

Accelerating Innovation Clusters: the shift to pentagram



Christian Rangen

Working with active cluster programs or projects in:



- Norway
 - Canada
 - United States
 - Finland
 - Costa Rica
 - Portugal
 - Spain
 - Germany
 - Italy
 - Costa Rica
 - Mexico
 - Oman
 - India
-
- Worked with 150+ clusters around the world
 - Developed strategy programs and leadership development programs for 1000+ cluster leaders, both on-line and in-person

RECENT PUBLICATIONS



2017



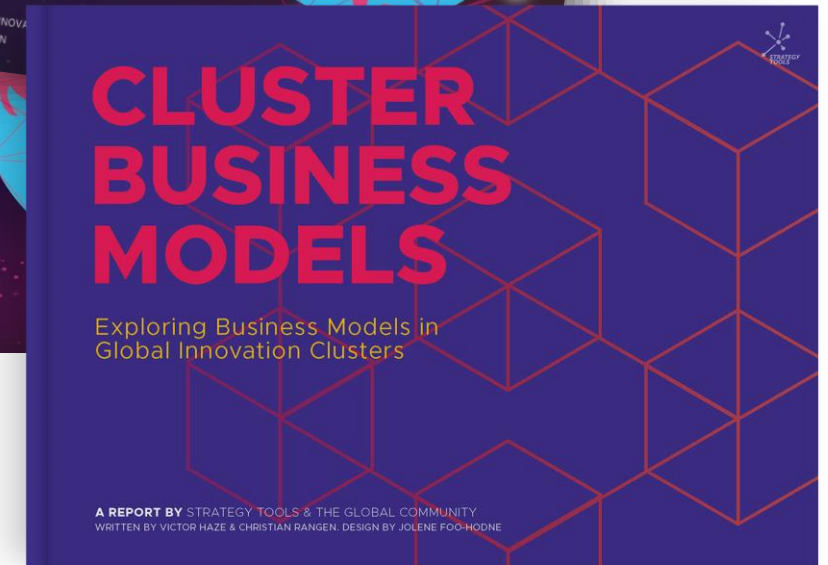
2018



2019



2021



RECENT PUBLICATIONS



2017



2018



2019



2021



250+ Clusters



50+ Countries



THE CLUSTER ACCELERATOR PROGRAM

CLUSTER/ECOSYSTEM: **NCE HARTIME CLEAN TECH**

SECTOR:

TAGLINE:

CURRENT STRENGTHS

- HIGH LEVEL OF TRUST
- LIGHT HOUSE PROJECT (URBAN WATER SHUTTLE)
- SOME INT. COOPERAT. (US, SWEDEN)
- SOLID BASE OF CORE MEMBERS (50/100)
- IMPACT

CURRENT CHALLENGES

- LACK OF ENTREPRENEUR SPIRIT + MINDSET
- BUSINESS MODELS FOR GREEN SOLUTIONS
- PRIVATE CAPITAL/INVEST IN
- CONVINCE THE CORE PARTNERS OF THE VALUE

CLUSTER STATUS 2019
Describe your current cluster

30% FROM THE ADM.
DEU FUNDING

CLUSTER BUSINESS MODEL

CLUSTER BUSINESS MODEL

CLUSTER BUSINESS MODEL

THE DREAM
CLUSTER VISION 2030
Write your future story

KEY STRATEGIC INITIATIVES

- 1.
- 2.
- 3.

Medium-term 2023

KEY STRATEGIC INITIATIVES

- 1.
- 2.
- 3.

Long-term 2025+

INDUSTRY SHIFTS & TRENDS

-
-
-
-
-

CLUSTERS OF CHANGE

THE DREAM TEAM

-
-
-
-
-

CLUST...
What do...
Idea Develop.
TER...
For new
os.
ees, Solve,
LLS
p.
and try again
STAND
NEEDS
EXISTING
of Change
- Understand
Timing
Effectively

THE SHIFT

Globally

7000

Innovation Clusters





OCEAN
AUTONOMY
CLUSTER



ÍSLENSKI
FERÐAKLASINN
Iceland Tourism Cluster



QUEENSLAND
ROBOTICS



Queensland Robotics Cluster

Developing Australia's robotics industry

Queensland, Australia

Cluster CEO: Andrew Scott



Maritime Blue

Developing Washington State's ocean economy.

Seattle, Wa, USA

Cluster CEO: Joshua Berger



Bloom: Barbados Cleantech Cluster

Developing Barbados' sustainable energy and climate technology opportunities.

Bridgetown, Barbados,

Cluster CEO: Jari Aaltonen



Energy Cluster Denmark

Making Denmark a green leading nation for innovative and global energy solutions.

Esbjerg, Denmark

Cluster CEO: Glenda Napier



ÍSLENSKI
FERÐAKLASINN
Iceland Tourism Cluster

Iceland Tourism Cluster

Developing Iceland's tourism industry.

Reykjavik, Iceland

Cluster CEO: Ásta Kristín Sigurjónsdóttir



Ocean Autonomy Cluster

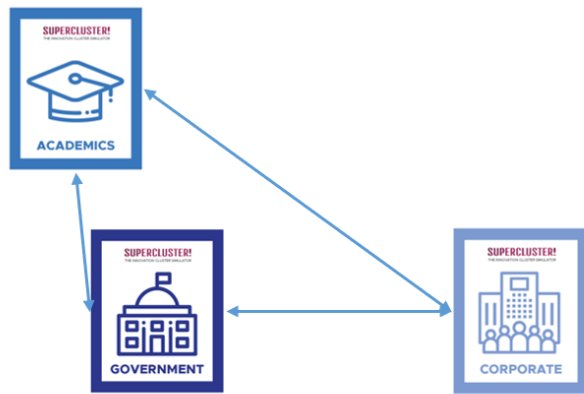
Developing Norway into the leading global country in ocean autonomy solutions.

