Terra Madre Salone del Gusto
Western Balkans Company Mission - Workshop & B2B
The Twin Transition in Agri-food: challenges and opportunities
September 23, 2022

University of Gastronomic Sciences
Università degli Studi
di Scienze Gastronomiche

The 3 C's of the Circular Economy for Food

A Conceptual Framework for Circular Design in the Food System

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(Cogito Ergo Sum = I think and therefore I am,
Cartesio/Descartes, Principia philosophiae, 1644)

networks nested within networks

in which it is not so much the actors of the system, but what they exchange is decisive

(Frijof Capra, The Web of Life, 1996)

a dynamic system

composed of matter, energy, information and characterized by stock, flow, feedback loops

(Jay Wright Forrester, Industrial Dynamics, 1961)

we are all one system

the equilibrium between the parts

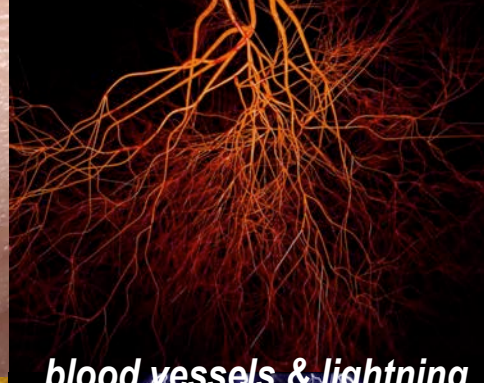
is worth more than the sum of the individual elements

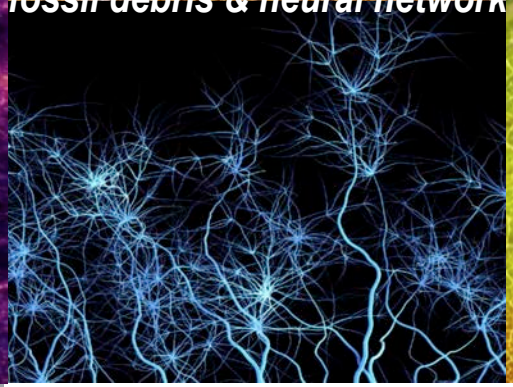
(Donella Meadows, Thinking in Systems, 2008)


