

ESF EUROPE 2027

DIGITALISATION & AI

MYTHS



REALITIES ✓

ADVISORY MEETING TAKEAWAYS

AI has moved beyond experimentation. The challenge now is scaling it. Across the discussion, advisors agreed that success will be determined less by technology and more by trust, governance, workforce adoption, cybersecurity, data quality and measurable business value.

The following takeaways are framed as a series of myths and realities, highlighting the gap between AI hype and the practical challenges of deploying AI across refining, chemical and other asset-intensive operations.

“

Trust is the prerequisite for scale

”

These themes will help shape the discussion at **ESF Europe 2027** in **Amsterdam on 23-25 February**, bringing together industry leaders to explore how AI can be deployed responsibly, securely and at scale to deliver real operational value.

01 Everyone is talking about AI Very few are talking about what it takes to deploy it

MYTH

~~The hard part is finding AI use cases~~



REALITY

Most refiners and chemical manufacturers already have AI use cases. The challenge is turning pilots into measurable operational value.



MARKET SIGNALS

AI is increasingly being deployed in asset reliability, predictive maintenance, process optimisation and operational decision-making across refining and chemical sites. The challenge is no longer proving that AI works, but embedding it into day-to-day operations. As a result, competitive advantage is shifting from access to the technology itself to the ability to deploy it effectively.



WHO SHOULD BE INVOLVED?

Digital leaders

AI providers

Businesses with proven experience moving AI from pilot projects into enterprise-wide deployment

02 Trust is the bridge between AI and adoption

MYTH

~~If an AI model is accurate, people will trust it~~

VS

REALITY

Without transparency, explainability and human oversight, adoption stalls. In industrial environments, nobody will act on recommendations they do not trust.



MARKET SIGNALS

As AI moves into business-critical processes, companies are introducing stronger governance, accountability and oversight. Explainable AI is becoming increasingly important in industrial environments where users need to understand and validate recommendations before acting on them.



WHO SHOULD BE INVOLVED?

AI governance specialists

Cybersecurity leaders

Risk managers

Compliance professionals

03 If you can't measure it, it isn't AI value

MYTH

~~Deploying AI automatically delivers business value~~

VS

REALITY

AI value should be measured against clear business outcomes. If the benefits cannot be demonstrated, they should not be assumed.



MARKET SIGNALS

The discussion showed a clear shift away from experimentation and towards measurable impact. Companies in the downstream industry are increasingly evaluating AI through improvements in reliability, production performance, energy efficiency, margins, safety and sustainability outcomes.



WHO SHOULD BE INVOLVED?

Business leaders

Operations executives

Digital value-realisation specialists

04 AI won't fix a bad business process

MYTH

~~AI can automate inefficiency away~~

VS

REALITY

AI accelerates existing processes, good or bad. The strongest use cases start with the business problem, not the technology.



MARKET SIGNALS

Many refiners and chemical manufacturers are becoming more disciplined in their approach to AI deployment, focusing on operational challenges where measurable value can be captured rather than applying AI simply because it is available.



WHO SHOULD BE INVOLVED?

Operational excellence leaders

Process improvement specialists

Transformation teams

05 Governance is becoming a competitive advantage

MYTH

~~Governance slows AI down~~



REALITY

Governance enables scale by creating the guardrails needed to innovate with confidence. The challenge is balancing control with adoption.



MARKET SIGNALS

Successful deployments increasingly combine leadership sponsorship, risk management, accountability and clear ownership. Governance is evolving from a compliance exercise into an enabler of adoption and scale.



WHO SHOULD BE INVOLVED?

Governance leaders

Legal teams

Compliance specialists

Digital transformation executives

06 The biggest barrier to AI may be sitting in the office, not the server room

MYTH

~~Workforce adoption will naturally follow once the tools are available~~



REALITY

People, not technology, are often the biggest barrier to AI adoption. Success depends on trust, skills and change management.



MARKET SIGNALS

Large-scale AI programmes depend on training, digital champions, workforce engagement & structured adoption. The discussion reinforced that AI transformation is as much a people challenge as a technology challenge, while highlighting the rapid shift from productivity copilots to agent-based assistants that support operational & business decisions.



WHO SHOULD BE INVOLVED?

HR leaders

Change managers

Learning & development teams

Transformation specialists

07 Your AI is only as good as your worst data

MYTH

~~The next model will solve the problem~~



REALITY

AI is only as good as the data behind it. Poor data quality will undermine even the most advanced deployment.



MARKET SIGNALS

The businesses generating the greatest value from AI are typically those that have already invested heavily in data quality, operational visibility and digital infrastructure. Strong data foundations remain a common characteristic of successful AI programmes.



WHO SHOULD BE INVOLVED?

Data architects

Industrial data specialists

Digital platform providers

08 Industrial AI still has to obey the laws of physics

MYTH

~~Generative AI alone can solve industrial challenges~~

VS

REALITY

In industrial environments, AI is most valuable when grounded in engineering principles, simulation and physical constraints.



