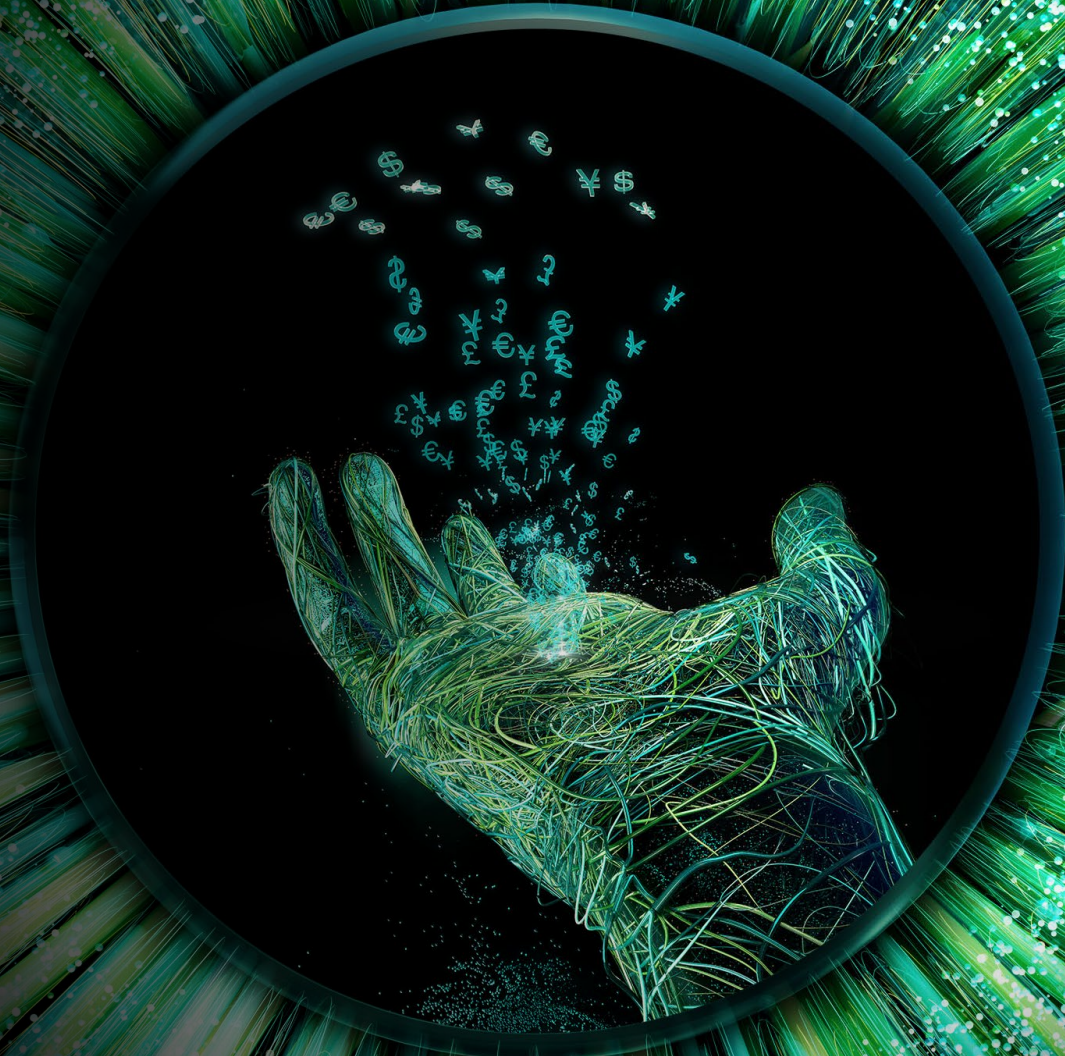# Deloitte.

Mapping Digital
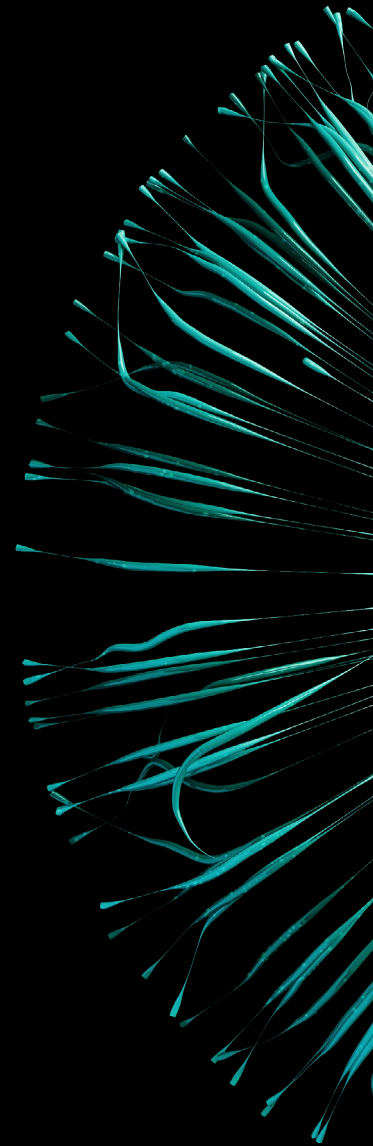# Transformation Value
The Metrics that Matter

Mapping Digital Transformation Value - The Metrics that Matter

A comprehensive framework for identifying and capturing the full value of digital transformation across your organization

Deloitte's survey shows 81% of digital transformations use productivity as their prime measure of value gained. However, are organizations factoring KPIs that will help guide their digital success? Our analysis shows respondents with a more holistic mindset are 20% more likely to attribute higher enterprise value to their digital transformations.

A significant majority of business leaders surveyed agree that digital transformation is the most important investment they can make to drive enterprise value. And an even greater majority of business leader respondents agree that they're struggling to measure the value produced by their digital transformation investments. That is not to say they're not tracking value; in fact, most of those surveyed say their organizations actively use KPIs that are both commonsense and commonplace: productivity, budget vs. actual cost, customer engagement, financial ROI, margin impact, to name just a few. One problem, however, is that the everyday go-to metrics aren't measuring up.

Amidst the many concerns of leaders seeking to improve how their organizations measure digital transformations, those who report the greatest value share four traits:

1   **To tell the full value story, they look at the full picture.** Deloitte's research has yielded a taxonomy of 46 digital transformation value KPIs. Among these, 26 of the KPIs are used by fewer than 55% of organizations surveyed. Of the 20 that are most commonly used, the majority cluster around a few themes, while other themes are ignored altogether. By contrast, value leaders look to employ the full spectrum of value KPIs.

2   **They avoid over-indexing on just a few types of value KPIs.** When organizations reported on the KPIs used to measure digital transformation value, notable clusters emerged. The usage of certain types of KPIs is correlated with the usage of other types of KPIs, suggesting that many organizations with multiple value KPIs may still be looking at only a slice of the picture (and may be measuring the same things in multiple ways). Value leaders seem to take a more balanced view that includes commonly used KPIs alongside the less common ones.

3   **They treat the most common measurement challenges as solvable.** Oftentimes, difficult challenges impede value measurement and reporting. These might include a lack of ownership for value measurement and a true lack of financial acumen among those responsible for value management. However, the most commonly cited challenge, reported by 3 in 4 leaders surveyed, is the inability to define exact impacts or metrics—the solution to which typically begins with a structured, holistic measurement framework.

4   **They tend to share a common mindset.** Those leaders surveyed who report the most impressive value outcomes are more likely to make strategic digital investments, are more likely to remove barriers to value measurement, and are more likely to promote a more complete value KPI framework.

This view is grounded by analysis into digital transformation investments and value.

Deloitte conducted a study of 1,600 leaders to learn how they ascribe digital value. Our analysis revealed the structure, leading indicators, gaps, and hidden links in digital value measurement. Respondents more holistically using measures across domains – from traditional financial through to purpose – self report they're as much as 20% more likely to attribute medium-to-high enterprise value to their digital transformations. This paper will reveal those missing-value links, and how to access them.

Deloitte's 2023 Mapping Digital Transformation Value research looks beyond any single measurement category[1] to examine a suite of key performance indicators (KPIs) and actions underpinning digital transformation. Deloitte surveyed global business and technology leaders across six industries and 14 countries and interviewed 10 C-suite leaders to:

- reveal where there are gaps and missing links in digital value measurement,
- consider how industry orientation informs digital value priorities and actions, and
- explore where digital maturity and digital value ambitions differ across countries, sectors, and technologies.

Creating the digital transformation value framework

Digital transformation is "the single most important investment now and into the future that organizations can make to drive enterprise value," according to 68% of respondents.

However, many struggle to measure that value, with 73% citing the *inability to define metrics* as the top challenge.

As a foundation to help leaders standardize how they ascribe digital value, Deloitte surveyed 1,600 respondents about their usage of key performance indicators (KPIs) in sizing and measuring it all. Our analysis looked at 46 KPIs across five value categories: Financial, Customer / Client, Process, Workforce, and Purpose (Figure 1).
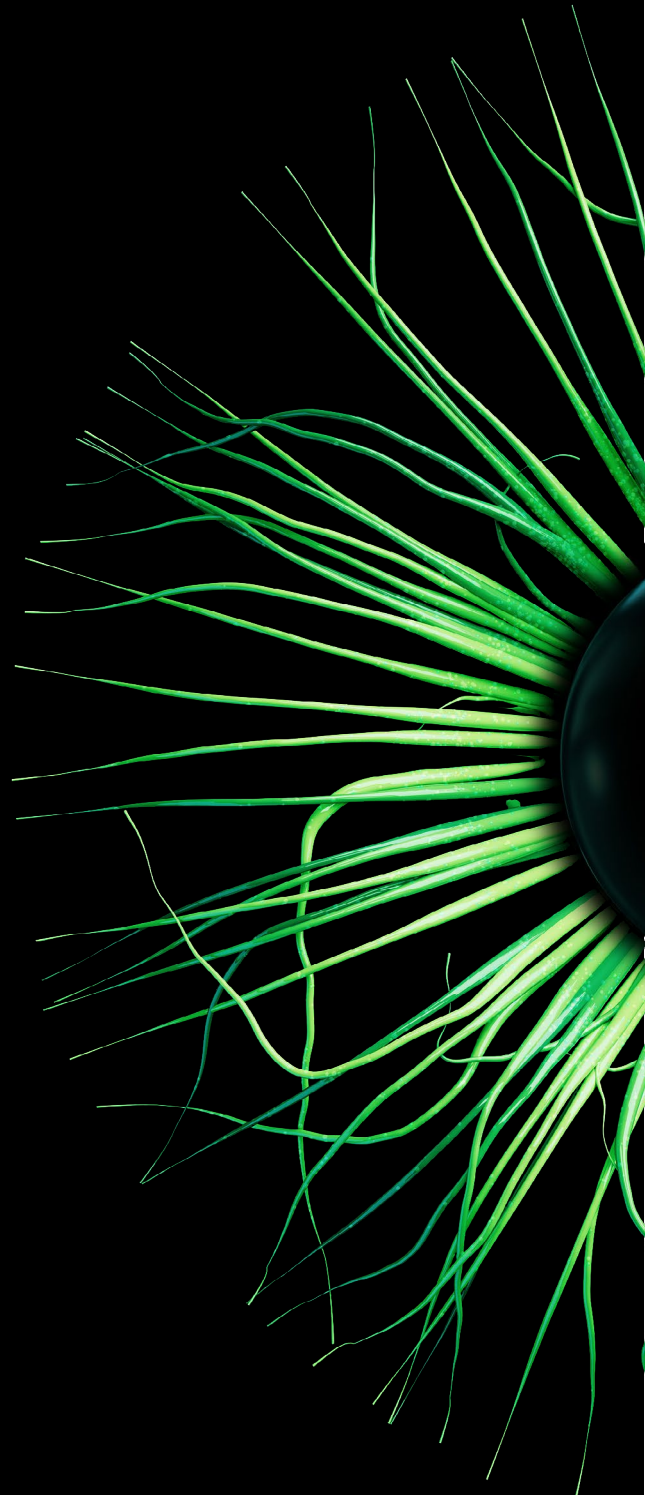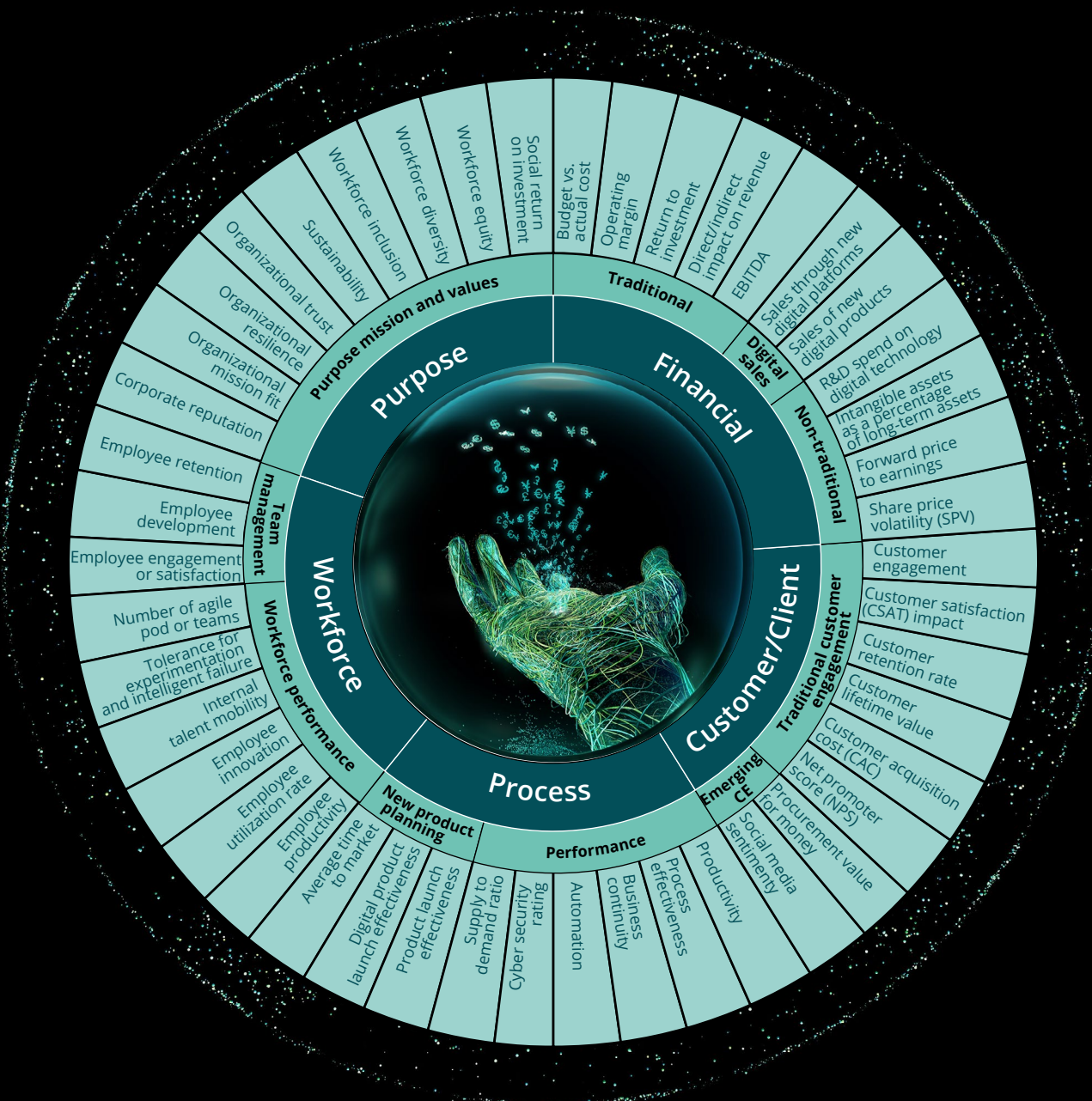
Figure 1. A new framework for digital transformation value