brain cells & universe


fossil debris & neural network

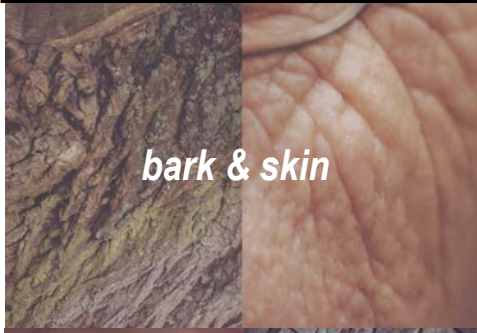

hand & leaf

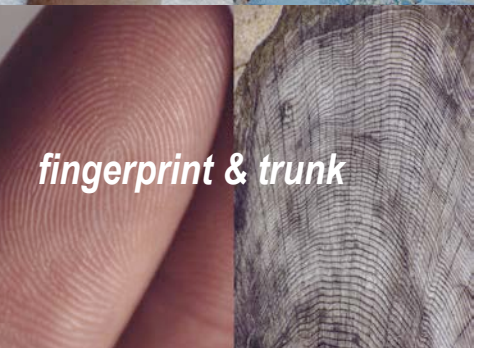

blood vessels & lightning



Images from the documentary
"Un altro mondo" by Bluma Lab


veins & rivers


bark & skin

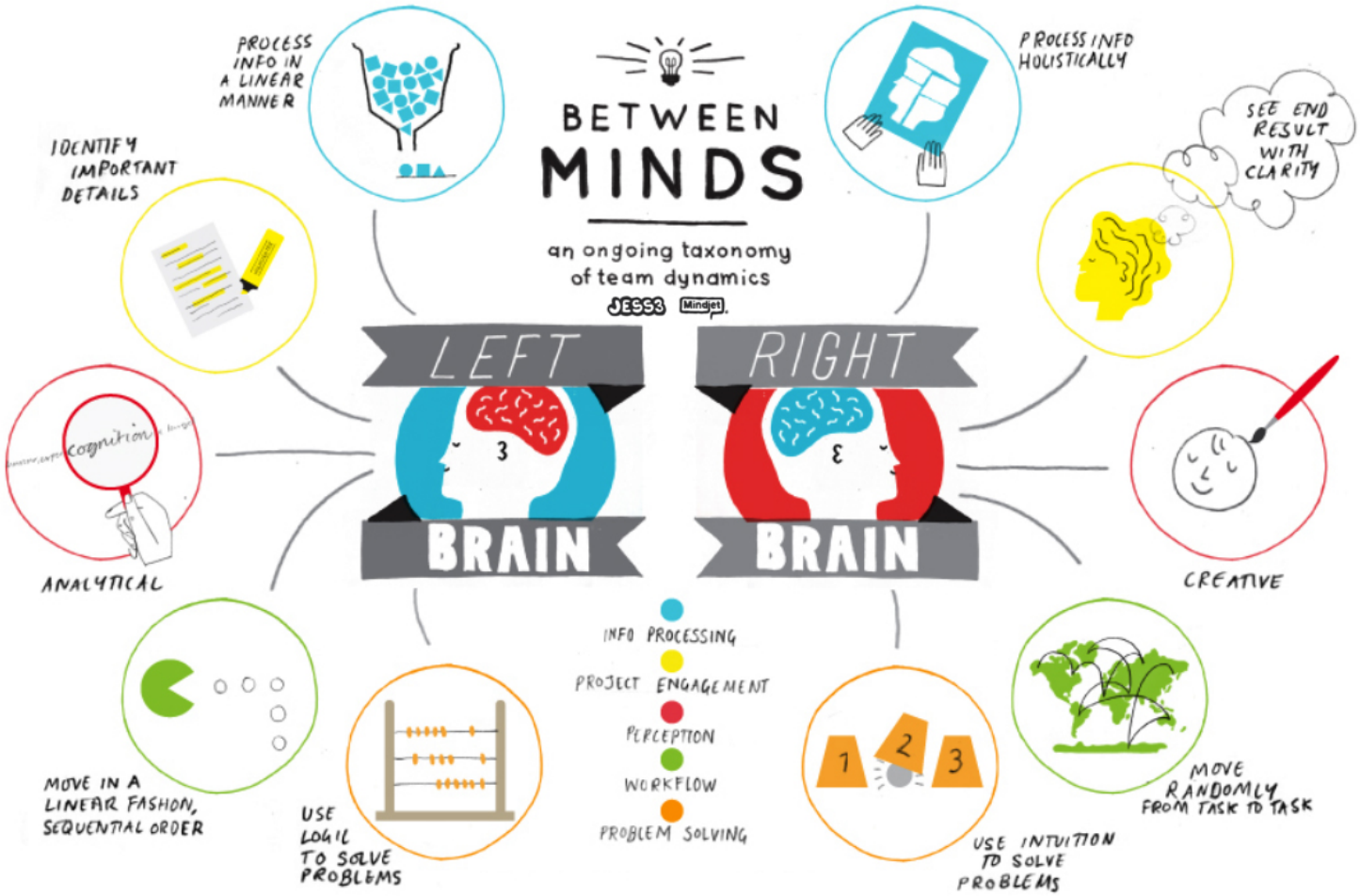

fingerprint & trunk


capillaries & soil

break down
the complexity
that surrounds us
in linear logic
of thought

(Gregory Bateson, Steps to an ecology of mind, 1972)

Human vs Nature
Photos by Agnieszka Lepka

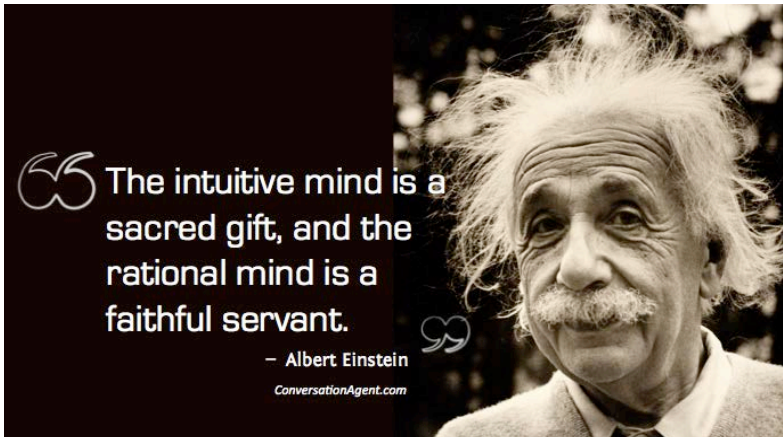


environmental and social degradation

are essentially

system errors

(Carlo Petrini, preface to Thinking in systems, by D.Meadows, 2019)



We have “to migrate” toward a new economic paradigm

Nature

- in the living world we have **systems within systems**: they are related not only as a static elements’ configuration, but they share common properties generated by the interactions of the different parts.
- it works thanks to **renewable process** e with **complex schemes**
- it uses **energy and material only when it needs**
- it adapts the **shape** according to the **function**
- it **recycles everything** because each surplus is metabolized by the system, through the dynamics of the five kingdoms (bacteria, algae, fungi, animals, plants). Nature does not know the meaning of the word **WASTE**!
- it reward the **cooperation** e create **resilience**
- it **collects diversity**
- it needs **local expertise**
- it understand the **power of the limits.**

VS

Mankind

- he is composed of **systems** that communicate with each other,

BUT …

- **decomposes the complexity** in independent problems between them resulting in **linear models** of development and narration
- generates non-metabolizable **waste**
- **destroys the diversity** (cultural and natural) through the homologation
- **evaluates global** conveniences
- rewards **competitiveness**
- generates **models that are not resilient** as they are standardized
- **doesn’t listen to the feedback** that Nature provides him
- mainly produces energy through **combustion processes**
- doesn’t leave to the raw material **time to regenerate**
- commends the **appearance** before the **function**
- **doesn’t restrain excesses** from the inside and he **doesn’t respect any limit**

“The major problems in the world are the result of the difference between how nature works and the way people think”. Gregory Bateson, An Ecology of Mind