MARKET SIGNALS

Digital twins, AI-enabled simulations & physics-based models are increasingly being used to improve reliability, performance & operational decision-making. The focus is shifting from black-box predictions towards solutions that engineers can trust & validate. Hybrid approaches are also becoming increasingly common, allowing AI-generated recommendations to be validated through simulations & digital twins before implementation in live operations.



WHO SHOULD BE INVOLVED?

Digital twin providers

Process engineers

Operational technology leaders

Industrial AI specialists

09 Sustainability may be AI's biggest value opportunity

MYTH

~~AI value is primarily about productivity gains~~

VS

REALITY

Some of AI's most tangible value comes from reducing energy consumption, lowering emissions and improving operational efficiency.



MARKET SIGNALS

The advisors repeatedly linked AI investment with operational efficiency, asset optimisation, energy performance and sustainability goals. For refining and chemical companies balancing competitiveness, energy efficiency and decarbonisation targets, AI is increasingly viewed as a tool for delivering all three.



WHO SHOULD BE INVOLVED?

Energy optimisation specialists

Sustainability leaders

Operational excellence teams

Industrial AI providers

10 AI is not always the answer

MYTH

~~Every business challenge needs an AI solution~~

VS

REALITY

The best companies start with the problem, not the technology. In many cases, process improvements, automation, engineering expertise or traditional analytics may deliver greater value than AI.



MARKET SIGNALS

As AI adoption matures, companies are becoming more disciplined in identifying where AI can create genuine value and where simpler approaches are more effective. The focus is increasingly shifting from implementing AI to solving business problems.



WHO SHOULD BE INVOLVED?

Operations leaders

Process engineers

Digital transformation teams

AI solution providers

WHAT HAPPENS NEXT?

The discussion highlighted six priorities likely to shape Digitalisation & AI initiatives over the next 12-24 months:

- 01** Scaling AI beyond pilot projects.
- 02** Building trust through explainability and human oversight.
- 03** Strengthening governance, cybersecurity and accountability.
- 04** Improving data quality and digital foundations.
- 05** Combining AI, engineering expertise and digital twins.
- 06** Demonstrating measurable business and sustainability value.

The technology already exists.

The challenge now is deploying it responsibly, securely and at scale.



Stephanie Goseine-Minderhoud
AI Transformation
Change Lead
LYONDELLBASELL



Nikolaos Giannakakis
Group Chief
Information Officer
MOTOR OIL



Liz Allen
Director Transformation
and Digitalisation
GALP



Mike Ioannou
General Manager
Digital Programs and
Products
SHELL



Karine Boccara
Sr. Director, Chemical
Consulting,
Sustainability &
Circularity Lead
S&P GLOBAL ENERGY



Simon Rogers
Chief Technology
Officer
**KBC (A YOKOGAWA
COMPANY)**



Yannis Bonis
Aspropyrgos Refinery
Industrial Control
Systems Dep. Manager
HELLENIQ ENERGY



Oswaldo Rodriguez
Head of Product &
Marketing
AKSELOS

ESF EUROPE 2027

INTRODUCING 5 NEW FOCUSED ADVISORY MEETINGS

As Europe's refining and chemical industries face mounting pressure to balance competitiveness, decarbonisation and industrial resilience, bringing the right industry voices together has never been more important.

That's why, new for **ESF Europe 2027**, we're introducing five focused advisory meetings — each centered on one of the industry's most critical themes. Bringing together senior leaders from across the sector, these meetings will help shape an agenda that reflects the industry's real priorities, challenges, and opportunities today.

02

11th September

Digitalisation & AI

Turning AI ambition into operational reality by addressing the challenges of trust, governance, workforce adoption & scalable business value.

01

10th September

Sustainable Fuels

Accelerating the scale-up of sustainable fuels by addressing investment, feedstock, policy & value-chain challenges, while advancing the technologies & partnerships needed to turn demand into supply.

03

30th September

Stakeholder Strategy

Focusing on the competitiveness of Europe's refining & chemical industries, the policies & regulations shaping their future, & the action required to strengthen the sector's long-term resilience.

04

1st October

Low Carbon Projects & Pathways

Turning low-carbon ambition into bankable, scalable projects that deliver meaningful industrial transformation.

05

2nd October

Circularity & Sustainable Chemicals

Creating stronger demand for circular & low-carbon products, reducing reliance on subsidies & regulation to stimulate the market.



Join us from **23–25 February 2027**, in **Amsterdam**, one of Europe's leading industrial hubs, which plays a central role in shaping Europe's industrial future.

I'M INTERESTED IN ESF EUROPE 2027 >>



Conference Director

Kay Mitchell

kaymitchell-downstream

kay_mitchell@europetro.com



Market Development & Commercial Director

Sandil Sanmugam

sandilsanmugam

sandil_sanmugam@europetro.com

