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White Paper

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A Vehicle Is More Than Its Engine:

Why Complements Are the Key to Reaping Value From (Generative) AI

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Executive Summary

- Generative AI (GenAI) presents a paradox. While the business world has been enthusiastic and poured funding into the new technology, concrete use cases and measurable benefits are still difficult to find, even though much will change soon.
- So far, GenAI has primarily helped individuals to work on bounded tasks, but these benefits haven't necessarily translated to firm or organizational level.
- We surveyed hundreds of senior executives to discover how GenAI combines with other factors to transform certain organizations, sectors, and business models but not others.
- We discovered four factors that make GenAI disruptive or sustaining: pattern recognition, proprietary data, modularization, and regulation.
- How firms use AI can be more important than where or how much they use it. Rather than merely using it widely, they need to explore it deeply.
- We found three pathways to unlocking corporate value with GenAI: cost reduction and productivity improvement; hyper-personalization; and creating new revenue streams or AI-enabled business models.
- Firms also need to look beyond technology to focus on their ability to engineer and manage data (upstream of AI) and integrate AI-driven decisions at scale into decision-making (downstream).
- We also find that firms need to work on the moats that will protect them from competition, in particular proprietary data (upstream) and building a unique knowledge base (downstream).
- What works alongside AI can be just as important as the technology itself. Rather than asking simply “What can we do with AI?” firms should look at their existing assets and capabilities and consider how they can combine with AI to unlock new possibilities.
- While digital native firms come with flexibility and the DNA to leverage AI, existing firms have other valuable complementary assets and challengers can engage with them to change the playing field.
- More broadly, firms should use AI as an opportunity to rethink competitive advantage, structure, processes culture, and incentives in order to develop a realistic strategy for an AI world.

1. If GenAI Is So Impactful, Where's the Impact?

Two years after Generative AI's inflection moment, enthusiasm remains strong, yet evidence of impact is elusive. The truth is that GenAI is a paradox in more ways than one. Surely no technology has ever received so much funding—fuelled by FOMO—with so little regard for monetization. And while executives may yearn for transformative use cases at the corporate level, GenAI has revealed more potential as a versatile sidekick that primarily empowers the *individual.* On the one hand, business is convinced GenAI is a game-changer, but despite some green shoots of radical innovation, few executives can see exactly how, where, or even why monetization might occur. Despite the excitement of vendors and consultants—arguably motivated more by revenue than by realism—organizational benefits and solid returns are difficult to find.

Having said all that, some firms *have* harnessed GenAI in meaningful ways. One is Arco Educação, a Brazilian educational technology player, whose GenAI-powered "Teacher Assistant" creates fully bespoke teaching materials (especially helpful for students with special educational needs) at significantly increased productivity, saving many hours for both teachers and the business itself. But since Arco uses a large language model (LLM) that's freely available to everyone, what allows them to create this standout value?

During our recent large-scale research project, we focused on complements—that is, the existing assets and capabilities that GenAI *combines with* to move the dial for certain firms, and what differentiates success from failure. This was on one of the first systematic studies of senior executives' experiences with, and expectations of, GenAI. We combined over 300 in-depth surveys with 16 workshops gathering qualitative insights from 160+ senior executive participants, in partnership with the UK's Institute of Directors and portfolio firms of a global leader in private equity.