RESOURCES

NATURAL CAPITAL

WATER

NITROGEN AND PHOSPHORUS CYCLE

BIODIVERSITY

AIR

CO_2 EMISSIONS

LIFESTYLES

ENERGY

OBESITY

LAND

HEALTH

BIOGEOCHEMICAL CYCLE

MALNUTRITION

CULTURAL CAPITAL

AGRICULTURE

AGROBIODIVERSITY

CLIMATE CHANGE

FISHING

FOOD LOSS AND WASTE

ANIMAL WELFARE

FOOD PACKAGING

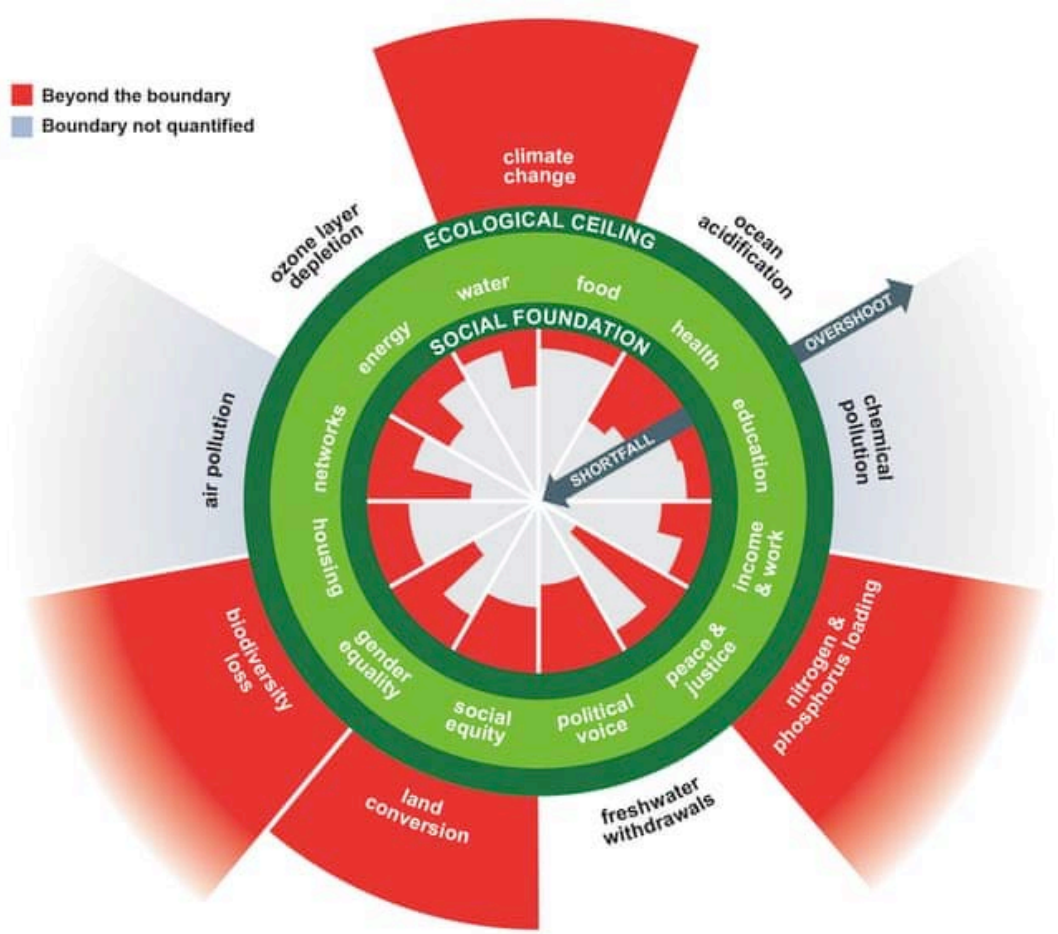
ACIDIFICATION OF THE OCEANS

ETC..

We must avoid compromising relationships

with the best raw material supplier known to mankind (Nature)

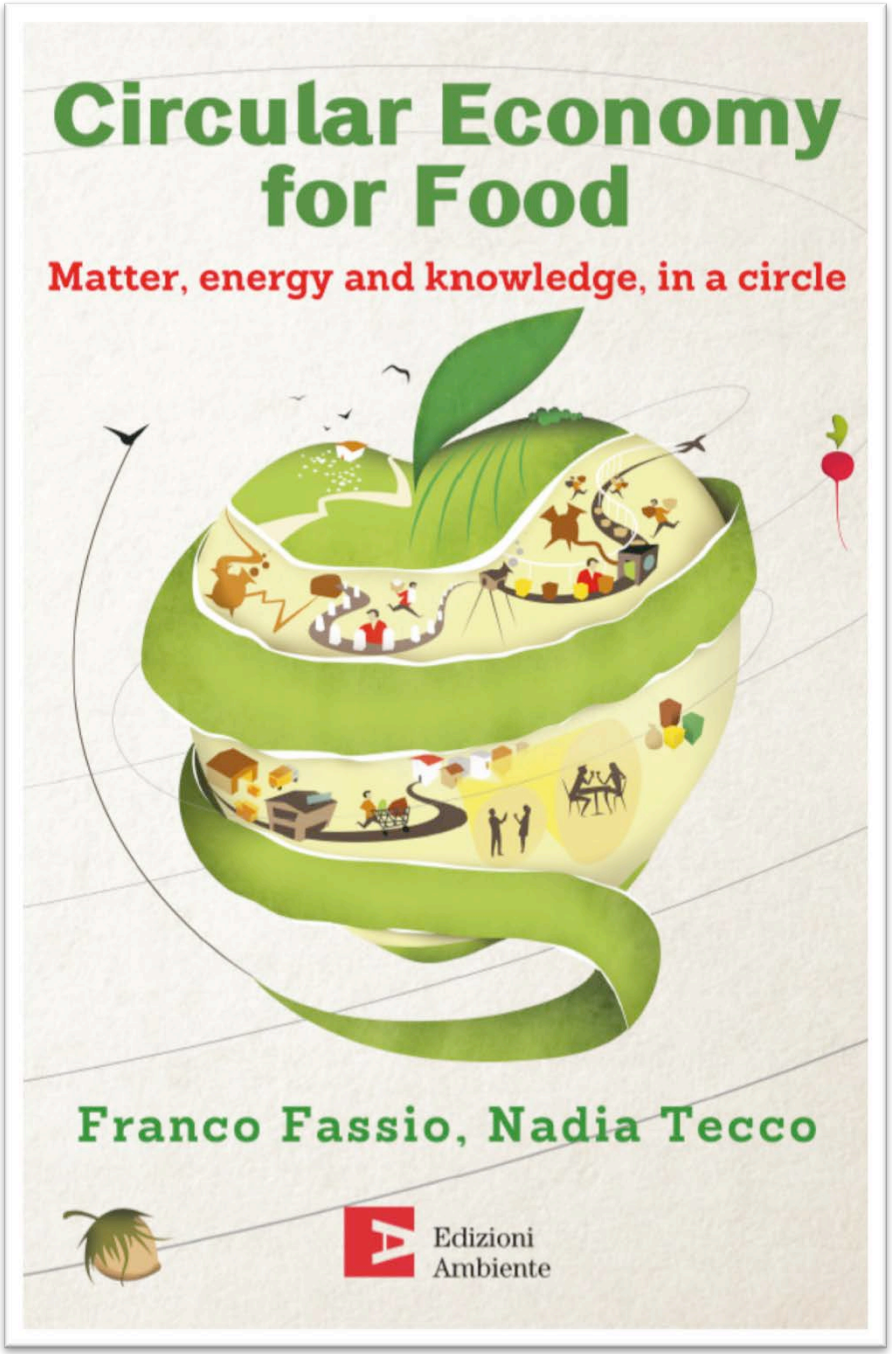
(Lovins A., et al., A roadmap for natural capitalism, 1999)



Johan Rockström
"Planetary Boundaries"

Kate Raworth
"Doughnut economics"

The current geopolitical challenge of the "food system" is therefore to **revolutionize the productive model** starting from a correct management of **natural capital** *(Lovins A., et al., A roadmap for natural capitalism, 1999)* to which **cultural** *(Bourdieu P., Le capital social,1980)* and **economic** capital are connected, respecting the **planetary limits** *(Rockström J. Planetary Boundaries: Exploring the Safe Operating Space for Humanity, 2009)* and at the same time, offering **a fair space to the civil society** *(Raworth, Doughnut economics, 2017)*.



