



Unione europea
Fondo sociale europeo



The Role of the Knowledge Gatekeeper for Path Development on the Knowledge Periphery: The Case of Ruta N in Medellin, Colombia

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- Theoretical propositions: New Industrial Path Development
- **Evolutionary Economic Geography** (Asheim, Boschma, & Cooke, 2011; Balland, Boschma, Crespo, & Rigby, 2017; Neffke, Henning, & Boschma, 2011; Neffke, Hartog, Boschma, & Henning, 2018).

BACKGROUND

- **Regional Innovation Systems** (Isaksen, Tödtling, & Trippel, 2018; Martin, Aslesen, Grillitsch, & Herstad, 2018; Tödtling & Trippel, 2005).
- **Knowledge Gatekeeper** (Giuliani, 2005; Graf, 2011; Graf & Krüger, 2011; Morrison, 2008) **and Extra-Regional Knowledge** (Grillitsch & Nilsson, 2015; Isaksen, Tödtling, & Trippel, 2018; Martin et al., 2018).

TITLE	BACKGROUND	MOTIVATION	METHODOLOGY	CASE-STUDY	RESULTS	CONCLUSIONS	FUTURE WORK
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MOTIVATION

Moving beyond a firm-centric approach, this article asks what are the strategies that the regional government through Ruta N have implemented to support new industrial path development in Medellin?

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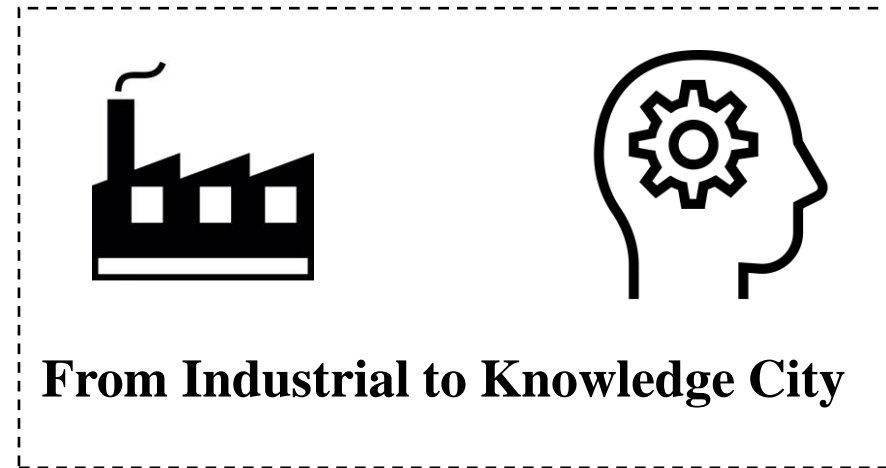
CASE SELECTED



COLOMBIA



REGIONAL INNOVATION AGENCY



TITLE	BACKGROUND	MOTIVATION	METHODOLOGY	CASE-STUDY	RESULTS	CONCLUSIONS	FUTURE WORK
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SINGLE CASE-STUDY:



FOUR SOURCES OF DATA:



51 Semi-Structured Interviews



Secondary Data



Observations



Ruta N's YouTube

ANALYSIS:



Framework



Triangulation



Pattern Recognition

RELIABILITY AND VALIDITY:



Reliable



Internal Validity



Construct Validity



External Validity

TITLE	BACKGROUND	MOTIVATION	METHODOLOGY	CASE-STUDY	RESULTS	CONCLUSIONS	FUTURE WORK
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CONTEXT



**MINING CITY
1826-1904**



**INDUSTRIAL CITY
1904-1981**



**NARCO CITY
1981-2004**



**TOWARDS THE
KNOWLEDGE CITY
2004-?**

TITLE	BACKGROUND	MOTIVATION	METHODOLOGY	CASE-STUDY	RESULTS	CONCLUSIONS	FUTURE WORK
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CONTEXT



