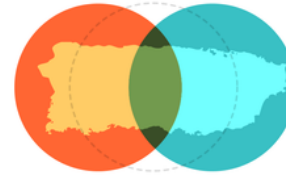# Puerto Rico Science, Technology & Research Trust

PR RESEARCH & INNOVATION
MEET UP

AUDIENCE INPUTS ON

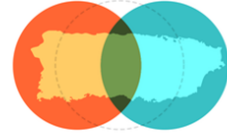*BUILDING INNOVATION ECOSYSTEMS: A DISCUSSION WITH THE ISLAND'S RESEARCH COMMUNITY*

PRSTRT HEADQUARTERS

JUNE 25, 2015

PRODUCTION, DESIGN & FACILITATION: RICARDO BURGOS, ERNESTO R. CRUZ, JAVIER DE JESÚS

This first edition of the **PR Research & Innovation Meet Up** had a successful kickoff, as it enabled the initiation of an important multi-stakeholder dialogue amongst themselves, as well as with the Trust. This dialogue, as this document will demonstrate, sketches general points of intersection that constitute common ground, points of agreement, that were identified in the inputs provided during the discussion session that was facilitated in the afternoon.

In general, this Meet Up successfully served as a trial exercise from which to demonstrate the value generation potential of collaborative discussion. Its applicability to a variety of working areas under the Trust's purview signals a viable and cost effective way to engage local stakeholders in their fields of action, create opportunities to collaborate, and help develop a new leadership culture in Puerto Rico that drives research, innovation, and economic activity.

This document provides the detail of three discussions centered around: Human Capital & Talent Development, University Collaboration, and Collaboration between the University and the private sector. These discussions where framed from the vantage point of challenges versus opportunities, and feedback was gathered from all 6 tables , with approximately 48 persons participating. The forthcoming pages will present group inputs. Finally there is a concise feedback analysis, as well as concluding comments and recommendations.

Agenda
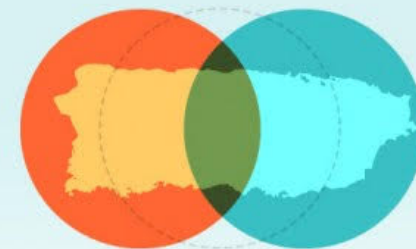
PR RESEARCH & INNOVATION

Meetup

DATE: June 26, 2015
TIME: 10:00 a.m
VENUE:
Puerto Rico Science,
Technology, and Research Trust

Meetup Agenda:

10 am- 11 am
Policy and Metrics for Innovation,
Research, and Development

11 am-12 pm
Technology Transfer and Commercialization

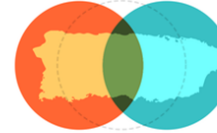12 pm-12:30 pm
Guest Speaker

12:30-1:30
Networking Lunch

1:30-3:30 pm
University innovation ecosystems

Highlights

Fostering encounters to enable sharing, learning, and improvement
The event was effective in convoking a diverse group of professionals from academics and researchers, to university executives and architects, as well as representatives from the banking and legal sectors, in addition to independent inventors, civil society organizations, and social entrepreneurs. The diversity of backgrounds contributed to the richness of the dialogue.

Discussion of important topics pertaining group dynamics and interests
The content agenda was meant to initiate discussions leading to the development of new metrics for innovation, research and development; the identification of barriers to the development of an innovation ecosystem, as well as the possibilities of collaboration and coopetition as drivers/enablers of innovation, technology transfer and economic activity. The transcription of this feedback constitutes the bulk of this document. It must be noted that the inputs are recorded in their original language: either Spanish or English

Increasing social capital by providing space and context from which to engage in crossed networking
These Meet Ups were designed to create opportunities for participants in the fields of research, investment, traditional entrepreneurship, as well as social enterprising in order to form bridges among groups, promote understanding through social interaction, and the empowerment of innovation.