The linear economy apparently creates abundance but serves you in a fragile dish.

(Fassio F., Tecco N., Circular Economy for Food, 2018)

Circularity belongs to man and to the context in which he lives: the human being is an **open system** with circular dynamics **inside and outside.**
(Bertalanffy L., General Systems Theory, 1968)

Food is the medium through which **the circular process of metabolization** of **matter** in the human body begins and its consequential transformation into **energy** for life.
(Maturana F. et al, Autopoiesis and Cognition: The Realization of the Living, 1980).

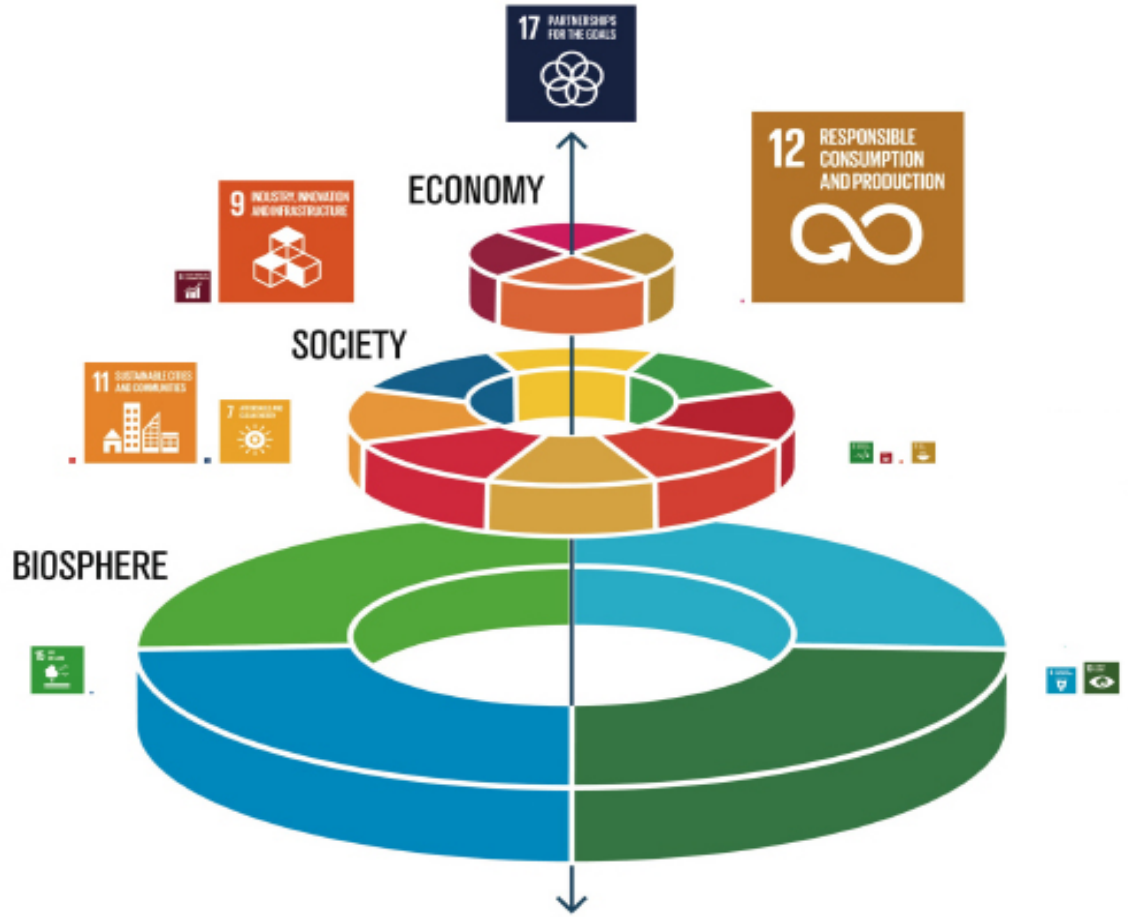
We are what we eat!

(Feuerbach L., Die Naturwissenschaft und die Revolution, 1971)

Impact on SDGs

of 40 Case Histories of Circular Economy for Food

The model of "wedding cake" to represent the food relations with SDGs, by Rockström e Sukhdev



systems MDPI

Article

Circular Economy for Food: A Systemic Interpretation of 40 Case Histories in the Food System in Their Relationships with SDGs †

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† A preliminary version of this paper was presented in Relating System Thinking and Design 2017, RSD6, Oslo, 18–20 October 2017 and published in the Conference Proceedings as Fassio F., Tecco, N. (2017). The Circular Economy for Food, a systemic interpretation of the circular economy through the holistic view of the Gastronomic Sciences. In Proceedings of the Relating Systems Thinking and Design (RSD6) 2017 Symposium, Oslo, Norway, 18–20 October 2017 (ISSN 2371-8404). The proceedings are published and available online as open access documents at https://systemic-design.net/rsd6/rsd6-proceedings/.

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Abstract: While the Circular Economy is widely championed by academics, companies, and politicians, its implementation is still an open issue. Its applications reveal a split between theory and practice. This break makes it difficult to pinpoint how coherent practices are with the original concept and how to understand the purpose of the actions and assess the results' effectiveness. This is immediate when we consider the complexity of food. This paper aims to provide further insight on the applications and spill over of the circular economy into the food system. Through the systemic analysis of case histories, the research evaluates the effects of 40 circular economy actions in their relationship with Sustainable Development Goals, by assessing how they have been able to integrate and balance the economic, social, and environmentally sustainable development's dimensions into the food system. What emerges is that food can be a fertile ground for the implementation of a circular economy's principle and could also provide support in understanding its evolution and adjusting its objectives accordingly. Food is strategic and could be a perfect field for testing a new approach to raw material and waste and for the development of a new context of inquiry, defined as "Circular Economy for Food".

