



## 5.4 Role of the Industrial Liaison Officer

Even though no standard model exists, NSF requires every ERC to have someone on staff, often called an Industrial Liaison Officer (ILO) or Innovation Ecosystem Director, who is responsible for establishing and maintaining a liaison between the ERC and its industrial sponsors, innovation facilitators, and faculty. Each center needs to decide during the start-up and development phase how they are going to carry out this function; guidance is provided in this section as to the key requirements, challenges, opportunities and benefits to the ERC and industry of this position.

### 5.4.1 Requirements and Functions of the ILO Position

Clarity as to what is expected of industrial collaboration and innovation programs in terms of outcomes (number of members, total membership fees, mix of small and large companies, companies representing different parts of the industry value chain, inventions, patents, licenses to large or small companies, spin-offs, small companies involved in translational research and technology commercialization, Innovation Facilitators involved in stimulating entrepreneurship and innovation, number of students trained in entrepreneurship and innovation, etc.) is critical to the success of the ERC industrial collaboration and innovation programs. While it is almost impossible—and probably not wise—to prescribe one set of metrics that fit ERCs across technology clusters, which involve myriad industry cultures (e.g., emerging biotech vs. established materials and manufacturing industries), ERCs must be clear on expected metrics as the ILOs are typically stretched in terms of time and attention. For instance, ILOs can choose to focus their attention on recruiting large vs. small companies into the Industrial Membership Program, and licensing offices can choose to target technology licensing to larger companies vs. spinning off companies in transitioning research to the marketplace.

A primary consideration is what role the Industrial Liaison Officer will play in the center. Marketing of the center, as discussed in Section 5.2.2, is the responsibility of everyone in the center. With that said, if the senior faculty and Center Director are too busy or not prepared to market the center, then the ILO's role in marketing is primary. The ILO must then be someone who has the recognition and respect of both the faculty and industry, who can articulate what the center has to offer and can generate enthusiasm for it. If the center's reputation is already well-established and/or there are effective salespeople in the form of the Director and key faculty, then what may be needed is a capable, people-oriented, detail person whose primary objective is to provide customer service. He or she can make meeting and other arrangements, coordinate industrial visits, disseminate information, and deal with routine issues that may arise. In most centers, the ILO is somewhere between these two poles.

The skillset needed to perform the ERC ILO function is succinctly summarized as follows:

1. Ability to work with the Center Director in developing/implementing a Technology Transfer Strategic plan for the Center;
2. Ability to work closely with the Center Leadership Team to recruit new industry partners by networking and actively seeking opportunities for industrial participation in research as well as educational center activities;
3. Ability to retain and increase interaction with current center industry partners.
4. Ability to facilitate student/industry relations through internships, student participation in joint projects with industry, fellowships, seminars, career placement, etc.;
5. Ability to assist in the formation of new industry partnerships, start-ups, and other industrial enterprises;
6. Ability to work with the Tech Transfer Offices at the core universities in filing disclosures, technology transfer and licensing agreements;
7. Ability to develop invention handling procedures and participate in licensing negotiations in conjunction with industry partners and ERC core partner campus Technology Transfer offices;
8. Ability to organize periodic meetings with center industry partners;
9. Ability to maintain an active website for industry partners;
10. Ability to document financial contributions from center industry partners; and
11. Ability to prepare a report of industry collaborations for NSF.

The traditional ILO position is probably mis-titled, as liaising with industry only partly describes this



professional's responsibilities. Different titles that more accurately capture the responsibilities of the position have been discussed within the ILO community and in some cases applied, and this should be decided by the Director of each ERC. Many who occupy this position in Gen-3 ERCs are titled Innovation Ecosystem Director, Industry/Innovation Director, or Industrial Collaboration and Innovation Director.

The Industrial Liaison Officer is not always a single individual. In a number of cases, the ERC's ILO has teamed with previous ILOs or other professionals inside or outside of the ERC to undertake the responsibilities of industrial collaboration and innovation. In some cases, previous ILOs or those temporarily taking that role operate in broader economic development-focused organizations and this provides a great way to increase the center's exposure.

One concern voiced by several ILOs is the lack of perceived value and recognition for their function by the university, and by a few Center Directors. One suggestion to improve the image and perceived value of the ILOs within the university is to have them give regular university-wide seminars, with overviews of the technical challenges and opportunities afforded by the ERC's technology and research. Another suggestion might be to include them as members of teaching teams, to bring the industrial perspective to students in a broad range of courses.

It's important to establish the ILO position as an integral part of the center management team during the formation of the center. The ILO should play a key role in the development of the center by providing a direct interface with industry members. Faculty/industry interaction can effectively address only engineering and science issues, while the ILO becomes responsible for nurturing the long-term relationship with the industry members and Innovation Partners. It is these relationships with industry and innovation catalysts that will become important to the center as it approaches self-sufficiency.