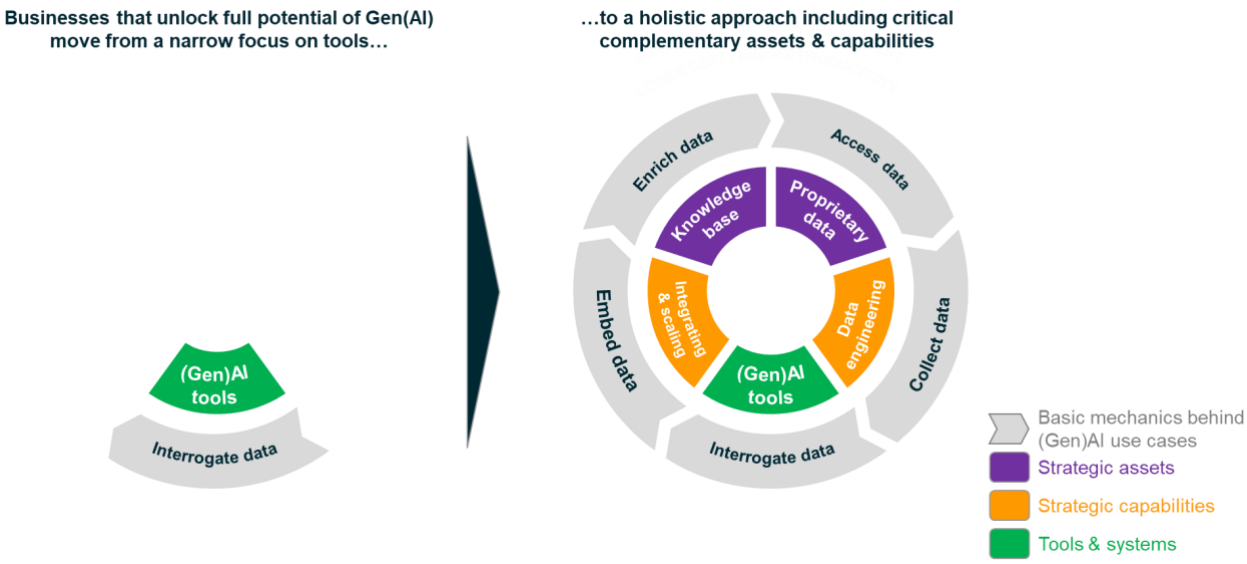
While our survey only offers a snapshot, it reveals how GenAI combines with other factors to transform certain organizations, sectors, and business models while leaving others largely untouched. Based on this insight, we developed a blueprint for where we expect disruption, and where not. Our study provided evidence on the factors that executives believe make GenAI disruptive or sustaining. They include the importance of pattern recognition, the role of proprietary data, the importance of modularization (as many success stories concern atypically modular tasks), and sector-level regulation that can shelter incumbents. Beyond that, we considered in-depth accounts of success and failure with GenAI to arrive at a framework for making GenAI work, which we've been putting into practice with firms over recent months.

2. The Key to Winning With AI: Capabilities and Assets, Both Upstream and Downstream

Our work suggests that in order to benefit from AI, executives need to start with business context. Technology may well be part of the solution, but it's no silver bullet. AI is good at analyzing data and identifying patterns, while GenAI is good at contextualizing, preparing output, and coming up with plausible recommendations. But all this depends on managing what

lies *upstream and downstream* of AI. Upstream, it means obtaining the relevant data and making it available for AI tools to process. Downstream, it means integrating AI recommendations into organizational action and creating the specialized knowledge to build a competitive "moat" that can even repel competitors who use AI themselves.

Consider law, for instance, where specialists such as leya.law and Harvey.ai are offering custom-made AI tools to help law firms slash the cost of work and manage working processes. This is an area of interest to both generalist AI platform providers such as Microsoft and content providers such as ThomsonReuters, who can parlay their *specific content* into complements that give law firms a competitive edge. In the future, foundational AI capability may become less of a differentiator and more of a utility. In this world, value may flow to the owners of complements, who will either own their own ecosystems or become universally valued partners.



2.1 Data Engineering

Upstream of AI lies a reservoir of data that must be articulated, selected, and verified before it can be leveraged it through AI—and few firms have the capability to do so. Consider, for instance, how T-Mobile's investments have enabled it to build serious data-engineering capabilities through its Databricks Lakehouse. This contrasts sharply with sub-scale, non-tech-focused firms, which find it much harder to leverage AI technology. Or consider Uber, which can build an advantage by combining data engineering and data focus with AI—something local taxi companies are unable to do.

