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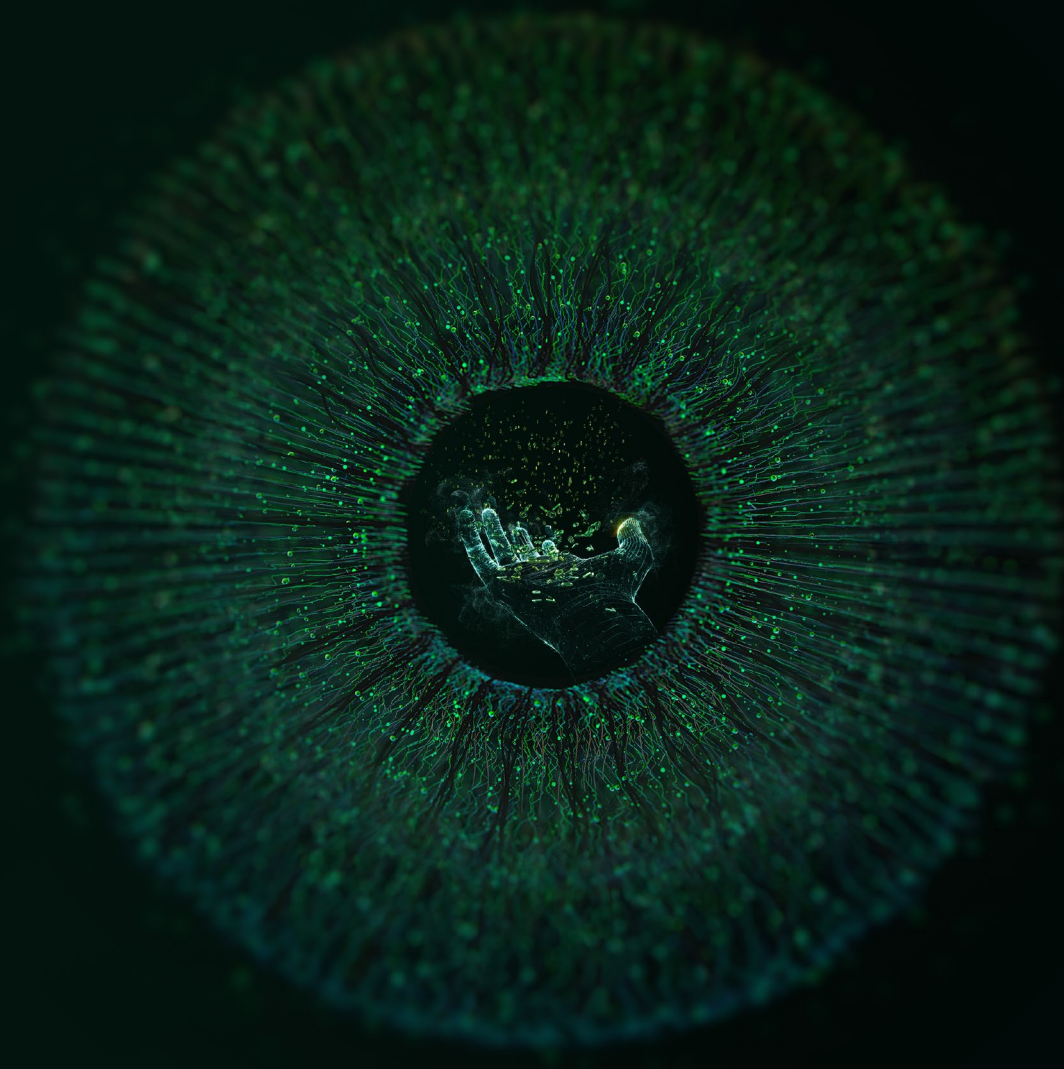

A three-dimensional tech strategy, enabled by cloud, can drive market value

A report from the Deloitte Center for Integrated Research

MAKING AN IMPACT THAT MATTERS since 1845

This mixed-method quantitative and qualitative analysis of historical organizational business filings, news media mentions, and financials discovered a three-dimensional tech strategy—consisting of a modern tech focus; a platform strategy; and investment in technologies such as AI, cloud, and cyber—can help drive market cap increases and share-price returns.

We know from Deloitte Global research that organizations that deliver successful digital transformations bring together strategy, technology, and a strong change capability.[1] Leaders in such organizations champion digital agendas across the C-suite[2] to mobilize the organization[3] and advance strategic growth—and value.[4] And, when an organization's strategy is tightly aligned with specific technology investments such as artificial intelligence (AI), cloud, cyber, blockchain, or Internet of Things (IoT), it potentially sees **double** the market value over those more broadly articulating their digital strategy.[5]

In other words, engineering advantage for your organization by signaling to the market your plans to advance strategy through innovative uses of technology can assist in building the future only you can imagine.

