What does a systems approach tell us about TH collaboration?

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Overview

- Systems
- The Triple Helix (TH)
- A systems approach
- Gaps
- Recommendations

Examples of Systems

- Biology - nervous system, digestive system, immune system
- Ecology – ecosystem
- Astronomy – solar system
- Physiology – get it out of your system
- Transport – transport system, brake system
- Education – school system
- Society – heating system , metric system, public address system, sound system

Systems

*“A **group** or combination of **interrelated**, **interdependent**, or **interacting** elements or **components** forming a collective and **complex whole**, that share a **common purpose** and which work together in a certain way.”*

Systems Theory

- Von Bertalanffy – General System Theory
- The whole is more than the sum of its parts
- Its about the whole and the parts and their relationships
- Open and Closed systems
- Supra- and sub-systems
- Management: learning, knowledge, environment, relationships, adaptation, complexity

Systems thinking

- Function is more important than structure
- Understanding vs knowledge
- Explain, rather than describe
- Looking out of instead of looking into
- Interdependent vs independent
- Solution seeking vs problem solving
- Cross-functional vs silos
- Strategy vs goals
- Multi-, inter- and intra-disciplinarity

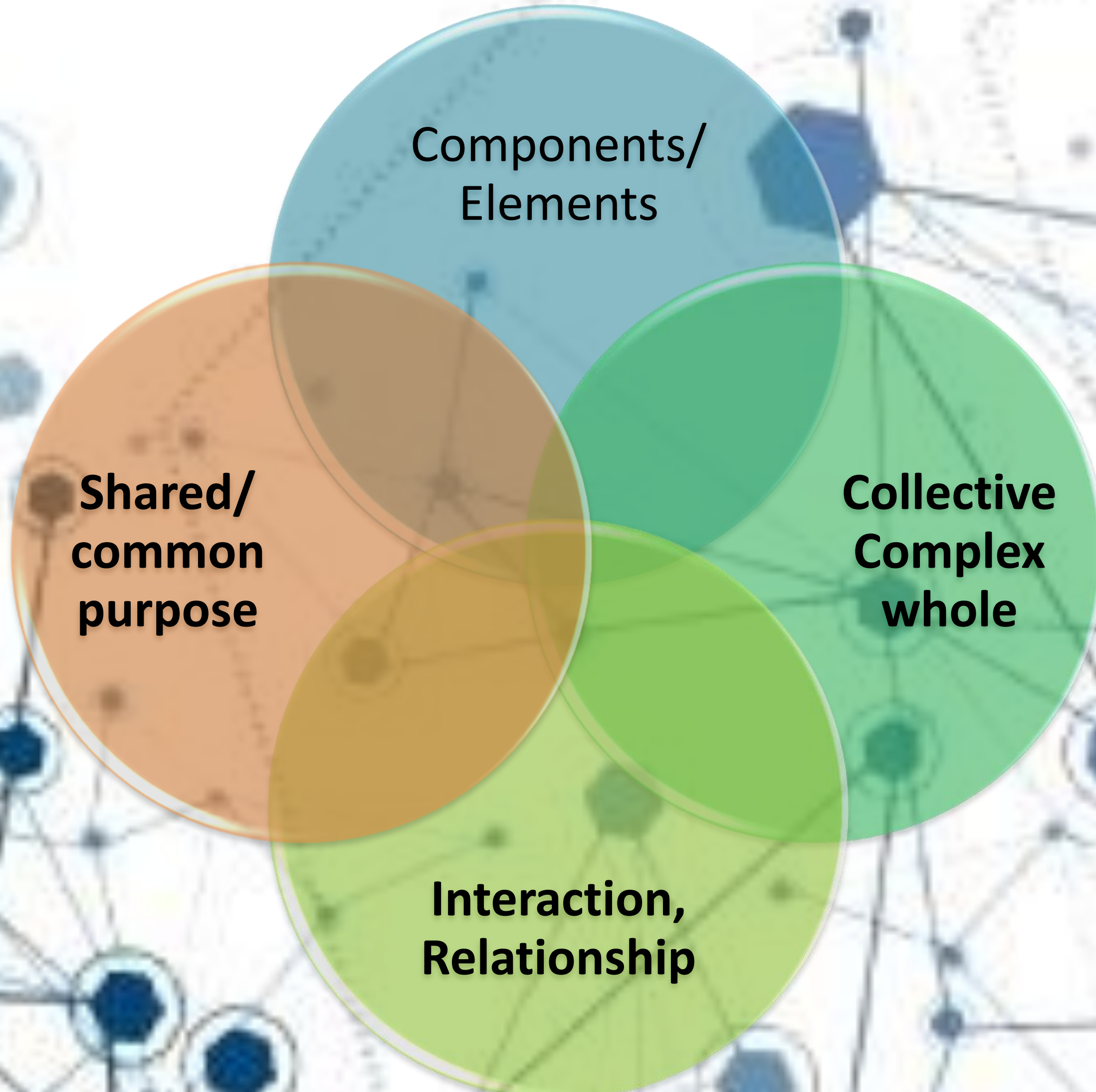
What is the Triple Helix

- Triple Helix (TH) model established by Henry Etzkowitz and Loet Leydesdorff
