

WILL AI LIBERATE THE IOT'S POTENTIAL?

Dreams of a fully operationalized IoT are poised to come true with the infusion of AI, according to new research into the newly-coined Artificial Intelligence of Things

Bob Sperber

When deployed in tandem, artificial intelligence (AI) and the Internet of Things (IoT) can bring powerful new capabilities and competitive advantages—a net effect that is greater than the sum of its constituent parts.

This is the central finding of a new study conducted by SAS, Deloitte and Intel with research from IDC based on survey of 450 global business leaders. Entitled “AIoT: How Leaders Are Breaking Away,” the survey report indicates that this combination of technologies, dubbed the Artificial Intelligence of Things, represents a key competitive advantage that already has passed from pilot-scale tests to early rollouts.

As companies grow into a fuller implementation of IoT, they begin to realize that the tremendous volumes of data generated are difficult to tame. In this context, the combination of AI with IoT is a natural fit for gaining insights that can help advance not just operational goals but business strategy.

Consider some of the findings the research brought to light:

- 99% of respondents said, in aggregate, the benefits of

using AI together with their IoT solutions met or exceeded expectations.

- 90% of respondents who reported heavy use of AI for IoT operations said it exceeded their expectations for value.
- 35% of senior leaders cited increased revenue as the single most important area of improvement they expected to achieve from their IoT efforts.

Overall, projects that combine IoT with AI are having a greater-than-expected impact in operations, the enterprise and ultimately, the bottom line.

THE EXPECTATIONS GAME

It came as a bit of a surprise to IDC’s Maureen Fleming, program vice president for intelligent process automation, that leaders value the addition of AI to IoT projects as highly as they do. She confessed to Smart Industry that in her travels and client encounters, she’s been “barraged” with negative feedback to the point where “it seems like everywhere I go people are talking about the high failure rate of digital transformation efforts.”

Naturally, she expected lower engagement among respondents. “But what we found true is the exact opposite.”

One possible explanation for the surprising, healthy attitude toward this thing called AIoT is that it’s the IT and operations leaders who fret over the details more than the CEO’s office. According to the research, 56% of senior leaders believe their AIoT projects significantly exceeded expectations, a margin 18% greater than operations-related teams and 31% greater than data scientists and IT leaders. Interestingly, operational leaders were the greatest proponents of IoT alone (Figure 1).

“In my experience, senior executives tend to be a lot more optimistic than those at other levels in the organization—it’s kind of a requirement for the job,” says Shak Parran, partner at Deloitte Canada and analytics leader for its Omnia AI practice. Below the top floor, he says, the practical reality of putting these capabilities to work can make data scientists “a little more pessimistic. They know that their data has to be cleaned up, they have to teach machines to do the

right things, their processes have to be optimized, and so on. They see the obstacles, because that’s what they’re responsible for navigating.”

The good news is that this attitudinal gap may close over time, if an observation by Melvin Greer, Intel’s chief data scientist, comes to fruition. “Over the past 24-36 months, we’ve seen ample evidence of chief data officers moving into the CEO suite.”

A COMPETITIVE AI-VANTAGE

As implementation teams have matured, so has the likelihood of success with digital transformation initiatives. For successful projects, focus shifts from connecting devices and collecting new and different data to the next step of the journey, analytics. From analytics to the use of AI is another step forward in the ability to filter, correlate and uncover complex relationships. The researchers confirm that industrial firms are indeed moving from proofs of concept and pilot tests to production systems with analytical approaches that incorporate AI.

The key to driving long-term, sustainable value with AIoT lies in building experience with large-scale rollouts, with higher levels of automation, throughout the organization. And the only way to reach that scale

with AIoT is to increase the level of automation, according to Oliver Schabenberger, COO and CTO at SAS. “So many CIOs I talk with say automation is a primary focus, to make IoT-related analytics insights consumable by business analysts and others, not just the data scientists.”

In turn, the reason to scale-up and automate is to gain a competitive advantage. And, the report shows, companies that use AI and IoT together are more competitive than those using only IoT.

When asked about their success across six major initiatives—from speeding-up operations to improv-

ing productivity and reducing costs—those respondents who used AI in conjunction with IoT said they were significantly more successful than counterparts who used only IoT. For instance, 53% of leaders reported significant value in using AIoT for speeding-up operations as compared to 32% using IoT without AI. Roughly similar numbers hold for initiatives to improve employee productivity, streamline operations and provide new digital services and innovations. In all cases, there was a double-digit gap between users of AIoT and IoT alone (Figure 2).