However, many organizations—approximately 66% of Fortune 500 companies—still have not lined up tech and business objectives.[6] The research[7] suggests that there's considerable room for organizations to gain greater competitive advantage through better alignment of business and technology strategy. We assert, based on this mixed-method analysis of public business filings, news and media mentions, financial statements, and secondary data, that the following are three market value drivers essential to digital transformation success: [8]

- **Tech maturity:** The extent to which the organization has modernized away from legacy technologies and embraced innovation, which our analysis found to be a value driver among organizations that used a range of new technologies to innovate.
- **Tech theme/category:** The extent to which the organization has brought together a class of related, functional technologies across its strategy, which our analysis found to be an especially high value driver for platform capabilities enabled by cloud, edge, and quantum computing.
- **Individual technologies:** The extent to which the organization has adopted and gained mastery of a specific technology and its related services immediately and over time, which revealed positive market value increases related to AI, cyber, and especially cloud.

Together, they can create a more three-dimensional tech strategy. This combination is why cloud strategy and transformations are essential to digital transformation as a value driver. Cloud native capabilities and services can assist organizations to address the first value driver of tech maturity as a step beyond tech modernization and toward innovation. Cloud strategy often enables platform business strategies—and had the most positive relationship to market cap increases of the individual technologies analyzed in this analysis. Additionally, using multiple methods, this research found that among six technologies analyzed, cloud technologies drove high market value and enabled AI, cyber, enterprise resource planning (ERP), and IoT strategies. In short, strategic and innovative cloud investments have the potential to bring together all three value drivers—tech maturity, tech theme/category, and individual technology strategies—for considerable gains. Here's how.

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Three dimensions to close the gap between strategy and technology

Our correlation analysis found that tech strategies and investments impact market value across each of these three value drivers: tech maturity, tech theme/category, and individual technology. We examined clusters of organizations' statements with different approaches for each of these three drivers and their relationship to market value (figure 1).

Figure 1: Three technology strategy value drivers analyzed in 10K market cap correlation analysis of 4,500+ organizations

	Definition	Example use case and technology	Correlation to market cap
Tech maturity	The extent to which the organization has modernized away from legacy technologies and embraced innovation.	A global consumer products company could use a combination of new and innovative technologies like AI, cloud, cyber, and IoT to manage asset provenance across the supply chain to drive market value.	High correlation for innovative technologies.
Tech theme/category	The extent to which the organization has brought together a class of related, functional technologies across its strategy.	A manufacturing company could enhance its computing infrastructure with cloud, edge, and blockchain platform technologies to drive market value.	High correlation for platform technologies and other categories.
Individual technologies	The extent to which the organization has adopted and gained mastery of a specific technology and its related services immediately and over time.	A pharmaceutical company could develop a cloud native application to engage with patients and track health-related information.	Highest correlation for cloud which is 3X cyber in the long term (3 years).

Source: *Deloitte Center for Integrated Research analysis*

- **Tech maturity:** We explored what impact the use of established versus newer technologies had on market value by grouping financial statements into two categories: (1) those modernizing their technology infrastructure by moving away from older technology and investing in mainframe, traditional ERP, data and analytics, and other approaches to modernize legacy strategies, and (2) those more focused on using new technologies such as AI, IoT, cloud, blockchain, cloud-enabled ERP, and others to drive innovative strategies.
- **Tech theme/category:** We considered the market value seen from a focus on specific technology for several digital transformation themes, while not focusing on any single technology. The analysis focused on five common digital transformation themes—insights, experiences, platforms, connectivity, and integrity—to assess value across the category. Rather than focus on an individual technology like cloud, the analysis focused on the broader category of platform technologies such as cloud, quantum, and edge computing and their relationship to market value.
- **Individual technologies:** We drilled down one level deeper to understand how specific discreet technologies such as AI, cloud, cyber, ERP, IoT, and blockchain individually related to value measures using multiple methods. Individual technology analysis looked at four technologies—AI, cloud, cyber, and ERP—correlated to historical business and financial statements using NLP, which reflect an organization's annual use of these technologies in relation to market cap. It also looked at news media trends related to all six technologies to assess market return correlations for six technologies over time and across industries—with mutually reinforcing findings. A further qualitative sentiment analysis of a sample of ERP filings was also performed to identify positive, negative, and neutral themes related to ERP strategies.

Our analysis of 10 years of business and financial statements revealed organizations whose filings showed (1) a focus on tech investments related to new and innovative technologies, (2) those that prioritized core platform modernization and transformation, and (3) digital initiatives that deployed AI, cloud, and cyber technologies that experienced significant market value gains (text in green in figure 2). The regulated historical business filings provide a strong representation of organizational investments at scale in relation to market cap. Additionally, to bring additional insight, nuance, and perspective to these individual technology findings, this research includes a separate news media analysis and qualitative sentiment analysis that is mutually reinforcing of these findings.

