

Entrepreneurial Ecosystems

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Seminar Ruhr-Universität Bochum

8 June 2020



Utrecht University

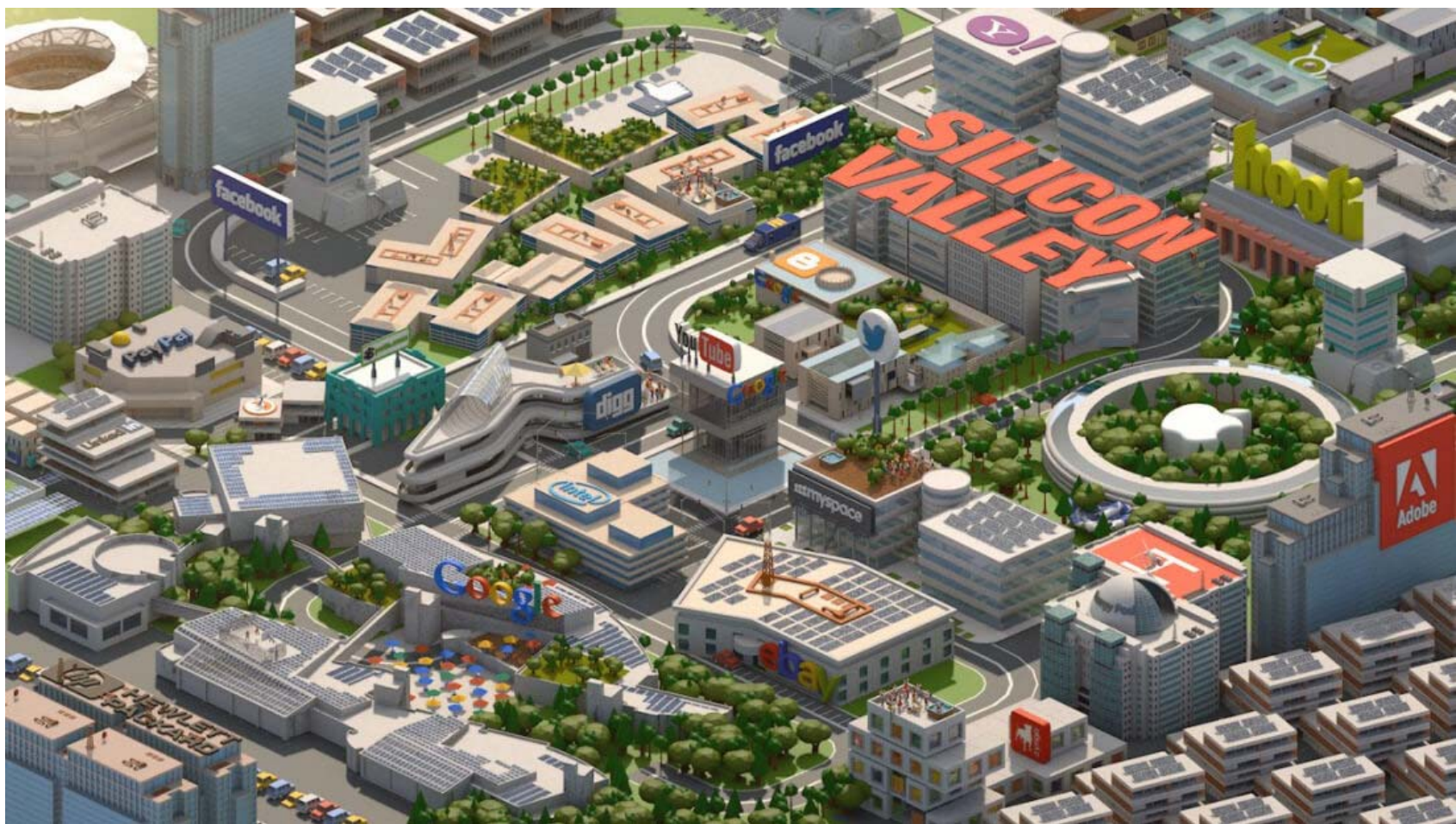
CENTRE FOR
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Utrecht University

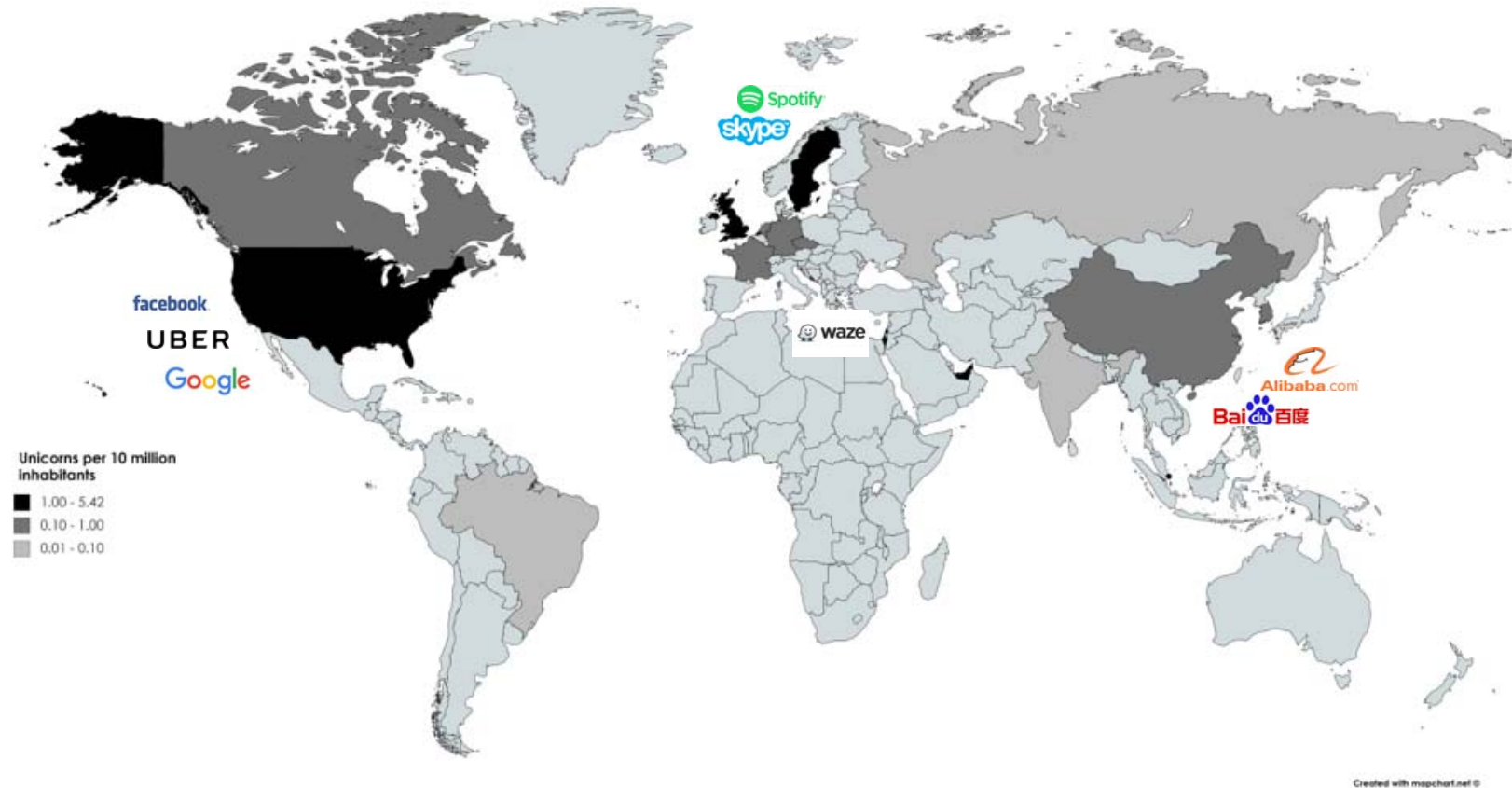
School of Economics





<https://www.businessinsider.nl/silicon-valley-history-technology-industry-animated-timeline-video-2017-5/?international=true&r=US>