Trondheim, Norway

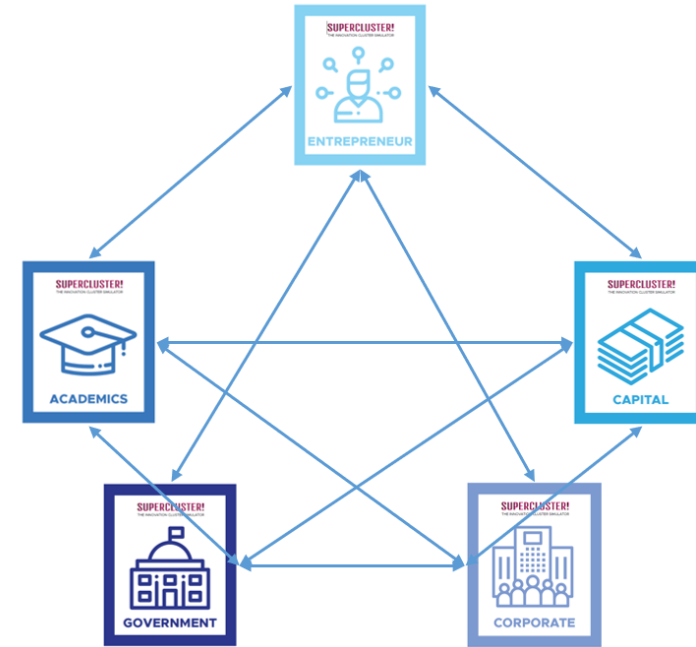
Cluster CEO: Frode Halvorsen



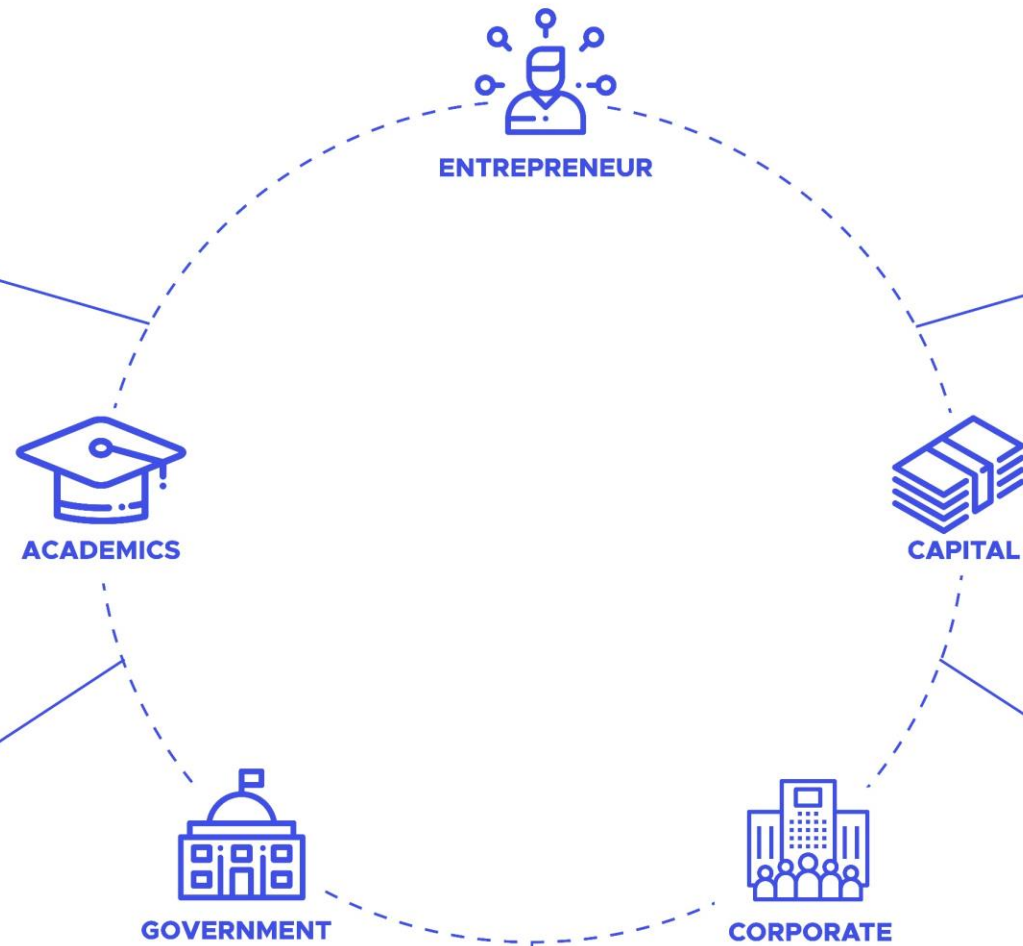
FROM TRIPLE HELIX.....



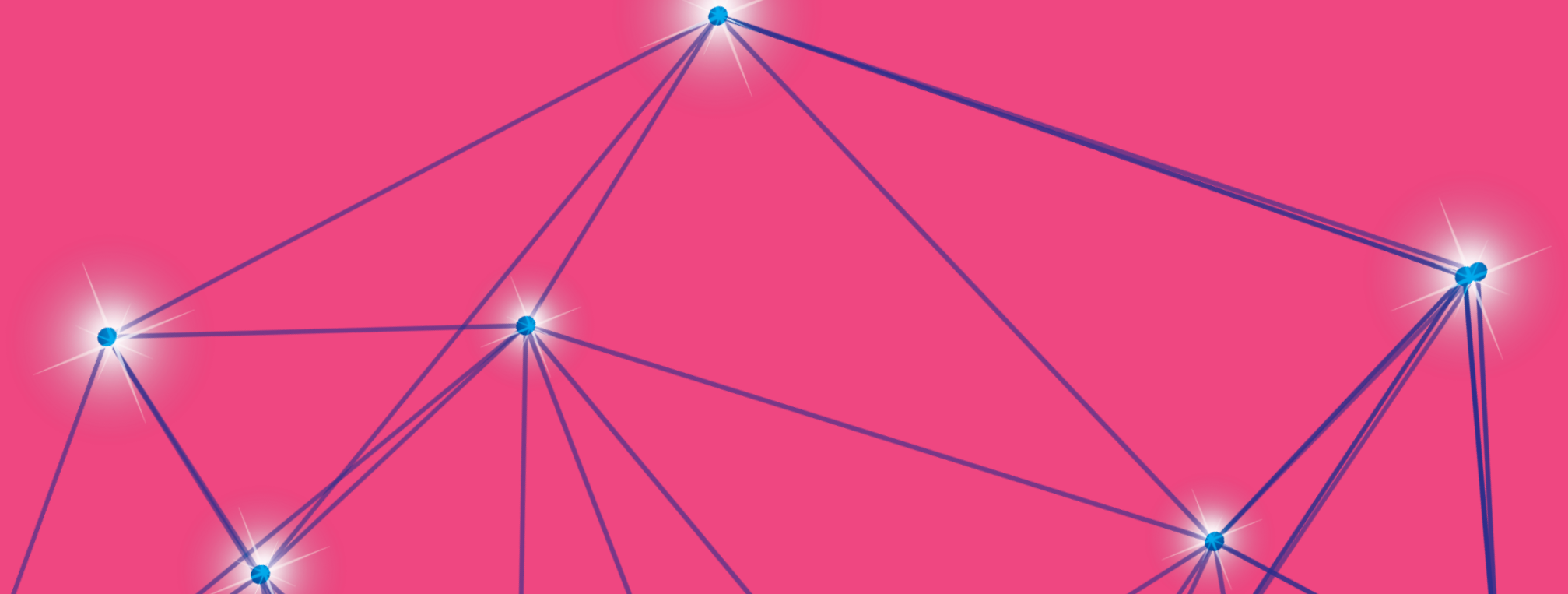
From Triple Helix
1990's – 2010's



Pentagon
2010's –



CLUSTER CONFIGURATION



HOW ARE CLUSTERS CONFIGURED?