Of the six initiatives examined, AI

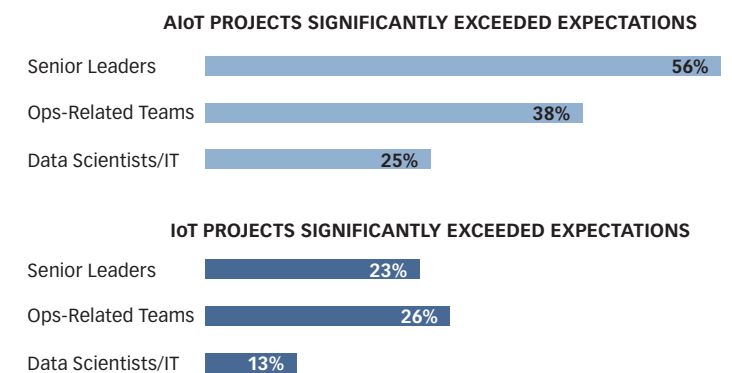


Figure 1. While more survey respondents across all title groups agreed that AIoT projects significantly exceeded expectations more often than IoT projects, senior leaders perceived both types of projects more positively than those on the front lines.

Industry's a leader in digital transformation

Relating to the two components of the newly-coined “Artificial Intelligence of Things,” research findings from IDC released earlier this year show that both are growing at a steady clip. Discrete manufacturing and the process industries are among the leading industries driving this growth:

Internet of Things: Worldwide spending on IoT deployments is expected to be \$726.5 billion worldwide this year. Top-spending industries—discrete manufacturing, process manufacturing, transportation and utilities—must now turn their focus to finding solutions to manage, process, and analyze the profusion of data the IoT brings.

Artificial Intelligence: Spending on artificial intelligence (AI) systems will top \$35.8 billion by year’s end, an increase of 44.0% over 2018. The five top-spending industries, in order, are retail, banking, discrete manufacturing, healthcare providers, and process manufacturing. Researchers foresee the AI spend topping \$79.2 billion by 2022.

Both IoT and AI are part of the larger set of dollars spent on digital transformation. Research indicates that spending on IT and services supporting digital transformation will grow 17.1% (CAGR) between 2019 and 2023 to reach \$2.3 trillion, with discrete and process manufacturing accounting for nearly 30% of the total spend.

IDC’s Fleming, calling this the “most interesting” finding of the study, explained that improving the speed of sensor data refresh combined with AI “expands an organization’s ability to focus on immediate planning, while also quickly identifying and resolving operational problems. The combination produces greater agility and more efficiency.”

More generally, those who use AI this way broaden their toolset to address issues of supply and demand, product quality, merchandising and more, says Intel’s Gadgil: “They’re focusing on issues like productivity, but they’re also looking for the next opportunities for transformation in their business...they’re pushing their organizations to connect the dots and see how some of these new technologies can contribute.”

was seen to be least important in the area of reducing costs/expenses. This is not unexpected, according to Jason Mann, vice president of IoT, SAS. Companies are primarily focused on three core business objectives: “achieving higher levels of operational efficiency, improving top-line growth and enhancing customer engagement,” he says. While cost-cutting is important, it’s typically not a strategic business driver.

Companies who refresh their data at least once a day were asked about the role AI plays in rapid, tactical planning. When AI isn’t in play, IoT data is “overwhelmingly” applied to operational decisions (68%); only 12% use IoT for day-to-day planning-oriented decisions. But with the introduction of AI, “the number of respondents using this data for day-to-day planning nearly triples, increasing to 31%.”

INCREASED REVENUE IS JOB ONE

Leading companies that use AI to leverage data beyond its own operations and into the supply chain “are better able to drive value back to your customer, and build a portfolio of data-driven services,” says Bill Roberts, senior director in SAS’ IoT division. Further, after 12-24 months of using AI + IoT, users reported decreased costs or expenses (85%), improved employee productivity (87%) and streamlined operations (86%).

“Logic and intelligence are now going to be distributed across the architecture, right back into the service center, onto the device or truck or piece of equipment,” Roberts says.

Among the benefits sought for their IoT efforts, increased revenue topped the list for senior leaders across geographies, industries, and companies of all sizes. And if the improved results reported by those who have begun to add AI to their IoT connectivity projects is any indication, the AIoT has a bright future indeed. ■

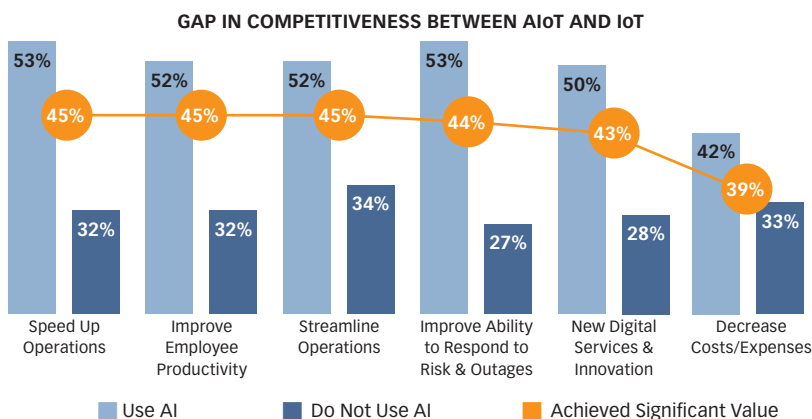


Figure 2. Those survey respondents whose organizations used AI in conjunction with IoT were significantly more likely to achieve significant value than those who used only IoT.