PLATFORM DESIGN TOOLKIT

EXECUTIVE SUMMARY

New Foundations of Platform-Ecosystem Thinking

Designing Products and Organizations for a changing world

License

Executive Summary

After four years from the stable release of the Platform Design Toolkit 2.0 and the companion whitepaper (2016), the context and scope of platform-ecosystem thinking have changed, growing widely. New technologies, new risk factors, and new organizational challenges make new foundations of platform-ecosystem thinking now very much needed.

This whitepaper - New Foundations of Platform-Ecosystem Thinking: Designing products and services for a changing world - contributes to a more in-depth understanding of the profound changes in platform-ecosystem thinking that are now needed to engage with such a changing and challenging context.

Contact the Authors

Simone Cicero (Editor)

Reach out at: simone@platformdesigntoolkit.com

Stina Heikkilä (Research Coordinator)

Reach out at: stina@platformdesigntoolkit.com

Chapter 1: Marketplace Pervasivity

The **marketplace model** is getting steam in light of many drivers: the ever-reducing capital needed to create one, the ever-growing affordability of the technology, and, in parallel, the dramatic reduction of transaction costs.

Further unbundling and re-bundling of horizontal marketplaces and existing industries are reflected in three key trends for the future of marketplaces: verticalization, more managed experiences, and B2B marketplaces. What makes the case for any successful marketplace is delivering on the promise of outstanding experiences, but also efficiency and affordability. Seeking for sustainable Unit Economics helps to make sure the marketplace opportunity is not sought in an already efficient market that can be hardly optimized.

Depending on where the marketplace seeks to position itself, the strategic landscape - looked at through the value chain - will slightly differ:

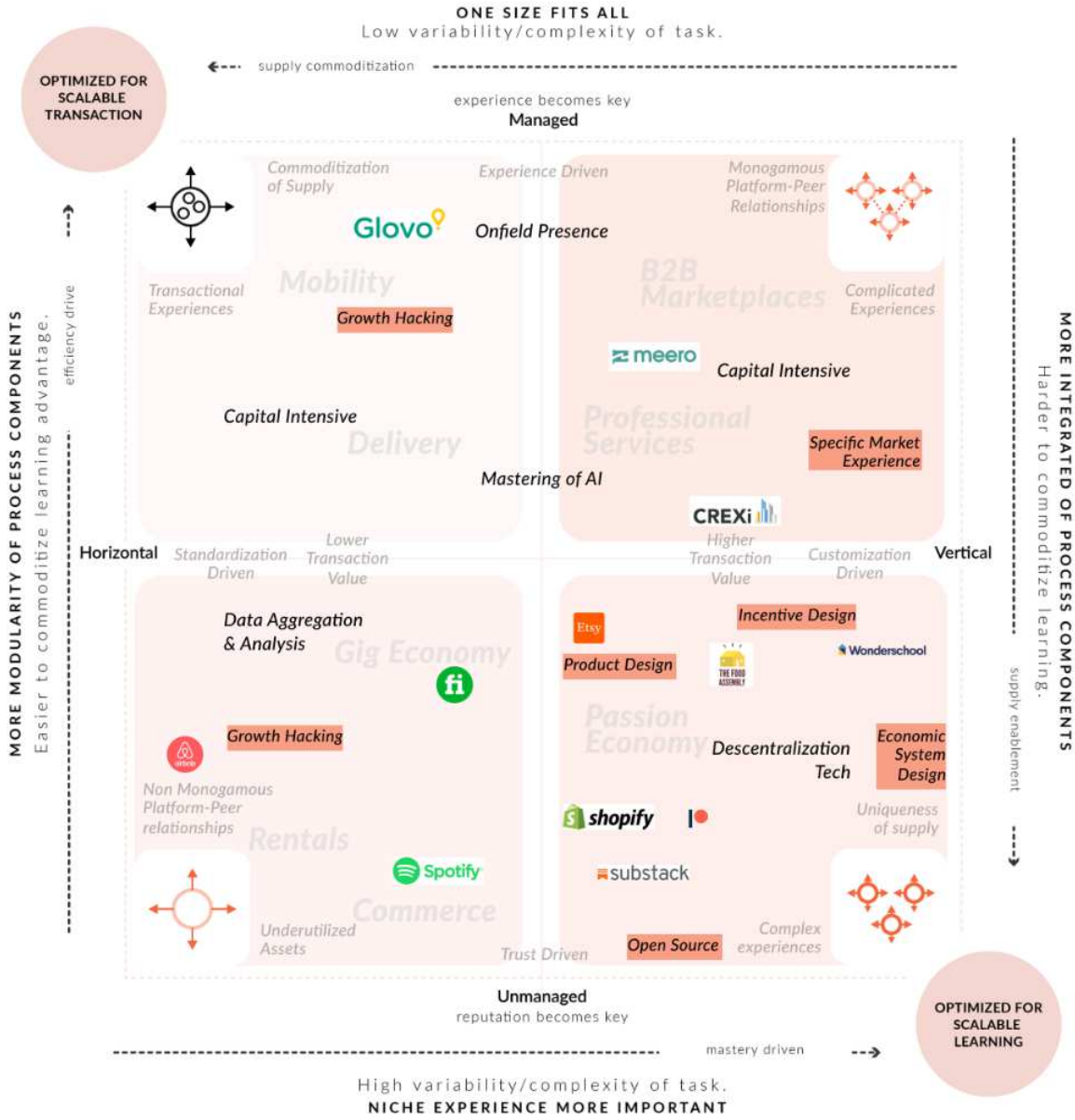
- *In unmanaged-horizontal marketplaces*, the experiences provided are heavily dependent on providers and consumers finding each other (such as in the case of Airbnb): customization is crucial as participants need to tailor their experience and generate personalized interactions.
- *In managed-horizontal marketplaces*, the producer is normally heavily commoditized and can even be substantially controlled: a reliable and replicable experience both in terms of product and pricing is key (e.g. Uber).
- *In managed-vertical marketplaces*, a key difference with the managed-horizontal value chain is that it goes through a more prominent role of the SaaS as an element of value proposition towards the producers. The more specific the vertical market, the larger the possibility of marketing a so-called single player value proposition where professionals can see the SaaS offering as a standalone product. Active overseeing of the transaction is also frequent, and credentials are also sometimes leveraged (e.g. in healthcare, education, etc).
- *In the unmanaged-vertical space*, we see a similar value chain to the unmanaged-horizontal, with the same positioning of SaaS as a product to attract producers. In some of these marketplaces, the producers are very independent and some of the