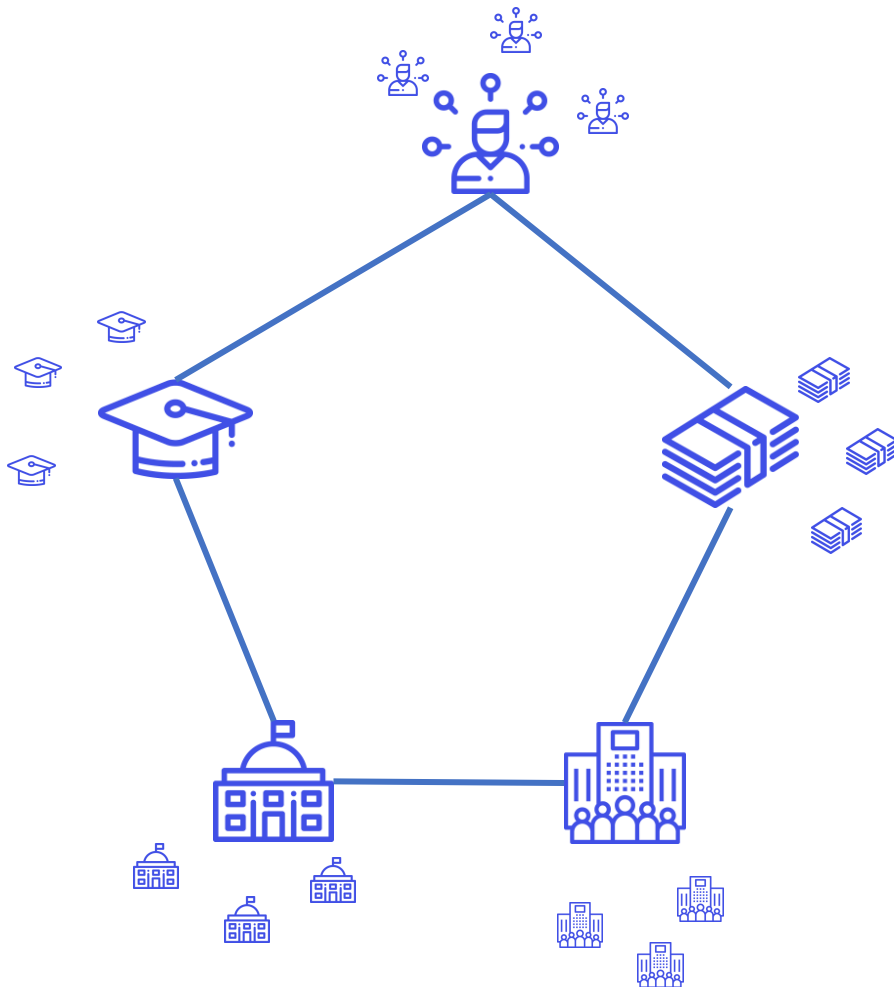


HOW ARE CLUSTERS CONFIGURED?

A cluster configuration, or make up of membership types, will fundamentally shape the cluster and cluster strategy.

In our research, we find multiple clusters being “stuck in their bubble”, where they recruit members from their own group and their own personal and professional networks. This leads to clusters getting member lock-in, effectively recruiting more of the same kind of members.

In our work, we find eight distinct different configuration. A number of other configuration is likely to exist, but was not found in our work.



- ☐ Small Industry Network
- ☐ Triple Helix
- ☐ Research Led
- ☐ Industry Led
- ☐ Entrepreneurial cluster
- ☐ Emerging Cluster
- ☐ Growth Cluster
- ☐ Supercluster

We believe it is crucial for clusters to map, analyze and review their configuration as a part of their strategy and evolution.

CLUSTER CONFIGURATION – LEGEND



CORPORATE MEMBERS

Can be a company, any size. Usually defined as “well established” company with ongoing business. One icon is one legal entity. One company may have 1000’s of employees, and multiple employees involved in various activities in the cluster.



ENTREPRENEURSHIP MEMBERS

Can be a startup, scale up or growth company. Can also include accelerators, incubators, venture builder or other supporting bodies to accelerate entrepreneurship. One icon is one legal entity.



ACADEMIC MEMBERS

Can be a university, business school, research institute, private research organizations, research foundation. Will often include cross-border, international research partnerships. One icon is one legal entity.



GOVERNMENT MEMBERS

Policymakers, local governments, business development agencies, national research council, regulators, innovation agencies, the list of active government members is usually a long one. One icon is one legal entity.



CAPITAL MEMBERS

Private investors, ranging from business angels, corporate venture, venture funds, sovereign wealth funds and the cluster’s own venture funds. One icon is one legal entity.



SMALL INDUSTRY NETWORK

SMALL INDUSTRY NETWORK

Many innovation clusters start out as small industry networks. These tend to be very local by design and built around pre-existing supply chains or supplier-customer relationships.

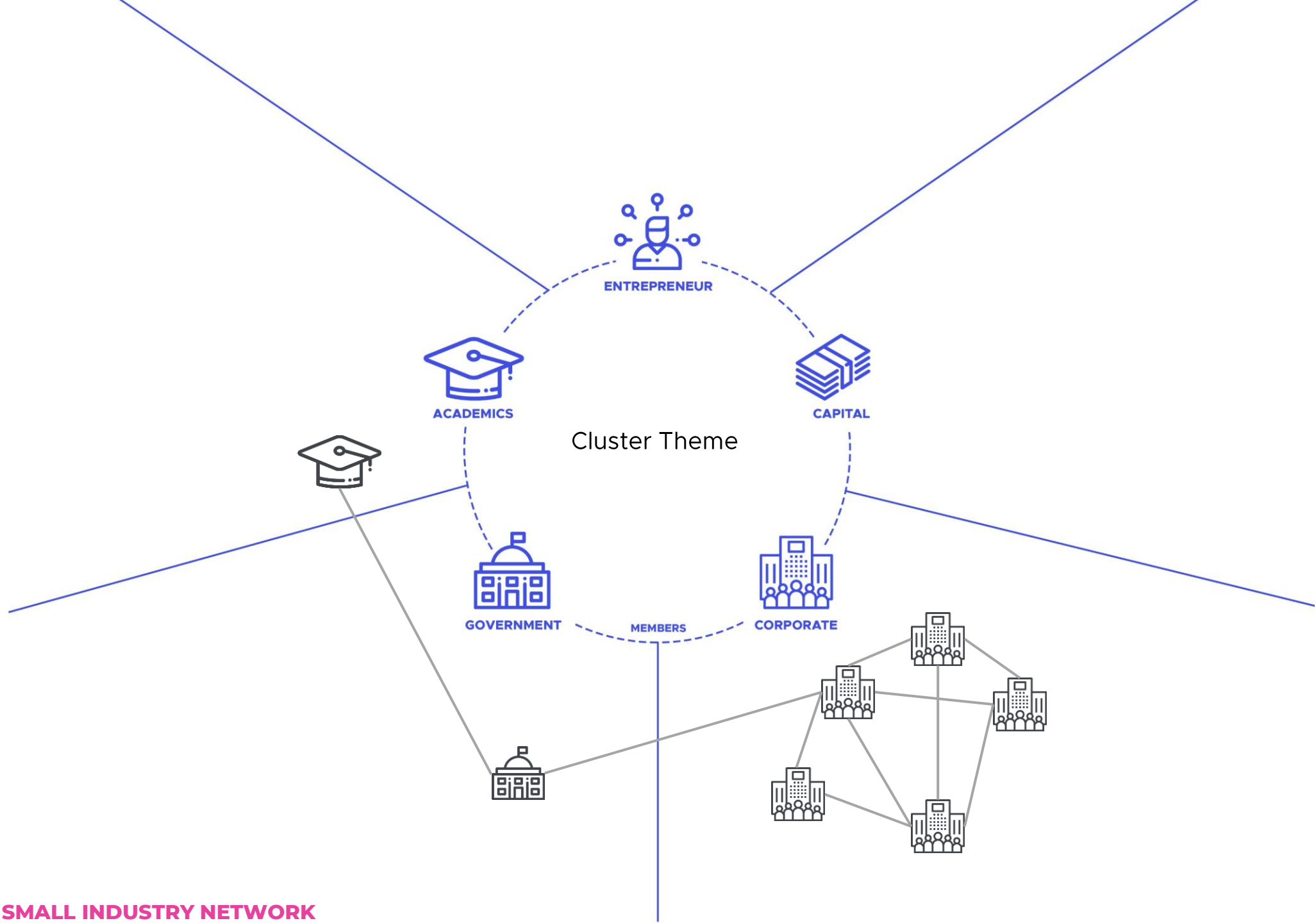
Often, these are initiated by a Lone Hero, and growing into a bottom-up industry network.