Keywords: circular economy; food system; sustainability; SDGs; system thinking; Agenda 2030

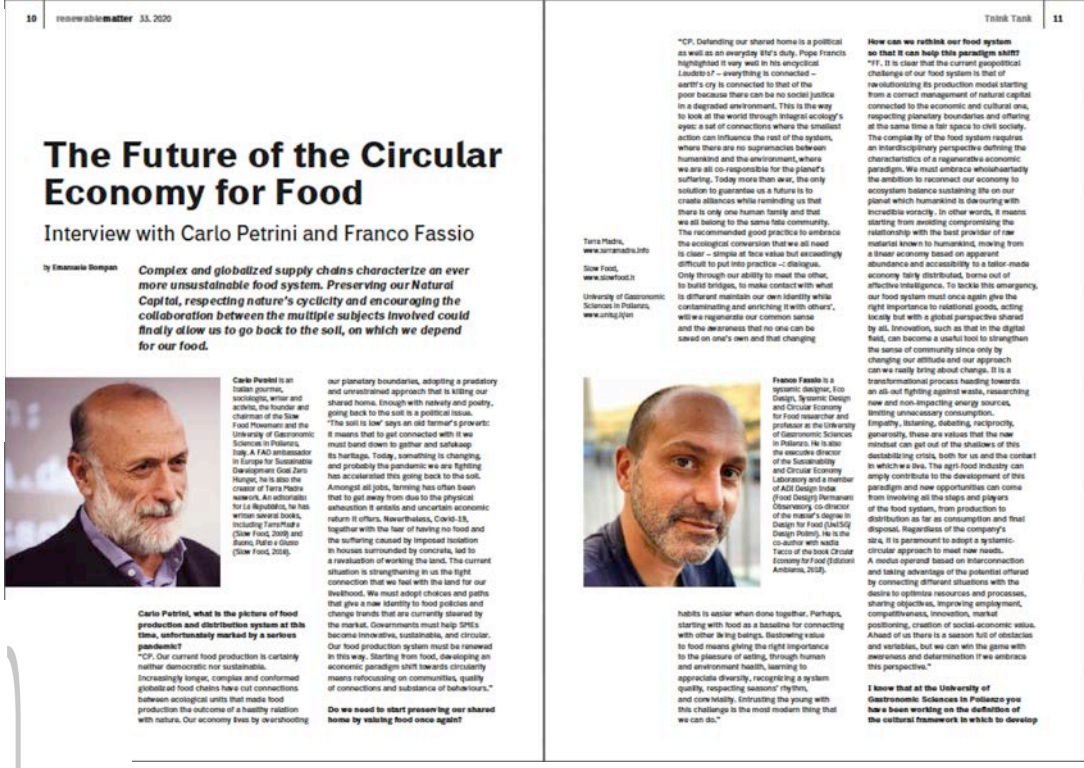
the Circular Economy applied to food, still pays little attention **to the safeguarding of the base of the "cake"** or natural capital and the biogeochemical cycles connected to the climate, water and soil.

The new economic paradigm risks becoming a model that favors a **manipulative approach to waste**, a situation that could paradoxically lead to **an acceleration of planned obsolescence**. https://www.mdpi.com/2079-8954/7/3/43/htm

Magazine Renewable Matter (2020)

A **cultural framework** for **the Circular Economy for Food**

https://www.renewablematter.eu/articoli/article/carlo-petrini-e-franco-fassio-ecco-il-futuro-delleconomia-circolare-per-il-cibo



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The Future of the Circular Economy for Food

Interview with Carlo Petrini and Franco Fassio

by Emanuele Bompan

Complex and globalized supply chains characterize an ever more unsustainable food system. Preserving our Natural Capital, respecting nature's cyclicity and encouraging the collaboration between the multiple subjects involved could finally allow us to go back to the soil, on which we depend for our food.

Carlo Petrini is an Italian gourmet, sociologist, writer and activist, the founder and chairman of the Slow Food Movement and the University of Gastronomic Sciences in Pollenzo, Italy. A FAO ambassador in Europe for Sustainable Development Goal Zero Hunger, he is also the creator of Terra Madre network. An editorialist for La Repubblica, he has written several books, including TerraMadre (Slow Food, 2009) and Buono, Pulito e Giusto (Slow Food, 2016).

Franco Fassio is a systemic designer, Eco Design, Systemic Design and Circular Economy for Food researcher and professor at the University of Gastronomic Sciences in Pollenzo. He is also the executive director of the Sustainability and Circular Economy Laboratory and a member of ADI Design Index (Food Design) Permanent Observatory, co-director of the master's degree in Design for Food (UniSG/Design Politi). He is the co-author with Nadia Tacco of the book Circular Economy for Food (Edizioni Ambiente, 2018).

Carlo Petrini, what is the picture of food production and distribution system at this time, unfortunately marked by a serious pandemic?

"CP. Our current food production is certainly neither democratic nor sustainable. Increasingly longer, complex and conformed globalized food chains have cut connections between ecological units that made food production the outcome of a healthy relation with nature. Our economy lives by overshooting our planetary boundaries, adopting a predatory and unrestrained approach that is killing our shared home. Enough with naivety and poetry, going back to the soil is a political issue. "The soil is low" says an old farmer's proverb: it means that to get connected with it we must bend down to gather and safeguard its heritage. Today, something is changing, and probably the pandemic we are fighting has accelerated this going back to the soil. Amongst all jobs, farming has often been that to get away from due to the physical exhaustion it entails and uncertain economic return it offers. Nevertheless, Covid-19, together with the fear of having no food and the suffering caused by imposed isolation in houses surrounded by concrete, led to a revaluation of working the land. The current situation is strengthening in us the tight connection that we feel with the land for our livelihood. We must adopt choices and paths that give a new identity to food policies and change trends that are currently steered by the market. Governments must help SMEs become innovative, sustainable, and circular. Our food production system must be renewed in this way. Starting from food, developing an economic paradigm shift towards circularity means refocussing on communities, quality of connections and substance of behaviours."

