Centre for Internet & Society

How Concentration Kills Innovation

A Round Table on Investing and Innovating in the Age of Big Tech

Learnings and Takeaways

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Context

We are at the cusp of pivotal technological transformation – driven by rapid advancements in Artificial Intelligence, computing, robotics, biotechnology, and digital infrastructure, including the next generation of communication technologies. India aspires to be one of the leaders in this technological age, with ambitions of achieving a US$1 trillion digital economy in the near future. Domestic startups are anticipated to be a major driving force behind achieving this milestone and as such have been instrumental in ushering in investments from state and market actors, alike. Estimates suggest that in 2024 alone, Indian startups raised more than $12 billion, with ecommerce and fintech startups leading the race.

However, a growing body of competition-related research and enforcement experience is now questioning the ability of digital markets to self-correct. Most pertinently, by allowing first movers to leverage network effects and grow exponentially, these markets have seen rapid consolidation of market power in the hands of a few – the infamous Big Tech. From online search and social media, to app stores, online ads, and ecommerce, many such platformised markets have become ridden with monopolies and duopolies.[1]

Additionally, the recent shift towards LLM-based AI technologies as the next technological pioneer has also handed another advantage to the likes of Google, Microsoft, Amazon, Apple, and Meta – 'hyperscalers' who have been deeply successful in dominating the AI supply chain by leaving other organisations no alternatives beyond the Big Tech. They do so by adopting strategies such as offering cloud credits, which direct start-ups and researchers to spend investments in certain ways – such as through building applications on top of AI models owned by the Big Tech

Reports also indicate that Big Tech uses their corporate venture capitalist (CVC) arms to heavily influence the development of emerging technologies by influencing which innovations receive funding. This incentivises external VC firms to also fund start-ups in alignment with Big Tech interests, thereby ensuring that monopolies remain unchallenged. Moreover, Big Tech ensures its control over the development and use of technology through mergers, acquisitions, and strategic partnerships.

For instance, a 2024 Competition and Markets Authority (CMA) Report found an interconnected web of over 90 partnerships and strategic investments established by Google, Apple, Microsoft, Meta, Amazon and Nvidia in the market for generative AI foundation models. This could create potential bottlenecks for smaller companies and nascent enterprises seeking to enter the market or scale up their offerings independently of these majors. Consequently, in jurisdictions like the US, the EU, China, Brazil, and India, the growing dominance of Big Tech platforms as 'gatekeepers' has emerged as a key concern for regulators, innovators, and consumers.

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1 Platformised markets here refer to digital markets that depend on platforms (often, private entities) to mediate between sellers and buyers. The growing popularity of apps like Swiggy and Zomato, for instance, indicates that India's food delivery market is becoming increasingly platformised, as compared to, say, each restaurant having its own separate app. Although this allows for economies of scale, it also creates a relationship of dependence between restaurants and these intermediary platforms.

Not only does it increase the dependence of nascent startups and innovators on these gatekeepers, it also distorts the market in their own favor. Ostensibly, due to the 'winner-takes-all' nature of digital markets, it is unlikely that market forces alone will displace Big Tech platforms from their dominant position. Moreover, their capacity to make strategic acquisitions enables them to often fly under the antitrust radar, as exemplified in Facebook's acquisition of WhatsApp in 2014. As a result, we find ourselves in a situation where the platforms that play a critical role in our developing digital and startup economies also exert unfair and unjust control on the same actors who rely on them.

At the same time, the extent to which our digital aspirations remain inextricably linked with the interests of such transnational corporations controlling core infrastructure underpinning our startup economy has remained relatively under-studied. To this end, the Centre for Internet and Society conducted a preliminary analysis of the country's startup ecosystem to understand their relationship with Big Tech. Abhineet Nayyar and Isha Suri, with significant research assistance from Ayush Menon and Girish Chandra, reviewed a sample of 419 Indian startups to investigate their reliance on Big Tech and its impact on areas such as investor behaviour and propensity to innovate.

Key findings from this analysis were subsequently discussed in an online round table discussion with participation from diverse stakeholder groups, including entrepreneurs from the Indian technology community, economists, policy professionals, and consultants with expertise in startup funding. **This discussion note summarizes the proceedings of the round table and provides an important starting point for other researchers, market actors, and the larger civil society to build on this conversation.** The growing interplay between technological innovation and economic growth is likely to only intensify in the coming years, and provide a useful starting point to understand the role played by Big Tech in India's digital economy and contextualize its merits and demerits.

Areas of Inquiry

The round table began with Abhineet introducing the participants to the scope of their research, important findings and setting the structure of the ensuing conversation. This was followed by a 75-minute free-flowing discussion spread across three segments, during which the participants were provided with a few primary insights and probing questions. These segments, their primary insights, and probing questions are listed below –

1. **Dependence of startups on Big Tech**

Primary insight	Probing questions

Over 87% of all startups depended on at least one Big Tech intermediary	• What are the implications of this dependence on
	  ○ how entrepreneurs think about innovation &
	  ○ how investors think about funding?
	• How can regulation be channeled to facilitate innovation in this context?