Since GenAI can draw on unstructured data, we might ask whether data engineering is needed at all. However, we find that the better the data practices are, the more effective the AI. Firms with "hard," trustworthy data and a "single source of truth" can leverage GenAI to generate exciting new ideas rooted in their existing capabilities. Consider Södra, one of the world's largest forestry companies. Once it invested heavily in data warehousing and data cleaning, it

could exploit GenAI to augment human intelligence and identify new ways to take advantage of its diverse, logistically complex forestry products and the myriad sub-markets they can address.

2.2 Proprietary Data

We also find that firms' digital and data assets combine powerfully with AI. These could include proprietary data on customers, ecosystem partners, processes, or products, allowing firms to tailor their offerings. Better still is data that allows firms to make new connections and draw new inferences—like Netflix's insight into patterns of demand for shows, which underpins its commissioning process. Or consider Argus Media, a leading provider of market intelligence on energy and commodities. By integrating vast proprietary industry data into its AI-powered forecasting models, Argus offers deeper, more actionable insights than standard data providers can offer. Such authority has made Argus' benchmarks a reference point in many contracts, creating powerful network effects and cementing the firm's competitive position.

Proprietary assets like these are priceless, because bottlenecks inevitably shift to where the scarcity is. That's why multi-billion-dollar info providers like ThomsonReuters, WK, and RLEX are frantically trying to redefine their value propositions and reconfigure their ecosystems, lest the tidal wave of AI sweep them into a sea of commoditization.

2.3 Integrating and Scaling

Turning to what lies downstream of AI, we come to the use of data in decision-making. This is a crucial and often overlooked aspect of using AI, and it's an area where Big Tech and tech-native companies with a digital-first mentality have a massive advantage. Not only can they experiment to validate and refine AI-generated offerings, but they also have the operational muscle and technical infrastructure to put them into practice. For example, Visa has realized new insights by deploying over 500 AI applications in areas from fraud detection to customer service. Or consider how Amazon has successfully integrated AI across its entire business, from personalized product recommendations to logistics optimization and voice-driven experiences through Alexa, and how this contrasts with the data paucity and difficulty of integrating AI insights in smaller or bricks-and-mortar retailers.

Rather than pouring money into AI, therefore, non-digital natives would benefit from rethinking their inflexible processes, legacy systems, or standard operating procedures. They may also be able to benefit from the ever-growing roster of willing and able complementors. This is what drives the rapid uptake of ventures such as mooveo.ai, which combines AI tools with a mapping of a client's processes, or vertically focused AI specialists such as Harvey.ai in law or the more radical offerings of ventures such as Evolver.al (discussed below).

2.4 Knowledge Base

Another valuable tool that tech firms have pioneered is the systematic use of "A/B testing": testing AI-generated variants of a service or value proposition to see which works and,

crucially, enhance learning. Firms in more traditional sectors could replicate this advantage by rethinking their processes. Consider how PingAn, China's leading insurer, draws on its vast data resources to microsegment its customer base, derive personalized recommendations, and pass them on to in-house or independent agents to offer recommendations and track customer response. This allows PingAn both to benefit from AI and to improve its proprietary customer data assets, creating a virtuous circle.

PingAn showcases the importance of another strategic *asset* that complements GenAI: a "moat" around the business, built on a superior knowledge base, underpinned by network effects and knowledge of what works, and amplified by AI. This is an area in which AI platforms or ecosystems can connect powerfully to build, protect, and occasionally challenge competitive advantage. L'Oréal, for instance, through its AI-based Beauty Genius virtual assistant, draws on its profile and brand equity to build repositories of details on skin care. This allows L'Oréal not only to offer personalized assessments to customers, but also to build an unparalleled database of skin conditions. This then becomes an integral part of its "moat," defending the firm against current and potential competitors with access to AI. Likewise, Spotify leverages data on listening habits to deepen its understanding of users' cultural, listening, and individual traits.

