

# **An organization's environment and the generation of its legitimacy: Case Study: Ingenieros Sin Fronteras Colombia**

*Diana Duarte*

*Researcher, Ingenieros Sin Fronteras Colombia,*

*María Catalina Ramírez*

*Associate Professor Engineering, Universidad de los Andes*

*Julia Díaz*

*Ph.D. student, Universidad de los Andes*

# The context

- Inequities Colombia regions (GINI)
- 72% of professionals are located in the five major cities
- 22% of these engineers choose to remain in the main urban centers

# The context

- 46% of Colombians live in poverty. Compared to 2005 this decrease 4.3%, but extreme poverty increased 2.1%(Vanguardia 4 de Julio 2010)
- The gap between urban and rural areas keeps growing: 65 out of every 100 Colombians in rural areas are poor, whereas this index in urban areas is of 39 out of every 100 (Juan Camilo Restrepo, ex Minister of Agriculture)

# The context

- First trimester 2010. Even though there was an economic growth of 4.4 and a productivity growth of 7.9, the unemployment increased as well
- Last year, there was an unemployment increase of 0.4, reaching 12.1. Presently, there are approximately 2.608.000 unemployed people. (El Tiempo, July 1<sup>st</sup>, 2010)

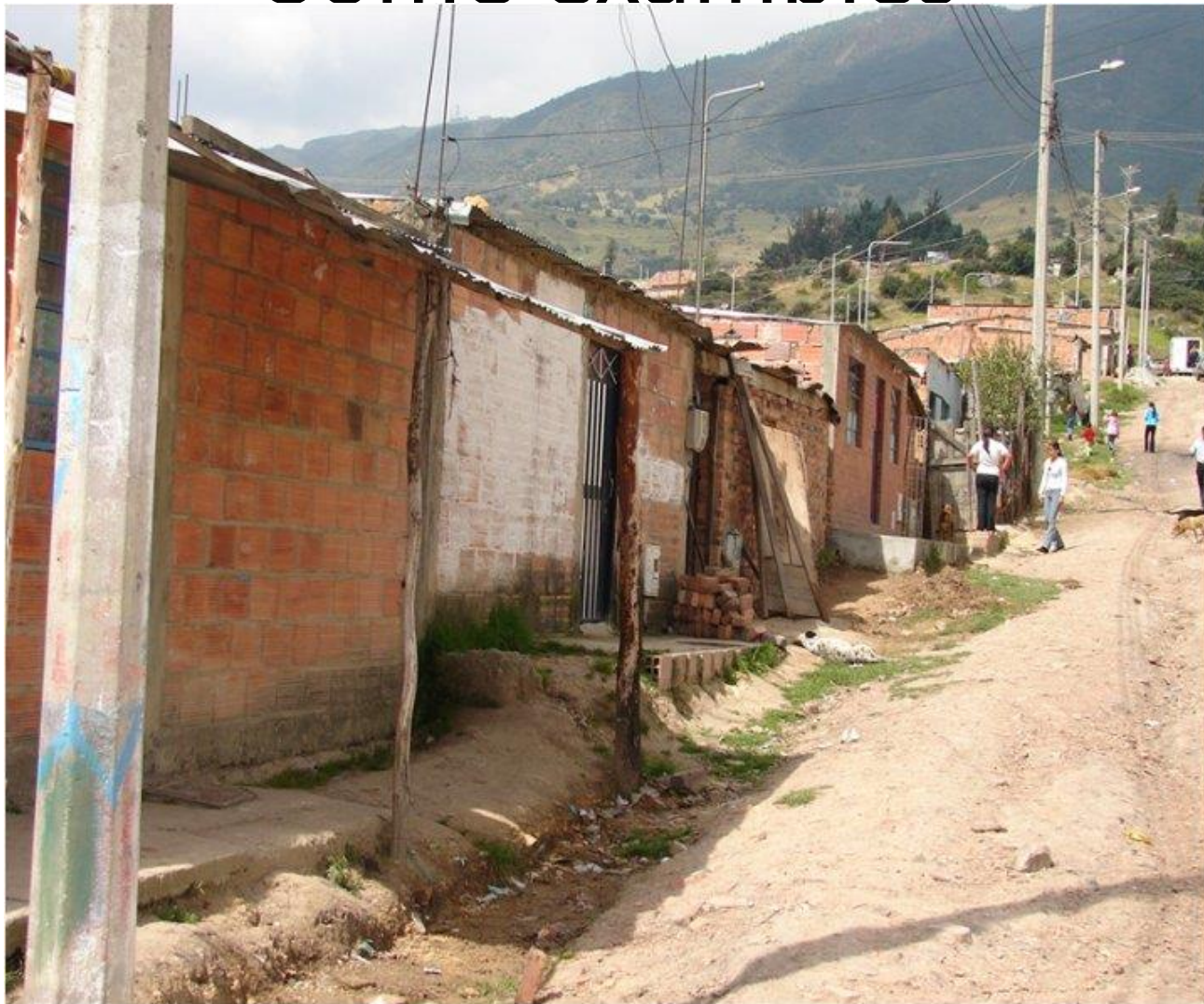
# The context

- On 2001 Colombia, Brazil and Peru were the countries with more inequality in Latin America (Cepal)
- Colombia entered the list of most unequal countries (Revista Semana, July 4<sup>th</sup>, 2010)

# The context: Some examples



# Some examples







# Some examples





# Ingenieros sin Fronteras Colombia

- Born 2007
- [http://isfcolombia.uniandes.edu.co/index.php?option=com\\_content&view=article&id=2&Itemid=13](http://isfcolombia.uniandes.edu.co/index.php?option=com_content&view=article&id=2&Itemid=13)

# Sinergy between UniMinuto - UniAndes

- Guayabal de Síquima, 2007-2009
- Nankai, 2008
- Mochuelo-Ciudad Bolivar, 2008-2011
- Icononzo-Tolima, 2009
- Provincia del Guavio (Guasca, Gachetá y Calera)–  
from 2010