Source: Deloitte Center for Integrated Research survey of global tech value leaders in February 2023.

Note: See appendix for definitions

● Value categories
● Value sub-categories
● KPIs used to measure digital transformation value

Exploratory analysis[2] clustered the KPIs into ten sub-categories, giving a finer grain as to from where (globally) enterprises expect value to emerge. While these groupings are logical prima facie, they can reflect the data and how KPIs often are used together.

This is a structure of digital transformation value. It can paint the picture as to where exactly respondents – globally and based on country, sector, type, and other factors – see value emerging with different levels of importance.

Our findings were largely consistent across the three regions we studied - North America, EMEA, and APAC,[3] with some variations:

North America: clustered into **eight** sub-categories – Traditional Financial KPIs grouped the same, but the remaining Financial KPIs fell into only one group. Customer KPIs also fell into one group. Process, Workforce and Purpose KPI sub-categories were consistent with global findings.

EMEA: clustered into **seven** sub-categories – EMEA respondents clustered Purpose KPIs into two groups: Diversity/Equity/Inclusion (DEI) KPIs and Purpose & Mission. Financial, Customer and Workforce KPIs clustered into only one group each, and Process KPIs were consistent with the global findings.

APAC: clustered into **eight** sub-categories with notable variations. Unlike the global trend, APAC respondents structured Financial and Purpose KPIs differently. Financial KPIs clustered into two novel groups Traditional & Emerging Financial (a combination of Traditional Financial and Digital Sales KPIs) and Pricing & Assets (comprised of Forward Price to Earnings, Share price volatility, and Intangible assets as a percentage of long-term assets). Purpose also reflected two unique clusters: Reputation & Diversity/Equity/Inclusion (DEI) (comprised of Corporate Reputation and DEI KPIs) and Workforce, Mission & Trust (those remaining). Customer and Workforce KPIs formed only one group each. Process KPIs were consistent with the global findings.
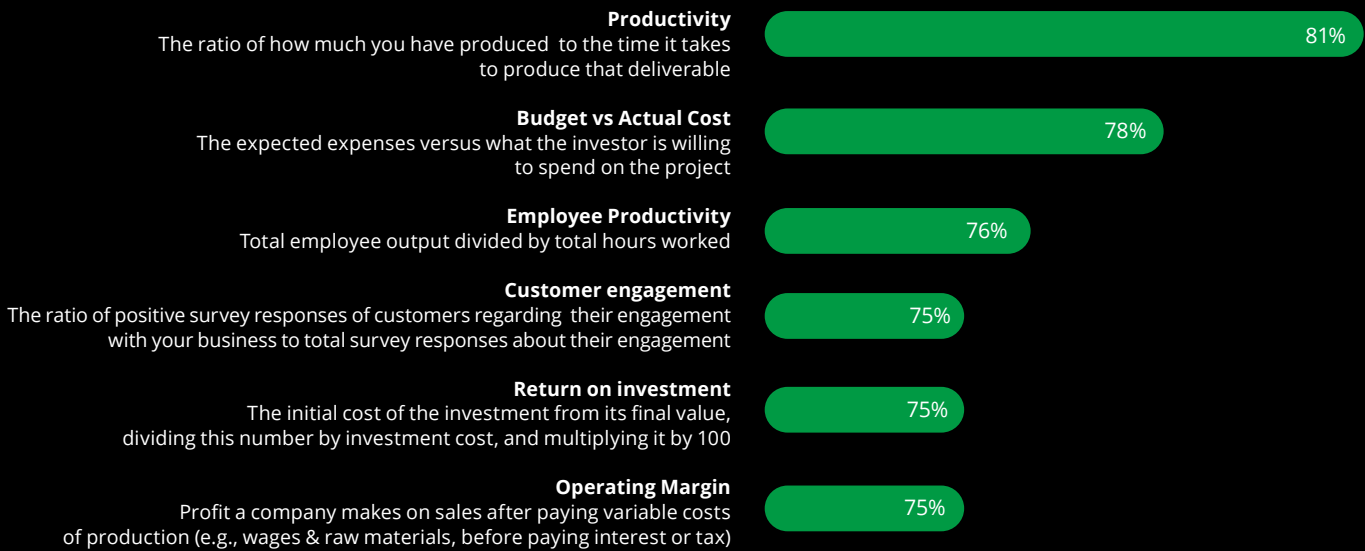
Diving deep into KPI usage

One Chief Digital Officer stated, "IT heads only focus on their IT budget. 'I have $130 million; how do I spend it in a way that the ROI will satisfy the CFO and the CEO?' Companies never think through what is in store five years down the road. They rarely think about what their competitors are doing or what the future will look like."[4]

How are organizations looking at that full picture of digital value? Based on the global data, the most-frequently-used digital value indicators are as follows. (Figure 2)

Figure 2. The leading indicators used to measure digital value
Percentage of respondents who use the KPI frequently/very frequently

Productivity
The ratio of how much you have produced to the time it takes to produce that deliverable
81%

Budget vs Actual Cost
The expected expenses versus what the investor is willing to spend on the project
78%

Employee Productivity
Total employee output divided by total hours worked
76%

Customer engagement
The ratio of positive survey responses of customers regarding their engagement with your business to total survey responses about their engagement
75%

Return on investment
The initial cost of the investment from its final value, dividing this number by investment cost, and multiplying it by 100
75%

Operating Margin
Profit a company makes on sales after paying variable costs of production (e.g., wages & raw materials, before paying interest or tax)
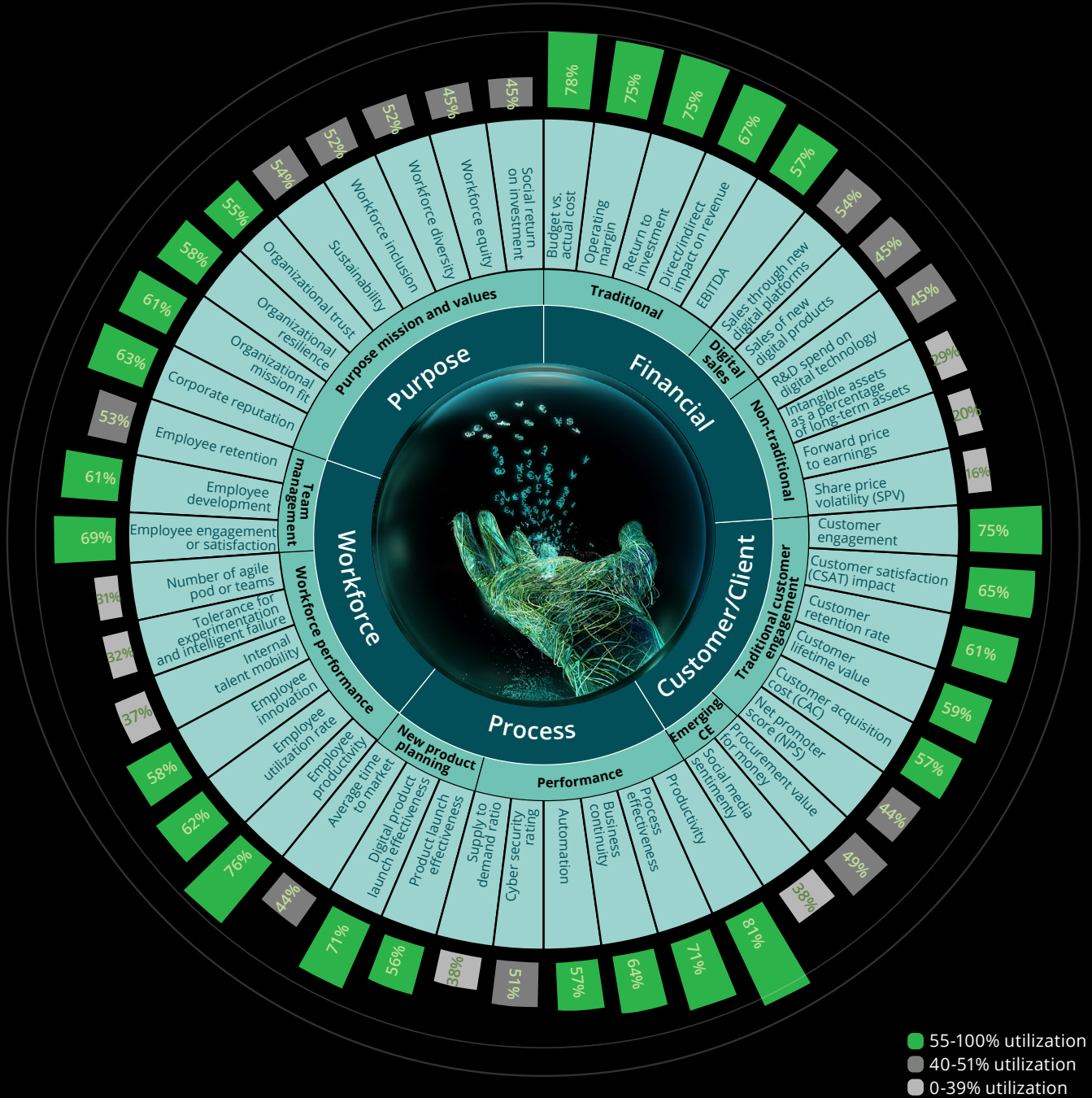75%

Source: Deloitte Center for Integrated Research survey of global tech value leaders in February 2023.

