Transitions Pathways and Risk Analysis for Climate Change Mitigation and Adaptation Strategies

TRANSrisk
TRANSITION PATHWAYS AND RISK ANALYSIS FOR CLIMATE CHANGE POLICIES

TRANSRISK: LESSONS LEARNT

FIGHTING AND ADAPTING TO CLIMATE CHANGE

Policy Co-Creation Workshop

on the impact of European research and innovation projects

April 28th, 2021

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University of Piraeus Research Center (UPRC)

TEESlab
Technoeconomics of Energy Systems

PARTNERSHIP

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Who we are

SPRU - Science Technology Policy Research, University of Sussex	**UK**
BC3 - Basque Centre for Climate Change	**ES**
CE - Cambridge Econometrics	**UK**
ECN - Energy Research Centre of the Netherlands	**NL**
ETH Zurich - Swiss Federal Institute of Technology (funded by Swiss Gov't)	**CH**
IBS - Institute for Structural Research	**PL**
JIN - Joint Implementation Network	**NL**
NTUA - National Technical University of Athens	**GR**
SEI - Stockholm Environment Institute/ University of York	**SE, KE**
UniGraz - University of Graz	**AT**
TEESlab UPRC– University of Piraeus Research Center	**GR**
CLAPESUC - French Environment and Energy Management Agency	**CL**

Project Information

TRANSrisk
Grant agreement ID: 642260
Project website

Start date 1 September 2015
End date 31 December 2018

Funded under
H2020-EU.3.5.1.

Overall budget
€ 7 974 242,50

EU contribution
€ 7 454 017,50

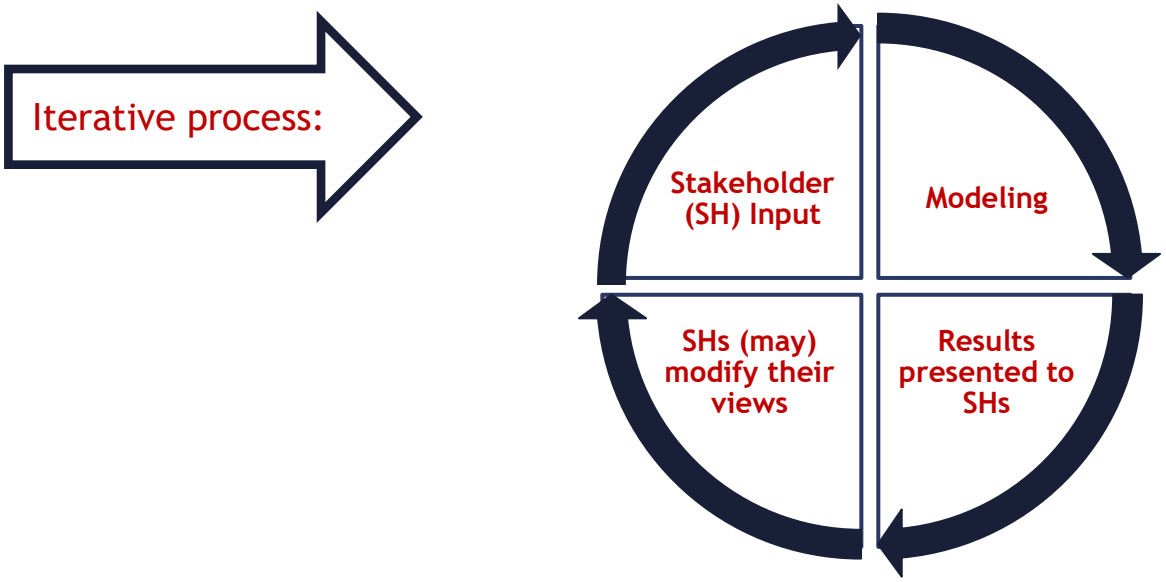
Coordinated by
THE UNIVERSITY OF SUSSEX
United Kingdom

- **12** partners
- **70+** researchers
- Interdisciplinary team

Overarching Research Questions

What are the **costs**, **benefits** and **risks** & **uncertainties** associated with *feasible* transitions pathways for climate change mitigation policies?

