Ai Agents a reality

AI Agents already in action impacting three key sectors. Like most other technologies, AI is going through a huge hype cycle right now. One of the key challenges many businesses are facing is to see ROI in the large AI projects they are backing. One of the challenges many business leaders are facing is some of these pet projects have longer term value realization, but shareholders may want to see returns in the shorter term as soon as a year or 18 months.

We **@Intuit Research** have been working on multiple projects with our clients with AI being a key theme of research trying to demarcate the hype from reality. In the recent round of insights, we spoke with 12 technology leaders who are hands-on in developing AI solutions for their clients or internal business stakeholders. Based on these inputs we see three key sectors where AI agents are expected to make a real change in the way these sectors operate including a huge impact on productivity gains for organizations that are able to leverage these agents successfully.

Some of these agents are already quite well developed while others are still work in progress as organizations continue fine tuning them. Here are the top 5 agents and the way they will function in the words of these AI developers themselves. We looked at sector specific agents beyond chatbots and customer service agents which already exists across sectors.

Sector 1 : Financial Services

1. Fraud Detection Agent

Think of the AI agent who can work tirelessly like a digital detective, constantly scanning transactions for suspicious activity. She can analyse thousands of data points in milliseconds, spotting patterns that human analysts might miss or ignore.

A realistic example – Say someone suddenly makes a large purchase in a foreign country, the agent can instantly flag it and alert the customer, potentially stopping fraud before it happens. This is being deployed at many banks and is the most realistic example of agentic AI in action.

2. Personalized Financial Advisor

Imagine having a financial expert at your disposal that is available 24/7, this agent tailor's advice to suit your individual situation on an ongoing basis. The agent understands that your needs, liabilities, commitments evolve every quarter. It analyses your spending habits, income, and financial goals to provide customized investment strategies and budgeting tips.

It's like having a personal financial guru in your pocket, helping you make smarter money decisions every day, although you will be in control with executing those actions. There is a major step change between financial advisor and automated trading agent. The former is what people seek today, but one day as AI gains more trust the same agent can be empowered to take decisions on your behalf.

3. Compliance Monitor

Imagine a tireless legal expert that keeps financial institutions on the right side of the law. This AI agent that continuously scans new regulations and company practices, flagging potential compliance issues before they become problems. Currently it is quite a cumbersome process as new regulations and requirements are very dynamic and keep changing.

An AI agent will be both relentless as well as up to date on the latest changes from a compliance and regulatory perspective. It may feel as if an organization has hired a team of lawyers working around the clock to ensure the company follows all the rules. This will not only save time and cost but impact brand reputation as many of these compliance issues are due to changes in the requirements.

4. Credit Scoring Agent

This AI is like a super-fast, ultra-fair loan officer who cannot be influenced by interpersonal relationships or prior bias. It can analyse a person's financial history, spending patterns, and other relevant data to determine creditworthiness in seconds.

This could lead to fairer lending practices and quicker loan approvals, potentially opening up credit access to more people. Interestingly this can also bring a large chunk of people from developing markets who do not have a credit score built in yet, so newer frameworks and systems can be built and acted upon faster.

5. Expense Management Agent with predictive analytics spin-off

Think of this agent as a smart personal accountant. It automatically categorize expenses, flag unusual spending, and even predict future costs. This agent will save companies significant time and money by streamlining expense reporting and identifying areas for cost-saving. Once the agent gathers enough information about an organization and is well trained it will be capable to forecast which products will be popular next quarter, helping banks tailor their offerings to meet customer demands.

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Sector 2 : Healthcare

1. Diagnostic Imaging Agent

This AI agent analyses medical images like X-rays, CT scans, and MRIs to detect abnormalities with high precision. It can flag issues such as intracranial haemorrhages and vertebral compression fractures, improving radiologists' efficiency and accuracy. While the final report may be made with a human intervention a large proportion of time a radiologist spends will be saved. The scalability and throughput of this agent far supersedes that of a human radiologist. A large chunk of such scans or X-rays are to rule out positives rather than identify specific nuances or to validate.