Figure 2: Subfactors analyzed in 10-K market cap correlation analysis across three technology strategy value drivers

Technology maturity analysis focuses on two subfactors	**Technology theme / category** analysis focuses on five subfactors	**Individual technology analysis** focuses on four technologies with requisite frequency to be analyzed as their own sub-category
Example of keywords analyzed		
Established technologies Mainframe, ERP, data analytics, etc.	**Experiences** Customer experience, etc.	**AI** Data analytics, AI, machine learning
Modernize/innovative technologies Cloud, AI, cyber, blockchain, IoT, etc.	**Insights** AI, deep learning, etc.	**Cloud** Cloud, cloud native, cloud computing, etc.
	Platforms Cloud, Edge Computing, blockchain, quantum, etc.	**Cyber** Cyber, cybersecurity, zero trust, etc.
	Connectivity Broadband, 4G, 5G, API, etc	**ERP** Enterprise Resource Planning, etc.
	Integrity Cybersecurity, digital trust, etc.	

Source: *Deloitte Center for Integrated Research analysis*

Overall, these results provide data that C-suite and technology strategy leaders can use to guide decision-making, given important technology investments may be under increased scrutiny or even at risk of being defunded.

Tech maturity: Don't just modernize, innovate

While there's something to be said for thinking differently about legacy technology—whether moving off mainframe systems, modernizing your ERP strategy, or using data and analytics to create new business intelligence—our analysis shows that these initiatives are the baseline for achieving market value (in market cap and stock returns). These are complex, integrated core technologies that are fundamental to a mature technology strategy. They come with clear operational benefits and strategy enablement opportunities. But at the same time, simply modernizing may not be market-leading enough. Organizations may need to think differently to potentially see significant market value gains or losses, focusing, for example, on how their ERP implementations fit into a larger growth strategy and IT transformation vision.

Value leaders, instead, may want to consider focusing on investing in and innovating with additional technologies such as AI, cloud, cyber, blockchain, and IoT to advance their business objectives—as one of the components of a three-dimensional tech strategy.

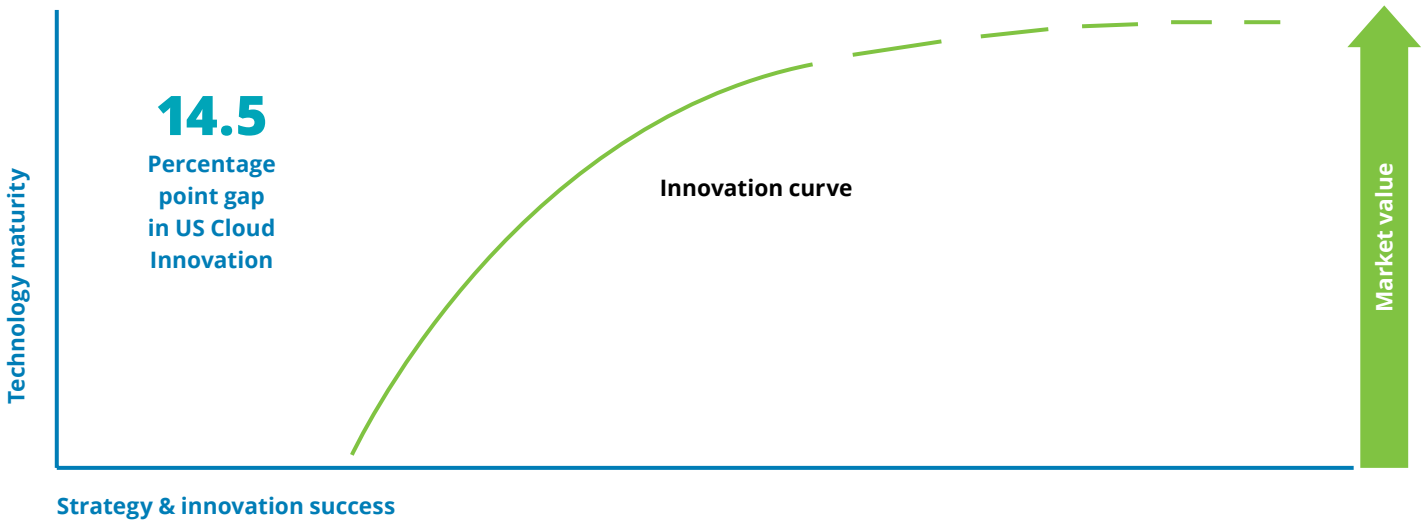
Our analysis of financial statements from more than 4,500 organizations found those that had a distinct focus on new and innovative technologies saw positive lift in valuations both near term and long term (over one, two, and three years), which we saw to be approximately three times those of emerging technologies.

