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IS ARTIFICIAL INTELLIGENCE THE NEW TITANIC

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ABSTRACT

Artificial intelligence is turning into a new hype influencing heavily stakeholders' expectations. Billions are spent and billions are pledged to speed up the research in that key area for overall human development. In the same time AI is presented as "just another technology" thus leaving aside its implication as agent of deep and profound societal and economic changes. Is it bound to become the new "Titanic" - a showcase for disaster due to improper regulation? Is present supervisory architecture able to address challenges posed by the AI? Should we adapt existing governance framework or seek innovative solutions? This paper is asking questions about AI supervisionin financial industry but suggests only partial answers since final decisions are to be addressed by holistic, societal approach.

KEY WORDS: Artificial intelligence, Fintech, Governance, Societal challenges

INTRODUCTION

Supervision on AI in financial industry should be put intobroader perspective of overall development in the AI domain. It is also influenced by European Commission push and the pledge of 1.5 bill EUR in investmentforAI research under the motto "…*attempt to catch up in the AI arms race*…[1]", that may jeopardize the ability of EU scientific community to absorb said amount without harming own scientific integrity.

An answer to that dilemma may be development of human-centricAI. It was already endorsed by the HLEG on AI in their "*Ethics guidelines for trustworthy AI*"[2]implyingsearch for qualitatively different approach to AI issues as compared to those of US and China. Ethics is to be implicitly interwoven in AI development, not an external patch for appeasement of the broader audience.

Anecdotic as it may seem, but by today's standards AI is regulated. It is regulated as were the lifeboats on Titanic[3]. This comparison is but a reminder of the Ashby's[4] "**Law of requisite variety**" stating that significant supervision over complex system could be exercised only by a similarly complex one. Though focus in this paper is on AI in the financial services, it is worth exploring similarities with other fields of AI employment.

THE PROBLEM

Todaythe "silo" model is dominantfinancial oversight architecture, deployed alongside traditional borders of the financial domains – insurance, investments and pension. There are also others, not widely spread, though influential attempts such as "**twin peaks**", "**unified**" or "**hybrid**" supervisory architectures.Since the main objective of any supervision is the soundness of the financial system, both segments - regulation and supervision target same issues - encouraging compliance and dissuading illegal behavior (so D.Masciandaro and M.Quintyn[5]).

Untill 1973 that objective has been achieved through a "*financial repression"* system, using hard measures as credit ceilings, directed lending, interest rate controls among others. The liberalization of the financial activity brought forward "**prudential regulation and supervision**". The

systemic stability became major concern justifying set of prudential intrusive regulatory (inspections on-site and off-site). Prudential regulation and prudential supervision started as autonomous policy areas.The classic approach towards financial regulation legitimizes supervisory measures in only three situations: 1. to constrain monopolies distorting competition; 2. to protect essential needs of people and 3.preserve systemic stability[6]. All the three are equally presented only in financial services markets. Today it is being acknowledged that: "*Regtech requires reconceptualization of financial regulation.*" since "*The transformative nature of technology will only be captured by a new approach.*[7]

One big deficiency in today's regulatory architecture is "**problem-damage-remedy**" algorithmic chain of reaction. It encapsulates significant lags and predictability of the result. Though appropriate for traditional financial services it is hardly applicable in Fintech. As examplesmay serve the "**fat finger cases**[8]" resulting of defecttrading algorithms.Those cases, no matter of their technological complexity and speed, are results of unintentional and unpredictable, though explainable deviations. With AI another crucial feature is introduced – inexplicability where any supervision should be proactive and ex-ante. In parallel with early "Atomic industry" with AI the humanity is again at cross-roads, facing bifurcation of "good" and "bad" choices. The difference this time is the tight schedule for AI development and the resources, allocated to the venture. It is symbolic that ethical implications of AI were addressed in a 2017 conference[9] in Asilomar - a resort where in 1975 an event on implications and threats of DNA recombination took place. Perhaps the organizers wanted to emphasize not only importance of AI development but also outline perils and pitfalls following a chaotic approach.

What could go wrong with AI in Fintech?Well, almost everything. There are multifold implications for the financial industry starting with inexplicability, moving through discrimination and finishing at misuse of human behavior. AI may become crucial lever for exacerbating existing poor financial practices or creating new, even more detrimental ones. Though rooted in the tech layer of Fintech these effectsmayeasily beoffloaded onto the financial one evading proper oversight since present day financial supervisors will handle them with improper tools.Supervisors will react, but without much success, being restrained by limited toolkit and impeded by structural and operational issues. They will find difficulties resolving techproblems that

may puzzle even advanced degree engineers. To add insult to injury, the future AI problems will evolve beyond comprehensible speed.

THE APPROACH

Ideas to govern AI go hand in hand with the cycles of its development any 20-30 years. First attempt to launchpublic debate on AI regulation starts with the call in USA for formation of a Federal Automation Commission during Kennedy's administration[10]. The need for comprehensive AI policy as "**Societal efforts to channel AI in public interest**" is articulated for the first time[11]. Two regulatory approaches slowlycrystallize - ethical standards vs rules, most vivid difference being lack of penalty for breach of standards. For an technology, dubbed by the World Economic Forum in its 2017 Global risk report as:"… *the emerging technology with greatest potential for negative consequences over the coming decade"*[12]obviously the standardization may be only partial and accessory answer. WEF outlines also necessity "*to design algorithmic tools and regulatory mechanisms to empower society, to mitigate dissemination, inequality and bias*" proposing a set of measures such as setting up European algorithmic safety authority, quality labels and audits, introduction of data protection seal, all they alongside EU Charter of fundamental rights[13].

