

AI BREAKING GROUND

Impacting the Business Sector and Beyond

By Anthony Schoettle



Purdue University, which launched the nation's first university computer science department in 1962, has been at the forefront nationally of developing new uses for artificial intelligence, including in robotics and other applications.

Unless you've trod off the grid, it's nearly impossible to live a single day without encountering artificial intelligence (AI).

Search engines use it to find results. Service providers – ranging from plumbers to dentists – utilize it to answer phones and set appointments. Manufacturers use it for a growing array of assembly lines and projects. Logistics firms use it to fetch packages and optimize their delivery, and on and on.

The push for municipalities, businesses and other organizations to find new ways to use AI to drive efficiencies, boost productivity and fuel profitability continues unabated.

“Early – and strategic – adopters of AI are most likely to be the biggest winners,” imparts Adam H. Berry, Indiana Chamber vice president of economic development and technology. “While those lagging could find themselves playing a game in which it is difficult – or perhaps even impossible – to catch up.”

But AI is no silver bullet, he emphasizes.

“You don't just wave a magic wand and implement AI,” Berry says. “You have to train people and invest wisely. The technology must be employed in a deliberate and intentional way.”

The best approach by businesses, he adds, is using AI to increase the efficiency and productivity of your workforce – not replace it.

“AI is hugely important, and it's only increasing in its importance,” contends Brian Williams, professor and chair of the Virtual Advanced Business Technologies Department at Indiana University's Kelley School of Business.

Of course AI isn't the first revolutionary technological advancement to impact business. Its effect is on par with technologies such as email and the internet. But there's one big distinction, Williams notes.

“The main difference with this and other revolutionary tools is the pace with which AI is being adopted and the pace of change it's creating,” he states. “In that respect, AI is like nothing else we've seen. In addition to that, it has such broad applications, it's creating this reaction where there's a rush to take advantage of it and a fear of being left behind.”

John Wechsler, founder of incubator and co-working space Launch Fishers who now runs Hamilton County tech startup Spokenote, thinks AI “is way more on the transformational and foundational side than that of merely a trend.”

“It's like running water or electricity,” he says. “Those things changed the way communities were built, and that's what AI is going to do for business. I'm talking about AI in the broad sense. Using machines and compute capacity to analyze, think and build.”

Wechsler has watched closely as the technology has evolved. “AI is becoming approachable. It used to be available only to the ultra techies; now it's available to everyone. And that's changing the way we do business on a massive scale.”

On the government front, AI is at the center of major initiatives from the White House and Capitol Hill to the state Legislature and local governments from Fort Wayne to Evansville and every place in between. Smaller cities and towns, including places like Greencastle and Seymour, also are looking for ways to boost productivity and increase efficiencies using the emerging technology. AI is being used in municipalities big and small for everything from policing and security to waste management and wastewater treatment.

Even the new Pope, Leo XIV, is making artificial intelligence a central focus of his papacy. He recognizes the immense potential of AI but also emphasizes the need for ethical guidelines to ensure it benefits all of humanity. He has even chosen the name Leo XIV in part because of his interest in AI, drawing a parallel to Pope Leo XIII's focus on social issues during the industrial revolution, according to news reports.

Big business impact

The real-life effects of AI are being seen in many domains. The business sphere is where it has the highest potential to make the greatest impression, experts agree. And the results are undeniable. People using AI in various workplaces are 25% faster and produce outputs

that are 40% higher quality, concluded a recent Harvard Business School study.

Neerav Shah, chief strategy officer for Indianapolis-based Arrive AI, thinks those estimates are likely conservative.

“I've seen AI boil down an 80-hour job to a few hours – or even less in some cases,” Shah relates. “AI makes everything we do so much better, more efficient. The ability with AI to get a more refined product out faster is mind-blowing. It allows businesses to save so much time. And with AI, your work output is far superior.”

Startups and scaleups like Arrive AI, a firm focused on transforming product delivery, security and customer experience with advanced AI and technology including smart package receptacles and drones, are in prime position to benefit from AI.

Ting Gootee, president and CEO for Indiana tech advocacy organization TechPoint, sees the dawn of a new era of AI-enabled entrepreneurship.

“In my more than two decades working at the intersection of innovation, venture capital and economic development, I've had the privilege of supporting hundreds of Indiana entrepreneurs, many with bold ideas, but limited access to capital, teams or infrastructure,” Gootee explains. “Launching a startup in the past often required significant capital and a team of engineers, marketers and operations staff.

“With AI's rise, we're witnessing a shift,” she adds. “Founders are building companies with smaller teams, faster timelines



Indiana University researchers are using AI to develop a new breed of autonomous vehicles, which tech experts say is one of the technology's most complicated uses.



Arrive AI, a Hoosier firm pioneering an autonomous delivery network driven by artificial intelligence, plans to triple its workforce by adding approximately 40 new team members. This strategic hiring initiative is a direct response to the company's aggressive global expansion and scaling of its platform services.

and lower upfront costs, and they're scaling faster than ever before. Today, artificial intelligence is fundamentally reshaping what's possible for founders. AI is not just a tool. It's becoming a co-founder."

