



Anilkumar Dave

Head of Unit “Innovation and Transfer of Technologies”

**”Innovo ergo Evolvo? ...
L’ecosistema virtuoso...”**







This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 720121

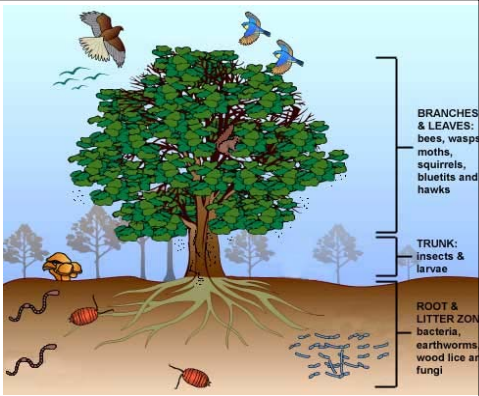




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- The basic unit of study in environmental science is the ecosystem (short for 'ecological system')
- An ecosystem consists of a biological **community** and its physical **environment** and can be as **small** as a drop of water or **vast**, such as an ocean
- Plants and animals depend on **each other to survive**. This connection of living things to each other is called **biodiversity**
- The **balance** of an ecosystem is delicate, and a disruption such as the introduction of a new element can damage it..... Or empower it!
- There is still not a unique **representation** of industrial ecosystem where each element is getting 'food', 'water', and other resources differently






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**Community, environment,
small, vast, each other to
survive, diversity, balance,
representation**



