

# Industry and Academia Collaboration: A win win situation

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SMI

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# Industry and Academia Collaboration: A win win situation

“Collaboration between academia and industry is increasingly a critical component of efficient national innovation systems. It is useful to examine the experience of developed countries to better understand the different types of university-industry collaboration, motivations to form these agreements and barriers to cooperation, as well as the role of public policy in fostering such linkages. Developing countries face even greater barriers to such alliances, calling for a differentiated approach to promoting university-industry collaboration.”

By José Guimón World Bank, 2013

# Ways of Industry and Academia Collaboration

- Research projects
  - Partnerships, collaborative R&D and joint projects
  - Technical services, activities commissioned to universities by industrial clients.
- Shared infrastructure (labs)
  - Use of university and company labs and equipment.
- Academic entrepreneurship
  - Development and commercial use of technologies pursued by academic inventors through a company
- Human resource training and transfer
  - Internships
  - Entry – level new hires
  - Training of industry employees
- Knowledge Transfer
  - Intellectual property, transfer of university-generated IP (such as patents) to firms (e.g., via licensing).
  - Scientific publications
  - Informal interaction, social relationships (e.g., conferences, meetings, social networks).

# Human resource training and transfer

Why is important?

- Fresh perspective (brainstorming sessions)
- Source of technology and innovation
- Future leaders
- Connection between employees and students
- Discovery of research projects

Ways of Human resource training and transfer

- Internships
- Entry – level new hires
- Training of industry employees
- Student training: Introducing courses in academic plans to customize knowledge transfer

# Collaboration between SMI and UTP

- About SMI

- Market leaders in rigid packaging in the Andean region, Central America and the Caribbean.
  - Packaging: Bottles (PET, HDPE, LDPE and PP), PET Preforms, closures (caps), thermoforming, sheet extrusions
  - Raw Material: flake and resin
- Fully committed and invested in protecting the environment
  - Able to manufacture PET containers with up to 100% recycled resin

# Collaboration between SMI and UTP

- About UTP (Universidad Tecnológica del Perú)
  - UTP part of the Intercorp group
    - Interbank, Innova Schools, Supermercados Peruanos, etc.
  - Committed to offer to all Peruvians access to a quality higher education that allows them to achieve a better life.
  - Dedicated to prepare the students facilitating the transition from school to work.
  - The UTP School of Mechanical Engineering strives to be recognized for its excellent education and research, achieving qualified, innovative, and successful engineers to meet the growing industrial demands and social needs of Peru.
  - Cutting-edge laboratories to maintain a collaborative environment that stimulates teachers, students and industry with opportunities to develop learning and research activities.

# Collaboration between SMI and UTP

- Motivation?
  - Difficulties in finding qualified personnel with PET injection process knowledge
- Solution
  - UTP proposed to create elective courses lectured by SMI Engineers
- Courses and target students:
  - PET Injection Processes:
    - Industrial, Mechanical, Electromechanical Engineering students
  - Maintenance in PET Injection Processes:
    - Mechanical, Electromechanical Engineering students

# Collaboration between SMI and UTP

- Methodology

- Courses are designed and lectured by SMI engineers (PET injection process expertise).
- Students are selected according to their GPA
- Sessions are lectured at both UTP virtual classrooms (theory) and SMI factory (hands-on)
  - Started with only 2 hands-on sessions at SMI
  - Today 8 hands-on sessions (SMI), 8 virtual classes (UTP)
- Courses go through continuous improvements to optimize the academic objectives and to learn the latest technological tools

# Collaboration between SMI and UTP

## • Results

- Starting date: 2015 with 1 course (Process)
- In 2015-3 SMI requested a 2<sup>nd</sup> course (Maintenance)
- Students enrolled: 149
- Students with internships: 1 per semester
- Graduated students hired: 3
  - Mechanical engineers: 2
  - Industrial: 1

## • Conclusions

- Main source of recruitment in PET injection process
- Students from other fields to get hired by SMI
- SMI engineers now engaged in the academia

Semester	Course	
	Procesos de Inyección	Mantenimiento PI
	Number of Students	Number of Students
2015-1	16	
2015-2	16	
2015-3	18	13
2016-1		11
2016-2	12	
2016-3		9
2017-1	20	
2017-2		11
2017-3	15	
2018-2		8
Total	97	52
	149	

# Benefits

- Course part of the undergraduate curricula
- Students learn the company operation from an engineering standpoint
- Students apply engineering concepts to specifically PET injection process
- Internships in SMI offered to best students
- Entry level engineering positions in SMI and companies in the same field:
  - Rapid transition from School to Industry -> productivity
  - Theory and practice knowledge
  - Technology
- Source for problem solving and new innovation projects
  - Course final evaluation: improvement applied project

# Next Steps

- Extend collaboration between SMI and UTP to other fields.
- Work on joint research projects and promote the use of SMI and UTP infrastructure (labs, etc.).
- Promote knowledge transfer between SMI and UTP by sponsoring generation of IP (patents), scientific publications and conferences.
- Training of SMI employees using UTP professors and methodology
- Find opportunities with other companies to follow the same model

# Challenges

- University roles: not only education and research but also addressing the needs of industry and contributing directly to economic growth and development
- Many companies don't see the academia as a source of technology and innovation
- Companies are reluctant to work in collaborative way with academia
  - Perceptions:
    - To work with universities is a waste of resources
    - What is the university financial contribution?
    - The industry is more advanced in terms of technology and innovation
- Support from Government
  - Programs that promote innovation and entrepreneurship by sponsoring and financing the Industry and Academia joint projects.