What costs should we expect from the EU's AI Act?

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Meeri Haataja, CEO & Co-Founder, Saidot Ltd, Espoo, FI (contact author)

Joanna J. Bryson, Professor of Ethics and Technology, Centre for Digital Governance, Hertie School, Berlin, DE

This short analysis aims to provide an overview of the anticipated costs caused by the EU's proposed AI regulation, the AI Act (AIA), to impacted organisations: both providers and deployers¹ of systems containing AI. We focus our analysis at an enterprise level, leaving the macroeconomic discussion for later. While the bulk of the paper explains and critiques the European Commission's (EC) own analysis we also comment on the critiques raised recently by a high-profile US lobbyist, the Center for Data Innovation, in their report "How Much Will the Artificial Intelligence Act Cost Europe?"² We conclude by highlighting topics that would benefit from further elaboration by the EC.

As a reminder, the AIA is presently draft legislation, written by the European Commission. While something quite similar can be expected to be implemented ultimately by the European Union's member states, the legislation is presently in a period of revision by the elected members of the European Parliament, in cooperation and consultation with EU national governments. While the heart of the EU's regulatory proposal is in safeguarding people against AI risks to health, safety and fundamental rights, we acknowledge the importance of rooting policies in a sound analysis of financial impacts. It is only that way that requirements get translated into solid action plans and finally into actions. The process of such pragmatic analysis, can also get at assumptions and failures of coherence that might otherwise be overlooked. We also, separately, have a longer commentary on the act itself, see "Reflections on the EU's AI Act and how we could make it even better."³

Our analysis of the AIA costs is based on the two main sources: the EC's Impact Assessment of the AIA⁴, and the EC's study to support an impact assessment of regulatory requirements for artificial intelligence in Europe⁵. It is noteworthy that while the EC uses the support study as its main source for financial impact assessment, in some contexts, they specifically choose to interpret the figures differently, e.g. by excluding some categories of costs from the impact assessment. For this, it is critical to treat the EC's impact assessment and the support study as two separate sources. This was one of a number of things apparently missed by the Center for Data Innovation in their report.

Costs for providers and deployers based on EC's impact assessment

The EC's impact assessment discusses the AIA costs for providers and deployers in two categories: 1) costs of compliance and 2) verification costs. The costs of compliance originate from various activities required from organisations to comply with requirements outlined in the AIA Chapter 2. These entail activities regarding data governance, documentation and traceability, robustness and accuracy, provision of information, and human oversight. The verification costs, if any, occur from the conformity assessment procedures of a high-risk AI system. Noteworthy is that the EC counts only the costs arising from third party conformity assessment processes and interestingly seems to assume no additional costs from verification based on internal control.

We summarise the compliance and verification costs in tables 1-2. At this point we use only those costs that are recognised in the EC's impact assessment. All estimates are expecting the development cost of an average AI system as 170,000€. The EC's rough estimate for costs of compliance for providers ie. fulfilling the requirements outlined in Chapter 2 of the AIA, is around 6000 – 7000€ or ca. 4-5% in percentage. The deployers of high-risk systems would face human oversight costs of around 5000€ – 8000€ per year throughout the system's lifetime. In addition, those providers who would need to go through a verification process, ie. conformity assessment by a third party, would face an additional cost of 3000€ – 7500€ or 2-5% per system, assuming the provider has an existing Quality Management System (QMS) in place and audited. For providers whose systems would require a

¹ We're deliberately not calling deployers as "users" as the EC has. This is to avoid ambiguation between the terms referring to deployers and end-users. We also advice the EC to disambiguate the use of the term.

² [Center for Data Innovation in their report "How Much Will the Artificial Intelligence Act Cost Europe?"](#)

³ [Haataja & Bryson, in prep.](#)

⁴ [Impact assessment accompanying the AI Act](#)

⁵ [Study to support an impact assessment of regulatory requirements for Artificial Intelligence in Europe](#)

conformity assessment based on internal control, the EC assumes such control activities should be integrated into the development process and thus exclude these as additional verification costs.

Table 1: Compliance costs of providers and deployers

Compliance costs	Providers	Deployers
Compliance costs	6,000 - 7,000€ ⁶	5,000 - 8,000€ ⁷

Table 2: Verification costs depending on conformity process

Verification costs	Provider	
	Enterprise	SME
Verification costs based on third-party assessment ⁸	3,000 - 7,500€	3,000 - 7,500€
Verification costs based on internal control	0€	0€

Extended cost analysis using support study

While the EC's impact assessment provides only the final outcomes of their cost analysis, in order to go into more details one must visit the support study and the numbers behind it. In the following tables (3-5) we summarise the underlying compliance and verification cost estimate data in more detail as outlined in the support study. For clarity, we highlight the final numbers used in the EC's impact assessment in [blue](#).

