

# SDGs Exploration



*Idea<sup>s</sup>*

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Catarina Batista



# Who am I to talk to you

## Catarina Batista

- Mindset Accelerator at CERN IdeaSquare
- BA Organisational Communication, Post-grad Product and Service Innovation, MSc Psychology.
- Passionate about education and humanitarian challenges.
- European nomad, generalist and animal lover.





# For today...

1. Understanding what are the SDGs and what progress have we made towards achieving them;
2. Understanding the SDGs as an interlinked system;
3. Understanding what is systems thinking;
4. Experimenting with some SDG exploration.



**SDG Game!**



Once a hydropower dam has been built, its impact on the environment is neutral.

A True

B False





Once a hydropower dam has been built, its impact on the environment is neutral.

A True

B False



B - False

While hydropower is considered renewable energy, dams can have large environmental consequences. The decay of submerged vegetation produces methane, which is one of the most detrimental greenhouse gases. In addition, dams can cause significant damage to river ecosystems. When planned and operated poorly, they can cause the collapse of entire fish stocks, resulting in increased poverty, malnutrition and migration in downstream populations dependent on fish for food and livelihoods.





Poor families, when given cash, are more likely to spend it on...

A education.

B alcohol.







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A - education.

Generally, when given cash, poor people tend to spend most of the money to cover their basic needs. In Brazil, for example, in one of the biggest cash transfer programmes in the world, researchers found that poor families invested more in education than in alcohol and other consumables when given extra cash. In a separate global study, it was found that cash transfers resulted in increased school attendance due to the removal of financial barriers. Cash transfers, rather than distributions in kind, are being increasingly used as an effective way of helping the poor.





There are more refugees living in...

- A high-income countries (Gross National Income (GNI) per capita of over USD 12,235 per year).
- B low-income countries (GNI per capita less than USD 1,045 per year).





There are more refugees living in...

A

high-income countries  
(Gross National Income  
(GNI) per capita of over USD  
12,235 per year).

B

low-income countries (GNI  
per capita less than USD  
1,045 per year).



B - low-income countries  
(GNI per capita less than USD  
1,045 per year).

In 2017, 5.3 million refugees lived in the 34 low-income countries of the world, whereas 2.9 million lived in the 78 high-income countries. Germany is the only high-income country in the top-ten host countries for refugees (1 million); low-income countries bear a disproportionate burden in hosting refugees, including Uganda (1.4 million) and Ethiopia (0.9 million).





What is the percentage of the global population that does not have access to education in a language they speak or understand?

A 5%

B 40%





What is the percentage of the global population that does not have access to education in a language they speak or understand?

A 5%

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B - 40%

It is estimated that 40% of the global population does not have access to education in a language they speak or understand. Bilingual education is important especially in ethnically diverse countries and has proven to improve learning and school attendance.





Lesbian, Gay, Bisexual,  
Transgender and Intersex  
(LGBTI) people in China are  
more accepted in their...

A Families.

B Workplaces.





Lesbian, Gay, Bisexual, Transgender and Intersex (LGBTI) people in China are more accepted in their...

A Families.

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B - Workplaces.

According to a National Survey conducted by UNDP China, Peking University and Beijing LGBT Center on social attitudes towards sexual orientation, gender identity and gender expression, families have the lowest degree of acceptance for LGBTI groups (8.1%). In contrast, less than 30% chose "complete rejection" by their school teachers, supervisors and colleagues for identifying as LGBTI.





Xiaoli wishes to reduce her personal water footprint. Which strategy would be more successful?

- A To eat pork one time less per week
- B To shower one time less per week







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A - To eat pork one time less per week

In China the average person consumes 2,934 litres of water per day, of which only a small proportion is for household needs. The lion's share goes towards food and other consumer products. Pork meat (200g) requires around 1197 litres of virtual water (water used in the production of food and other consumer products) to produce. For household needs – including showering – the average Chinese person uses 28 litres a day.





Between 2010 and 2015,  
forest cover in China has...

A increased.

B decreased.





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forest cover in China has...

A increased.

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A - increased.

Over the last three decades, forest cover in China has continued to increase, with 338'000 square kilometers of new forest having been created just in the past five years. In order to reach the ambitious target of 23% land covered by woodlands by 2020 (from 21.7% in 2016), 60'000 soldiers and armed police officers have been assigned to plant trees. The efforts towards afforestation are aimed to tackle high levels of air pollution and to sequester CO2 emissions.



If current trends continue, by 2050, there will be, by weight, more of which of these two in the oceans?

A Fish

B Plastic





If current trends continue, by 2050, there will be, by weight, more of which of these two in the oceans?

A Fish

B Plastic



B - Plastic

If current trends continue, by 2025, there will be about one tonne of plastic for every three tonnes of fish in the ocean, and by 2050, there will be, by weight, more plastic than fish in the ocean.





In the world, on average,  
it is more likely to...

A be forced into slavery.

B die because of homicide.





In the world, on average,  
it is more likely to...

**A** be forced into slavery.

**B** die because of homicide.



A - be forced into slavery.

In 2012, intentional homicide took the lives of almost half a million people. 40 times more (21 million) were victims of forced labour. Forced labour denotes situations in which the persons involved are made to work against their free will, coerced by their recruiter or employer, or by more subtle means such as accumulated debt, retention of identity papers or threats of denunciation to immigration authorities.





There are more countries worldwide...

**A** with freedom of expression and freedom of the press.

**B** without freedom of expression or freedom of the press.







There are more countries worldwide...

**A** with freedom of expression and freedom of the press.

**B** without freedom of expression or freedom of the press.



**B** - without freedom of expression or freedom of the press.

Across the world, freedom of the press is increasingly under pressure. In the majority of countries, the media is controlled and media professionals are impeded in their work, whether through censorship, control, or violence. Truly free media is an exception worldwide. According to the 2019 World Press Freedom Index by Reporters without Borders, the top ten positions are held by Norway, Finland, Sweden, Netherlands, Denmark, Switzerland, New Zealand, Jamaica, Belgium and Costa Rica.



# What are the SDGs?

- 17 Sustainable Development Goals, 169 targets, 231 indicators.
- Shared **blueprint for peace and prosperity** for people and the planet, now and into the future.
- Urgent **call for action** by all countries - developed and developing - in a **global partnership**.
- Successor of the eight Millennium Development Goals (MDGs) to reduce extreme poverty adopted in 2000.





