



# Visegrad Sustainable

# Living Labs

Network 4 Youth of Universities (VSLLN4YOU)



UNIVERSITY OF INFORMATION TECHNOLOGY and MANAGEMENT in Reseave, POLAND





Czech University of Life Sciences Pragu

# Day 1

# SUSTAINABILITY AND LIVING LABS

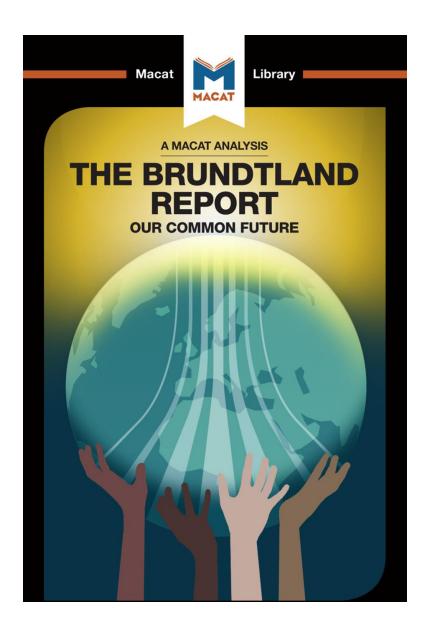












# 'Our Common Future'

In 1983 UN established World Commission on Environment and Development (WCED), under chair of Mrs Gro Harlem Brundtland. The commission published its famous report in 1987. The report noted the interconnectedness of economic development, environment and equality:

- environmental degradation is caused by a few technologically developed countries, but it affects us all,
- it is unfair and unacceptable to limit the development of poorer countries in order to limit the environmental impact of development; economic development and environmental degradation must be decoupled,
- poverty leads to environmental degradation,
- our inability to meet the needs of many people is not due to a lack of resources, but to the state of the art and ineffective social organization.









### Sustainable Developement defined

### Brundtland's report definition of sustainability:

- 'Sustainable development fulfills the needs of the present without compromising the ability of the future generations to meet their own needs.'
- '...sustainable development *is a process of change* in which the exploitation of resources, the direction of investments, the orientation of technological development, and institutional change are all in harmony and enhace both current and future potential to meet human needs and aspirations'.



### Sustainable Development Goals (SDGs)

In 2015, all the countries in the United Nations adopted the 2030 Agenda for Sustainable Development. It sets out 17 Goals, which include 169 targets. The Sustainable Development Goals (SDGs) aim to transform our world. They are a call to action to end poverty and inequality, protect the planet, and ensure that all people enjoy health, justice and prosperity. It is critical that no one is left behind.











SUSTAINABLE GOALS

#### **17 GOALS TO TRANSFORM OUR WORLD**



S**i**l

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### Sustainable Development and Universities

Sustainable development is crucial for the future of the Visegrad Region, Europe and the entire planet. The Sustainable Development Goals (SDGs) are a framework for development that ensures social cohesion, economic prosperity and environmental protection.

Higher education, through education, research and innovation, has a special role in the implementation of the Sustainable Development Goals, making universities key participants in achieving these goals.











# Discussion I

How can universities get involved in achieving the Sustainable Development Goals?

Which goals are specifically dedicated to higher education?

How do you understand the concept of "sustainable universities"?





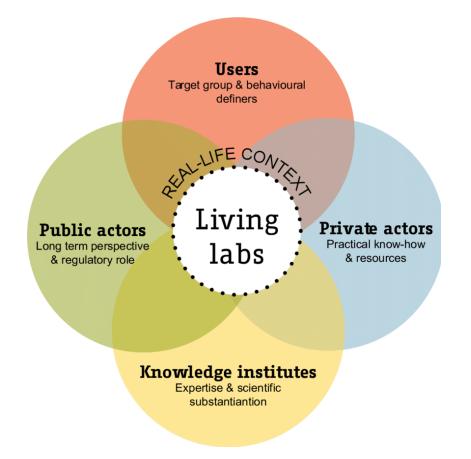




# Living Labolatories

- Living Labs (LLs) are open innovation ecosystems in real-life environments using iterative feedback processes throughout a lifecycle approach of an innovation to create sustainable impact.
- They focus on co-creation, rapid prototyping & testing and scalingup innovations & businesses, providing (different types of) jointvalue to the involved stakeholders.
- In this context, living labs operate as intermediaries/orchestrators among citizens, research organisations, companies and government agencies/levels.
- Within a wide variety of living labs, they all have common characteristics, but multiple different implementations.

Source: https://enoll.org/about-us/what-are-living-labs/











# University as Sustaniablity Living Labs



University Sustainability Living Labs use the energy, knowledge and commitment of students to solve real problems and face current challenges related to sustainable development.



By working on real life projects and doing research projects in cooperation with internal and external stakeholders, universities achieve goals or help their stakeholders achieve goals in the field of sustainable development.



The projects that the university's living labs are working on enable students to make positive changes by contributing to the community and the natural environment, and to develop green skills (key for future careers) and experience in an accessible way.









# GOOD PARCTICE: Universiti Teknologi Malaysia



#### Key Living Lab Initiatives

- LL1 : Sustainable Arcade
- LL2 : Green Office
- LL3 : Sustainable Energy Management
- LL4 : Bio-Recycling Centre
- LL5 : Green School
- LL6 : Green Community
- LL7 : Sustainable Transport
- LL8 : Bio-Diversity

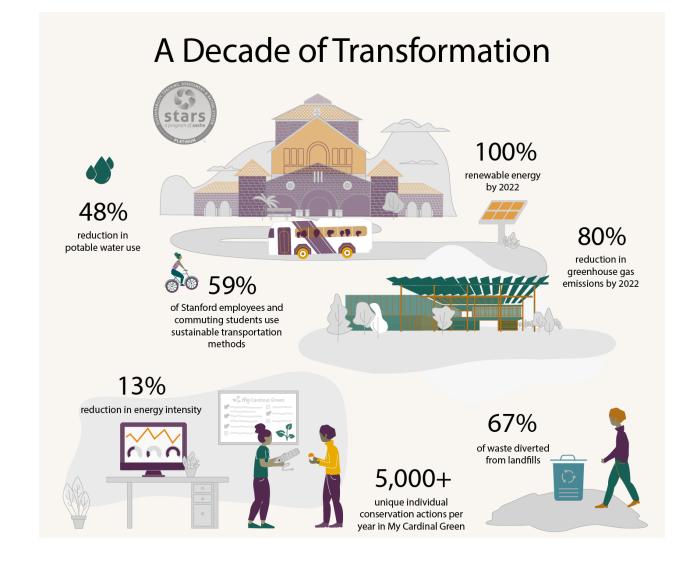








# GOOD PRACTICE: Stanford University



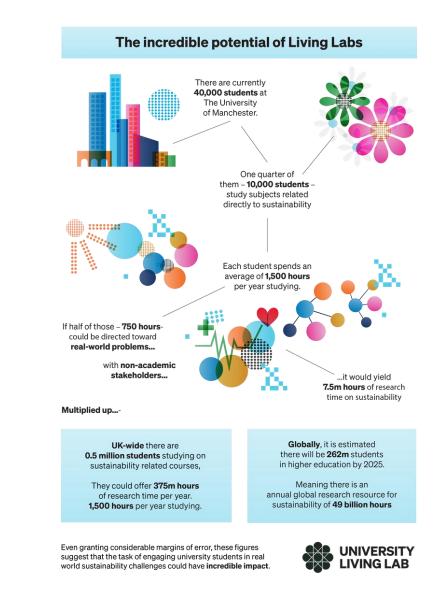








# the University of Manchester











# Discussion II

Imagine that you are responsible for organizing sustainability living labs at your university. Who (besides students) would you like to invite to cooperation/participation?

What sustainability challenges could Living Labs at your university address?

Can activity in living labs be part of the study program? If so, how can this be organised?



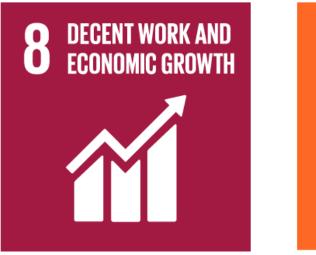








# Day 2









**12** RESPONSIBLE CONSUMPTION AND PRODUCTION



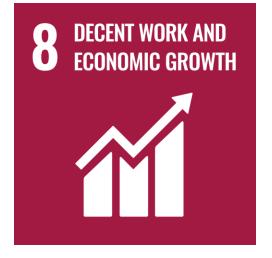












- $\Rightarrow$  WHY IT MATTERS?
- $\Rightarrow$  WHAT DOES "DECENT WORK" MEAN?
- $\Rightarrow$  HOW MANY PEOPLE ARE UNEMPLOYED?
- $\Rightarrow$  WHAT ARE THE CONSEQUENCES OF UNEMPLOYMENT?
- $\Rightarrow$  WHAT CAN WE DO TO FIX THESE ISSUES?
- $\Rightarrow$  WHAT IS THE LEVEL OF UNEMPLOYMENT IN THE VISEGRAD COUNTRIES?



