## Lintelcomp

# Evidence-based Policy Modeling (WP1)

Technopolis group

27 April 2021

**Opening event** 



## Evidence-based Policy Modeling – in summary

Objectives
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- Identify domainspecific policy needs and barriers
- Identify relevant policy cycle indicators and open data repositories in the pilot domains
- Combine data and indicators to provide solutions for policy makers in the three pilot domains

Tas	ks	

- Identification of domain-specific needs, PA and stakeholder consultation (T1.1)
- Selection of indicators and collection of Input Data (T1.2)
- Model Design Solution and Monitoring (T1.3)

#### Domains

- Artificial Intelligence
- Climate Change
- Health

#### WP/Task linkages

- Technical WP2-5
- Conceptual WP6-7

Expert-in-the-loop cocreation methodology



## Evidence-based Policy Modeling – Task T1.1

#### M1-M6 Identification of domain-specific needs, PA and stakeholder consultation

#### **Desk research**

- Analysis of the domain-specific and regulatory context in each of the pilot areas
- Overview of the relevant policies / strategies
- **Roadmaps** in each of the pilot areas
- Overview of the relevant targets, policy objectives, policy outcomes
- Monitoring framework supporting the measurement of outputs
- Enabling conditions and monitoring framework (indicators and the measurement type)

#### **Stakeholder consultations**

• Stakeholder interviews

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- Organization of stakeholder consultation workshops
  - 1. Report on the domain-specific needs and PA and stakeholder
  - assessment in the three pilot domains
  - 2. Policy brief on the use of AI and data-driven tools for STI policy design



## Conceptual framework: How do we formulate policy questions

#### 1. INNOVATION SYSTEM FUCTIONS ඨු\_\_\_ů

Activities that (may) contribute to the diffusion and utilisation of new science and technology (both positive and negative) are called functions of innovation systems



Policy stylized in five sequential policy cycles:

- 1. Agenda Setting
- 2. Policy Formulation
- 3. Policy Adoption
- Policy Implementation (and Monitoring)
- 5. Evaluation

#### **3. STAKEHOLDERS**



Stakeholders in focus for Intelcomp

Minister (high level policy maker), Policy officers, Policy analysts, Evaluation agencies, Monitoring managers, EU policy makers, Academic experts, Research institutes, Industry (associations), National funding agencies ...

#### 4. TECHNOLOGICAL SYSTEMS



We use all three dimensions ... but not all possible combinations to create a basic set of questions



## Innovation system functions

**Definition:** Activities that (may) contribute to the diffusion and utilisation of new science and technology (both positive and negative) are called functions of innovation systems

Examples

- Function 1. Entrepreneurial activity
- Function 2. Knowledge creation
- **Function 3**. Knowledge diffusion through networks
- Function 4. Guidance (guidance can take the institutional form of policy targets and/or expectations regarding the technology as expressed by various actors
- Function 5. Market formation (protected spaces for new technologies, tax regimes, etc.)
- Function 6. Human and financial Resources mobilisation
- Function 7. Creation of legitimacy/counteract resistance to change

(Van Alphen, 2011)

...



## The policy cycle as the foundation

- Policy can be stylised in *sequential policy cycles*
- Despite some reservation for over-rationalizing a social process, the concept is helpful for tool development and benchmarking
- The basic rationale behind the policy cycle is that policies build up on past knowledge and experiences and as long as you exploit past evidence your policy gets better (policy is not formulated in a vacuum)
- The policy cycle models have evolved from basic 5 stages to more complex with six or more and even overarching cycles.
- For the Intelcomp purposes we can use the simple fivephases model





# Policy cycle / functions and corresponding questions for policy makers: a resulting grid

<b>INTELCOMP - Policy Questions</b> In grey key questions for policy makers and corresponding rationale In black key questions are broken down to what could be measurable	Relevance for Public Authorities (PAs) please rate 1= low priority; 2=medium priority; 3=high priority	Data availability by Public Authorities (PAs) please rate: 1=data collected by Pas 2= some data collected by PAs but deemed insufficient; 3=no data collected by PAs	Relevance for Living Labs please rate 1= low priority; 2=medium priority; 3=high priority
Agenda Setting: Intelligen	nce gathering, problem identificat	ion	
Function 1 Entrepreneurial activity			
Key question: Where should resources be invested (individual companies, sectors, value chains) to support the national innovation system to successfully undertake R&D and compete internationally? Rationale A: Understand which companies are active in emerging fields (emerging filed defined under Knowledge Creation) and likely to excel in the future, this is where you want to invest Rationale B: Understand where local companies have an R&D&I specialisation (the answer to these questions will be prepared during the monitoring and	,		
Are companies adapting to technological transformation trends in their respective sectors? How do they compare with major (international) competitors?			
Which companies emerge with specific disruptive technologies in the country/macroregion/region/city?			
Are companies emerging with specific disruptive technologies scaling up?			
Are scale ups leaving the country/region/city?			

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#### (example)

## Evidence-based Policy Modeling – Task T1.2

M7-M12

#### Selection of indicators and collection of Input Data

- Outline the data sources that need to be ingested and stored in the IntelComp Data Space
- Specify the necessary analytics tools, NLP pipelines and AI workflows that need to be developed/trained/adapted in the IntelComp scalable platform
- Provide a set of **domain-specific indicators** for principle-driven monitoring and analytic evaluation
- Establishing baselines, targets and benchmarks for evaluation and in general configure the operation setup of the IntelComp platform to be deployed and exploited
- Perform a gap analysis in order to compare the conceptual framework and implementation plan in IntelComp with the needs of PA and stakeholders

Report on the selected measurement and data collection



## Evidence-based Policy Modeling – Task T1.3

## м13-м36 T1.3. Model Design Solution and Monitoring

- Produce recommended domain-specific data
- Model solutions including descriptions, characteristics and visualisation per pilot domain for deployment
- Propose KPIs against which to assess the policy model for continuous monitoring and impact measurement
  - 1. Policy brief on the use of AI and data-driven tools for STI policy design
- 2. Outline of the Data Model Solution per pilot domain
  - 3. Policy brief on the use of AI and data-driven tools for STI policy design



## Evidence-based Policy Modeling - main steps forward





# Lintelcomp

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