# One step forward, two steps back (?)

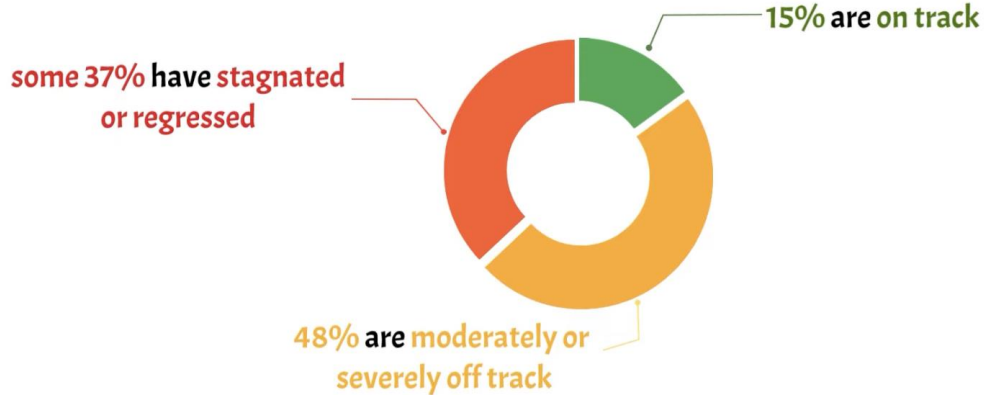


- Digital transformation and quick adaptation from cities and communities were **positive results** of COVID-19.
- The confluence of crises, dominated by COVID-19, climate change, and conflicts, are creating **spin-off impacts** on food and nutrition, health, education, the environment, and peace and security, and affecting all the SDGs.
- “Call for **cooperation and inclusion** of private sector, government institutions, academics, and municipalities in a ‘**whole-of society**’ effort to achieve sustainable development and a fairer societies.”

# How much progress has been made?

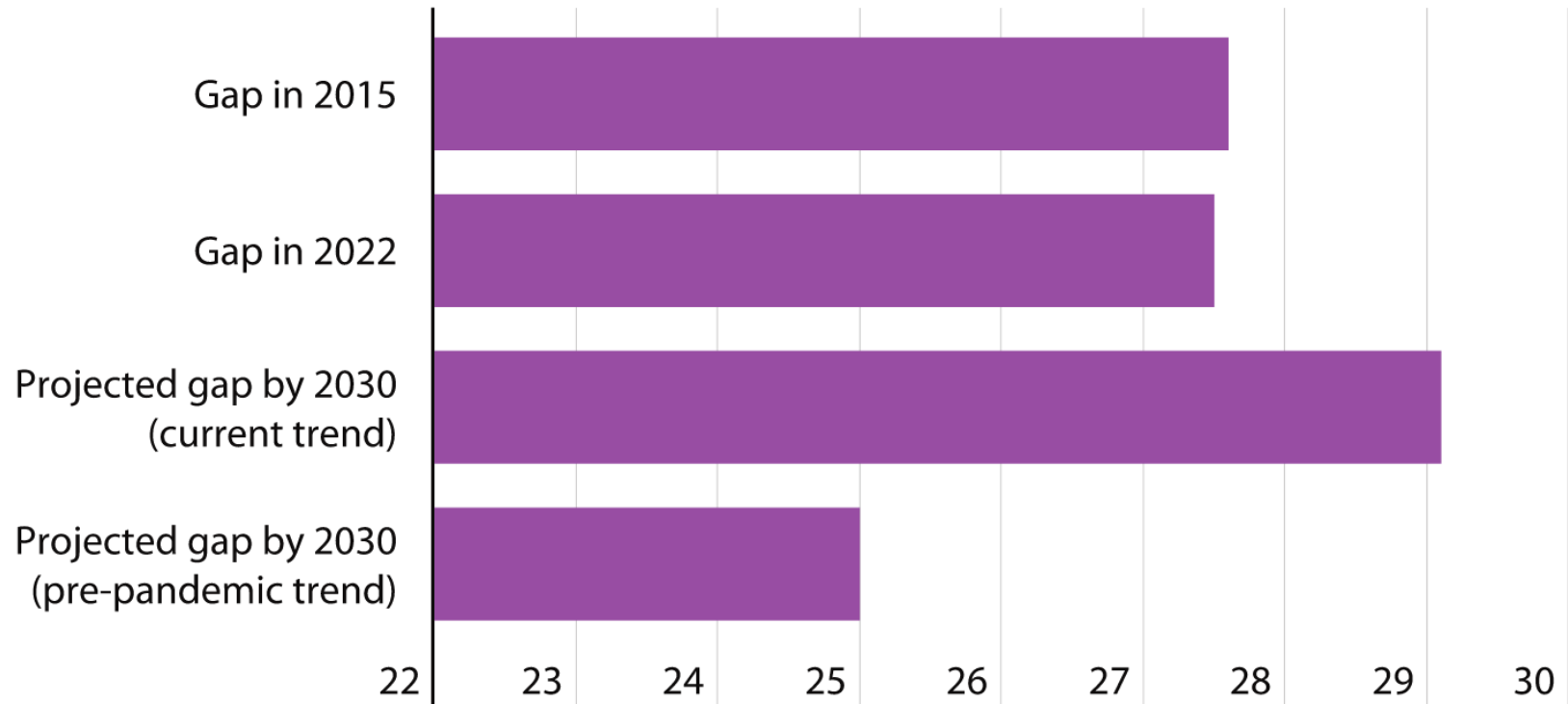
## The latest assessment of the SDG targets

paints a concerning picture:

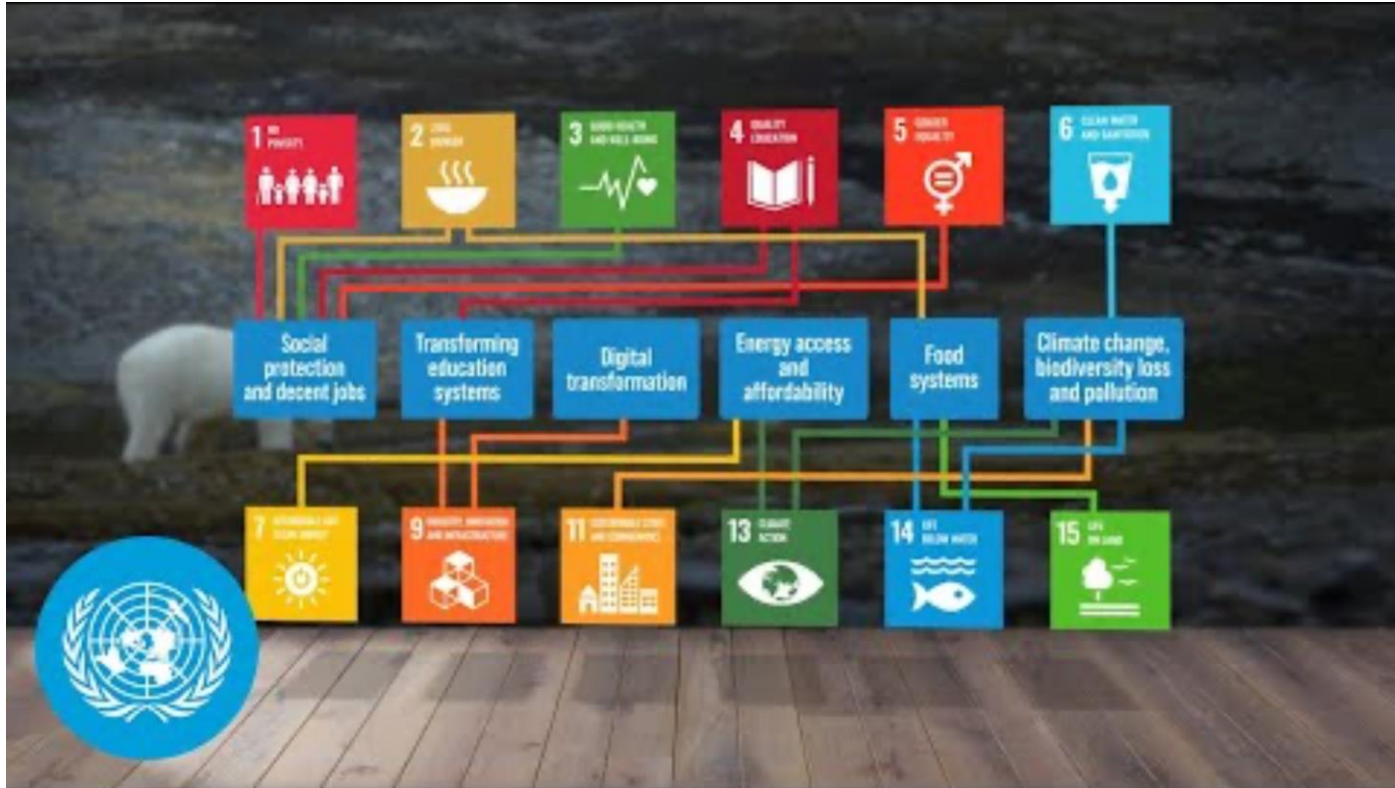


## The SDG Report 2023: Special Edition

**Figure 1.2** | Observed and projected gaps in SDG Index score between HICs and LICs (in percentage points)



# Stocktaking

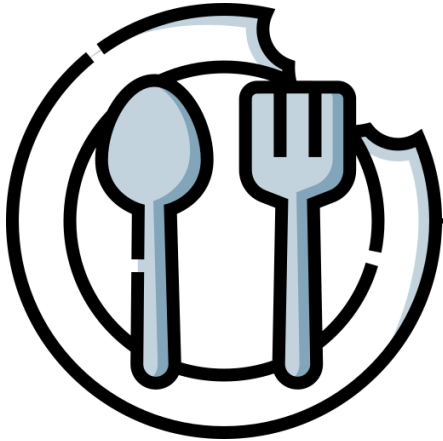




**Let's solve world hunger  
in 15min**

**Problem:**  
hunger

**Solution:**  
increase food production.

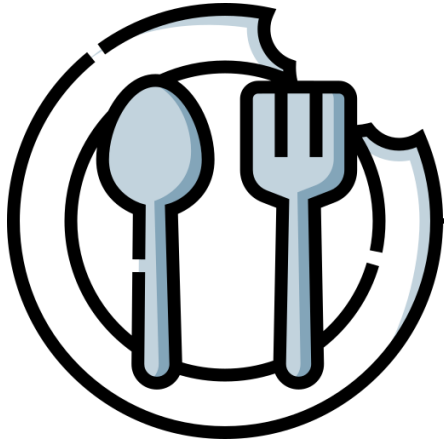




# Thinking linear

**Problem:**  
hunger

**Solution:**  
increase food production.



Solved?



# Tackling hunger

- We could feed much more than the world's population.
  - Main cause: food waste.
  - Reasons: cold storage, relative prices, and portion size
- Tackling areas such as responsible **consumption and production** (SDG 12), or even **education** (SDG 4) could contribute to changing the paradigm.
- In turn, we could be aiming at **reduced inequalities** (SDG 10).



# SDGs have linkages between each other



The 2030 SDG agenda recognizes that *"ending poverty and other deprivations must go hand-in-hand with strategies that improve health and education, reduce inequality, and spur economic growth – all while tackling climate change and working to preserve our oceans and forests."*

# Cross Impact Matrix

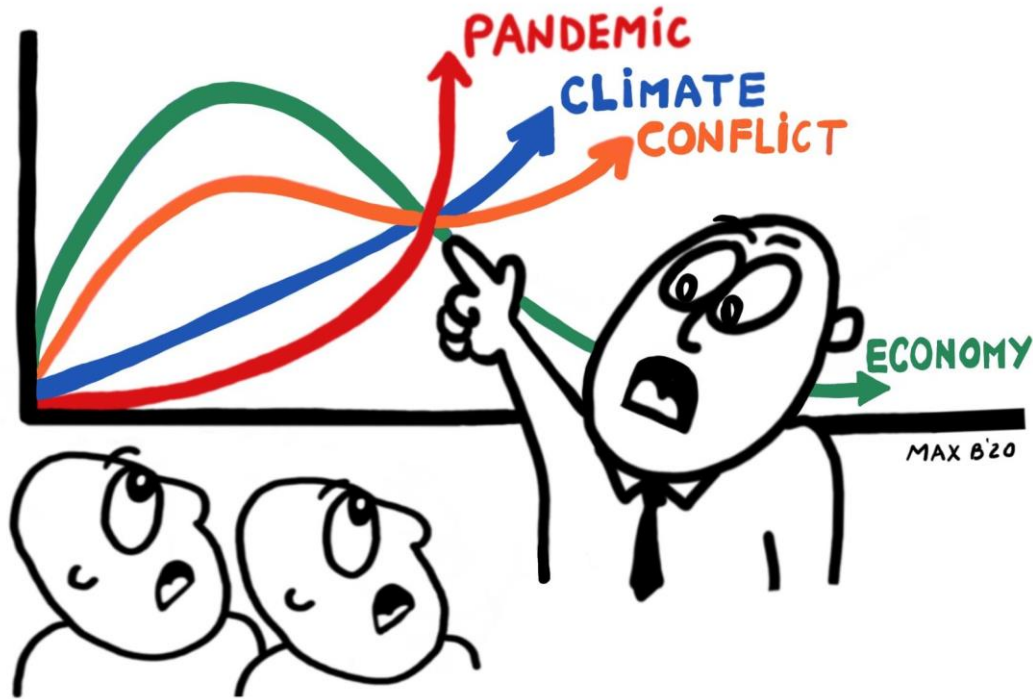
	SDG1	SDG2	SDG3	SDG4	SDG5	SDG6	SDG7	SDG8	SDG9	SDG10	SDG11	SDG12	SDG13	SDG14	SDG15	SDG16	Sum
SDG 1		3	5	2	6			1	-1	7	3				1		27
SDG 2	3		3					-1		-1	-1	2			1		8
SDG 3					2												2
SDG 4	4	2	3	1	9	3	1	7		8	3	3	1			3	48
SDG 5	2	2	4					2		1	1					1	13
SDG 6	2		12			6		3			1	1	2	1	7		35
SDG 7	3	3	4	-1		1	1	7	3	1	7	6	7				42
SDG 8		3	3		2					4	4	4	4		4		28
SDG 9	3	1	2	4	1	6	9	12	6	2	19	15	8	1	9	2	100
SDG 10	4	5	5	2	9	1		3			5		1			4	39
SDG 11	3	3	16	3	4	1	2	7	3	23	11	7	5		4	7	99
SDG 12	1	4	8	2	1	7	4	12	3	-1	7	8	7		4		67
SDG 13			3				2	2	2	1	2	3					15
SDG 14																	0
SDG 15	1		8			6		-3	1	1	5	1	3	2	12		37
SDG 16	1			5	5			1	1	6	2	1	1			6	29
Sum	27	28	76	18	39	31	19	53	18	52	69	51	39	4	42	23	