Do we need to start preserving our shared home by valuing food once again?

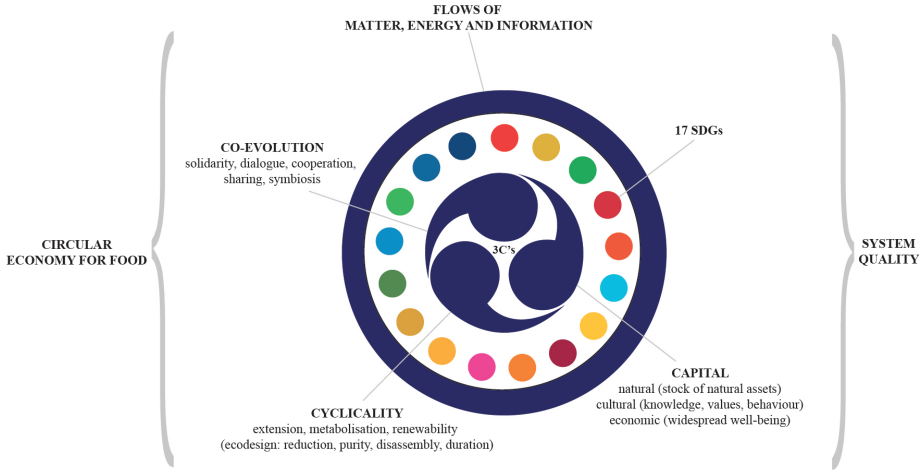
Think Tank 11

"CP. Defending our shared home is a political as well as an everyday life's duty. Pope Francis highlighted it very well in his encyclical Laudato si' – everything is connected – earth's cry is connected to that of the poor because there can be no social justice in a degraded environment. This is the way to look at the world through integral ecology's eyes: a set of connections where the smallest action can influence the rest of the system, where there are no supremacies between humankind and the environment, where we are all co-responsible for the planet's suffering. Today more than ever, the only solution to guarantee us a future is to create alliances while reminding us that there is only one human family and that we all belong to the same Tera community. The recommended good practice to embrace the ecological conversion that we all need is clear – simple at face value but exceedingly difficult to put into practice –: dialogue. Only through our ability to meet the other, to build bridges, to make contact with what is different maintain our own identity while contaminating and enriching it with others', will we regenerate our common sense and the awareness that no one can be saved on one's own and that changing habits is easier when done together. Perhaps, starting with food as a baseline for connecting with other living beings. Bestowing value to food means giving the right importance to the pleasure of eating, through human and environment health, learning to appreciate diversity, recognizing a system quality, respecting seasons' rhythm, and core totality. Entrusting the young with this challenge is the most modern thing that we can do."

How can we rethink our food system so that it can help this paradigm shift?

"FF. It is clear that the current geopolitical challenge of our food system is that of revolutionizing its production model starting from a correct management of natural capital connected to the economic and cultural one, respecting planetary boundaries and offering at the same time a fair space to civil society. The complexity of the food system requires an interdisciplinary perspective defining the characteristics of a regenerative economic paradigm. We must embrace wholeheartedly the ambition to reconnect our economy to ecosystem balance sustaining life on our planet which humankind is devouring with incredible voracity. In other words, it means starting from avoiding compromising the relationship with the best provider of raw material known to humankind, moving from a linear economy based on apparent abundance and accessibility to a tailor-made economy fairly distributed, borne out of affective intelligence. To tackle this emergency, our food system must once again give the right importance to relational goods, acting locally but with a global perspective shared by all. Innovation, such as that in the digital field, can become a useful tool to strengthen the sense of community since only by changing our attitude and our approach can we really bring about change. It is a transformational process heading towards an all-out fighting against waste, researching new and non-impacting energy sources, limiting unnecessary consumption. Empathy, listening, debating, reciprocity, generosity, these are values that the new mindset can get out of the shadows of this destabilizing crisis, both for us and the context in which we live. The agri-food industry can amply contribute to the development of this paradigm and new opportunities can come from involving all the steps and players of the food system, from production to distribution as far as consumption and final disposal. Regardless of the company's size, it is paramount to adopt a systemic-circular approach to meet new needs. A modus operand based on interconnection and taking advantage of the potential offered by connecting different situations with the desire to optimize resources and processes, sharing objectives, improving employment, competitiveness, innovation, market positioning, creation of social-economic value. Ahead of us there is a season full of obstacles and variables, but we can win the game with awareness and determination if we embrace this perspective."

I know that at the University of Gastronomic Sciences in Pollenzo you have been working on the definition of the cultural framework in which to develop