These small industry networks will naturally be organized around a group of companies, with little relationships into academia, capital, entrepreneurs or government.

With the right leadership, vision and drive, these small networks can evolve into emerging clusters – this the most common development – or leapfrog directly into an entirely new national innovation cluster program.

Small industry networks should focus on:

- Recruiting a more diverse membership base
- Work with government and public organizations
- Develop a structure and strategy for cluster growth



TRIPLE HELIX

TRIPLE HELIX

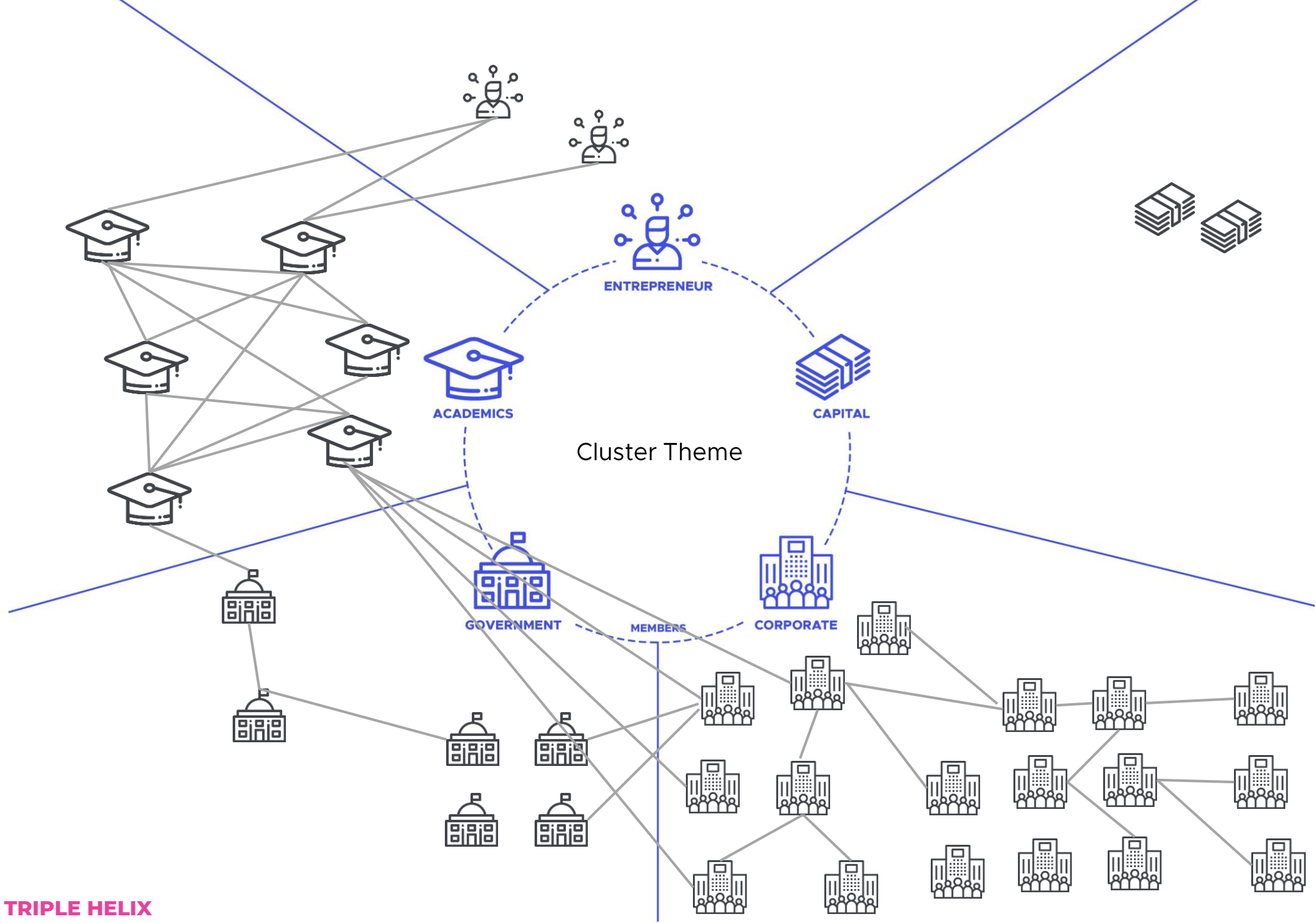
Ever since its development in the 1980's, the Triple Helix framework has been driving national innovation policies and cluster programs.

The Triple Helix framework suggests the importance of connecting industry and academia, for research-driven business development and knowledge-development, to shift from a resource-based economy to a knowledge-based economy. The government's role is to support and enable this long-term development, through active policies, funding and programs. Private investors and entrepreneurs are generally not included.

Deeply embedded in most western economic policies, the Triple Helix has been highly important in supporting economic growth in the west over the past 25 years.

Today, the Triple Helix is under pressure to adapt in the light of startups, scale ups, unicorns, private investors and overall speed of innovation in the global economy.

In writing this report, many suggested clusters built on the Triple Helix required a “a new cluster mindset”.