so-called passion economy emergent platforms, especially those related to media, and content creation (e.g.: Patreon, Substack) drop the marketplace feature almost completely.

Control and commoditization also play a role in determining whether opportunities are likely to be captured through scalable transactions or scalable learning. If work is (albeit simplistically) simplified as a mix between a learning advantage and workflow task execution, technology-driven commoditization can be seen to operate at both levels: the one of the task (with pure automation) and the one of the learning advantage, with technologies, suddenly making the specific advantage the worker had a commodity (e.g. a cab driver's deep knowledge of a city vs. GPS and self-driving cars). The more vertical the marketplace space, the nicher the expertise and therefore, assumably, the harder the learning advantage is to commoditize: in this case reputation becomes vital and we see "superstar" producers.

Marketplace choices have implications for the organization behind the platform: sometimes the nature of the network drives concentration of capabilities in the center (the "headquarter") for better reliance on algorithmic leverage, data analysis, and optimized growth hacks; other times it pushes for highly locally (contextually) bounded markets where the playbook is scarcely replicable or with category dependent markets where an understanding of the suppliers in the category is crucial.

New regulatory frameworks for the platform economy should aim at shaping a level playing field through supply standardization, interoperability and data portability more than traditional approaches: such approaches can enable smaller players to come in and innovate and reduce the platforms' centralization capabilities.



THE MARKETPLACE MAP

LEGEND

Underutilized Assets	Market Characteristics
Data Aggregation & Analysis	Key Organization Differentiators
Product Design	Key Competences
Gig Economy	Emergent Spaces

Chapter 2: The New Risk & Governance Landscape

In this chapter we acknowledge the scene of the complex risk and governance landscape in which 21st Century organizations and businesses need to operate and outlines some potential "complexity friendly" approaches to respond to risk.

Applying a multi-scalar variety lens can help to identify possible responses to risk at the most relevant scales. According to many complexity scientists, decentralization can help deflate otherwise exponential risks, and technology allows problems to be understood through data and tackled at the most relevant scale - enabling a "small world scenario" as Indy Johar puts it - and organizations need to be able to respond to global and local challenges simultaneously.