**Figure 5.** Cross-impact matrix of 16 SDGs. Numbers indicate the net influence of positive and negative interactions between targets of the corresponding SDGs.

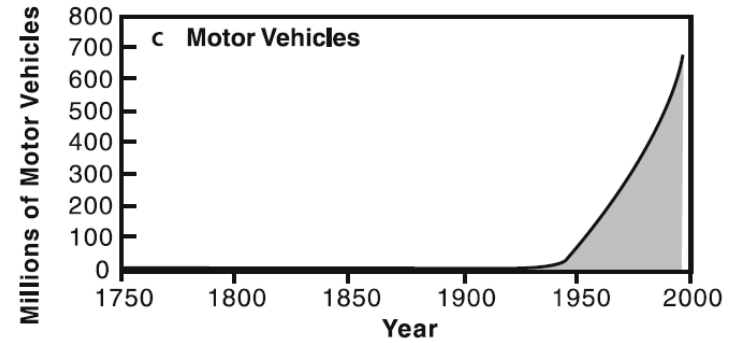
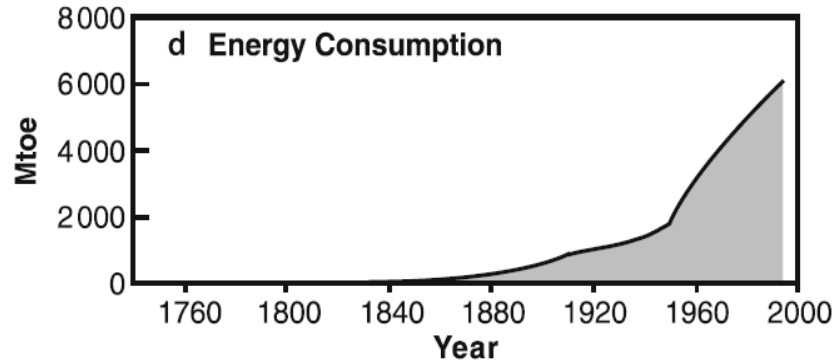
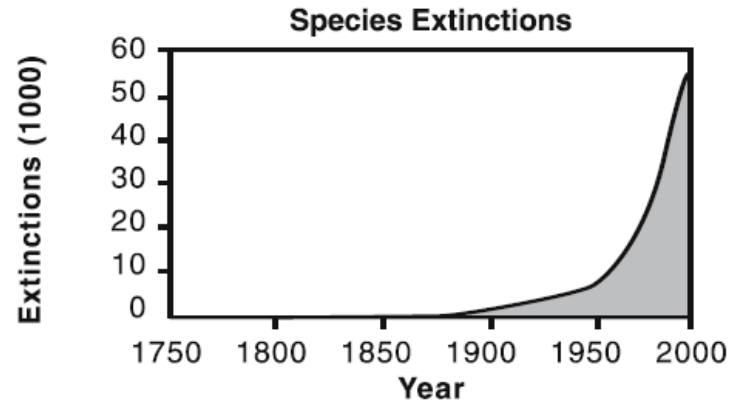
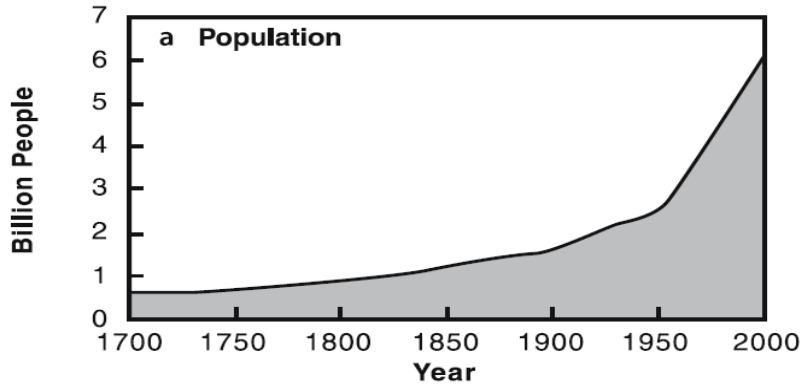