While such virtuous circles may be easier for more dominant and tech-savvy actors to create, challengers can also benefit. Consider Arco Educação, discussed above, which proactively gathers feedback from teachers on the bespoke materials generated by LLMs. This human feedback helps to control the quality of individual GenAI outputs and trains the tool to produce better output going forward—which, in turn, digs an ever-deeper moat that competitors cannot cross.

Overall, AI tools are likely to be available to everyone for a price, which will turn complementary assets and capabilities into a major thing setting one apart from competitors. As such, if you want to drive economic profit, it's these complements that will determine how much of it there is for you.

3. A Framework for AI Value — and Three Pragmatic Steps to Action It

3.1. To Create Value, Think Outside-In

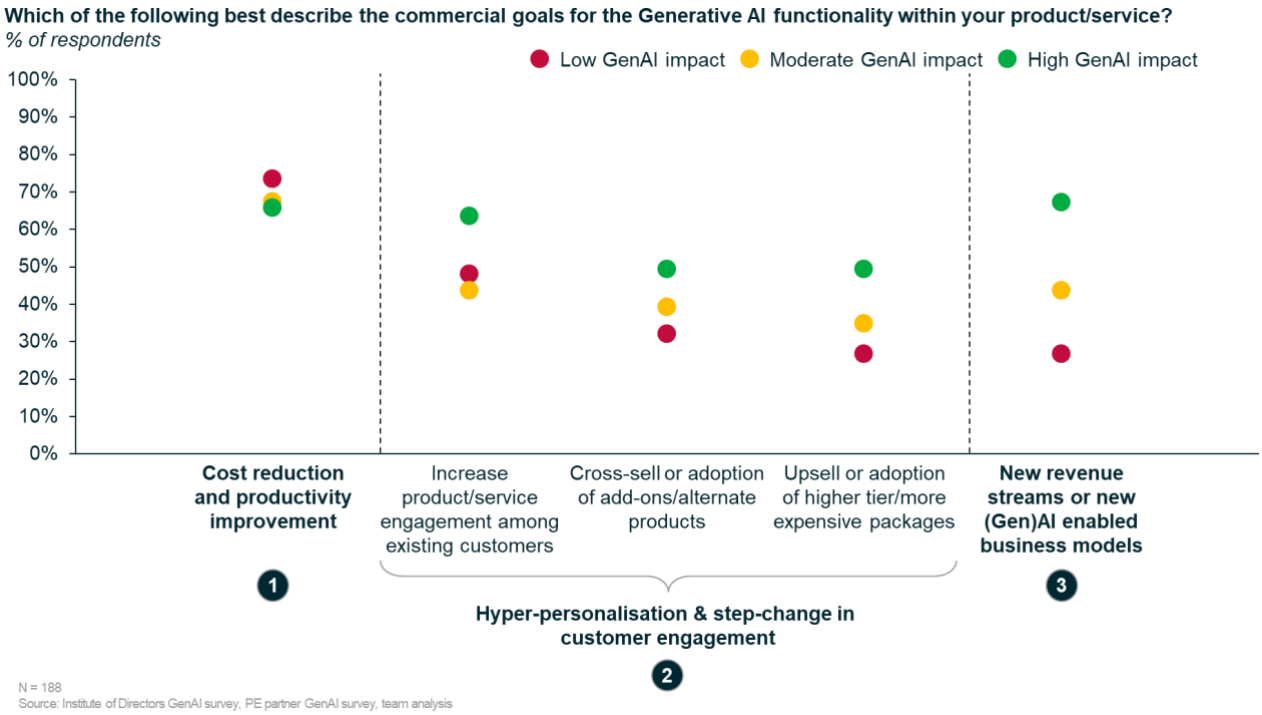
To use (Gen)AI in a meaningful way, firms must be able to both create incremental value and sustainably capture it. Creating value means thinking outside-in: asking how customers, suppliers, employees, or ecosystem partners can benefit from you leveraging (Gen)AI, and how these benefits are different from what your current or potential competitors can offer.