### 5.4.2 Critical Qualifications, Experiences, and Characteristics of a Successful ILO

ERC ILOs have always been well served by having an industrial background in their ERC's target industry because it is critical that the ILO have a working understanding of the research program, industry technology and talent needs, and industry landscape (major players, new entrants into the market, trends, regulatory environment, etc.). ERC program history has shown that an engineering or scientific educational background pertinent to the ERC's technology is certainly highly advantageous, if not requisite, to the foundation of a well-prepared ERC. Additionally, the ability to converse with the spectrum of researchers to senior administration in companies and the university has proven to be critical to successful ILOs, as industry decisions to collaborate with an ERC/university is typically driven by a combination of exciting research and a strong and demonstrable fit to business unit needs and future products or services. Additionally, a working knowledge of intellectual property agreements and processes (e.g., patent, copyright, trademark, service mark, trade secret, confidentiality agreements, sponsored research agreements, material transfer agreements, technology licenses, etc.) has served ILOs well as they are sometimes called upon to act as a broker between the university, ERC, and industry (including multinational corporations, small and medium-sized enterprises, and entrepreneurs or startup companies) in these areas. With the Gen-3 ERC focus on innovation, ILOs now require at least a fundamental understanding of the technology entrepreneur and investor world to better guide technologies through the "Valley of Death" to commercialization through small entities, startup companies, and investor-driven initiatives.

### 5.4.3 Most Satisfying Aspects of the Role

Just as they define their job responsibilities differently, various ILOs also define job satisfaction in different ways, to some degree as a function of their specific job structures within particular centers.

Generally, ILOs enjoy the excitement and intellectual stimulation of working at the intersection of cutting-edge research and technology development; developing education experiences to produce a new type of high-value



industry professional; working closely with ERC leadership, faculty, and industry partners in designing research programs to meet industry needs; and creating an environment that fosters innovation. While there are many challenges to the ILO position, as discussed in Section 5.4.4, the ILO position presents a rare opportunity to work in a creative environment of university/industry/government collaboration.

The constant challenge in building an industrial partnership base and maintaining the relationships with industry to serve the center, industry, and nation can be especially satisfying as the ILO sees the fruit of that labor with every research collaboration and knowledge and technology transferred to the private sector to impact the US economy and our citizens' quality of life.

Additionally, the ILO has the opportunity to work with Education and Outreach Director(s) in crafting education programs that provide ERC students and faculty with an understanding of industrial research and development practice, technology commercialization, and innovation. The ERC provides a unique structure that enables industry, the NSF, and universities to collaborate deeply and broadly.

Last but certainly not least, the ILO position provides for a unique experience that serves ERC ILOs well as they move to other positions in their careers. The ERC ILO is a high-profile national position and ILOs are typically known to many industry and university professionals as they promote the ERC.

### 5.4.4 Most Difficult Aspects of the Role

Two difficulties plague many Industrial Liaison Officers: (a) insufficient time for multiple activities and (b) the challenge of motivating faculty members to take timely action on opportunities to interact with industry. Time management skills are an absolute requirement for success as an ILO. Lack of support staff is a serious drawback for many. Most ILOs are realistic about budgetary constraints, but still would value technical support staff. Some expressed concern about having insufficient input into center budgetary decisions.

Other challenges faced by the ILOs have included:

- Mediating between industry and faculty researchers when projects don't go as planned;
- Additional coordination among industry champions and faculty researchers on the respective campuses in the various subthrust areas, especially for multi-institutional ERCs;
- Protecting the intellectual property of individual companies while developing opportunities to expand industrial involvement;
- Learning to work with both company and university personnel in parallel to move an idea forward;
- The loss of member companies from the center;
- Providing mechanisms for researchers and industry representatives to meet and exchange ideas that may lead to sponsored research projects in the center; and
- Creation of a team environment where center and industry researchers can effectively collaborate and communicate on their projects.

In the case of a multi-institutional ERC, the ILO may assume the delicate role of coordinating inputs from industry champions and their respective faculty researchers on various campuses. Competing for the attention of these various individuals, with varying priorities, personalities, and working styles, is a real challenge. To avoid overwhelming and overloading the center's resources, the ILO must make sure that announcements are made in a timely manner and requests are sent with clear and precise instructions.

One of the more challenging aspects of the ILO's role often involves issues regarding intellectual property. IP rights are an important benefit of center membership for industry. However, intellectual property obligations to sponsors can also impose barriers in negotiating new joint ventures and licensing technology to other companies. It takes work to learn enough about the options in dealing with conflict of interest and how to handle rights, but these skills are at the center of the ILO's responsibilities.



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