# ISFCOL Indicators

- International
  - Mondialogo UNESCO
  - OEA TIC Américas
  - Jóvenes emprendedores ONU
- Active Learning Engineering
  - 5 International Seminars
  - 5 Inter-University courses
  - 800 engineering students
- Research
  - 20 published papers
- Network
  - Politecnico di Milano
  - Universidad Nacional

# Methodologies ISFCOL

- **oCDIO:**
- **PAR:** *Participatory Action Research*
- **GAMIFICATION:**

# Social Innovation Focus

- **Participation**
- **Viability**
- **Impact**
- **Sostenability**

# Criteria ISFCOL

- Viable
- Environment responsibility
- Social Inclusive
- **Engineering focus**
- Innovation
- Technically viable
- Impact



# Achieves

- Mondialogo Engineering Award. **UNESCO** y Damlier. [2009](#).
- Eco-challenge. **TIC Americas** 2010.
- YABT, OEA y PEPSICO
- Financiación de Fullbrighth Colombia. 2011.
- Re-financiación Eco-Challenge. TIC Américas 2012. YABT, **OEA** y **PEPSICO**
- Invitados al Politecnico di Milano 2014
- Invitados a Colorado School of Mines y al Politécnico di Milano 2011
- Participación en Asamblea Anual de Jóvenes en Naciones Unidas 2011.
- UNESCO Chair in Technologies for Development 2011 y 2014
- Primer proyecto de la Universidad de los Andes aprobado por regalías

# Partners

- Politécnico de Milán
- ISF Milano
- Escuela de Minas de Colorado.
- ICA2
- Universidad de AALBORG en Dinamarca
- Inalambria Internacional
- Gobernación de Cundinamarca
- Universidad Nacional de Colombia
- Corporación Minuto de Dios



# Interdisciplinary work

Economy

Industrial Engineering

Agroecological Engineering

Chemical E

Environment E

Electric E

Mechanical E

Social work

# Engineers now of ISFCOLO

- Responsabilidad Social del Banco de Bogotá
- ENDEAVOR.
- Banco Mundial.
- Ingeniería para el desarrollo, Centro Investigación UK.
- RECOJO.
- Gestión de regalías al nivel nacional.
- Parque Científico de Innovación Social
- Ministerio TICs



Banco Mundial



Ministerio de Tecnologías  
de la Información y las Comunicaciones  
República de Colombia



