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Picture yourself riding in an autonomous vehicle, such as those developed by Waymo. You select your destination using a touch screen or phone app and relax while the car relies on a laser-based mapping system to plot a route. The car steers itself through highway traffic, relying on sensors to keep a safe distance from surrounding cars. The car accelerates, stops, slows down, turns, and changes lanes. It processes a huge volume of data continuously to sense and respond to changing conditions, such as a car nearby veering into your lane. If necessary, your autonomous car sounds a warning telling the driver to resume control.

This reality is here – and it's going to become more common, thanks to the uptake of artificial intelligence needed to power autonomous vehicles. For example, industry experts estimate an autonomous vehicle can generates close to 10TB per hour. This data comes in many forms and from many sources. Sophisticated models are trained to work on these data and provide command and insight at real time.

At the same time, the car itself is a physical manifestation of something bigger: AI is changing businesses everywhere. The AI behind autonomous vehicles promises to improve the way businesses operate over and beyond the manufacture of autonomous vehicles. According to a report issued by MITSloan, 91 percent of businesses believe AI will deliver new business growth by 2023. That growth will result from businesses managing a number of functions more efficiently, such as customer service, hiring, and IT security, among many others. According to Accenture, AI will improve worker productivity alone by up to 40 percent. Early adopters already use AI to increase sales efficiency, cut down the operational cost, enhance the customer's experience, and improve revenue. Here are seven ways AI improves core processes to fuel business growth.

Seeing: Using Computer Vision to See Broader and Deeper

The world has become increasingly filled with digital images from cameras and videos. In fact, people take 14 trillion photos daily. Without something to process it all, it is far less useful and usable than it should be.

Computer vision is a field of AI that trains machines to see and understand the visual world better than humans do. From facial recognition, to object tracking and detection, to goods inspection in production line, to image analysis in healthcare, AI sees broader and deeper than a person can.

AI is already helping manufacturers better orchestrate analytics, machine learning, mobility, and real-time monitoring to enable faster revenue growth than their peers. Applications include automated predictive maintenance, automated safety intelligence, and risk prevention systems.

Sensing: Capturing the Meaning from Social Context and the Physical Environment

Social media makes it possible for customers to provide a mind-numbing amount of feedback – whether via comments posted on a Facebook wall, a review on Yelp, or a tweet, among many other touch points. Most larger businesses simply cannot employ enough people to keep track of customer sentiment. And yet, understanding customer sentiment – both written and spoken — is important to get a good sense of customer requirement and intent. As natural language processing and machine learning evolve, data science is adding the power of extracting the subtle and precise meaning hidden in the context.

Of course, machines send signals, too. Industrial equipment sends a warning signal when it's about to malfunction, for instance. With AI, industrial firms are utilizing sensors and devices to sense signals such as temperature, humidity, smell, smoke, pressure, proximity, chemical, and radiation. With the rich real-time data stream acquired and accumulated, AI can redefine many use cases that generate new revenue streams and service models.

Communicating: Engage with Customers and Employees

AI improves communications in myriad ways. For instance, consider consumer service functions,

where machines can tackle more routine issues while people manage high-touch/high-interaction issues. Front-end applications such as chatbots, combined with natural language processing, speech, and text recognition, the knowledge graph, and data science are increasingly being used to support call centers, HR, and training. Also, employer-to-employee communication and employee-to-employee collaboration are enhanced by AI-enabled digital assistants available anytime and anywhere. AI can take notes, send email, schedule meetings, send reminders, and even enhance the content. Enterprise knowledge workers can focus on most important work while digital assistants handle simple and routine communications.

Learning: Self-Teaching to Improve Performance

When many companies talk about AI, they are in fact talking about machine learning, which is the ability for machines to learn from past experiences to change the outcome of future decisions. The past experiences are culled from huge amount of data. Learning is the most interesting aspect of AI that resembles human thinking. A popular definition of machine learning is this: the science of getting computers to act without being explicitly programmed.

With machine learning and deep learning algorithms, machines can be trained to become intelligent to handle sophisticated logic, reasoning, planning, and problem solving. A robot can be trained to walk and run, conduct assembling work, or even become a security guard.

Inferring: Making Sense of Data and Knowledge

In sales, marketing, and finance processes, AI can offer business efficiency to the entire customer lifecycle especially in these areas: acquisition of new customers, increase customer value by upselling and cross-selling, and acceleration of cash generation. All this is done through gathering vast amount of customer data, building a knowledge base, the data and making sense of data.

In the fast-paced business world, people’s attention spans becomes shorter, and they make decisions rapidly. AI can help sales process automation, comprehend customer behavior, understand market segment, enable expert shopping advice, mitigate financial risk, and make better product recommendations. By embedding AI in the processes, businesses can quickly deliver revenue stream and sustainable growth.

Predicting: Generating Insight and Predicting the Unknown

Leveraging machine learning and deep learning, businesses can build models to extract insight from the data, and apply the model to new data to predict the future or unknown event. The use cases are many, covering sales forecasting, supply/demand/inventory forecasting, fraud detection and prevention, predictive maintenance, and recommendation.

In marketing, predictive analytics are used to determine customer responses or actions, helping businesses attract, retain, and grow their most profitable customers.

Acting: Intelligent Process Automation

With the power of networking and the cloud combined, AI makes true automation possible. In CRM, ERP, and supply chain management, intelligent process automation connects business processes and interacts with humans to perform many routine tasks. AI monitors and tracks many key business processes. Robotic process automation (RPA) is an example, because it automates tedious and repetitive processes, and allows the skilled workers to focus on more critical and complex work. AI-embedded RPA is more powerful as the manually disconnected actions become connected, intelligent and autonomous.

Pact.AI Can Help

Of course, AI doesn't magically activate itself. Businesses need help making it a reality. With Pact.AI, Centific provides a complete end-to-end portfolio of data science and data engineering services, AI application enablement, AI solution accelerators, advanced AI frameworks, and end-to-end delivery that will establish, elevate and enable your AI product vision. Centific is helping clients in high tech, banking/financial services/insurance, telecom, retail, consumer packaged goods, manufacturing, and healthcare solve various business challenges with AI. Contact us to learn more.

About the Author

Yingwu Gao is Head of the Centific's AI and Product Engineering practice team, specializing in enterprise products, AI, Data Science, IoT, Cloud and DevOps. Her team plays a vital role in defining and building newer market relevant products and services, such as Cloud and AI for Enterprises, and Pact.AI innovation