AI Didn't Replace Our Developers – It Changed Their Job

What if we're educating software engineers... for a profession that is already changing?

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Growing Digital, *Together.*

- Digitalization pioneers since 2000
- Spin-off of Fraunhofer IDMT & TU Ilmenau
- CEO, PD and main owner: Dr. Jürgen Nützel

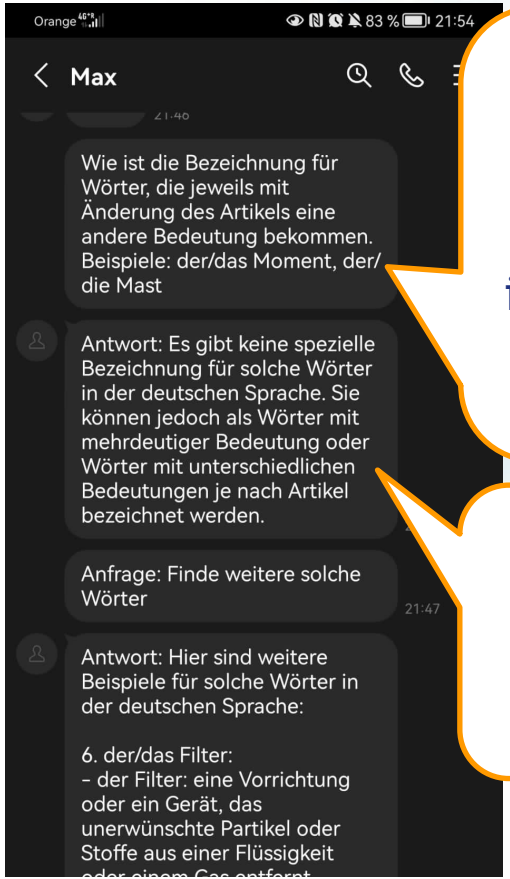
Countless projects in the areas of:

- Content and payment
- E-commerce and ERP
- Cloud and digitalization

New Name:

- Germany: deenovum Technologies AG (formerly 4FriendsOnly.com AG)
- India (since May 2025): deenovum Technologies India Pvt. Ltd.

It started in April 2023



What is the name for words that take on a different meaning each time the article is changed? Examples: der/das Moment, der/die Mast

Answer: There is no special term for such words in the German language. …

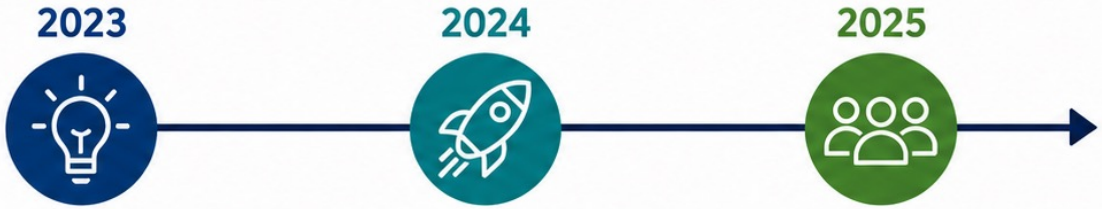
It started with a play on words. We searched in German for words with double meanings and different genders.

We had trouble finding more than 5 examples.

But a doctoral student from Hagen was quickly successful with ChatGPT.

1. AI arrived faster than expected

We did not plan an AI transformation. It happened.



First experiments with ChatGPT

Curiosity.
Trying out possibilities.

Curiosity turned into daily usage within months

Developers started using AI in their daily work voluntarily.

Almost every developer started experimenting

AI tools became part of our development culture almost overnight.

Exploration

What can AI do for software development?

Adoption

From experiments to real productivity improvements.

Culture Shift

AI is no longer "cool" – it's becoming normal. And it keeps accelerating.

What we saw

- No big strategy. No long rollout. Just developers exploring.
- Tools evolved rapidly. Expectations changed even faster.
- The transformation was bottom-up, not top-down.

Question to the audience

Did your organization experience a similar transition?