According to business and technology research firm McKinsey & Co., generative AI alone could add up to \$4.4 trillion annually to the global economy and automate as much as 70% of tasks in fields like software development, design, marketing and customer service.

"This unlocks enormous potential for entrepreneurs, especially those in capital-constrained or underserved markets," Gootee emphasizes.

If AI is seen as a super high-speed vehicle, the fuel to that engine is the greatly expanded capabilities of computers from handhelds to desktops and mainframes. Consider, for instance, the ubiquitous iPhone, which has computational abilities greater than the original Mars Rover.

AI's arrival and blurring the lines

While AI has burst onto the scene – and into the business sector – accelerated by the release of ChatGPT, a generative artificial intelligence chatbot, in November 2022, the technology has been around for many decades.

The field of AI came to life – or at least was formally founded at a 1956 conference at Dartmouth College in New Hampshire, where the term "artificial intelligence" was coined by computer scientist and professor John McCarthy. Various strands of research under the heading of "thinking machines" were explored at the conference.

McCarthy's coining of "artificial intelligence" seemed appropriate at the time but is now the source of significant confusion. His thought – and the thought of others at the

time – was that computers would never have the capacity to think or reason. His idea was that the cognitive functions of the human brain were "real," while any functions of computer software would be "artificial."

The U.S. military in the 1960s began investing heavily in AI, but with little progress. Federal authorities started pulling research funding in the late 1960s, triggering what computer scientists called the "AI winter." AI has seen at least three cycles of boom and bust, industry experts said.

Algorithms – essentially sets of fixed instructions that allow computers to make calculations and other computations – are at the heart of artificial intelligence. AI-based algorithms allow software to make adjustments and come to new conclusions as more data is collected.

But today, computers work much like the human brain, which is why some experts use the term "neural networks" to describe artificial intelligence. Others prefer to distinguish between "machine intelligence" and "human intelligence."

One thing is certain: The gap between what machine intelligence and human intelligence can accomplish is narrowing – or even blurring. And that has given life to fears that AI will, sooner or later, make human workers dispensable.

There have already been examples of AI replacing human workers. Glassdoor, the hiring and public HR platforms that has transparently connected employers with online applicants, announced in July it will replace 6% of its staff – 1,300 workers – with AI. But many tech experts think the fear that AI will replace a large swath of human workers is overblown and instead believe

workers and companies that best understand how to utilize AI alongside human workers will thrive.

A better understanding of AI

When contemplating AI and maximizing its positive impacts, it's best to grasp the technology in its different forms.

There are generally three different categories of AI. Diagnostic AI detects patterns, identifies root causes and answers, "Why did X occur?"

Predictive AI predicts future outcomes, calculates risk analysis and answers "will X occur?"

Generative AI, the latest iteration of artificial intelligence, refers to a branch of AI that focuses on creating or generating new and original content, including text, images, audio and video. It mimics human creativity by learning patterns from existing data, then using this knowledge to generate new and unique outputs.

Generative AI is getting much attention these days and rightfully so. (See page 40)

IU's Williams says generative AI platforms like ChatGPT "are a game-changer because you can interact with the computer using natural language, which makes it very accessible and very flexible."

"ChatGPT is the fastest-adopted application in the history of the world," he adds. "I think it just shows the demand for these tools."

Where we're headed, what it means

Let's consider the AI business sector-level workforce impact. In Indiana, already 29% of advanced manufacturing work hours are or will soon be affected by AI, according to a

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2025 Accenture-Indiana Chamber Foundation study. In logistics and transportation, 33% of work hours are or soon will be impacted by AI, in life sciences businesses it's 38% and in agbiosciences it's a whopping 53%.

This is reflected in an analysis of Indiana job postings, where there were virtually no job postings that sought generative AI skills as recently as January 2023 and nearly 2,300 such job postings in Indiana by August 2024, per the Accenture-Chamber study.

Best practices for AI are still developing, but some common themes have emerged.

First, experts say, don't use a free version of AI software if you want your ideas to remain confidential. And business owners must know the terms and conditions of the AI software they're using to maintain their trade secrets. AI fatigue is real, experts add.

For instance, the formula used by ChatGPT is recognizable and can lead to questions about authenticity. Though AI is continuing to evolve, and is even learning empathy, it hasn't yet proven it's a suitable replacement for human workers in many cases.

But the biggest lesson so far, Wechsler says, is this: "AI levels the playing field. Whoever is best at using AI really has a chance to advance. It means two kids in tech hotbeds like Menlo Park or Austin, Texas are no better than two kids in Kokomo, Indiana. With AI, geography matter less, and that's opening up tremendous opportunities in all kinds of places – including Indiana."

RESOURCES: Adam H. Berry, Indiana Chamber of Commerce, at www.indianachamber.com | Ting Gootee, TechPoint, at www.techpoint.org | Neerav Shah, Arrive AI, at www.arriveai.com | John Wechsler, Spokenote, at www.spokenote.com | Brian Williams, Indiana University, at www.indiana.edu