**GIOTTO da
Bondone
1267- 1337**



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Survey Lab

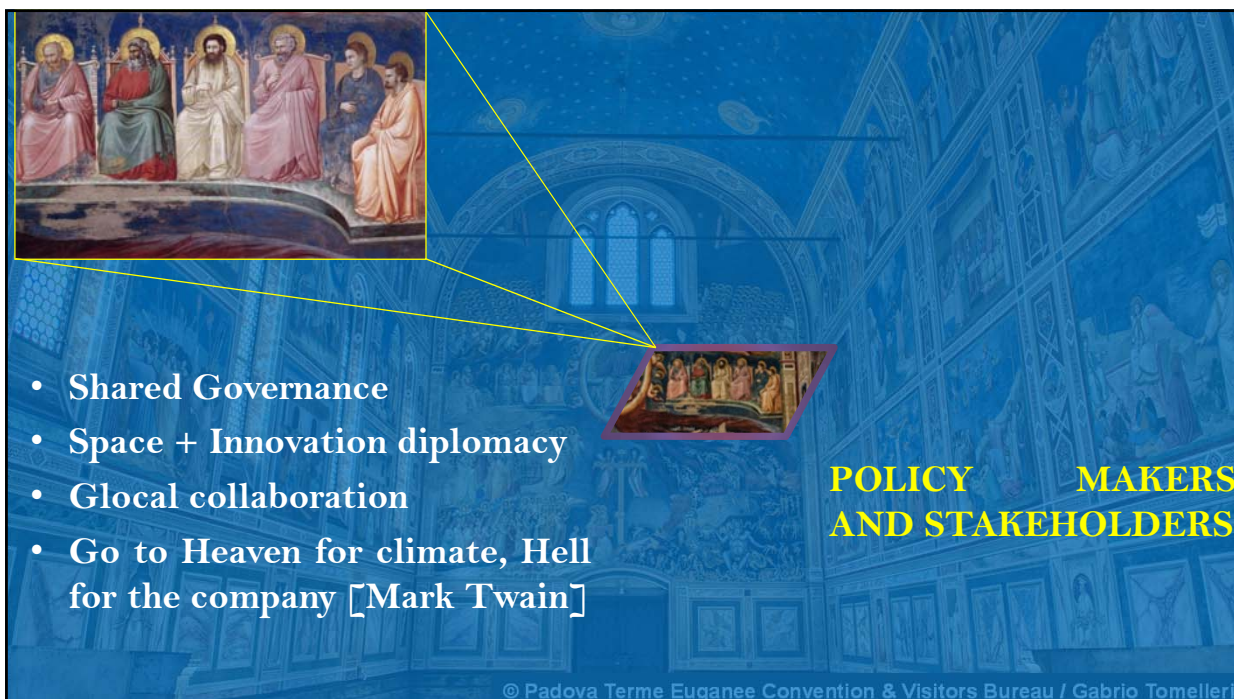


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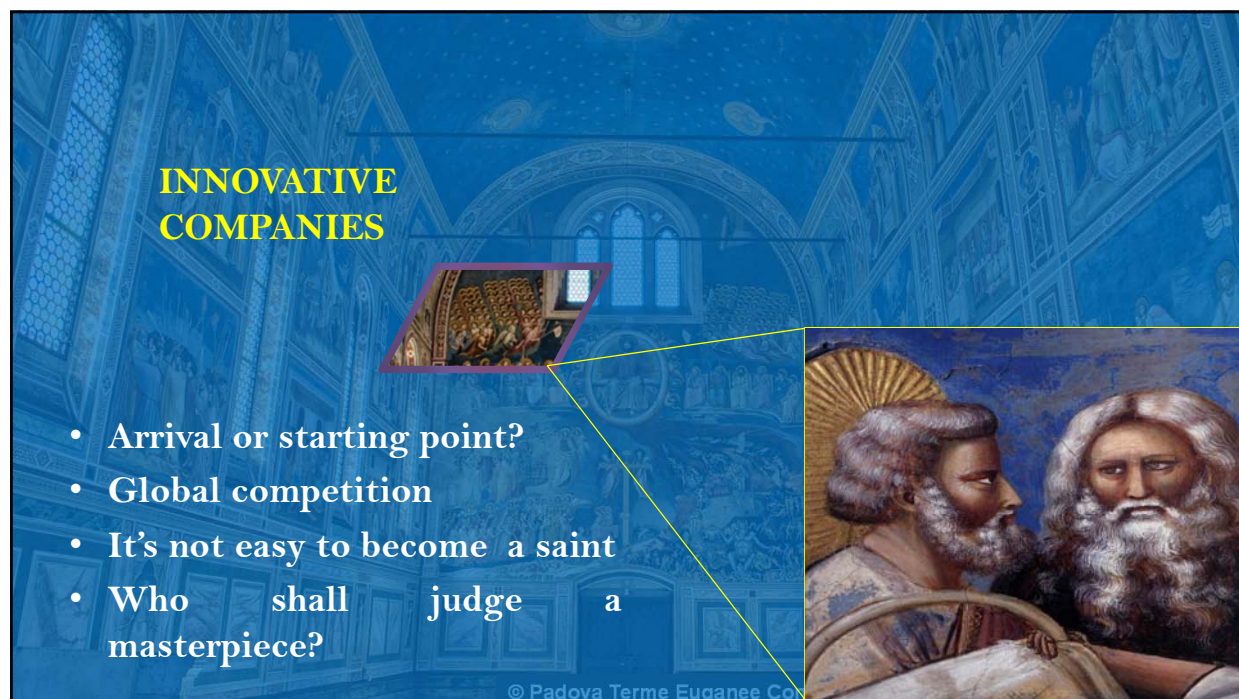
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- Shared Governance
- Space + Innovation diplomacy
- Glocal collaboration
- Go to Heaven for climate, Hell for the company [Mark Twain]

POLICY MAKERS AND STAKEHOLDERS

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INNOVATIVE COMPANIES

- Arrival or starting point?
- Global competition
- It's not easy to become a saint
- Who shall judge a masterpiece?

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COMPANIES WITH POTENTIAL

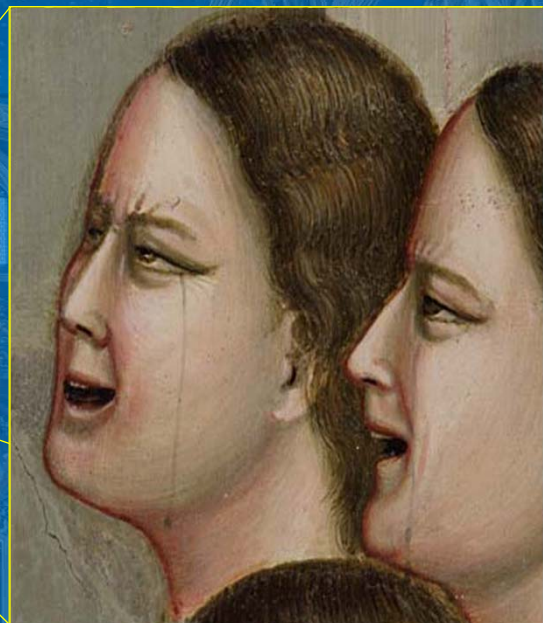
- How to make colors brightest?
- Bring new methods/methodologies
- Cross fertilisation
- Technology transfer