# Resources

- Universities
- UNESCO
- Fulbright
- Daimler Mercedes Benz
- Regalías
- Icetex
- Pepsi Co.
- Inalambria



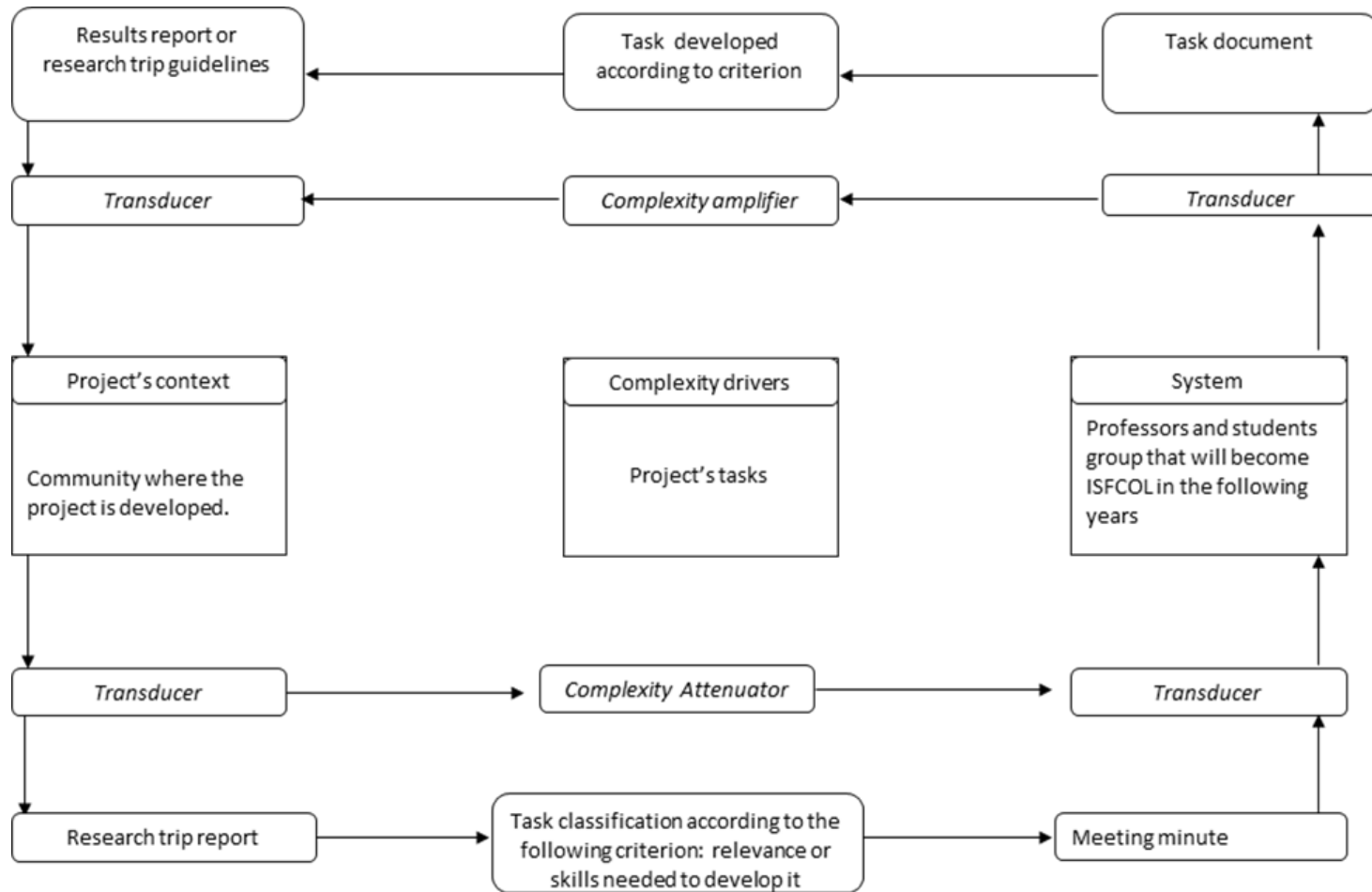
# Organizations with social scope (oss)

- an organization with social order is also related to what is called, social enterprise, which generally is characterized by **not aim to maximize profits** for their investors but face problems of social nature (Yunus, 2010).
- an organization with social order is characterized by a **closed network of relationships with their own identity** (Espejo & Reyes, 2011)
- the birth of these organizations is giving back to the emergence of **an initiative to solve a problem that is affecting the quality of life** of a particular community (Aristizabal, 2012).