Unicorns around the globe



Premier league: US (100), UK, Sweden, Singapore, Israel, UAE

Second league: **China (37)**, Germany, South-Korea, Canada, France, Netherlands, Czech Republic



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When considering the secret sauce of a thriving startup community some might point to angel and venture capital arguing that businesses can't scale without money. Others focus on the need for a university to provide the talent that creates and runs new ventures. Still others suggest that the key is a favorable regulatory and tax environment for new business creation. And the list could go on. No one tool, institution, or policy can make or break a community.

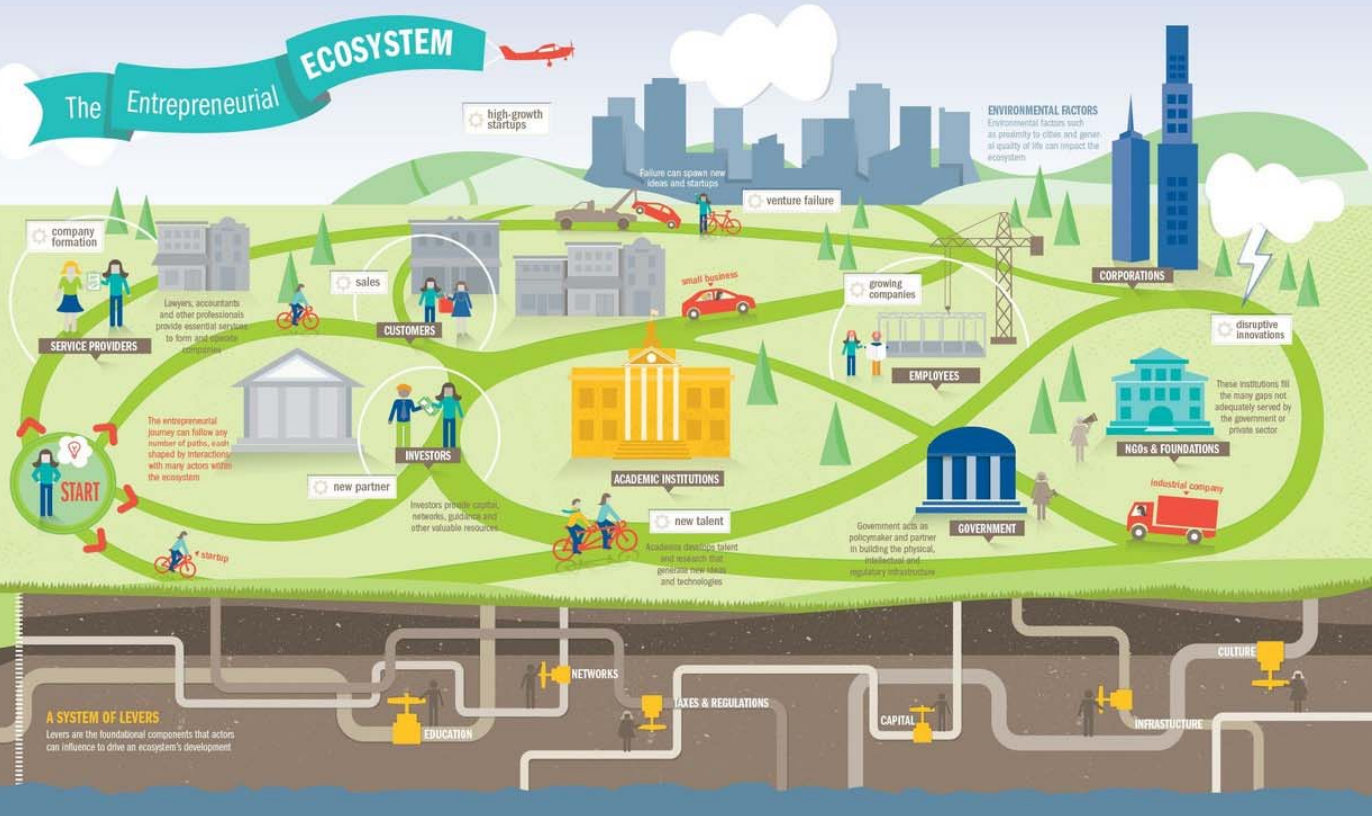
Taking a more holistic view, it is the full entrepreneurial ecosystem that matters most.

Capital is critical but no more so than education or culture, for example. It's when the confluence of the components in the adjacent graphic is achieved that places like Silicon Valley or Route 128 flourish. While the key actors and levers for dynamic entrepreneurial communities are generally consistent, each has its own distinctive history and resources that will determine the best path to a self-sustaining ecosystem.

The ecosystem is composed of



The Entrepreneurial ECOSYSTEM



Entrepreneurial Ecosystem Approach

OECD meeting 2013:

- Is still in its **infancy**
- Led by **practitioners**
 - Policy lit > academic lit
- And lacks causal depth (**tautological**)
 - Laundry lists, succes = succes
- May even be **old wine in new bottles**

But...



Entrepreneurial Ecosystems

Reflects three shifts:

Societal: from Managed Economy to Entrepreneurial Economy
(Thurik, Stam & Audretsch 2013)

Policy: from the quantity of entrepreneurship to the quality of
entrepreneurship (Stam et al 2012)

Scientific: from equilibrium economics to complexity
economics (Beinhocker 2007)

...contextual approaches to entrepreneurship (Stam 2010)

...ecological approaches to business strategy (Adner 2012)



