

PANEL DISCUSSION 3
Multidisciplinary Precision Imaging Research –
Role of Academic/Industry Relationship

**What are the most impactful obstacles
inhibiting academic/industrial
partnership effectiveness? How to
Address Them?**

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University-Industry Collaboration Comes in Many Forms

A number of **possible academy-industry partnership mechanisms**, e.g.:

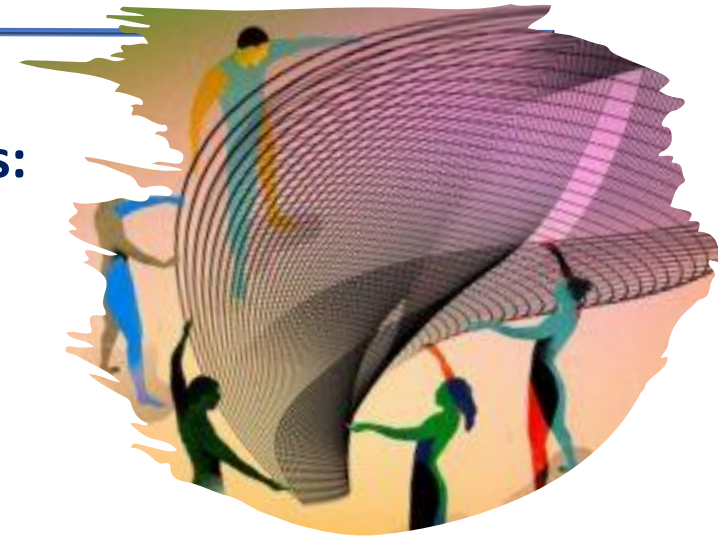
- Knowledge and technology transfer / licensing of university-owned intellectual property to biomedical companies,
- University research sponsored by industry,
- Collaborative design and conduct of development programs,
- Support for start-up companies in the form of loans, grants, and equity ownership,
- "Mega agreements" between individual companies and universities that cover a range of interactions,
- Networks of innovation that connect multiple biomedical companies, universities, research labs, start-up firms, etc.
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Multiple Stakeholders

A biomedical research ecosystem composed of **multiple stakeholders**:

- Biomedical (pharmaceutical & medical device) companies,
- Academic entities,
- Sponsoring organizations (e.g., venture capital and startups),
- Government agencies,
- Non-governmental organizations (NGOs),
- Patients and communities.



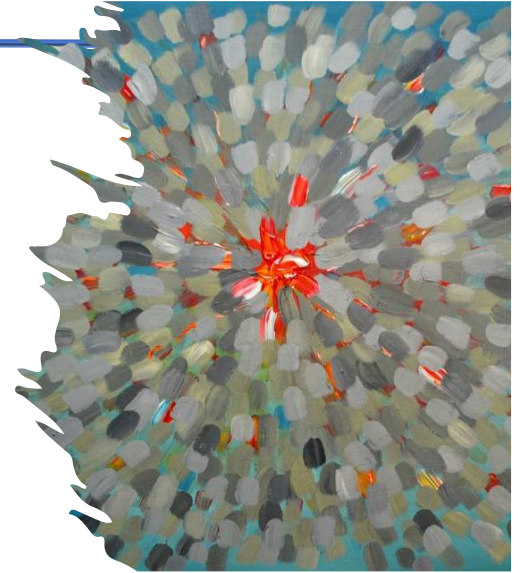
Today's Focus

- **SCOPE**

- Collaboration between one biomedical company and one university
- Industry supported research projects/programs, e.g., i) to generate new knowledge, or recombine/re-discover existing knowledge, ii) for idea testing, iii) technology development, or iv) for problem solving
- Knowledge and technology transfer from academia to industry,
- Licensing of university-owned intellectual property to industry,

- **SOURCES OF INFORMATION**

- Survey among industry executives and academic leaders
- Literature data



Key Challenges – Academic Leaders



“The biomedical industry is very insular, poorly flexible, very intellectual property concerned, and very much closed in terms of sharing information”

“I found that the most frequent issues are the misalignment of goals between academic researchers and industrial partners, and IP conflicts”

“The main obstacles are around intellectual property and confidentiality ...industry pushes to have ownership, or no constraints, on anything that comes out of the collaboration”

“Companies tend to request not only full access to results (say data) but they also want to own them and have the final say whether those results may be published. This is not compatible with our academic freedom that would make for us mandatory to publish results that may be damaging the company’s product”

“In collaborative agreements, or when work is outsourced to academia, university researchers have little or no academic freedom because the work develops according to a contract, whose clauses define the objectives and the outcomes to be achieved, the timelines, data ownership, and publication policy”

Key Challenges – Industry Executives



“Differently from academia, industry starts “with the end in mind”, i.e., products and services with a well-defined target profile aimed at meeting medical and customers’ needs, and at providing a competitive advantage and a significant return of the investment within a well defined time frame”

“Academia and industry are characterized by highly divergent missions (generation and dissemination of new knowledge/ need for publications vs market orientation), organizational structures, management systems, and pace of research.”