Productivity (81%) is used 5X more[5] than the least-commonly-used KPI (Share price volatility). The other dominant digital transformation KPIs are what most would expect: Budget vs. actual cost, Employee productivity, Customer engagement, Return on Investment, and Operating Margin.

When we zoom out and look at the use across the 46 KPIs, a bigger picture emerges.

Figure 3. Where respondents are utilizing KPIs at high, medium, and low levels

- 55-100% utilization
- 40-51% utilization
- 0-39% utilization

Source: Deloitte Center for Integrated Research survey of global tech value leaders in February 2023.

The responses indicate which KPIs are most commonly used and where organizations may have gaps when mapping digital transformation value.

Not every KPI will be important for every organization; therefore, organizations should critically assess, based on strategic importance, whether low usage is by design or an oversight.

For example, these priorities vary by geography and industry.

The geography and industry nuances

Digital Value and The Industry Context

[Read this article](#)

Financial Services, Government & Public Services, and Life Sciences and Healthcare respondents showed the highest utilization across the KPI categories, versus Consumer, Energy, Resources and Industrials, and Technology, Media and Telecommunications.

Our analysis shows where each of the six industries prioritize digital value measurement, which capabilities they're investing in more or less than others, and where they benchmark in terms of enterprise value gains. For more industry insights on digital value, read this related research.

Digital Investments and Regional Priorities

[Read this article](#)

Countries also differ in their digital maturity and value gains. We analyzed digital maturity based on 14 countries' digital transformation spend and how value emerges by country, sector and across technology capabilities. To learn more, read this related research that deep dives into six of those countries and how they compare with global respondents overall.

Uncovering the missing links

Up to this point, we have explained how respondents measure digital value. Yet, we know digital transformations can yield direct and indirect impacts across the enterprise.

The KPIs should be reflective of an across-the-enterprise mindset. It could be, for example, atypical to execute a digital transformation, at least one expecting to materially impact enterprise performance, focused solely on financial returns. To that end, we looked across the KPI map to understand if there is more to the value story, and the hidden links within.

Figure 4 shows the relationships between sub-categories. The green shows the most common pairs. (See methodology, About the Correlation Analysis)
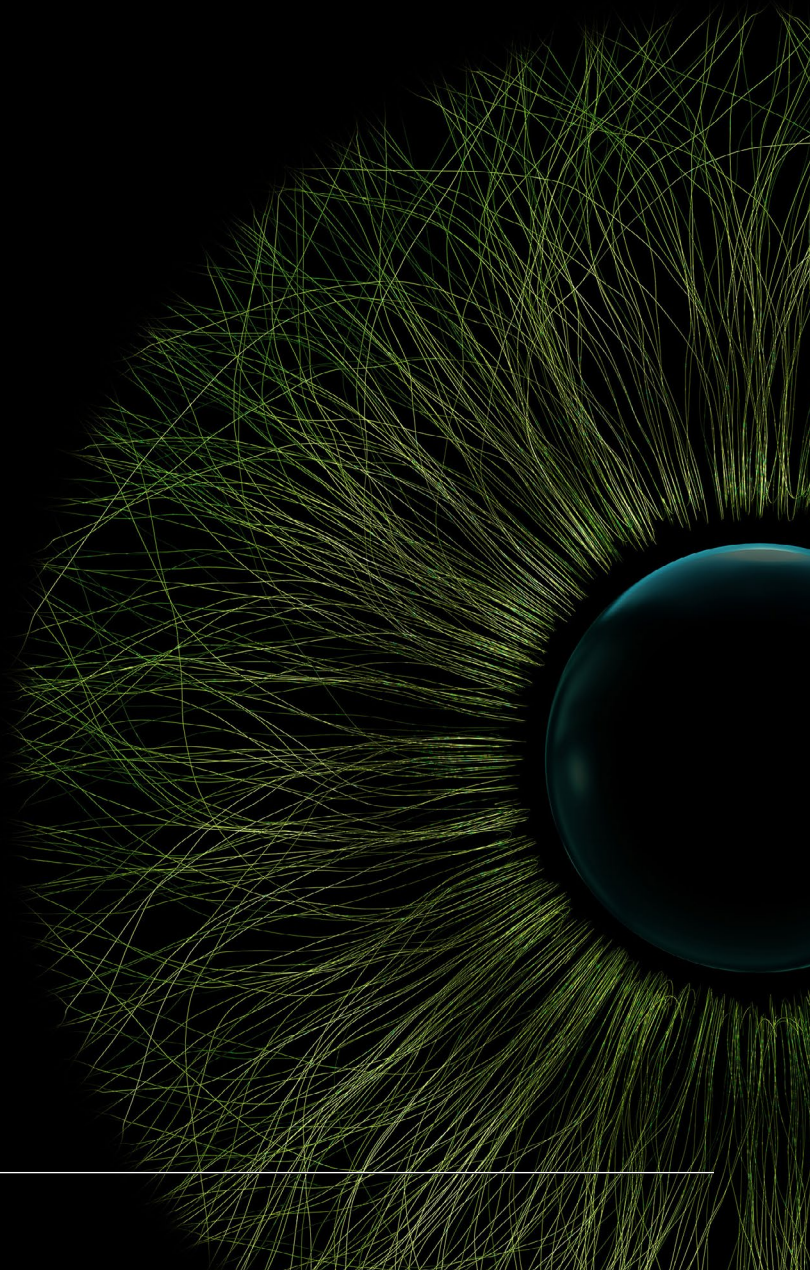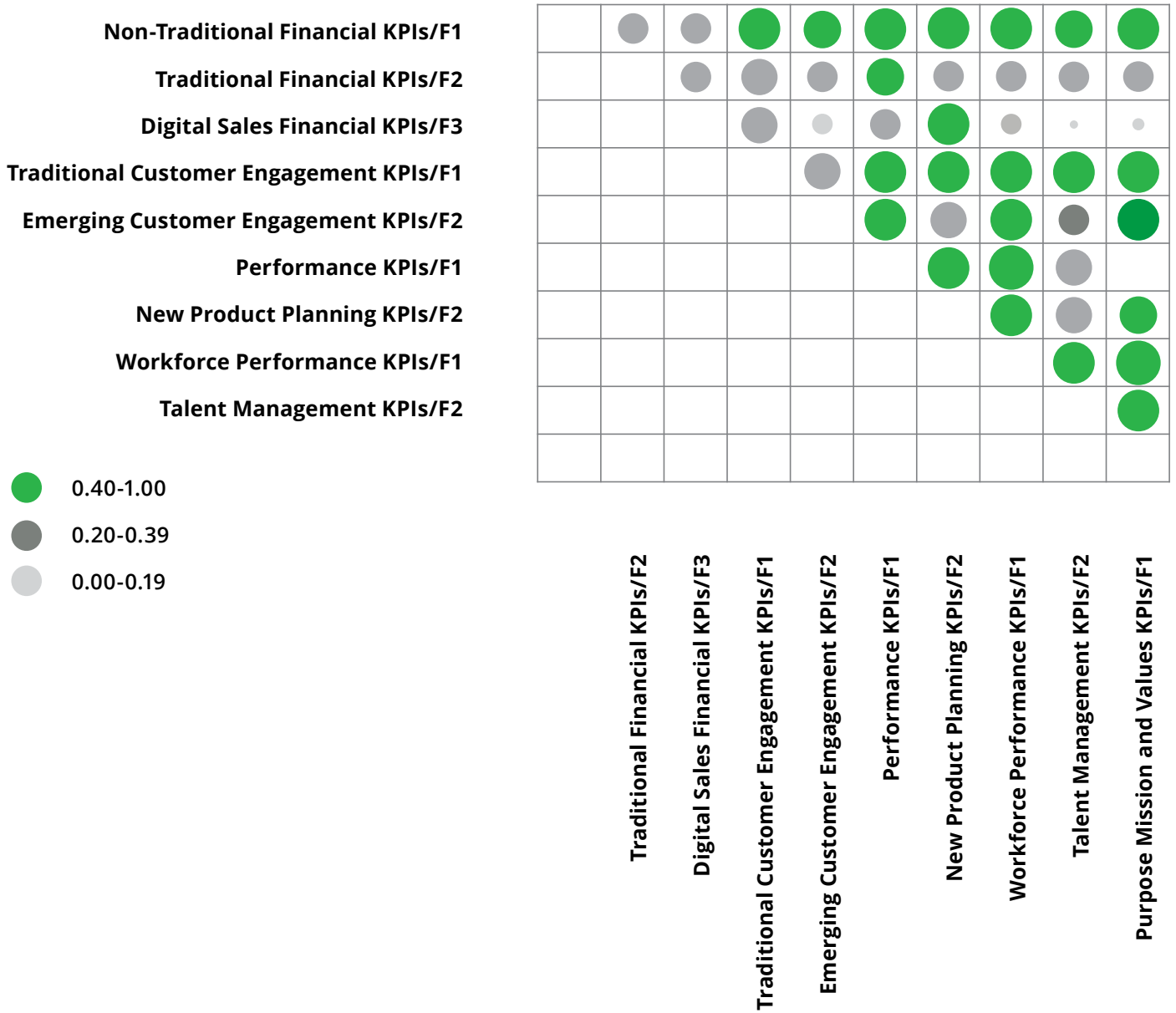
Figure 4. Common links across KPI sub-categories and gaps

Non-Traditional Financial KPIs/F1		●	●	●	●	●	●	●	●	●
Traditional Financial KPIs/F2			●	●	●	●	●	●	●	●
Digital Sales Financial KPIs/F3				●	●	●	●	●	●	●
Traditional Customer Engagement KPIs/F1					●	●	●	●	●	●
Emerging Customer Engagement KPIs/F2						●	●	●	●	●
Performance KPIs/F1							●	●	●	
New Product Planning KPIs/F2								●	●	●
Workforce Performance KPIs/F1									●	●
Talent Management KPIs/F2										●

Legend:
- ● 0.40-1.00
- ● 0.20-0.39
- ● 0.00-0.19

Column headers (vertical):
- Traditional Financial KPIs/F2
- Digital Sales Financial KPIs/F3
- Traditional Customer Engagement KPIs/F1
- Emerging Customer Engagement KPIs/F2
- Performance KPIs/F1
- New Product Planning KPIs/F2
- Workforce Performance KPIs/F1
- Talent Management KPIs/F2
- Purpose Mission and Values KPIs/F1

Source: *Deloitte Center for Integrated Research survey of global tech value leaders in February 2023.*
Correlation analysis with a higher number is indicative of a stronger correlation among the ten subcategories.
The maximum correlation in this data is 0.69.[7]
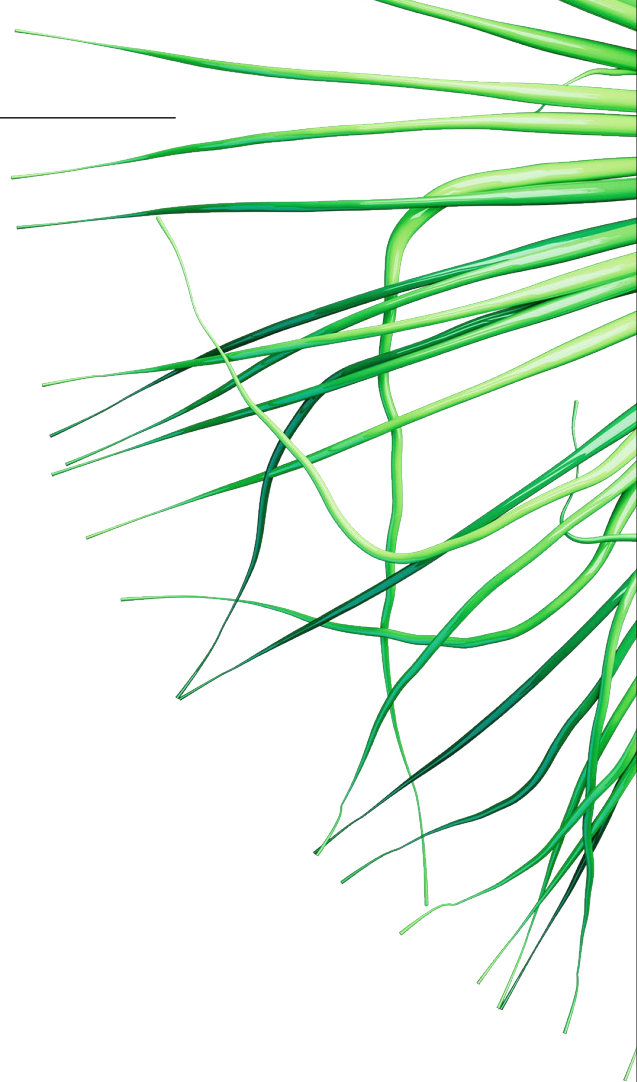
Notably, most respondents fail to link **Purpose**, **Mission**, and **Values KPIs** (e.g., workforce diversity, workforce equity, workforce inclusion, sustainability) with **Traditional Financial KPIs** and vice versa. Currently, only 26% of organizations commonly measure these KPIs together. Given the strategic importance of both – this is an essential missing link.[8]

The Chief Digital Officer of a large subsidiary of a multi-national food and beverage group discusses the importance of Purpose, specifically using sustainability KPIs to measure digital value, "In the last year, I have seen most digital business use cases having a sustainability assessment, even when it's sometimes harder to measure this type of impact. Overall, we look at financial impact, consumer impact, and planet impact, all of which are being piloted within our digital roadmap scorecard."