RESEARCH LED

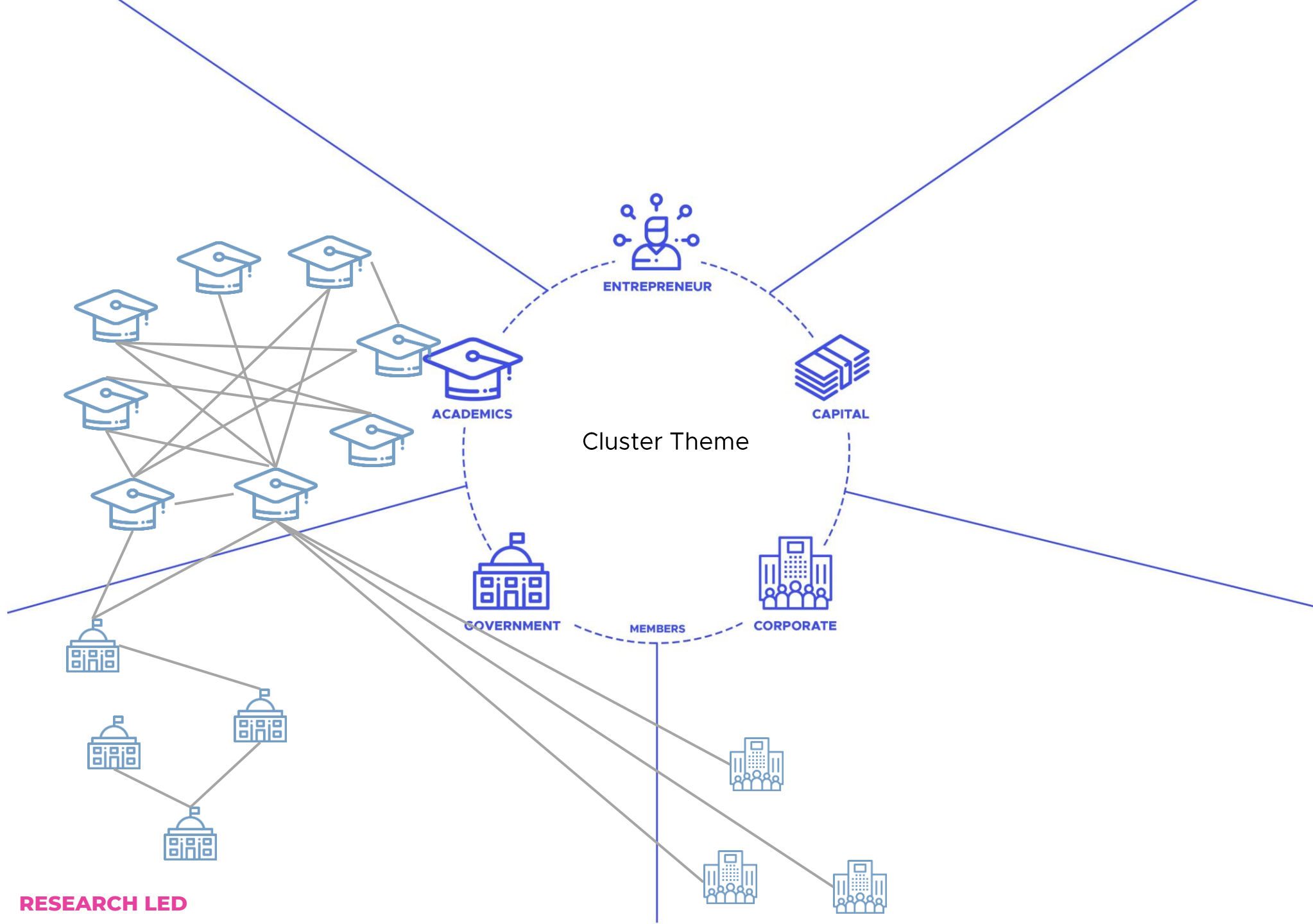
RESEARCH LED

In the EU, there are around 3000 clusters. Most of these are linked to or embedded inside a research community.

A research led cluster will naturally have a dominant mass of members in the research community. Furthermore, it will mostly be looking at research publications, patents and academic output as key performance indicators.

While these elements are important, research led clusters tend to not be very relevant to corporate members, tend to have little focus on entrepreneurship and little relevance to investors.

If the purpose is to develop research and knowledge, this configuration is ideal. If the purpose is to drive economic development and value impact, this configuration may be insufficient.



RESEARCH LED

INDUSTRY LED

INDUSTRY LED

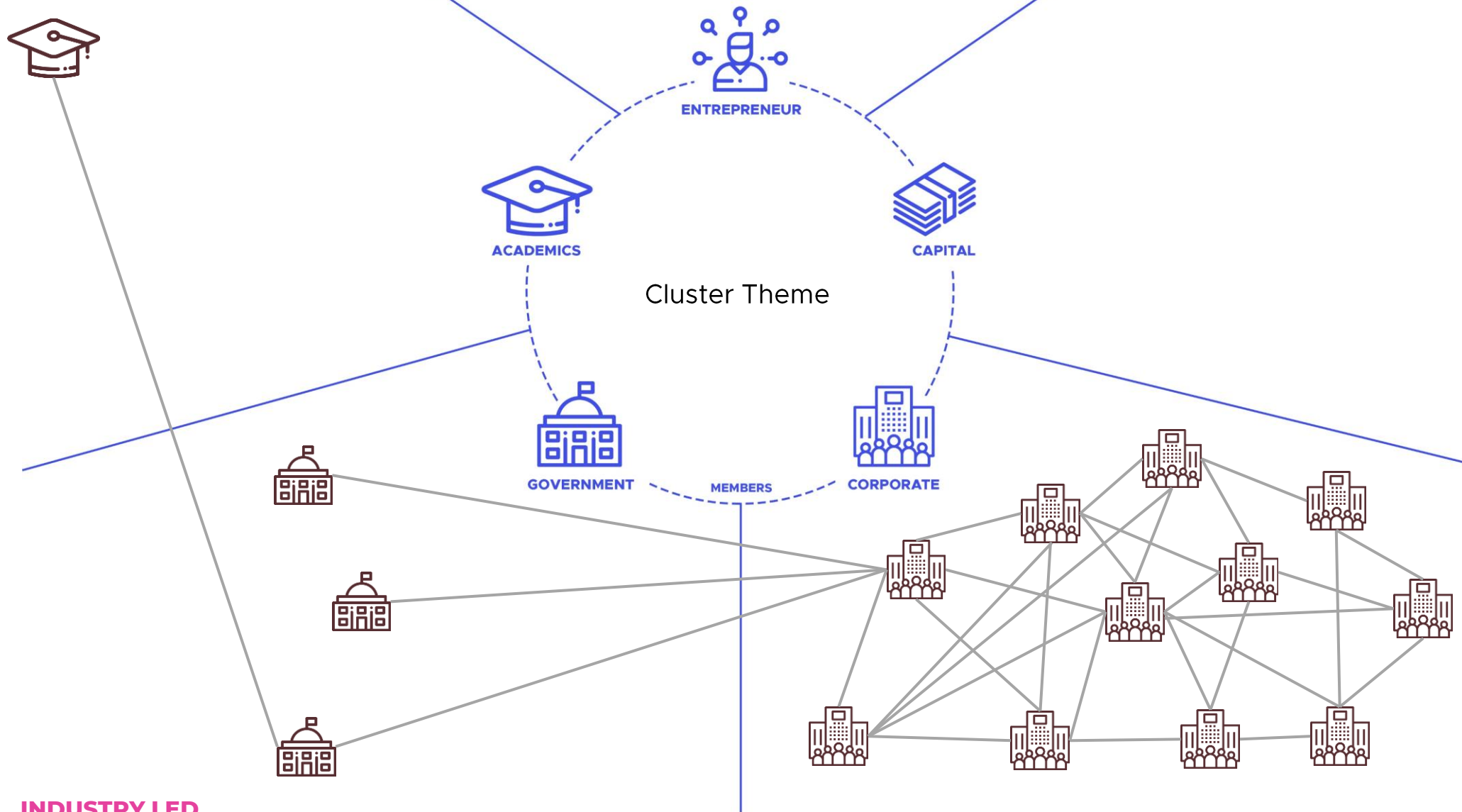
Most clusters start out as industry led, and grow from there. The challenge comes if the cluster remains only industry focussed, recruiting more members from industry only.

An industry led cluster can become a very strong industry collaboration body, focussing on the existing member companies and the existing industry value creation logic.

But, it is highly doubtful it will have the innovation prowess to create entirely new companies and entirely new business models at the cluster level.