Worldwide, 160 million children were engaged in child labour at the beginning of 2020











# **B** DECENT WORK AND ECONOMIC GROWTH



CHALLENGES What are the challenges of unemployment? (Mentimeter summary)

#### CONSEQUENCES What are the consequences of unemployment? (Mentimeter summary)

**SOLUTION TO THE PROBLEM** (Mentimeter summary)











## WHAT CAN WE DO TO FIX THESE ISSUES?



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- $\Rightarrow$  WHY IT MATTERS?
- $\Rightarrow$  WHAT IS INDUSTRIALIZATION?
- $\Rightarrow$  WHAT IS FOSTER INNOVATION?
- $\Rightarrow$  what are the consequences of lack of industrialization?
- $\Rightarrow~$  What can we do to fix these issues?



1 in 3 manufacturing jobs are negatively impacted by the COVID crisis













CHALLENGES What are the challenges of industrialization? (Mentimeter summary)

#### CONSEQUENCES

# What are the consequences of lack of industrialization? (Mentimeter summary)

SOLUTION TO THE PROBLEM (Mentimeter summary)









## WHAT CAN WE DO TO FIX THESE ISSUES?



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- $\Rightarrow$  WHY IT MATTERS?
- $\Rightarrow$  WHY PEOPLE CHOOSE TO LIVE IN CITIES
- $\Rightarrow$  what are some of the challenges that cities face today?
- $\Rightarrow$  WHAT ARE THE CONSEQUENCES POPULATED TOWNS AND DEPOPULATED VILLAGES?
- $\Rightarrow$  what can we do to fix these issues?



9 in 10 people living in urban areas worldwide











**11** SUSTAINABLE CITIES AND COMMUNITIES



### CHALLENGES What are some of the challenges that cities face today? (Mentimeter summary)

#### CONSEQUENCES What are the consequences populated towns and depopulated villages? (Mentimeter summary)

SOLUTION TO THE PROBLEM (Mentimeter summary)









## WHAT CAN WE DO TO FIX THESE ISSUES?







- $\Rightarrow$  WHY IT MATTERS?
- $\Rightarrow$  WHAT IS RESPONSIBLE CONSUMPTION?
- $\Rightarrow$  WHAT IS RESPONSIBLE PRODUCTION?
- $\Rightarrow$  WHAT ARE THE CHALLENGES OF RESPONSIBLE CONSUMPTION?
- $\Rightarrow$  what are the consequences of inresponsible production?
- $\Rightarrow$  WHAT CAN WE DO TO FIX THESE ISSUES?



Food that ends up in landfills generates 8 to 10 percent of global greenhouse gas emissions









"We have probed the earth, excavated it, burned it, ripped things from it, buried things in it, chopped down its forests, leveled its hills, muddied its waters, and dirtied its air. That does not fit my definition of a good tenant. If we were here on a month-to-month basis, we would have been evicted long ago." Rose Bird, chief justice of the California Supreme Court.



12 RESPONSIBLE CONSUMPTION AND PRODUCTION



### CHALLENGES What are the challenges of responsible consumption? (Mentimeter summary)

CONSEQUENCES What are the consequences of inresponsible production? (Mentimeter summary)

**SOLUTION TO THE PROBLEM** (Mentimeter summary)









## WHAT CAN WE DO TO FIX THESE ISSUES?





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# DESIGN ECO MURAL













# Day 3











# SUSTAINABLE HEALTH CARE AND EDUCATION

- $\Rightarrow$  WHAT IS POVERTY AND BASIC LIFE NEEDS?
- $\Rightarrow$  WHICH TOOLS DO WE HAVE TO COMBAT HUNGER AND POVERTY?
- $\Rightarrow$  ZERO HUNGER THE ROLE OF SUSTAINABLE AGRICULTURE
- $\Rightarrow$  WHAT ARE CURRENT CHALLENGES OF THE HEALTH CARE?
- $\Rightarrow$  HOW CAN WE DEFINE AND ENSURE BASIC EDUCATION?













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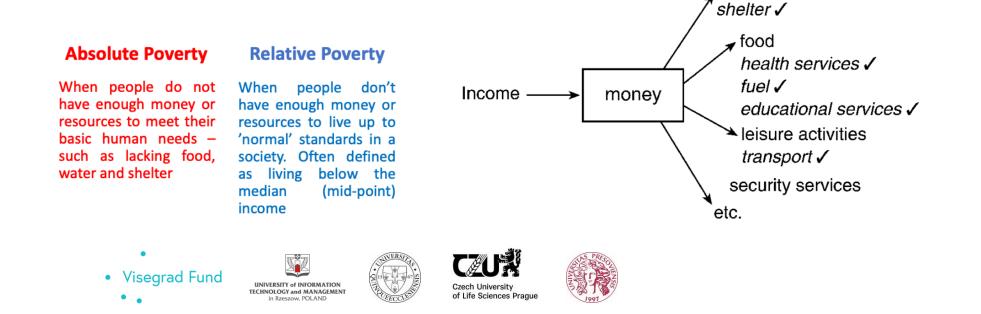
# **CHALLENGES**

### Poverty and basic life needs

- Poverty the lack of basic human needs, such as clean water, nutrition, health care, education, clothing and shelter, because of the inability to afford them
- Situation or way of life that arises as a result of the inability to access or lack of resources to meet basic human needs physical and psychological wear that affect the level and quality of life or people

clothing

• Closely related to the human dignity







# **CHALLENGES**

## Poverty and basic life needs

- 2015 2018 decline of global poverty (10.1% to 8.6 %)
- COVID-19 pandemic the global poverty rate increased
- COVID-19 pandemic reversed the steady progress of poverty reduction over the past 25 years
- rising inflation + the impacts of the war in Ukraine
- around 700 million people (9% of the global population) are living in extreme poverty
- nearly 22,000 children die each day due to living in poverty
- about 30 % of the world's extremely poor live in India
- one frappuccino at Starbucks costs more than the median income for people in the developing world (\$3 a day).



NO Poverty



# **CHALLENGES**

## Tools to combat with hunger and poverty

- Stop the cycle of conflict and hunger
- Ensure that conflict-affected areas will not have food weaponized against them
- Embrace climate smart agriculture
- Respond to the refugee crisis
- Eliminate malnutrition in mothers and children
- Reduce food waste & food loss
- Help rural farmers connect to markets
- Address poverty & inequality through social safety nets
- Increase sustainability and build resilience to climate change
- Improving food storage systems
- Advocate for gender equality
- Support hygiene and sanitation
- Enhance crops with biofortification
- Connect small-scale farmers to maintain sustainable agriculture
- Eradicating poverty through education
- Halting poverty by ending hunger
- Eliminating poverty through equity









2 ZERO HUNGER

# **CHALLENGES**

# Zero hunger – the role of sustainable agriculture

- 2020 720 811 million persons worldwide suffering from hunger, roughly 161 million more than in 2019
- 2020 a staggering 2.4 billion people, or above 30 per cent of the world's population, were
  moderately or severely food-insecure, lacking regular access to adequate food
- world hunger is a problem, which affecting nearly 10% of people globally
- 2019 to 2022 the number of undernourished people grew by as many as 150 million, a crisis driven largely by conflict, climate change, and the COVID-19 pandemic
- 45 % of child deaths are due to hunger & related causes
- 700 children die each day from illnesses caused by dirty water and unhygienic living conditions











2 ZERO HUNGER



# **CHALLENGES**

# Zero hunger – the role of sustainable agriculture

- Hunger defined (by the UN) as "the periods when people experience severe food insecurity — meaning that they go for entire days without eating due to lack of money, access to food, or other resources"
  - distress associated with lack of food; the threshold for food deprivation, or undernourishment, is fewer than 1,800 calories / day
- Undernutrition signify deficiencies in energy, protein, and/or essential vitamins and minerals
- Malnutrition refers more broadly to both undernutrition and overnutrition
- **Food security** relates to food availability, access, and utilization
  - when people have consistent and adequate access to enough safe and nutritious food to maintain an active and healthy life, they are considered food secure.