**Why are these problems so  
difficult to solve?**

**Why does the world seem to  
be getting more complex?**

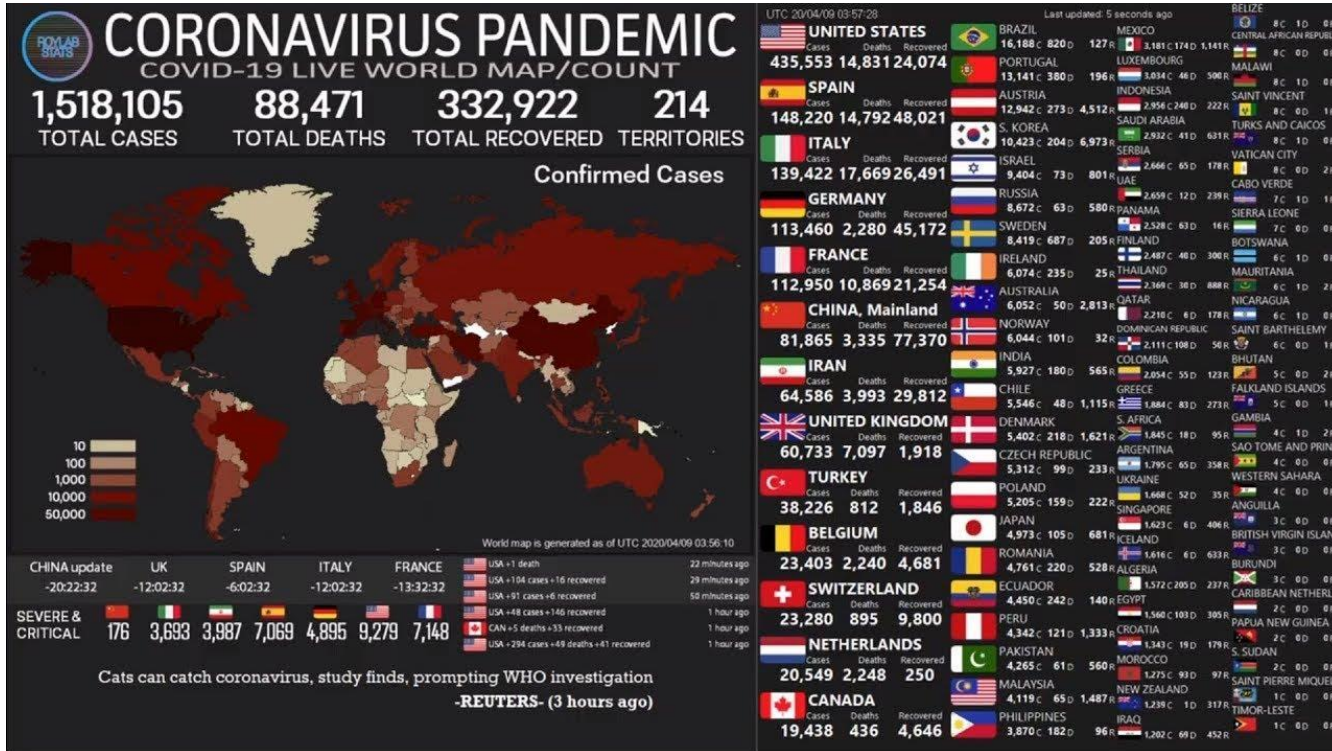


- The disasters are collaborating better than we are!