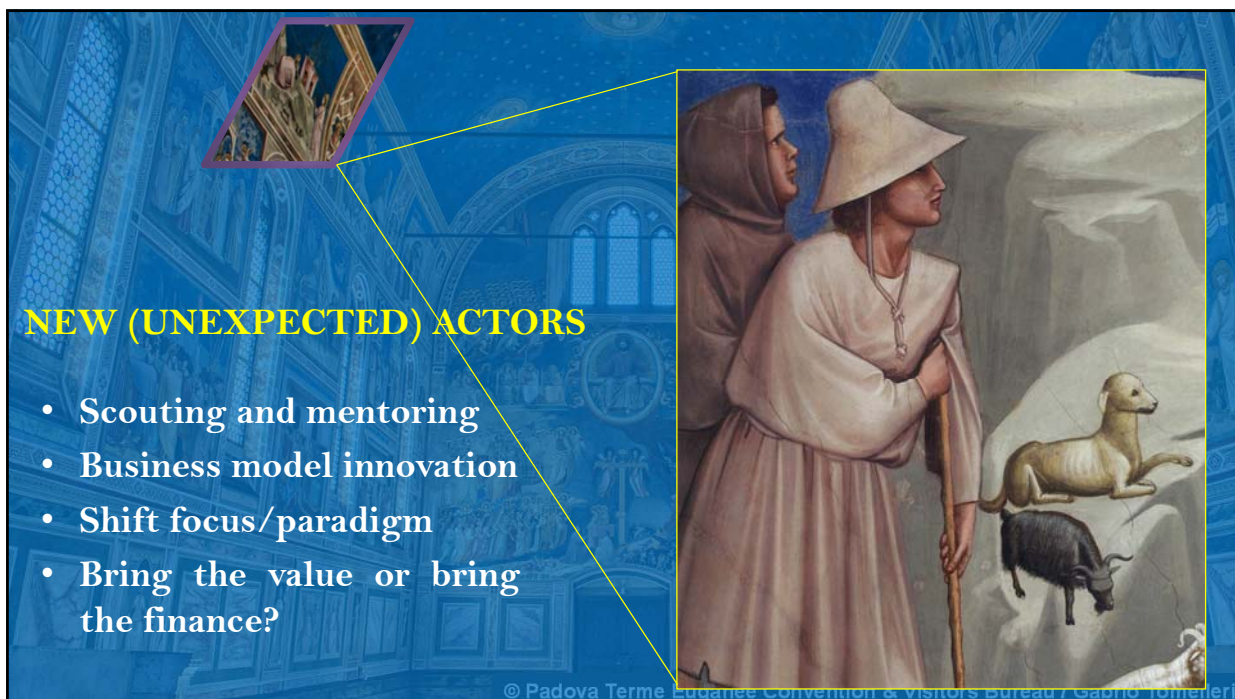
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RESEARCH AND KNOWLEDGE