Table 3: Compliance costs of providers and deployers per support study and EC's impact assessment

Compliance costs	Initial	Adapted
Compliance costs regarding training data	2,763€ ⁹	1,758€
Compliance costs regarding documents and traceability	4,390€ ¹⁰	2,793€
Compliance costs regarding provision of information	3,627€ ¹¹	2,308€
Compliance costs regarding robustness and accuracy	10,733€ ¹²	0€
Total compliance costs for Provider	21,513€	6,859€
Compliance costs regarding human oversight	7,764€¹³	7,764€
Total compliance costs for Provider and Deployer	29,277€ ¹⁴ (17.22%)	14,623€ (8.60%)
*Note, costs are for the EC's estimate of an average AI system, for which it further estimates a 170 000€ overall development cost. For difference between initial and adapted costs, see main text.		

⁶ AIA Impact Assessment, p.70

⁷ AIA Impact Assessment, p.71

⁸ AIA Impact Assessment, p.71

⁹ Support study, p.121

¹⁰ Support study, p.124

¹¹ Support study, p.128

¹² Support study, p.134

¹³ Support study, p.131

¹⁴ Support study, p.134

Table 3 summarises the costs of compliance for providers and deployers. To understand the reasoning behind the numbers, it is important to understand that activity-based costs are presented with both initial and adjusted values. The adjusted values result from a so-called business-as-usual (BAU) factor applied to the initial numbers. This assumes that some proportion of the requirements laid out by the new law would already be implemented by high-risk AI providers as standard business practice. The EC uses 36,37% as its BAU factor, meaning that, where applicable, the actual (adapted) *compliance* costs are 36.37% lower than the overall (initial) numbers¹⁵. In order to reach this more realistic incremental cost of compliance to the new regulations, the BAU is applied on rows 1-3 of table 3.

In addition to the mentioned BAU corrections, the EC continues: “[E]conomic operators would already take a certain number of measures even without explicit public intervention. In particular, they would have to still ensure that their product actually works, i.e. robustness and accuracy.”¹⁶ This cost (row 4, table 3) would therefore only apply for companies not following standard business procedures. These two considerations explain the far lower value of the adjusted than the initial set of costs in the EC’s impact assessment. The overall costs for the EU’s assumed average-sized AI project are highlighted in blue in table 3, and summarised in table 1.

Moving on to verification costs, the estimates of the EC’s impact assessment as well as the support study focus solely on the costs associated with third-party assessment. According to the AIA, this requirement would apply only to any safety components of products under the new legislative approach, and those AI systems intended for remote biometric identification in public spaces¹⁷. What comes to any other high-risk AI systems, the AIA suggests, is a conformity assessment via internal control, and consequently, again assumes no additional costs.

We next discuss the costs associated with a third-party conformity assessment process as laid out in the AIA Annex VII. To start with, the EC’s impact assessment assumes that all providers who would be required to go through such process have an existing Quality Management System (QMS) in place¹⁸. Nevertheless, the EC’s impact assessment does assume that additional costs would derive from adapting such systems to the new AIA requirements, and for auditing the QMS system after the adaptations, but leaves the discussion of such QMS-related cost implications without details. Finally, the impact assessment summarises the external verification costs into a one-off audit cost per system and provides an estimated range of 3000-7500€ cost per high-risk system as outlined in table 2.

A question remains: what is the cost of QMS adaptation or ramp up, where applicable? This is where the business case gets more challenging. We summarise the analysis based on provisions of the support study in table 4. In short, an adaptation of an existing QMS to comply with the AIA requirements and bringing one system to the market would cost enterprises around 117,750-174,800€. For an SME with 50 persons, the respective cost are anticipated to be between 88,050-130,850€. Further on, in situations where an organisation wants to deploy a high-risk system through a third-party assessment and does not have QMS already in place, the costs for enterprises are expected to range between 193,000-330,050€, and for SMEs 144,350-247,150€. In addition, organisations would face annual QMS oversight and audit costs of around 71,400€.