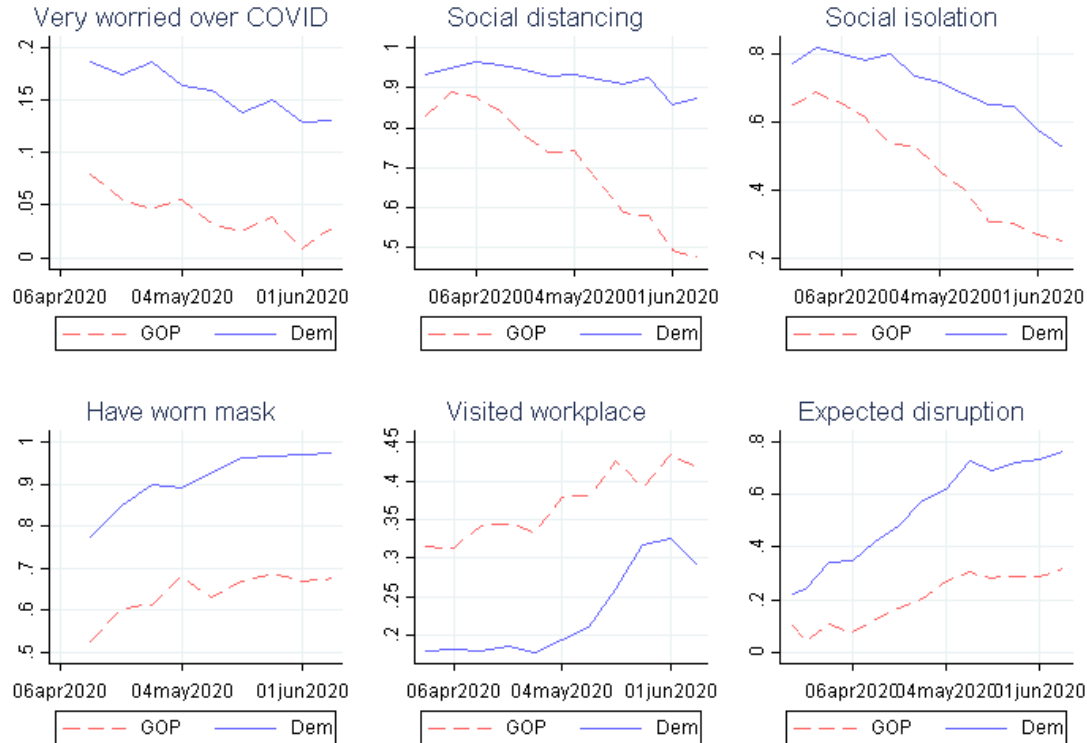


# Situation complexity – n° of variables



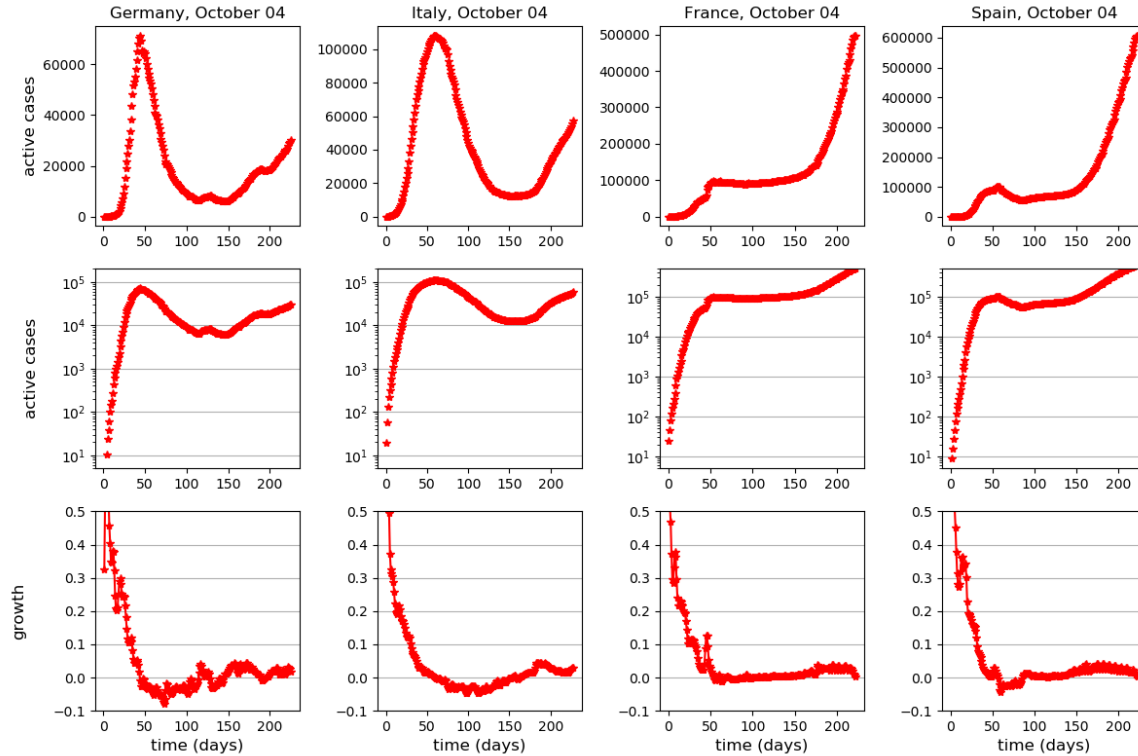


# Connectivity between variables



Funke, J. (2012) <sup>1</sup>

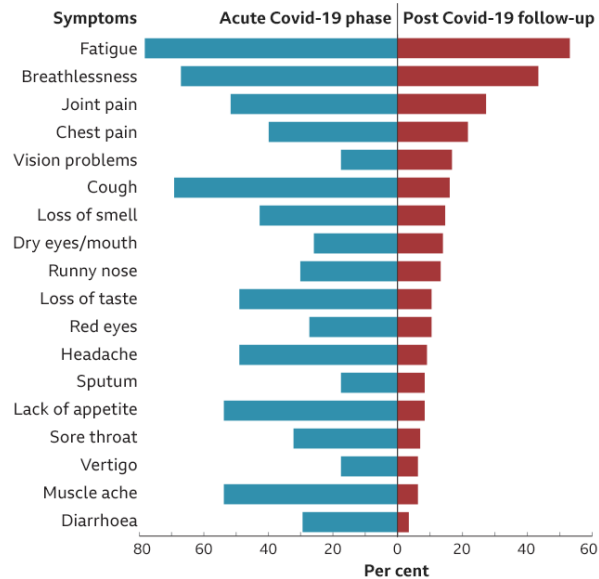
# Situation dynamics



# Intransparency about variables

## Persistent symptoms in Covid-19 patients

Patients followed up on average 60 days after first symptoms\*



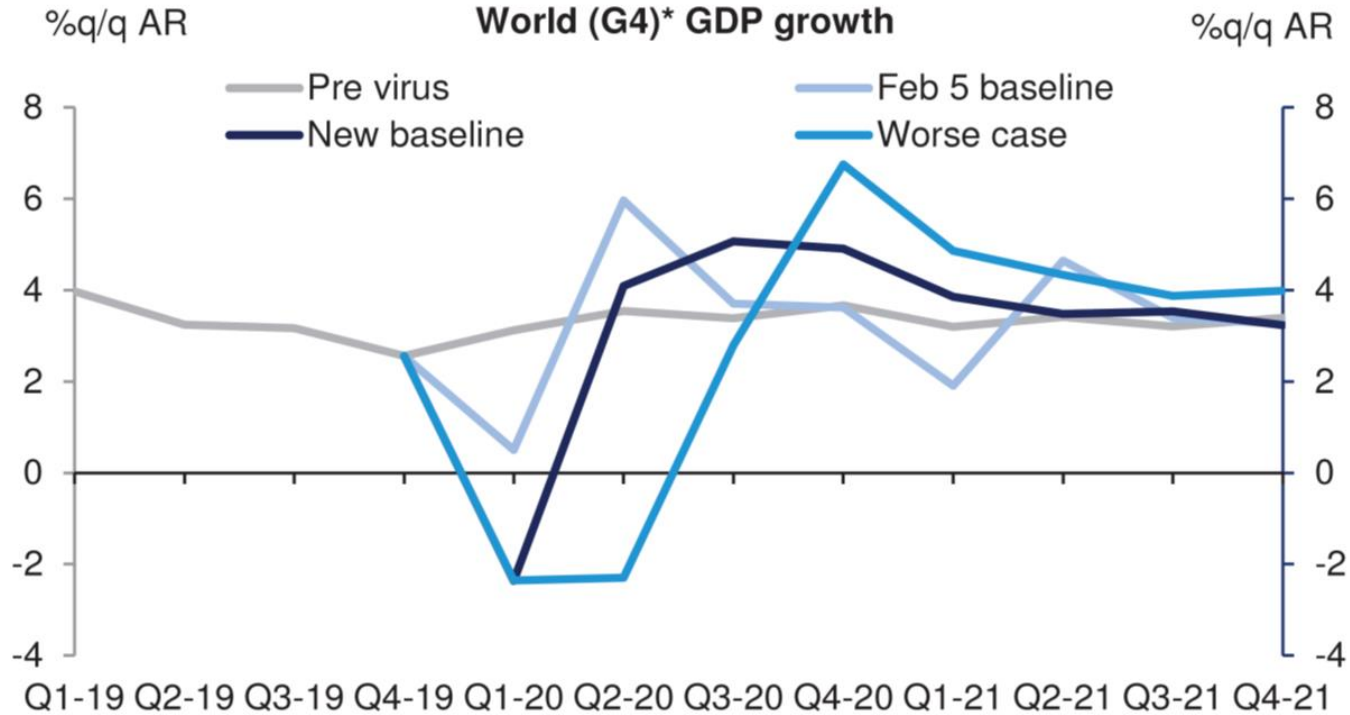
\*143 patients assessed in Rome in April and May 2020



Source: Jama/Carfi, Bernabei, Landi et al

BBC

Funke, J. (2012) <sup>1</sup>

# Polytely





**We need systemic  
approaches to tackle these  
interconnected, ill-defined  
problems**



**System  
(engineering)**

**=/=**

**System  
(design)**



# Definition of a system



*“A system is an interconnected set of elements, that is coherently organised in a way that achieves something.”*

- 1) Elements – many are visible / tangible
- 2) Interconnections – what holds the elements together, such as physical flows or information flows, influence and power
- 3) Function or purpose - goal of the system that drives behavior patterns

In a system, one plus one equals something else than two.