2 ZERO HUNGER



# **CHALLENGES**

# Zero hunger – the role of sustainable agriculture

- Sustainability principle that we must meet the needs of the present without compromising the ability of future generations to meet their own needs
- everyone plays a role in creating a sustainable (agricultural) food system
  - growers, food processors, distributors, retailers, consumers, and waste managers
- the system envisioned from the individual farm, to the local ecosystem, and to communities affected by this farming system both locally and globally
- **3 main objectives integration**: a) a healthy environment, b) economic profitability, c) social and economic equity





### **CHALLENGES**

#### What are current challenges of the health care?

- Lack of qualified professionals
- Lack of interoperability
- Patient safety
- Inequality & advancing health equity
- Healthcare in war zones
- Poverty and unavailability of health care













### **SOLUTIONS**

- achieve universal health coverage
- access to quality essential health-care services
- access to safe, effective, quality and affordable essential medicines and vaccines for all
- increase health financing and the recruitment, development, training and retention of the health workforce in developing countries
- international medical organisations
- access to free healthcare information
- access to clean water and sanitation
- access to resources













# **CHALLENGES**

#### What is quality basic education?

- basic education comprises primary education (first stage of basic education) and lower secondary education (second stage)
- wide variety of non-formal and informal public and private activities intended to meet the basic learning needs of people of all ages
- providing quality education for all is fundamental to creating a peaceful and prosperous world
- education gives people the knowledge and skills they need to stay healthy, get jobs and foster tolerance
- quality education specifically entails issues such as appropriate skills development, gender parity, provision of relevant school infrastructure, equipment, educational materials and resources, scholarships or teaching force
- pivotal areas of quality content literacy, numeracy, life skills and peace education, science and social studies





# **CHALLENGES**

### What are basic principles of basic education?

- Non-discrimination education must be accessible to all, in law and in fact
- Equality of opportunity and treatment
- Universal access to education
- Solidarity

#### EDUCATION:

- A) basic human right that works to raise men and women out of poverty, level inequalities and ensure sustainable development
- B) one of the most powerful tools in lifting excluded children and adults out of poverty
- C) the most sustainable investment

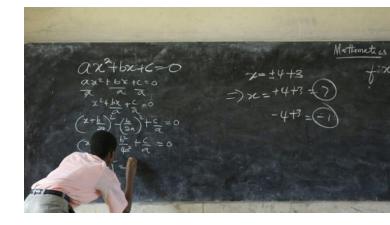












# 4 QUALITY EDUCATION

#### **SOLUTIONS**

- 3 key pillars that support quality education:
  - A) access to quality teachers
  - B) use of quality learning tools and professional development
  - C) establishment of safe and supportive quality learning environments
- to maintain that all children and adolescents will complete both levels of education
- primary and lower secondary education must be truly free
- programs and funding oriented to disadvantaged / marginalized children, youth and adults
- active role of governments expand adult learning and education opportunities within a lifelong learning approach
- spending more money from national budgets on education





















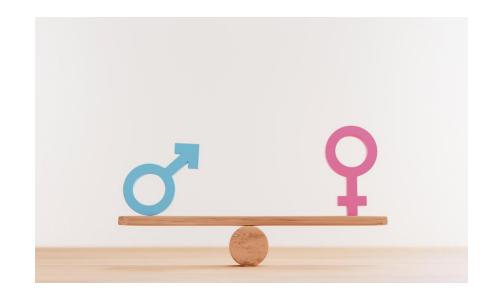






#### SUSTAINABLE EQUALITY

- $\Rightarrow$  WHAT IS GENDER EQUALITY AND ITS BENEFITS?
- $\Rightarrow$  WHICH KIND OF GENDER EQUALITY YOU KNOW? (5 EXAMPLES)
- $\Rightarrow$  WHAT DOES EQUAL OPPORTUNITY MEAN?
- $\Rightarrow$  HOW CAN WE STOP / REDUCE GENDER INEQUALITY?
- $\Rightarrow$  what is the role of democratization in the world?
- $\Rightarrow$  HOW CAN WE BUILD STRONG INSTITUTIONS & CIVIL SOCIETY?











#### **5** GENDER EQUALITY



# CHALLENGES

### What is gender equality and its benefits?

- fundamental human right & necessary foundation for a peaceful, prosperous and sustainable world
- people of all genders have equal rights, responsibilities and opportunities
- everyone is affected by gender inequality women, men, trans and gender diverse people, children and families
- prevents violence against women and girls
- essential for economic prosperity
- societies that value women and men as equal are safer and healthier
- everyone benefits from gender equality













GENDER

EQUALITY







#### **5** GENDER EQUALITY



# CHALLENGES

#### What does equal opportunity mean?

- <u>Political theory</u> the idea that people ought to be able to compete on equal terms, or on a level playing field, for advantaged offices and positions.
- <u>Practice</u> the policy of giving everyone the same opportunities for employment, pay, and promotion, without discriminating against particular groups.
- **Equal opportunities** refers to an equal distribution, among individuals, of opportunities for:



- ✓ Education
- ✓ Training
- ✓ Employment
- $\checkmark$  Career development
- ✓ Exercise of power
  - without their being disadvantaged on the basis of sex, race, language, religion, economic or family situation











#### **5** GENDER EQUALITY



# **CHALLENGES**

#### What is the role of democratization in the world?

- transition to a more democratic political regime, including substantive political changes moving in a democratic direction; process through which a political regime becomes democratic
- period between the breakdown of an authoritarian regime and the conclusion of the first democratic national elections
- two phases: 1) transition and 2) consolidation
- 3 waves of democratization (S. Huntington, 1999)
- modernization of economic and social structures and economic development based on modern technologies, increasing of well-being and decline of poverty, importance of the middle class







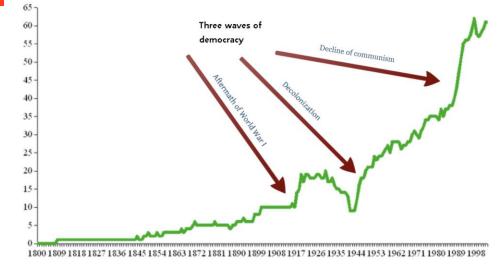




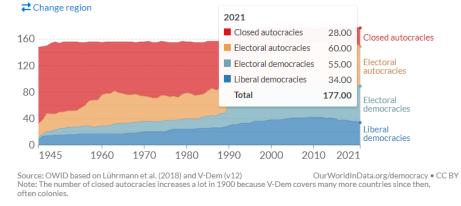
### CHALLENGES

#### What is the role of democratization in the world?

Number of nations scoring 8 or higher on the Polity IV scale 1800-2003



#### Number of democracies and autocracies, World Political regimes based on the criteria of the classification by Lührmann et al. (2018) and the assessment by V-Dem's experts.



Our World in Data

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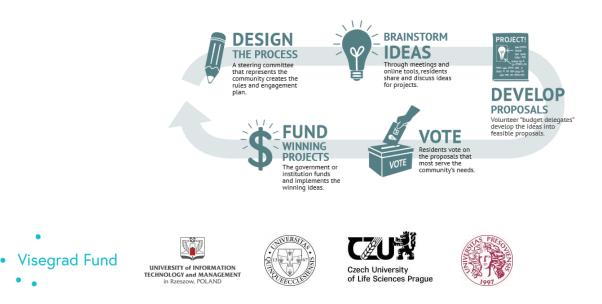


# **CHALLENGES**

### How can we build strong institutions & civil society?

- engaging all parts and levels of government is pivotal
- building effective, accountable and inclusive institutions at all levels
- need for a transformation of the silo-based approach to public services
- strengthening the rule of law and promoting human rights (e.g. reduce the flow of illicit arms, strengthen the participation of developing countries in the institutions of global governance)
- promoting and establishing of innovative forms of deliberative democracy e.g. participatory budgeting







# CONSEQUENCES

#### What are the consequences of gender inequality?

- poverty
- unequal access to the labor market
- unequel access to higher institutions of education
- gender based violence
- ... in fact, it's an endless list of consequences









#### **5** GENDER EQUALITY



# **SOLUTION TO THE PROBLEM**

- end all forms of violence and discrimination against all women and girls
- eliminate all harmful practices (child and forced marriage, female genital mutilation)
- recognize and value unpaid care and domestic work through the provision of public services, infrastructure and social protection policies
- ensure effective participation and equal opportunities for leadership at all levels of decisionmaking in political, economic and public life
- undertake reforms to implement equal rights to economic resources, access to ownership and control over land and other forms of property, financial services, inheritance and natural resources, in accordance with national laws
- adopt and strengthen policies and enforceable legislation for the promotion of gender equality











- WHAT IS DISCRIMINATION?
- WHAT ARE SOME EXAMPLES OF INEQUALITY?  $\Rightarrow$
- WHAT ARE THE CHALLENGES TO ACHIEVE EQUALITY FOR EVERYONE?  $\Rightarrow$
- $\Rightarrow$  WHAT ARE THE CONSEQUENCES OF LACK OF EQUALITY?
- $\Rightarrow$  WHAT CAN WE DO TO FIX THESE ISSUES?