- Give-Take-Give
- New models
- Knowledge transfer/exploitation
- Multi-presence




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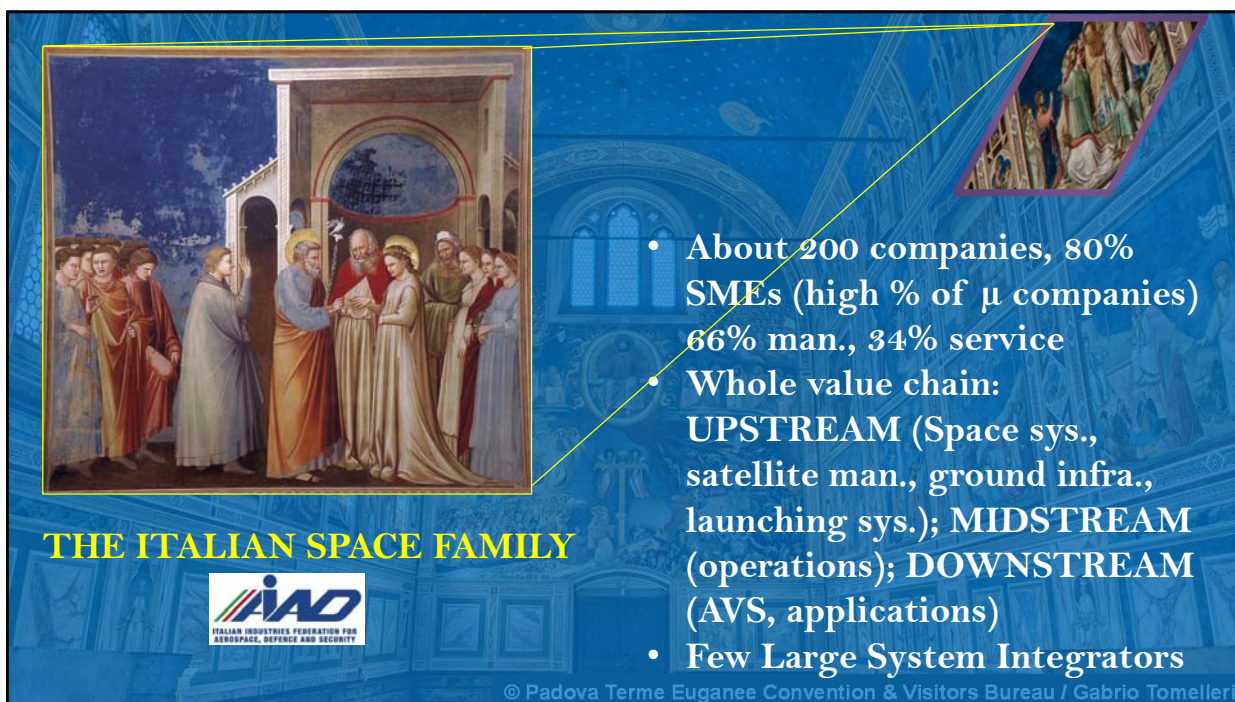


NEW (UNEXPECTED) ACTORS

- Scouting and mentoring
- Business model innovation
- Shift focus/paradigm
- Bring the value or bring the finance?





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THE ITALIAN SPACE FAMILY


- About 200 companies, 80% SMEs (high % of μ companies)
66% man., 34% service
- Whole value chain:
UPSTREAM (Space sys., satellite man., ground infra., launching sys.); MIDSTREAM (operations); DOWNSTREAM (AVS, applications)
- Few Large System Integrators

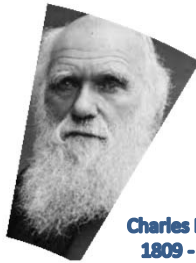
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Jean-Baptiste de Lamarck
1744 - 1829



Anilkumar Dave
1972 – as late as possible





Charles Darwin
1809 - 1882


If an organism changes life in order to adapt environment, those changes passed on to its offspring. (is made by what the organism want or need

Evolution is affecting the ecosystem as a whole and not only the single species or elements; it requires more adaptability and increases the overall entropy. The new habitat is characterized by smart species (ie start-ups, innoSMEs), new fields (ie digital economy), new innovation approaches (Inclusive, Frugal, Reverse) and new challenges (SDGs).

isms are all different and those which happen to have traits that help them to survive in their environments and have more offspring. Individuals, that are not so adapted, die off





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- **COMMON & SHARED STRATEGY** (economic growth, societal benefit, SMEs competitiveness)
- **EVOLUTION** of the whole Ecosystem
- **SHARED** challenges (global stage, new actors, social impact, science advancement)
- **STAKEHOLDERS COMMITMENT** (internationalisation + innovation)
- **SPACE ECONOMY** (1B€, 10 yrs)
- **OPENNESS** to Novelty (TT, S-E-S, inno-model, cross fertilisation)



