Transforming industrial businesses with the internet of things

A minority of leaders show the way with a clear strategy and aligned implementation. Others should learn from their practices

GENPACT RESEARCH INSTITUTE

GENPACT GENERATING IMPACT ℠ / *LEAN DIGITAL* ℠

Abstract

The **Industrial Internet of things (IIoT)** is set to **revolutionize** entire industries, from high tech (including computers and electronics) to medical technology, aerospace, and heavy equipment manufacturing and generally any complex manufacturing environment. IIoT incorporates a host of leading-edge technologies—from digital technology to advanced analytics such as big data and machine learning. Global enterprises are allocating resources in ever-increasing amounts to adopt the technologies of IIoT; most state that it is critical to the success of the enterprises' goals.

However, new research reveals investment alone will not be enough to generate tangible business impact and meet such high expectations.

Genpact Research Institute's latest study shows that the **majority of organizations are convinced of the opportunities IIoT represents, but lack a clear strategy and path to its execution**. The result is great disparity in terms of the projected impact of implementing IIoT as well the hurdles in the way. In our experience, this is not unusual with new technology and analytics practices that polarizes the need to **work cross-functionally—across IT, analytics, and business groups—to drive process transformation not just at the "front end", such as in the field, but all the way across the middle and back office** is key to align business goals with implementation strategy.

Growth and agility are two top objectives

More than four out of five senior executives (81%) say that successful adoption of IIoT is critical to future success. Moreover, respondents who rate their organization's IIoT usage as more advanced than that of their competitors (leaders make up 25% of the respondents) are nearly unanimous in expressing this opinion (97%) compared with only 76% of other firms (strivers).

The majority of the respondents (77%) see the ability to spur growth as the top opportunity for effective use of IIoT. Agility, cited by 75% of the respondents, is the top expected benefit of IIoT. However, although leaders are more focused on growth (90%) and agility (85%), others are less clear about their priorities.

% of respondents comparing the use of IIoT in their organization with competitors
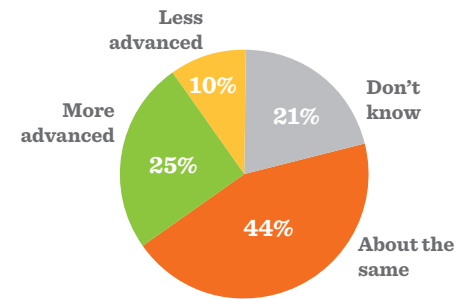
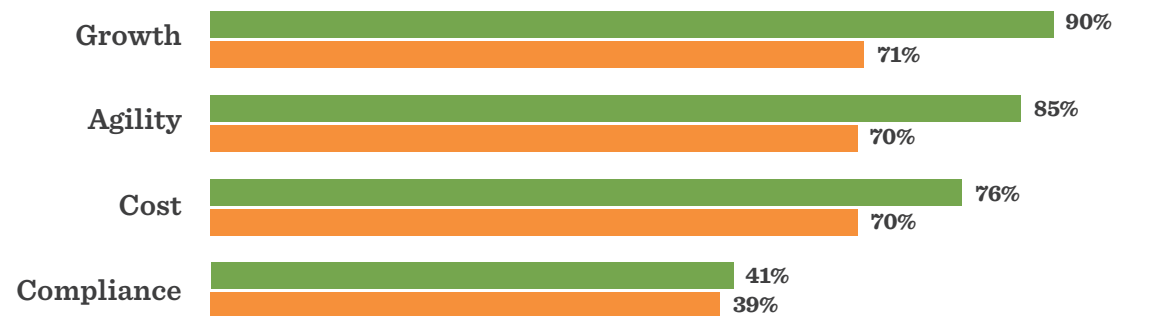**% of overall respondents rating their organization's IIoT priorities as high (5, 4 on a scale of 1-5, high priority=5)**

Figure 1　　Leaders　Strivers

Only about one in four enterprises has a clear strategy in place for implementing IIoT

Wanted: A clear strategy

One critical element that distinguishes the leaders from the strivers is formulating strategy. The study reveals that **only about one in four enterprises has a clear strategy in place for implementing IIoT**. Leader organizations are also three times as likely as their less prepared counterparts to have effectively executed such a strategy. The message is clear: most enterprises have a long way to go before they are ready to incorporate IIoT technologies into their operations effectively.

