Collaboration between Academia and Industry:

A Successful Case Study from Colombia

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Nairobi, 2016
Outline

• Where we are from and Who we are
• Colciencias’ Academia – Industry funding
• The project
• Lessons from this endeavor
I come from the other side of the planet.....
Colombia, South America...

We are not so different....
We have beaches, mountains, countryside and cities........
• Cali is the third city in Colombia, and the main city in the southwest.
• Near the pacific coast and Buenaventura, the main port on the pacific side.
Cali

Colombia

- 48 million inhabitants
- GDP: 0.431 USD Billion
- I+D spent: 0.16% from GDP (2010)
- 15 Researchers. Per 100,000 inhabitants.
THIS PRESENTATION INVOLVES THREE ACTORS
The Industry

TESAmerica
TESAmerica

• TESAmerica’s main objective is to provide strategic support for emerging economies regarding planning, allocating, optimising and controlling the radio spectrum.
• TESAmerica’s approach is based on applied research and development for offering services and solutions.
• The company has over 17 years’ experience in the field of on-going technological evolution.
TESAmerica

• Two flagship products
  – **TESData**: a spectrum monitoring solution which uses any conventional spectrum analyzer or radio monitor.
  – **TESManagement**: a telecommunications inventory and provisioning solution tool for operators.
The Academia

Icesi and UPB
Qué es Icesi
The Academia

- Icesi is a Small private university, located in Cali.
  - http://www.icesi.edu.co
- UPB is a catholic university, located in Medellín, and one of the oldest in Colombia.
  - http://www.upb.edu.co
- Both are between the 20 best Colombian universities.
The Government

Colciencias
Colciencias Funding program

• Colciencias is the Colombian science and technology authority.

• Through the University - Company funding initiative, Colciencias Fosters the development of Innovative projects between Academia and industry.

• The University develops the Project and transfers the results to the company.
Icesi and TESAmerica

THE STORY OF A LONG TERM RELATION
Icesi and TESAmerica

• A relation of more than 12 years between Andres Navarro (Icesi) and Daniel Rosas (TESAmerica’s CEO).
• Collaborating in Small projects and teaching.
• Taking advantage of the Colciencias incentives for Academia and Industry collaboration.
We had a dream...
and the challenge was to realize it...
SIMONES:
FIRST BIG PROJECT
The main goal of the Project was to develop an affordable spectrum monitoring unit using SDR and Open source software, integrated with TESData, the flagship product of TESAmerica.
SIMONES

Integrated with TESData
SIMONES

With a web Interface
A big joint venture

SPECTRUM PROGRAM
The Challenge was to develop an affordable solution to spectrum management in low and medium income countries and complex topography.
Spectrum Program

- Two Academia
  - Universidad Icesi
  - Universidad Pontificia Bolivariana (UPB)
- One Industry partner
  - TESAmerica
- Colciencias Grant for three years
Spectrum Program

• Main goal involves the development of ITU-R SM.1392 functionalities using SIMON.
  – Bandwidth measurements
  – Frequency Measurements
  – Power Spectral Density
  – Occupancy Measurements
  – Direction Finding
A cloud solution....
Spectrum Program

- Integrated with ITU SMS4DC
- And CelGIS, a radio planning tool developed in Icesi.
Spectrum Program

- Integrated with ITU SMS4DC
- And CelGIS, a radio planning tool developed in Icesi.
Spectrum Program

Bandwidth measurements

\[ \beta/2 \text{ method} \quad \text{XdB method} \]
Occupancy Measurements using energy detection for FM Broadcast
All my group at Icesi
Dissemination in TESAmerica

From left: Andres Navarro (Icesi), Daniel Rosas (TES), Cristina Gomez (UPB), Alvaro Patiño (TES)
TESAmerica Team
LESSONS FROM THIS ENDEAVOR
Lessons

- Success of this project is the result of a long term relation between people.
- And the trust developed along the years.
- With a visionary CEO in TESAmerica.
- It is a matter of people, not institutions.
- This successful Project is the result of a dream and a lot of work between colleagues and friends committed to the development of the country.
THANK YOU