The Intelligent Metric Expert

How AI is Revolutionizing Software Measurement Practices

Quanter
SMART AI ESTIMATION

Powered by ledaMC

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http://quanter.com

Try it for free now!

https://quanter.ai/

Studio Ghibli

Futuristic

Futuristic & photorealistic

How did we get here?

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Brief history of AI

The era of

LLMs

begins

1956

The term Artificial Intelligence was born
At the conference organized by John McCarthy and held at Dartmouth, the term was adopted.

1957

Creation of the artificial neuron.
Frank Rosenblatt presents the perceptron, his model of an artificial neuron based on the human neuron and the foundation of neural networks.

1990

New AI
Rodney Brooks from MIT proposes advancing artificial intelligence research towards a simpler model based on interaction.

1997

Deep Blue defeats Kasparov.
World chess champion Garry Kasparov is defeated by IBM's Deep Blue computer in 6 games. The computer uses search methods to evaluate 200 million possible moves per second.

2012

AlexNet wins ImageNet
Alex Krizhevsky and Ilya Sutskever win the ImageNet competition. Their new approach greatly improves the error rate compared to the second place (15% error versus 26%).

2016

AlphaGo defeats Lee Sedol
DeepMind presents AlphaGo, an artificial intelligence program that beats Lee Sedol, world Go champion. The difficulty lies in the fact that there are more possible moves than atoms in the universe.

2017

Transformer architecture
Google launches the Transformer architecture, representing a quantum leap in natural language processing applications. It starts with translation and extends to images and other data sources.

2020

LLM
Among these, OpenAI presents a universal language model trained with more than 700 GB of text, capable of performing tasks it was not specifically trained for: GPT-3.

2022...

Generative explosion

ChatGPT

Stablediffusion

Copilot

Sora

MidJourney

LLaMA

DALL-E

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Suno

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"Any sufficiently advanced technology is indistinguishable from magic."

Arthur C. Clarke

AI is changing software development world

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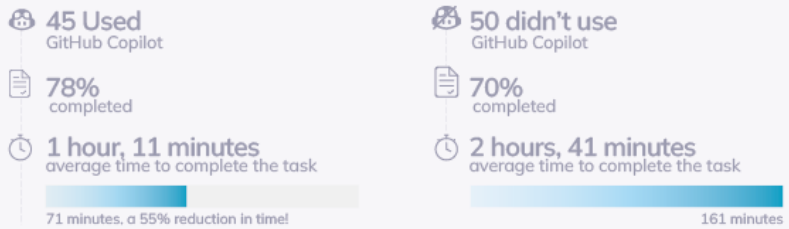
55% GitHub Copilot Study Sep 2022

Summary of the experiment process and results



Results

» The use of GitHub Copilot increases developer productivity by 55%.

Context

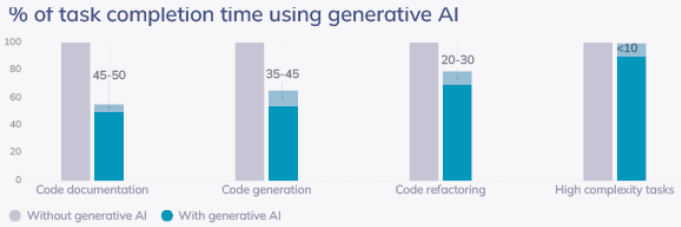
» The study compared developers using the GitHub Copilot AI tool with those who didn't.

» The research involved 95 programmers, randomly assigned to both groups.

» Participants had an average of 6 years of coding experience and spent an average of 9 hours per day coding.

Source https://github.blog/2022-09-07-research-quantifying-github-copilots-impact-on-developer-productivity-and-happiness/

45% McKinsey & Company Study June 2023



Results

» The use of AI improves productivity in code writing by 35%–45%.

» Productivity in documentation generation improves by 45%–50%.

» Refactoring tasks are completed 20%–30% faster.

Context

» Sample: 40 developers with varying levels of experience in software development.

» Over several weeks, they performed common software development tasks across three areas: code generation, refactoring, and documentation.

» Each developer participated in both the test and control groups, performing different halves of the task set in each condition.

Source https://www.mckinsey.com/capabilities/mckinsey-digital/our-insights/unleashing-developer-productivity-with-generative-ai

70%

Ness-Zinnov Study February 2024

Results

» 70% reduction in average task completion time.

» 48% reduction in task completion time for senior engineers.