New product planning and **Traditional Financial KPIs** are used together only 25% of the time and illustrate another missing link.[9] As the former CFO for a large networking technology company [10] describes her experience, "for maximizing the external market opportunities through digitization, the company had to switch from the hardware-prioritized product to the software and the subscription model.

The whole sales mix in the company has switched from 30% of software and subscription to 80%. This could significantly increase the margin, the profitability, as well as to expand the market opportunities because in the marketplace, there is more and more software and application demand."

Respondents also aren't making links between **Talent Management** and **Performance** KPIs, which are only used together 34% of the time.

The Head of Transformation for Corporate & Investment Banking and Retail Banking Technology & Operations at a large European Bank observes this connection in a practical way, "First of all, it is people, managing talent and building digital skills and new digital profiles, for example, cloud architects, software developers in new programming languages. Second, it is changing the operating model. Becoming an Agile and DevOps organization is important. And, then it is the governance model, which focuses on creating value from all this investment."
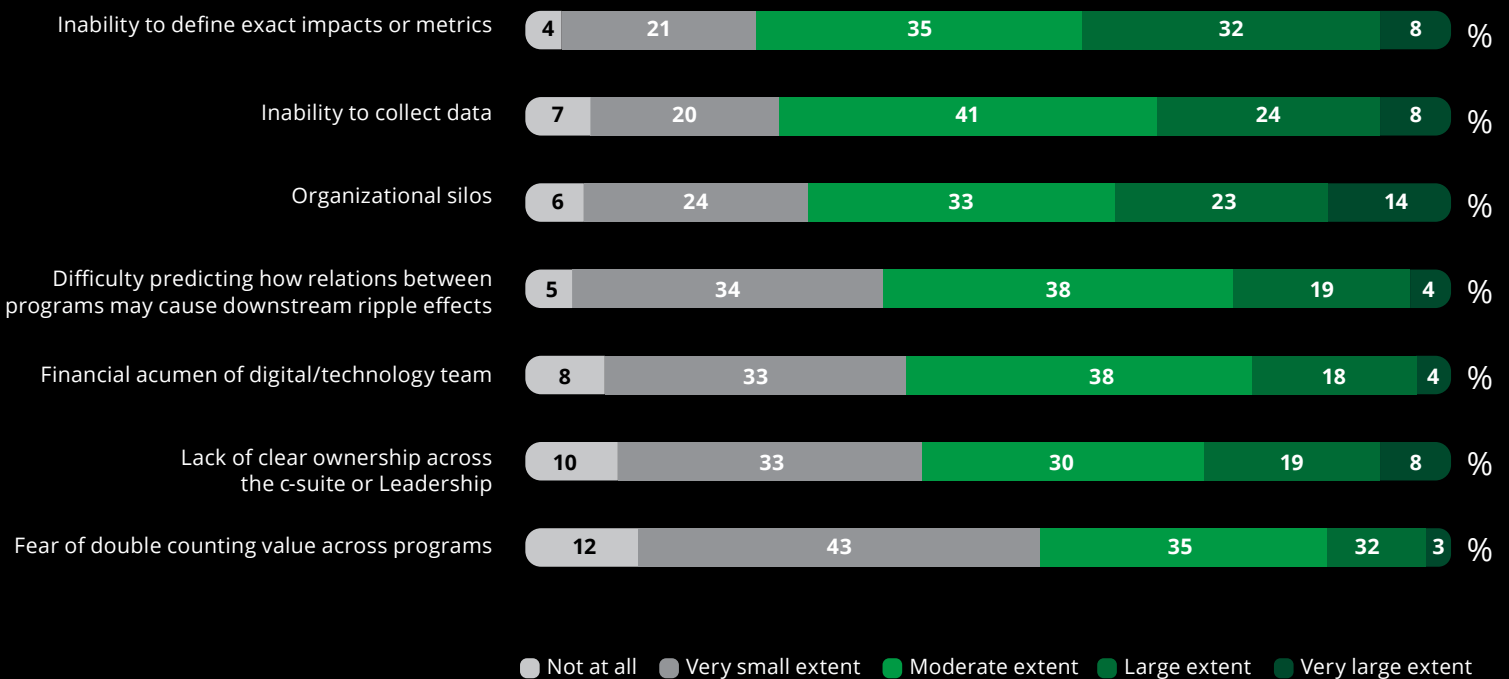
Recalibrating your mindset to consider different value drivers is yet another way to help capture the full picture. Find the KPI set most reflective of your ambitions, and prepare to challenge the organization to think big and tap these connection points.

Overcoming the challenges to digital value measurement

Measuring digital value is not without challenges. 73% of respondents believe that the 'Inability to define exact impacts or metrics' is a barrier.

'Inability to collect data' as well as 'Organizational silos' rank in the top three. (Figure 5).

**Figure 5: Challenges to fully measuring digital value to a moderate/large/very large extent**

Challenge	Not at all	Very small extent	Moderate extent	Large extent	Very large extent
Inability to define exact impacts or metrics	4	21	35	32	8 %
Inability to collect data	7	20	41	24	8 %
Organizational silos	6	24	33	23	14 %
Difficulty predicting how relations between programs may cause downstream ripple effects	5	34	38	19	4 %
Financial acumen of digital/technology team	8	33	38	18	4 %
Lack of clear ownership across the c-suite or Leadership	10	33	30	19	8 %
Fear of double counting value across programs	12	43	35	32	3 %

● Not at all   ● Very small extent   ● Moderate extent   ● Large extent   ● Very large extent

Source: Deloitte Center for Integrated Research survey of global tech value leaders in February 2023.

The measurement challenges vary across the KPIs

We found popular KPIs[11] among those surveyed have more intense measurement challenges. Additionally, while inability to define exact impact metrics is the leading measurement challenge overall:

- **Fear of double counting is a top challenge** (80%) for respondents measuring *ROI*. It also is the top challenge for *Customer engagement, Direct and/or indirect impact on revenue,* and several others;

- **Organizational silos** are more likely to be a challenge for those measuring *R&D spend* and *Forward price to earnings* KPIs, *Employee productivity*, and *Employee engagement*; and

- **Difficulty predicting downstream ripple effects** is a bigger challenge for those measuring *Product launch effectiveness* than for respondents overall.
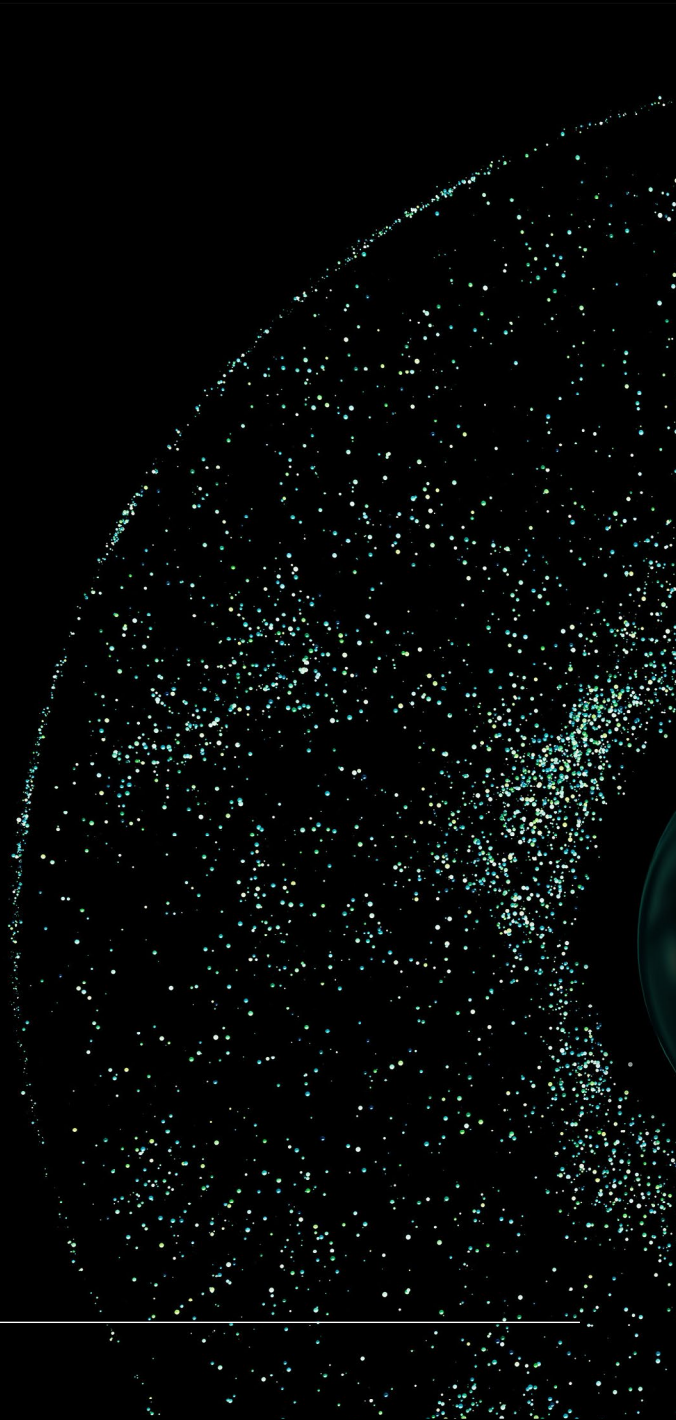
# Harnessing the potential of digital value measurement

Why does more holistic measurement matter? We looked at organizations that went the extra mile to measure digital value more holistically and found clear enterprise impacts.

Those measuring most holistically (All-in respondents) differentiated themselves in three ways. (See Methodology, About the Cluster Analysis)

First, when asked about their digital ambitions, respondents were more likely to be investing in platforms, new products and services, and fundamental transformation strategies.

Second, they cited fewer and less systemic measurement challenges than others. Therefore, while challenges to holistic measurement certainly exist, organizations can and do get past them.

