

Q1 2004 Alliance Advisory Interview

[Alliance Sciences](#), a global leader in organizational partnering consulting, interviewed MIT's Karl Koster, Director of Corporate Relations / Industrial Liaison Program for their [Q1 2004 Alliance Advisory](#) newsletter. Karl discussed the benefits and challenges associated with cross industry collaboration and shared case studies and management processes that are critical to MIT's success in partnering.



Karl Koster

Karl F. Koster is the Director of the MIT Office of Corporate Relations. The Office of Corporate Relations at MIT includes the Industrial Liaison Program, which celebrated 50 years of service to the Institute and its corporate partners in 1998.

Mr. Koster joined MIT in 1987 as an Industrial Liaison Officer and was promoted Director of Corporate Development in 1991. In that capacity, he and his staff worked with the senior administrative and faculty leadership of MIT in developing and implementing strategies for enhancing corporate involvement with the Institute. Mr. Koster has also been involved with faculty leaders in identifying and designing a number of major international programs for MIT. Many of these programs focus on institutional development and are characterized by the establishment of strong, international, programmatic linkages between universities, industry, and governments. Mr. Koster was appointed Acting Director of the Office of Corporate Relations in 1997, and appointed Director in 1999.

After graduating from Brown University with a B.A. in geology and economics in 1974, Koster worked as a diamond buyer in the Central African Republic before receiving a M.S. from the MIT Sloan School of Management in 1980. At the Sloan School he concentrated in international business management and the management of technological innovation. Prior to returning to MIT, Mr. Koster worked as a management consultant for seven years in Europe, Latin America, and the United States on projects for private and public sector organizations.

Mr. Koster consults with a number of international agencies on knowledge transfer, organizational and human resource development issues. He is fluent in Spanish and French.

1. What is the history of industrial relationships at MIT?

MIT has a long tradition of working on practical problems affecting the society and the economy. MIT was established in 1861 as an alternative to the traditional, European-style, liberal arts university. It was to be a university centered on science, closely allied with the practical arts. The founder, William Barton Rogers, proposed that MIT "would be largely conducive to the progress of the industrial arts and sciences throughout the Commonwealth."

In 1948 MIT established the Industrial Liaison Program (ILP) with the encouragement of alumnus E. V. Murphree, then head of Esso (now Exxon) Research and Engineering. The ILP provides a mechanism by which companies could gain facilitated access to MIT research

and expertise through a personal contact on the staff in return for an annual fee. The program continues to this day, the oldest and largest university-industry liaison activity.

The relationship between MIT and industry has had an important effect on the direction of education at the Institute. MIT faculty members have long engaged in consulting activities directly with companies. This provides them with personal experience with industrial problems as well as additional revenue. It also informs their research and teaching. MIT educates and prepares its students for careers in industry.

Industrial executives serve on the MIT Corporation and its committees.

MIT expenditures for research for FY2003 were \$450 million. Approximately 20% of this was funded by industry. Industrial sponsors as a group are the largest source of sponsored funds at MIT, followed by the National Institutes of Health and the Department of Defense.

Alliances with industry continue to be a priority of the Institute. In the past several years, MIT has entered into a new phase of cooperation and commitment in this area exemplified by a small number of strategic partnerships.

2. With whom does MIT collaborate?

MIT encourages exchanges broadly with industry, through student internships, visiting scientist and adjunct faculty appointments, and industrial internship educational opportunities.

Research activities at MIT involve a wide range of companies. MIT research is dedicated to advancing the state of the art of a field rather than solving a specific problem. Firms with which we collaborate typically share a long-term perspective. Examples of collaborations include:

In the Microphotonics Center major industrial partners collaborate with faculty under the Research Alliance Partnership program to carry out larger-scale, focused research initiatives. Also, the Industry Consortium there creates a proactive forum where scientists, engineers, and strategists from industry and MIT can work as partners in exploring and pursuing innovative microphotonics research and development. Consortium member companies benefit from the center's direct coupling between member companies' needs and the basic science, engineering, and processing research taking place at MIT.

The Technology Licensing Office maintains relationships with many companies interested in commercializing MIT technology and executes on the order of 100 licenses each year with firms.

The Oxygen Alliance was established in 2000 with six major corporate sponsors to develop computer systems that cater to people, rather than the other way around. The Alliance includes collaborative research between the Oxygen companies and MIT in several areas as

well as personnel exchanges, joint workshops, and joint projects between each of the participating companies and MIT.

