, products and vendors to meet the Consortium's architecture objectives. It also monitors and recommends upgrades to the existing architecture to stay current with market directions.

The Membership Committee is responsible for creating "investors" and "customers" for the Consortium's factory. It oversees all Consortium marketing, promotions and publicity activities. It also establishes and maintains membership requirements and participation options, and facilitates membership drives to meet Consortium operating plans. It also identifies and recommends marketing and promotional activities to benefit Consortium projects and members.

The Content Committee manages the overall work going through the "factory." It evaluates potential academic and commercial projects, and manages and prioritizes those projects and their deliverables. The Content Committee documents project experiences to provide feedback, thus providing the link to influence both the MCS program curriculum and the Consortium architecture. The Content Committee also provides the mechanism for cross-industry exchange for Consortium members.

Figure 1: Consortium Organization Structure

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                        ┌──────────────┐
                        │   Steering   │
                        │  Committee   │
                        └──────────────┘
            ┌──────────────────┼──────────────────┐
  ┌──────────────┐    ┌──────────────┐    ┌──────────────┐
  │ Architecture │    │  Membership  │    │   Content    │
  │  Committee   │    │  Committee   │    │  Committee   │
  └──────────────┘    └──────────────┘    └──────────────┘
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FRAMEWORK FOR DEVELOPING A BUSINESS PARTNERSHIP CONSORTIUM:
Understanding any system requires an understanding of the foundation of the system. This foundation is based on a framework that helps clarify concepts about the system, which can be used subsequently for replicating the work and creating similar systems. In MIS research for example, we refer to the research frameworks of scholars (Gorry & Morton, 1989; Ives, Hamilton, & Davis, 1980; Sprague, 1980; Watson et al., 1991 etc.) that developed them and now these frameworks provide a basis for research in the MIS domain. In this paper we use the information system architecture framework proposed by Zachman (1987) and its subsequent adaptation by Whitten, Bentley & Dittman (2001) as the foundation for developing the business partnership consortium framework (Figure 2). It is our belief that other schools can apply this framework in their environment and build similar systems. The logic for the organization of the framework is as follows.

Figure 2: A framework for developing an academic-industry consortium
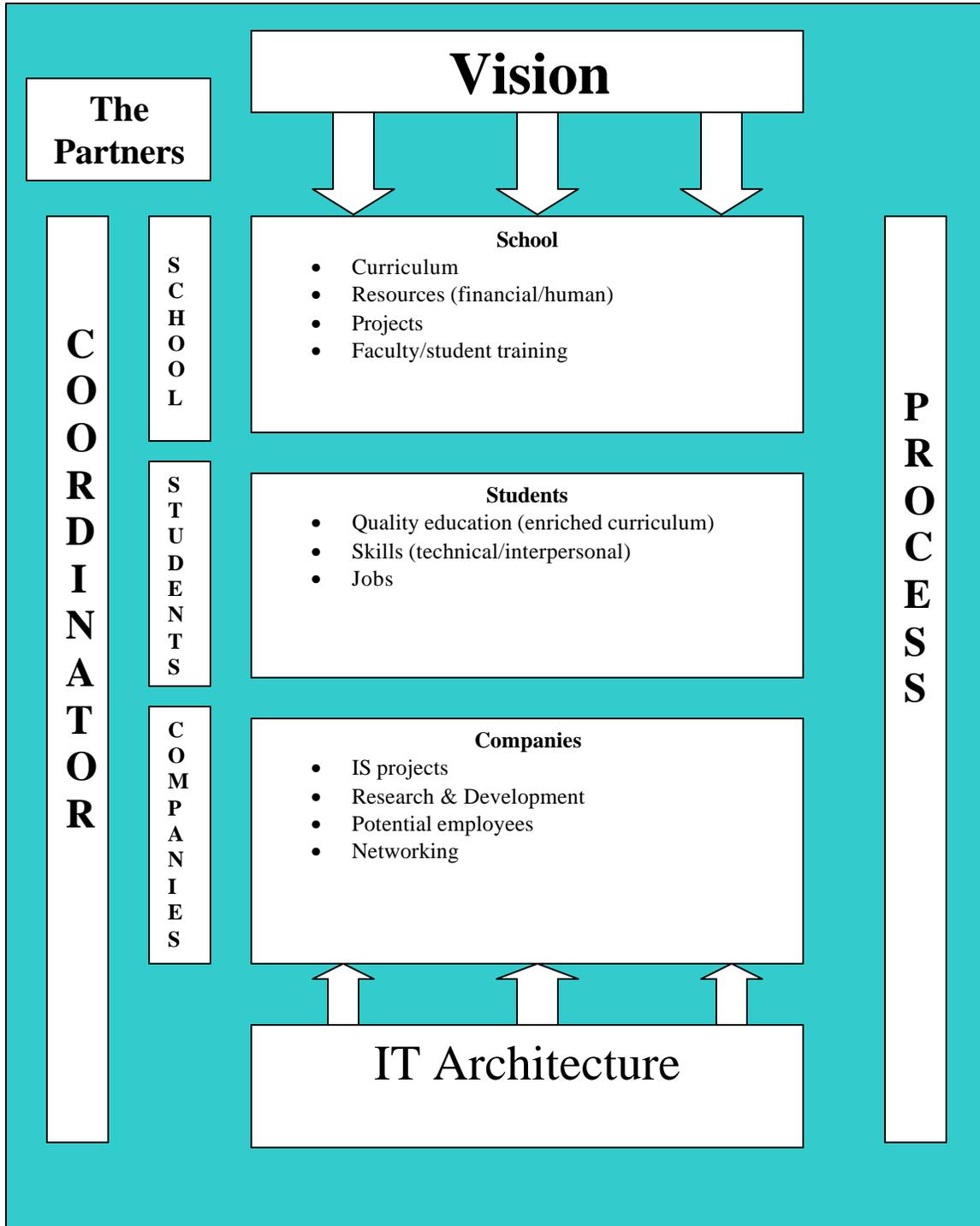
To create a consortium, the partners need to have a shared vision. This vision should address the specific needs of all partners involved in the consortium. The partners in the consortium are represented as rows and they have different views of the consortium based on the overall vision that drives this consortium. To create the consortium, there needs to be a process that plans for several years into the future and must be supported by a technology base that supports the consortium. In the following section we discuss each component of this framework.