- Describes the dynamics of the relationships between three core groups, namely government (public sector), industry and academia (e.g. universities)
- 4th helix: civil society, the media and culture-based community or a societal helix of innovation users
- 5th helix: environment/ ecological approach

Some TH aspects

- Industry, academia, government, civil society, environment
- Relationships
- Collaboration/ Network
- Actors/ Intermediaries
- Self-organization
- Cross-pollination of roles and functions

A systems approach



Components

- Institutional frameworks
- Companies
- Government departments
- Associations and business chambers
- Academic and RDI institutions
- Unions
- NGO’s and CBO’s

Collective and Complex Whole

- Triple Helix approach (RDI, Industry, Government)
- Labour, community, others
- Tensions:
  - Big business vs SME's
  - National government vs provincial/ local
  - Government vs industry
  - Industry vs labour
  - Community vs government/ industry

Interaction & Relationships

- RDI
- Education and Training
- Funding/ Finance
- Policy & Regulation
- Production, Marketing and other functions
- Logistics, Procurement, Trade
- Management
- TQM and other processes
- others

Shared / Common Purpose

- No common purpose: Education, learning, knowledge, economic benefit, policy, political or other agenda, growth, development, employment, etc.

- “Is it not exactly why we were made for a time such as this, to break down silos and cross boundaries in order to address the complex challenges of our time?”