THE SOLUTION

In a 2014 document OECD outlined[14] necessary elements for better regulation:
1.Well designed rules and regulations that are efficient and effective;
2.Appropriate institutional frameworks and related governance arrangements;
3.Effective, consistent and fair operational processes and practices;
4.High quality and empowered institutional capacity and resources, especially in leadership;

When analyzed in light of AI governance one understands that the journey towards human-centric AI development has just begun.Asmentioned, rules reflect the possibility of sanctions and a more centralized, administrative approach while principle based oversightis more flexible and industry-friendly. One of the biggest problems in both casesis still missing common concept on number of fundamental,AI underlying, concepts.

Reductionistattempts on a unified ethical framework for AI development were made[15]leading to five basic, non-controversial and universally applicable guidelines:
1. Beneficence i.e. promoting well being, preserving dignity, sustaining the planet.
2. Non - maleficience i.e. conformity with privacy, security and "capability caution"
3. Autonomy i.e. the power to decide (to decide)
4. Justice i.e. promoting prosperity, preserving solidarity, avoiding unfairness and
5. Explicability i.e. enabling the other principles through intelligibility and accountability.
Or in the words of the HLEG on AI – building a trustworthy (lawful, ethical, robust) AI.It is obvious that we are still far behind "*Well designed rules and regulations that are efficient and effective"* as perp.1 of OECD.

Next in OECD list is"**Appropriate institutional frameworks and related governance arrangements**". Today regulatorshandle AI through the so called "Tech neutrality": no matter the underlying technological solution, the offered service is regulated as traditional one. This might be understandable with passive technology butits applicability to:"… *a powerful force, a new form of smart agency, which is already reshaping our lives, interactions and environments*."[16]remains hugely debatable. Should we stretch existing legislative framework to cover AI or build a profoundly new one? The paper "**Ethical framework for good AI society**"argues that AI "*is not another utility to be regulated once it matures*".Only an ethically based approach may address the problem of AI not to remain underused thus making society pay opportunity costs or misused, where it may devalue human skills removing human responsibility, reducing human control and eroding human self determination.[17] Again, this ethical approach is a good canvass but needs build-up into legislative construction, leaving aside ideas for self-regulation of anentire new industry.

Following in the list are**effective, consistent and fair operational processes and practices**. Both national and EU levelregulators still inhabit the realm of deterministic, rules based systems, where the input predicts to a greater extent the output. Neither present day regulations nor supervisory architecture reflect the core feature of AI – its INTELLIGENCE. If one aims to achieve controllable and beneficial AI one should approach the goal from at least two sides.

a) **AI design** - embedding governance and fairness in a financial services risk management framework[18].
b) **Supervisory architecture -** proper allocation of supervisory powers and responsibilities.

As mentioned above, the "silo-structure" allows plenty of blind spots and overlapping. Even the advanced "twin peaks" and "unified" models still are not fit for supervision of AI in Fintech. Bottom-line is the fact that AI systems comprise plethora of additional features outside the expertise of present day supervisors e.g. Data science and Machine learning, Ethics and Philosophy, Advancedengeneeringamong others. The problem is aggravated by AI speed beyond human comprehension or ability to interact. "Human in the loop" is comforting but practically dubious solution. If we aimat effective AI supervision we need deployment of developed and robust Regtech solution, ascomplex and fastas the regulated entities. To put it bluntly – we need robots to chase after robots. There is no other way to check the last item in OECD list –**high quality and empowered institutional capacity and resources**. It was pointed out:"… *the transformative nature of technology will only be captured by a new approach that sits at the nexus between data, digital identity and regulation."*[19]

THE ROAD AHEAD

If we believe human ingenuity is a match to AI we must take seriously the challenges of uncontrolled and unsupervised but overfunded AI development. We should explore development of:"*knowledge center/s combining not only high degree of holistic vision on the regulated matter but also a combination of powers such as standardization, codes of conduct, quality labeling and auditing, transparency in development and de-biasing efforts"*[20]. Beyond that, there are overtly futuristic proposals such as: "*...a "supersingleton" run by a friendly super intelligence, founded upon a "post-singularity social contract.*"[21]but there are also practical and hands-on solutions such as the Canadian attempt towards governance of AIby:"… *building and fostering the organic growth of a blended governance model that places Ai oversight and accountability at the fore of its efforts."*[22]

The good AI governance in the financial sector comprises at least five important features: scalability, modularity, adaptivity, reflexivity and tech-savy[23]. It presupposes modern legal systems, innovation hubs, regulatory

sandboxes, ODRs, adequate Regtech, regulatory ontologies, interoperability and ontology design patterns, monitoring functions, standardization, verification and impact assessment mechanisms among others[24].

Being cautious does not imply not going further. We shouldn't refrain from adopting new technologies but we have to understand their complexity. Only a holistic approach towards AI governance in financial industry would earn societal benefits without jeopardizing the societal evolution.

As the expert group on regulatory obstacles to financial innovation pointed out in 2019: "*Setting the right level of financial regulation and financial supervision requires addressing highly antagonistic rationales – increasing efficiency through tech may put safety and protections under strain*".

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