Third, they self-reported that a larger share of their enterprise value could be attributed to digital transformation than the other groups. (Figure 6)
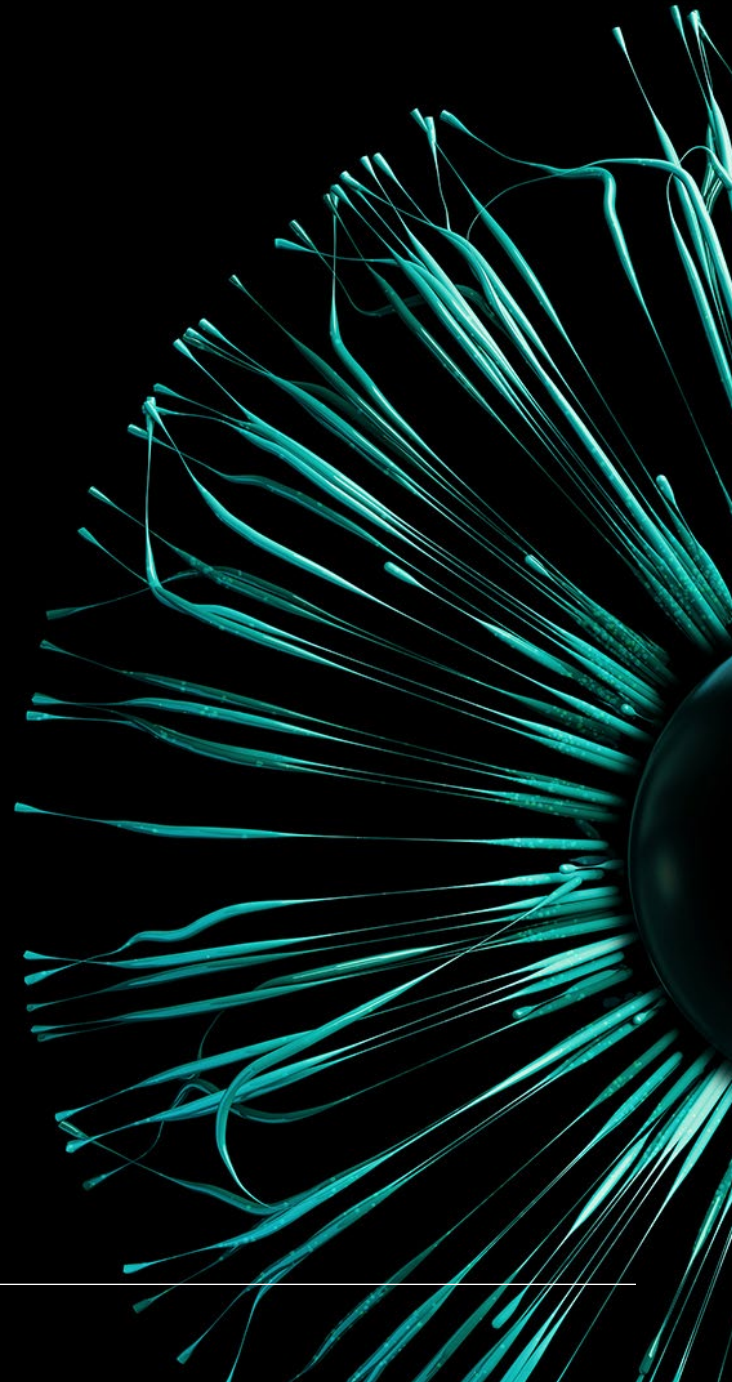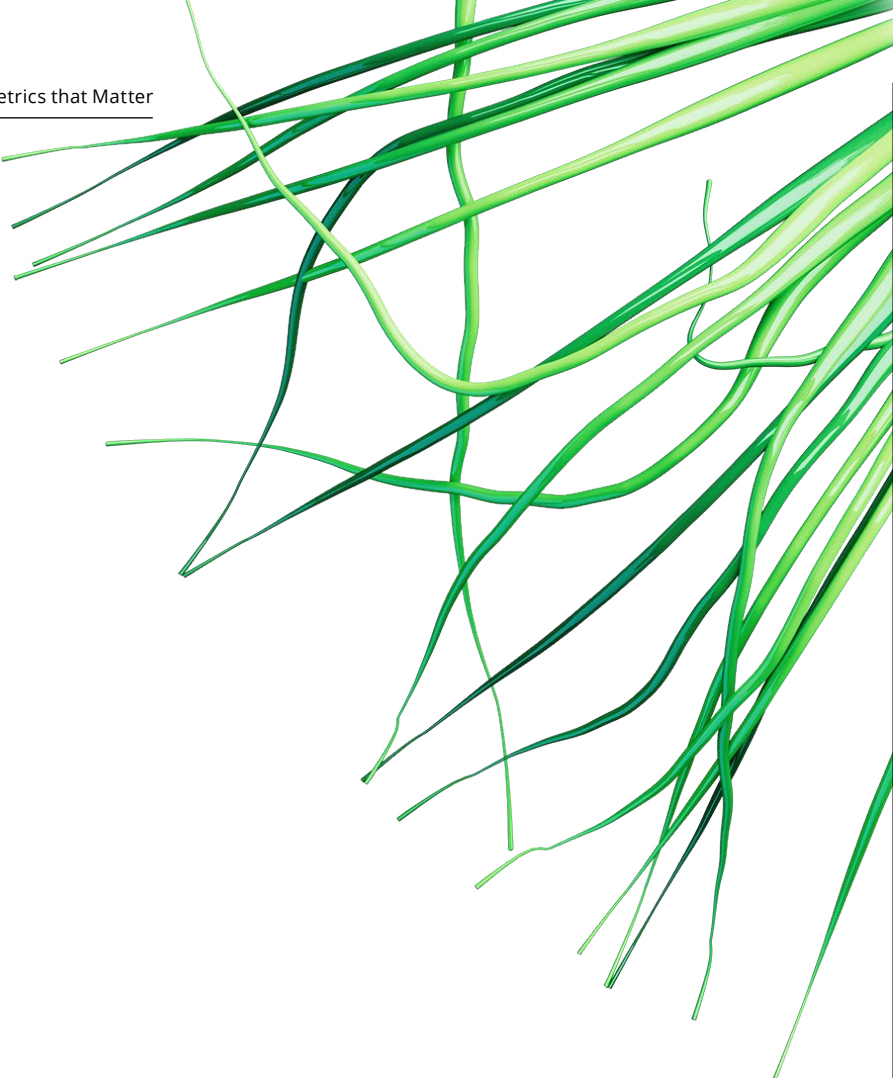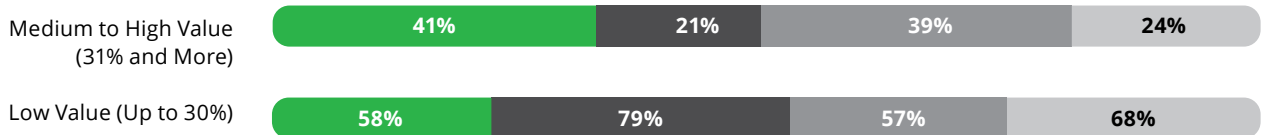
Figure 6: Share of enterprise value attributed to digital transformations based on average KPI extent of use

20% Difference between the highest value attributer (all-in) and lowest (engaged)

	All-in	Engaged	Broad	Classic
Medium to High Value (31% and More)	41%	21%	39%	24%
Low Value (Up to 30%)	58%	79%	57%	68%

Four types of measurers based on respondents' extent of KPI use (from highest to lowest)

● All-in   ● Engaged   ● Broad   ● Classic

Source: Deloitte Center for Integrated Research survey of global tech value leaders in February 2023.

Almost half (41%) of **All-in respondents** reported they attribute a medium-to-high share enterprise value to their digital transformations, more than any of the three groups.[12]

In fact, our analysis found they're as much as 20% more likely than the lowest performing group to attribute a medium/high share of their enterprise value to digital transformation.[13] (see Appendix, Four Measurement Types Based on Average KPI use).[14]

Using the value framework

This research shows that leaders should think differently about digital value. Leaders can change the value conversation and calculus with their executive teams, boards, and other stakeholders with actions.
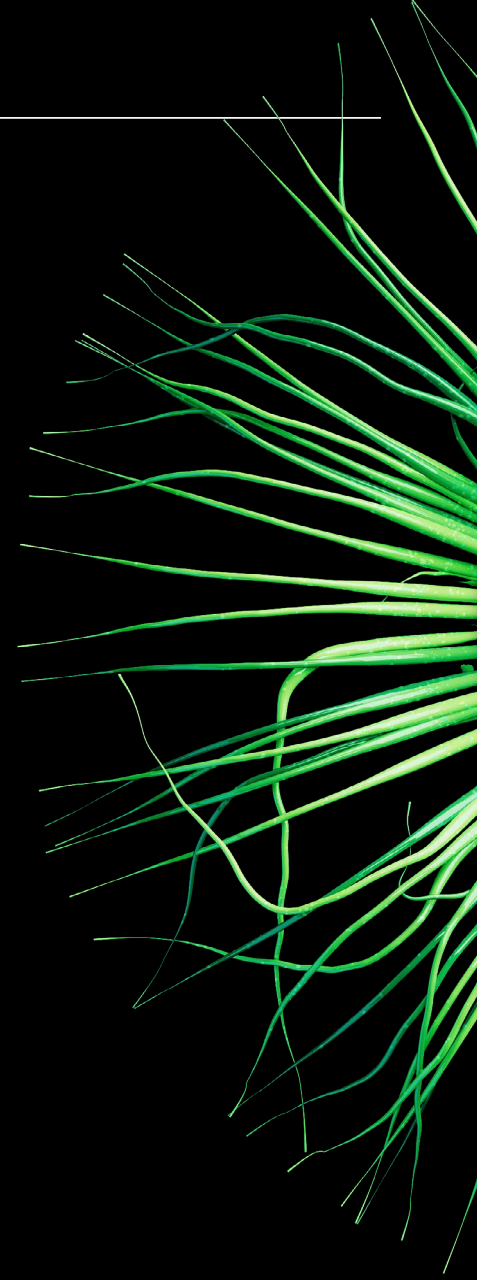
Use a comprehensive KPI framework to pressure test value creation opportunities. Consider all five performance categories when assessing existing digital transformation ROI and planning future investments to get a broad and balanced view of digital value. As leaders strategize to supplement, modify, prioritize, or replace KPIs, a decision tree may help.

Be open to incorporating less utilized KPIs. The least popular ones can be notoriously hard to quantify and may require cross-functional collaboration. At the same time, they can help fundamentally shift the digital transformation value story. A focus on these measures can help identify potential risks to financial value and workforce innovation opportunities that might not be visible otherwise.

Uncover hidden value relationships. Use value relationships to better understand value links and adjacent measures. This avoids double-counting value and incorporates hidden value sources that may not be obvious. A more accurate and complete view of digital transformation's potential value can help provide a solid rationale for rejecting investments that may not drive sufficient value and can help organizations make smarter investment decisions.

Reframe the ROI calculus on digital transformation investments. Task your leaders to assess digital value in diverse ways. If the ROI assessment comes out low for your traditional metrics but high for other metrics, consider whether to modernize your KPIs.

Embracing a comprehensive approach to digital transformation

As the Chief Digital Officer of a large subsidiary of a multi-national food and beverage group explains, related to maintaining balanced goals for digital transformation, "This approach is also a fantastic way to pilot and measure your corporate goals and corporate commitments versus the community, the planet, human health, or for any other goals."

It can be hard to measure digital value. However, if leaders can't confidently say they're getting a holistic picture of digital value, investment decision-making and ROI conversations can become guesswork— and potentially important investments could risk being incorrectly prioritized or underfunded. Digital value measurement is no mean feat—but worth getting right. A full listing of digital transformation KPIs would go well beyond 46. A full canvas of digital transformation ambitions transcends any taxonomy – as the promise of digital technology is ever accelerating.

Methodology

About the survey and interviews
This analysis is based on a survey of 1,600 global business and technology leaders that are director level and above across six industries: Consumer; Energy, Resources & Industrials (ER&I); Financial Services Institutions (FSI); Government & Public Service (GPS); Life Sciences & Healthcare (LSHC); and Technology, Media & Telecommunications (TMT). Respondents were from organizations of all sizes and structures including both public and private companies across 14 countries: United States, Canada, Mexico, United Kingdom, Netherlands, Spain, Germany, France, Ireland, Australia, China, India, Japan, and Singapore. We also interviewed 10 C-suite leaders across industries and geographies.

About the Exploratory Factor Analysis
Factor analysis is a statistical method used to reduce variables into a smaller number of related "factors." This technique is used to analyze survey data collected based on a scale of responses, such as the Likert scale (e.g., a five-point scale of frequent use, satisfaction, extent strength). Once the factor analysis has been done, the resulting factors can then also be correlated, with their correlations varying based on how frequently the KPIs within each cluster are used together by survey respondents.

In this case, the global analysis (n = 1,600) analyzed usage data for the 46 KPIs, which clustered into 10 factors and five overarching factors (Financial, Customer/Client, Process, Workforce, and Purpose) based on their correlations and interdependencies. The more interdependent the KPIs, the more reliable the clustering.

In most cases, the global analysis of each of the five major categories divides itself into two or three subcategories.

Finance KPIs are potentially the most "mature" with **traditional**, **non-traditional**, and **digital sales** measures. Customer, Process, and Workforce KPIs are each split into two distinct subgroups. The only exception was the Purpose category, where individual KPIs are grouped together, indicating less mature use.