Industry led clusters should focus on:

- Recruiting a more diverse membership base
- Connect to leading universities, startup hubs, investors
- Invite a serial entrepreneur, an academic professor and a VC to join the board of Directors



ENTREPRENEURIAL CLUSTER

ENTREPRENEURIAL CLUSTER

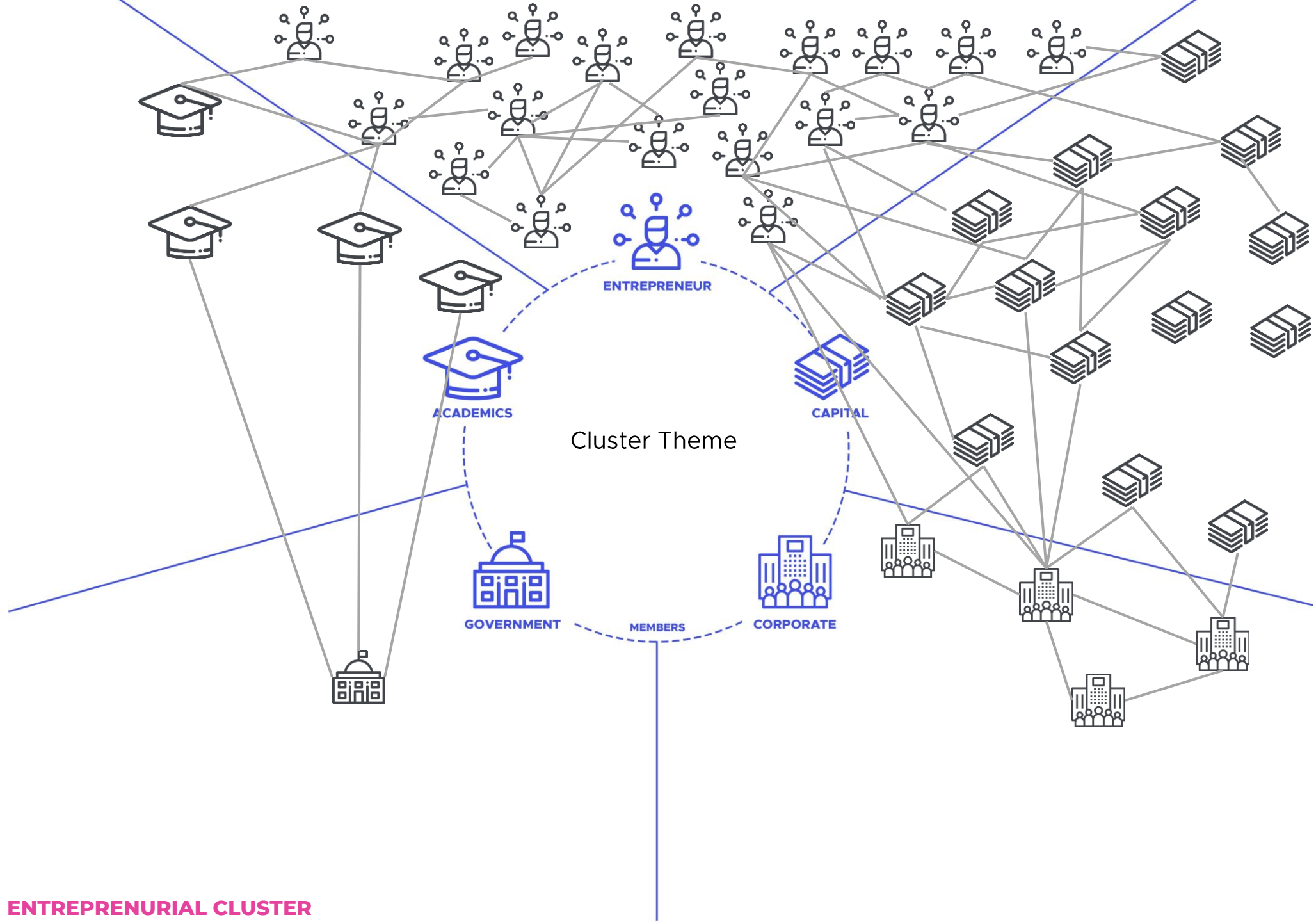
Entrepreneurial clusters can often be found in conjunction with startup hubs, innovation centres and incubators.

Most “innovation hot spots” have multiple emergent entrepreneurial clusters. Typically, these are emergent, self-organizing and sitting somewhere between a cluster and an ecosystem.

Two examples of this is Powerhouse in Oakland, California. Organized around solar energy, pulling in Startups, Scale-Ups and investors, and Rock Health, in San Francisco, on the topic of digital health. Both of them have major characteristics of entrepreneurial clusters, but still lacking certain features.

Entrepreneurial clusters should focus on:

- Recruit corporate and government members
- Work with government and academic organizations
- Develop a more firm structure and strategy for cluster growth beyond its entrepreneurial stage



EMERGING CLUSTER



EMERING CLUSTER

(EC) Emerging clusters are young, early-stage clusters with future growth potential. Often very local by design, emerging clusters tend to build heavily around what they have available to them in the local ecosystem.

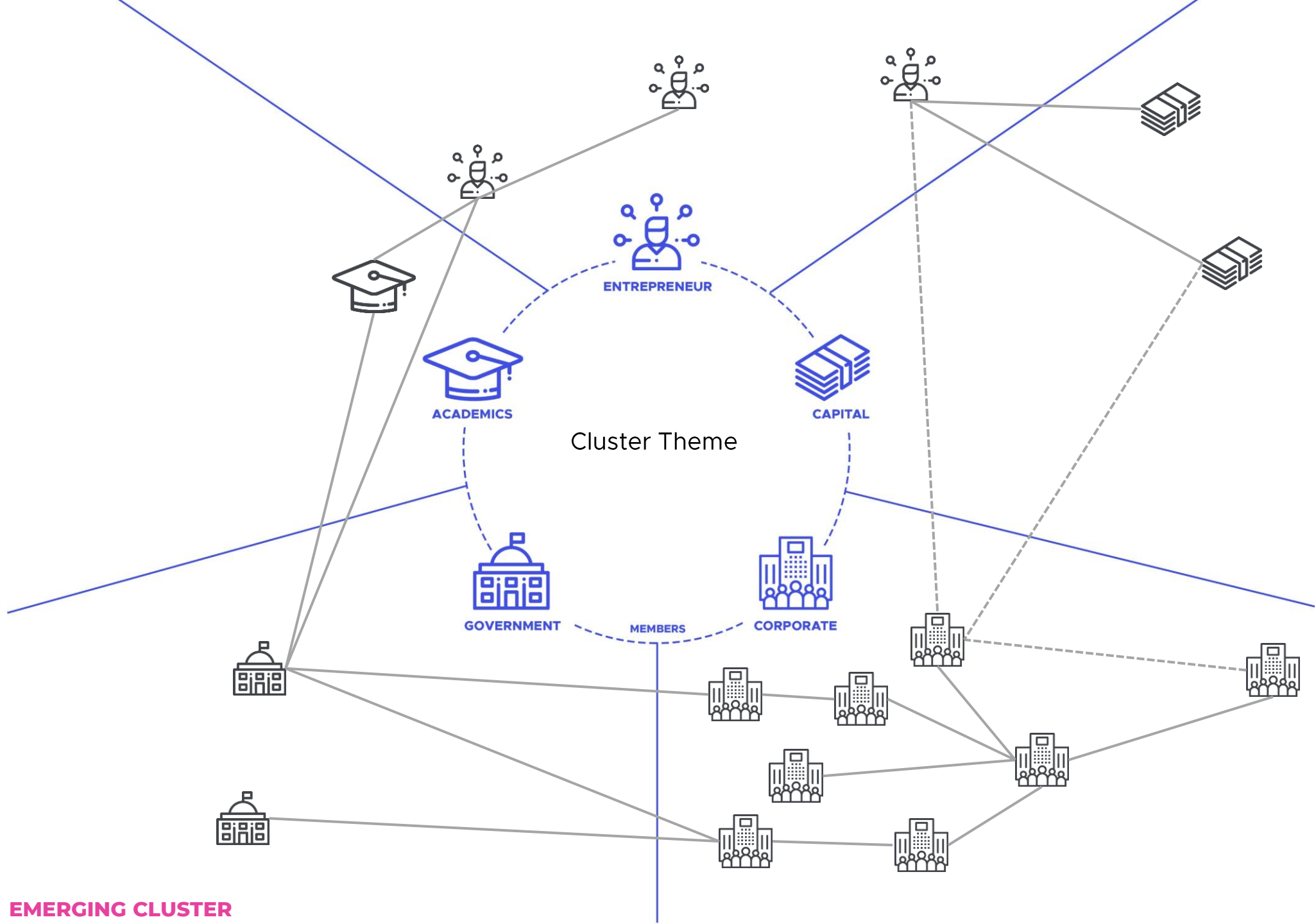
This causes significant imbalance in the cluster configuration and membership base.