We appear to be approaching an inflection point, where the external conditions companies and organizations need to cope with are escalating tenfold. This calls for unprecedented actions - and a new social compact - to define the relationship between companies and their role in society, which is likely to play out differently in different geopolitical contexts, as digital fragmentation leads to multiple "Internets" and diverse expressions of the Information Age.

The rise of networked governance offers new models both for organizing around risk response and to create new strategic alliances to tackle broader challenges at multiple scales. By being able to quickly organize and spread information, networks have the power to shape both scientific and political debates around consensus and dissent, as witnessed in the pandemic. Networks can on one hand help citizens rapidly organize around needs but also drive "dark" forces, calling for positive narratives to shape healthy networks.

Local resilience and the ability for communities to connect to global systems "on their own terms" could add momentum to the deglobalization trend. These forces are pushing towards a renewed focus on economic contexts that for long have been deprioritized: the household, the community, the city, the region, the nation.

Salutogenic and sustainability narratives are reshaping the opportunity-based narrative space and the constraints in which economic activities take place. Healthy proportionality between the

stewardship of local "wholes" (such as regions) and the control of the planetary socio-economic and ecological systems must be in place.

Chapter 3: The Entrepreneurial Ecosystem Enabling Organization

In Chapter 3, we describe what we mean by Entrepreneurial Ecosystem Enabling Organizations (EEEO), starting with the key trends that we believe lead to their emergence.

The conjunction of three major factors - plummeting transaction costs, unbundling of education, and unbundling of benefits (among others) - is threatening the very existence of the bureaucratic organizations, especially in arenas where capital and infrastructure advantages are less decisive. Small teams (micro-entrepreneurial units) have ever greater capabilities thanks to technological developments, and open knowledge: Learning is being unbundled from the traditional paths of education. The unbundling of the firm bundle seems to be well underway.

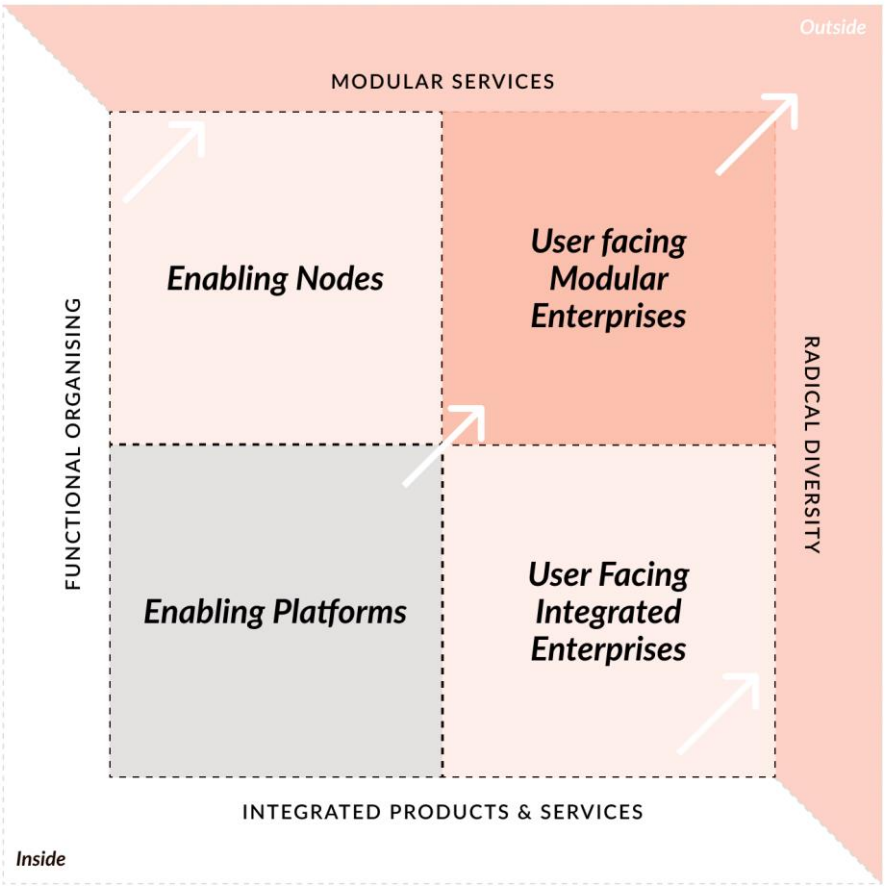
In arenas with capital intensive infrastructure, evolution is pushing infrastructural layers towards broader consolidation and componentization. These infrastructures become more easily accessible to small micro-entrepreneurial teams (think Twilio for telecommunications, Stripe for Financial Services), while the industrial Internet of Things further enables componentization of physical assets like heavy industries or rail networks (e.g. Siemens "Railigent").