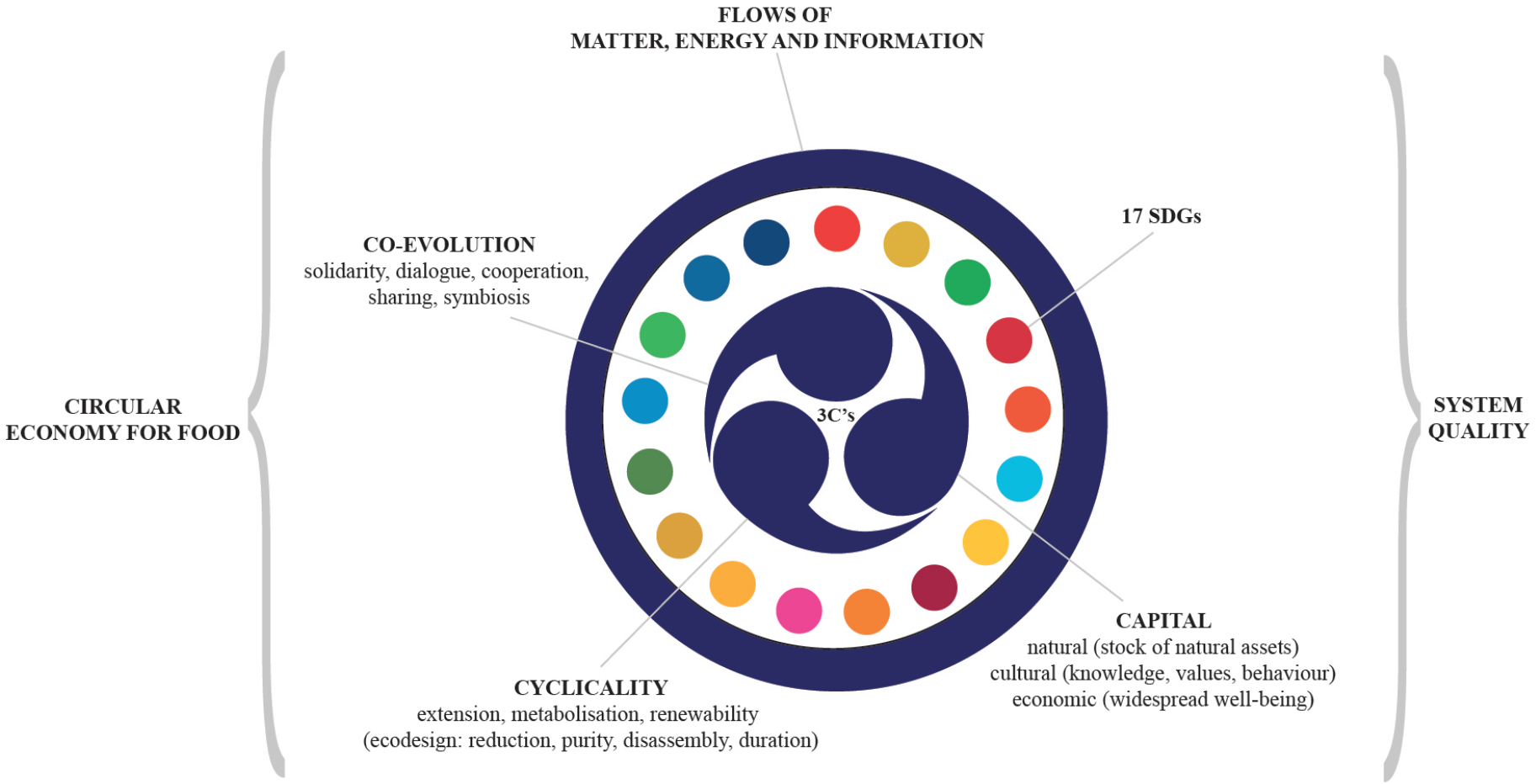
No. 73 (2021): diid disegno industriale industrial design

The 3 C's of the Circular Economy for Food.
A Conceptual Framework for Circular Design in the Food System

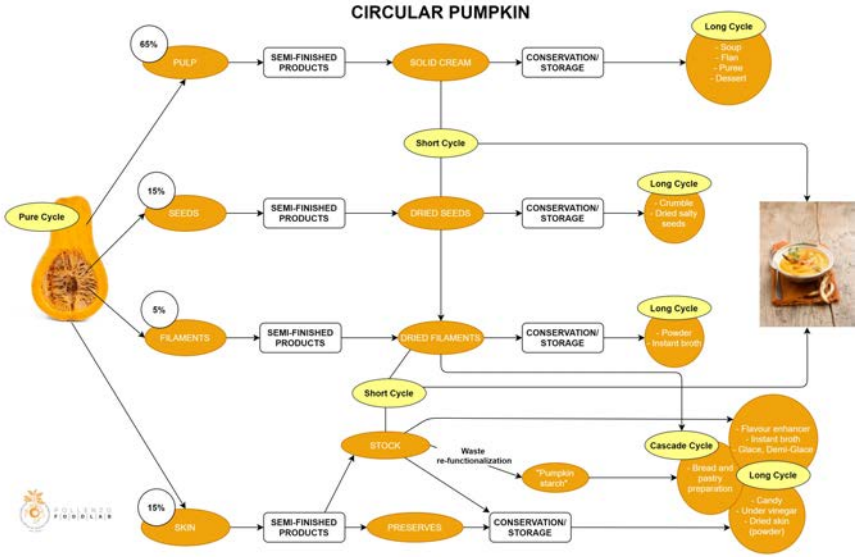
https://www.diid.it/diid/index.php/diid/issue/view/diid73/diid73

The 3C for Circular Economy for Food

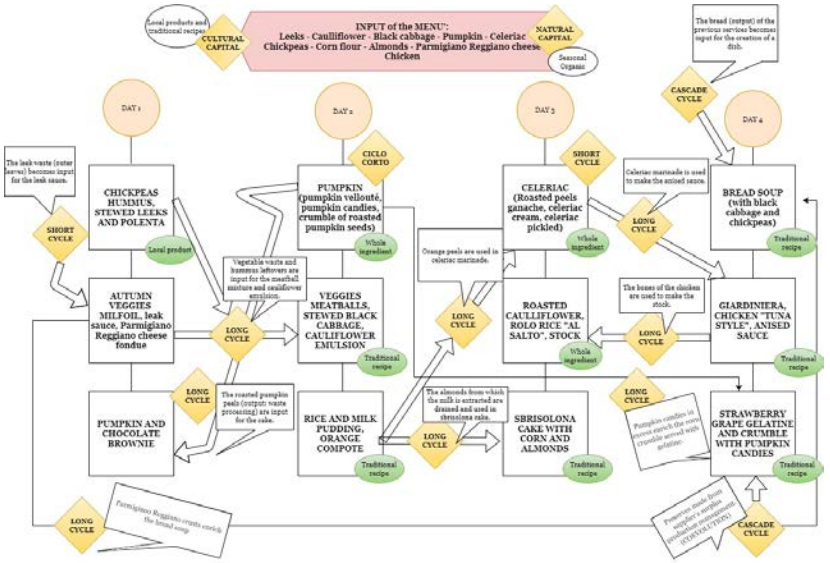
Case Histories on Capital, Cyclicality, Coevolution