Entrepreneurial Ecosystem Approach

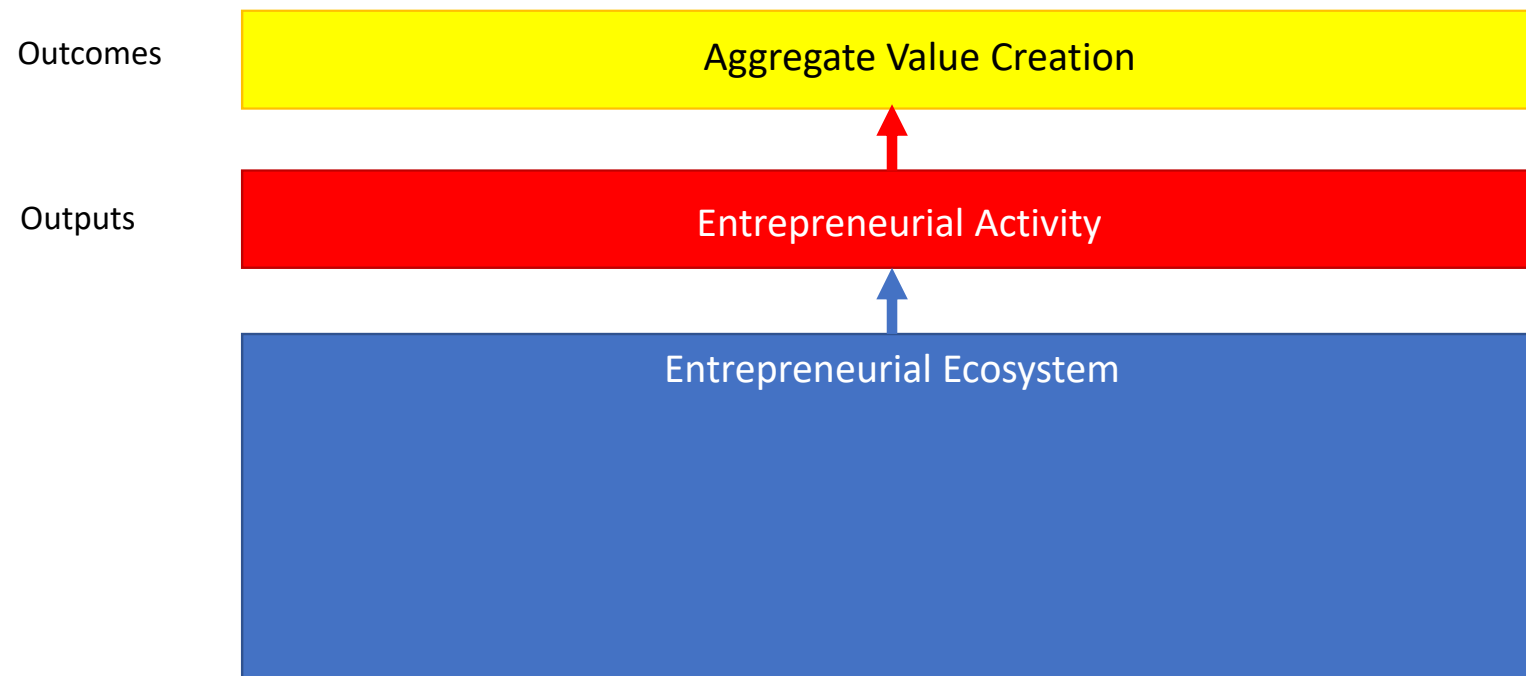
1. Has the promise of **synthesizing** prior academic work on entrepreneurship & regional development, and...
2. Provides a new perspective on the role of the different **stakeholders** involved in the ecosystem, and...
3. Might provide a more **systemic** view on how regions evolve, and the key role of ambitious entrepreneurship in this.



Entrepreneurial Ecosystem

- a set of interdependent actors and factors governed in such a way that they enable productive entrepreneurship within a particular territory (cf. Stam 2015; Stam & Spigel 2018)