Feedback on Human Capital & Talent Development

Challenges	Opportunities & Solutions
• **Education (Rote, among Island leadership, basic, math & science, entrepreneurial, practical knowledge and specialization, learning processing) (7)** • **Culture (anti-business, insular thinking, short-term thinking, votes vs. future development) (4)** • **Economy (fiscal crisis, resources) (2)** • **Identification of problems (2)** • **Lack of entrepreneurial culture (2)** • Out migration • Export development • Low retention of talent due to lack of funding • Allowing use of facilities for local inventors • Lack of capacity-building in IP development and business development • Demystify what is a scientist • Increasing human capital in applied sciences • Critical mass…laboratories • Incentives Act 101 • Spaces for dialogue and discussion • Recruitment – student admission, contracting of faculty/industry researchers • Lack of role models	• **Talent…Identification, development, gaps, clusters, Pairing mechanism (6)** • **Education (community, entrepreneurial, multi-disciplinary, in government) (4)** • **Collaboration and outreach (3)** • **Incentives (for research, 3)** • **Development of specialized schools (2)** • **Internships (2)** • Exports • Identification of local talent and resources • Development of organic agriculture • Use of technological platforms • Faculty members engaging in industry-related Summer sabbaticals • Cultural change, mindset • Out migration • More scientist in the new media • Creation of new technical certifications (i.e., laser optics) • More women practicing engineering • Many interested students • Multi-disciplinary education (science-business) • Government education, so researchers are not unnecessarily restricted (D. Hacienda alcohol inventories, Comptroller laws) • Reduction of bureaucracy to conduct research at the UPR • Alliance building for scientific education among youth • Asset mapping • Mentoring – disseminate (spread talent) – Remodeling (increase STEM) – Repository of successful people willing to mentor)

Feedback on Human Capital & Talent Development

Challenges	*Opportunities & Solutions*
• *Appreciation of the value of research and the academia* • *Job opportunity* • *Career choices (PhD vs. MD)* • *Fear of failure* • *Quality of life that attracts and retains talent* • *Knowledge and experience on commercialization* • *Worn-out stereotypes* • *Integration of support structure (disarticulated)* • *Available owners* • *The scientific process is not for education*	• *Strategic geographical and cultural positioning* • *Knowledge and experience in manufacturing* • *Re-thinking the educational model (design thinking, active, practical learning)* • *Facilitate access to assistance* • *A facilitating corridor* • *Bilingualism, Latin culture with absolute access to the US* • *High concentration of talent (universities, industry) in a small geographical location*

Summary Feedback on Human Capital & Talent Development

Challenges	*Consistent challenging issues revolved around financial resources (or lack of) to enable incentives for R&D. On the other hand, there is a resounding statement of a lack of entrepreneurial culture (both as a habit in the academic day-to-day research activities, as well as in the educational efforts being undertaken at the K-12 and college level education.*
Opportunities & Solutions	*Financial support is claimed as a course of action to promote incentive creation for R&D activities, as well as competitions, assistance, and specific professional support curricular changes for K-12 and college level education. In addition, specialized education, with a particular focus on STEM curricula, and an entrepreneurial component is a generalized comment, all of which is preached under the vantage point of a hands-on, practical education.*

Feedback on University & Collaboration

Challenges	Opportunities & Solutions
• *Bureaucracy (impedes collaboration, No time to waste on it) (2)* • *Collaboration (limited time to seek, culture of, Research is based on individual collaboration, lack of trust) (2)* • *Competition (Aggressive, Internal) (2)* • Perception of distance • Duplication of programs and resources • Better valorization of merit • The political leadership of the University does not want universities cooperating among themselves • Inexistence of a strategic plan to develop University systems in Puerto Rico • Conspiracy to do good (we actually conspire to compete) • Communication • Equal opportunity • Low level of professionalism in research administration • Administrators are not trained for entrepreneurship • Lack of a common workspace among universities (now the Trust!) • Administrative obstacles	• *Collaboration (value of, transparency, clear guidelines, enable it in strategic areas, between best in class researchers from other non-PR universities, merging administrative management of schools, begin with informal, valuation of, for the Trust: matching programs for, inter-institutional) (10)* • *Networking (for students, for researchers, internal mechanisms to establish inter- and inter- university collaborations, better use of networkd, e.g. RTRN, Puerto Rican research forums, Research seminars to know of each others universities doing) (4)* • *Collaboration (from the bottom, (2)* • *Research(er) database (organized by research area) (2)* • *Communication (Trust as enabler, virtual,) (2)* • Need for Identify clusters in areas of research need in PR • Need funding program to promote inter- and inter- university collaborations, and with the companies • High quality of researchers in specific areas of research interest • Proximity to most of the research technology in the US • Deep cultural tradition • Bilingual • Use technology • Full equivalence of curriculums • Research gate…LinkedIn • Resource sharing between institutions (private-public) • IRB reciprocity PRCTRC