Emerging clusters can emerge around any industry or theme. Many of them will realize that there was not sufficient member interest or market potential to justify a real cluster development process.

A country can easily support 10 – 50 emerging clusters, with many of them exploring future, undeveloped growth industries.

Emerging clusters should focus on:

- Recruit members across all five categories
- Prove market potential and value impact potential
- Develop a medium-term cluster strategy to develop into a Growth cluster



EMERGING CLUSTER

GROWTH CLUSTER



GROWTH CLUSTER

(GC) Growth clusters develop around national, high-potential industries. They tend to have a strong, pre-existing ecosystem, but often poorly organized and structurally underdeveloped.

Research happens within the academic bubble. Startups don't get access to investors and corporates tend to innovate internally or within their existing value chains.

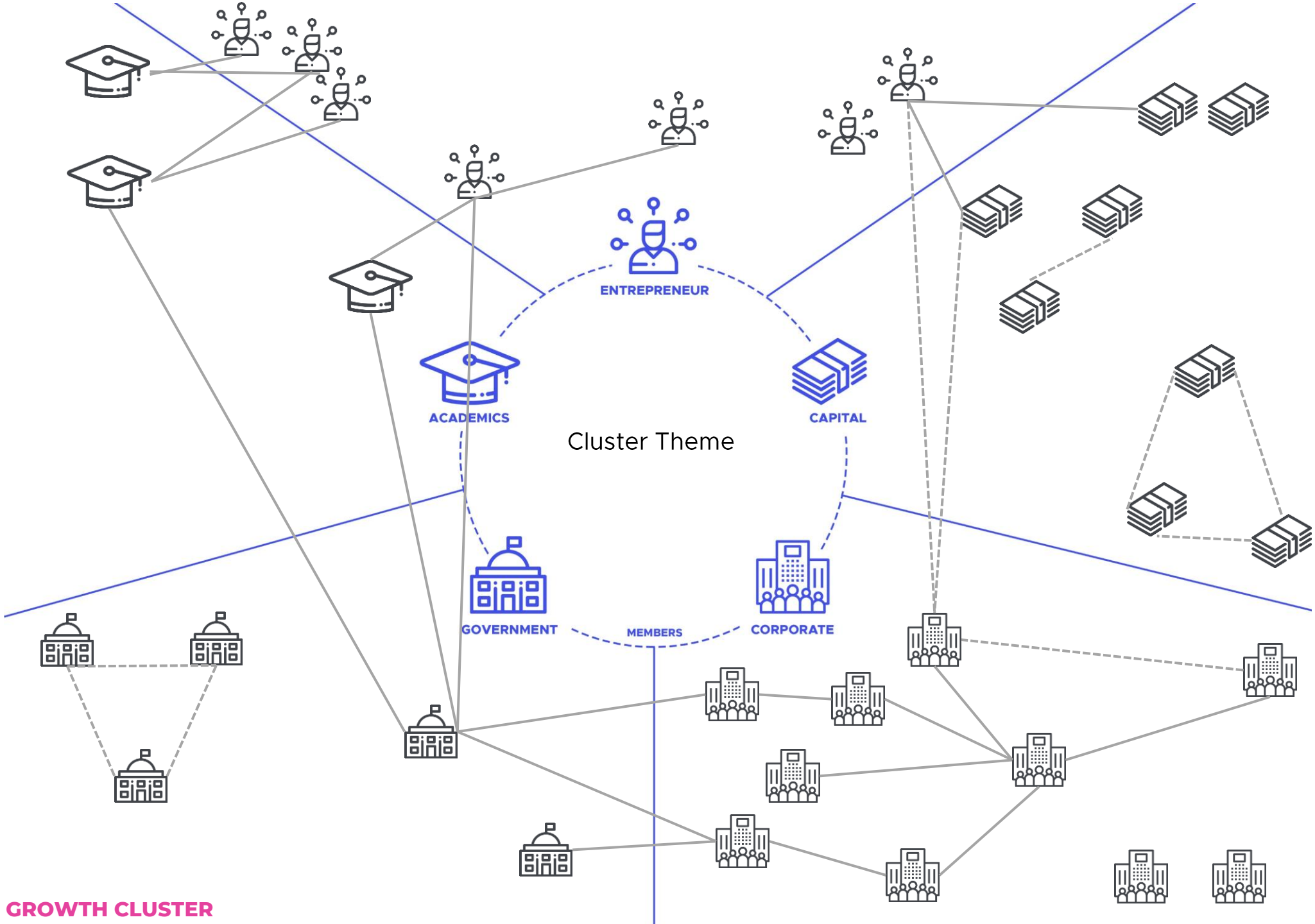
Board and management at Growth clusters recognize this, recruit a diverse board and start mending these «market inefficiencies».

Network and relationship building is crucial. Sharing information across the cluster is a key building block. Developing trust and a collaboration infrastructure quickly becomes key.

Growth clusters are often recognized as a future growth industries of national importance.

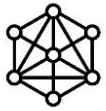
Growth clusters should focus on:

- Build a strong collaboration platform (trust, projects)
- Develop a strong cluster organization (CEO, management)
- Design a strategy for becoming an Innovation Supercluster



GROWTH CLUSTER

INNOVATION SUPERCLUSTER



INNOVATION SUPERCLUSTER

(SC) Innovation Superclusters are massive innovation engines.