Table 4: Verification costs depending on conformity process and existing capabilities per EC’s impact assessment and study supporting the impact assessment

Verification costs based on third-party assessment (high-risk systems only)	Provider	
	Enterprise	SME
One-off audit cost of one AI system ¹⁹	3,000 - 7,500€	3,000 - 7,500€
One-time setup of a new QMS on first year & bring one	193,000 - 330,050€ ²⁰	144,350 - 247,150€ ²¹

¹⁵ Support study, p.142

¹⁶ AIA Impact Assessment, p.66

¹⁷ AIA Impact Assessment, p.71

¹⁸ AIA Impact Assessment, p.72

¹⁹ Support study, p.151

²⁰ Support study, p.151-152

²¹ Support study, p.153

system to market		
One-time adaptation of an existing QMS on first year & bring one system to market	117,750 - 174,800€ ²²	88,050 - 130,850€ ²³
Annual QMS oversight and audit ²⁴	71,400€	71,400€
Verification costs based on internal control (high-risk systems only)	Provider	
	Enterprise	SME
No additional verification costs applied	0€	0€
*Note, based on the EC's estimate 170 000€ for development cost of an average AI system.		

The EC's impact assessment is précised in its discussion of QMS costs: "Companies supplying products that are third-party conformity assessed already have a quality management system in place. Companies supplying remote biometric identification systems in publicly accessible places, which is a very controversially discussed topic, can equally be presumed to have a quality management system, since no customer would want to risk their reputation by using such a system that hasn't been properly quality controlled."²⁵ Consequently, the above discussed QMS related costs are also considered as BAU for organisations deploying high-risk systems based on third party conformity assessment, and thus not detailed in the EC's impact assessment.

To summarise, the support study lays down figures associated with setting up quality management systems which would, in the worst case, multiply the total compliance and verification costs of an AI system by 50-100X. As stated, the EC has made a clear effort to minimize the respective cost impact by limiting the scope of third-party assessment. As a reminder, according to AIA as it is proposed currently, third-party assessment would only be required from providers of safety components which are already subject to third-party assessments, and providers of products used for real-time biometric identification of natural persons²⁶. After such scope limitations, the EC assumes the quality management system as business as usual. Considering the cost impact of such assumptions, we feel it is fair to say that this assumption is an important discussion point when further validating the AIA cost impacts for providers. At the same time, we agree with the EC that such measures are absolutely standard in many manufacturing domains, including in software companies that don't label themselves as "AI". As such, even if these costs would come as an unexpected hurdle to some AI companies, it may well be a hurdle for which they would realise multiple benefits from coming to clear²⁷.

Another question for discussion should be the assumption of zero verification costs for systems with self-assessment procedures. For the credibility of the self-assessment process, we would advise assuming that organisations need to establish a process and mobilise internal resources for such reviews which naturally associate with some costs too. We also recommend further clarification with regards to the expectations related to quality management systems (Article 17) and their internal verification (Annex VI, 2).

Finally, to conclude the cost impact analysis based on support study, registration costs associated with the outlined registration procedures are expected to be 200€ per AI system.

Table 5: Registration costs for providers

²² Support study, p.151-152

²³ Support study, p.154

²⁴ Support study, p.152

²⁵ AIA Impact Assessment, p.72

²⁶ With an exception of that when harmonised standards have been used, providers can choose an assessment based on self-control instead.

²⁷ Bass, Len, Ingo Weber, and Liming Zhu. DevOps: A software architect's perspective. Addison-Wesley Professional, 2015.

Other costs	Provider	
	Enterprise	SME
Registration cost ²⁸	200€	200€

Criticisms raised by the Data Innovation Center

Based on this overview of the cost impacts to providers and deployers based on EC's impact assessment and the support study, we would like to conclude our analysis by commenting shortly on the report "How Much Will the Artificial Intelligence Act Cost Europe?" by the Center for Data Innovation (CDI). The report was published on July 26, 2021, and since that, has been widely discussed in various social media. The Center is an influential Washington DC lobbyist organisation with interests including antitrust, and through its parent organisation receives funding from a number of philanthropic organisations, some US governmental agencies, and a few corporations including Google, Cisco, IBM, and eBay²⁹.

In the following, we discuss the reasons why we think the report gives a false picture of the AIA impacts and should be read with caution.

The report refers to the AIA impact assessment, but actually refers to the support study. We refer to our previous discussion about the differences and encourage the readers to be mindful of this when the CDI report claims to use figures from the EC's impact assessment. The report claims for example: "Based on the EU's own impact assessment, a small business can expect total compliance costs of up to €400,000 for one high-risk AI product requiring a quality management system (QMS). A business with €10 million turnover would see its profits fall by 40%."³⁰ As discussed earlier, the mentioned figure is not based on EC's impact assessment. In fact, the impact assessment considers QMS costs as business as usual and therefore effectively zero.