At the Media Lab, many sponsors find the Laboratory to be a uniquely valuable resource for conducting research that is too costly or too "far out" to be accommodated within a corporate environment. The "multiplier" effect of joining a community of sponsors to support advanced research has impressive results. MIT is happy to collaborate with these firms.

At the Deshpande Center for Technological Innovation (DCTI), part of MIT's School of Engineering, leading-edge research on novel technologies is conducted in collaboration with the high technology and venture capital communities of New England.

This past decade, MIT has entered into a new phase of cooperation and collaboration with industry through a small number of strategic partnerships.

3. What is the value of these collaborations to MIT, the private sector organization and ultimately customers?

MIT's interactions with industry bring real-world technology and management issues into our research laboratories and our teaching. They keep the faculty and students current, grounded and forward-looking.

Through the licensing activities of the MIT Technology Licensing Office, the public benefits from our moving results of MIT research into societal use. This helps MIT:

- show tangible benefits of taxpayers' support for fundamental research
- attract faculty and students
- generate industrial support of research
- generate discretionary income
- generate new job opportunities for graduates.

MIT industrial collaborations and the research activities of our faculty have resulted in the creation of new products, jobs, companies and even new industries, based on new technologies. They are part of this country's innovation system — a loosely coupled alliance of industry, universities, government and labor — that develops new knowledge and technologies, educates a highly skilled work force to apply these new technologies, and produces the next generation of researchers to carry on the process of discovery and development. This system turns out a continuous stream of new products and services, which in turn promote economic development and improve our quality of life.

4. Can you cite a few particularly successful collaborations as examples?

Through the strategic partnerships mentioned, key results include:

- Ford Motor Co. – significant technical progress and new strategic activities, including the development, testing, and implementation of DOME (Distributed Object Modeling Environment) that allows engineers at automotive companies and suppliers to use each others' computer design and modeling tools for rapid design changes and improvements, and initiation of active safety research projects that apply research results from military and aerospace projects to smart automobiles, with an awareness of vehicle occupants, environments, and threats.
- Merrill Lynch – the Sloan School of Management successfully adapted a popular MBA investments course for electronic “e-learning” delivery to financial professionals worldwide. The course provided an analytical framework for designing financial products and solutions in a variety of contexts. Participants applied the ideas to team projects that resulted in innovative solutions to actual client problems.
- DuPont – the DuPont-MIT Alliance (DMA) has brought together DuPont's and MIT's strengths in materials, chemical, and biological sciences to develop new materials and processes directed at bioelectronics, biosensors, biomimetic materials, alternative energy sources and new high-value materials. DMA has provided an opportunity for DuPont to collaborate with MIT's Sloan School of Management to define new business models for these emerging technologies.
- Microsoft – advancing the frontier of educational technology, the Microsoft iCampus project is an important step in establishing Microsoft as a leading technology partner for higher education. The iCampus alliance creates a framework for researchers from MIT and Microsoft to:
 - Create new interactive learning models for project-based science, mathematics and educational technology learning
 - Build tools that define the cutting edge of excellence in teaching, with a focus on creating experiential learning environments
 - Publish educationally innovative content for wide-scale distribution and
 - Develop educational utilities—Web services for learning—that assist in assessment, administration and content management.
- Hewlett-Packard – One high-profile project that has already enjoyed considerable success is DSpace, a groundbreaking digital library system. Developed by HP Labs and MIT Libraries, DSpace is a free, open source repository for digital intellectual output aimed at ensuring broad access to important scholarship materials far into the future — not just paper or books, but also data files, images, collections of field notes, audio and video clips —as file formats change, as people leave, or if someone's hard drive crashes.
- In addition, several examples of how members of the Industrial Liaison Program have benefited from their participation with MIT can be found [online](#).

Finally, each year about 25 new firms are created to commercialize MIT technology utilizing licenses for that technology from MIT.

5. In what specific ways can organizations collaborate with MIT? What particular types of collaborations does MIT seek?

Organizations may collaborate with MIT in many ways, including:

- Participation in the MIT Industrial Liaison Program
- Licensing of technology
- Sponsorship of research, individually or as part of a consortium
- Student internships
- Student employment, including summer positions
- Graduate student fellowships
- Undergraduate student scholarships
- Visiting scientists
- Adjunct faculty
- Sabbaticals for faculty at companies
- Faculty consulting
- Joint proposals for research
- Ongoing executive education programs
- Updating knowledge through study on campus or through utilizing MIT's OpenCourseWare

6. How do you manage intellectual property transfer with your Partners? Is this an area of focus? (<http://web.mit.edu/osp/www> "NCURA Presentation on University-Industry Partnerships from a Tech Transfer <Perspective>...", on left bar).