In 2022 1 in 5 people have experienced discrimination





in Rzeszow, POLAND





#### WHAT CAN WE DO TO FIX THESE ISSUES?













- WHY IT MATTERS?  $\Rightarrow$
- WHAT ARE EXAMPLES OF INJUSTICE IN YOUR COUNTRY?  $\Rightarrow$
- WHAT ARE THE CONSEQUENCES OF NOT TAKING ACTION NOW?  $\Rightarrow$
- WHAT CAN WE DO TO FIX THESE ISSUES?  $\Rightarrow$



**Globally, almost** 1 in 6 businesses face requests for bribe payments by public officials











#### WHAT CAN WE DO TO FIX THESE ISSUES?



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- WHAT IS PARTNERSHIP?  $\Rightarrow$
- WHAT ARE THE CONSEQUENCES OF LACK OF PARNERSHIP?  $\Rightarrow$
- $\Rightarrow$  WHAT CAN WE DO TO FIX THESE ISSUES?



#### Two heads (or more) are better than one











#### WHAT CAN WE DO TO FIX THESE ISSUES?



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# Day 5













- $\Rightarrow$  WHY IT MATTERS?
- $\Rightarrow$  HOW MANY PEOPLE ARE LIVING WITHOUT ACCESS TO CLEAN WATER?
- $\Rightarrow$  WHAT ARE THE CHALLENGES TO LACK OF ACCESS TO SAFE WATER?
- $\Rightarrow$  WHAT ARE THE CONSEQUENCES OF LACK OF ACCESS TO CLEAN WATER?
- $\Rightarrow$  WHAT CAN WE DO TO FIX THESE ISSUES?
- $\Rightarrow$  what is the quality of water in the visegrad countries?



2.2 billion people around the world still lack safely managed drinking water















**BELOW WATER** 

LIFE

CHALLENGES What are the challenges to lack of access to safe water? (Mentimeter summary)

# What are the consequences of lack of access to clean water?

(Mentimeter summary)

**SOLUTION TO THE PROBLEM** (Mentimeter summary)









#### WHAT CAN WE DO TO FIX THESE ISSUES?



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- $\Rightarrow$  WHY IT MATTERS?
- $\Rightarrow$  HOW MANY PEOPLE ARE LIVING WITHOUT ACCESS TO ENERGY?
- $\Rightarrow$  WHAT ARE THE CHALLENGES OF LACK OF ACCESS TO CLEAN ENERGY?
- $\Rightarrow$  WHAT ARE THE CONSEQUENCES OF LACK OF ACCESS TO CLEAN ENERGY?
- $\Rightarrow~$  What can we do to fix these issues?
- $\Rightarrow$  AT WHAT LEVEL DO THE VISEGRAD COUNTRIES PRODUCE CLEAN ENERGY?



From 2010 to 2020 the number of people without electricity shrank from 1.2 billion to 733 million









**AFFORDABLE AND CLEAN ENERGY** 



CONSEQUENCES What are the consequences of lack of access to clean energy? (Mentimeter summary)

#### **CHALLENGES** What are the challenges of lack of access to energy?

(Mentimeter summary)

SOLUTION TO THE PROBLEM (Mentimeter summary)











#### WHAT CAN WE DO TO FIX THESE ISSUES?













#### $\Rightarrow$ SOLAR PHOTOVOLTAICS MODULES

 $\Rightarrow$  WIND TURBINES

 $\Rightarrow$  **BIOFUELS** 























 $\Rightarrow$  HOW TO SAVE ENERGY?

 $\Rightarrow$  HOW TO USE ELECTRICITY WISELY?

 $\Rightarrow$  How to calculate the cost of energy consumption of household appliances?

**ECO-CALCULATOR:** 



**AFFORDABLE AND** 







**ECO-CALCULATOR:** 

 $\Rightarrow$  HOW TO CALCULATE ENERGY PRODUCTION BY PHOTOVOLTAIC PANELS?









**ECO-CALCULATOR:** 

- $\Rightarrow$  how to select the number of photovoltaic panels to power an electric car?
- $\Rightarrow$  The COST of Fuel consumption by a traditional car versus the COST of Energy consumption by an electric car





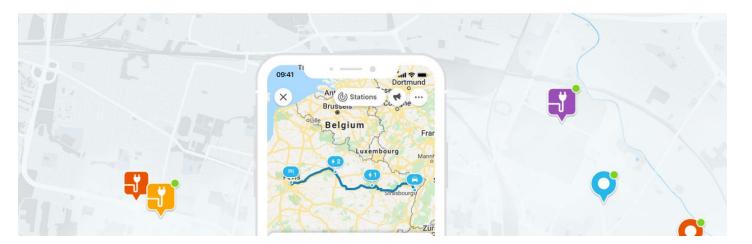
# 😗 Chargemap

#### Plan your journey by electric car

The Chargemap route planner is here to help you plan the ideal trip that corresponds to your EV and preferences.

#### Download the Chargemap app for free on your mobile phone





#### Free charging is yours for the taking!

With the Chargemap Pass, you can also access free charging stations in the surrounding area. You can locate them at a glance thanks to the dedicated filters on the mobile app.













- $\Rightarrow$  WHY IT MATTERS?
- $\Rightarrow$  HOW ARE PEOPLE BEING AFFECTED BY CLIMATE CHANGE?
- $\Rightarrow$  WHAT HAPPENS IF WE DON'T TAKE ACTION?
- $\Rightarrow$  WHAT CAN WE DO TO FIX THESE ISSUES?
- $\Rightarrow$  HOW ARE THE VISEGRAD COUNTRIES INVOLVED IN CLIMATE ACTION?



By 2030, an estimated 700 million people will be at risk of displacement by drought alone













#### CHALLENGES What are the challenges connected with climate change? (Mentimeter summary)

# What are the consequences climate change?

(Mentimeter summary)

#### SOLUTION TO THE PROBLEM

(Mentimeter summary)









## WHAT CAN WE DO TO FIX THESE ISSUES?













- WHY IT MATTERS?  $\Rightarrow$
- WHAT DOES LOSS OF BIODIVERSITY MEAN?  $\Rightarrow$
- $\Rightarrow$  DEFORESTATION?
- WHAT ARE THE CONSEQUENCES OF LACK OF BIODIVERSITY?  $\Rightarrow$
- WHAT CAN WE DO TO FIX THESE ISSUES?  $\Rightarrow$
- $\Rightarrow$  HOW ARE THE VISEGRAD COUNTRIES INVOLVED IN BIODIVERSITY CONSERVATION?



Around 40,000 species are documented to be at risk of extinction over the coming decades













### CHALLENGES What are the challenges of proces of deforestation?

(Mentimeter summary)

#### CONSEQUENCES

### What are the consequences of deforestation?

(Mentimeter summary)

**SOLUTION TO THE PROBLEM** (Mentimeter summary)

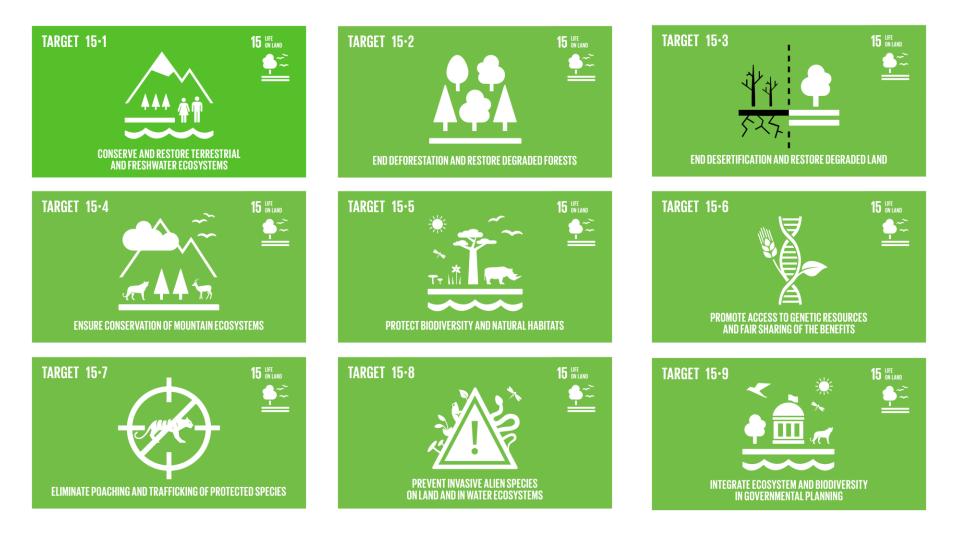








## WHAT CAN WE DO TO FIX THESE ISSUES?



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## "MESSAGE FOR THE PLANET" - GAME











# Day 6

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### SUSTAINABILITY AND LIVING LABS

# Hackathon - focus on sustainability



CZUX

**Czech University** 



**UNIVERSITY OF PÉCS** Faculty of Business and Economics

# What is hackathon?

"Hackathon" combines the terms "hacker" and "marathon" and means a period of intense, uninterrupted programming. More specifically, at the Hackathon, participants produce a working software prototype in small groups for a limited time. These events are quite different in their purpose and implementation but generally have a common structure and characteristics.









