

# HONEYWELL INDUSTRIAL AI SOLUTIONS



Honeywell

# CHALLENGES FACED BY INDUSTRY

Today's industrial customers face multiple challenges: market dynamics are changing; geopolitical conflicts impact the supply chain<sup>[1]</sup>; and there are widespread shortages of skilled manpower<sup>[2]</sup> to run the plants.

Meanwhile, customers are saddled with aging assets facing reliability issues, including unscheduled downtime. They cannot achieve optimum production, and they incur the additional costs of ever-increasing compliance and reporting requirements<sup>[3]</sup>.

Industrial customers have reacted by undertaking digitalization journeys. On average, the oil and gas industry spent around \$25B globally on enterprise IT projects in 2022<sup>[4]</sup>. This has led to siloed<sup>[5]</sup> applications, which provide some benefits. However, the overall value of digitalization has not been fully captured at the plant or OT level, given that siloed applications may deliver insights, that contradict each other, inhibiting fast, accurate decision-making.

There is an opportunity for corporations to achieve the next generation of production efficiency:

## **Unlocking Additional Margin and Throughput**

Plants can gain between 5 and 10% throughput by optimizing their operations via Advanced Process Control (APC) systems and continuing to maintain APC over the lifecycle<sup>[6]</sup>.

## **Eliminating Unscheduled Downtime**

Oil and gas plants face 16-24 days of unscheduled downtime a year on average, which an Asset Performance Management system could help reduce<sup>[7]</sup>

## **Maximizing Human Potential**

In 2021, 23% of the industrial sector workforce in the US, 20% in the UK, and 22% of Canadian workers were over the age of 55, creating the risk of losing knowledge and skills<sup>[8]</sup> due to retirement

## **Accelerating Sustainability and Energy Transition**

In 2022, the cost burden of reporting ESG across industries reached \$2B<sup>[9]</sup>, which an Emission Management Solutions could alleviate

## **Reducing Cyber Risk**

83% of the organizations studied worldwide fell victim to a cyberattack in 2022, with the average cost of a data breach standing at \$4.45M<sup>[10]</sup>.



# HONEYWELL INDUSTRIAL AI SOLUTIONS

To address industry challenges, Honeywell is enhancing its existing offerings by integrating probabilistic and deterministic AI models to deliver an “Explainable AI”.

The goal is to improve the speed of decision-making, operational performance, reliability, and worker productivity. It does this through faster and contextualized retrieval of information, knowledge management, proactive advisories, decision support, and corrective actions.

## ENTERPRISE

**Improve Business Planning, Meet Market Demands and Lower Carbon Footprint.**

An enterprise-level AI-powered Decision Support System designed to help offer integrated perspectives across the value chain and multiple sites, and guided diagnoses and prescriptive recommendations to help make rapid decisions and enhance business performance.

The depicted products and features are in various stages of design and release. For more information about availability, please inquire with your Honeywell representative.

## EXPERION®

**Improve Operations Performance, Shift to Autonomy, and Enable Greater Throughput.**

The upcoming Experion control system will be powered by artificial intelligence. It will leverage explainable AI in the operator HMI, which can help predict failures and provide step-by-step guidance to prevent them, thereby keeping the plant running optimally.

## FIELD

**Improve Assets Reliability and Personnel Safety.**

An Integrated Field Worker system will be powered by artificial intelligence to help facilitate field operations and maintenance, and improve safety. It will help workers complete tasks right the first time, by providing technicians and operators with the correct information, tools, and guidance to complete their jobs.

