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AI Governance and Accountability:

The need for a balanced ecosystem in the gambling industry

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Industry Research Brief Vo2. (4) – AI governance and accountability
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What is the topic?

Artificial Intelligence (AI) refers, in this context, to loosely-grouped sets of mathematical techniques that are able to demonstrate certain intelligent skills such as perceiving, synthesising and interpreting information, typically when combined with large datasets and significant computing infrastructure. As with any impactful technology or human activity, these AI techniques may be misused or lead to adverse outcomes, prompting interest in how the techniques might be governed and individuals/organisations held accountable for their application.

Why is it important?

If AI hype is measured in seasons, then the early 2020s are surely hottest summer ever.[1] In 2020, OpenAI allowed users to request access to GPT-3, a general purpose text completion large language model (LLMs). Several iterations and releases later, ChatGPT was launched in November 2022, an AI chatbot that reached 100 million users in a single quarter, matched by a tsunami of criticism and concern.[2] These LLMs are an example of generative AI, one among many AI domains, but the risk of negative outcomes and negative press is similarly hard to avoid.

AI domains more widespread in the gambling industry include bet/game recommendation systems and classification/prediction engines to understand which players might be at risk. As a highly-regulated sector, gambling organisations can be expected to keep a keen eye on evolving stakeholder expectations and accountability mechanisms regarding its usage of AI techniques.

Regulation is only one accountability mechanism available to support the responsible use of AI techniques by companies. This research explored what it might take to develop a more rounded and effective approach to AI governance, focused in particular on the role of AI making or informing decisions, illustrated with a gambling industry case study.

What did the research do?

This research brief summarises academic research published in the AI Communications journal (Percy et al., 2022) and the ongoing work at Playtech to make best use of responsible AI in the gambling industry and to foster high quality AI governance. The research reviewed the demands for accountability, the current discussion around AI regulation, and the prevailing approaches to accountability today, before introducing the need for a balanced accountability ecosystem.

The full paper also summarises our work in the gambling industry to develop industry-specific ethical principles and the application/testing of those principles in two specific technical domains: algorithmic

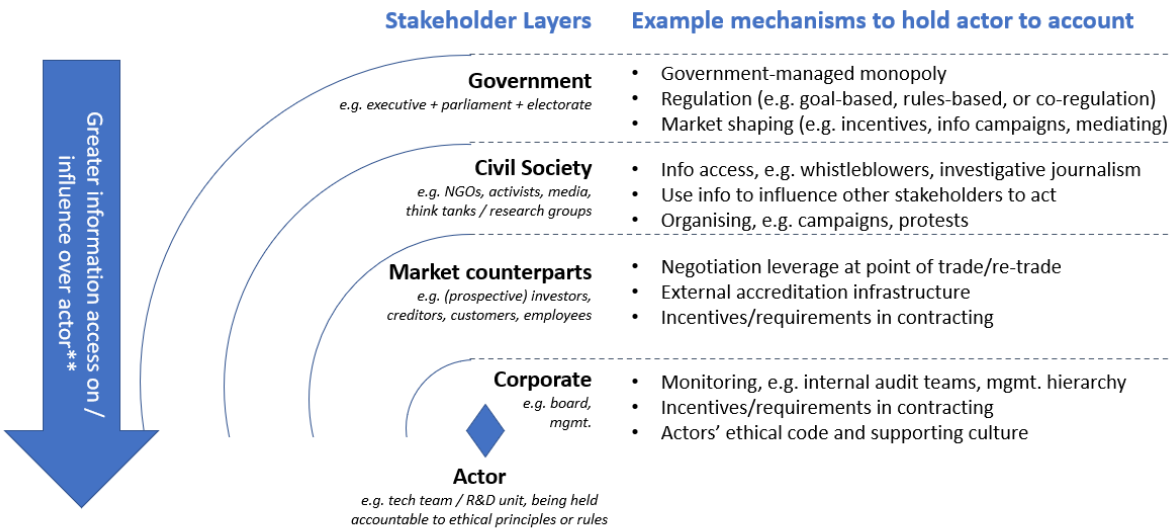
[1] It is popular to describe periods of fallow funding and interest in AI as "AI Winters", with the most prominent periods being 1974-80 and 1987-93. https://en.wikipedia.org/wiki/AI_winter
[2] "ChatGPT reaches 100 million users two months after launch". The Guardian. www.theguardian.com/technology/2023/feb/02/chatgpt-100-million-users-open-ai-fastest-growing-app

bias and model explainability. This research builds on Playtech's earlier work on improving industry collaboration in gambling product risk (Delfabbro et al., 2021) and industry discussions in 2020 with the Technology Addiction team at the Brain and Mind Centre at the University of Sydney[3] and underpinning work on AI explainability with early publications from 2016 onwards[4] (see further Percy et al., 2016, 2019, 2020; Sarkar et al., 2016).