1. How should the **future** look like and how might we get there?
2. What **changes** are required for us to get to our **desired** future(s)?
3. What are the **policy options** based on the (national) context?



TRANSRISK PATHWAYS APPROACH

Stakeholder inputs

Quantitative inputs

1. Narratives Disaggregate (details)

- Where do we want to go?
- What *preferred* actions are needed to get there?
  - (e.g., technology, behavioral change, policies)

2. Model Scenarios Aggregate (generalisations)

- What resources are needed to get to the desire future?
  - (e.g., optimization models- back casting)
- How might the future look like if the changes and actions are to take place?
  - (e.g., simulation model- forecasting castings)

see: https://www.camecon.com/blog/what-is-macroeconomic-modelling-and-why-do-we-do-it/

Case Study Countries: Areas studied

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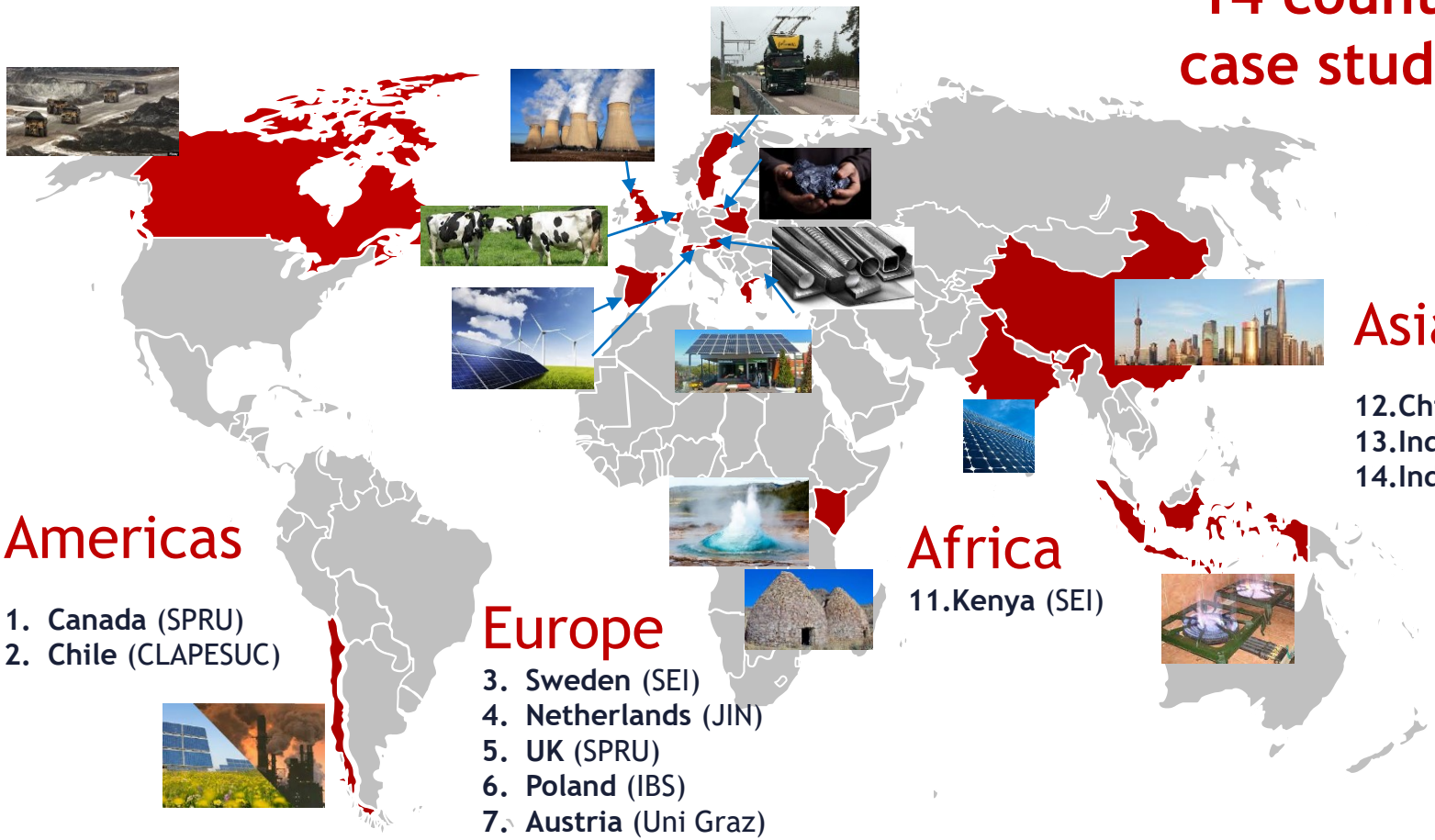
14 country case studies