# Hackathon as a teaching methodology

Hackathons for students are especially useful for skills development, networking, and personal development. Practical assignments and the practical application of the knowledge gained in lectures have been increasingly used in educational institutions over the past few years.











A hackathon is an event where creative, open-minded, entrepreneurial people from different disciplines meet together - in an intensive business development sprint - to work together to find a solution to a specific industry or technology problem or challenge. The goal is to create an MVP - which is a demo version of the product/service, NOT a prototype - during the event, thus supporting the viability of the idea. In many cases, teams continue to work on the MVP, either out of self- interest or after a hackathon, until a final, marketable solution is found. In fact, the hackathon is a challenge-based complex learning framework.



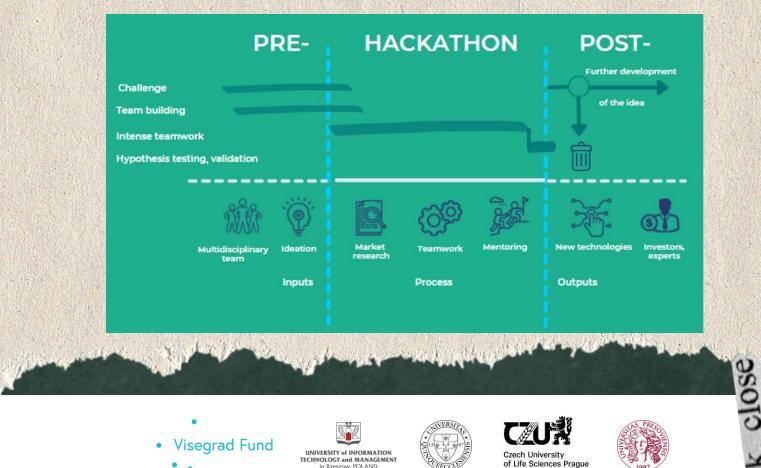


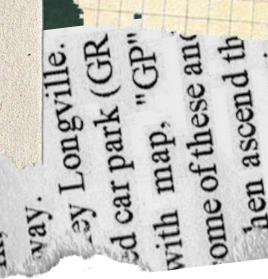






# The schedule





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# The challenge

Sustainability is the main challenge of the Hackathon, so the Opportunity seeking/Problem solving is also based around the UN's sustainability goals.

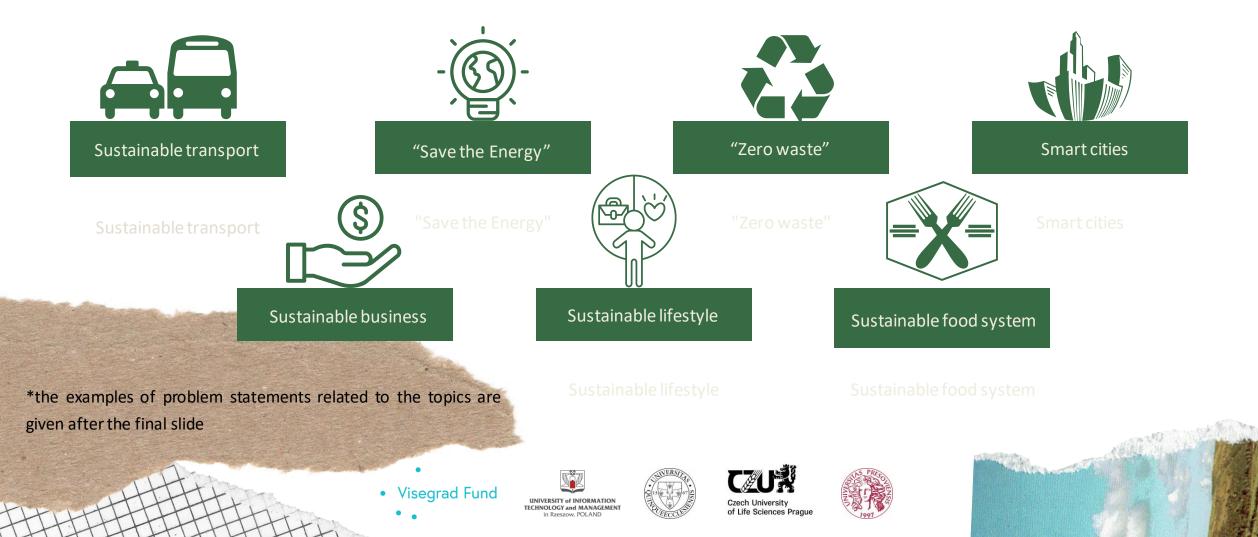








# Inspirational problem areas



# Tasks related to the challenge



### Team building

Most hackathon teams are usually made up of three to six people and a strong team typically has members with complementary skill sets — a project manager, a few coders, someone to focus on design, etc. A personality test is used to build an effective team, the test is available at the following link: https://www.16personalities.com





### Defining the problem

Teams should define 'pain points' (bug list) from everyday life that relates to the topic of the Hackathon that have not yet been solved or existing solutions are not efficient enough. In order to succeed at this step, students should think about the experiences of those affected empathetically, and they should work to understand the circumstances under which the problem arises. It is key that the mentor keeps their focus on carefully defining a problem, and not on finding a solution.

### Solution concepts

The team, after defining the problem with the idea of what the solution should be, i.e. the characteristics and concept of the product or service. It is important that they then move towards a solution that they can model, that is, create an MVP for it, and break their head on a solution that the team has the competencies to create.











# Tasks related to the challenge

VALUE

#### Market research

In addition to examining the business concept, the team should explore the market and industry, looking for opportunities and identifying potential problems. It is important that the team properly evaluates every aspect of their business concept and constantly balances their ideas with reality. After defining and refining a business idea, does the chosen concept still seem like a good idea to the team? If so, get involved in the work and work out the solution in detail!

### Value Proposition

"The Value Propositions Building Block describes the bundle of products and services that create value for a specific Customer Segment. The Value Proposition is the reason why customers turn to one company over another. It solves a customer's problem or satisfies a customer's need. Each Value Proposition consists of a selected bundle of products and/or services that caters to the requirements of a specific Customer Segment.

### MVP

Minimum Viable Products (MVP) are essential in the process of validation. Future customers can judge your concept, the features of your product, it is potentially much better if there is something tangible. They will look at it, pretend that they are using it and will pose lots of questions, and will give lots of suggestions on it. This is what you want, lots of feedback to see if your hypothesis on the features of your product is valid or not.









# Pitch your story!

1. Problem2. Solution and ValueProposition		3. Competitive Edge	4. Business model	
Presenting the problem to which we propose a solution	What do we provide to our customers? What is our "Secret Sauce?"	What makes us better than our competitors? What are we doing differently?	How do make money? Who is paying and for what?	
5. Team	6. Traction	7. Call to action	Q&A	
Do not focus on names and degrees; focus on competences and added strengths relevant to the project.	What have we done so far, what kind of results do we have?	To close our presentation, it is important to communicate our goals with our pitch. "We are here today to…".	The 2 minutes presentation will be followed by a 5 minutes question and answer session.	

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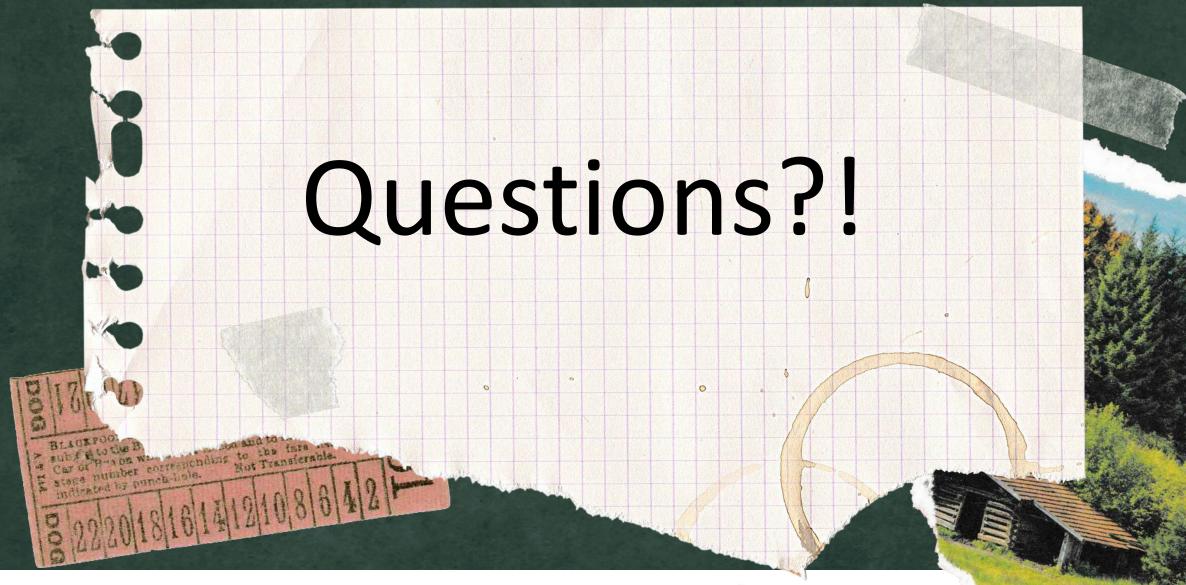
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1. Sustainable transport

- How to travel sustainably? Background information:

o urban air pollution levels are high,

o parking is limited,

o cycling is not only CO2 saving but also health promoting and community-building benefits

- How can university students be motivated to use zero-emission transport or public transport?
- How can university staff be motivated to use zero-emission transport or public transport?