Our research suggests three main levers that firms can use to create value from (Gen)AI. The first is *cost reduction and productivity improvement*, a common priority. JPMorgan Chase, for instance, is rolling out the "LLM Suite," its new AI tool, to 140,000 employees. Here, the

expected boost to operational efficiency is based on the Suite being a broad, deep, customized set of tools.

The second lever is *hyper-personalization* to increase the revenue from each customer. Michaels, a leading Arts & Crafts / light DIY retailer, has leveraged GenAI as part of its omnichannel personalization strategy, boosting clickthrough rates by up to 41%. More ambitiously, Michaels' DIY cousin Lowe's has rolled out Lowe's Product Expert, a custom GenAI-driven tool offering hyper-personalized product recommendations to simplify home-improvement projects. To sharpen its competitive edge still further, Lowe's is experimenting with virtual reality to help customers visualize their home decor ideas.

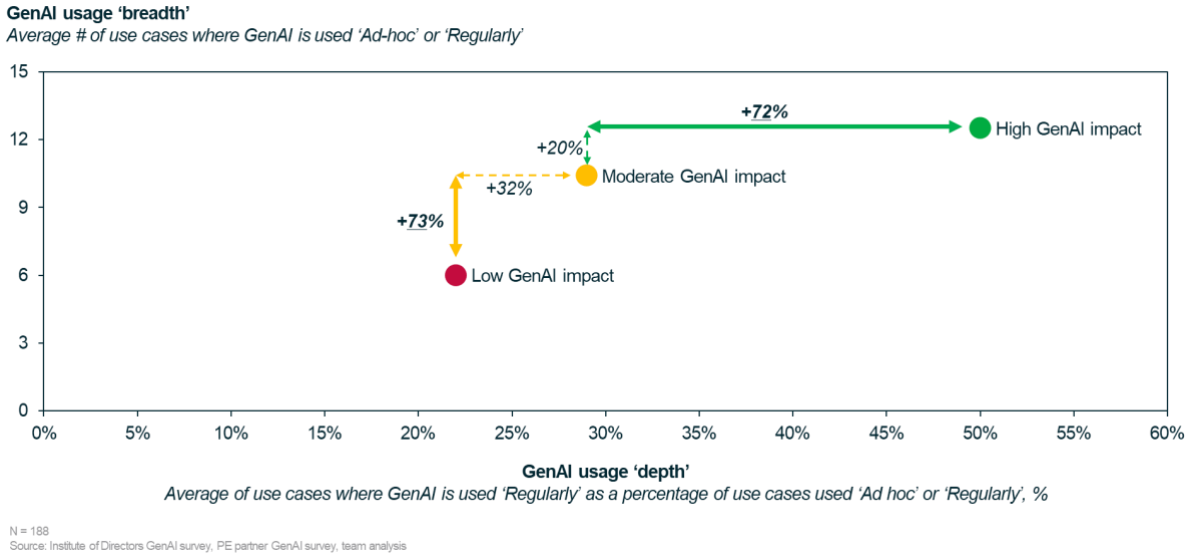
The third and final lever is the *creation of new revenue streams or GenAI-enabled business models*—a path that is open to established firms and challengers alike. In terms of incumbents, Amazon has launched CodeWhisperer, a GenAI-powered code generation tool, which has allowed AWS to create a new business model by integrating the tool with its cloud services. Turning to the challengers, Evolver.ai, a venture built by senior leaders from EY, Google, and Microsoft, is building a suite of LLM-based products for tax, insurance, audit, and finance that will allow corporates to derive far more insights from their data without having to change their legacy IT systems.