2. From experiments to customer project

The hometown of LIMMERT is Salzburg

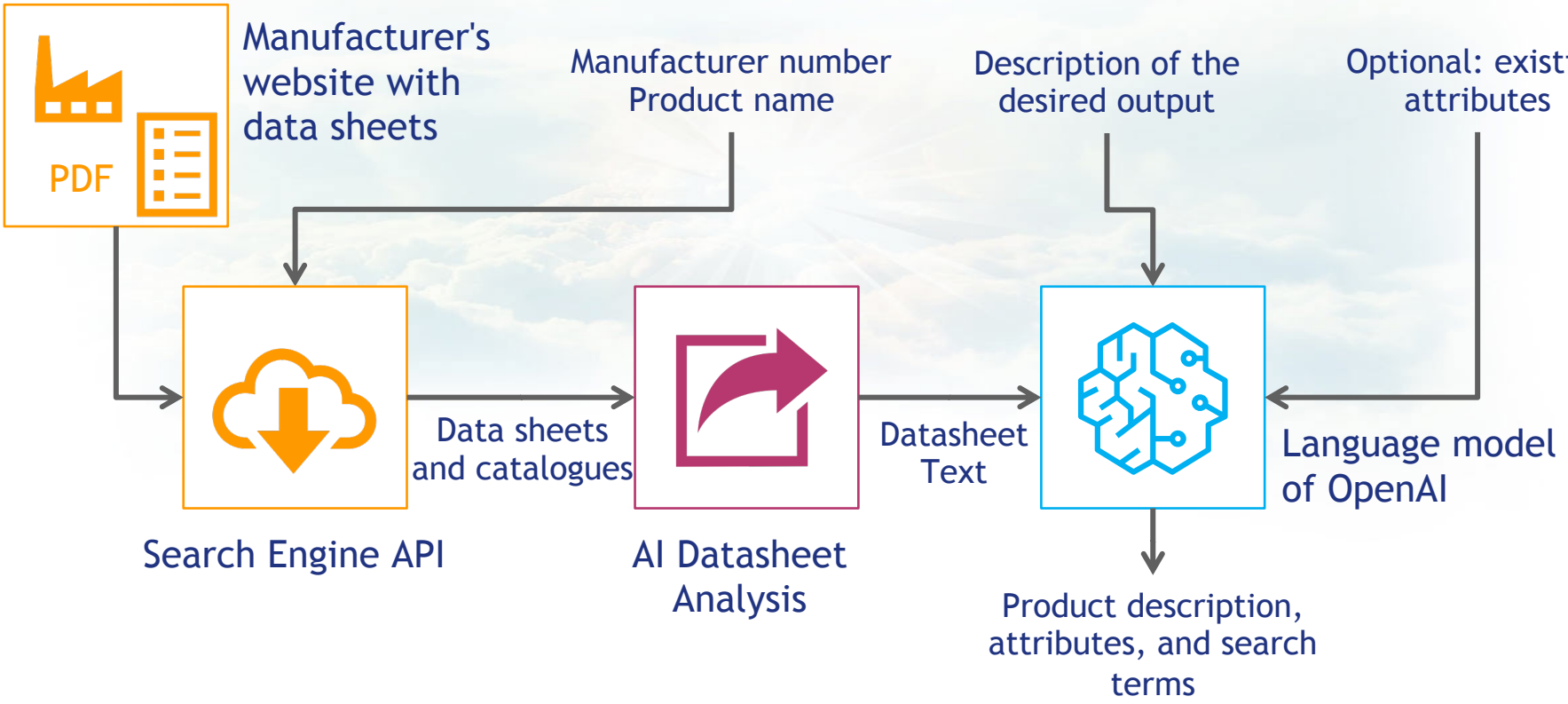
Their new Autostore System

Managing Director Thomas Canek
Owner Birgit Limmert
Father Karl Limmert

In 2023, I presented an innovative AI-based search at Limmert.
This sparked interest in more AI solutions ...

An automated solution for efficiently generating structured product data for Gbr. Limmert AG, handling hundreds of thousands of products by extracting information from vendor data sheets.

Manufacturers provide data sheets



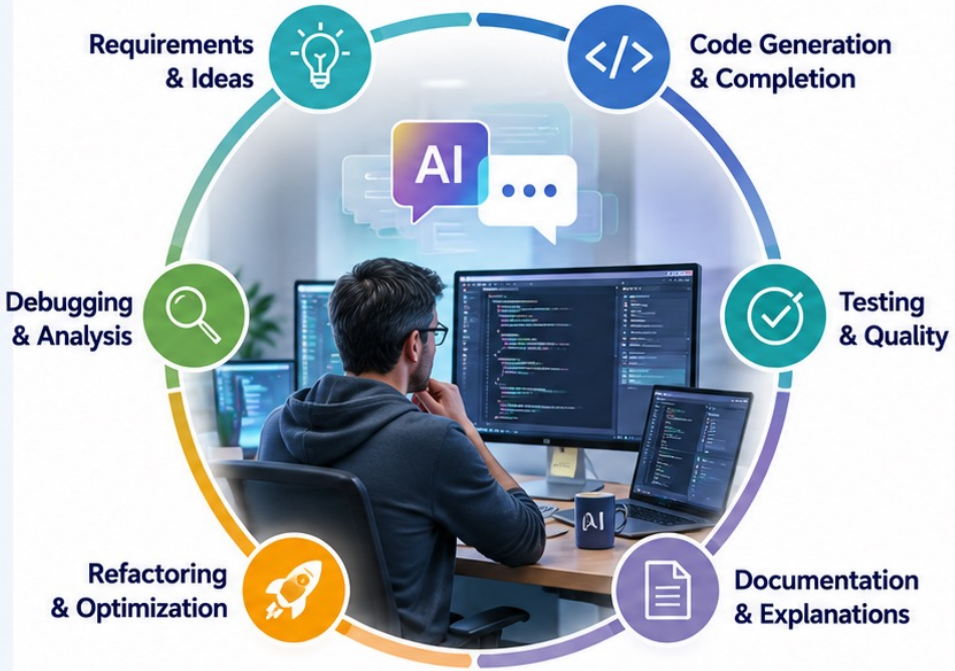
3. AI became part of daily software engineering

2025–2026: Today almost every developer uses AI.