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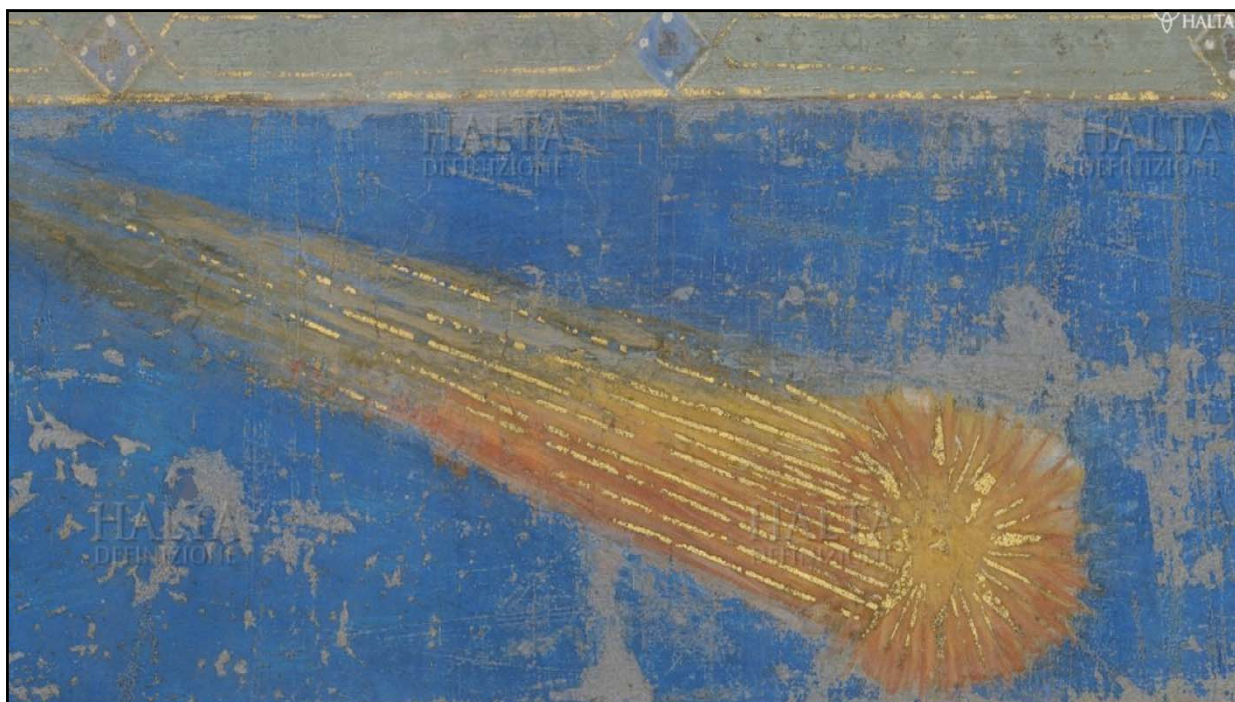
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THANK YOU!

Anilkumar Dave

**"Innovo ergo Evolve?
L'ecosistema virtuoso"**

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Backup slides and history

An ecosystem is a community of organisms in conjunction with their environment interacting as a system. The industrial heritage, the scientific excellence, the research tradition along with the global competition are conditioning the evolutionary patterns of the Italian Space ecosystem, thus characterizing the network of interactions, policies and birth of new organisms and applications. History and technology, design and art, science and industry not only characterized the past but controlling the present are shaping (and securing) the future of the Italian Space sector involving all stakeholders, policy makers and national actors

Scrovegni Chapel (Frescoes by Giotto)

Padua boasts the title of Città dell'Affresco (City of frescoes) because of the extraordinary range of frescoed surfaces that reveal an artistic heritage from the 11th to the 20th century. One of the main series of paintings from the 14th century is preserved in the Scrovegni Chapel, the work of the brilliant artist Giotto.

The narrative of the frescoes, the light, the colours, the intense true and strong feelings that enter the soul offer viewers sincere and intense emotion that surprises and moves.

Dedicated to St. Mary of Charity, the chapel was painted between 1303 and 1305 by Giotto commissioned by Enrico degli Scrovegni, a wealthy banker from Padua, for the benefit of his family. The narrative of the frescoes unfolds across four levels consisting of panels that represent the story of the Virgin and Christ, while the counter façade is painted with the Last Judgement, in which the story of human salvation concludes. The main altar is adorned with statues by Giovanni Pisano.

A simple and engaging story that still speaks to us in clear, immediate and current terms unfolds on the walls of this amazing chapel (29.26 meters long, 12.80 wide and 8.48 high).

A visit to the Chapel is a journey through poetry and pathos; God and man in a unique and unrepeatable style that forever revolutionized the language of Western art.