This could be because their digital transformations' use of a broader suite of connected technologies may signal to the market that they are more technologically mature—perhaps even a self-fulfilling prophecy—giving them the permission to innovate and unlock more value. However, these companies also should demonstrate that they are following through on those actions, given they are made in binding regulated business and financial statements, and how they are doing so with ongoing and increased specificity. If organizations are not in a position to invest in new technology approaches with a plan to innovate, they could be putting themselves at risk of missed value-generating opportunities.

A recent Deloitte survey found cloud decision-makers reported an average 14.5 percentage point innovation gap between their stated strategic objectives and how well they are doing at achieving innovation success related to their objectives from their cloud investments.[9] This could be for a number of reasons: the ability to strategically innovate may be minimal, their strategic priorities may have changed since the time of the cloud investment, or they may not be innovating as well as they could be. In any case, business, innovation, and technology teams should work closely to triangulate strategy, tactics, and spending to help achieve the full potential from these investments. Consider backing statements made in public filings with intent and action to help address any innovation gap that may be present relative to the market and see the potential for value gains (figure 3).

Figure 3: How innovative technology investments can help achieve strategic business priorities

Increased technology maturity through strategic and innovative technology use can help increase market value



Source: *Deloitte Center for Integrated Research analysis*

Consider these actions related to tech maturity and innovation:

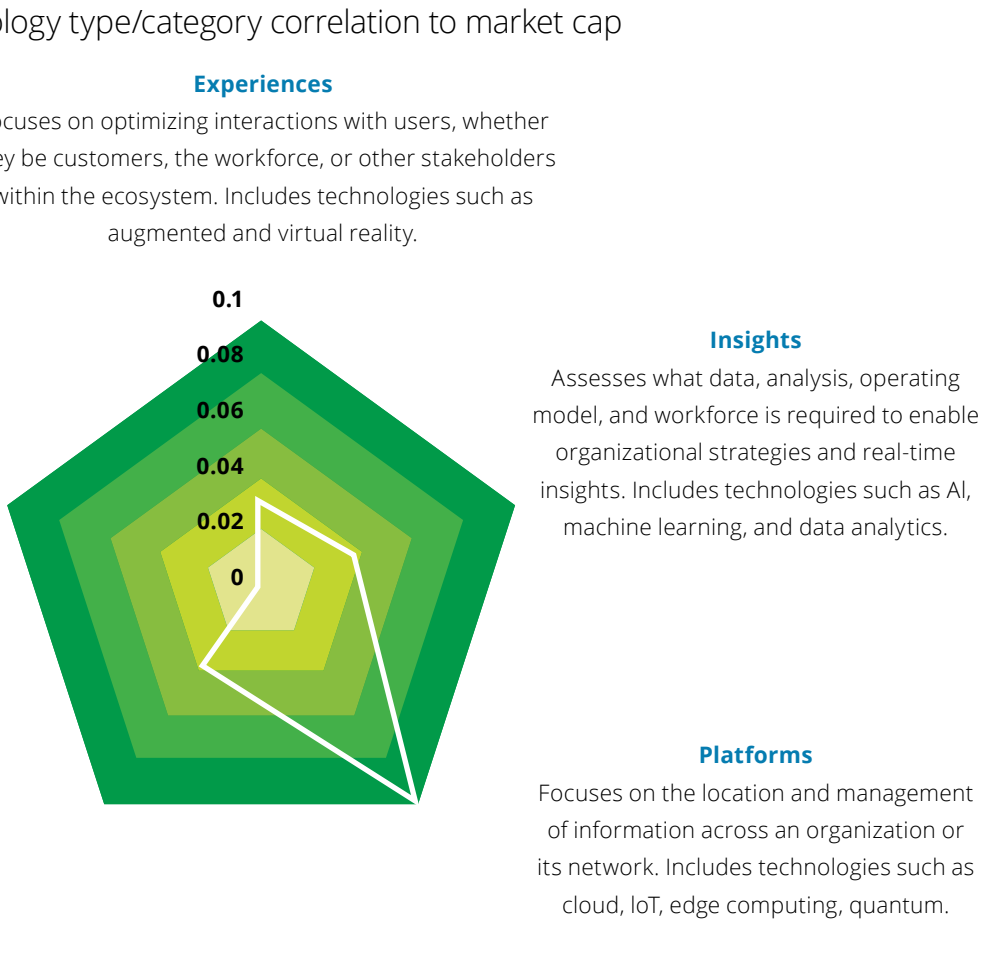
- **Create business innovation metrics and measures** guided by an enterprise value framework to create a consistent set of measures to help set strategy, guide innovation tactics, and benchmark against to guide return on investment and future spend conversations. For example, how might you expect a blockchain implementation related to your customer ecosystem and supply chain to improve your customer experience metrics?
- **Conduct market sensing** into new, innovative, and disruptive technologies to understand both the business risks and opportunities associated with each technology; for example, how quantum capabilities introduce new threats as well as opportunities.
- **Create peer-based valuations comps** by looking at what competitors, regulators, and analysts are doing in the market, and set benchmarks, for example, related to business productivity indicators expected from a cloud migration or workforce productivity related to AI and automation investments in human and machine teams.
- **Calibrate your timeline related to technology trends as value drivers**, including how those specific technologies can help drive market value, how mature those technologies are today, and when to plan further into the future for long-term value or big bets in maturing technology areas like quantum computing or cryptography solutions, which may require a longer-term outlook than identity and access management solutions, and can be implemented today to enable a more resilient business.
- **Set baseline transformation goals early on,** in alignment with C-level sponsorship. Clearly identify modernization imperatives that can enable efficient innovations in the organization to help maximize value.
- **Champion talent upskilling**[10] to help keep up with tech innovation as part of the organization's workforce transformation strategy. Organizations can consider rethinking traditional workforce models to unlock the potential of their full ecosystem of individuals, technology, and organization available to perform work and create value.[11]