Vision
Every organization needs to have a vision. The Business Partnership Consortium vision statement is as follows.

> *A close partnership between University of Wisconsin- Whitewater's (UW-W) Management Computer Systems (MCS) program and a manageable number of local companies that influences the MCS curriculum by...*
> - *creating graduates with directly applicable technical skills and experience required by companies in the region*
> - *accelerating graduates' ability to contribute upon hire*

The Partners
Companies, like people, vary in their cultural values. A potential Consortium partner company must be one that values and seeks out long term relationships with its partners, including suppliers, customers and employees. Such a company will consider its consortium role as a serious continuing commitment involving both time and dollars. To form such a relationship with a potential Consortium company, it is a lot easier to get friends to make commitments than strangers. You already know your friends; that's the place to start. It's important that they understand the needs to be met and the resources available so they may see the gap between them. Once you have an advocate company, it then becomes a mouthpiece to recruit others as they are in the position to say "do as I do".

The consortium isn't going to be successful without work done by both the advocate company and the academic department. You need someone at the university willing to commit the time and energies needed to keep things moving. Unfortunately, most universities have no reward structure for this type of activity and the departmental coordinator will be "donating" their time and effort. Nevertheless, a closer relationship with these companies is bound to have some "fringe" benefits. Essential qualities for such a coordinator include the ability to communicate effectively and efficiently and to enjoy working with people. Such a person will represent the department well and be persistent. The duration of this startup phase is likely a year or more and it's clearly important to maintain the effort over this period. It's also important to have someone the corporations perceive to be an "important" contact at the school. This is most likely the department chair, or whoever is considered to be the leader of the departmental unit.

It's important that Consortium companies believe that the department is committed to the process and this is best shown by active support by additional people. It's also important to make continual progress during the early days of the Consortium to maintain interest and enthusiasm. One university person can't do it all; several people are needed at the appropriate decision making level.

Value Added
Every partner involved in the consortium benefits from its activities and their participation. From the perspective of the universities, the Consortium helps to align the curriculum to business needs by introducing new technologies in a timely manner, provides access to human and financial resources, provides opportunity for real-world projects, and enables the training of faculty and students on new technologies.

The students benefit from an enriched curriculum that is taught by faculty trained in state of the art technologies by the consortium, acquiring an impressive skill set that is in demand by the business, and job opportunities at consortium and other companies.

The companies in the consortium benefit from projects that are completed by consortium students under the supervision of faculty, access to young minds for conducting research in using new technologies, a source of potential employees and a neutral focal point for cross-industry exchange of technical knowledge, skills research and project development.

Process
The business partnership consortium is a long-term investment for all partners and should be viewed as such. To create and sustain this partnership, there needs to be a plan of action that helps execute specific goals based on the consortium vision. Every year accomplishments of the consortium should be evaluated to see if the goals were met. In our case we have a plan of action for the coming two years and the achievements are evaluated after each year. For example first year activities included developing and clarifying the consortium's mission and objectives, creating the organizational structure and establishing a basic infrastructure for managing the consortium. Second year activities shifted focus to selecting and acquiring new technology as well as choosing and organizing for the first Consortium sponsored project.

IT Architecture
To accomplish the activities of the consortium, a technology architecture was chosen that supported the consortium projects. This technology was implemented in a "lab" that has been set up at the university. The technologies decided upon initially included: Windows 2000, Netfinity application server hardware, WebSphere application server software, and Visual Age for Java as the development tool. UML was chosen as the next new technology to be implemented, using Rational Rose.

CONCLUSION:
In this paper we have discussed the structure and organization of an academic –industry partnership consortium at the University of Wisconsin-Whitewater. We believe that this consortium provides tremendous value to all the partners: participating companies, the university and the students. A framework for developing such a consortium has also been proposed so that other schools can benefit from and replicate this. It is our belief that in the future we will see a lot more activity nationwide by universities to set up similar consortiums in an attempt to overcome obstacles created by the severely limited resources available.

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