56%
say their
organization
has a clear IIoT
strategy

14%
say their
organization
has a clear IIoT
strategy

33%
of those say their
execution of the
strategy is
excellent

Leaders

Strivers

11% of those
say their
execution of the
strategy is
excellent

■ Leaders   ■ Strivers

Figure 2

Leaders see data security and privacy safeguards top concerns

The study reveals enterprises face many obstacles in implementing IIoT initiatives. Data security, legacy systems, insufficient capability of IT staff, data quality, data privacy, and ability to do quick experiments, and poor collaboration across functional silos are the most pressing concerns.

However, leaders diverge from strivers about which obstacles are the most problematic. **Leading organizations are primarily concerned with the ongoing challenges of best managing and utilizing data**. For example, more than half of the respondents point to data security as potentially problematic, and to the concerns regarding privacy and confidentiality. **Strivers, are first and foremost struggling to integrate IIoT technologies into their legacy infrastructure**, and lack the agility for rapid, lightweight experimentation; nearly one-third say that they are hampered by a lack of budget.

Very few leaders say that their IIoT activities suffer from an unclear business case; even fewer say their workforce lacks the necessary skills for ongoing operations. More than twice as many strivers find themselves severely challenged in both areas. Both groups are nearly unanimous, however, in their desire to take on IIoT challenge: fewer than one in four say they suffer from a low appetite for risk.

% of respondents rating each challenge as problematic (5, 4 on a 1-5 scale, very problematic=5)
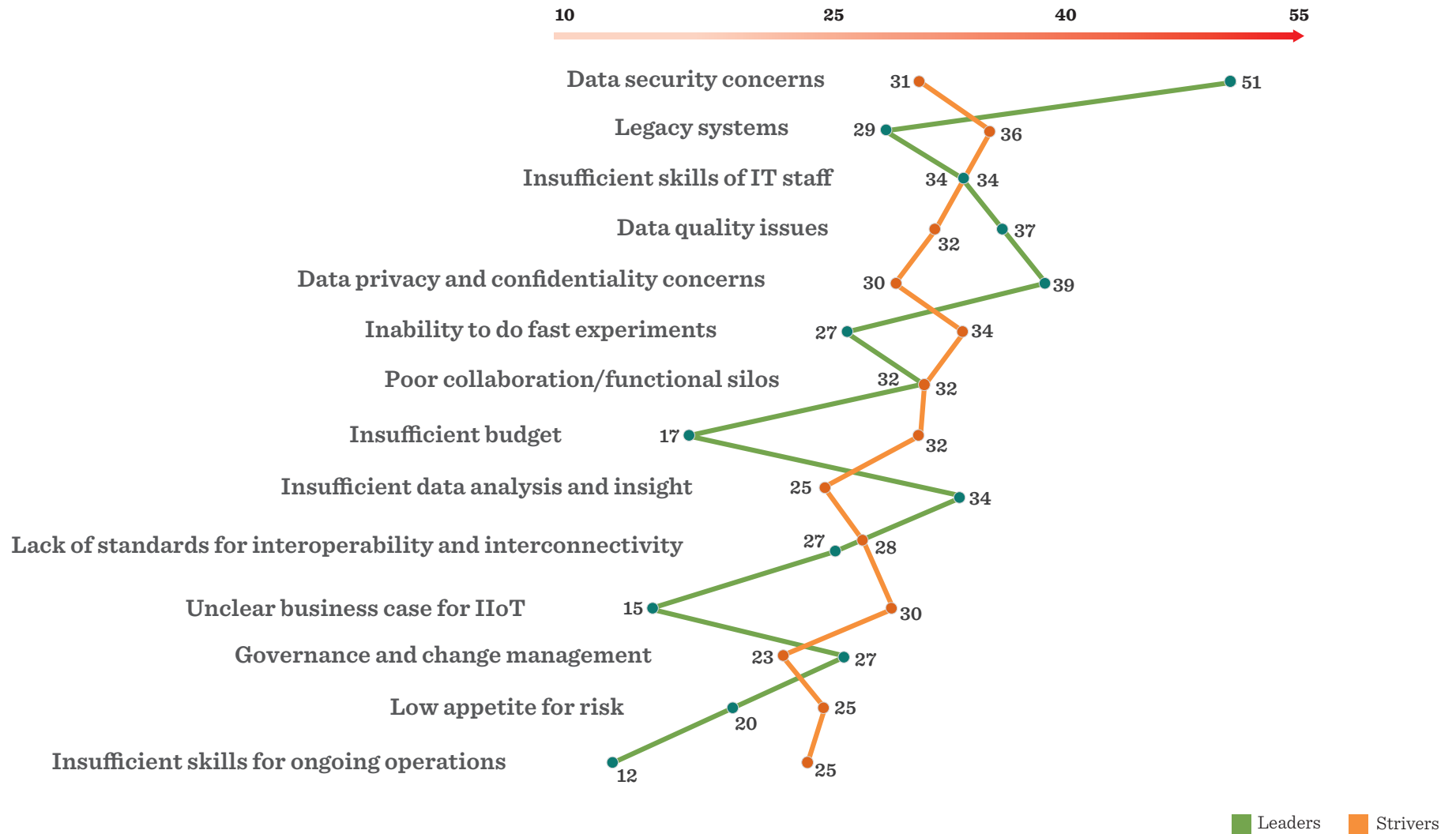
	10	25	40	55