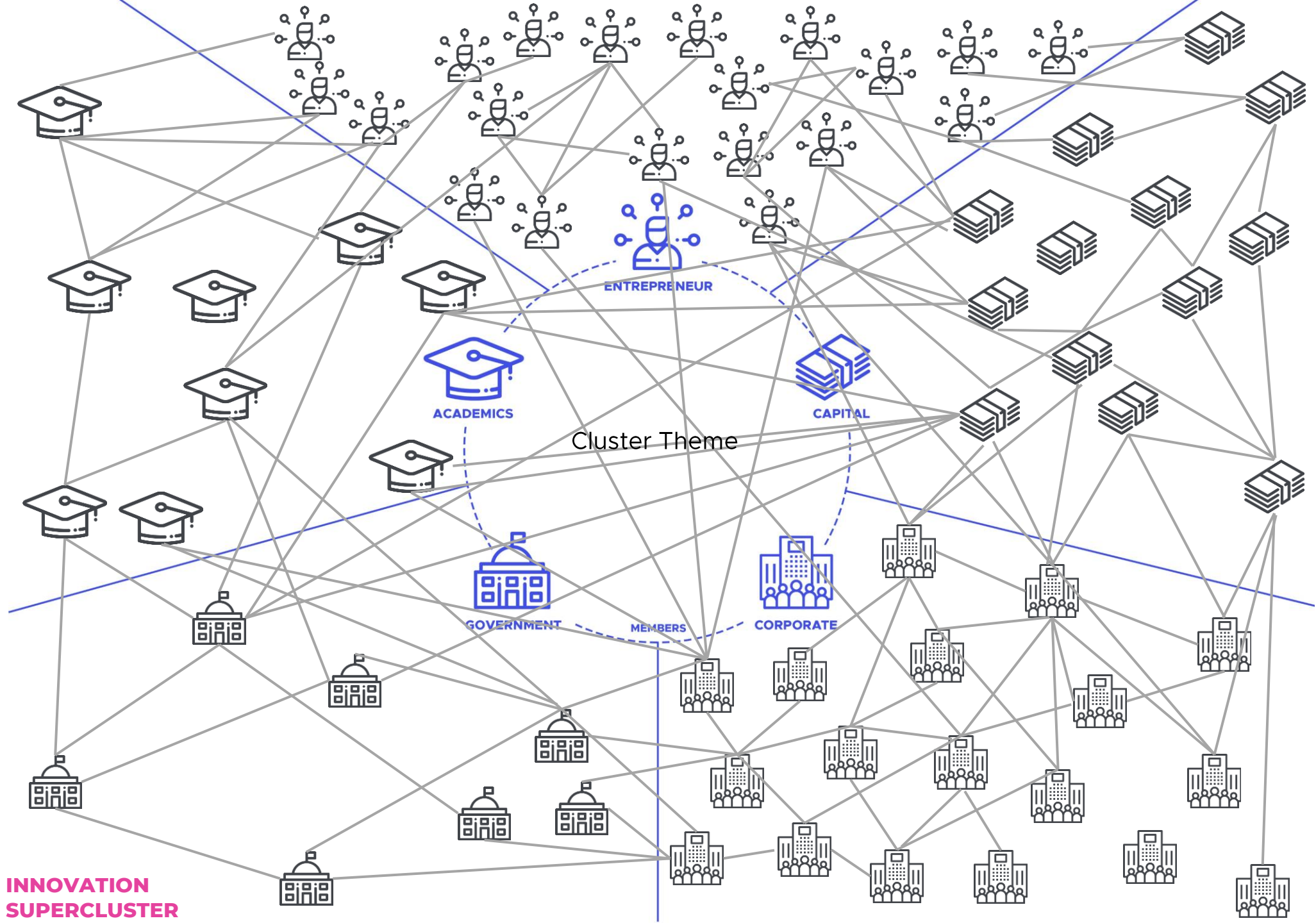
They become magnets, attracting 100's of members both locally, nationally and internationally.

Superclusters will have 100's of members, with a very high level connectivity, networking and collaboration amongst them. The Supercluster CEO is a networker, driving this connectivity as one of her top CEO responsibilities.

Trust becomes key, as the Supercluster grows in size and complexity. This trust is enabled by strong personal relationships, shared projects (market development, R&D, capital, new business models, etc) across the cluster and strong identity building across the Supercluster (branding, communication, storytelling and events).

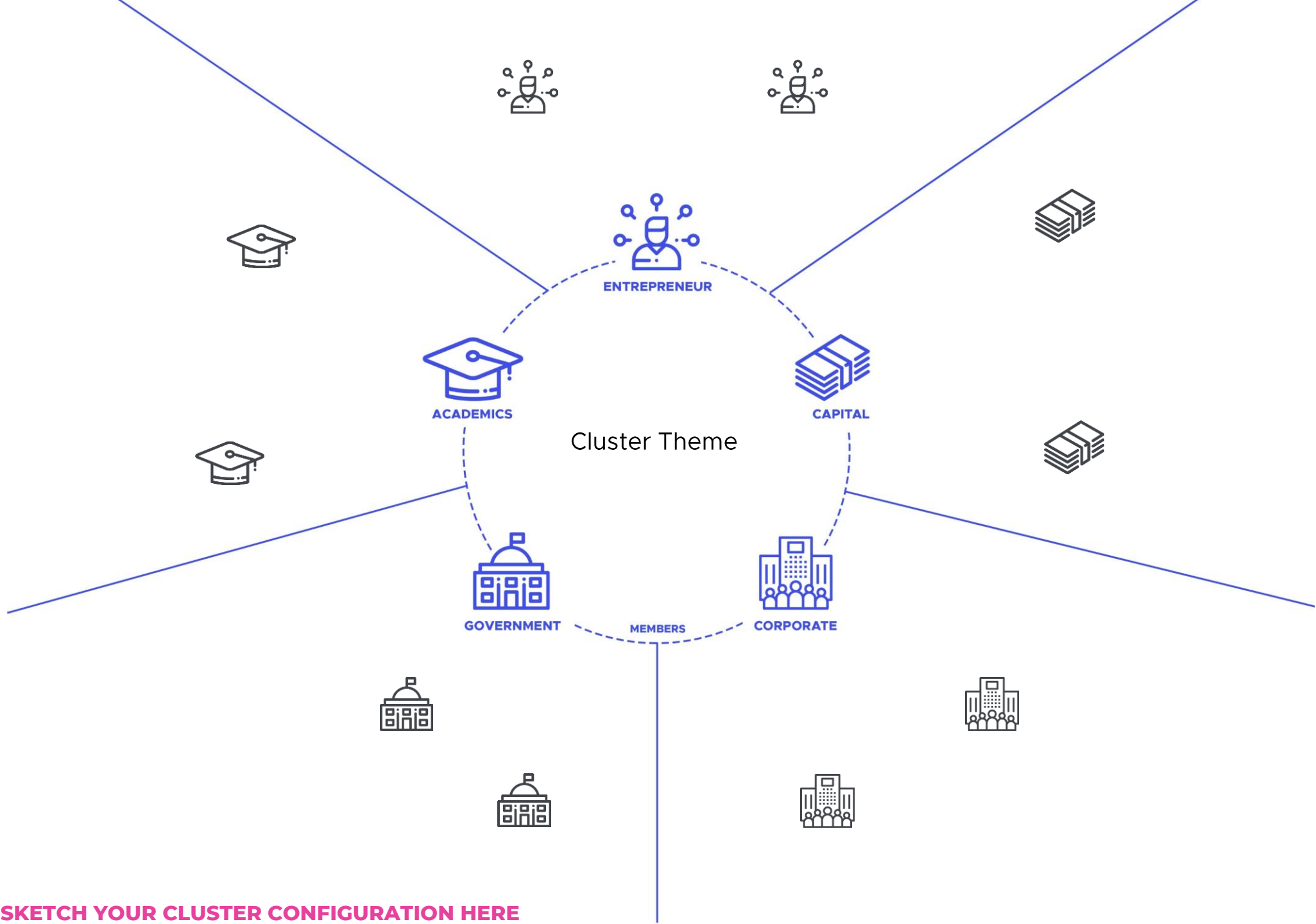
Superclusters should focus on:

- Global position (market access, talent development)
- Build a strong collaboration platform (trust, projects)
- Measure Value Impact and value creation for its members



**WHAT DOES YOUR CLUSTER
CONFIGURATION LOOK LIKE?**





WHAT DOES YOUR CLUSTER CONFIGURATION LOOK LIKE IN 2022?