The Scrovegni Chapel, a masterpiece in the history of painting in Italy and Europe in the 14th century, is considered to be the most complete series of frescoes executed by Giotto in his mature age. Colour and light, poetry and pathos. Man and God.

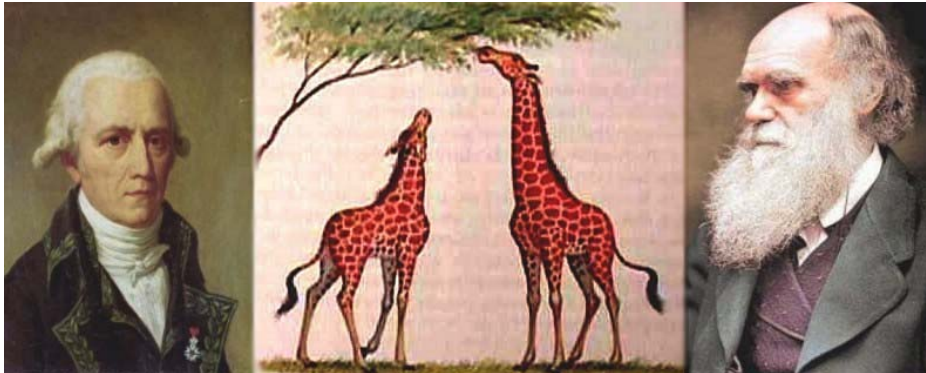
The sense of nature and history, humanity and faith are mingled in narrating the stories of the Virgin Mary and Christ in a unique way. Giotto completed the frescoes in the Chapel at the beginning of 1305.

At that time: "...the chapel presents very simple architecture: a rectangular hall with a barrel vault, an elegant gothic triple lancet window on the façade, tall, narrow windows on the southern wall, and a polygonal apse, later raised to contain the belfry".

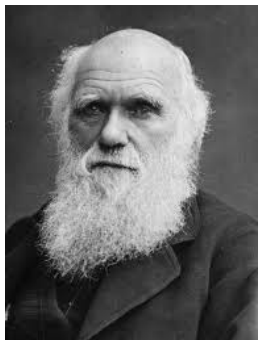
The frescoes follow three main themes: episodes in the lives of Joachim and Anna, episodes in the Virgin Mary's life, episodes recounting Christ's life and death.

The lower parts of the walls contain a series of frescoes illustrating Vices and Virtues in allegory.

Clash of evolution theories



Charles Darwin
1809 - 1882



Darwin believed that the desires of animals have nothing to do with how they evolve, and that changes in an organism during its life do not affect the evolution of the species. He said that **organisms, even of the same species, are all different and that those which happen to have variations that help them to survive in their environments survive and have more offspring. Other individuals, that are not so well adapted, die off.** Most elephants used to have short trunks, but some had longer trunks. When there was no food or water that they could reach with their short trunks, the ones with short trunks died off, and the ones with long trunks survived and reproduced. Eventually, all of the elephants had long trunks.

Jean-Baptiste de
Lamarck
1744 - 1829



Lamarck is best known for his *Theory of Inheritance of Acquired Characteristics*, first presented in 1801 (Darwin's first book dealing with natural selection was published in 1859): **If an organism changes during life in order to adapt to its environment, those changes are passed on to its offspring. He said that change is made by what the organisms want or need.** For example, Lamarck believed that elephants all used to have short trunks. When there was no food or water that they could reach with their short trunks, they stretched their trunks to reach the water and branches, and their offspring inherited long trunks. Lamarck believed that giraffes stretched their necks to reach food and their offspring and later generations inherited the resulting long necks.

Anilkumar Dave
1972 – as late as
possible



The evolution process is now affecting the ecosystem as a whole and not only the single species or the single elements (ie SMEs, large enterprises, policy makers, government, research organisations, universities etc).

The new paradigm require more flexibility and adaptability but increases the complexity and ecosystem overall entropy. **STRATEGY and ORIENTATION NEEDED**

Species (stakeholders, ecosystem components) are evolving, thus appearing new champions (ie start-ups, smart growing SMEs), new domains (digital economy), new approaches (INCLUSIVE and jugaad innovation), new challenges (SDGs!).

The ecosystem next stage is pushing for collaborative projects (multi-companies, mix-up of large enterprises and SMEs) and new actors (dynamic intermediaries that can offer also solutions and services).