For example, it could identify subtle lung nodules in chest CT scans that human radiologists might miss, leading to earlier cancer detection. One of the big challenges for effective deployment of such AI agent will be reduce both false negatives rather than false positives. Most oncologists go for dual tests before starting corrective treatments.

2. Clinical Decision Support System

This AI agent integrates with existing Electronic Health Records (EHR) to provide evidence-based treatment recommendations. It analyses patient data, medical history, and the latest research to offer personalized treatment options. This agent will be far more valuable in developed markets where patient data and EHR databases are well maintained.

For instance, it could suggest the most effective chemotherapy regimen for a cancer patient based on their specific genetic profile and treatment history.

3. Predictive Analytics Agent

This AI uses historical data to forecast patient outcomes and identify those at risk of complications. It provides real-time insights that help healthcare providers intervene early and allocate resources more effectively. This agent is expected to save both money and lives.

For example, it could predict which patients are likely to develop sepsis in the next 48 hours, allowing for proactive treatment.

4. Scheduling and Administration Agent

These AI agents revolutionize appointment scheduling by handling bookings through voice or chat interfaces. They integrate with EHRs to provide real-time updates on available slots, reschedule appointments, and send automated reminders

This can reduce no-show rates, significantly improving clinic efficiency. In emerging markets where unplanned scenarios like traffic jams and accidents can cause huge disruption this agent proactively streamlines incoming patients by integrating nudges that are known to be very effective.

5. Autonomous Learning Agent

This AI agent process vast amounts of medical data and make predictive analyses, assisting healthcare providers in delivering more efficient care. For instance, they could analyse millions of patient records to identify previously unknown risk factors for certain diseases, leading to new preventive strategies.

These AI agents will enhance diagnostic accuracy, streamlining administrative tasks, and providing data-driven insights for better patient care and resource allocation.

Sector 2 : Manufacturing

1. Predictive Maintenance Agent

This AI agent analyses equipment data in real-time to predict potential failures before they occur. For example, it can monitor vibration patterns, temperature fluctuations, and other sensor data from manufacturing machinery to identify signs of wear or impending breakdowns. This is especially effective for production lines with mechanical movements that impact the wear and tear of production equipment. This will allow maintenance teams to schedule repairs proactively, reducing unplanned downtime and extending equipment lifespan. For process manufacturing businesses shutting down the plant for maintenance or restarting the furnace is time and cost consuming. Predictive maintenance agents leverage continuous data collected from hundreds of sensors.

2. Quality Control Agent

Using advanced image recognition and data analysis, this AI agent can detect product defects with higher accuracy than human inspectors. It can analyse thousands of products per minute, identifying even subtle quality issues that often go un-noticed with human intervention.
For instance, in an electronics manufacturing plant, it could spot microscopic flaws in circuit boards that might be missed by the human eye, reducing defect rates by a huge proportion. This agent is at the intersection of cognitive response and industrial automation.

3.Supply Chain Optimization Agent

This AI agent uses machine learning to forecast demand, manage inventory levels, and optimize the entire supply chain. It can analyse historical data, market trends, and external factors to predict future demand accurately. For example, it will update production schedules and raw material orders based on predicted seasonal fluctuations, improving delivery accuracy and reducing inventory costs. Some of the early adopters for this agent are nervous to give full scheduling and procurement rights to the agent yet. But over time once the tech proves itself this inhibition will go down like automatic software updates.

4. Process Optimization Agent

By analyzing vast amounts of production data, this AI agent can identify inefficiencies and suggest improvements in manufacturing processes. It might, for instance, optimize the parameters of a chemical reaction in real-time, adjusting temperature, pressure, and reactant ratios to maximize yield and minimize waste. This can lead to significant improvements in production efficiency and resource utilization. Currently this task has a heavy human intervention element which still relies on collecting and analysing real time information. An agent will be able to do both of this concurrently and efficiently.

5. Autonomous Robot Coordinator

This AI agent manages and coordinates robotic systems on the factory floor, ensuring smooth operations and maximizing productivity. It can dynamically adjust robot tasks based on current production needs, manage workflows, and even learn from past performance to continually improve efficiency. For example, in an automotive assembly line, it could orchestrate the movements of multiple robotic arms to optimize the assembly process, reducing production time and improving output quality. These AI agents are already transforming manufacturing operations by automating complex tasks, enhancing decision-making capabilities, and driving continuous improvement in productivity and quality.