Americas

1. **Canada** (SPRU)
2. **Chile** (CLAPESUC)

Europe

3. **Sweden** (SEI)
4. **Netherlands** (JIN)
5. **UK** (SPRU)
6. **Poland** (IBS)
7. **Austria** (Uni Graz)
8. **Switzerland** (ETHZ)
9. **Spain** (BC3)
10. **Greece** (NTUA/UPRC)

Africa

11. **Kenya** (SEI)

Asia

12. **China** (SPRU)
13. **India** (SPRU)
14. **Indonesia** (SEI)

Achievements

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1. Evaluating potential low carbon transition pathways

2. Harnessing the knowledge of stakeholders to inform and develop low carbon transition pathways

3. Integrating quantitative (computer models) and qualitative (stakeholder input) techniques in the assessment of potential low carbon transition pathways

4. Understanding the impact of feedback effects, policy synergies and conflicts

5. Identifying and understanding risks and uncertainties in low carbon transition pathways

6. Understanding what low carbon technologies are suitable for different areas of the World, and the barriers and opportunities to their deployment

7. Managing the work of a multi-national research project, and disseminating outputs

DISSEMINATION & OUTREACH (1/2)

CURRENT STATUS OF D&C ACTIVITIES*	
Logo and Graphic Guidelines	**16** Partners' Newsletters
1 Flyer, **3** Leaflets, **1** Booklet	**6** Infographics
9 Posters, **3** Presentations	**26** Scientific Publications
6 QR codes, **8** Templates	**45** Non-scientific & non-peer-reviewed publications
TRANSrisk Website (new material-updates)	**18** TRANSrisk Workshops
4 TRANSrisk Social Networks	**9** TRANSrisk Sessions at Conferences
Participation in **4** EU Platforms	**5** Workshops organised jointly with other EU projects
13 TRANSrisk Videos	**56** External events
11 TRANSrisk Newsletters	More than **200** links to TRANSrisk Website
10 TRANSrisk Press Releases	**29** Synergies with other EU projects

All **TRANSrisk Dissemination material & Information on activities available at the website*

DISSEMINATION & OUTREACH (2/2)

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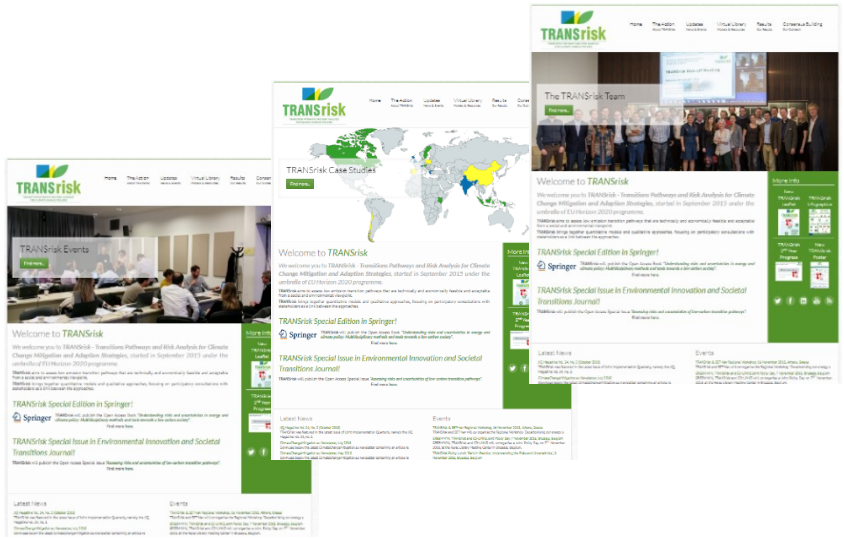
#Research Cooperation Platforms