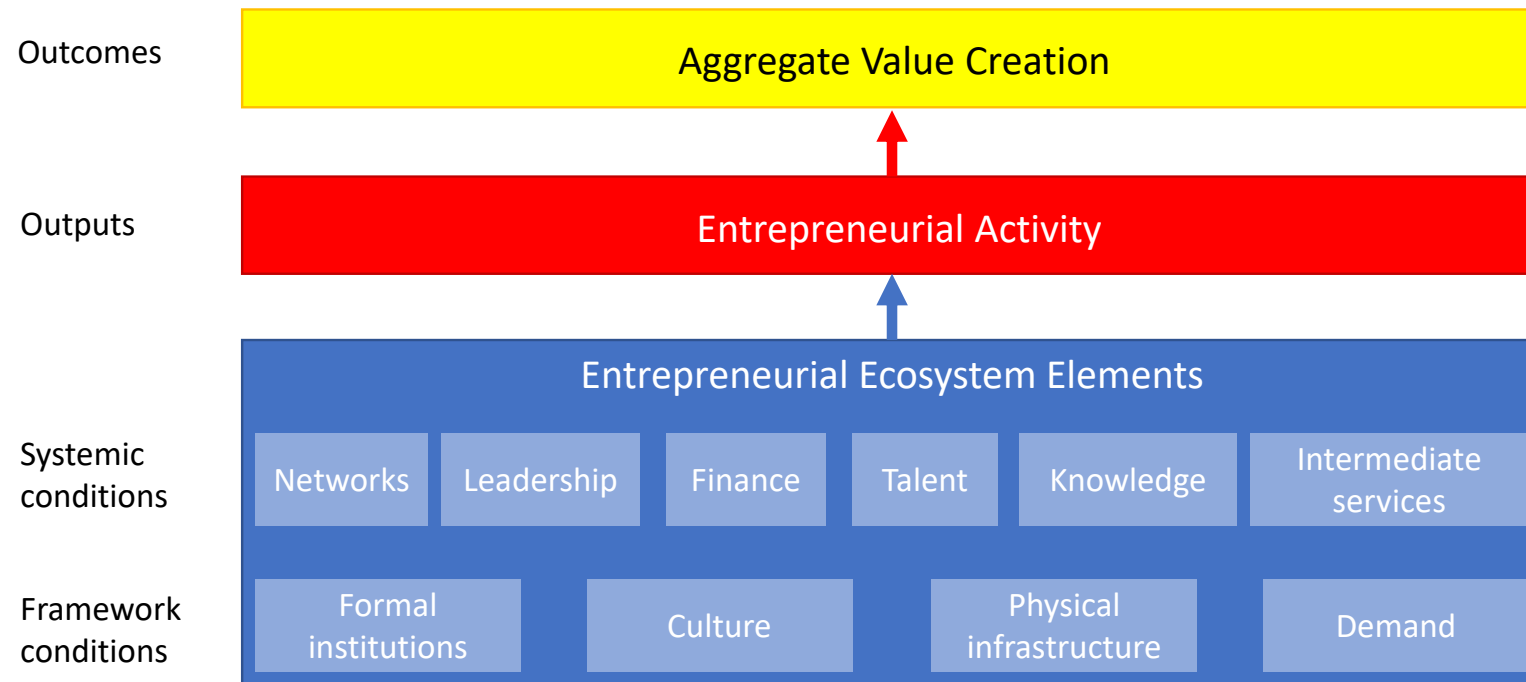


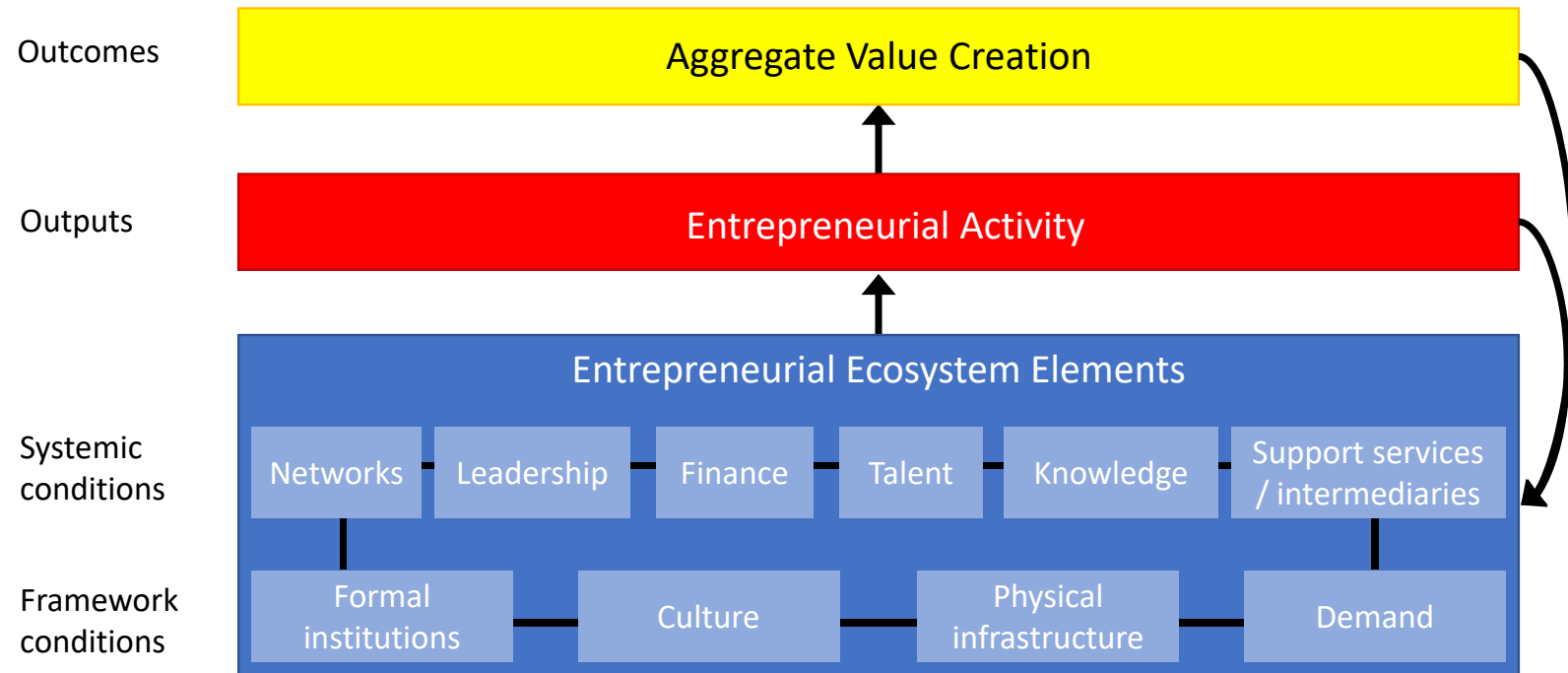
Entrepreneurship and Regional Development: *academic evidence base*

- Talent
- Knowledge
- Capital
- Intermediate services
- Networks

Fundamental causes of long term growth:

- Institutions (formal, informal)
- Physical infrastructure
- Effective demand





*Analysing the
Entrepreneurial Ecosystem
and its effects*



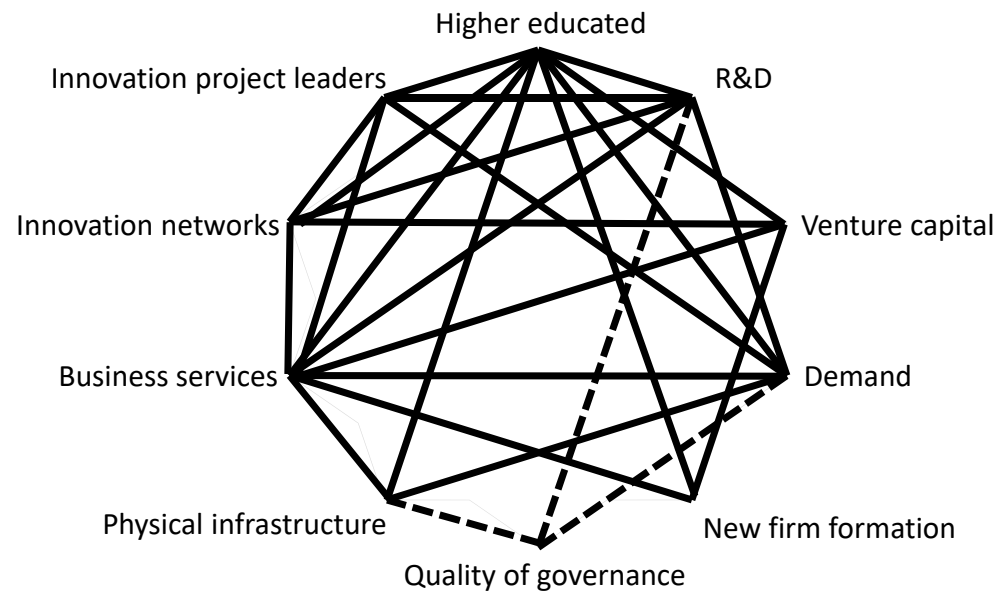
Necessary steps

- How to measure EE, outputs, outcomes?
- How to trace effects?

Measuring Entrepreneurial Ecosystem Elements

| Elements | Description | Empirical indicators | Data sources |
|--------------------------|--|--|---|
| Formal institutions | The rules of the game in society, in particular the quality of government. | Four components: corruption, rule of law, government effectiveness and voice & accountability. | Quality of Government Survey (Regional Competitiveness Index - RCI) |
| Entrepreneurship culture | The degree to which entrepreneurship is valued in a region. | New firms registered per 1000 inhabitants | CBS (Statistics Netherlands) |
| Physical infrastructure | Physical infrastructure and the position of a region | Three components: accessibility via road, accessibility via railroad, accessibility via airports (number of passenger flights within 90 minutes' drive) | RCI |
| Demand | Potential market demand | Three components: purchasing power per capita, regional product, total human population | RCI |
| Networks | The connectedness of businesses for new value creation | Percentage of firms in the business population that collaborate for innovation | Community Innovation Survey |
| Leadership | Leadership that provides guidance for and direction of collective action | Leadership is measured with the prevalence of innovation project leaders per 1000 businesses, derived from a database with information on all the innovation projects in the Netherlands that received (Dutch or European) public subsidies in the period 2010-2013. The geographical origin of these project leaders is established by taking the province of the main applicant or principal firm. | Birch Consultants (see Stam et al. 2016) |
| Talent | The prevalence of individuals with high levels of human capital | Percentage of higher-educated in the labour population | CBS |
| Finance | The supply and accessibility of finance for new and small firms | The amount of Venture Capital investments per 10,000 inhabitants | NVP |
| New knowledge | Investments in new knowledge | Percentage of gross domestic product invested in R&D (by public and private organizations) | CBS |
| Intermediate services | The supply and accessibility of intermediate business services | Percentage of business service firms in the business population | CBS |