3.2. To Capture Value, Think Inside-Out

The second way to add value is look at the organization, and ensure that, if you apply GenAI, you tie it tightly with what you do. Our study found that GenAI has the greatest impact when it is used not merely in more ways, but in a more *systematic* way overall. In other words, the *depth* of GenAI use is more important than *breadth*. Self-evident use cases such as writing emails or

supporting communications had little impact, perhaps because the benefits accrued to individual employees rather than the firm. Corporate benefits only emerged when firms used GenAI closer to their core—operations, legal, and production as opposed to HR and advertising—and embedded it in their organizational decisions.



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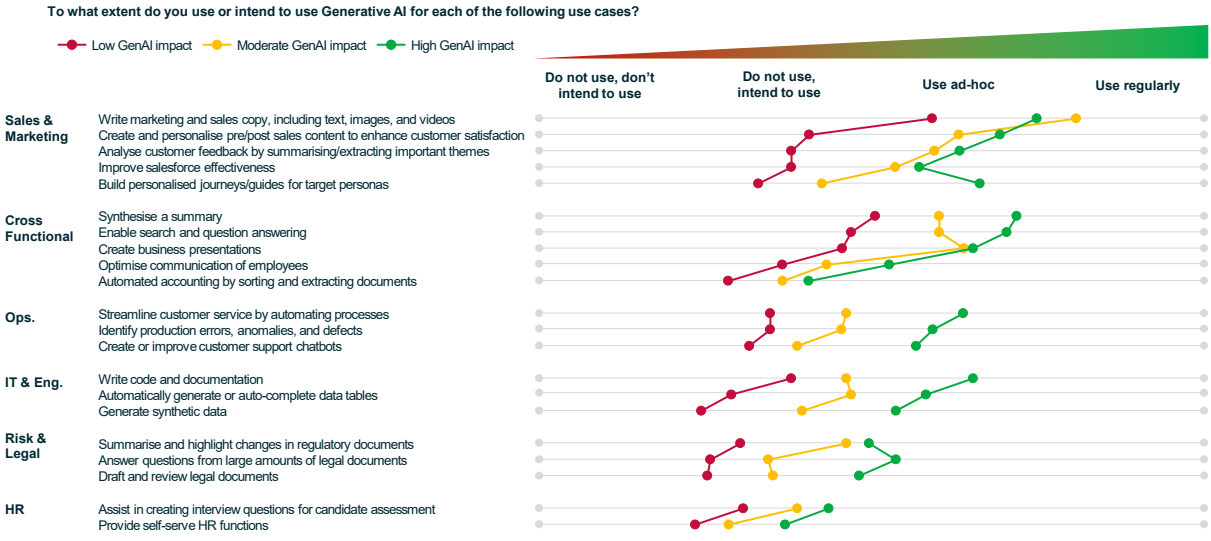
Source: Institute of Directors GenAI survey, PE partner GenAI survey, team analysis



N = 188
Source: Institute of Directors GenAI survey, PE partner GenAI survey, team analysis

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Beyond *adding* value though, you need to also consider your assets, and the complements in terms of (Gen)AI that will allow you to *capture* value. In a world where (Gen)AI tools are universally available, you need to think inside-out and take an honest look at the upstream and downstream *complements* to AI—that is, the *assets and capabilities* you have that differentiate you from current and potential competitors.

The AI revolution presents an opportunity to go back to basics and honestly consider whether your competitive advantage is set to be shored up or broken down. The answer will depend on

precisely identifying the complements to (Gen)AI and how you can draw on your strengths in any of these areas to build or preserve advantage. However, while you do need a base level of complementary assets and capabilities to benefit from AI, you shouldn't expect to be "best in class" in all of them. Instead, you need an effective strategy to take advantage of what you have, as well as what you can access by building an ecosystem (or plugging yourself into an existing one) – to differentiate clearly from competitors on some of them.