Climatechangemitigation.Eu (**23** *articles*)

Capacity4dev.eu (**68** *posts* - **7,914** *views*)

Energypedia (**40** *reports* - **7,073** *views*)



#Dissemination Channels

Website (**10,453** Visitors -**18,615** Visits - **52,405** Pageviews - **2,872** Report Downloads)

Mailing Lists (Newsletters, press releases)

Further promoted via **IISD Mailing Lists**

Social Networks:

27,706 *Post reaches in* ***Facebook***

1,137,284 *Impressions in* ***Twitter***

2,678 *Video views on* ***YouTube*** *(***13 videos***)*

375 *Group members in* ***LinkedIn***

215 *References via* ***Research Gate***

TEESlab
University of Piraeus Research Center

Academic Impact

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Methods: Book with Springer

"Understanding risks and uncertainties in energy and climate policy: Multidisciplinary methods and tools towards a low carbon society"

Editors: Doukas, H., Flamos A, Lieu, J,

>86k Downloads

Springer

Integration of stakeholder and models: Special issue in Environmental Innovation and Societal Transitions. Elsevier.

"Assessing risks and uncertainties of low-carbon transition pathways'

Guest editors: Lieu J., Hanger-Kopp S, Sorman A., van Vliet O.

>120 Citations

ELSEVIER

SENTINEL
SUSTAINABLE ENERGY TRANSITIONS

PARIS REINFORCE

POLICY IMPACT

Global overview
(risk & uncertainty in climate change policies)

Special Report SR 1.5

Regional overview

(Sub)national overview

NDC
(Nationally Determined Contribution)

Energy Policy

Consumer behaviour (demand)

Energy Technology (supply)

Demand side policies

Resource base policies

Supply (energy, electricity) policies

Interactions with other policies areas
Food, building, transport, services & manufacturing

Consumer behaviour

Firm behaviour

Demand policies

Supply policies

Greece 4th National Energy Efficiency Action Plan

Kenya Geothermal & charcoal developments

Indonesia Biogas developments in Bali

Impact in further Research (1/3)

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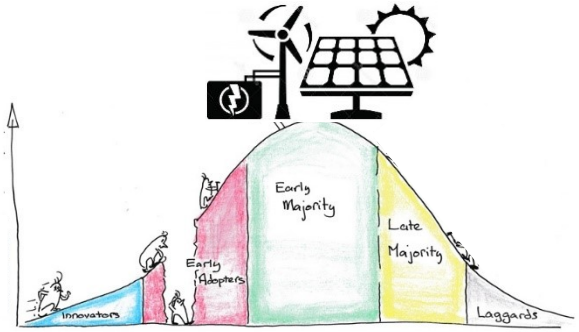

ATOM
Agent-based Technology Adoption Model

Technology adoption

ELSEVIER

Applied Energy
Volume 255, 1 December 2019, 113795

An agent-based model to simulate technology adoption quantifying behavioural uncertainty of consumers

Vassilis Stavrakas, Sotiris Papadelis, Alexandros Flamos

★ **Consumer behaviour**

Demand-side Management

DREEM
Dynamic High-Resolution Demand-Side Management Model

ELSEVIER

Energy Conversion and Management
Volume 205, 1 February 2020, 112339

A modular high-resolution demand-side management model to quantify benefits of demand-flexibility in the residential sector

Vassilis Stavrakas, Alexandros Flamos

Impact in further Research (2/3)