Feedback on University & Collaboration

Challenges	Opportunities & Solutions
	• *Eagle C* • *Development of open spaces* • *Development of stakeholders that solidify a sense of belonging and social responsibility* • *Equipment inventory (available for collaboration?)* • *Define the Conspiracy to do Good* • *International professional certification in Research Administration* • *Political will to contribute ($)* • *Teaching evaluations to improve valorization of local activities* • *A Puerto Rico based research group* • *Increase the visibility of research results regardless of where the researchers work.* • *Different disciplines, no overlap* • *MTA – Confidentiality agreements* • *Submit NSF proposals for networking y ROA (faculty exchange)* • *Trust should invest in forcing collaboration* • *3-way university scholarships (not always the same ones)* • *Inter-institutional collaboration by areas, e.g.. aerospace* • *Grow interdisciplinary teams, as they increase the probability of funding multiple PI's* • *Increase socialization among peers* • *In meetings: Get more PR people to attend!*

Summary Collaboration and the University

Challenges	*Institutional bureaucracy is presented as the most pressing challenge, followed by long-standing managerial/executive habits and practices, institutional competition, and lacking skillset, all of which translates into a generalized lack of leadership among universities. In addition, there are institutional barriers, such as adequate and fair policymaking to enable collaboration (e.g. IP sharing, joint research, and coop teaching, among others) and enabling mechanisms to inter-university collaboration.*
Opportunities and Solutions	*There seems to be generalized agreement on the subject of a database (underway, as informed by the PRSTRT), followed by the proper policymaking to enable a Coop Program, new networking modalities that include students, student-teacher competitions, and a bottom-up approach to university collaboration (forums, seminars, etc.), all of which are -in a way- a claim to improve/increase the quantity and quality of internal and inter-university communications to enable collaboration.* *It is important to note that at least two groups decided not to discuss challenges and focused solely on the identification of opportunities.*

Feedback on Collaboration between the University and the Private Sector

Challenges	Opportunities & Solutions
• *Corporate control of local business financials* • *Not all share the same "for profit" vision* • *Coop professor (required by HR)* • *Academics need to outreach to industry* • *Lack of R&D industry in PR* • *Sponsorship of R&D incentives*	• *Have the Trust grant scholarships for students engage in coop courses,* • *Coop professor as Summer job* • *Coop courses* • *See the value of collaboration (talented students, specific and practical knowledge, technology exposure, Regulation knowledge*
• *Cumbersome to do because of university bureaucracy* • *Safety and intellectual property challenges to the University*	• *The Trust should have a mediator or lawyer to develop patent agreements* • *Private sector as host of a University curriculum for innovation and entrepreneurship* • *Have a University-level competition between students and professors to develop ideas that would foster academic and business activity* • *Standardize procedures for collaboration agreements* • *Templates para "master agreements y pre-approval agreements"*