**MAYOR SERGIO FAJARDO
(2004-2007)**



**SOCIAL URBANISM
EDUCATION**



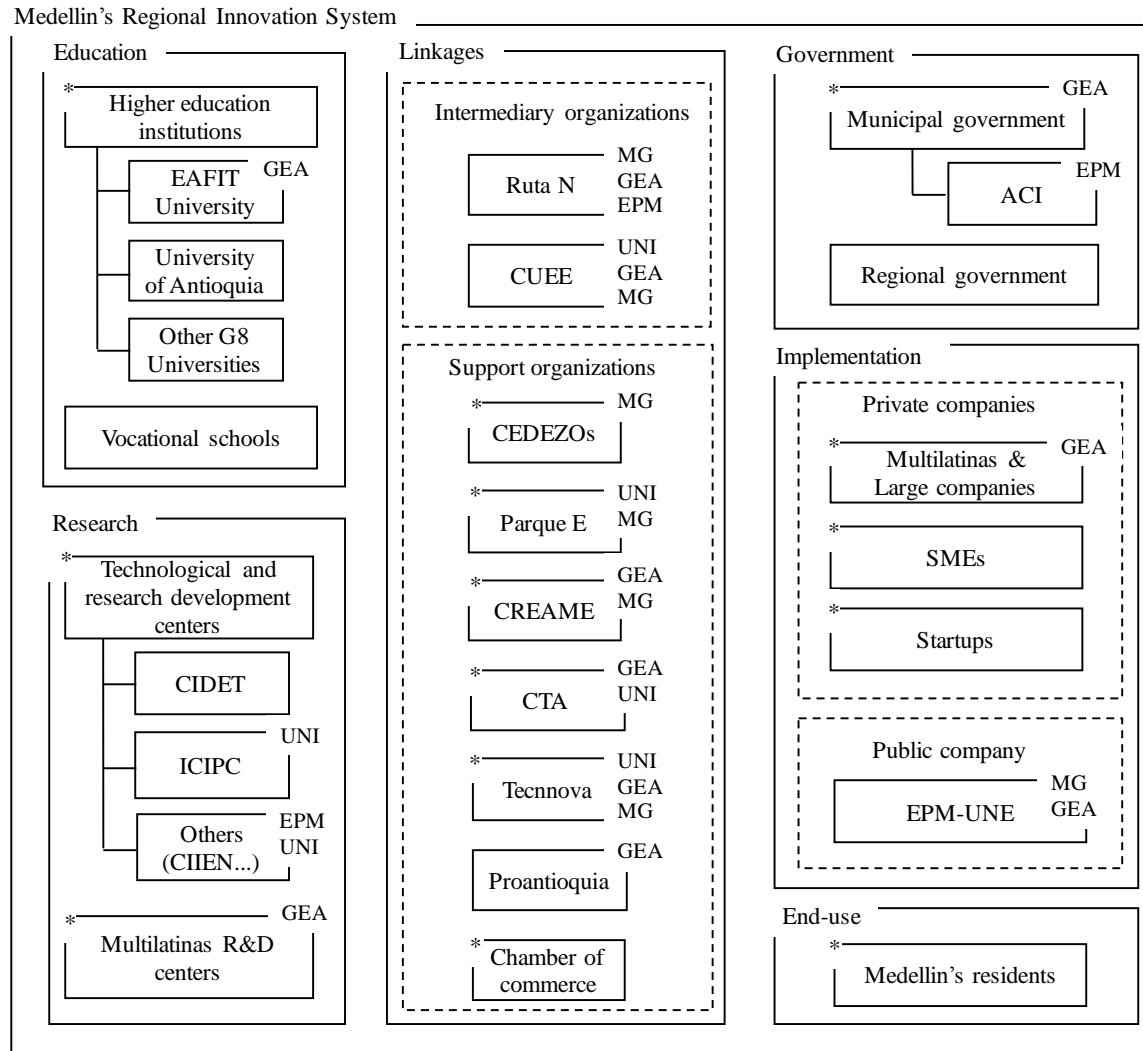
**MAYOR ALONSO SALAZAR
(2008-2011)**



**MEDELLIN IS COMPETITIVE
AND INCLUSIVE**

TITLE	BACKGROUND	MOTIVATION	METHODOLOGY	CASE-STUDY	RESULTS	CONCLUSIONS	FUTURE WORK
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CONTEXT



* The actors that have benefited from Ruta N's programs. Actors influenced or owned by the MG: Municipal Government, GEA: Grupo Empresarial Antioqueño, EPM: Empresas Públicas de Medellín, UNI: Universities.