» 70% improvement in engagement by simplifying tasks and fostering a more collaborative and dynamic work environment.

Context

» Sample of over 100 software engineers across different platforms

Source https://iotbusinessnews.com/2024/02/15/06523-generative-ai-improves-software-engineering-productivity-by-70-says-ness-zinnov-study/

Could AI help metric experts?

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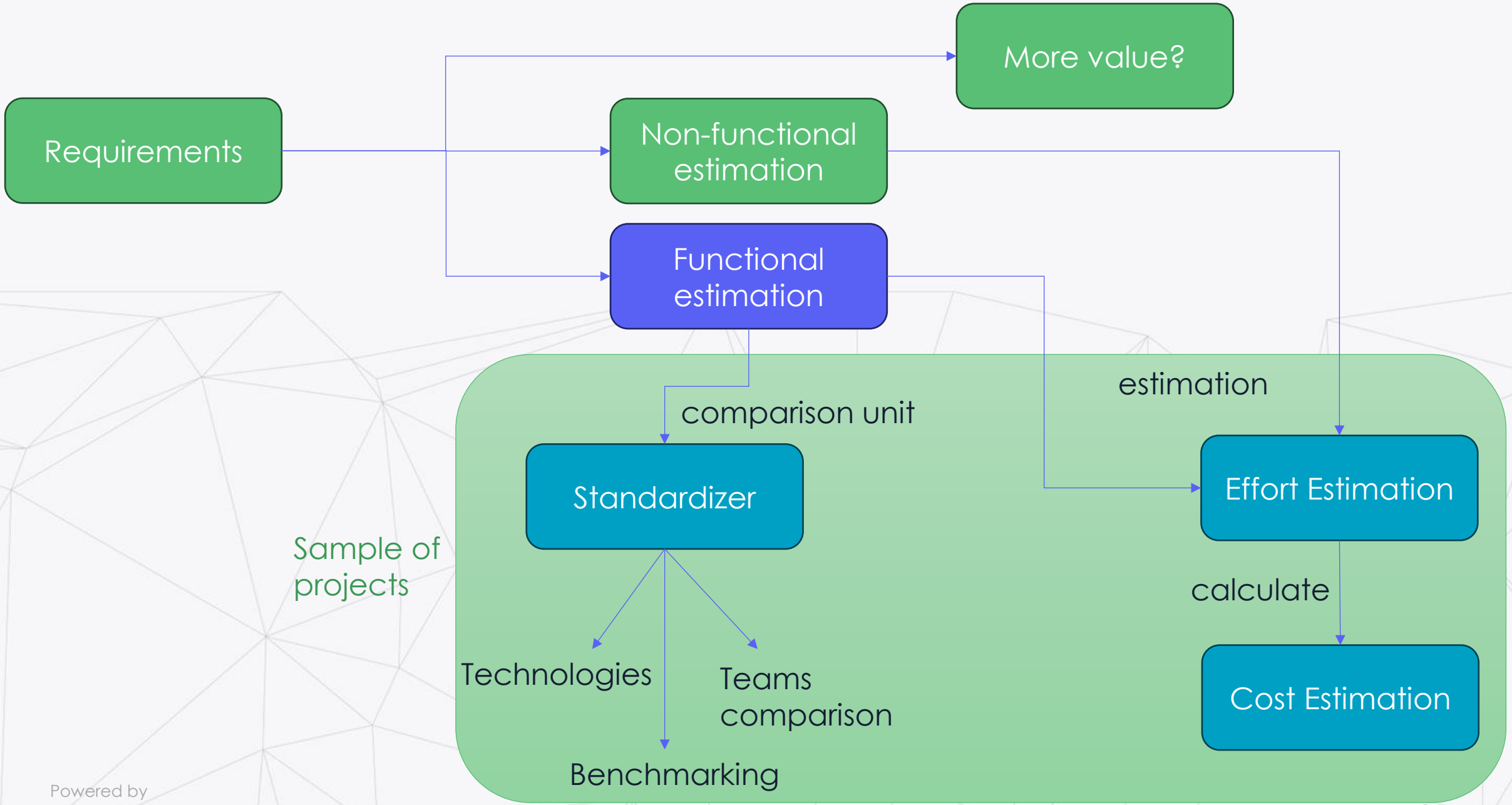
Functional estimation


More value?
Requirements
Non-functional estimation
Functional estimation
estimation
comparison unit
Standardizer
Effort Estimation
Sample of projects
calculate
Technologies
Teams comparison
Benchmarking
Cost Estimation

Could AI help us with these points?