Feedback on Collaboration between the University and the Private Sector

Challenges	Opportunities & Solutions
• **Networking (need for PRMA & PRIDCO to approach the University) (2)** • **Education (curricular gap, our classes do not teach IP development nor entrepreneurship)(2)** • Mutual prejudice • Universities are not seen as top research institutions • University infrastructure is poor . Needs to improve to support successful collaboration • IP development licensing • Update knowledge at a fast rate • More educated administrators • Allow faculty to establish the bridge • Identify industry needs • Create industry internships • Diversify our needs…the focus is biotech, but there is also medical devices • Produce more locally owned industries • Absence of policies to enable participation and interaction with the private enterprise • Bureaucracy • Academic elitism • Investment in research • The University is not open to an IP proposal	• **Education (train faculty to keep them up to date and avoid curricular gap, bring knowledgeable and proven speakers on topics like technology transfer) (2)** • Company database with information on research interests, areas of need, skills, contact info • Establishment of clear and fair policies to share intellectual property rights • Establishment of an incentive program to fund company-university collaborations • Liaisons in the University • MOU's • Industrial sabbaticals • Post Doc consulting • Create short certifications, i.e., biotech • Startups • Follow Utah's model of entrepreneurship • Create businesses to meet and satisfy our own needs • Manage the image/branding of scientists and entrepreneurs • Landing sites for companies, at the center of the University • Change the academic focus to one that integrates teaching/service/research • Facilitate the process of inviting academic resources (less paperwork)

Feedback on Collaboration between the University and the Private Sector

Challenges	*Opportunities & Solutions*
• *Private enterprise's low level of understanding regarding entrepreneurship Universities* • *Not enough entrepreneurs* • *Low number of inventions on the Island* • *Incorrect understanding regarding University work as "for free"*	• *Equilibrated ecosystems on the Island* • *Development of local companies* • *Facilitate changes to bureaucratic processes and programs between industry/enterprises and the University* • *Promote science made in Puerto Rico* • *Education in capacity building* • *Foster private enterprise support/adoption of causes* • *Development of shared technologies* • *Harmonize the concept of time between private industry and the University* • *Development of student internships in coordination with the University*

Summary Collaboration between the University and the Private Sector

Challenges	The primary challenge is reduced investment in R&D activities, followed by lack of entrepreneurial focus, both in education and research and innovation practice. A secondary, yet important issue revolves around IP development and licensing from researchers at the University. Last but not least, is the lack of a culture, policies, and enabling mechanisms to foster collaboration, both internally, and between universities.
Opportunities & Solutions	There seems to be unanimity behind the idea of integration among academics/researchers and business leaders/enterprises, an issue that should be proactively dealt with through curricular changes such as early entrepreneurial education. In addition to increased funding opportunities to enable industry internships, faculty sabbaticals, and post-doc consulting, among others. Finally, there is a resounding statement to the fact that we need to create viable mechanisms to enable collaboration, from HR to institutional information to shared intellectual property.

Wild card 1 Technology Transfer

Opportunities & Solutions

- *Increase the number of matching fund support letters <u>per</u> investigator <u>per</u> year for external funding e.g. SBIR Grants*

- *Establishing IP Valuation service*

- *Provide resources (qualified resources) to help write pre-patent submissions*

- *Promote/establish meetings between investors and potential investors*

Wild card 2 Practical considerations for the Trust

Opportunities & Solutions
• *Prototypes [**prototyping**]* • *INDUNIV, Trust, BDTC…cohesion??? Confusing…* • *¿OTT? ¿Where? ¿When? ¿Access?* • *Patents* • *Spinoffs* • *Investors* • *Meeting network…about success stories and needs*

Wild card 3 What can be done so that patents go through process of commercialization

Challenges	*Opportunities & Solutions*
• *Need for PRST to disseminate knowledge of Hot Technology areas, global talents, knowledge and process needs to go to commercialize* • *Quality of patents* • *The university should not be in charge of marketing* • *Give me 95% implementation and 5% of ideas*	• *What are the impediments to processing a patent?* • *Global talent search to leverage UPR faculty research focus*

Wild card 3 Educación

Challenges	*Opportunities & Solutions*
• *Education, resistance to change* • *Change must be recognized* • *No motivation to innovate in education*	• *Social marketing of current changes in the research scene in Puerto Rico* • *University experience as entrepreneur* • *Promote entrepreneurship inside the academia (among students, faculty and staff)* • *More skills development, less theory*