Entrepreneurial Ecosystem: Web of Interdependencies (NL data; correlations >0.6)



PCA: one dimension covering all elements, except *Quality of governance*

Index building

Quality of the Entrepreneurial Ecosystem

$$P = [y_{ij}] \rightarrow I = [I_i]$$

P: is a matrix of the dataset containing n x k elements

n: is the number of units (country, region, etc.)

k: is the number of variables

y_{ij} : is the observed value of unit i with respect to feature j

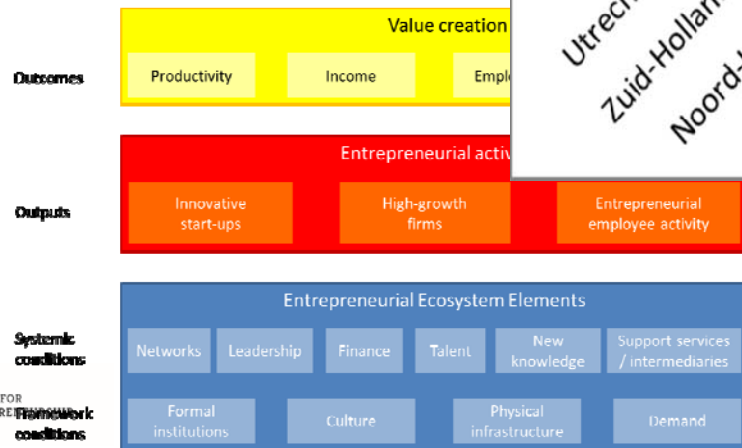
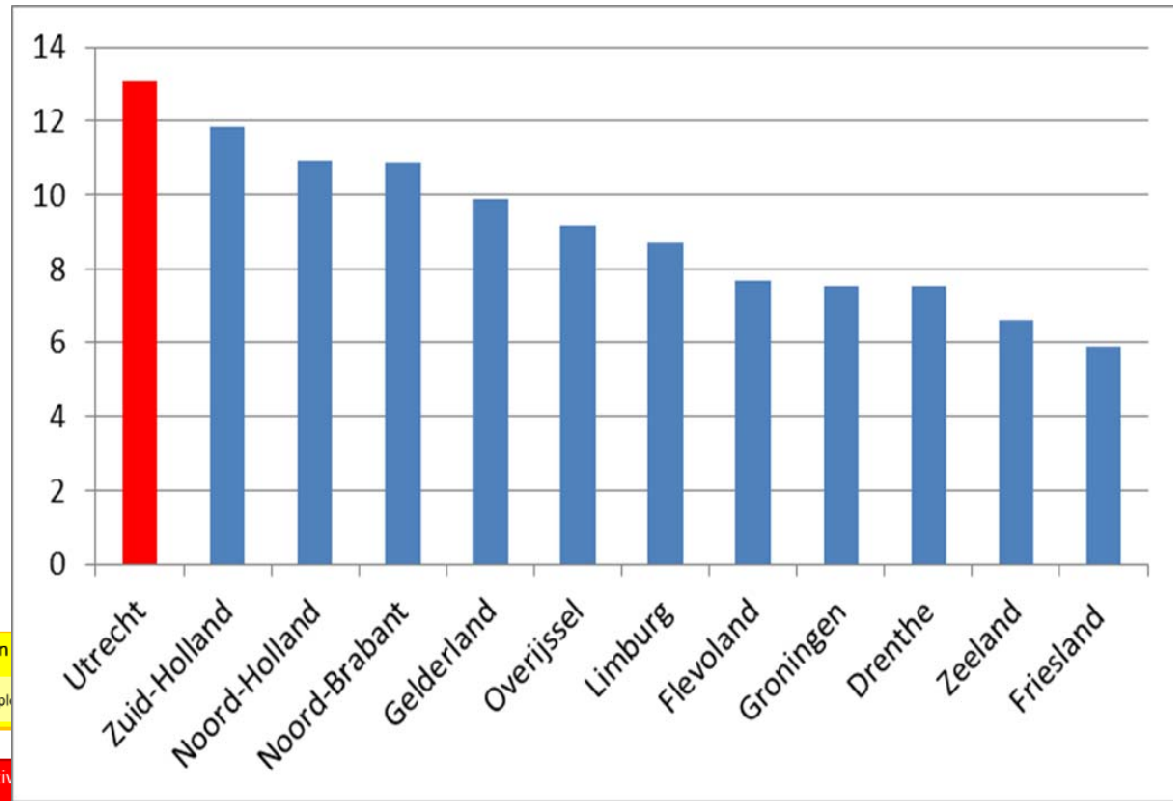
I_i : is the index associated to the ith unit ($i = 1, 2, \dots, n$)

$$I_i = \sum [E_{ki}]$$

I_i : is the index value of unit i, computed as the sum of the normalized values of each element E_{ki}