## ENTERPRISE



AI-powered enterprise performance insights for executive oversight



AI-augmented workflows for diagnostics and opportunities identification



AI-driven intelligent autonomy with codified domain experience and decision support through prescriptive recommendations

## EXPERION®



AI-assisted engineering for faster project start-up and day-one-ready operations



AI-enabled operations support with predictive advisories, recommendations and troubleshooting



AI-assisted service to reduce downtime and keep system operations at optimum levels

## FIELD



AI-powered field maintenance through automated job packs, and intelligent scheduling to increase wrench time



AI-assisted field operations to increase productivity and operator safety

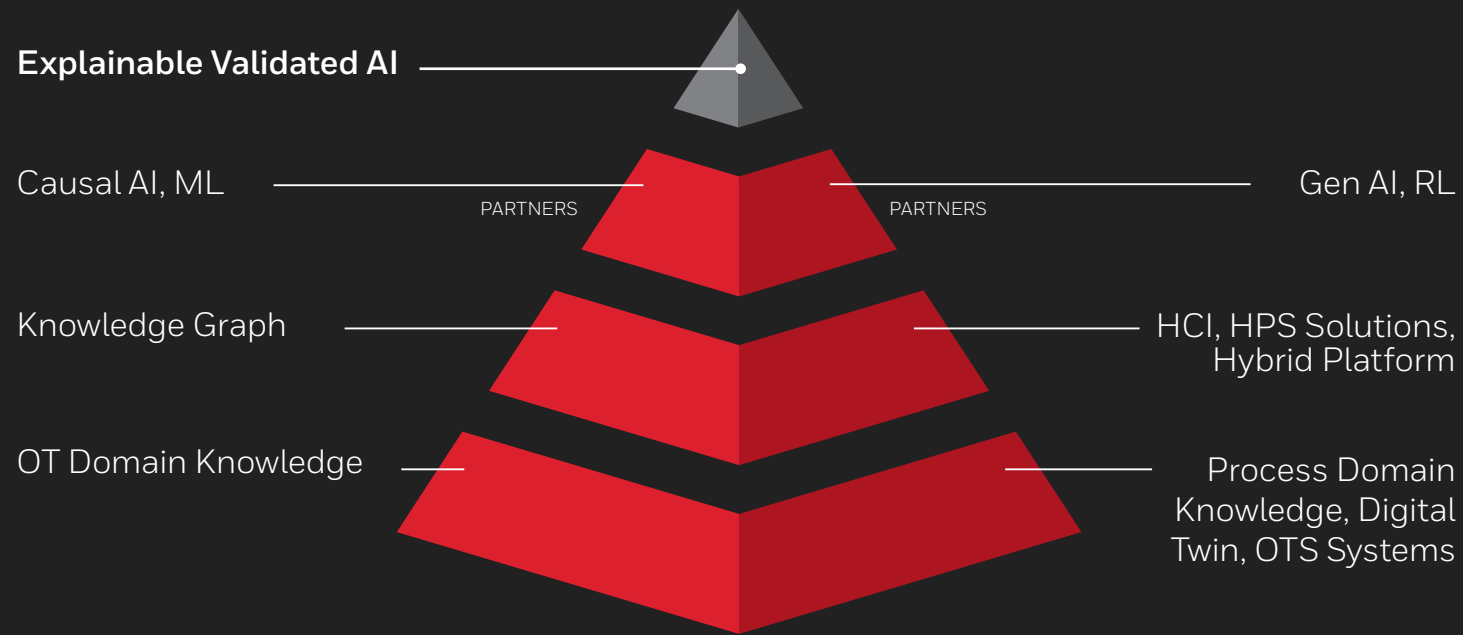
## OUTCOMES EXPECTED ACROSS THE CUSTOMER ENTERPRISE

**The Honeywell solution suite is designed to deliver benefits across the enterprise:**

- Increase plant throughput and maintain it over the plant lifecycle
- Reduce unscheduled and scheduled downtime
- Optimize head count by delegating routine tasks to the AI assistant, and allow the AI-infused solution to act as an expert advisor to early career operators and technicians
- Reduce operator risk and incident rates by minimizing exposure to hazardous environments
- Improve compliance by using AI-backed solutions for real-time emission monitoring and reporting



## TECHNOLOGY DIFFERENTIATION



## HONEYWELL: THE RIGHT PARTNER FOR COLLABORATION

We believe that Honeywell is the right partner to develop customers' AI-driven solutions. We seek to understand our customers' primary challenges and collaborate to develop holistic solutions and maintain them over the plant's lifecycle.

Honeywell brings well-established automation technology and process domain expertise, building on an 80-year legacy of installing and maintaining control and safety systems, and granting process licenses.