3.3. Align the Value and Complements To Define Your (Gen)AI Strategy

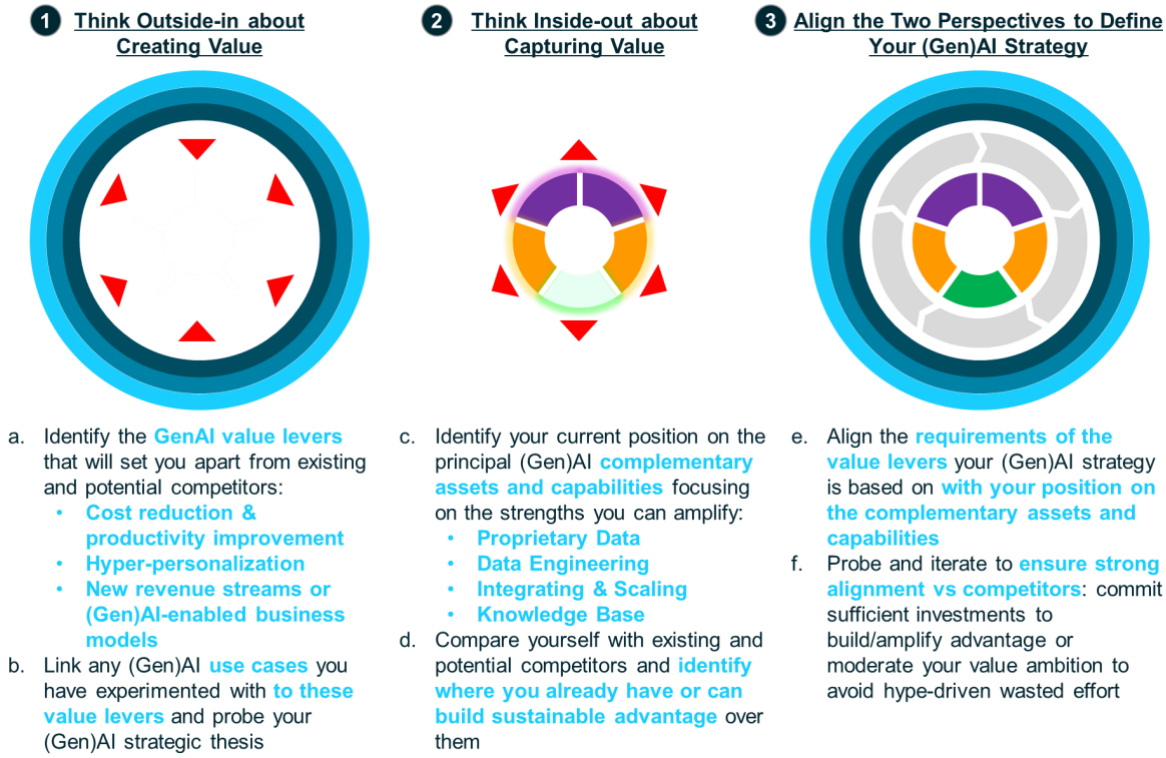
Your (Gen)AI *value levers* and your *complementary assets and capabilities* will only realize benefits if they are aligned—and here, smaller entrepreneurial firms can do just as well as well-resourced industry leaders. Clearly, digital-native firms will gain strength from AI, with Big Tech becoming more powerful yet. Yet, while less digitally focused incumbents may be hampered by inertia, legacy systems, and lack of resources, they may also be protected by regulation or be sitting on valuable assets that they should dust off and reappraise.

As we've seen, Arco Educação had far fewer resources than Big Tech, yet it still achieved GenAI-powered advantage by aligning its value levers around hyper-personalization and productivity. Arco made use of a valuable resource it already had: tens of thousands of teachers across Brazil who used its products regularly. Once it had *identified* this complement and harnessed the value of the network effects embedded in the teaching community, Arco could use a universally available LLM to deliver unprecedented customization that competitors could not easily replicate.

Sometimes, firms have to *build* the right complementary assets before they can use them. Consider Majid Al Futtaim (MAF), the leading mall, property, retail, and lifestyle conglomerate in the UAE. MAF was challenged by the rise of e-commerce, with the most valuable customer data held by Amazon or retailer tenants in MAF's own malls. To unlock this value, MAF had to create a compelling value proposition for the customer, linked to its SHARE loyalty program, to show its tenants the value of information-sharing. Again, technology is a complement; everything starts with alignment.