#### 2. "Save the Energy"

Energy production is the biggest source of air pollution. Fortunately, alternative energy sources exist and are being harnessed more and more rapidly as we move forward. But we still have a long way to go. How do we adapt to the existing solution? And how can we make it easier for individuals? We need to rethink energy production and consumption, as there is much to do on both sides.

- Solution(s) that contribute to energy savings?
- How can university students be motivated to use energy-saving solutions?
- How can university staff be motivated to use energy-saving solutions?









"3. "Zero waste"

- Increasing the proportion of recyclable waste, making selective waste collection a daily routine o in each Faculty

- o in the offices
- o in the dormitories

o and developing environmentally friendly eating habits

- How can students be motivated to make selective waste collection a daily routine?
- How can university staff be motivated to make selective waste collection a daily routine?









4. Smartcities

Smart cities are not just about using ICTs to use resources better and produce fewer emissions. It means smarter urban transport networks, modernised water supplies, waste treatment facilities and more efficient ways of lighting and heating buildings.

- How would you "smart up" your city?
- Which processes do you feel are unsustainable, where do you feel intervention is needed?









- 5. Sustainable business
- What makes a business sustainable?

The answer lies in environmental, social and economic processes and systems. Both practical tools such as CO2 meters and company-level policies such as equal pay play a role in making a business sustainable. Dive into the endless possibilities of social, governance, educational and environmental tools to find innovative solutions in this area too.

- Can a sustainability protocol be developed?
- Which UN sustainability objectives can be incorporated into a business and how?
- What kind of incentive scheme could be set up for a sustainable business?









6. Sustainablelifestyle

It all starts with us as individuals.

- What contributes to sustainable living?

Recycling, telecommuting or other means of transport, zero waste practices, no plastic bags, no disposable cups, the list goes on. Yet, so many people do not practice sustainable habits.

- What would be your motivating solution to get more people to start making the switch to sustainable living?
- In which areas of our lifestyles can we most quickly and effectively make the transition to sustainability, and how?









#### 7. Sustainable food system

A sustainable food system creates healthy food and sustainable environmental and economic systems around food; it does not threaten the Earth's ability to produce food in the future. Promoting sustainable food consumption and reducing food waste and loss are just two of many areas...

- How do you envision a sustainable food chain?
- How can it be developed in an urban environment? How can supply chains be shortened?









# Day 7



## LIVING LABS and

### PROJECTS













#### <u>AGENDA</u>

- $\Rightarrow$  Project management techniques and tools
- $\Rightarrow$  What is project and project management
- $\Rightarrow$  The project management lifecycle
- $\Rightarrow$  Developing the project plan
- $\Rightarrow$  Project running risks and challenge

### AGENDA and OBJECTIVES

#### **OBJECTIVES**

- $\Rightarrow$  The foundations of project management and what makes projects successful.
- ⇒ The 4/5 phases of the project management life cycle: initiation, planning, execution, (monitoring/controlling) and closure.
- $\Rightarrow$  Steps for the project planning phase with key templates to support this process.
- ⇒ Managing the key risks and challenges related to project management in the university ecosystem.









# The foundations of project planning and management 1/4

# The SMART GOALS ③

- $\Rightarrow$  Specific (simple, sensible, significant).
- $\Rightarrow$  Measurable (meaningful, motivating).
- $\Rightarrow$  Attainable (agreed, achievable).
- ⇒ Relevant (reasonable, realistic and resourced, results-based).
- ⇒ Time-bound (time-based, time-limited, time/cost limited, timely, time-sensitive).











# The foundations of project planning and management 2/4

#### How to Implement SMART Goals

### Specific

Specify your goal to be able to focus your efforts. Answer the following questions:

- $\Rightarrow$  What do I want to accomplish?
- $\Rightarrow$  Why is this goal important?
- $\Rightarrow$  Who is involved?
- $\Rightarrow$  Where is it located?
- $\Rightarrow$  Which resources or limits are involved?

#### Measurable

With measurable goals set, you can track your progress and stay motivated. Clearly set deadlines will help you to assess your progress. A measurable goal should address questions such as:

- $\Rightarrow$  How much?
- $\Rightarrow$  How many?
- $\Rightarrow$  How will I know when it is accomplished?









# The foundations of project planning and management 3/4

#### Attainable

Your goal also needs to be realistic and attainable to be successful. When you set an achievable goal, you may be able to identify previously overlooked opportunities or resources that can bring you closer to it. To set an attainable goal, you will have to deal with the following questions:

- $\Rightarrow$  How can I accomplish this goal?
- $\Rightarrow$  How realistic is the goal, based on other constraints, such as financial factors?

**NOTE**: Do not set goals that depend on someone else. Only goals that depend on you, your effort, and your skills are convenient ones.

#### Relevant

Ensure that your goal matters to you, and is not in conflict with your other relevant goals. So, make sure that your plans drive everyone forward, but that you're still responsible for achieving your own goal. In order to set a relevant goal, answer these questions (answers should be "Yes"):

- $\Rightarrow$  Does this seem worthwhile?
- $\Rightarrow$  Is this the right time?
- $\Rightarrow$  Does this match my other efforts?
- $\Rightarrow$  Am I the right person to reach this goal?
- $\Rightarrow$  Is it applicable in the current (socio-)economic environment?





# The foundations of project planning and management 4/4

### Time-bound

What is your goal time-frame? An end-date can provide motivation and help you to prioritize and prevent everyday tasks from taking priority over your longer-term goals. To set a time-bound goal, you will deal with the following questions:

- $\Rightarrow$  When?
- $\Rightarrow$  What can I do six months from now?
- $\Rightarrow$  What can I do six weeks from now?
- $\Rightarrow$  What can I do today?