# What is thinking in systems?

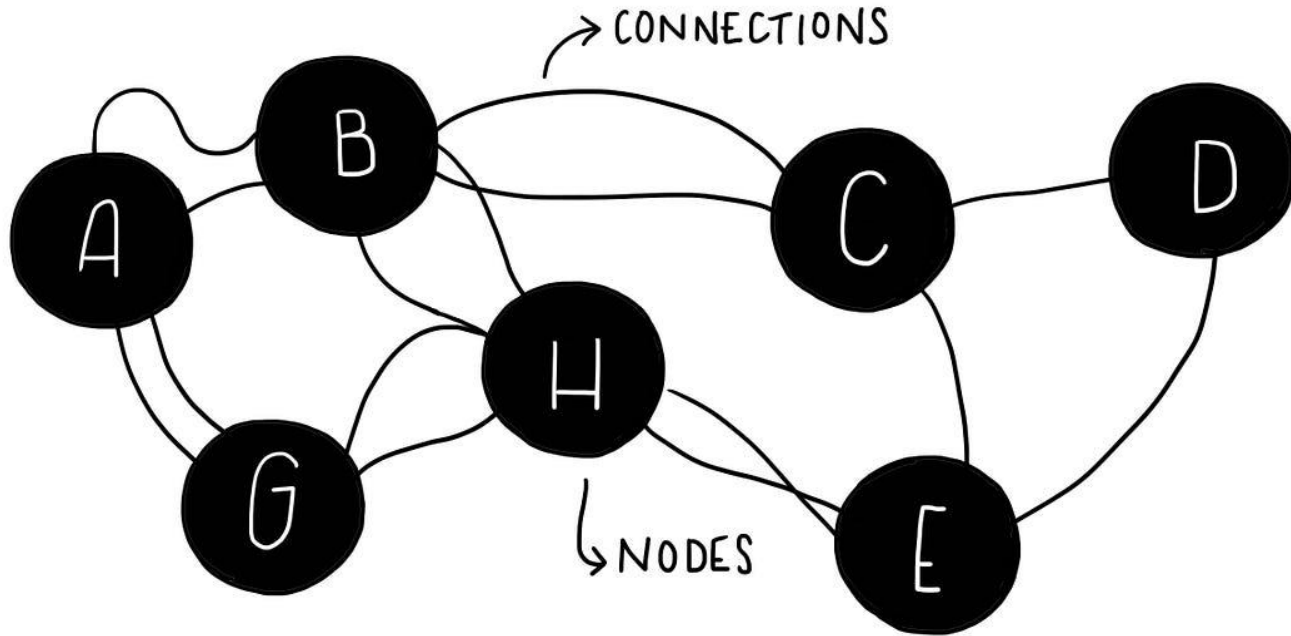


**Systems thinking** is a way of **making sense of the complexity** of the world by looking at it in terms of **wholes and relationships** rather than by splitting it down into its parts.

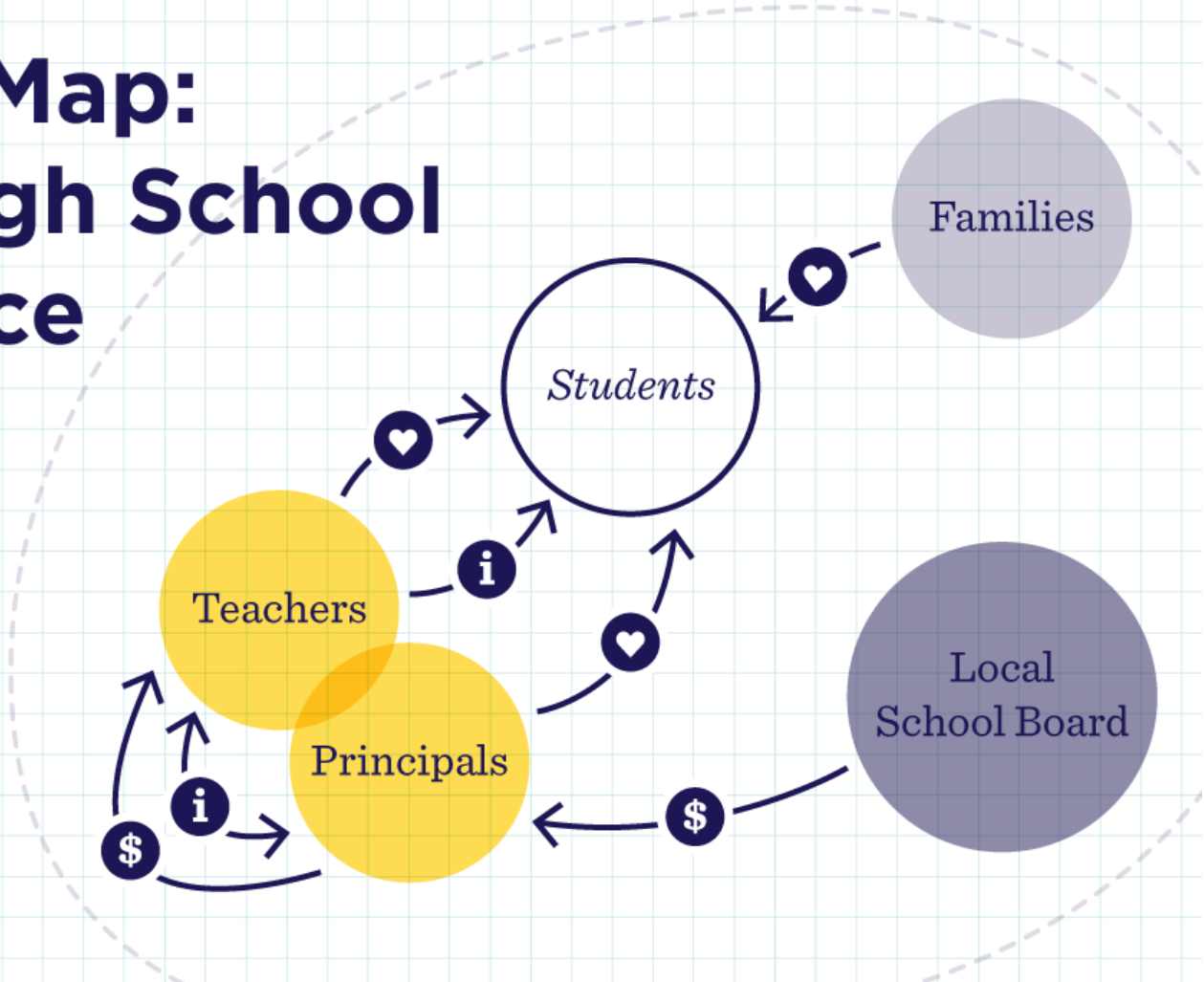
(Magnus Ramage and Karen Shipp. 2009. Systems Thinkers)