# How OSC survives?

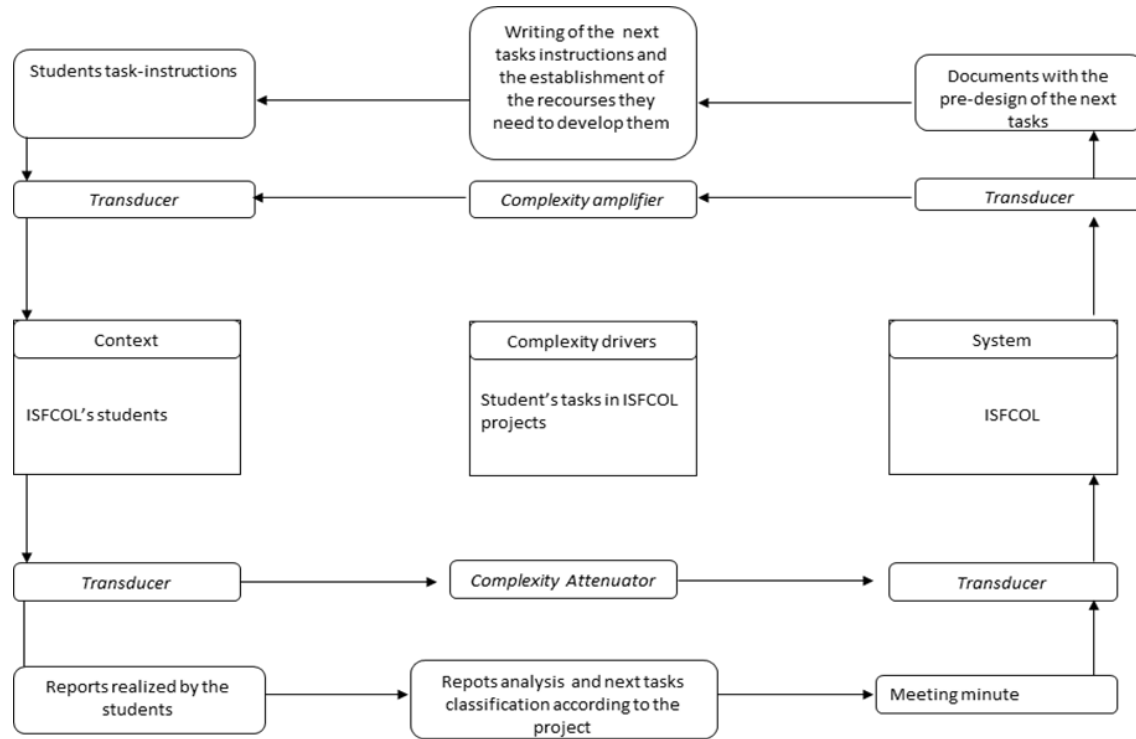
- the birth of these organizations is giving back to the emergence of an **initiative to solve a problem that is affecting the quality of life of a particular community** (Aristizabal, 2012).
- Once organization's legitimacy is shared in its environment, **it receives the critical resources needed for its correct functioning**, according to Greenwood et al (2008), the organizations need to have legitimacy in the field which they operate in order to survive.
- A approach proposes that **the organization is dependent on its environment and some organizational** characteristics favor different organizational shapes which can favor or not the survival in a given environment (Burns & Stalker, 1961; Lawrence & Lorsch, 1974),

# ISFCOL Case study. First Period 2007-2010





# ISFCOL Case study. Second Period 2010-2012



# Discussion and Conclusion

- Since ISF Colombia has created to generate learning processes of engineering in real contexts.
- Initially it was not clear if the complexity was responding to troubleshoot was vulnerable communities or generates processes of active learning engineering.
- As identified throughout the article, has been presenting a construction of group identity. Constructed mechanisms have sought to respond to learning and generate engineering solutions. However the rapid growth and the formation of alliances have created some confusion in the identity of the organization.
- Notwithstanding the foregoing has been successfully built, above all, a scenario of collaboration to address the complexity you want to assume.

