



Biobased Innovation, Key To Collaboration

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The pace of innovation is crucial to the degree of innovation in a country. On each continent major cities and capital cities are innovation hubs that attract businesses, entrepreneurs, students and this leads to social and economic prosperity. So how can we rank South America in terms of innovation on a global scale? Cities in South America are lacking behind in the list compared to cities from other continents. Rio de Janeiro (138), Lima (403) and Buenos Aires (242) are relatively seen less innovative than other cities around the world on other continents. European, Asian, North American and Australian cities score relatively higher. Overall, this means the level of innovation is higher in cities like Madrid (93), Berlin (13), Chicago (21), Melbourne (23) and Beijing (50) ("Innovation cities index," n.d.).

The role of education in innovation is on the line. Unemployment numbers in Europe have been climbing up to troubling numbers with some South-European countries like Spain reaching 23.9% and Greece 25.7% ("Unemployment rate in," 2014). Besides Guyana all South American countries have unemployment rates less than 10%. So actually there is no need to start adjusting the educational system in South America if you look at these numbers. Though in terms of innovativeness South America is lacking behind if you compare the country on the ranking of the degree innovation. With the future challenge of a decreasing amount of natural resources ahead this will probably cause a problem on this continent if South America is not gaining higher positions on this list.

Redefining education

It is interesting to ask the following question in a group of young professionals that recently joined the job market. How much knowledge gained during your studies are you actually using at work? The results will be depressing for education policy makers but students tend to take on more opportunities like internships. Internships are considered as work experience that will help you land a job after graduation. In the long run work experience and building your network is more important than the amount you get paid during your internship (Schroeder, 2015). This brings us to the challenge of including students into the job market. With a very competing job market young graduates are struggling to get their first job. Most times they are facing the same problem which is a lack of work experience (Blyth, 2011). On a global scale there are big differences in the educational system. Work experience is essential to land a job after graduation. The amount of practical experience during studies very much depends how the study programs are put together. In countries like the Netherlands and Germany it is very common to do two or three internships during your studies. In this way students have the opportunity to gain the practical knowledge they will use when they enter job market after graduation.



The Resource Dilemma is an opportunity

In about 40 years from now the oil reserves in the world will be at a minimum. In about 60 years from now the same will happen with the amount of natural gas. Each day the importance of bio-based resources is getting higher to substitute fossil-based resources for bio-based resources on our planet ("The end of," n.d.). Running out of fossil-based resources is a worldwide problem in which a group of countries or a continent could play a leading role. South America can gain this position by collaborating more with for example European countries. In Europe many cities are connected with one another to create new innovative start-up companies. Not only new companies are created but universities are also setting up new study programs that specifically focus on the resource dilemma of decreasing fossil-based resources. A few universities in The Netherlands just launched a new research center in collaboration with universities and companies in Brazil to do research in the field of bio-based resources. This initiative is called Living Lab Biobased Brazil ("About us," n.d.).

It is focused on four themes including 1) Water Technology, 2) Agro and Food, 3) Green Chemistry and 4) Sustainable Environment. One of the key research areas will be the usage of waste materials and biopolymers. This is an important part of the collaboration because biopolymers are the future alternative material to substitute plastics made out of oil. This program is beneficial not only for the local economies of both countries to provide future alternatives for natural resource dilemmas but also a jumpstart for students to gain international experience in an uncharted and emerging economy. These are perfect credentials for a student's résumé to land a job after graduation.

Add value to society

The United States made a conservative estimate that 200,000 jobs can be created by 2025 in the 'bio-based economy' field. In this country already 3,500 jobs have been created by making the transition from the usage of fossil-based resources to bio-based resources (Lane, 2014). It is not only a challenge of including new jobs into society but also the challenge who wants to innovate and think differently and creatively.

A Scottish company recently became world's first company that used waste products from producing whisky into biofuel. This is a next generation biofuel that can be used as a direct replacement for petrol. The company estimates that this technology can create an industry in the United Kingdom of a £100 million a year. Another example is the company Friesland Campina which just announced the production of a new sustainable carton for its packaging. The CO2 footprint of this new carton is 20% lower than the current carton. The carton is made out of bio-based polyethylene which comes from certified organic residue. The company says it is responsible to be a leading company in sustainable innovation by launching this innovation ("Frieslandcampina and elopak," 2015). These are product innovations that take place more frequently on the European continent than on the South American continent.

Innovations like these groundbreaking new products come forth out of a collaboration model that is used in Europe. It is called the Triple Helix model ("The triple helix," n.d.). This is a collaboration model between three layers that includes education (universities), industry (companies) and governmental organizations. The challenge of inclusion is definitely a big issue in the connection



between education and companies.

Leading role for South America

Currently many universities in South America are connected with other continents through exchange programs. Though, the output of these exchange programs is limited. Setting up programs that are focused on a long-term research or work experience program are already proving to reach new product innovations. The creation of a platform that can overcome present limitations can push new waves of innovation. Creative and innovative ideas can be reached by dialogue and long-term thinking. The recently launched initiative Living Lab Biobased Brazil is a perfect example of trans-continental collaboration and focuses on multiple factors including:

- Students work on a research assignment related to a company or organization
- Focus on practical experience and creating jobs
- Focus on sustainability and future-based initiatives that cross borders
- Students gain international and work experience in an emerging industry
- Developing national economies in both countries
- An interactive and international platform in sustainability that is project based

This is a platform that can be launched in many other South American countries. The fact that sustainability topics are getting more important with fossil-based resources running out means that more jobs can be created out of these programs. There are not many trans-continental programs or initiatives that are focused on emerging industries in collaboration with South America and this future platform can contribute to this goal.

Launching a platform for sustainable projects that can cover more South American countries is an sophisticated concept that can give countries like Argentina a leading role in sustainability and innovation. Creative ideas in combination with dialogue is essential to make this platform bigger in South America. The challenge of inclusion is based on innovation in sustainability. That is how young professionals can be included into the job market but also in innovative thinking. It shows a huge potential for projects in sustainability and it is an answer to youth unemployment on an international scale.