# SYSTEM MAPPING

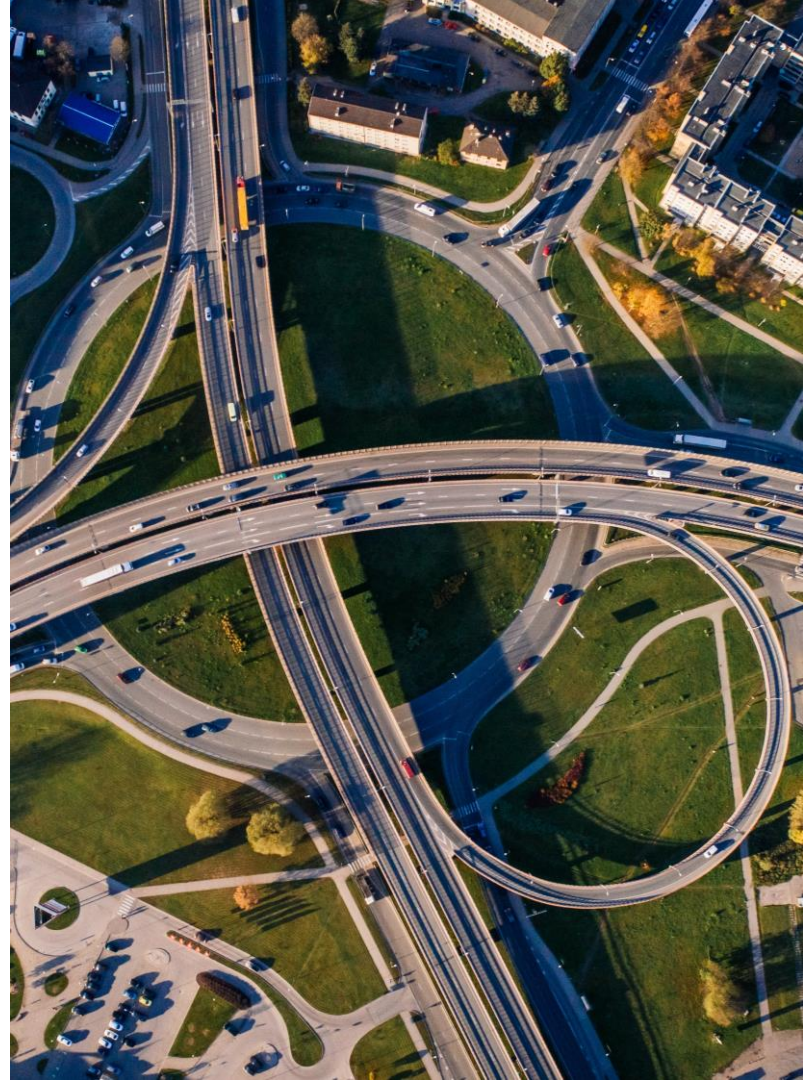


# Systems Map: Public High School Experience



# What does systems thinking give us?

- Ability to see the range of choices we have before us, then manage and adapt them.
- Way of thinking to **identify root causes** of problems.
- Way to discover new opportunities.
- Overview to understand possible **unintended consequences and ripple effects**.





**Your technology does  
not exist in a vacuum**



# Where to start?



- Consider your local challenges. Which SGDs could you prioritize?
  - What are the most pressing challenges?
  - What institutions, services and people/roles are involved?
  - How are they connected? What are some gaps or tension points?

# How do we start prioritizing?

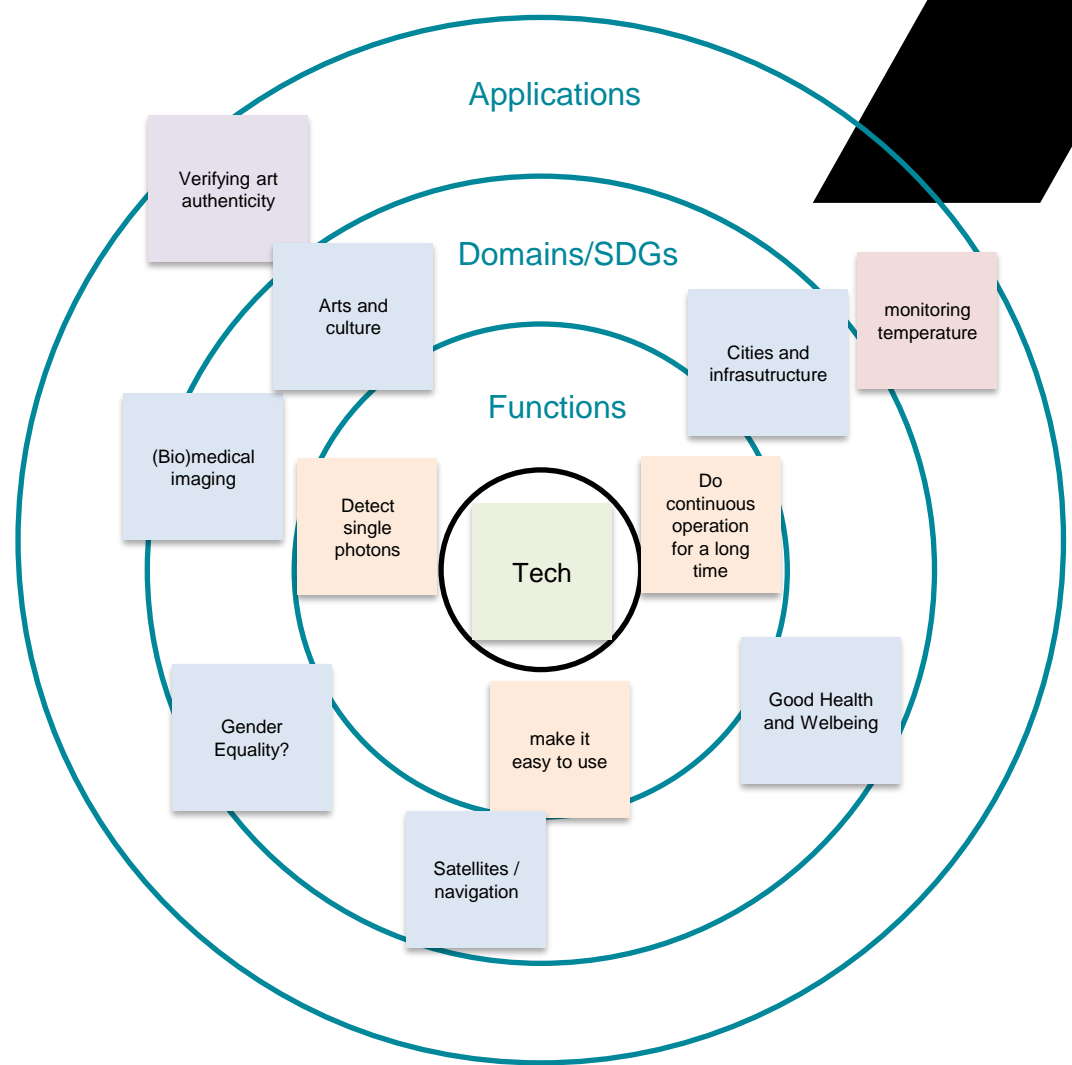
We selected **FIVE SDGs** that represent our greatest opportunities to contribute further and to identify new business opportunities connected with our business strategy.



# How can you connect them to your tech?

Based on your tech and SGD exploration:

- Which linkages and synergies can you envision?
- Can you take an “unexpected” SDG and ideate possible related solutions?





# Take yesterday as inspiration



Instead of being Dr. Machiattoveli, today you get to be Dr. Lattevabene.

How might you use your tech to increase/decrease global (*insert SDG indicator here*)?

*Bonus point if you share in teams and ideate together!*





# Reflecting...



How did taking this perspective influence your ideas?

Did you explore unexpected paths?

What did it bring you?



**Contact us!**  
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# Further reading and sources

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