2025–2026

AI is now an everyday part of our development workflow.

- **Not a hype anymore.**
  It's here to stay.
- **Integrated into tools and processes.**
  Not a separate activity.
- **Used across the full software lifecycle.**
  From idea to production.



Typical activities

Write less, think more
Less typing, more designing and validating.

Ask better questions
The quality of results depends on the quality of questions.

Validate & review
AI output is a proposal, not a guarantee.

Collaborate
AI as a teammate, not a replacement.

> The interesting question is no longer *"Should we use AI?"* Instead it is *"How do we use AI responsibly?"*

4. The surprising observations

Three things we learned as AI became part of our daily work.

1 Experienced developers become significantly more productive.

Because they ...

- recognize wrong answers
- ask better questions
- know alternative solutions
- validate and integrate faster

AI amplifies expertise.
Experience still matters – more than ever.

2 Junior developers become faster ... but not necessarily better.

They can now produce ...

- more code
- more architecture
- more complexity

without understanding it.

Speed without understanding creates technical debt.

3 The developer role changes.

From:
Code Writer

To:
AI-Orchestrator & Problem Solver

Less time on ...

- writing syntax
- repetitive coding

More time on ...

- understanding needs
- system design & architecture
- validation & review
- communication & collaboration

Programming becomes decision making instead of typing.

What this means for us

Focus on value, not output
The goal is working software and real business value.

Quality through critical thinking
AI can generate. Humans must validate, decide and take responsibility.

Continuous learning is essential
Tools change fast. Fundamentals remain important.

Collaboration with AI
Treat AI as a teammate – not as a black box.

Responsibility stays with us
Ethics, security, fairness and reliability are our responsibility.

AI does not replace software engineers.
It changes what makes a good software engineer.

And these observations open important questions ...
Let's discuss them!

Are We Teaching for Yesterday's Job?

AI makes implementation easier and faster. Our graduates must create measurable business value.

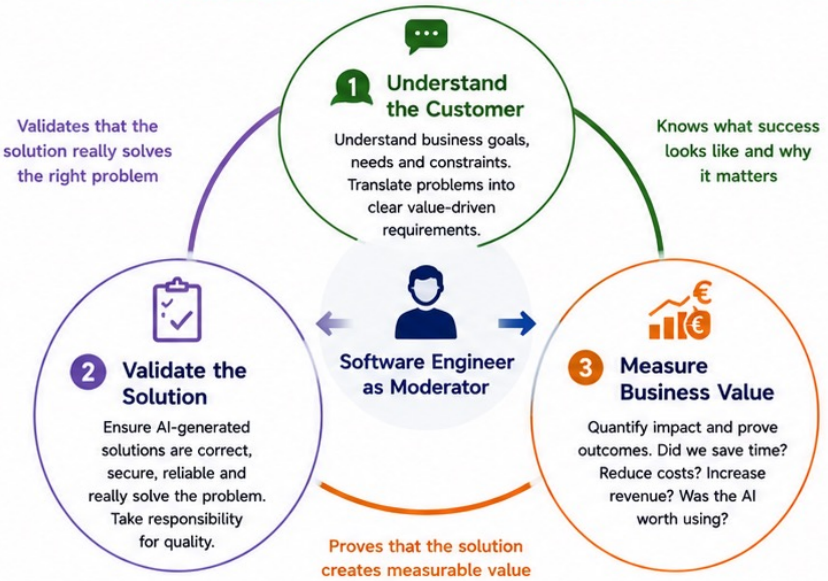
What changes?

- From: Writing code → To: Creating value
- From: Selling programming hours → To: Delivering customer value
- From: Tools & syntax → To: Impact & outcomes
- From: Learning for exams → To: Solving real problems

> If AI writes the code, education must teach students to understand the problem and prove that the solution works.

Tomorrow's Software Engineer

Moderator between Customer, AI and Business



What this means for education

- Generative AI is part of the curriculum from day one.
- Customer interaction and communication are core skills.
- Business and economic literacy are essential for every graduate.
- Testing, validation and critical thinking are central disciplines.
- Assess what students understand, not what AI or tools can produce.

Let's discuss!

- Are we still teaching too much implementation—and too little interaction, validation and business value?
- Should students use generative AI from their first programming course?
- How do we teach and measure business value in computer science programs?
- Are universities preparing code writers—or moderators between customers, AI and business?