# Discussion and Conclusion

- For ISFC given the nature of their social projects and the voluntary participation of many of its members, makes the survival not obey logic of cost-benefit in economic terms but survival that allows the institutions that welcomes, in this case universities that provide the conditions for its operation and Uniminuto /Uniandes
- Variety attenuators have allowed ISFC prioritize and select projects and stakeholders in each of the moments of its life cycle, making more effective control over their results and more targeted use of their resources in selected projects.
- This has the effect of recognition of two aspects: the organization has clear action your interests and produces a clear result with their performances.

# Discussion and Conclusion

- As result of that management, the organizations in the relevant environment of ISFC recognize two aspects: the organization has well defined interests and produce concrete results with its projects.
- As was mentioned in the previous sections, once established the complexity management mechanisms the probability of survival of ISFCOL increased.
- That can be attributed to two main elements: pertinence of its projects, and an appropriated reading of its own relevant environment. About the pertinence, it not only refers to the design and development of relevant and makeable solutions, it refers to the participatory nature of the methodology of the projects. People that participate in the projects is engaged because they feel that can contribute to real solutions, for real persons, on the other hand persons which are the beneficiaries of the projects fell that they are part of the solution.

- <https://www.youtube.com/watch?v=GE7GaXagRns>

# References

- Burns, T. E., & Stalker, G. M. (1961). The management of innovation. University of Illinois at Urbana-Champaign's Academy for Entrepreneurial Leadership Historical Research Reference in Entrepreneurship.
- DiMaggio, P. J., & Powell, W. W. (1983). The iron cage revisited: Institutional isomorphism and collective rationality in organizational fields. *American sociological review*, 147-160.
- Espejo R., Reyes A (2011). *Organizational Systemas, Managing Complexity with the Vaible System Model*
- Fueyo, Q. (2008) *La educación para el desarrollo en la reforma de las titulaciones universitarias. Cuadernos internacionales de tecnología para el desarrollo humano junio 2008.*
- Greenwood, R., Oliver, C., Suddaby, R., & Sahlin-Andersson, K. (Eds.). (2008). *The Sage handbook of organizational institutionalism*. Sage.
- Gini. <http://datos.bancomundial.org/pais/colombia>. Recovered September 2014
- Lawrence, P. R., & Lorsch, J. W. (1967). Differentiation and integration in complex organizations. *Administrative science quarterly*, 1-47.
- Meyer, J. W., & Rowan, B. (1977). Institutionalized organizations: Formal structure as myth and ceremony. *American journal of sociology*, 340-363.
- Mineducación. Distribución de los graduados de educación superior por departamento 2010 6 de mayo 2010 [cited 2010 6 de mayo 2010]; Available from: <http://www.graduadoscolombia.edu.co/html/1732/article-195065.html>.
- Mineducación. Graduados por núcleo básico de conocimiento. 2010 1 de junio 2009 [cited 2010 Junio 10 de 2010]; Available from: [http://www.graduadoscolombia.edu.co:8080/o3portal/viewdesktop.jsp?cmd=open&source=Perfil+Graduados%2FInvestigadores+-+Graduados+por+N%FAcleo+B%E1sico+de+Conocimiento%23\\_public](http://www.graduadoscolombia.edu.co:8080/o3portal/viewdesktop.jsp?cmd=open&source=Perfil+Graduados%2FInvestigadores+-+Graduados+por+N%FAcleo+B%E1sico+de+Conocimiento%23_public).
- Pérez, G., Dimensión espacial de la pobreza en Colombia, in *Documentos de Trabajo Sobre Economía Regional*. 2005, Banco de la República: Cartagena de Indias. p. 54.
- Salancik, G. R., & Pfeffer, J. (1978). A social information processing approach to job attitudes and task design. *Administrative science quarterly*, 224-253.
- Scott, W. R. (1987). *Organizations*. Englewood Cliffs, NJ: Prentice hall.
- Suchman, M. C. (1995). Managing legitimacy: Strategic and institutional approaches. *Academy of management review*, 20(3), 571-610.