Tech theme/category: A platform focus can supercharge value

The second value driver brings to life how your organization is tapping into a range of technology solutions across a specific category, without focusing on any single technology specifically. Our analysis focused on five thematic categories or digital imperatives—**experiences, insights, platforms, connectivity, and integrity**—initially defined in Deloitte's A new language for digital transformation research and defined here in figure 4.[12] Whereas the first dimension shows that innovators are rewarded with market value and the next section will show the relationship between specific technologies and market cap, this second analysis looks at the market value relationship—gains or losses—across a spectrum of technologies within each digital imperative category.

Importantly, we found that digital transformation strategies focused on platform modernization and/or innovation investments directed at improving the flow of information across the organization and/or its ecosystem—whether embracing cloud, IoT, edge, or quantum—saw the highest increase in market cap. Organizations employing platform strategies stand to supercharge value with additional valuation gained from statements related to the experiences, insights, and integrity imperatives.

Figure 4: Platform technologies have the highest positive impact on market cap of five themes analyzed in 10-K market cap correlation analysis



Source: *Deloitte Center for Integrated Research analysis*

Our analysis shows that four of five of Deloitte's digital imperatives have a positive relationship to market valuation. For example, when organizations discussed the integrity theme—any combination of technologies or approaches related to creating integrity for the business whether resilience, security, trust technologies, cybersecurity, identity and access management, and others—they saw a positive increase in market cap. The value seen from this broad approach to articulating the technology strategy across a range of potential technologies underscores how important a business outcomes-led and modular digital architecture approach[13] can be to any digital transformation.

Of the five digital imperatives:

Platforms — technologies enabling the flow of information across the organization or its network—have the most significant positive relationship with market cap, with **almost three times** the positive relationship to valuation compared with insights. This underscores the importance that core modernization, cloud migration, and cloud native initiatives play in engineering advantage for your organization. It also shows that it's not just about cloud in that this thematic group included a whole class of platform technologies ranging from cloud migration and cloud native strategies to edge computing to quantum computing and more. The market value gains relate to a clear strategy as to how these organizations plan to process and share information across the organization and ecosystem. However, it is not just about platform modernization and innovation.

Insights defined as the data, analysis, and intelligence needed to enable real-time insights, including financial statements with a focus on analytics, AI, big data, and data mining, showed positive market value returns. And, not to be forgotten, beyond market cap specifically, some organizations are seeing value by building out their insight capabilities more broadly, too. According to Deloitte's 2022 fifth edition of the State of AI, 34% of the 2,620 organizations surveyed have reported that they "discovered valuable insights from deploying AI applications."[14]

Integrity focuses on improving resilience, security, ethical tech, and trust across all internal and external business systems. The financial statements that discussed integrity, which included NLP keywords like computer security, cyber intelligence, and identity management, also showed significant market cap increase (relatively equal to market cap increases as compared to the insights imperative).

Experience strategies that employ technologies, such as virtual reality, augmented reality, digital engagement, and wearables, also relate to increases in market valuation.[15] Given the dual digital and physical potential for technology to engage and delight audiences in new, unique, and differentiated ways, we expect that as these technologies mature and are better understood by business and strategy leaders the value potential will likely grow. We can start to see this happening already with technologies like the metaverse, which may provide new opportunities for engagement to enhance reach and retention, new business, and revenue channels to capture new markets, and new ways of working to enhance agility and innovation.[16]

Connectivity, which focuses on the flow of information across the organizations, did not show a statistically significant positive or negative relationship to market cap. This could be because connectivity is foundational to the other four as well as fewer mentions of connectivity-enabling technologies such as broadband, 4G, and 5G.

3X

HIGHER

valuation when the platform imperative is used compared with insights.