To be able to thrive in a truly post-industrial, networked ecosystems' world - the organization itself needs to mold into one. Amazon broke down functional hierarchies, restructured the organization into autonomous teams (following the two-pizza rule), and enforced asynchronous and programmable interfaces between teams. Such patterns - that many are following - brings about infinite scalability, a substantial equivalence of internal and external units with regards to the contribution to the business model. As markets fragment through progressive unbundling, the organization needs to fragment as well to be able to echo such a new structure of opportunities.

As the boundaries between inside and outside of an organization collapse**, outside-in aggregation can be applied also inside organizations** and we see similar patterns: micro-units are connected by dynamic contracts, empowered through **SaaS that replace bureaucratic processes**, and can focus on

evolving, and gaining reputation and trust. Iconic EEEOs, like Haier, Zappos and Buurtzorg, have some form of such technology-enabled coordination structures.

Truly ecosystemic organizations need to play on a full spectrum of radical divisionality and functional organizing (when needed): from customer focus to ecosystem services; from modularized to integrated products; from radical divisionality (such as with Haier's Micro Enterprises and Amazon's two-pizza teams) to functional integration in the form of supporting platforms providing basic services such as scalable manufacturing or HR, like in Haier's case (see image overleaf).



In short, the "Entrepreneurial Ecosystem-Enabling Organizations" (EEEOs) bring to life the most powerful dynamics of complex adaptive systems: interdependent, outside-in driven microenterprises sense, react, and measure themselves against user-driven threats and opportunities, with incentive structures that go beyond basic salaries and embrace entrepreneurial

opportunities. In this way EEEOs are more VUCA friendly providing the ability to quickly re-bundle around problems to be solved, with temporary nodes that can adapt and die by creative destruction.

Chapter 4: Incoming Tech Revolutions & Narrative Shifts: Assessing the impact of trends in technology, risk, and narrative

In Chapter 4, we introduce dynamic and evolutive factors that we expect to be pushing the evolution of the post-industrial economic landscape. Two main areas of influencing trends are considered: technology-related and risk-narrative related.

The impact of AI on suppliers on a platform will play out differently depending on how commodifiable the learning advance of the job is. While simple and repetitive jobs could be automated (such the amnesic process a doctor would submit you to), complex jobs could be augmented by AI and further fuel a "superstar economy". On the other hand, AI and machine learning can help platforms deal with transaction integrity, dynamic pricing, and broader forecasting abilities.

"Design breakthroughs" in crypto-tech increase the capability to design functions that connect both financial and governance incentives to dynamics of participation, investment, and collaboration. There are now maturing components in DLTs (Distributed Ledger Technologies) and an increasing number of building blocks to build Decentralized Autonomous Organizations (DAOs) available. Templates and protocols are available to create readily available DAOs where "co-entrepreneurial users" have much more skin in the game. Groups of firms could co-own shared infrastructures, regional towns could co-own and manage a shared currency system, and a group of concerned citizens could manage the shared investments and management needed to get an electric microgrid off the ground with such an organizational set of tools.

Other technological impacts, such as from 5G and computing beyond serverless towards "conversational programming", will allow for deploying smaller and more niche technology solutions to organize a certain ecosystem. The future of cloud speaks about more intent-defined, high-level serverless components that stand closer to the user, with natural language-based interactions, bringing most software moats to zero. 5G and IoT will continue to dismantle barriers

and allow us to access all resources and infrastructures in a process of "onlinification", where platforms connect digital and physical worlds.

As the world moves away from US cultural and trade domination towards a more multipolar perspective, digital markets are also fragmenting regionally. Competing regulations often reach beyond the country of residence of the actual services user. Sovereign states initiatives to deploy digital — and non-digital — coordination infrastructures (in trade, logistics, finance, communication, IT and more), imposing those as standards globally, is going to be the place where most of the geopolitics of technology is going to be played in the future

The Covid-19 pandemic can also further be taken as representative of two more major trends: an **increased unpredictability** and the **growth of narratives increasingly focused on health and sustainability.** Massive investments and public subsidies are being deployed worldwide to rebuild key infrastructures and revamp the economy and involve citizens in rebuilding a **less brittle** and **more resilient** system of production.