A variety of other parameters also affect the analysis. For example, the organizations surveyed use various Financial KPIs to measure value. However, the frequency levels of using those KPIs differ in terms of: (1) similarities in extent and intention of the usage of these KPIs; (2) relevance of the KPIs with regard to how the financial systems were designed; (3) level of confidence in providing accurate outcomes, which can be explained in the ranking patterns of the KPIs; and (4) the stage where business value is being either created, preserved, protected, or optimized.

These value-measurement issues and trends apply to all 10 subcategories in this global analysis. This same approach was replicated for regional factor analysis, which split the data into three groups for analysis based on country: (NA (n = 650), EMEA (N = 550), and APAC (n = 400).

About the Correlation Analysis
In the correlation analysis, all KPI sub-categories were correlated with one another using Bivariate Pearson Correlation analysis on a scale of 0.0-1. The strength between each pair is calculated based on the KPI/sub-category's extent of use, according to our survey. A correlation is considered low when its strength is between 0.100 and 0.199, medium between 0.200 and 0.399, strong between 0.400 and 0.599, and very strong between 0.600 and 0.999.

About the Cluster Analysis

Deloitte used the same 10 KPI sub-categories from the factor analysis for the cluster analysis: Traditional Financial (e.g., EBITDA), Non-traditional Financial (e.g., Forward price to earnings), Digital Sales, Traditional Customer Engagement, Emerging Customer Engagement, Process Performance, New Product Planning, Workforce Performance, Talent Management, and Purpose Mission and Values KPIs. We used a traditional methodology to conduct a two-stage mixed cluster analysis, which is a set of statistical methods for processing data by organizing items into groups (called clusters), based on how strongly associated they are. For example, clustering workforce by their job functions or duties. This technique is semi-supervised, which means we do not begin analysis with any preconceived notion of how many clusters exist in the data. We determine the likely number of clusters by various tests (e.g., scree plots derived from the agglomeration schedule of a hierarchical clustering). We then ran the k-means clustering algorithm which requires a set number of clusters to be specified.

- **Hierarchical Clustering:** Items start in their own separate cluster. The two 'closest' (most similar) clusters combine. This consolidation repeats until all subjects are in one cluster. This method yields an agglomeration schedule, which can be plotted to see "breaks" where the continued agglomeration has diminishing marginal return.

- **K-Means Clustering:** K-Means is a reference to the fact that we set 'k' number of clusters to find the - centroid points or 'means' for a centroid point which is the average of all the cases in the cluster. By iteratively assessing the Euclidean distance between each case and these centroids/means in the dataset, each case can be assigned to a cluster.
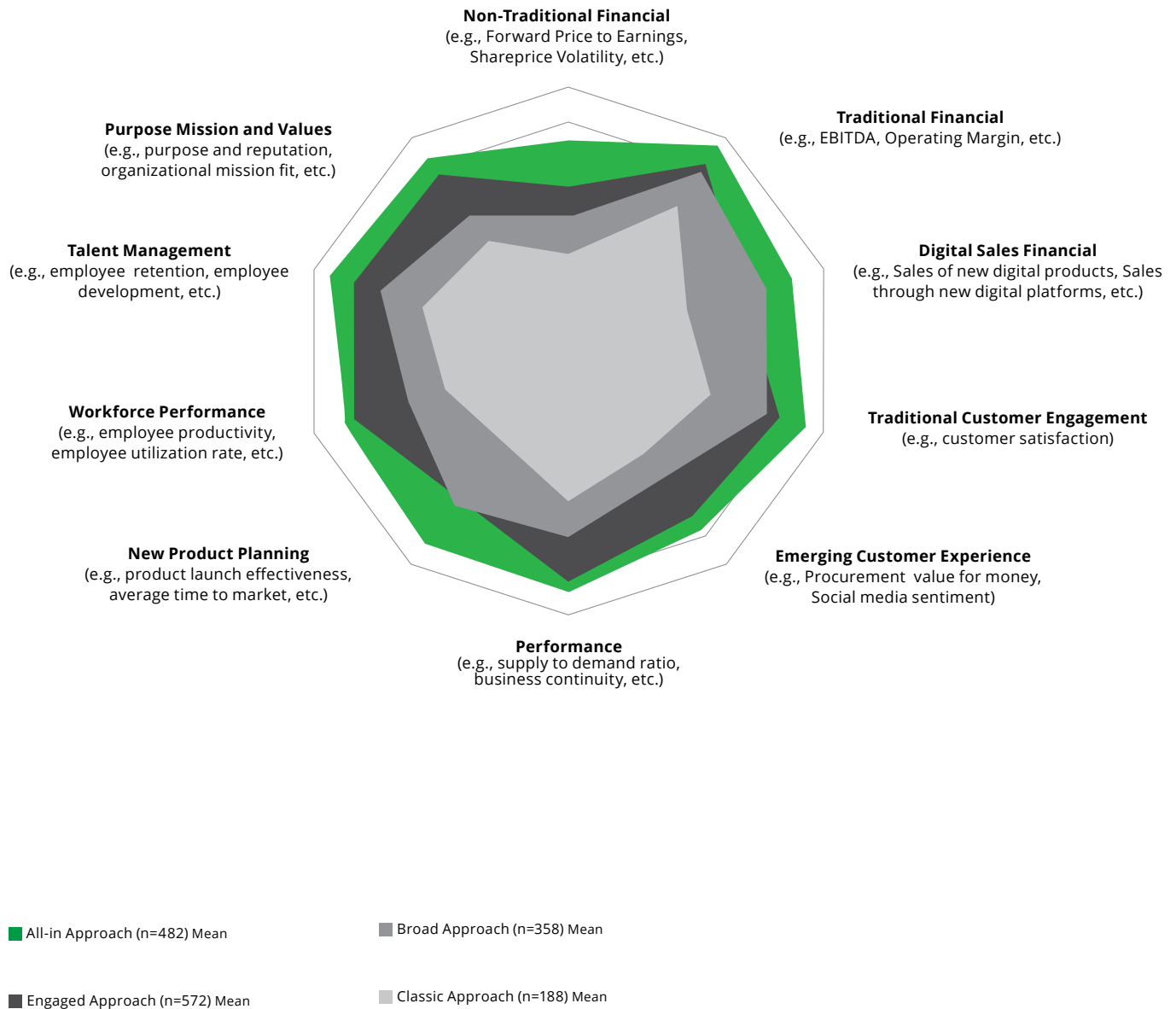
We determined the 'k' in the K-Means clustering from the scree plot indication of diminishing marginal return on additional clustering from the hierarchal clustering.
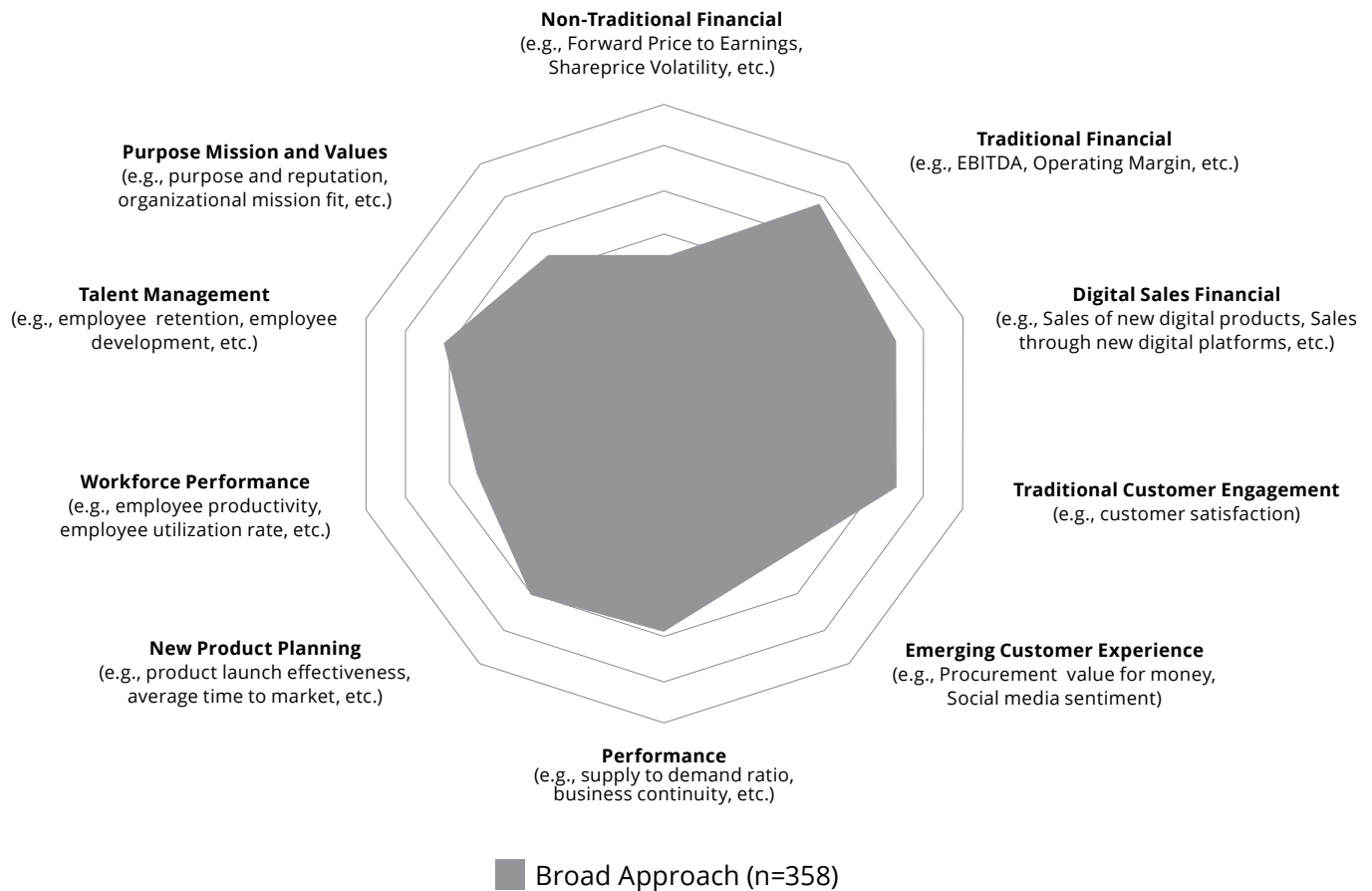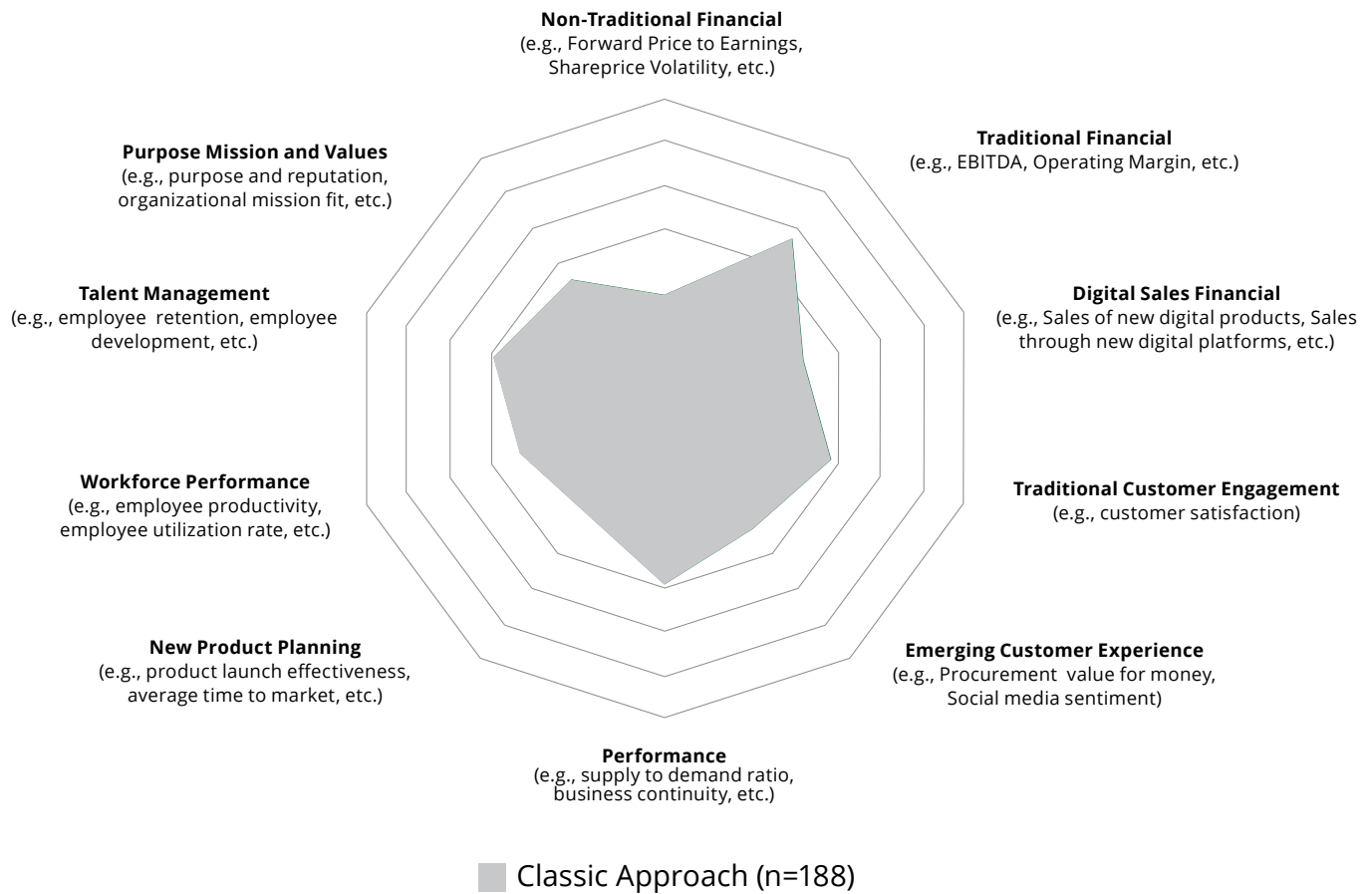
Respondents clustered into four groups based on how they used them, each measuring more intensely than the last.