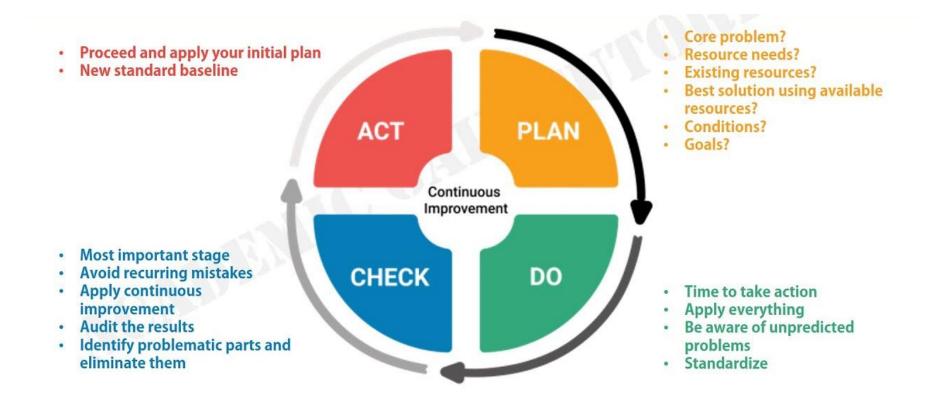








### Project cycles 1/2 The PDCA cycle





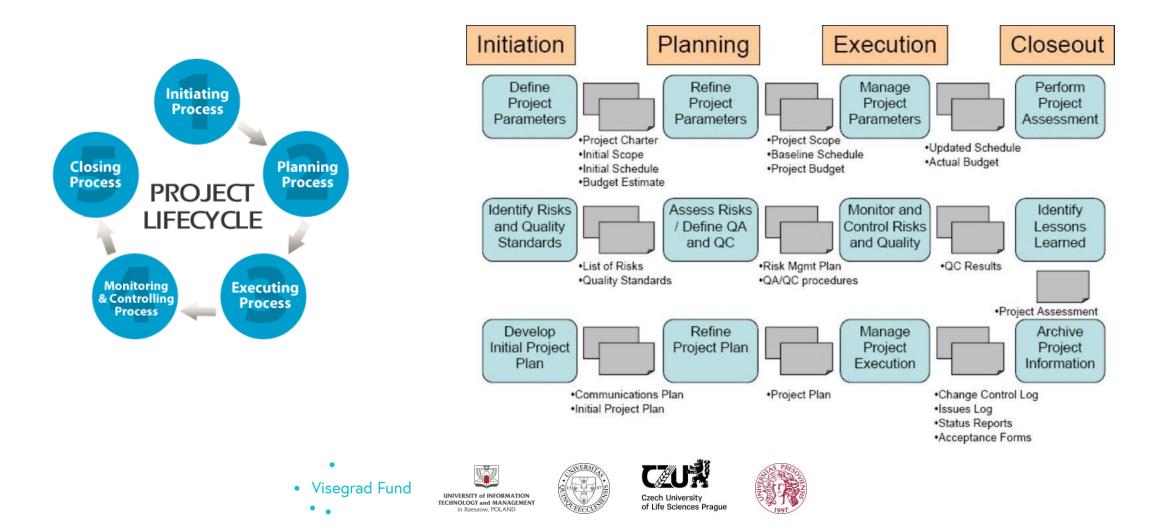








## Project cycles 2/2 The project management cycle



### Project planning 1/4





# Project planning 2/4

#### **Stakeholder Analysis**

#### Definition: Power-interest matrix: Understand High It is one of the most widely used tools The process of identifying and analyzing Context the stakeholders that are likely to affect for analyzing stakeholders. setters Key players POWER or be affected by a project or other Classifies stakeholders into four groups according to the power they hold and organizational activity. Defenders Crowd whether they are interested in the Applications: project or not. Project management. Other characteristics of stakeholders can Monitor Consider Low Conflict resolution. be analyzed like awareness and attitude. INTEREST Low High Organizational transformation and How to conduct a stakeholder analysis: change management. Example Explain the purpose of the analysis. Examples of project stakeholders: Brainstorm the individuals and groups who may Engage Understand High have a stake in the project or change. Process owner. CFO Adam Zakaria Sort them by their power and interest then plot People who work on the process. them on the power-interest matrix. Customers of the process output. POWER Sami Procurement Identify the gaps between the current and the Suppliers of the process. desired involvement levels. Senior executives. Sara Technicians Create a communication plan to manage Finance and procurement managers. Operators ongoing communication with stakeholders. Managers whose resources and Note: The analysis needs to be made regularly since schedules will be affected by the Monitor Consider Low stakeholders move around the matrix periodically. INTEREST project. Low High

www.citoolkit.com









### Project planning 3/4 – defining project scope

### **PROJECT SCOPE**

#### Project Background

Projects are not carried out in a vacuum, they are initiated to meet specific goals for an organization.



#### **Project Justification**

A justification is a statement explaining the need that your project is addressing. It is described in more details in the project charter.

#### Project Milestone

A key milestone indicates when stakeholders can expect a particular deliverable to be completed. More complex projects may also include milestones for specific steps involved in creating or completing a deliverable

#### **Project Constraints**

The project scope statement should note any limitations that the project team will face as it works to complete a project. These constraints could include personnel, resources, schedule, or other requirements.

#### WWW.POWERLIDES.COM



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#### **Project Objectives** Once project managers understand what the organization

is trying to achieve, they need to define the objectives of the specific project. The objectives should note why the project is being done, what will be done, when it will be done, and how much it will cost.

#### **Project Deliverables**

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Project managers should work alongside key stakeholders to list the items that will be delivered at the end of the project

### Project planning 4/4 – risk analysis

		Risk Assessment Matrix					
		Severity					
		Catastrophic - 4	Critical - 3	Marginal - 2	Negligible - 1		
Probability	Frequent - 4	High (16)	High (12)	Serious (8)	Medium (4)		
	Probable - 3	High (12)	Serious (9)	Serious (6)	Medium (3)		
	Remote - 2	Serious (8)	Serious (6)	Medium (4)	Low (2)		
L	mprobable - 1	Medium (4)	Medium (3)	Low (2)	Low (1)		













#### SOCIO-ECONOMIC

- health, security and safety;
- legislation, codes and regulation; climatic change;

SOCIAL PILLAR

human and labor practices;

wellbeing and accessibility;

· openness, cooperation;

setting standards;

appointing sub leaders;

training and engagements

open communication;

· inclusivity and communication;

PROPOSED RECOMMENDATIONS

· ethics, health and safety;

training and education;

· reporting of project;

equal opportunity;

· equity and equality;

crisis – stakeholder management

#### SUSTAINABILITY

 an integrated approach to economic, social and environmental pillars impact on both internal and external metrics leads to long-term, sustainability and profitability

#### ECONOMIC PILLAR

- financial prospects;
- cost-benefit quality;
- project reporting;
- resource utilization and savings;
- wealth creation/innovation;
- eco-efficiency;
- impact on customer;
- efficiency and effectiveness;
- industry sector/company size

#### PROPOSED RECOMMENDATIONS

- · adjusting the plan;
- · allocating work and resource;
- · controlling quality work;
- stakeholder engagements

#### ENVIRONMENTAL

SOCIO-

resource efficiency;

global energy issues

efficient energy;

and chemistry; project reporting/respect for nature; pollution control/reuse, recycling;

procurement;

- · license to operate;
- conservation biology, earth science; · preparation for the future

#### PROPOSED RECOMMENDATIONS

ENVIRONMENTAL PILLAR

· water, energy, waste efficiency, travel, green it

- reduce material use, reuse, recycle;
- perform environmental-impact;
- cost analysis;
- use renewable energy sources;
- · promote energy and water conservation

#### ENVIRONMENTAL-ECONOMIC

- employment;
- training and
- development;
- local economies and enterprise;
- social and community;
- sponsorships

Sustainable projects and sustainable project management 1/2









#### Sustainable project management – critical factors 2/2

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## Day 8

#### LIVING LABS AND STAKEHOLDERS





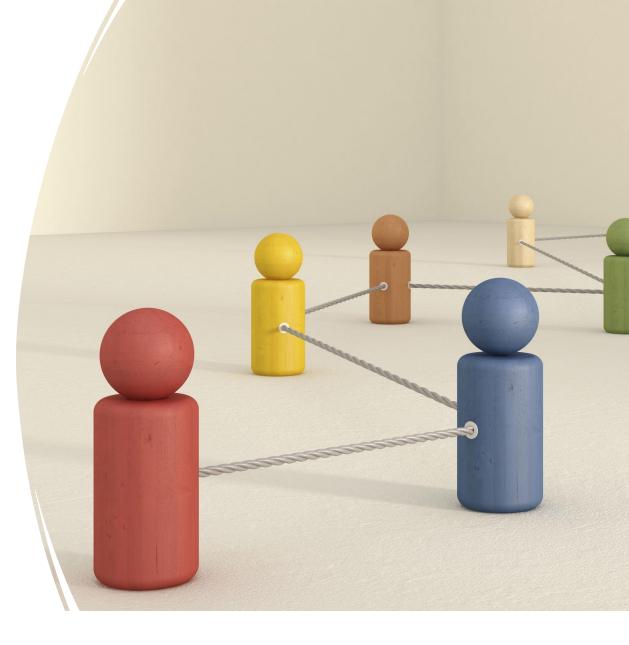






#### Stakeholders

 Stakeholders in management theory are defined as individuals and groups that can influence the organization or project and remain under the influence of its activities. In other words, these are individuals and groups within the organisation's environment, entering into direct or indirect relations with it.