Data security concerns — 31, 51
Legacy systems — 29, 36
Insufficient skills of IT staff — 34, 34
Data quality issues — 32, 37
Data privacy and confidentiality concerns — 30, 39
Inability to do fast experiments — 27, 34
Poor collaboration/functional silos — 32, 32
Insufficient budget — 17, 32
Insufficient data analysis and insight — 25, 34
Lack of standards for interoperability and interconnectivity — 27, 28
Unclear business case for IIoT — 15, 30
Governance and change management — 23, 27
Low appetite for risk — 20, 25
Insufficient skills for ongoing operations — 12, 25

Leaders Strivers

Figure 3

The specter of cyberattacks

According to the study, the majority of senior executives believe that implementing IIoT increases the risk of cyberattacks, and nearly half (45%) expect to come under attack at least once in the next 12 months. Worse still, the majority of companies do not have an up-to-date response plan in place to prevent cyberattacks or mitigate losses caused by one. **Companies advanced in IIoT understand that although increased reliance on leading-edge technologies can naturally lead to increased exposure to certain types of risks, the same technologies can help fight the threat**. However, most who are less prepared don't agree: Only one-third say that interconnectivity can help mitigate such risks.

% of respondents that agree (5 or 4 on a scale of 1-5, agree=5) with the following statements

Believe IIoT is increasing the risk of cyberattacks
- Overall: 50%
- Leaders: 58%
- Strivers: 46%

Expect at least one cyberattack on their organization in the next 12 months
- Overall: 45%
- Leaders: 50%
- Strivers: 43%

Have a comprehensive cyberattack response plan that can prevent losses from any threats
- Overall: 48%
- Leaders: 57%
- Strivers: 44%