2. **Market's inability to self-correct**

Primary insight	Probing questions
Only 5% qualify as multi-sided platforms, whereas most provide one-sided D2B/D2C services[2]	• How can we explain the absence of any direct challenge to the Big Tech's dominance? • What role do mergers, acquisitions, and investments play in killing market competition?

3. **Implications for private funding**

Primary insight	Probing questions
Startups with previous funding were ~60% likelier than their counterparts to secure another round of funding	• What factors can be considered to explain this funding gap? • Since 'innovativeness' remains a subjective concept, what kinds of metrics (proxy or otherwise) does the startup ecosystem usually rely on to identify innovative ideas?

Key Learnings

1. Dependence of startups on Big Tech

Under this theme, the participants discussed their perspectives on the relationship between startups and Big Tech intermediaries. The room reflected on the nuances of the power asymmetries in this relationship, and discussed potential regulatory responses that could address some of these asymmetries. A detailed set of learnings are provided below:

- Although the relationship between a Big Tech platform and a startup is symbiotic in theory, the current state of concentration creates a distinct power imbalance between the Big Tech and the startup. As a result, in such oligopolised markets with one or two mediating platforms, Big Tech can indulge in practices with a potential to cause adverse effects such as rent-seeking, de-facto market regulation, and even competing directly with its constituents.

- A prominent example of this trend can be found in the functioning of app stores, which, at least in India, is a fairly concentrated market dominated by Google. As a result, app-based startups often find themselves with limited bargaining power, since they require

2 As the name suggests, multi-sided platforms are digital intermediaries that provide services (or a set of services) to two different sides of a market – such as Google's providing services to both advertisers and end users. Unlike typical D2B/D2C entities that usually charge only one side of the market for their products and/or services – for instance, an EdTech startup that charges end users for accessing its services – multi-sided platforms are benefited by both direct and indirect network effects.

their app to be listed on the store, but they have no control over the governance and revenue sharing policies set by Google.

- This is evident in many contexts, including, but not limited to, how an app is advertised on the store, how in-app ads are shown, and how in-app purchases are processed. Similarly, practices such as single sign-on (SSO), cloud-specific lock-in mechanisms, and auto account creation also play a significant role in entrenching dominance in already concentrated markets.

- In terms of addressing this unequal relationship, both regulatory and technological solutions will have to be developed, deployed, and popularized. The latter is discussed in more detail in the subsequent section, but possible policy interventions include
    - updating India's digital competition law to reflect the needs of digital markets (such as, *ex-ante* enforcement) and adopt more relevant theories of harm (such as, collective abuse of dominance, or the abuse of superior bargaining power);
    - evaluating private contracts between Big Tech and startups (for example, minority investments and partnerships) for competition-related concerns;
    - assessing the effectiveness of punitive measures (such as, penalties) on curbing anti-competitive conduct by Big Tech; and
    - conducting sector-specific market studies to identify nascent market structures, address possibilities of concentration, and develop processes for more effective regulation.

2. Market's inability to self-correct

The participants then discussed at length the market structures underlying these asymmetric relationships. More specifically, the discussion under this theme focused predominantly on – i) the absence of direct market competition to Big Tech, and ii) the impact of 'kill zones' on innovation.

- On absence of direct market competition to Big Tech:
    - Only a minute proportion of private funding in India goes towards the deep-tech ecosystem, where, too, it is usually directed towards app-layer technologies and not as much towards infrastructure technologies or technology that act as essential gateways to future innovation (like foundational models). The latter usually tend to rely on government grants and foreign investment, including through partnerships with many of the 'hyperscalers'. Further, the risk appetite of Indian investors could also be considered to explain their low interest in funding technologies that are directly competing with established incumbents or likely to require extensive investment, such as infrastructure and LLMs.
    - Technological interoperability and relevant standards (such as Fair Reasonable and Non-Discriminatory (FRAND) licensing commitment) can also play a key role in addressing Big Tech's dominance in platformised markets. For example, some Digital Public Infrastructures (DPIs) – the Unified Payments Interface (UPI) and the Open Network for Digital Commerce (ONDC) – can emerge as a

viable alternative to counter structural issues in digital markets, owing to their decentralised architectures, and relatively less extractive operations (such as ONDC's choice of running a zero-commission model).
    - However, a strictly competition-by-design approach may not be wholly effective. Firstly, because of the advantage afforded to first-movers in platform markets, it would be difficult for a late entrant, even if it is a DPI, to dislodge an existing player. Secondly, given the relative power imbalance between Big Tech and small-scale startups, the former can often implement their anti-competitive conduct through newer technological mechanisms. Addressing these concerns would require, on one hand, a more sector-specific analysis of the relevant market structures, to inform effective policy interventions.
    - Similar evaluation of the many different technological approaches would also be needed to ensure that only the most impactful practices are built into further iterations. This was best illustrated in the distinction between ONDC and UPI, with many participants echoing their preference for the former's technical architecture over the latter's.