**GRUPO
EMPRESARIAL
ANTIOQUEÑO
(GEA)**

- **KEIRETSU CONGLOMERATE**
 - **80% of Medellin's GDP**
 - **8% of Colombia GDP**



**NICANOR
RESTREPO
SANTAMARIA**

TITLE	BACKGROUND	MOTIVATION	METHODOLOGY	CASE-STUDY	RESULTS	CONCLUSIONS	FUTURE WORK
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MISSION

“To become the most innovative city in Latin America by 2021” (STI Plan)

TITLE	BACKGROUND	MOTIVATION	METHODOLOGY	CASE-STUDY	RESULTS	CONCLUSIONS	FUTURE WORK
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CONTEXT



GEOGRAPHY



CULTURE



VIOLENCE

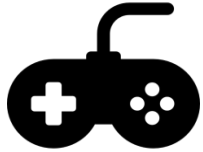


**INDUSTRIAL ELITE
GEA**

TITLE	BACKGROUND	MOTIVATION	METHODOLOGY	CASE-STUDY	RESULTS	CONCLUSIONS	FUTURE WORK
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NEW INDUSTRIAL PATH DEVELOPMENT

PATH CREATION



DIGITAL ANIMATION AND VIDEO GAMES

- Diego Angel



NANOTECHNOLOGY

- EPM-UNE

PATH BRANCHING

**Science, Technology, and Innovation Plan
STI PLAN**



ICT



ENERGY



HEALTH

TITLE

BACKGROUND

MOTIVATION

METHODOLOGY

CASE-STUDY

RESULTS

CONCLUSIONS

FUTURE
WORK

THE ROLE OF THE KNOWLEDGE GATEKEEPER FOR PATH DEVELOPMENT ON THE KNOWLEDGE PERIPHERY

Indicators	Regions	2001	2009	2016	Difference in percentage (2001-2016)
R&D spending as percentage of GDP	Antioquia	0,26	0,38	0,57	119,2
	Bogotá D. C.	0,23	0,32	0,35	52,2
	Valle del Cauca	0,1	0,12	0,15	50,0
	Colombia	0,13	0,19	0,27	107,7
STI spending as percentage of GDP	Antioquia	0,47	0,74	1,24	163,8
	Bogotá D. C.	0,63	0,91	1,05	66,7
	Valle del Cauca	0,41	0,32	0,45	9,8
	Colombia	0,34	0,45	0,71	108,8
Number of local patents registered	Antioquia	6	24	124	1966,7
	Bogotá D. C.	47	63	189	302,1
	Valle del Cauca	8	7	46	475,0
	Colombia	73	126	545	646,6
Number of Trademarks registered	Antioquia	1404	2780	3143	123,9
	Bogotá D. C.	4047	6733	6639	64,0
	Valle del Cauca	883	1398	1397	58,2
	Colombia	16216	22224	27356	68,7

New Industrial Path Development	2007	2009	2011	2013	2015	2017	Change in Percentage (2007-2017)
Path Branching							
ICT	2251	2090	2392	2811	3704	4257	89,12
Energy	884	818	1014	632	847	915	3,51
Health	1173	1254	1502	3082	3910	4215	259,34
Path Creation							
Digital Animation and Video Game*	–	–	–	338	522	616	
Nanotechnology+	–	–	–	28	44	60	

* The digital animation and video game sector includes: software development, video postproduction, graphic design, and audiovisual creation corresponding to ISIC 5820, 5912, 7410, and 9004.

+ Nanotechnology includes the actors participating in the regional innovation initiative in nanotechnology.

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NEW INDUSTRIAL PATH DEVELOPMENT

PATH BRANCHING



ICT



ENERGY



HEALTH

“what Ruta N tries to do is: to observe the world, to determine what the regional innovation system is missing, to find the organizations with the solution, to bring them into the system, and to inject that capacity. The organizations do not come to Medellin to give a conference but have contracts to stay 6 months, 8 months, or a year” (Ruta N, 2015).