Believe interconnectivity helps their organization proactively manage risk of cyberattacks
- Overall: 37%
- Leaders: 50%
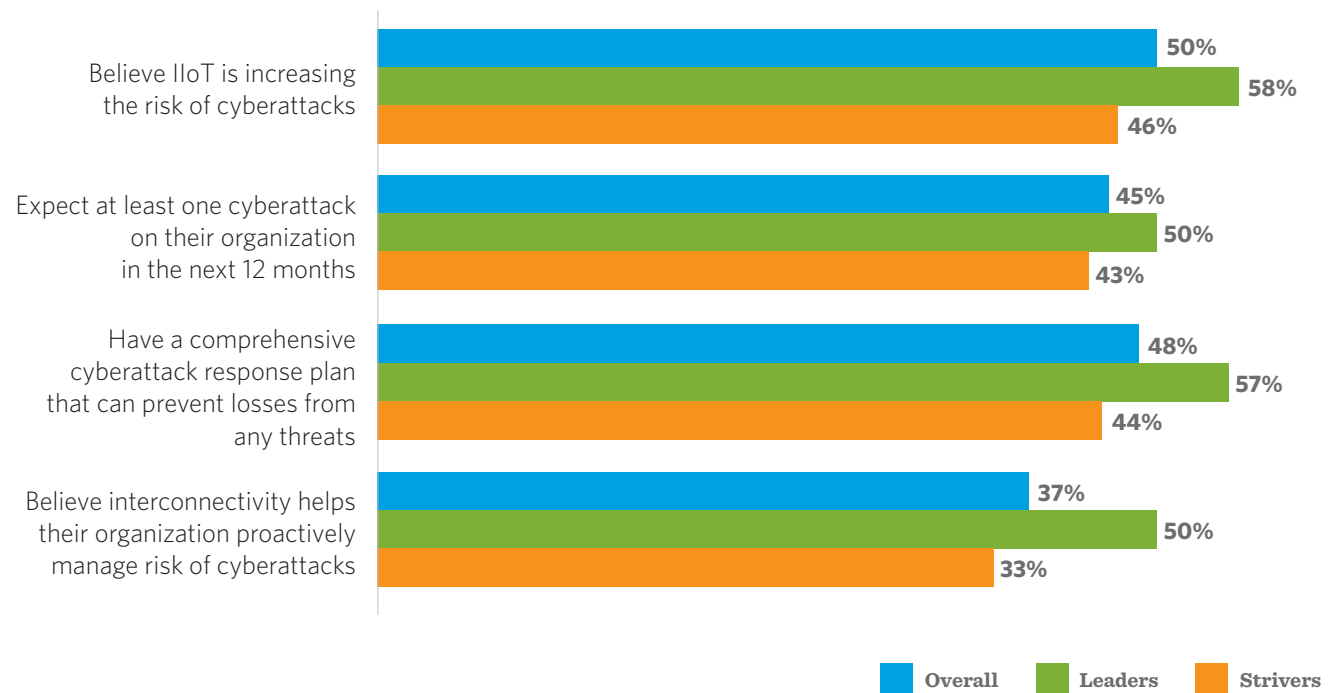- Strivers: 33%

Legend: ■ Overall ■ Leaders ■ Strivers

Figure 4

Leaders anticipate significantly higher positive impact by combining their use of digital technologies, IIoT-specific process redesign and advanced organizational models that leverage IIoT
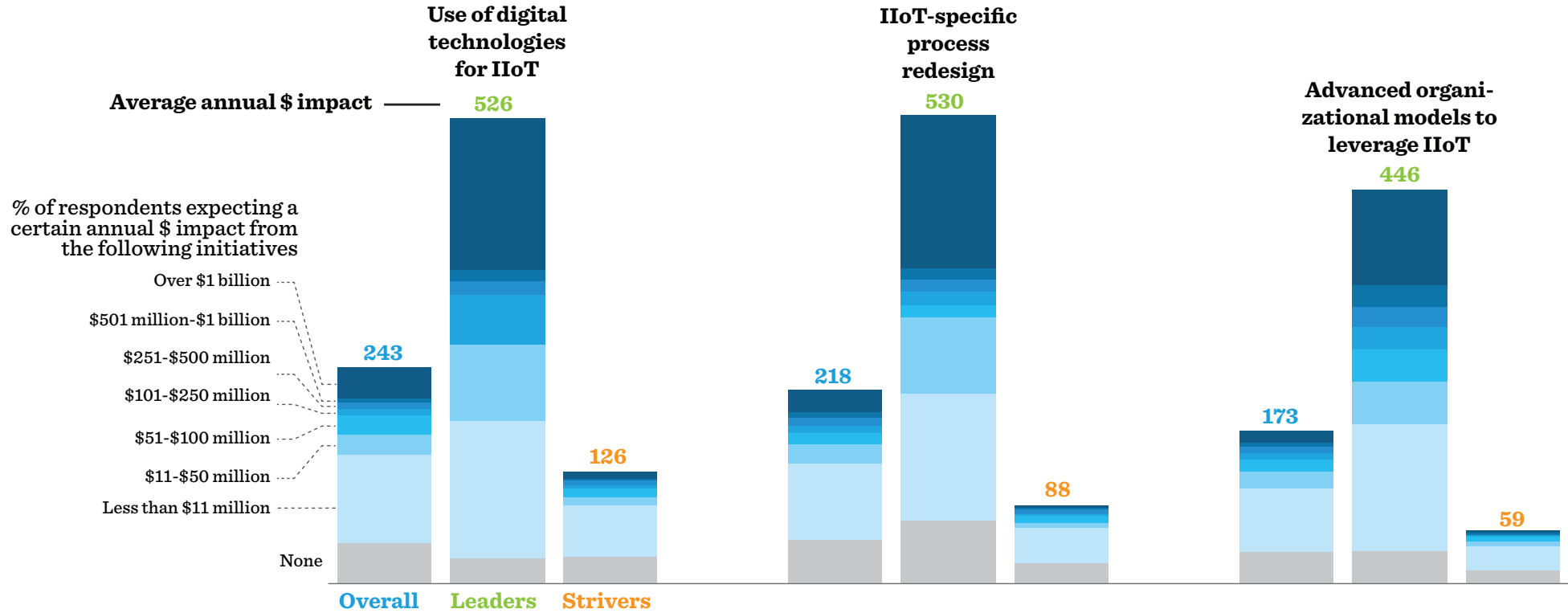
High impact, but not for all, and not through the same means