While a solid platform technology strategy should be the backbone of any digital transformation, equally important will be thinking through how each of these elements can be integrated together in order to drive the most value possible.

Consider these actions as they align across tech themes and categories:

- **Embrace a common language** that brings together C-suite leaders to coordinate on business strategy and objectives that will line up with technical requirements to get your organization aligned.
- **Adopt a modular architecture** that considers customer and user experiences; business architecture; application and integration; data and analytics layers; and security and risk architectures. This can help ensure all layers of the tech stack are addressed with the flexibility to change and adapt as new standards, protocols, and solutions are introduced in the future.
- **Adopt common metrics** and use a common value model that is consistent across the business to help achieve consistency and increase clarity on strategies and gaps.
- **Modernize, then innovate,** to solve for scale and complexity of large enterprise platforms, and maximize efficiency to help realize value and results.

Individual technologies: Value cycles and variations

A third dimension we explored considered how technology investments relate to an organization's key growth and revenue measures. This analysis looked specifically at the value organizations can potentially gain from cloud and other related investments, given the maturity and scaled adoption of these implementations.[17]

Cloud investments drive significant value and enable other tech capabilities

Similarly, when drilling down to look at individual technologies, cloud investments relate to the most significant market cap increases, with AI and cyber also contributing to positive valuations. This indicates that technology investments related to cloud, AI, and cyber all could pay off not just on the bottom line, but the top line—and not just in the short term, but also in the long term. It also shows cloud investments are table stakes for organizations, including integrated cloud services such as AI, cyber, and others to advance specific business strategies.

In fact, our analysis shows that investments in cloud migration, cloud native programs, and related cloud cyber and cloud machine learning (ML) services drive market value. Our analysis shows that these types of cloud investments drive triple or **about three times the value for market cap** compared with cyber investments alone in the long term (three years) and double or **about two times the value for market cap** comparatively in the short term (immediate). Given cyber investments also add significant value for organizations in their own right with positive correlations to market cap seen in this analysis and Deloitte Global's 2023 Cyber Survey report finding that 86% of more than 1,000 global cyber decision-makers reported that cyber initiatives made a significant, positive contribution on at least one key business priority[18], a solid cloud (and cloud cyber) strategy is important to any digital transformation.

Importantly, this data indicates that cloud—being a value enabler—could yield **immediate value for market cap**. It also shows that as organizations leverage cloud native capabilities in combination with others they could see sustained value over time. This is encouraging, particularly given most companies responding to a recent Deloitte US survey (87%) plan to increase their cloud investment by at least 6% over the next one to two years.[19]

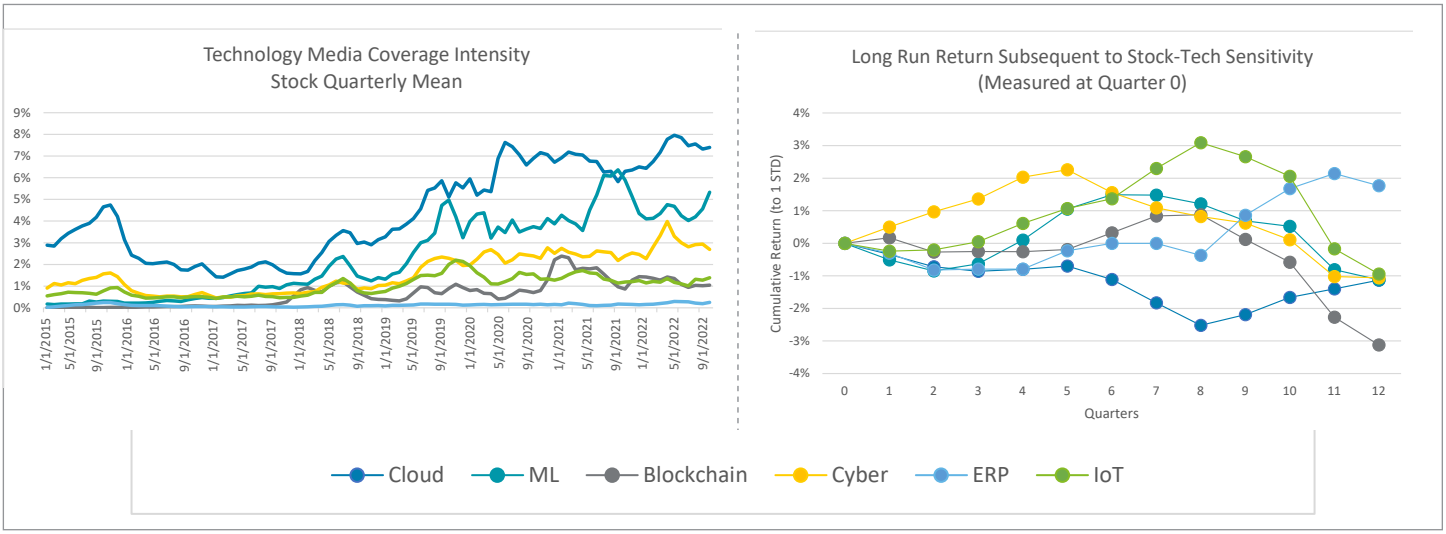
These findings also are consistent with Deloitte's Cloud Survey, which found that cloud investments can be a force multiplier to a successful digital strategy, with 90% of respondents agreeing or strongly agreeing that cloud enhances their strategy when coupled with AI, IoT, and other technologies and almost as many crediting cloud as a cornerstone of their digital strategy and market position.