An increased value perception in security, health, and resilience is to be expected, in parallel with two major labor-related trends: more inclination towards parcelized work (in lack of traditional employment) and more interest towards entrepreneurial opportunities related to the project of rebuilding the civic economies of essential through a broader engagement of citizens. The interplay between an ever more consolidated and, at the same time, bounded by its environmental impacts, industrial economy, and a civic economy that extends, contextualizes and implements last-mile distribution, and recombination it's probably the sweetest spot for organizational experiments in the coming decade.

Through the combined lens of technological advancements and risk factors, platform-marketplace value chains are impacted in different ways depending on where in the value chain we look, and the type of marketplace explored:

- **Traditional demand aggregation will become increasingly niche** (vertical markets), more direct to customers (DTC) and more managed. Consumers will receive ever prescriptive recommendations thanks to AI and data, and super producers will be

leveraging machine learning powered tools to increase their reputation. On the other hand, the users' needs for investing in creating resilience will be met by more complex platforms that will entail co-investing and possibly co-managing capital allocations into developing new forms of entrepreneurship.

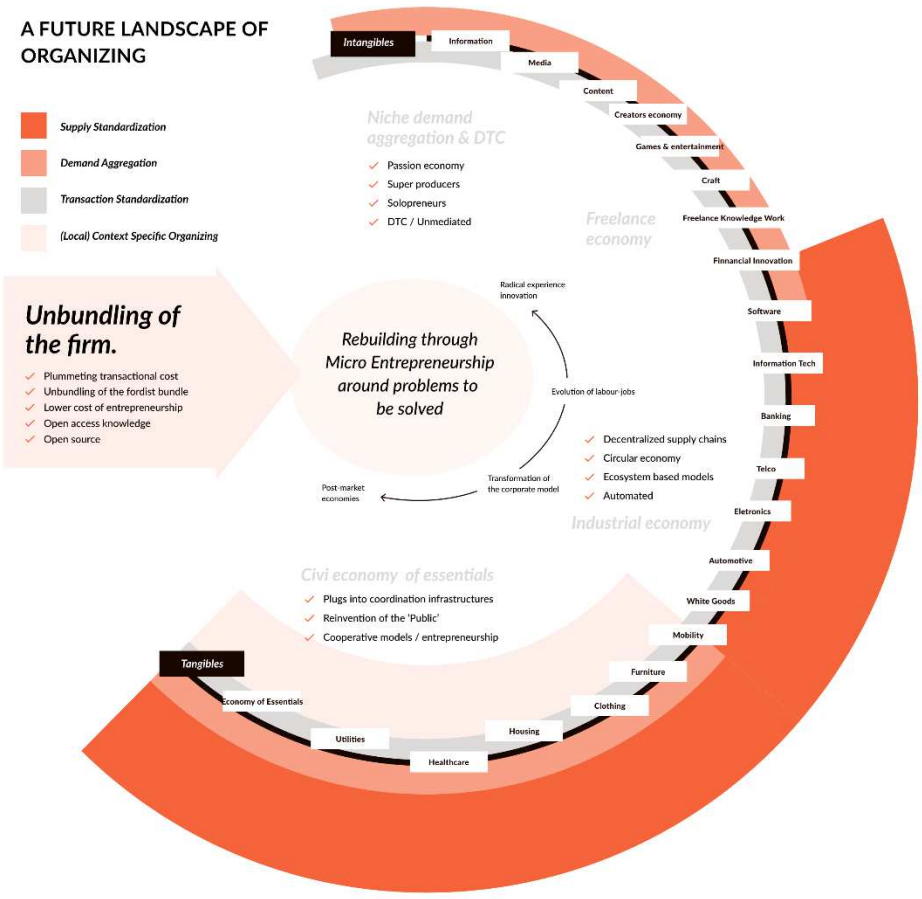
- **We'll see more transaction standardization:** one of the key expressions of the aggregation theory on the value chain. AI will help to ensure better transactional integrity and the standardization will expand below, including the emergence of sovereign identities and portable reputation systems based on shared and standardized protocols.
- **Contextual work coordination infrastructures will be powered by niche and contextual data and by "Platform as a Service" AI engines** that will use specific domain models training. As an example, aggregation systems of co-investing and co-managing regional regenerative agriculture plans, or the development of shock resilient microgrids.
- **Supply standardization** will be inevitable across the whole spectrum of accessing tangible resources and the **interplay with local organizing** will be essential to allow local entrepreneurs to access infrastructures and resources provided by the industrial players, recombine them with systems of funding, governance and finance, and create **locally managed and locally optimized organizing solutions.**
- **We will likely see the consolidation of GAFAs** as the ultimate attention and demand aggregators that will continue to tax new entrants through advertising and positioning services for distribution (especially obviously the increasingly niche DTC aggregators).
- **A standardization and commoditization of the unspecialized gig workers** coupled with the emergence of a strongly automated, remotized and AI-powered supply, both increasingly turning towards further commoditization. The impacts of platform cooperatives for the welfare of such workers although are still hard to evaluate in the long term.