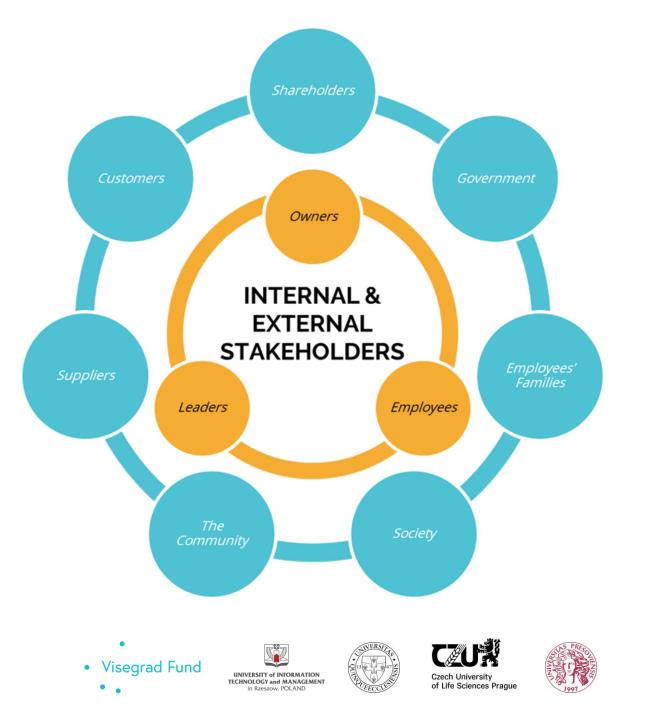










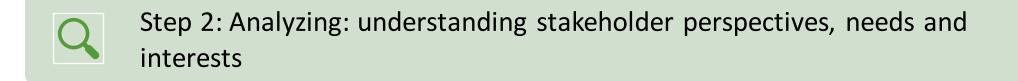


https://www.quora.com/

#### Stakeholder Mapping



Step 1: Identifying: listing relevant groups, organizations, and actors





Step 3: Mapping: visualizing relationships to objectives and other stakeholders



Step 4: Prioritizing: ranking stakeholder relevance and identifying issues









https://www.quora.com/











#### The process of stakeholder engagement is a multifaceted process including :

- Providing information
- Capacity building to equip communities and stakeholders to effectively engage
- Listening and responding to community and stakeholder concerns
- Including communities and stakeholders in the relevant decisionmaking processes
- Developing goodwill and an understanding of objectives and priorities which will lead to confidence in decisions
- Establishing a realistic understanding of potential outcomes
- Building an understanding of the decision-making process

APGA Guideline for stakeholder engagement, 2015

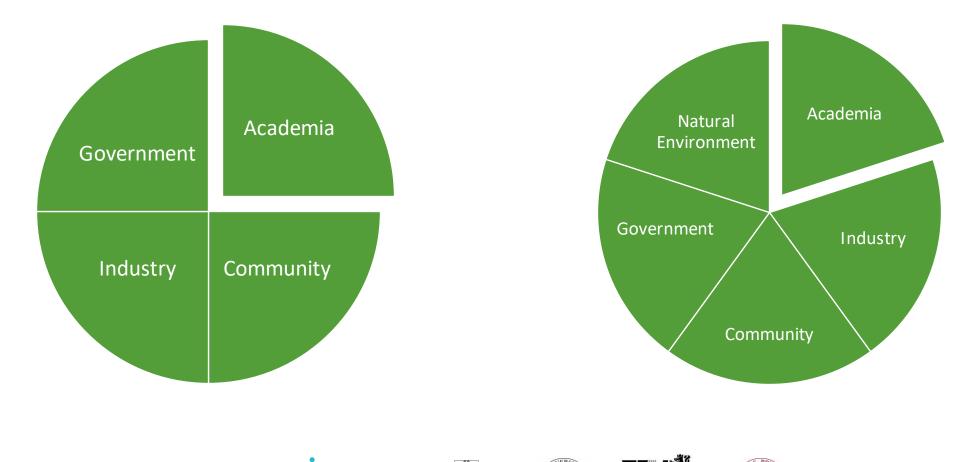


## Quadruple/Quintuple Helix Model

- In recent decades, relationships between a wide range of stakeholders have become deeper and more intense in the context of creating and implementing innovations for sustainable development at the micro, meso and macro scales.
- The theoretical framework for this collaboration is formulated by the quadruple and quintuple helix models. They are an extension of Etzkowitz and Leyesdorff's triple helix concept (academia-industry-government) to community (quadruple helix). Then they extended this idea to the ecological context - a nation of the 21st century that lives in a natural environment and must take into account the principles of sustainable development (quintuple helix).



#### Quadruple/Quintuple helix model



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## What is codesign?

- Co-design is an umbrella term for various approaches to design that assume a collaborative process between two or more actors or stakeholders.
- The practice of co-design spans multiple fields, from community architecture and urban planning, to consumer products and IT, to largescale systems and services.

https://www3.weforum.org/docs/WEF\_Co\_designing\_Tech\_with\_Civil\_Society\_2021.pdf









### What is co-creation?

Co-creation is the collaborative process of creating new value together with external experts and stakeholders. There are 4 types of co-creation:

- Crowdsourcing
- Community co-creation:
- Coalitions
- Expert co-creation











https://www.living-innovation.net/news/article?id=212&title=new-toolkit-for-effective-co-creation



## Day 9

#### LIVING LABS AND COMMUNICATION





S 2







# The benefits of efficient communication with stakeholders

- Building trust
- Building good relationships
- Being prepared for resistance
- Risk management
- Better budgeting and time management
- Quicker and efficient decision making
- Education and dissemination









### Stakeholder communication analysis matrix

	Stakeholder 1	Stakeholder 2	Stakeholder 3	Stakeholder4	Stakeholder 5
This stakeholder will consider the project important and interesting if					
This stakeholder draws attention to the following aspects of the project					
This stakeholder wants to be informed about the project in the following areas					
This stakeholder wants to be informed with the following frequency					
This stakeholder prefers the following forms and channels of communication					









### **Communication Planning Template**

Audience	<b>Objective/Objectives</b>	Message	Channel	Timing

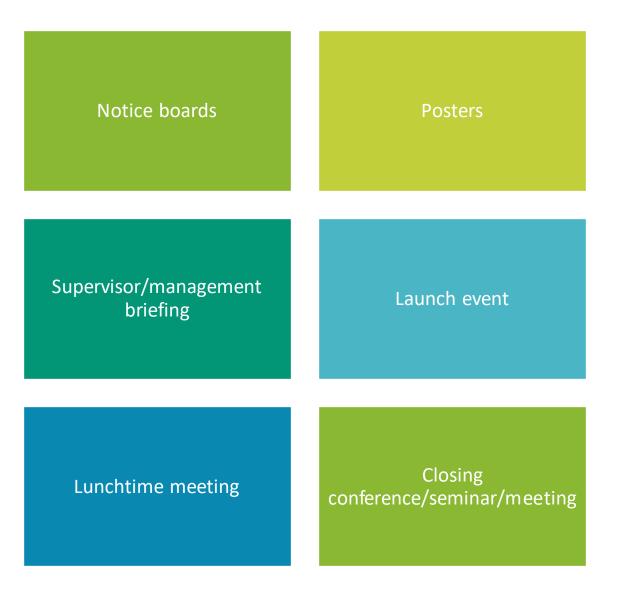








## Stakeholder traditional communication tools









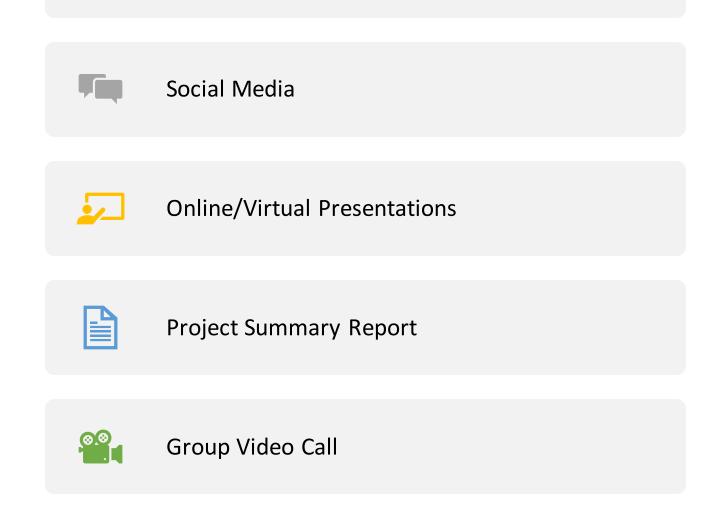






Email and Newsletter

## Stakeholder online communication tools











The Top 10 Social Media Sites & Platforms 2022

Facebook
YouTube
WhatsApp
Instagram
TikTok
Snapchat
Pinterest
Reddit
LinkedIn
Twitter









VOCATE message model		V	Viewpoint	
		0	Owner	
		С	Customer	
		Α	Acotors	
		Т	Transformation	
		Ε	Environment	
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VOCATE message model A program developed and managed by the Student Government (O), aimed at encouraging green mobility (V) of the entire academic community (C) by providing information on available green means of transport to and from the university (T), sponsored by the University authorities (A), taking into account available sources of internal and external financing and constraints in the local public and private transport network (E).









		Strategic	Rel	evant	Compelling	
The good message is		Tailored	Со	ncise	Simple	
		Me	morable	Re	eal	
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#### Inspiring sources

- <u>https://www.living-innovation.net</u>
- <u>Home European Network of Living Labs</u>, <u>Living Labs</u> <u>networkEuropean Network of Living Labs (enoll.org)</u>
- <u>Co-designing Digital Interventions and Technology Projects with Civil</u> <u>Society | World Economic Forum (weforum.org)</u>
- What are Living Labs | CIRC4Life
- Living Labs | FISSAC (fissacproject.eu)
- <u>University Living Lab</u>