What did the research find?

We analyse four layers of a corporate accountability mechanism, arguing that the present ecosystem is unbalanced with regard to AI technologies. In particular, we identify a need for improved transparency via AI explainability and adequate documentation and process formalisation to support internal audit, leading up eventually to external accreditation processes.

Figure 1. Corporate accountability system – Simplified schematic*



* Templated on a mixed market economy in a democracy; ** Arrow describes general trend. Exceptions exist on specific topics (e.g. national security clearances for government)

We raise concern that without this broader ecosystem, regulatory restrictions will be rushed, either limiting innovation excessively or failing to protect consumers and stakeholders. An analysis of EU regulatory activity shows that AI is progressing around twice as fast towards formal regulation as the 20th century debate on data protection.

More generally, without ecosystem layers in place, even appropriate regulation will be unable to operate at its best. An ecosystem perspective also suggests that there is no fixed approach or specific accountability mechanism that is essential. Instead, ecosystems operate on the basis of what they have available and different mechanisms can compensate for strengths/weaknesses elsewhere. Nonetheless, some level of provision is required at all levels for the ecosystem to be balanced.

[3] https://www.youtube.com/watch?v=NJILmB-gIB4

[4] E.g. Feb 2016; "Can 'Black Box' Responsible Gambling Algorithms be Understood by Users? A real-world example." BCLC Conference. Vancouver. https://www.slideshare.net/horizonsrg/christian-percy-betbuddy-can-blackbox-responsible-gambling-algorithms-be-understood-by-users

Turning to the gambling sector, we describe nine industry-specific guidelines, reflecting on the large number of principles developed elsewhere. As of late 2020, some 100 sets of published ethical principles to govern AI had been identified by researchers, with the majority published since 2016, with many experts pointing out the importance of operationalising the principles for them to make any difference (Jobin et al., 2019; Canca, 2020).

Guidelines	High-level Principles
1 Invest in AI for responsible gambling to protect the vulnerable	Beneficence
2 Embrace explainability in sensitive applications of AI	Explicability
3 Build 'human-in-the-loop' into AI systems where appropriate	Autonomy
4 Leverage AI to deliver entertainment, however, change products where evidence points towards harm	Beneficence
5 Avoid creating or re-enforcing unfair biases	Justice
6 Be open about AI blind spots and failures	Justice
7 Be scientifically robust and continually evaluate	Non-Maleficence
8 Incorporate security, privacy, and diversity by design	Non-Maleficence
9 Empower all stakeholders, including customers, staff and Boards, in the possibilities and risks of AI	Beneficence

The rest of the research provides case study detail of how Playtech has operationalised two of the guidelines, notably algorithmic bias and potential AI blind spots (guidelines 5 and 6). The techniques and empirical results are described with reference to a generalisable six-step process which can be used to operationalise many of the guidelines:

1. **Prioritise scope for accountability** (e.g. for explainability: what do stakeholders want to understand about the model and with what intended purpose/action)
2. **Identify the specific techniques/metrics** that capture the desired scope (e.g. for bias: which potential bias categories to measure; in this case prediction accuracy by gender)
3. **Conduct the analysis** (e.g. for bias: assessing true positive/negative rates by gender; for explainability: build feature risk curves to understand how the model interprets each feature)
4. **Discuss the results** with domain/technique experts and stakeholders as applicable
5. **Form and implement a plan** given overall estimated costs/benefits and prioritisation
6. **Monitor and reflect**, noting that rapid developments in both technologies and expectations require a continuous improvement approach.

What are the implications for industry and policy?

Organisations, both individually and collectively, should develop accountability mechanisms that provide internal and external assurance that ethical principles are being upheld in good faith. The scope for development is particularly clear for corporate mechanisms like standardised processes, KPIs, senior management visibility, and internal audit processes, and market participant mechanisms like external accreditation. At this level of operationalisation, industry customisation is required, even if many underlying principles and tools can be cross-fertilised.

At Playtech these accountability mechanisms are managed centrally by our Data Governance Team, placing accountability at the same level of visibility and authority as improving our data/compute infrastructure, sharing data-driven dashboards, and building machine learning models to improve player and licensee experiences. AI related regulations are also developing rapidly around the world, with Playtech teams monitoring these in each of our jurisdictions just as we monitor evolving data protection regulation and gambling-specific regulation.

How can I find out more?

To find out more about this research or if you have any suggestions for future topics to be addressed via the Industry Research Brief, please contact the team via protect@playtech.com.

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