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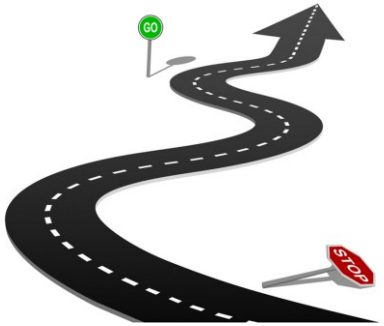
★ **Policy adaptability**

ELSEVIER

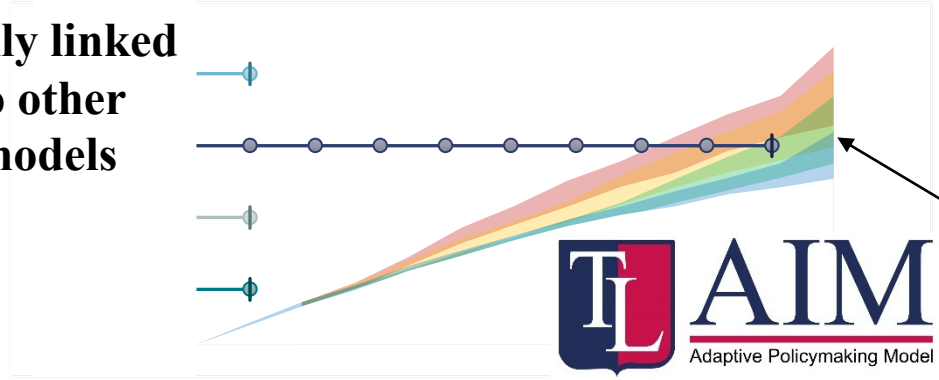
Energy Policy
Volume 139, April 2020, 111350

A transdisciplinary modeling framework for the participatory design of dynamic adaptive policy pathways

Serafeim Michas, Vassilis Stavrakas, Sotiris Papadelis, Alexandros Flamos



Easily linked to other models



TU AIM
Adaptive Policymaking Model

Plug-in decision & support toolbox

Impact in further Research (3/3)

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Further funded by different ongoing **EC-funded H2020** & **SFOE** projects

ENPOR
Energy Poverty in the PRS

Open-source energy systems modelling platform (EMP-E)

sensei
Pay-for-Performance schemes

ENSMOV
Energy efficiency & Article 7

SENTINEL
SUSTAINABLE ENERGY TRANSITIONS

SOCIALWATT
Energy Poverty & Energy Efficiency

ENCLUDE
Energy citizenship & energy communities

Polizero
Climate Neutrality in Switzerland

TIPPING+
Tipping Points in Coal and Carbon Intensive Regions

NEXT STEPS FORWARD…

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HORIZON-CL5-2021-D1-01-05:

Better understanding of the interactions between
climate change impacts and risks, **mitigation** and **adaptation** options

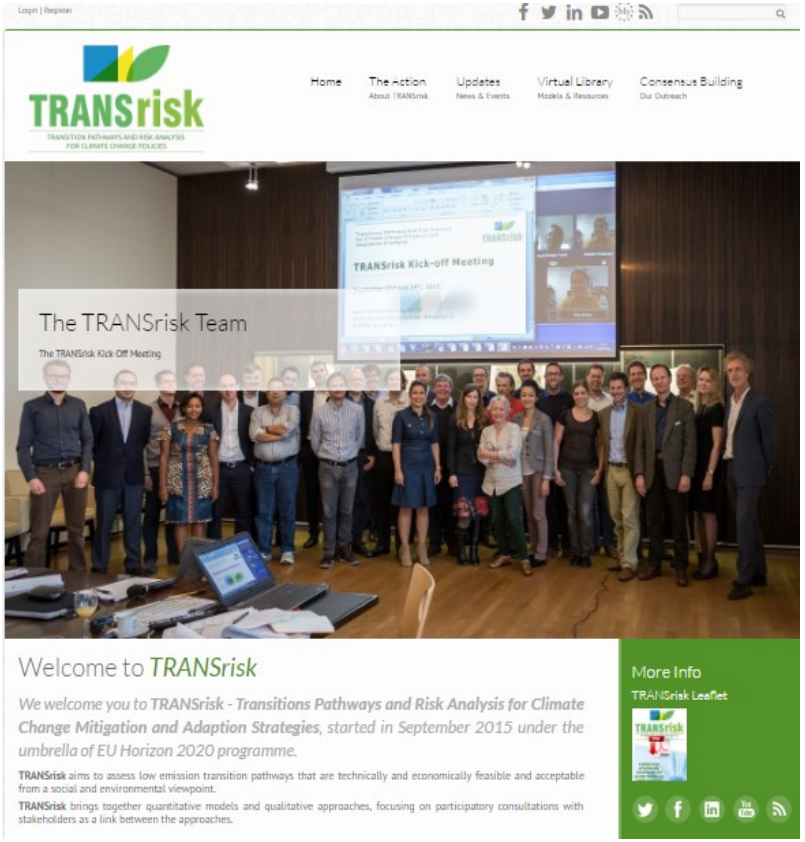
- Enhanced **understanding**, supported by **quantitative** and **qualitative** analysis, of the **interaction**, **complementarity** and **trade-offs** between **adaptation** and **mitigation** measures and policies helping to overcome the **silo** approach within and between them and leading to more effective climate action policies.