Impacts on the value chain will be common to the whole scope of the pervasive, marketplace-based organizing landscape, although depending on the characteristics of each quadrant the impacts will be playing out slightly differently.

- *In the horizontal marketplace space*, where specialization is less important, and learning advantages are easier to commoditize, producers will be pushed towards commoditization more easily and actual p2p marketplaces will increasingly be replaced by the prescriptiveness of algorithms that can choose the right option for the customer based on increasingly available data.
- *In the vertical marketplace space* where specialities and niche capabilities of producers may be more important (in B2B for example), we'll see a radical abundance of specialized SaaS offerings aimed at augmenting a professional that is made more visible, further paving way for more inter-contextual experiences and paths of value creation for super producers to develop their capabilities. This, in turn, will push for the unbundling of identity and reputation and their re-bundling into new, shared, work-coordination infrastructures that will serve as both interoperability systems and as "wrappers" of access to more tangible resources (from heavier industries).

A new landscape of scalable organizing

The picture below, brings together the key findings of Chapter 4:



Chapter 5: Strategy for the XXI century: (re) starting from the Human

In the final chapter, we describe five essential ideas for a strategy that measure up with the XXI century: five provocations for organizations and teams that are looking to sustain the profound forces of transformations we are currently encountering and that - with much certainty - ever faster accelerate in the coming decade.

1. Recognise the Inflection Point

It all starts by recognizing the inflection point: as Salesforce's Benioff said recently - "Capitalism as we know it is dead", and we must start redrawing a new model from inside our organizations, including our management practices of which strategy is paramount.

New key aspects need to gain a central position: first of all **resilience and long termism**, accompanied by a turn of focus towards reinventing most of the essential processes that power our societies. **Health is an expression of the nested nature of the systems we live embedded in:** welfare, food, and energy production, the manufacturing of goods and services, all these key processes cannot be considered as something abstract that we can simplify, compartmentalize, and subject to a rational, analytical, categorizing mindset.

A whole new kind of thinking is needed. Recognizing all the interplays, and the double binds, force us towards profound changes of epistemic frames, as well as our ontological frames. Tools and practices such as Dave Snowden's **Cynefin framework** for decision-making in simple to chaotic contexts, or Nora Bateson's **Warm Data** for analyzing trans-contextuality - coupled with Wendell Berry's insights that change spurs from the individual capacity to care in different ways and for different things - are essential to the XXI century worker (human) and make the equation of XXI century strategy tilt strongly towards developing the right individual capabilities and posture.

2. Unbundle and rebundle the Organization

If the unbundling of the organization is taken up strategically and not lived as a passive threat, re-bundling around emerging challenges and opportunities means adopting an "internal scaffolding" (as in Dave Snowden's words) with strategy unfolding at the micro-enterprise level without necessarily having a centrally imposed one.

EEEOs capabilities to develop exploratory structures that can probe the environment and get fit with the right scale offers an interesting way to both incorporate enough adaptability, and holding enough complexity through an "outside-driven, organically entrepreneurial but emergently coherent organization design". Following Ashby's law of requisite variety, organizations that can hold complexity at par with their surrounding environment and thrive better than industrial monoliths.