Classic organizations have the lowest measurement intensity. They are below average for all KPIs. **Broad** organizations are at or above average for six of 10 indicators. **Engaged** measurers are above average for seven of 10 KPI categories. And, All-in respondents have the highest measurement intensity and are above average in their use of all KPIs.

- **Visualizing the KPI factor-based clusters:** to determine a reference point for comparing the four clusters with each other, we calculated the mean of the 10 KPIs per cluster individually. Then, we calculated the average of the four means, which is a 3.25 baseline average mean.

Four measurement types based on average KPI use

Non-Traditional Financial
(e.g., Forward Price to Earnings,
Shareprice Volatility, etc.)

Traditional Financial
(e.g., EBITDA, Operating Margin, etc.)

Purpose Mission and Values
(e.g., purpose and reputation,
organizational mission fit, etc.)

Digital Sales Financial
(e.g., Sales of new digital products, Sales
through new digital platforms, etc.)

Talent Management
(e.g., employee retention, employee
development, etc.)

Traditional Customer Engagement
(e.g., customer satisfaction)

Workforce Performance
(e.g., employee productivity,
employee utilization rate, etc.)

Emerging Customer Experience
(e.g., Procurement value for money,
Social media sentiment)

New Product Planning
(e.g., product launch effectiveness,
average time to market, etc.)

Performance
(e.g., supply to demand ratio,
business continuity, etc.)

- All-in Approach (n=482) Mean
- Broad Approach (n=358) Mean
- Engaged Approach (n=572) Mean
- Classic Approach (n=188) Mean

Classic Approach (n=188)

Broad Approach (n=358)

Non-Traditional Financial
(e.g., Forward Price to Earnings,
Shareprice Volatility, etc.)

Purpose Mission and Values
(e.g., purpose and reputation,
organizational mission fit, etc.)

Traditional Financial
(e.g., EBITDA, Operating Margin, etc.)

Talent Management
(e.g., employee retention, employee
development, etc.)

Digital Sales Financial
(e.g., Sales of new digital products, Sales
through new digital platforms, etc.)

Workforce Performance
(e.g., employee productivity,
employee utilization rate, etc.)

Traditional Customer Engagement
(e.g., customer satisfaction)

New Product Planning
(e.g., product launch effectiveness,
average time to market, etc.)

Emerging Customer Experience
(e.g., Procurement value for money,
Social media sentiment)

Performance
(e.g., supply to demand ratio,
business continuity, etc.)

■ Engaged Approach (n=572)

Non-Traditional Financial
(e.g., Forward Price to Earnings,
Shareprice Volatility, etc.)

Purpose Mission and Values
(e.g., purpose and reputation,
organizational mission fit, etc.)

Traditional Financial
(e.g., EBITDA, Operating Margin, etc.)

Talent Management
(e.g., employee retention, employee
development, etc.)

Digital Sales Financial
(e.g., Sales of new digital products, Sales
through new digital platforms, etc.)

Workforce Performance
(e.g., employee productivity,
employee utilization rate, etc.)

Traditional Customer Engagement
(e.g., customer satisfaction)

New Product Planning
(e.g., product launch effectiveness,
average time to market, etc.)

Emerging Customer Experience
(e.g., Procurement value for money,
Social media sentiment)

Performance
(e.g., supply to demand ratio,
business continuity, etc.)

■ All-in Approach (n=482)

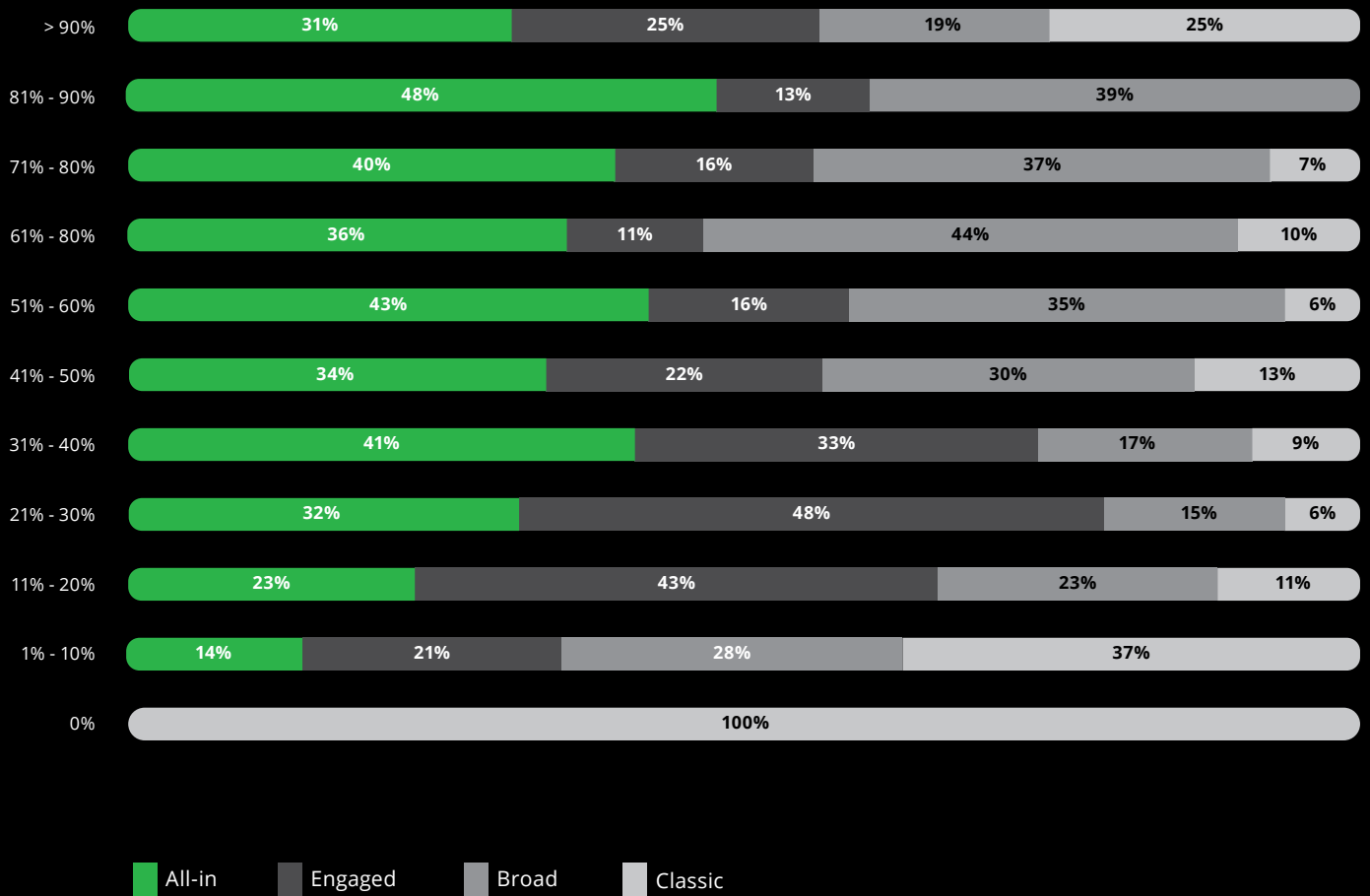# Appendix

Four respondent types and the share of enterprise value they attribute to digital transformation by %

	All-in	Engaged	Broad	Classic
> 90%	31%	25%	19%	25%
81% - 90%	48%	13%	39%	
71% - 80%	40%	16%	37%	7%
61% - 80%	36%	11%	44%	10%
51% - 60%	43%	16%	35%	6%
41% - 50%	34%	22%	30%	13%
31% - 40%	41%	33%	17%	9%
21% - 30%	32%	48%	15%	6%
11% - 20%	23%	43%	23%	11%
1% - 10%	14%	21%	28%	37%
0%				100%

■ All-in   ■ Engaged   ■ Broad   ■ Classic

Source: Deloitte Center for Integrated Research survey of global tech value leaders in February 2023.

Definitions of Key Performance Indicators (KPIs) as provided to survey respondents.

API marketplace	A user-friendly public hub where API providers can publish APIs for developers and partners to consume.
Artificial intelligence (AI) and machine learning	A type of AI, machine learning refers to the use and development of computer systems able to learn and adapt without explicit instructions / programming.
Augmented, virtual, and immersive reality (e.g., the metaverse)	The metaverse is a virtual-reality space in which users can interact with a computer-generated environment and other users.
Automation spend	Total annual spend on new automation technology.
Average time to market	Time to market is defined as the length of time from the conception of a product until it is released to the market.
Becoming a platform business	Transforming an organization's business model to create value by including analytics, data management tools, cloud services, intelligent technologies, machine learning, IoT, etc.
Broadband and wireless (up to 4G)	Broadband is open connectivity in which a high speed internet connection is always available Wireless Wi Fi is wireless connectivity that uses radio waves to provide an internet connection
Budget vs. actual cost	Calculated as the expected expenses versus what the investor is willing to spend on the project.
Business continuity	Measures the extent to which the organization has established risk management practices and procedures that aim to prevent mission critical services and enable it to recover quickly from disruptions, caused by external events such as natural disasters, or cyberattacks.
Cloud platforms	A third party platform that moves an organization's on premises data center offsite, where data infrastructure is managed entirely by the third party partner.
Cloud native application	A type of computer software that natively utilizes services and infrastructure from cloud computing providers.
Digital product launch effectiveness	Calculated as the ratio of the number of new digital product successes to the total number of new products successes.

Definitions of Key Performance Indicators (KPIs) as provided to survey respondents.

Competing against self as a shadow business or product	Chasing your own unrealized potential, by seeking meaningful objectives/goals to compete over, so that, you thrive to accomplish what your ideal self would.
Conversational AI	A tool that uses machine learning to comunicate with customers based on prior speech or text information.
Corporate reputation	Calculated as a quotient that is based on the grading of a set of attributes of corporate reputation by external experts.
Creating digital native subsidiary	Development of web only retail verticals within traditional organizations.
Cryptography	An information security technique in which data and communications are coded such that only intended parties may understand and process it.
Customer acquisition cost (CAC)	Measures the amount of money a company spends to get a new customer.
Customer engagement	Measured as the ratio of positive survey responses of customers regarding their engagement with your business to total survey responses about their engagement.
Customer lifetime value	Calculated by multiplying your customers' average purchase value, average purchase frequency, and average customer lifespan.
Customer personalization strategies via new products or services	Having a rigorous process that allows for 1) gathering insights about your customers with respect to developing new products or services, and then 2) validating those insights.
Customer retention rate	Calculated as the percentage of existing customers who remain customers after a given period.
Customer satisfaction (CSAT) impact from customer facing technology	Measures how happy or satisfied your customers are with a service, product, or support interaction you have provided.

Definitions of Key Performance Indicators (KPIs) as provided to survey respondents.