Moreover, alignment is not a permanent state, but a constant iterative process of weighing up whether your assets and capabilities are a good fit for how you've set out to create value. You have to stay honest with yourself about your actual position and commit sufficient investments to build or amplify your advantage. If options are limited, your efforts may be better directed towards a more realistic aim, firmly rooted in your (Gen)AI-relevant assets and capabilities.

Figure: A Practical Framework for (Gen)AI Value



4. Revisit Your Bottlenecks, Shape Your Ecosystems, and Rethink Your Strategy and Organization to Unleash the Power of (Gen)AI

For all of GenAI's promise, we expect the ranks of the disillusioned to quietly swell, because firms that bet on technology tend to forget the importance of what technology *complements*—data, knowledge, strategy, organization, and competitive "moats." Today's quest for GenAI "use cases" may even misdirect efforts by placing too much emphasis on the "how" and the "what" and not enough on the "why." Shifting the spotlight from technology to complements shows us that we must tackle underlying business problems ourselves, not expect AI to magically fix them. To do so, we must make an effort to understand what AI combines with.

The irony here is that, from a strategic perspective, AI and GenAI are likely to be even more important than we understand today, not least by shaking up winners and losers and challenging existing moats. Our work suggests that AI will enable some incumbents, if they play their cards right, to strengthen their grip on the competitive landscape, bolstering their multi-product ecosystems and cementing their positions as orchestrators of multi-actor ecosystems. Meanwhile, AI will also enable innovative entrants to redraw the map of their sectors, changing monetization and value-add—provided they focus on what will be in short supply.

Finally, to truly benefit from AI, we should rethink organizational structure, culture, and incentives. We recently participated in an event where a global beer manufacturer proudly presented its new GenAI info portal for employees, combining reliable, single-source-of-truth data with the latest verified evidence on customer behavior. Despite the palpable excitement, however, we feel the most vital questions still lie ahead. With this information at each employee's fingertips, is it time to rethink managerial authority and entrepreneurial responsibility? Do our structures reflect the information and reasoning limits we have today, or those of yesterday? Nvidia, taking advantage of these new technologies, has already increased its control span to 47—that is, each of its managers has around 47 direct reports, with a far flatter structure. True benefits will come when we combine AI technology with a more dynamic organization.

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As the emphasis shifts from pure technology to an approach that starts with strategy and organization, we expect that AI and GenAI will start to have truly transformational effects over the coming years. At the same time, given the incentives of many AI ecosystem participants, we expect that disappointment with AI will only grow over the coming months. None of us know exactly how rapidly (Gen)AI technology will evolve or which tools will wind up winning the race. What we *do* know is which strategic levers can help firms futureproof themselves to prepare for the time when customers, competitors, regulators, and others catch up to this transformative technology.

Insert: Physician, Health Thyself

One area where we expect AI to create turmoil is our own: business education. Management scholars and business schools are facing a "physician, heal thyself" moment. Specifically, they need to consider how GenAI will change the market for MBA graduates. It may thin the ranks of junior analysts in consultancies and banks, which business schools have traditionally produced in droves, yet increase the demand for those who can thoughtfully combine technology and organization in incumbents, or those who want to create entrepreneurial ventures—whether standalone firms or innovation engines within incumbents' ecosystems. Business schools will increasingly differentiate themselves on how well they can fulfil these needs, to gain share and recognition in a market that may come under challenge. More fundamentally, they will need to consider how they can leverage their network and reputation to become catalysts of connection between tech, students, thought leaders, and industry, and how to shift from teaching basic frameworks (which GenAI can do) to critically leveraging GenAI skills in organizations. While business schools may benefit from some GenAI skills, their gameplan will decide their ultimate fate.

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