

# The costs and benefits of AI regulation : risks, legal choices, economic assessement

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*Scholars try to define and measure the costs of AI regulation (GDPR, AI EU instrument) but little has been said on its benefits, which can be explicated and captured by an economic approach, with two key enablers : trust and legal certainty.*

*Such an approach starts with a risk analysis, takes into account the legal choices of the different regulatory instruments at stake and results in an economic reading grid, which needs to be checked empirically, be it in a quantitative or a qualitative fashion.*

*The discussion is about the scope of the approach, the nature of the effects and their respective magnitude.*

# Which risks ? The cost of non-regulation

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- *Seminal paper Acemoglu, 2021 :*
  - ✓ *The harms are related to how the technologies are used and deployed. Thus, it possible to reduce them before they appear, through regulation.*
  - ✓ *Potential of IA to reduce the efficiency of other regulatory frameworks (competition, privacy, race to the bottom between jurisdictions)*
- **Labour market effects**

Job suppression and human capital destruction, workplace damage, inequality
- **Discrimination**

Exclusion of services, discrimination in prices
- **Privacy and consumer choice**

Exploitation of the consumer surplus by the producer, information asymmetries, competitive risks
- **Maleficent use**

Magnified cyberrisks, harms to the political debate, “big brother effects”
- **Systemic risks**

Lack of control, loss of human abilities, “alignment problem”

# AI, facts and figures

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- 85 to 134 TWh in 2027, equivalent of an economy like Sweden (Vries, 2023)
- 5% of jobs to be fully replaced by IA (ILO, 2023) and 13,5% improved

65%

of EU companies think that the lack of trust in AI is an obstacle to its development (EC, 2020)

68% (74%)

of French (US) people think we need a pause in the deployment of gen IA (AXA, 2023)

**+25% productivity gains** with gen, AI for a customer service (Brynjolfsson et alii, 2023)

« Generative AI at Work », *NBER Working paper*.

**72% of employers** mention a positive impact on productivity (Pôle emploi, 2023)

**22 bil\$ of funding** for gen AI start ups in 2023 (Dealroom)

# Takeaways from the economic literature

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- **Agrawal et alii, 2019** “Economic policy for AI” : reduction of costs of predictions : the trust of final users is a limit, but privacy requirements can slow down the deployment of IA (Is it really a problem ?)
- **Aghion et alii, 2010** : regulation reduces innovation by 5% on macroeconomic level, on the level of R&D but not quite on market entry. Reduces more incremental than radical innovation
- **Venkatesan et alii, 2022** : GDPR increases the value of acquisitions in the AI startup sector, as opposed to before GDPR
- **Z. Chen, 2023** : survey on AI enabled recruitment practices : biases can arise from the data set of from the model : gender-based and ethnical discrimination
- **Krestchmer, Peukert et alii, 2023** : argue that focusing on data has suboptimal results, it is best to enact clear civil liability rules to provide incentives to deployers

# Who gets regulated ? the AI value chain

## HARDWARE FIRMS

### « PROVIDERS » (developers)

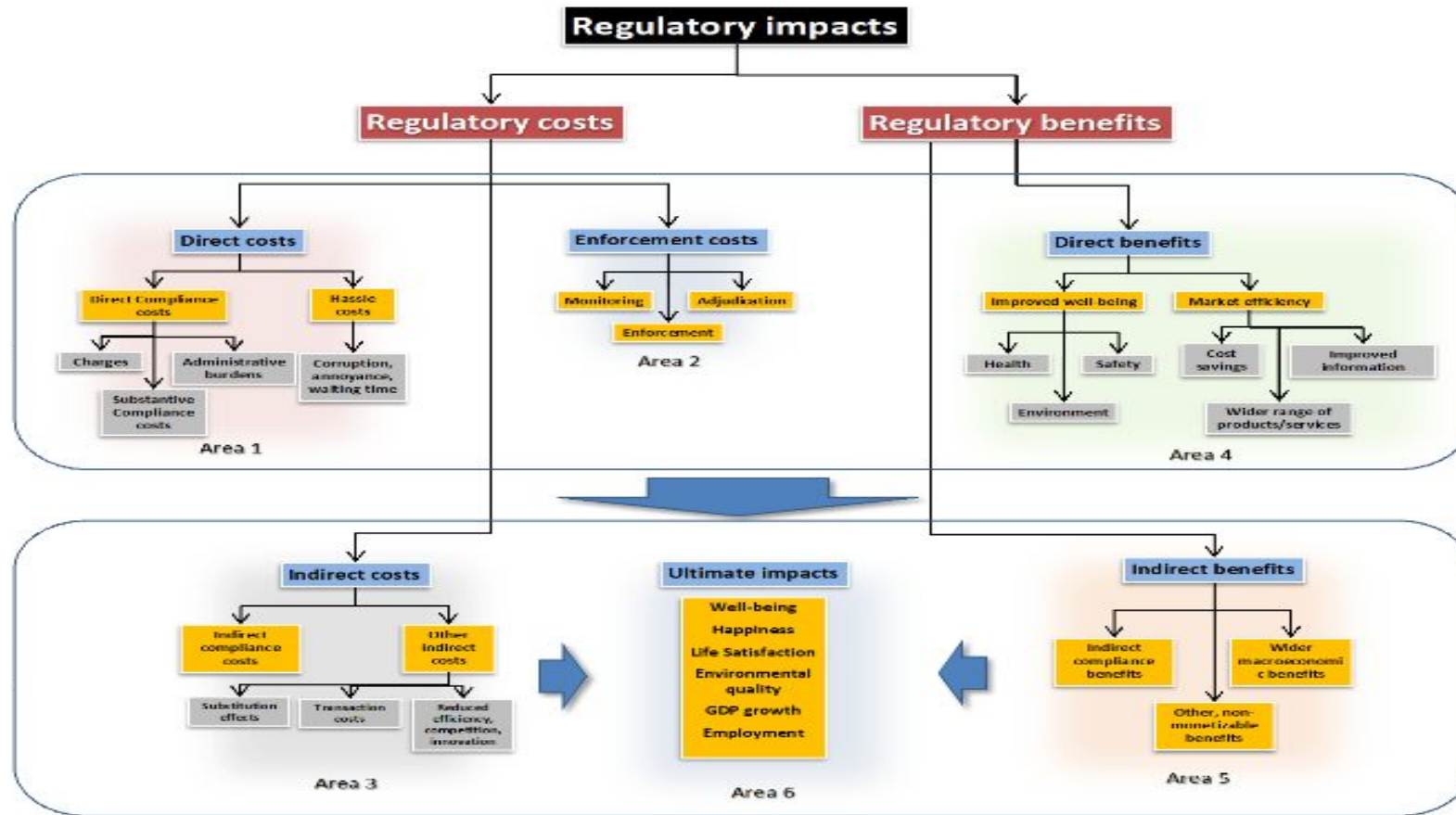
- **Innovation / funding**
- High risk systems
- Impact/conformity assessments
- Record keeping of performance
- Enable human intervention
- Data:
  - Access (GDPR, IP rules)
  - Personal vs/ anonymised
  - “relevant, representative, free of errors and complete” (Art. 17 AIA) : costly