Together with new enabling composable technologies such as smart contracting and DAO technologies, EEEOs support the coalescing of multiple parties, the enabling of collaboration dynamics across layers and between organizations. In this process, one can foresee a blurring line between public and private in the provision of essential goods and services.

3. Reclaim technology

Technology-wise, the strategy for the XXI century certainly cannot do without finally acknowledging the role that technology plays in overcoming bureaucracy as the way of organizing the industrial age: technology and organizing are now increasingly overlapping ideas.

The role of technology is - therefore - not just to be framed as a tool-to-be-used but, most importantly, it needs to be seen also according to its capability to produce certain "affordances". Projects such as Holochain - with its aim of creating an agent-centric framework for distributed applications - naturally resonate with this need to imagine technology as optimized around new constituents, and enable them to master technology as embedded in its ultimate context, and not as a way to mindlessly perpetuate that it must either be optimized for the industrial bureaucracies of the 20th century of for their Silicon Valley's platform counterparts.
Platform strategies and ecosystemic and entrepreneurial organizations seem to be then the best candidates to fit in this picture of a technologically powered "economy of overlaps", overcoming the very idea of having in-groups and out-groups to an initiative. Everybody can join within the constraints that identify the organization.

4. Entangle with Landscapes and Communities

The new context of organizing points towards entrepreneurship as another pillar: entrepreneurs are needed to explore new niches, to leverage ever-growing technological capabilities, to reinvent the existing brittle economic configurations that are subject to profound reorganization. In this context, attracting and retaining entrepreneurs who create ventures and create value from inside the organization - allowing distributed creativity - emerges as the most pressing challenge of organizing at this start of the XXI century - or in what Nicolas Colin coined the Entrepreneurial Age.

If we act from within a complexity aware stance - our focus as organizational developers, designers, entrepreneurs, and communities needs to switch from hoping for and waiting for coherent, top-down

global policies, into regenerating the small wholes that make up our "terrestrial" and post-global society, in Latour's terms. This means we must re-entangle our organizational artifacts with the wholes they are part of, starting from the landscape. The organizations of the XXI century need to be able to function as regenerative actors that not only reach steady-state, circular equilibrium but are actively involved in reconstructing environments.

This also requires a shift in our relationship to the world, including our expectations. Innovative, eastern management practices inspired by Daoism - such as the ones practiced at Haier - seem to offer significant frames of reference. Daoist treasures of frugality, humility, and compassion prompt us to consider more modesty, simplicity and "good enough" approaches, as the scientist and renowned collapsologist Ugo Bardi explains in relation to the concept of holobionts: "while organisms search for perfection, holobionts strive for the good enough".

This "going back to the basics", resonates across Eastern cosmology and the science of complex-aware biology, pushes us to decouple our organizations from mainstream notions of **competition, growth, and convenience.**

5. Embrace the Human(e)

A new human development thesis needs to depart from the failures we've seen in the past decade when, in the words of Indy Johar: "the machine development thesis has escalated while human development one stalled". We've seen bureaucratic failures in the handling Covid-19 pandemic, including our institutions' lack of capability to deal with the exponential risks and ever-increasing interconnectivity.

Existing institutions, both public and private, need to create the conditions that allow them to become "antifragile" by promoting holistic capabilities to deal with risk. Such a renewed human development thesis means that humans need to stop being "managers of process" and instead be equipped with the right psychological capabilities to make sense of the (post-industrial) world: creativity, empathy, listening, epistemic humility, being collaborative. These will make the organization ready to continuously learn and adapt to the regularly unexpected that will characterize the upcoming decades.

If we will succeed to design - as Martin Reeves puts it - "hybrid organizations, which combine the ingenuity of human beings with the very rapid correlative learning capabilities of machine learning", these organizations will need to feature deliberately reflective spaces to allow humans to ponder, make sense, and control an otherwise potentially destructive rush towards the next technological advancement.

Closing words

The directions provided in this long paper are meant to be **provocations:** nudges to break through the frames that brought us all here. Frames that - too often - have been design's, management's, and leadership's comfort zone.

In the coming months, we'll be prototyping new design and strategy tools, some already in the making, to help practitioners to restructure the meaning they seek in organizing at scale.

This new "salience landscape" will eventually help practitioners enact new behaviors, grounded in a stronger situational awareness and in what this age of turning points is asking of us: to go beyond the frames of the industrial age, towards a new and regenerative platform-ecosystem age.