TELEMEDICINE – Open University of Catalonia

TITLE

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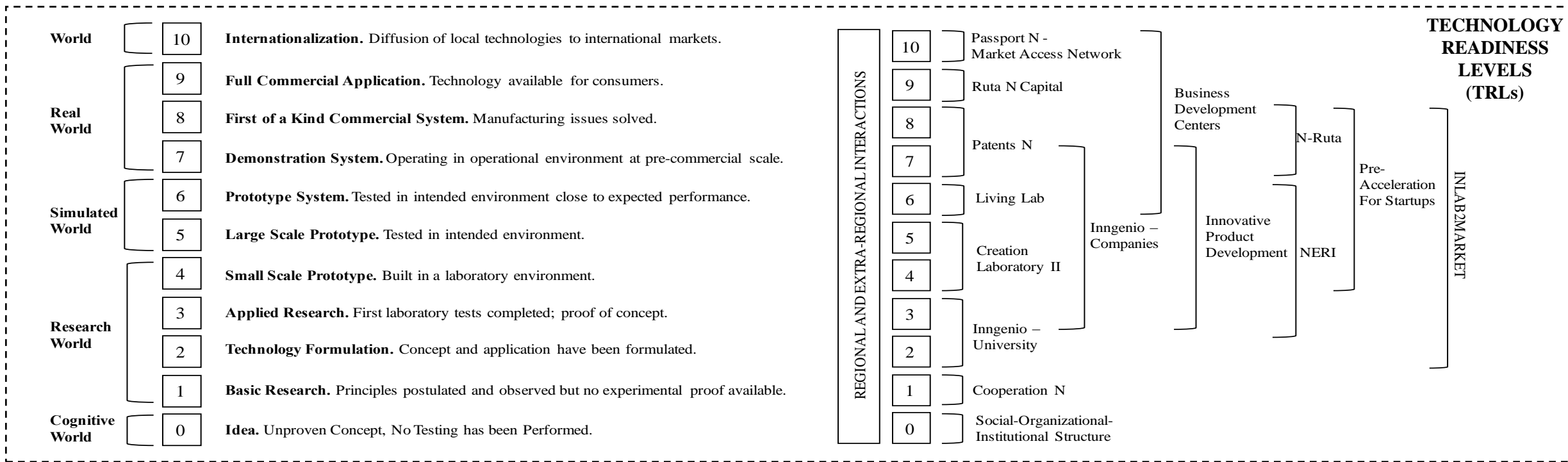
RESULTS

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WORK

NEW INDUSTRIAL PATH DEVELOPMENT

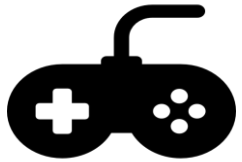
PATH BRANCHING



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NEW INDUSTRIAL PATH DEVELOPMENT

PATH CREATION



DIGITAL ANIMATION AND VIDEO GAMES

- VIVELAB – TRAINING CENTER
- PIPELINE STUDIOS – CANADA
- EVENTS



NANOTECHNOLOGY

- PURDUE UNIVERSITY –
- BIRCK CENTER FOR NANOTECHNOLOGY
- TECNALIA (SPAIN)
- TRAINING - HORIZONTES
- EVENTS

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FUTURE
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PATH CREATION



DIGITAL ANIMATION AND VIDEO GAMES



NANOTECHNOLOGY

HEAVY RELIANCE ON EXTRA-REGIONAL KNOWLEDGE

PATH BRANCHING

Science, Technology, and Innovation Plan

STI PLAN



ICT



ENERGY



HEALTH

EXTRA-REGIONAL KNOWLEDGE TO COMPLEMENT LOCAL KNOWLEDGE AS TO ALLOW RECOMBINATIONS

RUTA N AS A KNOWLEDGE GATEKEEPER TO “TROPICALIZE” KNOWLEDGE

TITLE

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“our [Ruta N] greatest effort was to ensure that the knowledge was relevant to the context of the city. That is, not doing the program in the same way it is done in Austin, Texas. That what we did with IC², we were super demanding with them and they were quite surprised, telling us, they always were transferring the methodology in the same way. We told them let’s check if it has meaning for the conditions of Medellin, Colombia, and Latin America. We were like partners, building together the program” (Juan Pablo Ortega, personal communication, July 7, 2017).

TITLE

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CASE-STUDY

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FUTURE
WORK

Conclusions

- From the 1970s to 2000s, Medellin has been isolated from global knowledge flows contributing to the lock-in of the industrial sector.
- The institutional proximity between the public-private sectors led to the creation of the regional innovation agency, Ruta N.
- Ruta N, which has the mission to facilitate the emergence of new industrial paths development, is aligned with the GEA’s interest to move towards more knowledge-based activities.
- Ruta N has supported the new industrial path development through working as a knowledge gatekeeper helping the ‘tropicalization’ of extra-regional knowledge in order to facilitate its absorption into the RIS.
- For path branching, Ruta N has relied on identifying the extra-regional knowledge to recombine with regional capabilities while for path creation, Ruta N has heavily relied on extra-regional knowledge to build regional capabilities. However, path creation was not as successful as path branching.
- Regions in the knowledge periphery can benefit from a public knowledge gatekeeper since extra-regional knowledge is directly transferred into the RIS and not leaked.

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Future Work

Future work should empirically investigate the concept of regions in the knowledge core and on the knowledge periphery to better recommend regional innovation policies to regions in the global South.

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THANK YOU FOR YOUR ATTENTION!

If you have any question about the paper, please do not hesitate to contact the author:
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