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CASE STUDY · MARLUC SYNOPSIS

ASML engineering AI with Mistral AI

IMPLEMENTED 2025–2026 · MANUFACTURING AND INDUSTRIAL · NETHERLANDS · BAND D · CLAIMED ONLY

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ASML, the Dutch maker of chip lithography machines, formed a strategic partnership with France's Mistral AI in September 2025 and invested €1.3 billion in it. In June 2026 ASML reported early pilots in which AI diagnostics found some errors more than 70% faster.

ABOUT THIS SYNOPSIS

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Facts and figures are as reported by the sources listed below, which may be incomplete, self-reported or out of date. Check the original source before relying on any figure.

The impact band, proof marker and SEAM view are MarLuc's opinion. The organisation is not a MarLuc client and has not reviewed or endorsed this synopsis. Names and trademarks belong to their owners.

NOTICE WORDING LAST UPDATED 16 NOVEMBER 2026

AT A GLANCE

AI used: Generative AI models and agents from Mistral AI applied to engineering diagnostics, software reliability and technical documentation.

Implemented: 2025–2026. Grade: band D, Task support, Claimed only.

Headline result, as reported: AI diagnostics found certain sub-system errors more than 70% faster in early pilots with Mistral AI, by ASML's account, June 2026

1 · The case

The facts, as reported by the 4 sources listed at the end. Where a source is silent, the field says "Not reported".

Organisation

ASML. Dutch maker of semiconductor lithography systems, based in Veldhoven. In September 2025 it became a lead investor in Mistral AI, with about 11% of the company. Canvas block: 1. Products and services. Also 4. Operations and process, 6. Data and technology.

Business challenge

The challenge. ASML says AI demand is putting more pressure on lithography systems to deliver higher performance while managing rising complexity, and that traditional approaches alone are no longer enough. It also says diagnosing faults in systems that generate terabytes of data is increasingly complex.

Who implemented it

Mistral AI (Model or cloud provider): Strategic partner supplying AI models and agents for ASML's engineering and operations; ASML is its largest Series C investor.
In-house (In-house): ASML engineering teams: Define the problems, apply the models and validate results.
Hosting and any systems integrator are not reported.

Technology (SEAM pillar E)

SEAM types: T7 AI agents. Deployment: Not reported. Vendors and products: Mistral AI, Mistral AI models and agents (specific models not reported).

Where it was built in: Engineering and service workflows: diagnostics from error logs and service records, software reliability, inspection image analysis, lithography recipe generation with a customer and technical documentation.

What changed

Before: Not reported. After: by ASML's account, engineers use AI for diagnostics, design exploration and inspection, and still define problems and validate outcomes. [1] [2] [3] [4]

What it cost

ASML invested €1.3 billion in Mistral AI's Series C round. That is an equity stake in the supplier, not reported as the cost of the deployment. The value of the collaboration agreement and any usage costs: Not reported.

What it saved

By ASML's account, early pilots with Mistral AI found certain sub-system errors more than 70% faster while matching engineers' accuracy. Baseline and method: Not reported. Financial savings: Not reported. [1] [2] [3] [4]

Governance and control

ASML says engineers define problems and validate outcomes. Its chief financial officer sits on Mistral's Strategic Committee in an advisory role. Accountable owner for the Mistral work, safe-use rules and monitoring: Not reported.

S2 · Accountable owner · Claimed
ASML's Head of AI Program and Strategy presents the programme in its own story; formal accountability for the Mistral work is not described. [2]

A1 · Safe use · Not reported
Not reported.

A2 · Human in the loop · Claimed
ASML says engineers define problems, understand system behaviour and validate outcomes in real-world conditions. [2]

A3 · Monitoring and assurance · Not reported
Not reported. ASML says the diagnostics matched engineers' accuracy in early pilots. [2]

A4 · Vendor AI · Claimed
ASML's release says its chief financial officer takes a seat on Mistral's Strategic Committee, an advisory role on strategy and technology; vendor risk controls are not reported. [1]

A5 · Agent controls · Not reported
Mistral's page names AI agents among the initial use cases; no agent controls are reported. [4]

A6 · Standards and regulation · Not reported
Not reported.

What worked, what did not, what is unproven

WORKED

– Diagnostics: certain sub-system errors found more than 70% faster in early pilots while matching engineers' accuracy, by ASML's account.

– In January 2026 ASML completed early validation of its first generative AI capability with a customer, by its account.

– ASML says more than 12,000 designs have been explored with AI so far; the story does not tie this figure to Mistral.

DID NOT

– No independent evaluation of the results is published.

– No baseline or method is given for the 70% figure.

UNPROVEN

– Whether the diagnostic speed-up holds beyond early pilots and across more fault types.

– Hosting, data controls and model choice: Not reported.

– Financial return: ASML's chief executive says cost remains a key focus, and no figure is reported.

Timeline

Sept 2025 ASML and Mistral AI announce a strategic partnership; ASML leads Mistral's Series C with €1.3 billion [1]

Jan 2026 ASML completes early validation of its first generative AI capability with a customer [2]

Jun 2026 ASML's chief executive describes AI use across the company and the Mistral partnership at imec's ITF World [3]

Jun 2026 ASML publishes early pilot results from the work with Mistral AI [2]

2 · Grade and SEAM assessment

MarLuc's opinion, made on the evidence above. How cases are graded: marluc.co.uk/case-studies/how-we-rate

Level of change and impact

Claimed: Not applicable. Grade: D, Task support. Proof: Claimed only. Level of change: Task support.

Task support (Level 1, band D). The reported gains help engineers work faster on specific tasks; no change to process, structure or cost is reported.

ASML describes AI helping engineers with diagnostics, design exploration and inspection, with engineers validating results. The figures come from early pilots without a stated baseline, and no change to process, structure or cost is reported.

The SEAM view and lessons learnt

The programme is described as a strategic relationship as well as a deployment, since ASML holds about 11% of its supplier. The results are early pilot figures from ASML's own communications. For a larger organisation, the transferable point is to separate the commercial tie to the AI supplier from the measured results, and to publish a baseline.

1. State the baseline and method behind any speed-up figure.
2. Keep engineers as the validators of AI output in technical work.
3. Record any financial tie to the AI supplier when judging results.

Evidence

Score 1 of 4. Self-reported: ASML's press release and company story, with trade press relaying the chief executive's talk; the customer is also a shareholder in the supplier and no results are independently checked.

Evaluation method. Self-reported company figures: a company announcement and company story, partly relayed by trade press; no evaluation of results.

Status. Ongoing: partnership announced in September 2025; early pilots reported in June 2026.

3 · Original sources

Read these in full. To challenge a fact or a grade, use the contact form at marluc.co.uk or the link on https://marluc.co.uk/case-studies/asml-mistral-ai-engineering

[1] ASML (via Nasdaq): ASML, Mistral AI enter strategic partnership
https://www.nasdaq.com/press-release/asml-mistral-ai-enter-strategic-partnership-2025-09-09

[2] ASML: How ASML is applying AI-native engineering for the next technology era
https://www.asml.com/en/news/stories/2026/machines-behind-machines

[3] Innovation Origins (IO+): ASML sees AI influencing every stage: chip design to fabrication
https://ioplus.nl/en/posts/asml-sees-ai-influencing-every-stage-chip-design-to-fabrication

[4] Mistral AI: ASML and Mistral (customer page)
https://mistral.ai/customers/asml

ASML website: https://www.asml.com

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