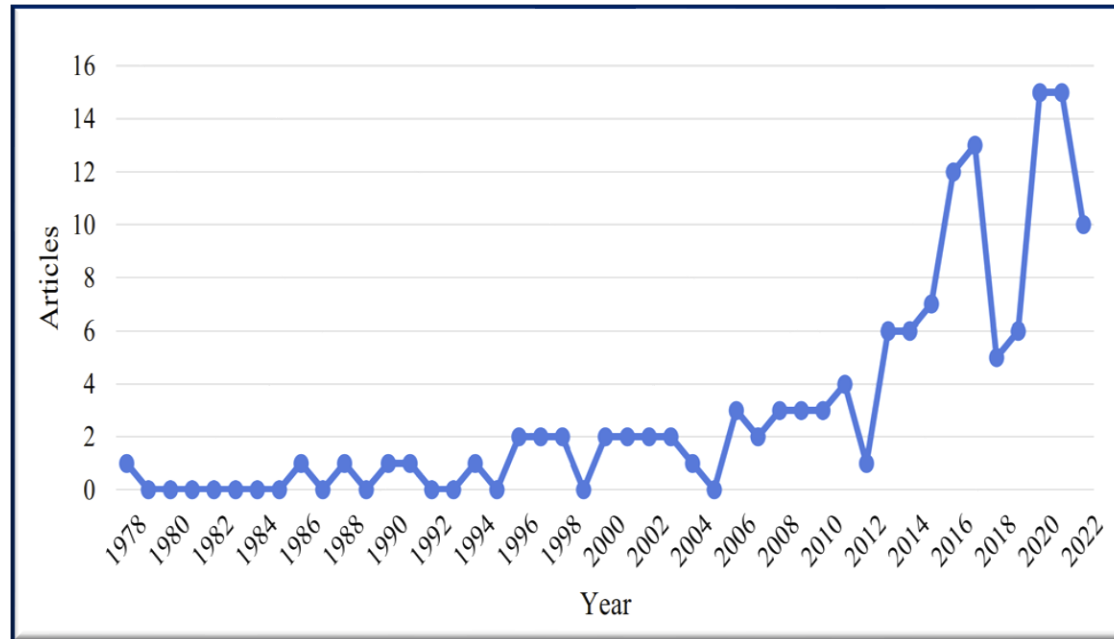
“Long and time-consuming negotiations over ownership of knowledge/technology generated by the research, compliance with policies, and the use and dissemination of research results.”

“Academia and industry have different ways of keeping score: academics are judged by publications, grants and how many trainees they have. Industry measures profits.”

“Academics want the freedom to timely disseminate the knowledge they have generated, from which they acquire professional prestige, while industry needs to protect new knowledge by privacy and secrecy. Also industry needs to develop innovative products in the fastest way possible, while the pace of academic research is slower, and academic researchers hate to be put under time pressure”.



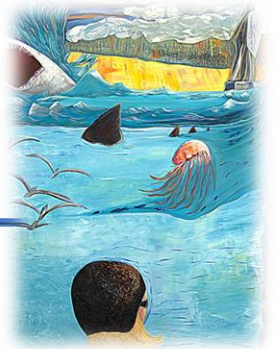
Key Challenges – Literature Data



Evolution in the number of published articles about barriers/enablers in university-industry collaborations during the period 1978–2022 (from Rossoni et al. *Manag Rev Q* 2023; <https://doi.org/10.1007/s11301-023-00349-1>)

- **Cultural (12 articles)**
 - Misalignment of goals (knowledge generation vs business value/market orientation)
 - Differences in positions about time options for dissemination of research results
 - Low level of knowledge about the benefits that can arise from cooperative interactions
- **Transaction (8 articles)**
 - Unrealistic expectations/requests of liaison offices
 - Bureaucracy/Lack of flexibility
- **Governance (6 articles)**
 - Lack of appropriate mechanisms of communication and collaboration
 - Lack of professional project management
- **Motivation (4 articles)**
 - Lack of academic autonomy to work for the industry
 - Lack of adequate incentives for academic researchers

Academia-Industry Partnerships – Key Obstacles



1. Cultural differences and misalignment of goals

When the primary purpose of partnerships is to generate new knowledge, or to recombine/re-discover existing knowledge:

- Universities are interested in research that creates and disseminates new knowledge, while biomedical companies push for strict boundaries, i.e., require exclusive data ownership rights and control over the timing and disclosure of results;
- Academic researchers are not bound to strict timelines as development of knowledge/innovation may require longer development horizons, while biomedical companies require more focused research that seeks to exploit valuable innovation as quickly as possible.

2. Transaction-related barriers

- Conflicts over data ownership and disclosure, and over intellectual property rights to the research outcomes.

Academia-Industry Collaboration – Enablers



- Flexibility in understanding and accepting cultural differences / BUILD TRUST
- Better communication about the aims and expectations each side has / Finding an appropriate balance between academic objectives and industry priorities, to be reflected in the formal agreement between the parties
- Flexible and transparent IP policies
- Formal management mechanisms, e.g.:
 - Shared governance (e.g., a joint steering committee, with a well- defined charter)
 - High-quality joint project management to align priorities (clear and shared objective setting), improve coordination, progress monitoring, and guarantee effective communication between partners across all stages of the collaboration
- Reward mechanisms and incentives for both academic researchers and industry professionals that ensure a successful collaboration
- Bring the innovation into a jointly owned commercial entity (startup company)