The report's assumption for the average compliance cost per provider is wrong. The report says: "The Commission's impact assessment concludes that the AIA will cause an additional 17 percent of overhead on all AI spending, in both fixed costs (e.g. setting up the quality management system, designing workflows and system architectures to comply with the Act's stipulations, conducting conformity assessment procedures) and variable costs (i.e. ongoing monitoring of the AI system to ensure it complies with the AIA)."³¹ Here the report uses the support study's intermediary compliance cost figure before the essential business-as-usual adjustments (see table 3). A better figure for the EC's own estimated compliance costs would be 4-5% for the provider, and additional human oversight cost of around 5000€ – 8000€ or 3-5% per year for the deployer (see table 1).

The report falsely claims the AIA impacts all AI spending. The report continues to claim that such compliance costs would cause overhead "on all AI spending"³². This is simply not true. Instead, the compliance costs discussed above would apply to *high-risk AI systems only*. The EC's estimate for the share of high-risk AI systems is 5-15%³³. Following these errors in reasoning, the CDI's overall estimate for compliance cost of year 2025 is "more than €10 billion per year" while the true figure following the same reasoning would be in the worst case a tenth of that – around €245-1050 million. This estimate consists of €140-525 million for providers plus €105-525 million for human oversight by the deployers.

The report's estimate on the SME compliance costs lacks support from the EC's impact assessment. The report says: "Based on the EU's own impact assessment, a small business (up to 50 employees/€10 million turnover) can expect total compliance costs of up to €400,000 for one high-risk AI product requiring a quality management system. The average SME profit margin is about 10 percent. Therefore, the AIA will cause a 40 percent reduction in profit for a European business with €10 million turnover wanting to deploy a high-risk AI

²⁸ Support study, p.157

²⁹ https://en.wikipedia.org/wiki/Information_Technology_and_Innovation_Foundation

³⁰ [Center for Data Innovation report, July 2021: How Much Will the Artificial Intelligence Act Cost Europe](#), p.8

³¹ Center for Data Innovation report, p.7

³² Center for Data Innovation report, p.7

³³ AIA Impact Assessment, p. 71

(excluding the cost of the AI system). The cost of obtaining an external conformity assessment can be up to €1 million.”³⁴

The above claim refers to the earlier-discussed potential situation, where a high-risk system that is a safety component of products under EU’s new legislative approach, or an AI system intended for remote biometric identification of natural persons, would not already have quality management system (QMS) as business-as-usual. In this situation, an SME would face significant additional costs of ramping up QMS in order to comply with the third-party conformity assessment requirements (see table 4). While we repeat the importance of the discussion around the potential QMS related costs, the report falsely gives an impression that the discussed case would be mainstream. In fact, the EC’s impact assessment regards it so exceptional, that it is not even mentioned. We feel the EC has good, empirical reason to believe that these cases do not emerge. Indeed, a novel, high-risk AI company with no quality management system is exactly the kind of thing that the EU does and should endeavour to protect its inhabitants from.

Finally, the report’s claim of an €1 million external conformity assessment cost for an SME seals the question of its own legitimacy. The report refers to page 134 of the support study, but there’s no such reference in the page. However, the mentioned figure (€1 million) is found from support study page 148 discussed as follows: “For testing, the benchmark estimate is an overall number that is not derived from time and labour costs, as its cost depends on the infrastructure required and available. From the benchmarking, the cost of testing could go from EUR 100 to EUR 1,000,000. The study team assumed an average company that had already carried out testing as BAU and owns the testing infrastructure and thus only needs to conduct further testing to prove full conformity during the notified body review – the average cost of testing was thus set at EUR 10,000.”³⁵ Based on this we’ll leave it for readers to evaluate how credible a figure the €1 million SME benchmark is.

Nevertheless, as we said before, it is good that the CDI’s report has got the cat onto the table, and given us an excuse for a good look at the EC’s real cost estimates. With this analysis we hope we have facilitated a better understanding of anticipated AIA-related corporate costs, based on figures grounded in the EC’s impact assessment and their support study. We have also documented several false claims reported by the Center of Data Innovation in their recent report on the AI Act. We nevertheless encourage further discussion on the important assumptions behind the EC’s cost analysis, and invite further clarifications on some assumptions from the EC and other, independent analysts.

³⁴ Center for Data Innovation report, p.8

³⁵ Support study, p.148