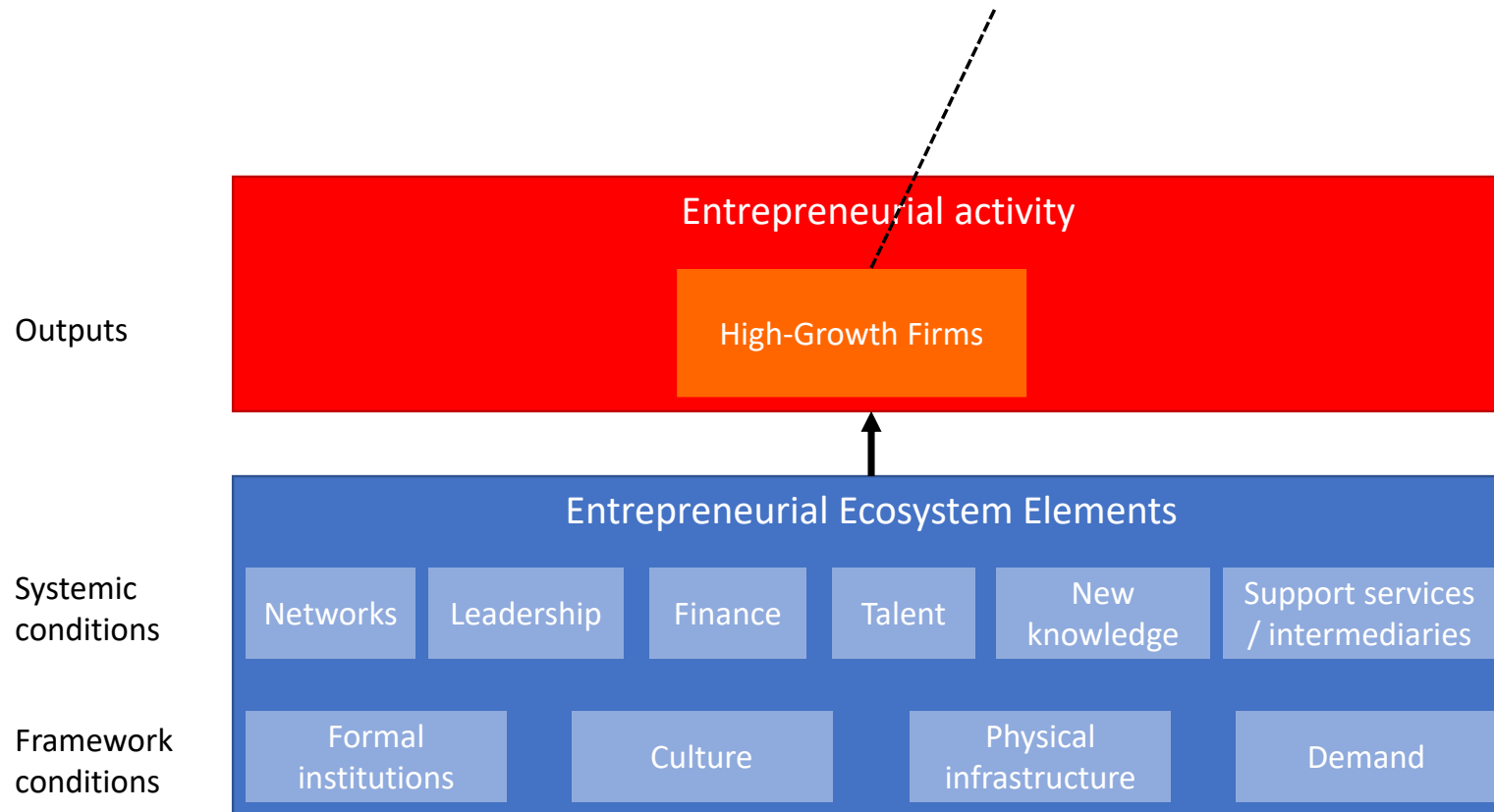
E_{ki} : is the normalized value of element k, of unit i

Entrepreneurial Ecosystem Index NL regions, 2015

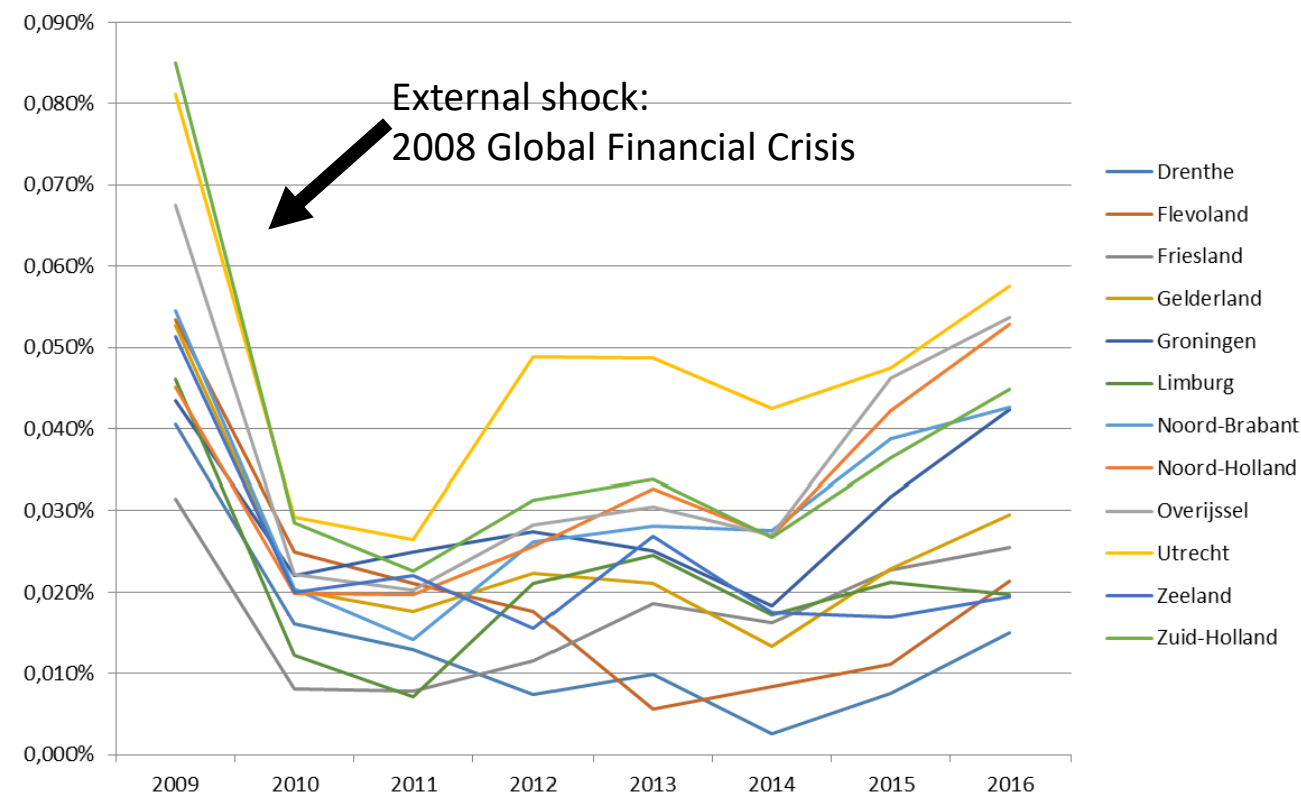


$$EE \text{ index} = E_1 + E_2 + \dots + E_n$$

Independent firms that have grown with more than 20% in turnover on an annual basis, over the last 3 years (OECD definition)