Multiple system levels

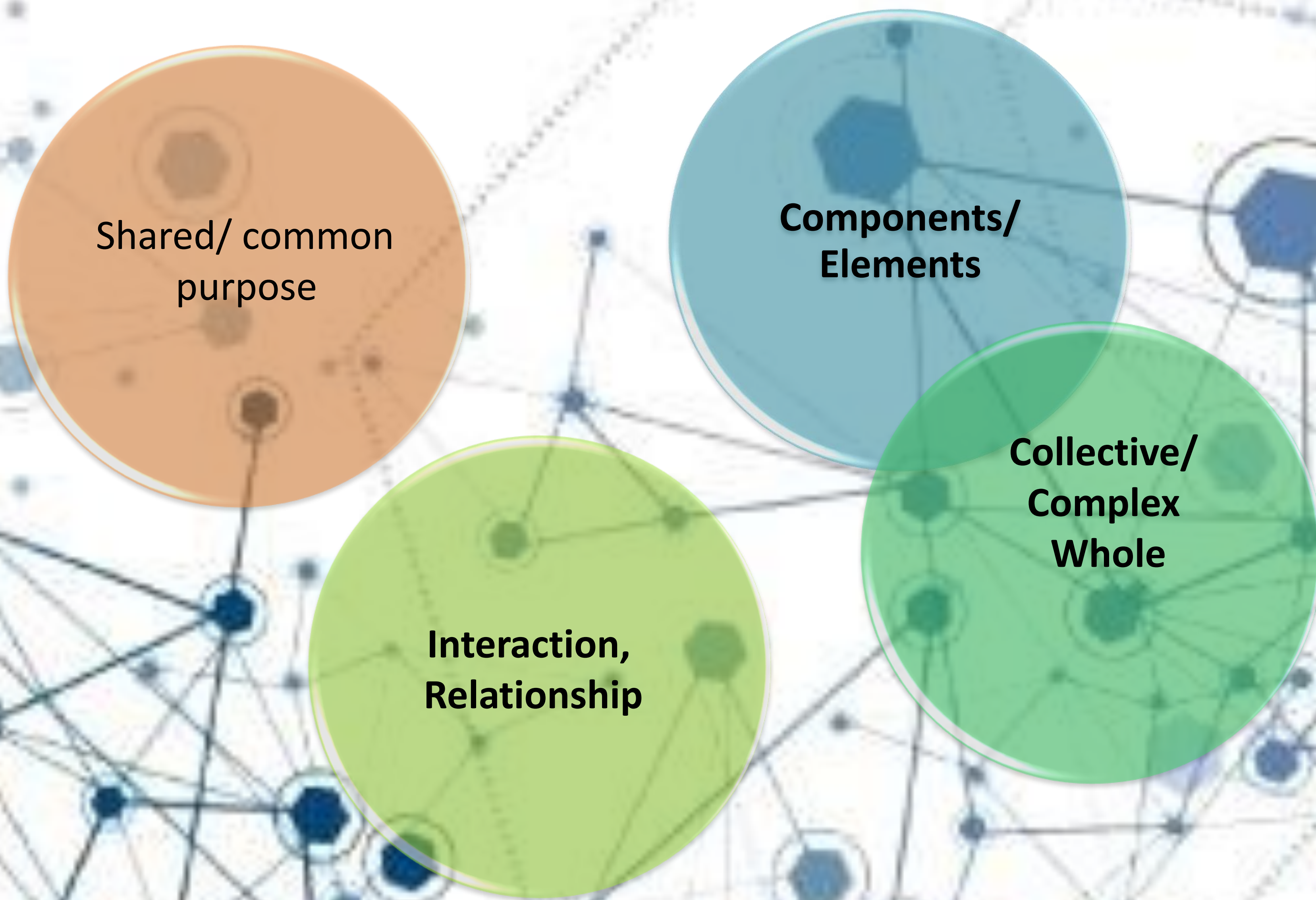
- Sectors, groups, associations, entities
- Departments, divisions, units
- Individuals

Knowledge/ Information

Technology and 4IR

Processes/ Methods

System Gaps


Shared/ common purpose
Components/ Elements
Collective/ Complex Whole
Interaction, Relationship

Coordination/ Collaboration

- “Economies that have industrialized have at their core—regardless of policies— institutions and processes to promote strategic collaboration between the private sector and the government”
- “Successful industrial policy require close government–private sector collaboration that ensures its relevance and effectiveness”
- “More successful countries understand, however, the need for systematic coordination and regularly co-opt the private sector and encourage super-ministerial collaboration” – UNECA (2014)

Recommendations

- dti's Industrial Parks programme:
  - RDI
  - Skills development
  - Capacity building
  - Continuous Improvement
  - Digital Hubs, shared services/ facilities
- Innovation and Commercialization
- Industrial Sector master plans
- Curriculum design and re-skilling
- Flexibility and adaptability
- Public Private Partnerships
- National System of Innovation and Transformative Innovation Policy


*“There is nothing in a caterpillar that tells you
it will be a butterfly”* — R. Buckminster Fuller

Thank you

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