- Better **knowledge** about the **risk and impacts of climate change** and their **interaction** with **mitigation** pathways, including their **feasibility** across various scenarios of global warming.

For More Information...

Visit our Website:

www.transrisk-project.eu



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Find us in **LinkedIn:** TRANSrisk_EU

Watch us on **YouTube:** TRANSrisk

For More Information…

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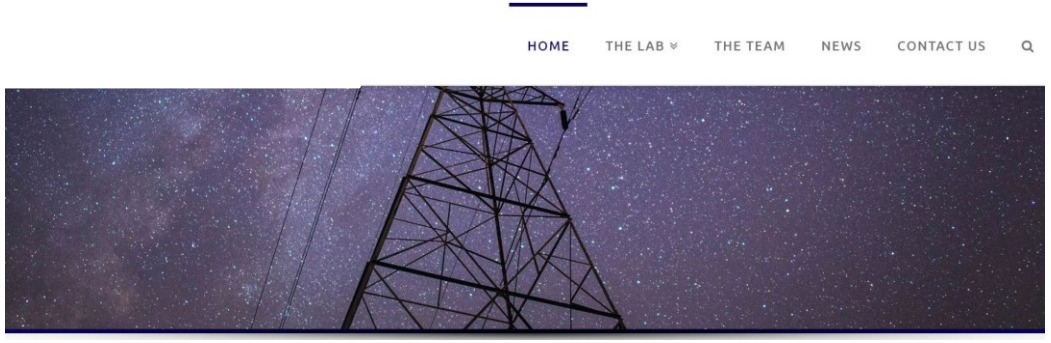
Technoeconomics of Energy Systems

- **TEESlab**, the energy modelling, strategy and policy analysis laboratory of **University of Piraeus** (UNIPI)

Visit our Website:
https://teeslab.unipi.gr/



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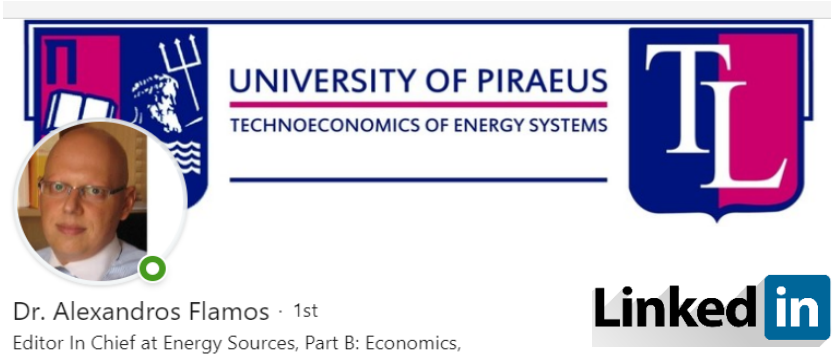
Tweet us:
@TEES_Lab

Find us in LinkedIn:
www.linkedin.com/groups/12070918/



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Thank you !

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