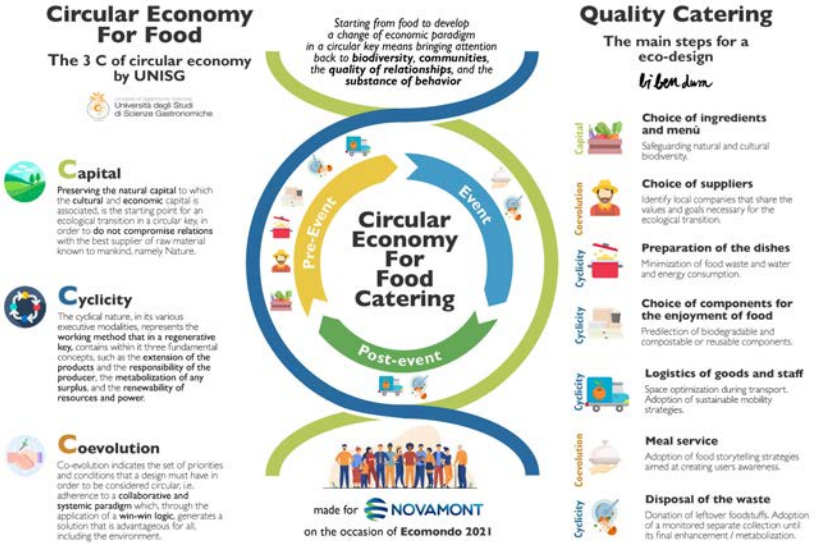
Circular Cuisine



Circular Menù



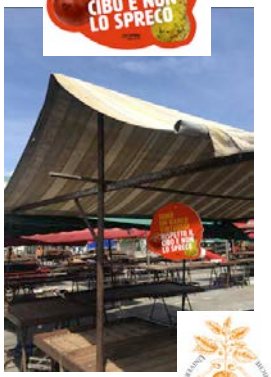
CEFF Catering



Circular Market

Activities RePoPP

image reference: UNISG database, from project RePoPP (2018)



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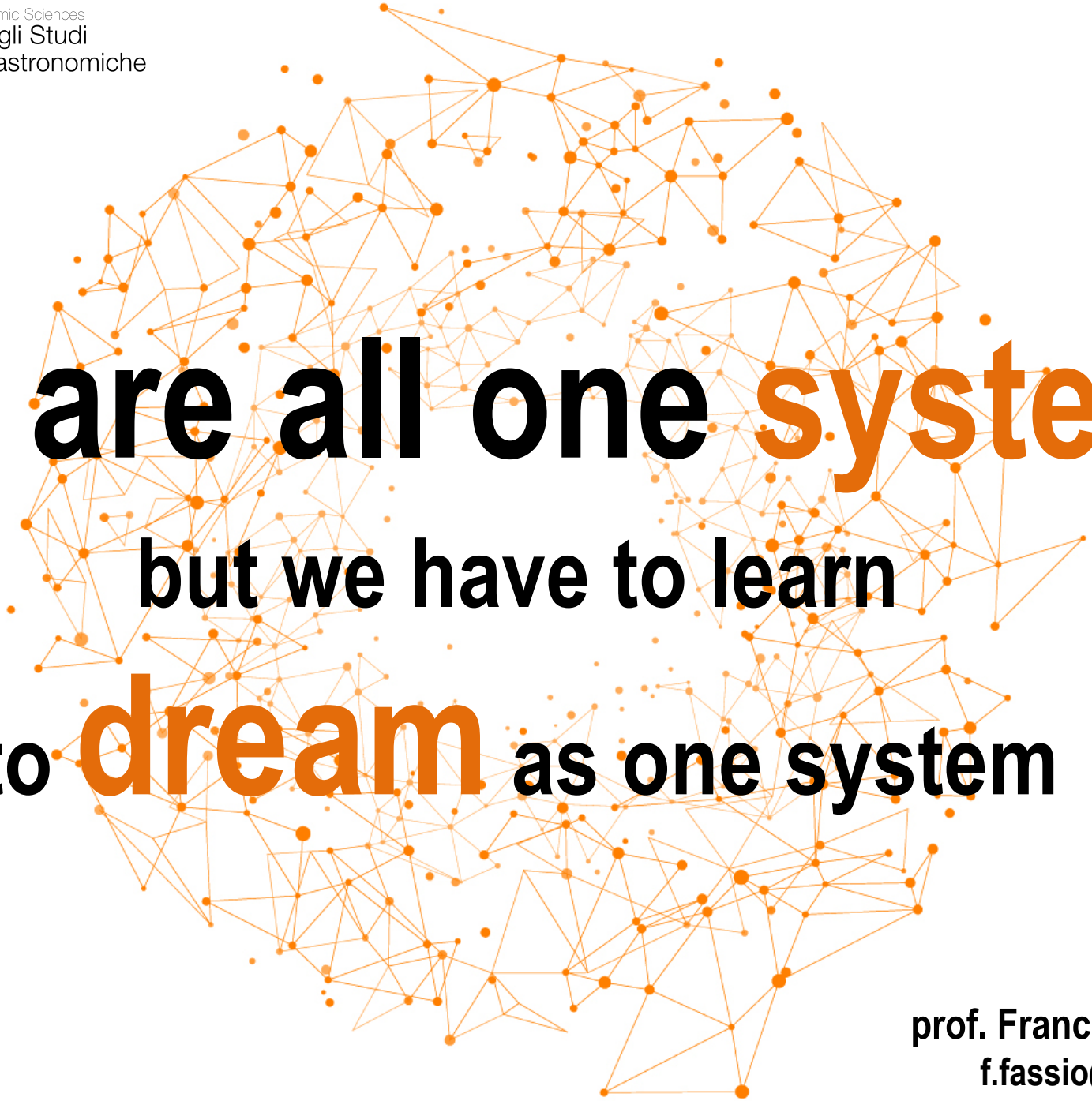

we are all one system

but we have to learn

to dream as one system

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