Nearly 80% of the **leaders say IIoT** technology is **making a major impact on** their enterprise's **operational efficiency, but only** slightly more than **50% of the strivers** can **say the same. Similar gaps** appear between the two groups **in terms of major growth drivers** such as generating new products, enhancing the customer experience, and finding new revenue streams and business models.

It comes as no surprise that leaders can expect a greater financial impact from IIoT initiatives than those moving more slowly. But the projected gap between the two groups is glaring. **Leading firms anticipate** an average annual **positive impact of $526 million through** their use of **digital technologies** alone. Compare that figure to the **$126 million** projected **by the strivers**. Similar chasms exist in terms of the impact from **IIoT-specific process redesign ($530 million versus $88 million)** and **advanced organizational models** that leverage IIoT **($446 million versus $59 million)**.

Leaders clearly have a better understanding of the significance of operating model transformation and the interdependencies of each initiative that helps them estimate and realize impact better. A holistic architecture that **harnesses IIoT technology, process redesign, and advanced organizational structures** catering to process specific differences brings forward synergies that enable them **to generate significantly higher and faster impact**.

Higher potential impact from reimagining and industrializing processes

Use of digital technologies for IIoT

IIoT-specific process redesign

Advanced organizational models to leverage IIoT

Average annual $ impact

% of respondents expecting a certain annual $ impact from the following initiatives

- Over $1 billion
- $501 million-$1 billion
- $251-$500 million
- $101-$250 million
- $51-$100 million
- $11-$50 million
- Less than $11 million
- None

Overall **Leaders** **Strivers**

Annual $ impact is the impact of operating model initiatives in US$ per annum including reduction of cost, capital required, improvement of cash and revenue growth

Figure 5

In the current state of affairs, organizations need a different approach to defining the scope of the intervention and then executing them

In conclusion

The study's finding is clear: IIoT matters. However, the importance of IIoT is **not matched by a coherent strategy and execution**. As for many other digital transformation efforts, this gap could result in ineffective efforts, and end up in initiatives that return inadequate ROI, or delays in adopting digitally enabled operating models—and that could result in significant missed opportunities. The research shows that **success typically requires the ability to work cross-functionally**—across IT, analytics, and business groups—to **drive process transformation not just at the front end**, such as in the field, **but all the way across other layers of the organization**, such as support functions in the back office that aid the front in scalable ways.

These **findings are consistent with the premise of "Lean Digital"** which, together with IIoT technology and analytics, also harnesses Lean principles and a deep understanding of industrial manufacturing business and process domain, as well as human-centered design (design thinking). **For more on Lean Digital, visit www.genpact.com/leandigital**.