Honeywell's "Explainable AI" solution is being designed to help seamlessly

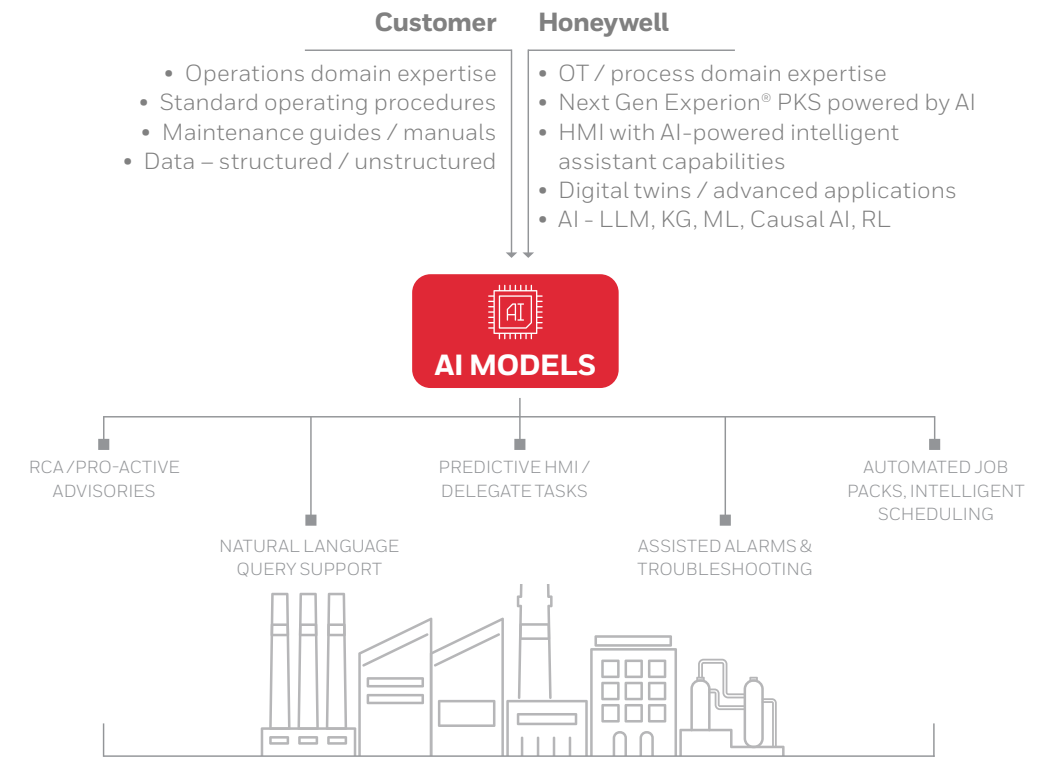
integrate years of domain knowledge, deterministic AI embedded within existing Honeywell applications and the new probabilistic AI technologies, like generative AI, causal AI and reinforced learning via knowledge graphs to parse data and deliver insights and recommendations for accurate decision making in real-time.

Honeywell has a record of delivering integrated, meaningful solutions across the enterprise, partnering with its customers, including ADNOC<sup>[11]</sup> and Codelco<sup>[12]</sup>.

## LET'S COLLABORATE ON AI SOLUTIONS TO TURBOCHARGE CUSTOMER OPERATIONS

### Suggested process for a successful collaboration:

- Appoint a joint Innovation team
- Develop the scope document and sign a MOU
- Identify suitable sites for AI solution implementations
- Create an IT/OT Cloud infrastructure for data sharing and running/ training AI models
- Identify top use cases per site, gather the relevant data sets, and develop AI models proving value
- Potentially expand to other sites



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These factors include—but are not limited to—risks associated with developing and delivering new features, the adoption and successful deployment of our products or services, slower than expected market expansion, cybersecurity incidents, interruptions or performance problems (including service outages), inability to retain key personnel, failure to integrate any new business, and worse than expected global economic conditions. Further information on potential factors that could affect our business is included on our most recent Form 10-K and Form 10-Q filings. These filings are available on the SEC's website or at Honeywell's Investor Relations website at <https://honeywell.gcs-web.com/>.

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