STECON-AUEB: RESEARCH OUTLOOK AND MAIN PRESENT ACTIVITIES

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What we do @ the STEcon group ... for 20+ years

- We investigate, develop and apply incentives mechanisms, business models and canvases, cost-benefit analysis, reputation mechanisms, charging and contracts, Key Value Indicators (KVIs) etc. in many application areas:
 - Telecoms and 6G/5G networks and verticals
 - Future Internet, blockchain and cloud computing
 - Energy and smart grids
 - Internet of Things
 - E-markets, and Software for ICT systems
 - Regulation and policies



Motivation

Very complex value chains in the Digital Ecosystems

- Need for distributed solutions that take into account:
 - the possibly conflicting interests of each of the players
 - the distribution of information and functionality among them
 - the very large scale of the ecosystem
 - the protocols and mechanisms already running

Incentives and Mechanisms

- incentive constraints should be considered coequally with resource constraints in the formulation of the economic problem.
 - R.Myerson, Nobel Prize in Economic Sciences, 2007

Mechanisms can help us: attain an efficient outcome in a complicated optimization problem in a distributed way The "engineering" side of economic theory. E.Maskin, Nobel Prize in Economic Sciences, 2007

Current 5G/6G projects and STEcon role

- IMAGINE-B5G (SNS-2022): Advanced 5G Open Platform for Large Scale Trials and Pilots across Europe
 - Business modelling and ecosystem analysis for B5G/6G use cases in vertical sectors, Trial-based validation of business, economic and societal value of B5G/6G technology
 - EU contribution: 11M€
 - STEcon-AUEB budget: 270K€



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- EXIGENCE (SNS-2023-STREAM-B-01-01): integrates measurement, optimization and incentivization to contribute to reducing overall energy consumption and CO2emissions of ICT services
 - Incentives mechanisms, "Bridging" of ICT and smart energygrids, Business modelling, cost-benefit analysis
 - EU contribution: 4M€
 - STEcon-AUEB budget: 320K€

Current/Recent Energy projects and STEcon role

- RESONANCE: Replicable and Efficient Solutions for Optimal Management of Cross-sector Energy
 - Business modeling and incentives mechanisms for cross-energy demand response
 - EU contribution: 8M€
 - STEcon-AUEB budget: 470K€



- ISLET: Innovative Supporting Schemes for Community-Led Energy Transition
 - Financial and business modeling financial gap and instruments for funding energy communities in small islands
 - EU contribution: 1.5M€
 - STEcon-AUEB budget: 150K€



Current Blockchain projects and STEcon roles

- BUILDCHAIN: BUILDing knowledge book in the blockCHAIN distributed ledger. → Trustworthy building life-cycle knowledge graph for sustainability and energy efficiency
 - Trustworthy IoT Data Oracles, Business modeling, energy-efficient operation of buildings
 - EU contribution: 4.5M€
 - STEcon-AUEB budget: 370K€



- Business modeling, research planning and supervision of trustworthy blockchain solutions
- EU contribution: 10.6M€
- STEcon-AUEB budget: 300K€



STEcon 360 BME: Business Model Evaluation s/w Tool for Cost-Benefit & Economic Sustainability Analysis



Services, Technologies, and Economics - STEcon

Helps market actors assess the overall sustainability of new business models and partnerships under several market scenarios

Assists actors understand how the market conditions and costs in candidate regions affect the economic viability of the business models

STEcon 360 Business Model Evaluation Tool Important for decision-making of market actors and policy makers (e.g., for defining subsidies) Spotted by European Commission's Innovation Radar (June 2022)

- Innovation Title: Actor role model and Business models for 5G Ecosystem
- Market Maturity of the Innovation: Exploring
- Market Creation Potential of the innovation: Addresses needs of existing markets
- 'Key Innovator' in the development of this innovation:
 - ATHENS UNIVERSITY OF ECONOMICS AND BUSINESS -RESEARCH CENTER
 - TELEFONICA INVESTIGACION Y DESARROLLO SA
 - TELENOR ASA

BME Performs Economic Analysis of Value Chains

- Assesses important KPIs: CapEx, OpEx, revenues
 - Internal Rate of Return, Return on Investment, payback time
 - Investigates profitability of the service as a whole
 - Often depends on the level of demand for the service analyzed, which can be affected by establishing proper incentives
- Investigates profitability of the individual actors
- Shapes guidelines for attaining all-win scenarios by defining:
 - how to intervene in the value-chain by creating appropriate revenue streams incentivizing adequately all stakeholders
 - cost-saving scenarios

Thank you!

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