MIT retains IP ownership of any technology it chooses to patent. The MIT Technology Licensing Office (TLO) is responsible for facilitating the transfer of MIT technology for public use and benefit. The TLO assists in the commercial development of selected technology by identifying potential markets and negotiating license agreements with organizations. There may or may not be prior relationships between companies licensing this technology and MIT.

7. Can you speak to the performance or management metrics MIT seeks as a return from partnership efforts? How do you measure the success of these collaborations?

An Ad Hoc Faculty Committee on Industrial Partnerships considered these success factors of MIT's partnerships:

Increase of Corporate Financial Support, Broadening the Base of Funding for MIT Research

The partnerships have diversified MIT's funding and research support. Because each partnership is for a minimum of five years, the funding received through them is more stable than the typical industrial research grant. It was also seen by some PIs as being as stable as government grants.

Several of the partnerships bought a significant increase in contacts with industry. The sharing of challenges, data and equipment has enriched educational opportunities for students and enriched faculty exposure to industry.

Support for New Research Initiatives

The partnerships have provided the sponsors opportunities to gain contacts, experience, and expertise in new areas they have identified as critical to the futures of the firms. In addition, they have also provided funds for MIT and for individual faculty members to initiate new activities.

Renewal or Creation of Infrastructure to Support Teaching, Curriculum Development, Distance Education and Research; Gifts, Endowments, Fellowships, and Other Support

There have been several significant examples of infrastructure development through the partnerships. Also graduate student support, especially for first year graduate students, has been significant from the partnerships. This makes MIT more competitive, helping the Institute attract the best students.

Availability of Student Internships and Other Opportunities

Nearly all of the partnerships have resulted in increased hiring of MIT graduates by the companies. Through the partnerships, more than 1000 MIT students have been supported through research projects or fellowships, including about 650 graduate students and over 350 undergraduate students. In addition, there are several unique opportunities that have been created.

Additional success factor include, according to the Committee:

Match of Interests of the Sponsoring Company and of Faculty

Realistic Match of Expectations with Deliverables

Dedicated Company Staff as well as Significant Participation by Senior Management

Committed MIT Faculty and Staff Complemented by ILP membership

Fellowship Support for Graduate Students and Links to Post Doc, Graduate, and Undergraduate Students for Internships and Employment

Project Funding Decisions Made by a Designated Governing Body

8. What makes public-private partnering (P3) demanding or challenging?

As noted above, if a partnership is to include collaborative work, the research cultures of the two organizations must mesh well. Many companies do not appreciate the influence of the academic calendar on MIT research activities, nor do they fully understand that the

research undertaken at MIT tends to be on the leading edge rather than producing results that can be turned into products quickly. Companies that can work with this make better research partners. When there is a good match of research cultures, collaborative work between company researchers and MIT faculty members at the firms or at MIT can enrich the relationship for both parties.

In addition, there must be a realistic match of expectations with deliverables. Major benefits of a partnership for a sponsor derive from transfer of know-how and knowledge and from developing close contacts with students, staff, and faculty members that can enhance recruiting efforts, rather than from the creation of intellectual property. If these are shared expectations, a successful partnership can be more readily established.

9. What are the most common mistakes made in collaborations between higher education and the private sector?

The Ad Hoc Committee referred to earlier found few negatives concerning MIT's strategic industrial partnerships. The most significant was that existing research relationships might be disrupted by a new partnership if old relationships are not reflected in the new larger agreements.

While there was concern that faculty might be asked to undertake research they did not want to do, or that young faculty might be asked to engage in work inappropriate for building a tenure case, no evidence of this was found. MIT faculty members continue to choose to engage in research that will advance the state of the art in their field.

Current methods for accounting for faculty research in the partnerships did not cause undesirable or unanticipated shifts of resources from teaching responsibilities.

MIT has a history of working with competitors within the same industry, such as in industrial consortia and through sponsored research. MIT's partnerships do not exclude other companies from engaging with MIT and may even encourage firms to consider such an engagement.

Industrial partnerships are subject to the risks of economic change and company personnel shifts that make renewal less than certain, but similar risks are observed in other research programs.

10. Is there anything else you'd like to cover? For those who want to learn more about MIT corporate relations, where should we direct them?

Please have them contact my colleague, Cynthia Bloomquist, Associate Director of Corporate Relations, at 617-253-8982 or bloomquist@ocr.mit.edu.