Cyber security rating	Calculated by outside experts using independent scoring and ratings of an organizations IT security.
Data analytics	The management of data for all uses (operational and analytical) and the analysis of data to drive business processes and improve business outcomes through more effective decision making and enhanced customer experiences.
Deep learning	A type of machine learning designed to imitate human learning through use of artificial neural networks in which multiple layers of processing are used to extract progressively higher level features from data.
Digital assets or currency	Use of digital assets cryptocurrencies for investment, operational, or transactional purposes.
Digital product launch effectiveness	Calculated as the ratio of the number of new digital product successes to the total number of new products successes.
Digital trust	Confidence in an organization's ability to protect consumer data, enact effective cybersecurity, offer trustworthy AI powered products and services, and provide transparency around AI and data usage.
Direct and/or indirect impact on revenue	Direct or indirect costs that impact product pricing.
EBITDA	An alternative measure of profitability to net income that is calculated as earnings before interest, taxes, depreciation, and amortization.
Edge computing	A strategy for computing on location where data is collected or used, allows IoT data to be gathered and processed at the edge, rather than sending the data back to a datacenter or cloud.
Employee development	Calculated as the number of employees who have received training on an entirely new set of skills to prepare them to take on a different role within the company.
Employee engagement or satisfaction	Calculated as the level of enthusiasm and dedication workers feel toward their job as reflected in survey ratings.
Employee innovation	Ratio of number of new ideas and solutions to workplace challenges or problems suggested by employees to the total number of employees in the organization's workforce.

Definitions of Key Performance Indicators (KPIs) as provided to survey respondents.

Employee productivity	Calculated as total employee output divided by total number of hours worked.
Employee retention	Calculated as the number of people who leave their job in a certain period, either voluntarily or involuntarily.
Employee utilization rate	Calculated as total employees' billable hours divided by total number of available hours.
Environmental, social and governance (ESG)	A framework that helps stakeholders analyze and understand how an organization manages risks and opportunities, ranging from environmental practices, such as the company's carbon footprint and commitment to sustainability, to social practices, such as the company's workplace culture and commitment to diversity and inclusion, to its governance practices, as reflected in the structures and control processes that make the company more accountable and transparent to investors.
Federated security	An arrangement for managing identities and access to resources that span companies or security domains.
Forward price to earnings (FPE)	Calculated as the ratio of a current stock's price over its "predicted" earnings per share.
Helping societies with essential data	Providing access to organizational data for the purpose of generating social and economic benefits within communities.
Identity and access management	A framework of policies and technologies to ensure that the right users have the appropriate access to technology resources.
In subscription or in app incremental purchases	Sale of additional content services subscriptions within a mobile application.
In subscription or in app paid advertisements	Sale of ad space on consumer facing platforms or applications.

Definitions of Key Performance Indicators (KPIs) as provided to survey respondents.

Intangible assets as a percentage of long term assets	Assets representing investment in new ideas as a percentage of total long term assets.
Internal talent mobility	Calculated as the percentage of your organization's workforce promoted or transferred to a different department.
Internet of things (IoT)	The network of physical objects —"things"— that are embedded with sensors, software, and other technologies for the purpose of connecting and exchanging data with other devices and systems over the internet.
Investment in frontier technologies (e.g., Web 3, Quantum, etc.)	Dedicated spend on breakthrough technology that is expected to reshape the way people communicate, innovate, and create and conduct business, and to provide urgently needed solutions to global challenges like climate change and food insecurity.
Joint venture with academic institutions	Collaborating with one or more academic institution to develop a single enterprise or a project for profit, sharing the risks associated with its development.
Leveraging industry convergence trends	Using knowledge gleaned from internal data to enter new markets or industries that are increasingly connected to our business.
Mobile	Technology that consists of any portable two way computing device and the communication networks that connect them.
Multi modal user experience	Designs that use multiple modalities across interfaces to aid human to computer and human to computer interactions.
Net promoter score (NPS)	Measures the loyalty of customers to a company and is calculated as % promoters - % detractors.
Number of agile pod or teams	Calculated as the number of sufficient and cross functional teams working collaboratively to deliver a defined product requirement in multiple sprints.

Definitions of Key Performance Indicators (KPIs)
as provided to survey respondents.

Online communities	Digital forums that allow people with common interests to exchange ideas and information.
Operating margin	Measures how much profit a company makes on a dollar of sales after paying for variable costs of production, such as wages and raw materials, but before paying interest or tax
Organizational mission fit	Calculated as the extent to which the value gained is aligned with the organization's mission.
Organizational purpose	The fundamental reason why the work the organization's employees do is meaningful and important for creating positive effects on local and global society.
Organizational resilience	Calculated as a score that is based on a 3 dimensional set of items (i. capacity to recover from unfavorable conditions, capacity to take actions rapidly, and cohesion among employees in organizations when faced with unfavorable situations).
Organizational trust	Measures the extent to which employees are confident in the actions of your company.
Process effectiveness	Calculated as the ratio of expected results for a process and your actual results.
Procurement value of money	Measures the utility a customer derives from every amount of money spent on purchasing your product or service.
Product launch Effectiveness	Calculated as the ratio of the number of new product successes to the total numberof new products launched through digital channels in the last few years.
Productivity	Calculated as the ratio of how much you have produced to the time it takes to produce that deliverable.
Quantum computing	A type of computation whose operations can harness the phenomena of quantum mechanics, such as superposition, interference, and entanglement.

Definitions of Key Performance Indicators (KPIs) as provided to survey respondents.

R&D spend on digital technology	Percentage of annual R&D spend allocated toward digital technology investments.
Repurposing internal data	Using existing internal data generated for one purpose to add value to other product lines or uses beyond its origin.
Return on investment	Calculated as the monetary value initial cost of the investment from its final value, then dividing this new number by the cost of the investment, and finally, multiplying it by 100.
Sales of new digital products	Calculated as the ratio of new digital products to total new product sales.
Sales through new digital platforms	Calculated as the ratio of new digital platforms to total digital platform sales.
Selling direct access to your data to third parties	Direct data monetization involves selling direct access to your existing organizational data to third parties.
Selling obfuscated data	Development of new revenue stream through the sale of existing organizational data that has been anonymized through removal of personally identifiable information to other parties.
Selling subscriptions to technology tools and services	A recurring revenue model in which customers pay for technology tools and services at a set cadence (e.g., weekly, monthly, annually).
Share price volatility (SPV)	Calculated as the dispersion or variance of market prices, on an annualized basis.
Social media sentiment	Measures how much people talk about your brand on social media.
Social return on Investment	Calculated as Estimated Social Impact Value minus the Initial Investment Amount (IIA) / (IIA*100%).
Speech and gesture interfaces	Technology in which user speech (e.g., Virtual assistants) or gestures (e.g., "pinching" to zoom out) are used to operate an interface.

Definitions of Key Performance Indicators (KPIs) as provided to survey respondents.

Supply to demand ratio	Calculated as average inventory on hand divided by average monthly demand.
Sustainability	Measures the impact of digital transformation on the economy, the environment and social equity (ESG).
Tolerance for experimentation and intelligent failure	Measured as employee perceptions of organizational tolerance for failure to achieve radical organizational innovation, as reflected in compensation and reward systems, managerial support for risk taking and psychological safety.
User and entity behavior analytics (UEBA)	A type of cyber security process that takes note of the normal conduct of users in order to detect any anomalous behavior or instances when there are deviations from these "normal" patterns.
Venture arm to test new business models	The practice of where corporate entities test new, innovative solutions before making significant investments or commitments.
Wireless 5G or higher	New generation wireless technology which enables a network designed to connect virtually all devices to yield better connection speeds, lower latency, better reliability, and improved user experiences.
Workforce diversity	Calculated as the ratio of the number of employees from minority groups (related to race, ethnic backgrounds, or sexual preferences) to the total number of employees in an organization.
Workforce equity	Measured as the extent to which employees feel they are being fairly compensated for the job they perform.
Workforce inclusion	Measured as the extent to which employees feel a sense of belonging, inclusion and psychological safety within an organization.
Zero trust security	A strategic approach to cybersecurity that secures an organization by eliminating implicit trust and continuously validating every stage of a digital interaction.

Endnotes

[1]This third wave in Deloitte's ongoing Tech Value research series examines how companies can more effectively measure the impact of their massive, ongoing investments in digital transformation. In this research series, Deloitte analyzed data from a recent online survey of 1,600 senior business leaders from every major industry and geographic region and conducted a thematic analysis of interviews with 10 C-suite leaders across industries and geographies. The specific goals of the series were to: gain insight into how senior business and technology decision-makers currently think about "tech value" across 46 key performance indicators (KPIs) and what measurement gaps CEOs and technology business leaders may need to address to optimize their tech value; understand if there are distinct value approaches that impact how an organization might think about and prioritize these KPI measures; and consider how regional and industry strategies relate to digital transformation value realization.

[2]The exploratory factor analysis confirmed the presence of all five categories—Financial, Customer/Client, Process, Workforce, and Purpose KPIs as distinct value measurement categories. An additional regional factor analysis across North America, EMEA, and APAC found the same five groups.

[3]This same approach was replicated for regional factor analysis, which split the data into three groups for analysis based on country: North America (n = 650), EMEA (N = 550), and APAC (n = 400).

[4]Deloitte Center for Integrated Research Analysis based on the interview of 10 global executives knowledgeable on the topic of technology value in February 2023. The Chief Digital Officer (CDO) of a large multinational enterprise information technology company emphasizes the need to look beyond financial measures and focus on new value categories,

[5]This 5x more is based on extent of use.

[6]In general, the correlation's strength between each pair of value sub-categories is calculated based on the respondents' choices of the value sub-categories' extent of use. A correlation is considered low when its strength is between 0.100 and 0.199, medium between 0.200 and 0.399, and strong 0.400 and above on a 0-1 scale.

[7]Deloitte chose for this research to focus on our findings for the relationship between just the subfactors. The simplification provides a useful middle ground between this research findings at the individual KPI level, which had 1,035 relational pairs (which would have been overwhelming for this paper) and focusing just on the five KPI categories where findings were more high-level.

[8]All KPI factors are independent variables. When Traditional Financial and PMV KPIs are used together, their correlated extent of use reflects a small correlation of 0.26. In other words, when traditional financial KPIs are used 100 times, PMVs are used only 26 times.

[9]Sales of new digital products is calculated as the ratio of new digital products to total new product sales. Sales through new digital platforms is Calculated as the ratio of new digital platforms to total digital platform sales.

[10]Deloitte Center for Integrated Research Analysis based on the interview of 10 global executives knowledgeable on the topic of technology value in February 2023.

[11]Those with 55% utilization or more are more likely to correspond with more intense measurement challenges for all of the barriers asked about in our survey.

[12]This insight is based on grouping the % of value attribution responses into three categories: Low (up to 30%), Medium (31-60%), and High (61% and more) based on their total sum.

[13]Medium/large share of enterprise value is understood to be 30% or more of enterprise value being attributed to digital transformation. 24% of Classic respondents, 21% of Broad respondents, 39% of Engaged respondents, and 41% of All-in respondents attribute medium/high enterprise value to their digital initiatives. The finding that All-in respondents are as much as 20% more likely to attribute medium/large enterprise value (30% or more) to their digital transformations is based on the difference between Broad and All-in respondents.

[14]This insight is based on comparing value categories across the four clusters.

[15]Importantly, Workforce KPIs largely grouped under the theme of Workforce performance KPIs, a group that was comprised by all "Optimize" and "Create" KPIs with a lesser focus on Talent management as a potentially underutilized value lever. See, Tim Smith, et. al., "A Better Way to Estimate Technology's Impact on Enterprise Value," Deloitte US, 2022.

[16]The regional exploratory factor analysis validated the consistent presence of the same five KPI groups (Financial, Customer/Client, Process, Workforce, and Purpose) across three regions: countries surveyed in North America, EMEA, and APAC, and found consistent subgroups for Process across each. While this research found slight variations in the maturity/preference for Financial KPIs verses Purpose KPIs as the biggest regional difference, with North America and APAC showing two subgroups and EMEA only one group across all Financial KPIs, the top financial measures were largely consistent across regions. In general, the three regions exhibited focus on the Financial and Process KPIs; however, while EMEA showed less distinction between different financial measures; EMEA and APAC showed a notable focus on Purpose KPIs, specifically DEI (diversity, equity, and inclusion) value measures, grouped into a separate subgroup of its own under Purpose.

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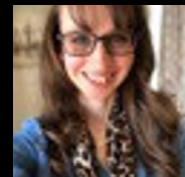
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