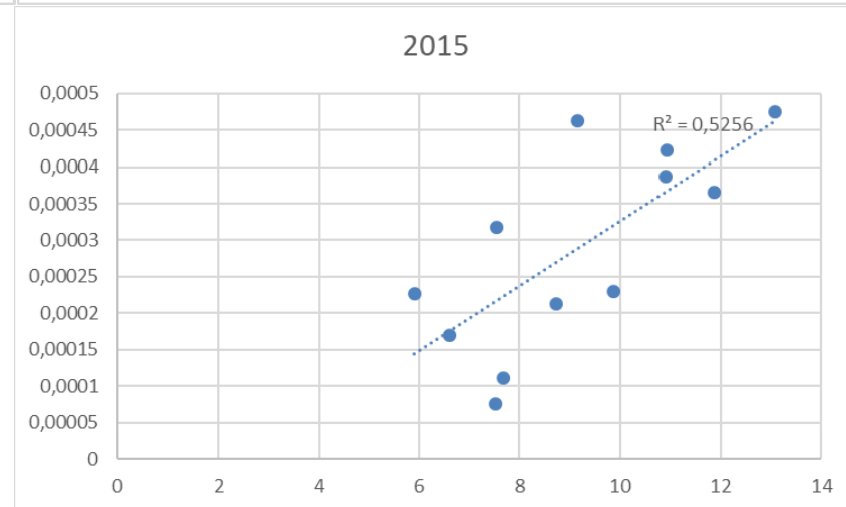
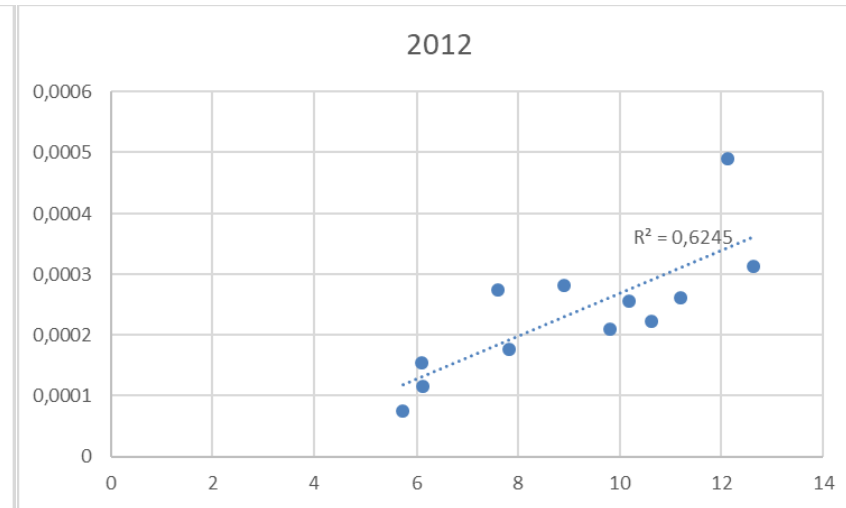
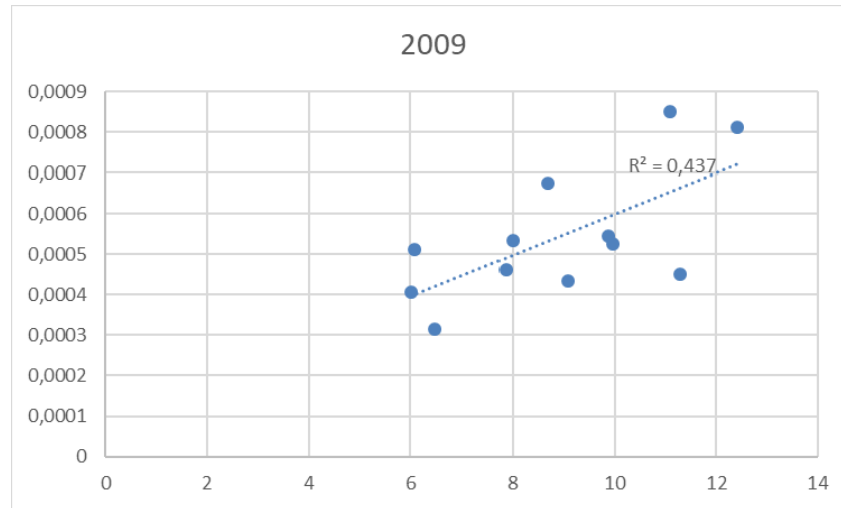
Share of High-Growth Firms, NL regions 2009-2016



How does the heterogeneity in entrepreneurial output relate to the quality of entrepreneurial ecosystems?