- On the impact of 'kill zones' on innovation:
    - The conventional understanding of 'killer acquisitions' may not apply fully to emerging technologies, such as LLM-based AI. Instead of directly acquiring a potentially disruptive startup to eliminate it, Big Tech can also use practices like reverse killer acquisitions, where they strategically acquire certain technologies to leapfrog the arc of innovation and outmaneuver possible challengers.
    - As a prominent example in the AI supply chain, partnerships on data and infrastructure sharing between Big Tech entities and small-scale startups, prima facie helpful for the startup's success, can often lead to a state of over-dependence with a potential for abuse in future. This relationship is particularly threatening in cases where the startup has a competitive advantage among its local peers, such as through proprietary access to a high-value dataset.
    - Although locally contextualized evidence helps to demonstrate this impact better, it is also important to follow the global antitrust experience against entities, such as Google, Meta, and Microsoft, among others. Consequently, learnings from this evolving body of case law and near identical conduct of Big Tech entities in different jurisdictions should also be considered before forming presumptions of innocence towards these, and other, Big Tech firms for lack of local evidence.

3. Implications for private funding

The session concluded with discussions on the intricacies of private capital markets, particularly their role in fueling innovation. Because 'innovativeness' is a subjective concept, the room's interaction threw light on the more quantifiable metrics that are used by market actors to track promising innovations. Key learnings from this theme have been summarized below:

- Metrics to track innovation are further dictated by a range of constraints specific to each market, and include variables like technical readiness of a startup, its total addressable market, funding gap for commercialization, differentiating factors, and their competitive uniqueness, among others.

- To further evaluate a startup's commercialization potential, investors also consider the maturity of existing market linkages, as well as the science and engineering risks associated with their operation.

- On similar lines, creditworthiness of a startup is another factor that often plays into an investor's decision-making process, and it is assessed through conditions like affiliation with highly ranked educational institutions (such as the Ivy Leagues, IIMs, and IITs), secured rounds of previous funding, or the receipt of a government grant.

- Moreover, given the price-sensitive nature of the Indian market, variables like cost of servicing also play an important role in an app-based startup's bottom line. In a scenario where the distribution channel of such a startup (app stores, in this case) is controlled by a single player, their dependence on this platform can have material outcomes for their survival.

Conclusion and next steps

By successfully leveraging early and large-scale network effects, transnational Big Tech intermediaries – such as Google, Meta, Microsoft, and Amazon – have become indispensable to the modern internet. As owners of critical infrastructure underlying our digital economy – including, but not limited to, app stores, advertising exchanges, and cloud servers – their services have become integral to the functioning of our digital supply chains. However, this consolidation of market power in the hands of a few intermediaries has also created serious dependencies in the ecosystem, which further jeopardize the technological architecture, and incentivise rent-seeking and abusive behaviour.

This imbalance of power, which emerges from the 'two-sidedness' of such market structures, is what turns a theoretically symbiotic relationship into a unilaterally extractive one. Startups – especially those that are app-based and/or ads-driven – are in a particularly unequal bargaining position with Big Tech, facing minimal to near absent market competition, if they ever do. Although regulatory intervention has provided relief in some contexts, the learnings from this round table helped us understand the outlook of market actors towards this dependence. As we have discussed, the market's inability to self-correct for this concentration can be explained by a few factors.

On one hand, the first-mover advantage held by Big Tech intermediaries means that they often leverage strategic partnerships and transactions to acquire promising startups, especially those that may pose a challenge to their hegemony. On the other, a relative dearth of patient capital for developing core technologies – as opposed to commercialising app-layer solutions – also means that disruptive, but time-consuming, innovations are often benched. In fact, because of the price-sensitive

nature of the Indian market, a steep rise in a startup's cost of services – which is heavily influenced by Big Tech's decisions and policies – can cause significant damage to its commercial success.

Freeing the aspirations of our startup ecosystem from the interests of Big Tech entities – both directly and indirectly – requires technological as well as regulatory interventions. The former includes the creation of diverse open-source and interoperable platforms that are less extractive and more consultative than their Big Tech counterparts; whereas, the latter consists of much-needed modifications to the current regime of antitrust enforcement. To further a nuanced and informed discussion on these themes, we are providing below a set of open questions for researchers, policymakers, and other relevant stakeholders to consider in subsequent conversations –

- How can we incentivise the creation of interoperable, and interoperability-enabling, technologies as competitors to Big Tech gatekeepers? What is the role played by state and market actors in this process?
- More importantly, how can we ensure that such digital commons are protected and sustained over a long term, including against infractions by market leaders?
- How should the traditional process of merger review be adapted to the new wave of partnerships, especially in the context of GenAI and the supply chains underlying today's LLM-powered AI technologies?
- What is the impact of the current policy regime on curbing anti-competitive conduct? Should punitive measures, such as fines, be reconsidered in lieu of more deterring interventions – such as structural remedies?