But that's not the whole story: AI, cyber and other important technologies

While it is encouraging to understand that cloud investments are achieving positive impacts on valuation across industries, additional context may help organizations to better understand what to do with that knowledge.

A Deloitte and MKT MediaStats analysis[20] of firm sensitivities to media mentions of each of the six technologies—cloud, AI/ML, blockchain, cyber, ERP, and IoT—and their relationship to stock returns found that each of these technologies had market-value peaks and valleys in (future) quarters subsequent to the measured sensitivity of the firm to mentioning the six technologies (figure 5).

Figure 5: Six technologies and their a) media frequency intensity and b) correlation to stock returns based on MKT MediaStats news data, 2015–2022



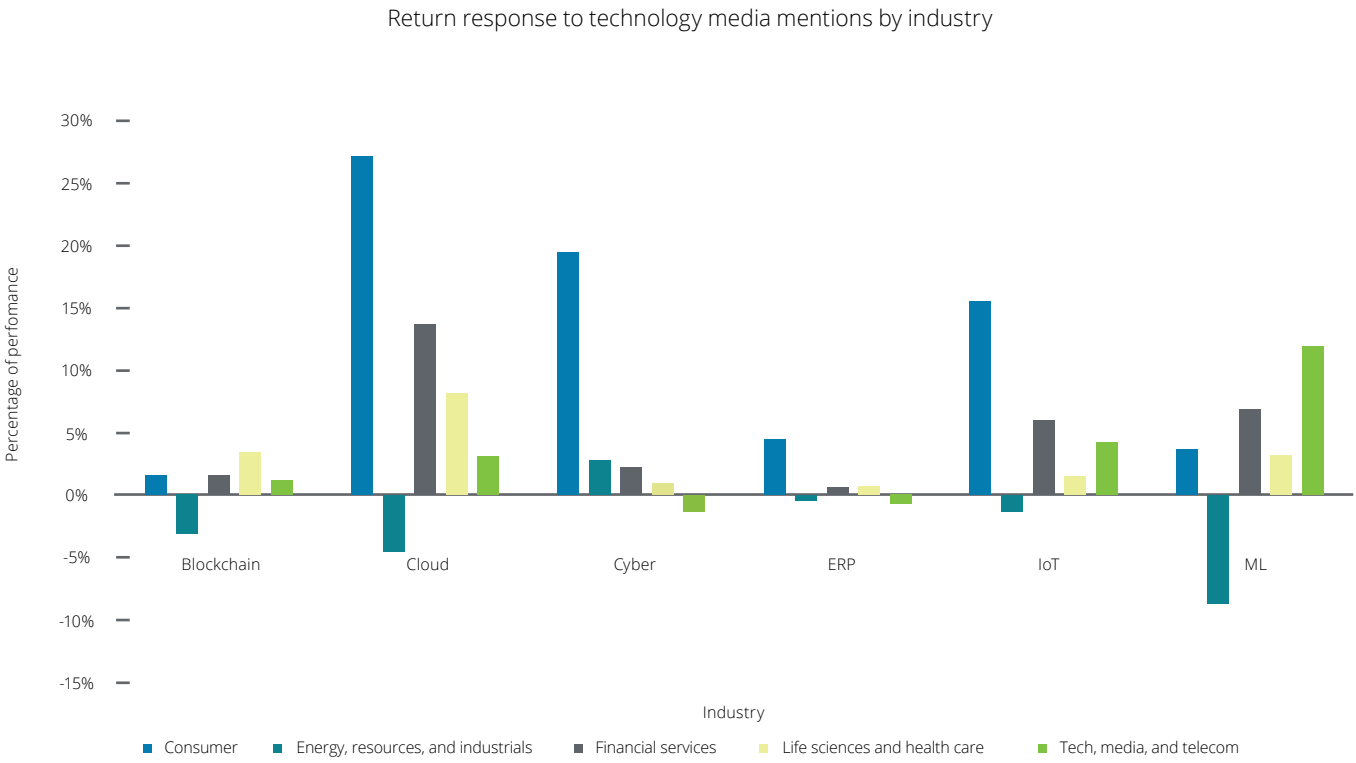
Source: *Deloitte Center for Integrated Research and MKT MediaStats analysis based on analysis of largest 500 stocks in the market from 2015–2022, including 719 companies. Frequency analysis reflects percentage of overall media coverage for each technology relative to total articles available overall. Stock return correlation analysis reflects the stock sensitivity to an "attention factor"—in this case, the six technologies—regressing the future returns based on stock sensitivity to that factor. Results are reflective of under/over stock return performance in the next six months.*