Entrepreneurial Ecosystem Index -> Entrepreneurial Output

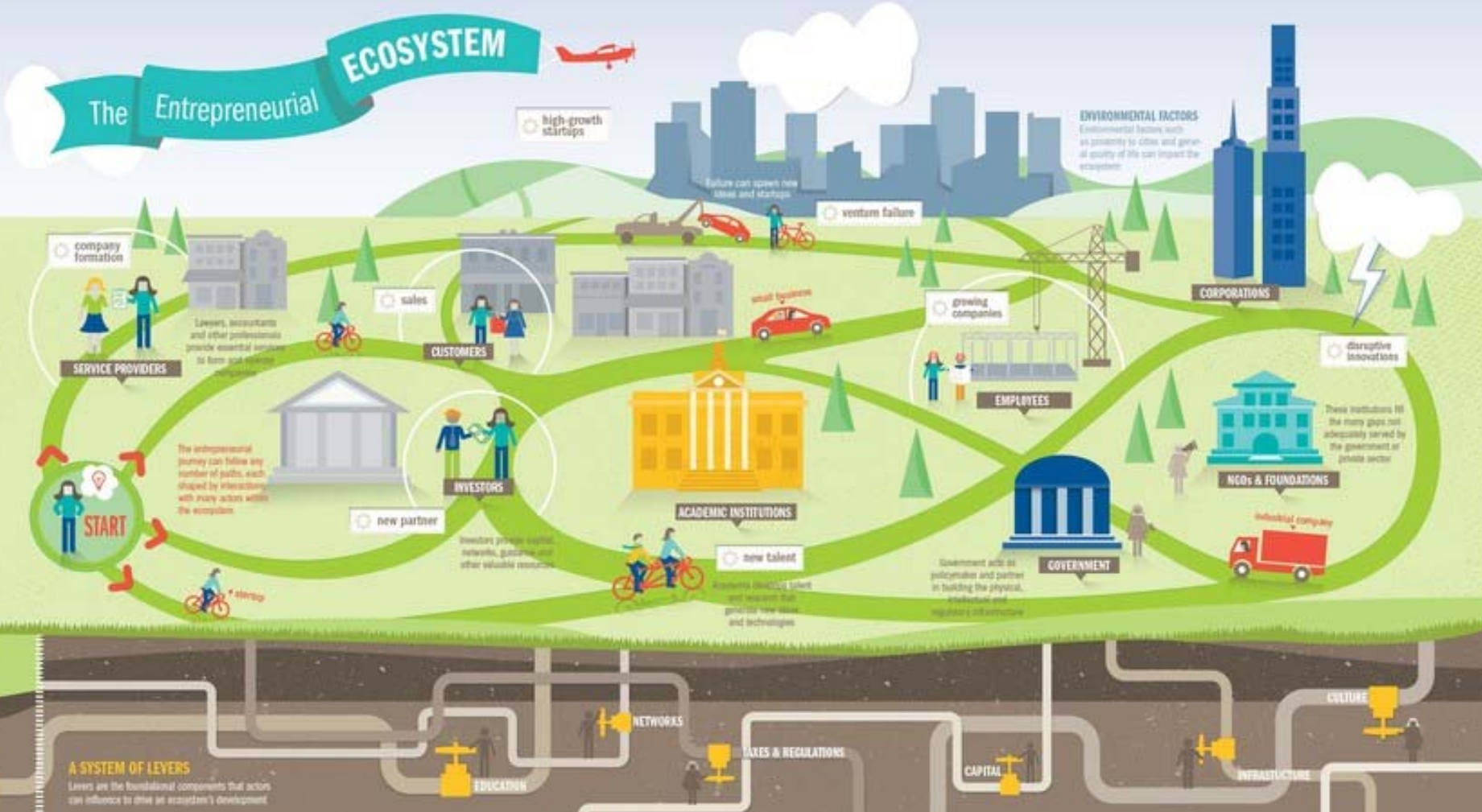


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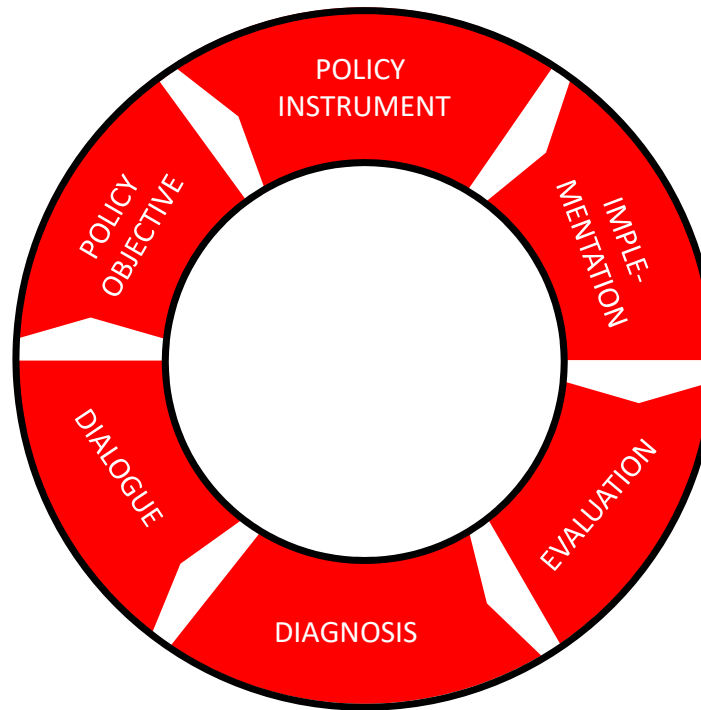
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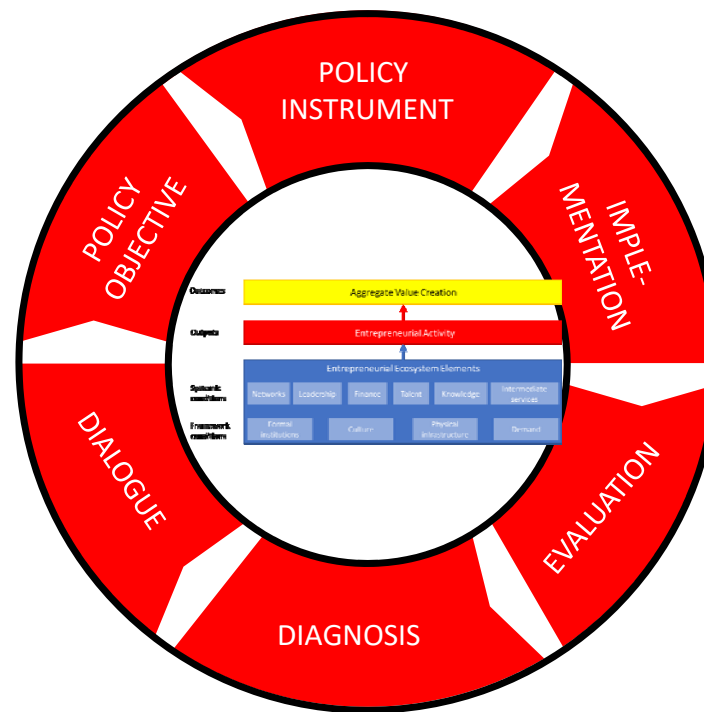
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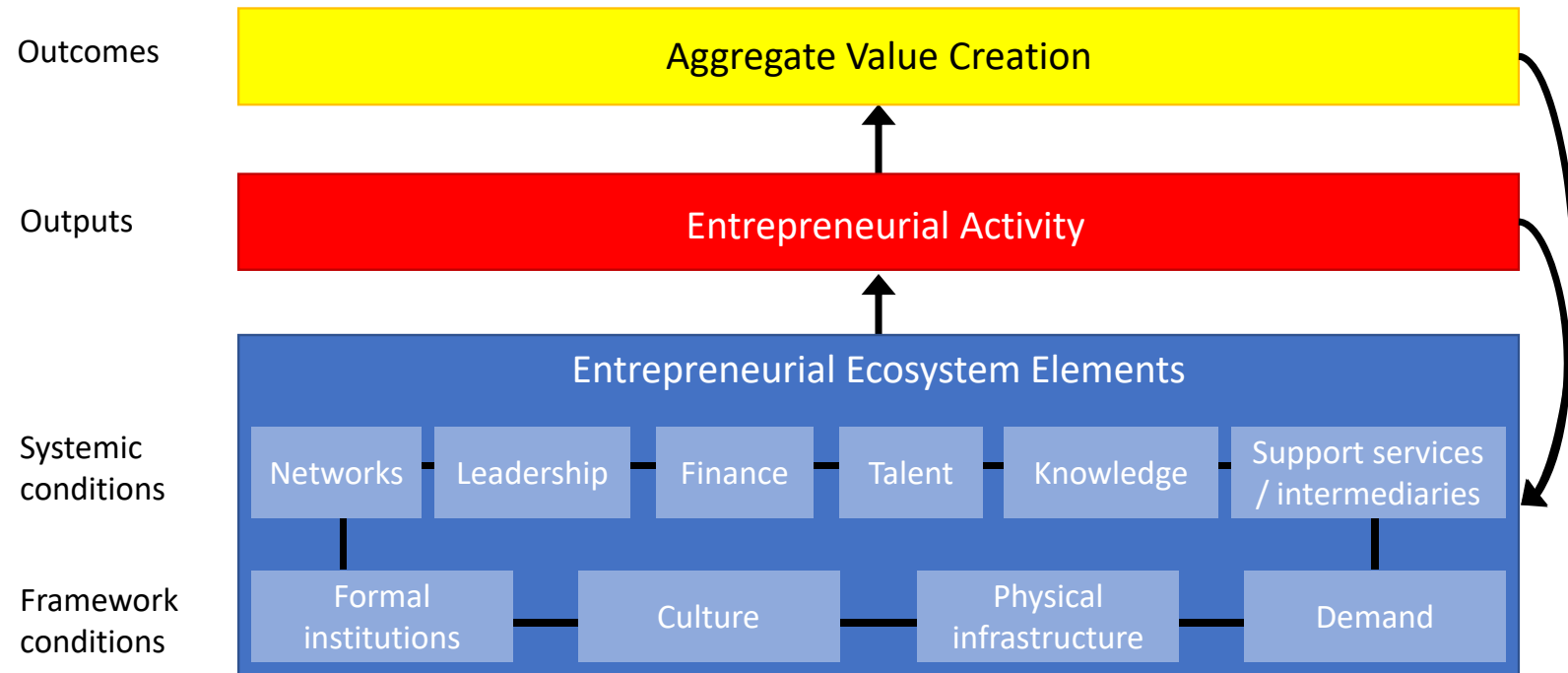
Policy Process



Policy Process



https://www.youtube.com/watch?v=5KubtzRdBdM&list=PLYMwP1PudIuvMs42mHn1g5xnY7Y_0gtSk&index=4&t=5s



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