



**Academic
Data Science
Alliance**

ADSA Spring Meeting 2022 - Partnerships with Industry Feedback Summary

The Academic Data Science Alliance is a community building organization that seeks to build and support a community of researchers and educators who take responsibility for a just, equitable future where data science approaches are thoughtfully applied in all domains for the benefit of all. At the March 2022 ADSA Spring Meeting, ADSA hosted Dr. Erwin Gianchandani as a speaker for the Partnerships with Industry session. Dr. Gianchandani introduced the ADSA community to the proposed Translation, Innovation and Partnerships Directorate and asked the community to provide feedback on the program. Below is a distillation of the feedback gathered during these breakout discussions and informal conversations from the meeting, condensed into a number of major categories.

Incentivizing and Facilitating Partnerships

For a variety of reasons, faculty can find it difficult to find industry partners. Among these reasons are lack of skills and experience in forging partnerships, balkanization of partnership channels within the institution as well as general lack of focused institutional support, and lack of interest on the part of industry. In addition, it is not always clear to faculty what value these types of partnerships bring to their career paths or to the careers of their students.

Lack of experience building industry partnerships is likely common among early career faculty, though mid to late career faculty are not guaranteed to have navigated these waters, either. Add lack of experience among institutional administrators in this area, providing more and better training and onramps for building partnerships is critical. Some of the responsibility for providing these skills and onramps lies with the institutions themselves, though in some cases, institutions are also not focused on and ill-prepared to engage in partnership building. Finding ways to support inexperienced faculty and administrators in initiating, building, and maintaining partnerships is an important step towards broader access to the benefits of these partnerships.

Many academic institutions have internal structures that permit strong independence among units (departments, institutes, colleges, etc.), and while this type of independence can be valuable, it also creates challenges for forging external partnerships. Often, individual units within an institution take “ownership” over partnerships they have forged, regardless of potential benefits to faculty and students outside of those units. While institutional technology transfer offices can play a helpful role in these partnerships, complexities around intellectual property policies, researcher independence, and student research can be difficult to navigate in this context. Finding ways to incentivize creating new partnerships at the institutional level and broaden existing partnerships could increase the benefits of these partnerships, especially among resource-limited units.

Even when faculty are interested and willing to build partnerships, institutions other than R-1s see a general lack of interest on the part of potential industry partners. Finding ways to motivate and incentivize partnerships between industry and academic institutions of all types is critical to creating an equitable landscape for students who wish to access the benefits of academic-industry partnerships.

Sustainability

A critical issue highlighted in discussion is the need to create sustainable pathways for industry-academic partnerships. Often, these partnerships are built on the promise of early funding and resources, but after a few years (about 2-5), the program costs can transfer to the university in terms of personnel, equipment, and space. This is an undesirable path, primarily for the institution, but it is also not optimal from the industry, faculty, and even student perspective. Creating new models for sustainable funding is critical to building impactful relationships between industry and academia. There are a few models that ADSA community members identified as working well - for [example the Johnson & Johnson-UC Berkeley-UC San Francisco partnership launched in 2019](#) or internationally with the Netherland's country wide [Innovation Center for Artificial Intelligence](#)

Untapped Opportunity with Community Colleges

Community colleges are a core element of the US education landscape, but they often find it difficult to take advantage of the types of opportunities highlighted by the TIP Directorate. The reasons are many, though a general misunderstanding of the role community colleges play in higher education and workforce development seems to sit at the core. NSF needs to be ambitious in supporting partnerships between community colleges and industry, and in encouraging partnerships between community colleges and four-year colleges and universities - though community colleges should be centered in such partnerships, not included as add-ons. The research community should also focus efforts in areas where community college partnerships are more challenging such as rural areas with little high-profile industry. In-depth engagement with community college administrators and advocates is likely the best way to initiate discussion about the practical needs of these institutions and their students, and how industry and four-year colleges can assist.

Porous Boundaries

It is important for NSF to encourage academic systems and industry roles that allow for a variety of interaction models with higher education. The current models for individual industry partnership do not provide sufficient flexibility for many or most academics. Long term (6 months, 1 year) "sabbaticals" are not available to all who could benefit from partnerships individually, at the research group level, or at the institutional level. Models of engagement that allow for more flexible two-way exchange of personnel and ideas are desired. Our community also noted that the purpose of these exchanges should not necessarily be to produce novel research, but to expose faculty, staff, students, and industry professionals to the technology and perspectives at play across boundaries.



Experiential Learning

A core element of many undergraduate STEM (and non-STEM) education programs is experiential learning. While current models for industry partnership offer examples (e.g., partnerships for capstone projects), the research community needs to think more broadly and creatively about how students and industry professionals can be exposed to one another and provide meaningful educational experiences that go beyond capstone-style learning. Industry speakers in the classroom and in mentorship programs, fellowship opportunities in industry for students outside of the current PhD/postdoc model, research experiences for undergraduates, and practicum programs are all examples of experiential learning that our community sees as valuable, but sorely underrepresented currently.

Roadblocks

As mentioned above, there are a number of challenges to making academic-industry partnerships more equitable, meaningful, and productive for all parties involved. Several of our community members have identified roadblocks to partnerships that might be addressed by NSF. First, intellectual property processes currently in place can be a major red flag for some academic institutions, while for others, the prospect of navigating IP concerns is not even on their radar. Likewise, industry participants can be turned-off by academic and government regulations around IP, which can prevent or delay partnerships. Introducing new, and more flexible models addressing IP concerns, and advocating for policy change, will help bring partnerships together. Second, given that many faculty and administrators in academia are unprepared to initiate and support industry partnerships, incentivizing and supporting academics to engage in building new partnerships beyond current models should be encouraged. Last, it is important for NSF, and participants in TIP directorate programs, to have a big-picture view of how this programming impacts the entire education and research pipeline, from K-12 through emeritus status.

Conclusions

While the above feedback is a starting point, the ADSA community has a plethora of thoughts to share on the topics of industry partnership. We encourage the TIP directorate to continue to engage with ADSA and other professional organizations on this topic, and the ADSA community will continue to convene and discuss around this topic.