Methodology

Study spearheaded by Genpact Research Institute in collaboration with GE Digital and the Industrial Internet Consortium, conducted by IndustryWeek Custom Research, includes a sample of more than 170 senior executives representing industrial companies primarily across North America. This document presented the highlights of research findings. Discover more in the full report.
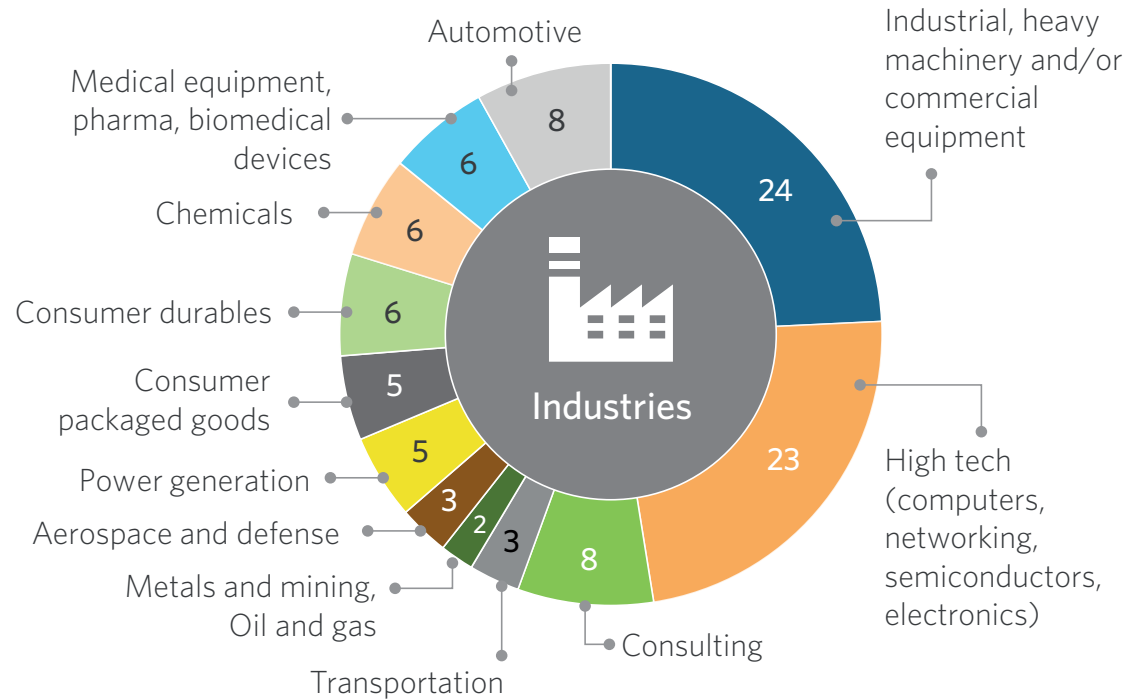
% of respondents by industry

Figure 6

Genpact Research Institute

The Genpact Research Institute is a specialized think tank harnessing the collective intelligence of Genpact – as the leading business process services provider worldwide – its ecosystem of clients and partners, and thousands of process operations experts. The Institute examines new trends that influence the evolution of strategically important operating models, helping our client's business. The Institute combines Genpact's deep expertise in process management, analytics, and technology with the insights of our research partners and clients. Projects are led by leaders and subject matter experts from Genpact's offices around the world. These teams also draw on a global network of external partners and industry experts, and benefit from our extensive connection with hundreds of large clients globally.

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About Genpact

Genpact (NYSE: G) stands for "**generating business impact**." We are a global leader in digitally-powered business process management and services. Our **Lean Digital**[SM] approach and patented Smart Enterprise Processes[SM] framework reimagine our clients' operating models end-to-end, including the middle and back offices – to deliver growth, efficiency, and business agility. First as a part of GE and later as an independent company, we have been passionately serving strategic client relationships including approximately one-fifth of the Fortune Global 500, and have grown to over 70,000 people. The resulting domain expertise and experience running complex operations are unique and help us drive choices across technology, analytics, and organizational design.

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