### « DEPLOYERS » (importers, distributors)

- **Use case / adoption**
- Governance
- Business model
- Explainability (right to an explanation under AIA for HRS)
- Transparency to the user (AI nature)
- Use in accordance with instructions
  - Liability in case of damage
  - Legal certainty ?
  - Multiple enforcement : market surveillance authority, data protection authority, courts

## FINAL USERS

# Mapping of the costs and benefits



Source: Renda et al. (2013)

# The costs of regulation

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- **Ex ante impact assessment (CEPS, 2021)** for the EC: assumptions: 10% are HRS, hourly wage rate 32€ (IT sector), average development cost 170 000€, costs decrease with the time
- => cost is 29 000€ by AI system, 17% more in development cost, but drops by 36% if GDPR compliance investments have been realised (« BAU factor » based on data intensity estimates provided by GE models). Conformity assessment costs add another 13.5% of development costs (one off costs, quality management system)
- **Debate : in this cost underestimated ?** +25% total cost. Axel Voss, MEP, asked March 2022 to review the impact assessment : 10%, 32€/h underestimated, fixed costs are high for SMEs
- **Who carries the burden of the cost ?** (Frontier economics, 2023) :
  - Costs passed through to the consumers : market concentration, price-elasticity of demand : 50% according to Frontier economics
  - Some firms leave the market or do not enter : asymmetrical effect for SMEs, especially the less profitable
  - Reduction in R&D expenses : estimated through reduction of ROI. (i) is this effect **temporary** ? (ii) isn't compliance an **investment** (see next section) ?



# The benefits of regulation

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- Collective benefits (harms are beyond individuals) : **reduction of risks** (discriminations, online harms, privacy cf. King & Meinhardt, 2024) : through prohibition of use cases, surveillance of HRS and transparency. Increases the social welfare, especially for vulnerable groups
- Benefits for individuals: **increase in user's trust** (WEF, 2020). Three channels : positive effect on final demand, thus on adoption by deployers + willingness to share their data, thus more productivity (Frontier economics, 2023). +200 mi£ by 2032 in revenues in the UK + brand trust, based on a Gapgemini study, 2020
- Benefits for business: providing of **legal certainty**. Reduces coordination and litigation costs, creates level playing field, increases investor confidence (legal uncertainty reduces the size of credit markets : Lee et alii, 2022). Interplay with other fields of law : ex: data protection, intellectual property
- Reduction of **non-compliance costs** : fines ranging from 7.5 mi€ or 1.5% of (global) turnover to 7% of turnover or 35 mi€, from national authorities, depending of the infringement

# The benefits : 2 illustrations

## EXPLAINABILITY

- GDPR (right to human intervention) + AIA (right to an explanation) for automated decision-making
- Makes outcomes understandable (increases trust) and helps identify discriminations (reduces risks)
- Algorithmic disclosure is welfare maximising (Rambachan et alii, 2020), even surpassing human decision
- Open questions:
  - Is it technically possible ? Or is opacity inherent to algorithms ?
  - Cost of explainability : overrides the benefits ?

## CYBERSECURITY

- IA generates new security risks (privacy, maleficent use) and evolving ones
- Presence of negative externalities between user and producer: the market equilibrium is not the social optimum (Garcia, 2013)
- Article 32 GDPR + article 15 AIA : safety ad cybersecurity requirements (cybersecurity risk assessment) for HRS
- Open questions :
  - Requires continuous monitoring and state of the art practices : what is the cost ?
  - How are risks and costs shared between providers and deployers ?

# Conclusions

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- The case for « **trustworthy AI** » : The « responsible » or « human centric » IA approach has become hegemonic, given the high risks at stake. Importance of the final user, not only business
- **Self-regulation is not an option** : the measures are too costly to implement, risks are not necessarily internalized by firms, presence of coordination pitfalls between actors. Need for oversight
- Strong **interplay with other fields of law**, with important legal uncertainty. Necessity to exploit regulatory synergies
- Which national **competent authorities** ? A new, dedicated regulator would create additional costs. DPAs are probably best placed to do it (need of computer science expertise)
- Warning on **competition issues** (access to training data, status of open source, dependencies with cloud services, killer acquisitions) as business models are not yet stabilized.



THANK YOU FOR YOUR ATTENTION !  
ANY QUESTIONS ?