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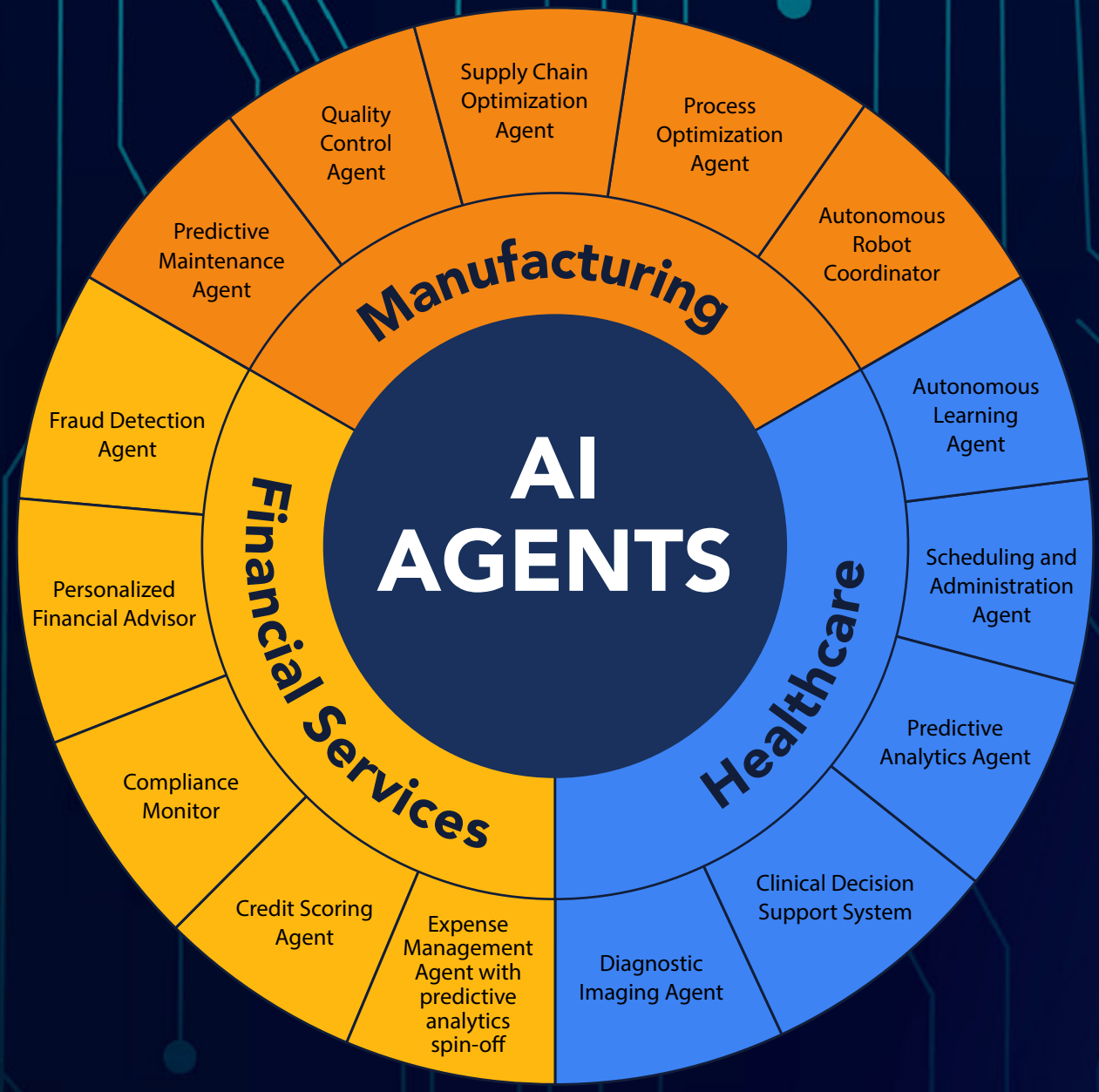

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