Wild card 3 IP Development and Commercialization

Challenges	Opportunities & Solutions
• *Lack of startup package for new faculty* • *Long time to process licensing* • *No venture capital* • *Ho hay SBIR culture* • *Discrimination on account of taxes (IVU)*	• *Template for the licensing of patents* • *More industry-level training for young faculty members* • *Integration of IP to the Island's science curricula* • *Creation of "startup packages" for faculty* • *Creation of incentives for researchers* • *The Trust should create more diverse programs (education, communication)* • *Promote SBIR, as a requirement* • *Trust should attract VC* • *Trust should identify venture capital investors to come to Puerto Rico*

Role of the Trust

This event helped to solidify the Trust's leadership, based on consistent participant feedback, as well as stakeholder's evident trust in the PRSTRT. Thus, the claim to help promote dialogue, provide a space for encounters, and -generally- acting as a more active and functional advocate of collaboration among institutions, the private sector, and government.

Marketing and positioning of Research and Innovation education and careers

Present research and scientific work under a new light, exhibit achievements and findings, as well as day to day work, continue to have meetings and encounters, enable the exposition of new subject matters and dialogue leading to collaboration and shared innovation among researchers and institutions.

Asset mapping, database development

Having a real-time, updated database of the Island's researchers, institutions, capabilities, and interests is critical for our leadership to make decisions and position our researchers to do more and assist in the aforementioned endeavors.

Professional Networking

There is a stated appreciation for <u>focused</u> networking events. These events serve to enable viable action items that may -ideally- come together as a unified strategy from a group of concerned stakeholders in the effort of expanding the Island's research agenda.

Intellectual Property education and assistance
There is stated need for general education on the subject, which will inevitably lead to eventual discussion of: legal assistance for document development, template creation, and application submission, as well as IP sharing practices among institutions, and the creation of an IP valuation service

Entrepreneurial education
Ample recognition was given to the lack of entrepreneurial attitude and preparation, thus the need to jumpstart said activity in order to create the Island's new entrepreneurial culture, based on proper technology valuation, collaboration, and coopetition, inside and among universities, and the private sector, who is expected to show more interest in the Island's research and innovation activities.

Policy development for Collaboration
The audience was almost unanimously in recognition of this item as a hindrance to collaboration, at the same time that there was a unified call to action to bridge this gap and move forward -even if informally- towards a culture of solidarity and collaboration. It is thus important to craft long-term aspirational approaches to formal collaboration (through MOU's) at the same time that we develop practical, viable mechanisms for informal collaboration.

Financial improvements
There is a generalized opinion that more resources should be put in place to incentivize new teaching modalities and professional interactions, research activity, collaboration, and competition. It was also stated that the Trust should -in its advocacy role- identify, promote, and attract venture capital formation to improve technology transfer and commercialization activity.

Communications. The biggest win of this event is the fact that it was clearly demonstrated that specialized discussion among a professionally diverse audience yields understanding, contrast, and -ideally- action based agendas. Thus the importance of facilitating this kind of communication exercise, so as to allow participants to really concentrate on the exchange of ideas, knowledge, and practices to add value to their individual endeavors, as well as the Trust's.

Strategic Alignment. The event's discussions signaled a need, a desire, and a clear intention of alignment with other important stakeholders in order to improve research and innovation practices in Puerto Rico. At the same time, the obtained feedback not only paints a clear picture of the drivers that can help define the Trust's agenda moving forward, but also give clear pointers as to the intermediary role the Trust is called upon to undertake.

Leadership. The development of Puerto Rico's future leadership is best served if it comes from the scientific, research, and innovation arenas, more than the political or even traditional business sectors. The continuation of this endeavor will ultimately help solidify an already established basis of trust from which to strengthen Puerto Rico's foundation for the flourishing research and innovation activity. When it comes to research and innovation, there is a leadership void in the Island, especially related the managerial, logistical, and technical approaches to undertake such an agenda. Based on participant input and feedback, as well as the recognition of the Trust's human resources and recent track record, we posit that such space should be occupied by the Trust, in an exercise of collaborative leadership that will not only drive the Trust's future endeavors, but serve as an example for all of Puerto Ricans.