What's more, the data shows that while cloud has been a dominant media attention driver to date, cyber, IoT, and AI/ML have recently seen trending increases in media attention. Their stock return lift for a given firm seems to increase five to eight quarters following the measurement of tech sensitivity of that firm. While AI/ML media coverage did not show high attention in the beginning of the sample period—perhaps given the tech is still maturing—that picture seems to be changing. The trend line shows increases in attention in the past three years as organizations consistently speak about their AI investments quarter over quarter—in other words, over the longer term. This could be indicative if AI technologies are seeing increased maturity and adoption as organizations move past proof of concept and start to demonstrate proof of value.

Industry implications on individual technology strategies

When we look at these same technologies mentioned by organizations in the news across five industries, additional nuances become apparent (figure 6).

Figure 6: Six technologies and their impact on share price based on news media mentions from 2015–2022 against returns over the subsequent three years—by industry, reported as the average outperformance



Source: *Deloitte Center for Integrated Research and MKT MediaStats analysis*

Stock return outperformance by industry: According to Deloitte and MKT MediaStats analysis, consumer and financial services industry organizations appear successful in seeing three-year returns in excess of the market across all technologies—with cloud, cyber, and IoT especially high for consumer organizations (a 133% increase in the second year over the first year, and a 79% increase in the third year over the second) and cloud, IoT, and AI/ML especially high for financial services (more than 13% outperformance for cloud and 6% for IoT and AI/ML, respectively). For consumer organizations, this could be because of the low risk of testing and implementing new technologies with a lower-risk-to-higher-reward ratio. Technology, media, and telecommunications (TMT) companies outperformed with AI/ML capabilities—with three-year returns almost 12% above market averages.

Stock return underperformance by industry: Deloitte and MKT MediaStats analysis also found conversely that energy, resources, and industrial (ER&I) companies had below-average performance versus organizations overall when mentioning almost all these same technologies (especially AI/ML) except cybersecurity, where they saw almost 3% above-average performance. This may be due to the importance of safeguarding critical infrastructure among ER&I organizations. TMT lagged organizations overall in stock returns gained from communicating their strategies related to cybersecurity and ERP versus others.

What follows are several actions that can be considered when investing in individual technologies:

- **Avoid the hype** of any single technology, and look at the value against objective metrics specific to your business, industry, and what is standard for their technology.
- **Ensure that the technology brings strategic value**—some enterprises invest in technology that may check all of the value boxes but does not have real application within the business. AI is often in this category. All technology should be adopted with specific business plans.
- **Consider the operational complexity that net new technology may bring.** New skills and resources may be needed, which often drives costs that are unplanned.

Gaining and sustaining value through strategy and implementation

A value- or results-focused technology strategy can make or break a digital transformation and the market value an organization sees from its investments. Leaders that fail to invest in innovation, think horizontally across technology categories, and connect individual technology programs to strategic objectives may be missing opportunities to drive more market value. A three-dimensional approach to enabling business and technology strategy can help organizations optimize market value. Organizations that find an equilibrium across all three dimensions stand to gain many benefits, including the following:

Technology maturity gains seen by those organizations investing in modern technologies.

Technology theme/category optimization across a suite of interrelated technologies, such as cloud, edge, and quantum computing, which comprise the platform imperative.

Individual technology strategy improvements related to the six different technologies analyzed.

Importantly, cloud strategies can bring together these three dimensions to help drive significant market value for organizations. To capitalize, leaders should act to bring business strategy and technology strategy closer together by working across functions and with a focus on these three dimensions. They should ask themselves the following questions to help guide their actions:

- Have we considered how to look beyond technology modernization to assess the most innovative class of technologies available today to innovate new strategies and maximize value?
- Have we considered all five digital imperatives as part of our transformation, especially that we have a solid platform approach to the flow of information across the organization and ecosystem as the greatest driver of market value?
- Have we considered what business challenges we are facing today that individual technologies like cloud or cyber can help to solve for our industry?

At the end of the day, organizations can be guided by tangible value measures such as market cap that are universal across industries to help tune their strategies and drive more value. Equally, they should remember that while value starts with strategy it also requires effective technology implementation and maturity to sustain that value over time.

Cloud strategies can bring together these three dimensions to help drive significant market value for organizations. To capitalize, leaders should act to bring business strategy and technology strategy closer together by working across functions and with a focus on these three dimensions.

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