Requirements	Well-written requirements
Functional estimation	Estimation draft
Non-functional estimation	Estimation draft
Increase Volume of projects	Achieve more projects
More value: Test cases	Add more value: generation of test cases

We need Superpowers!

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We need to be an Intelligent Metric Expert

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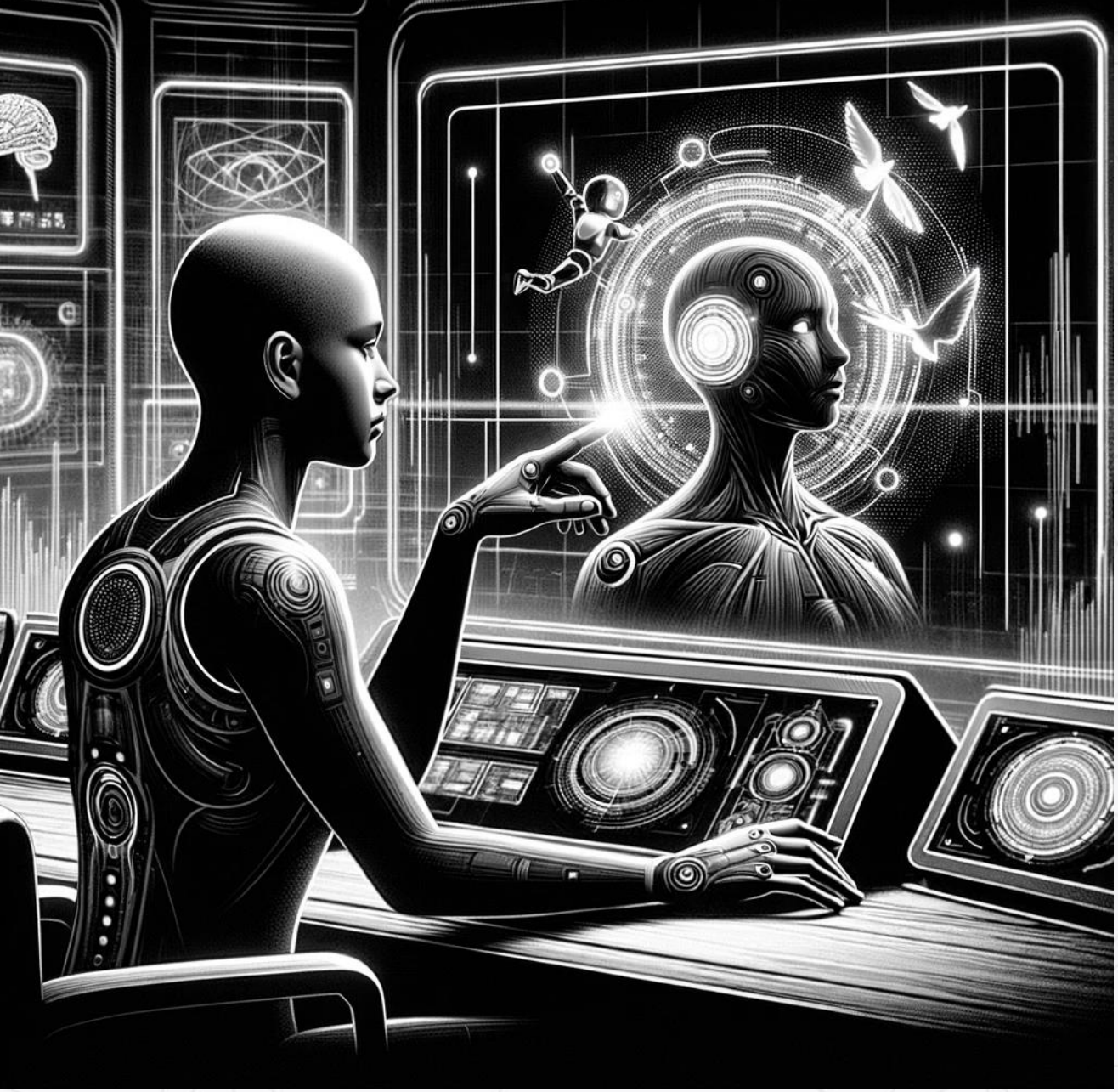
Intelligent Applications

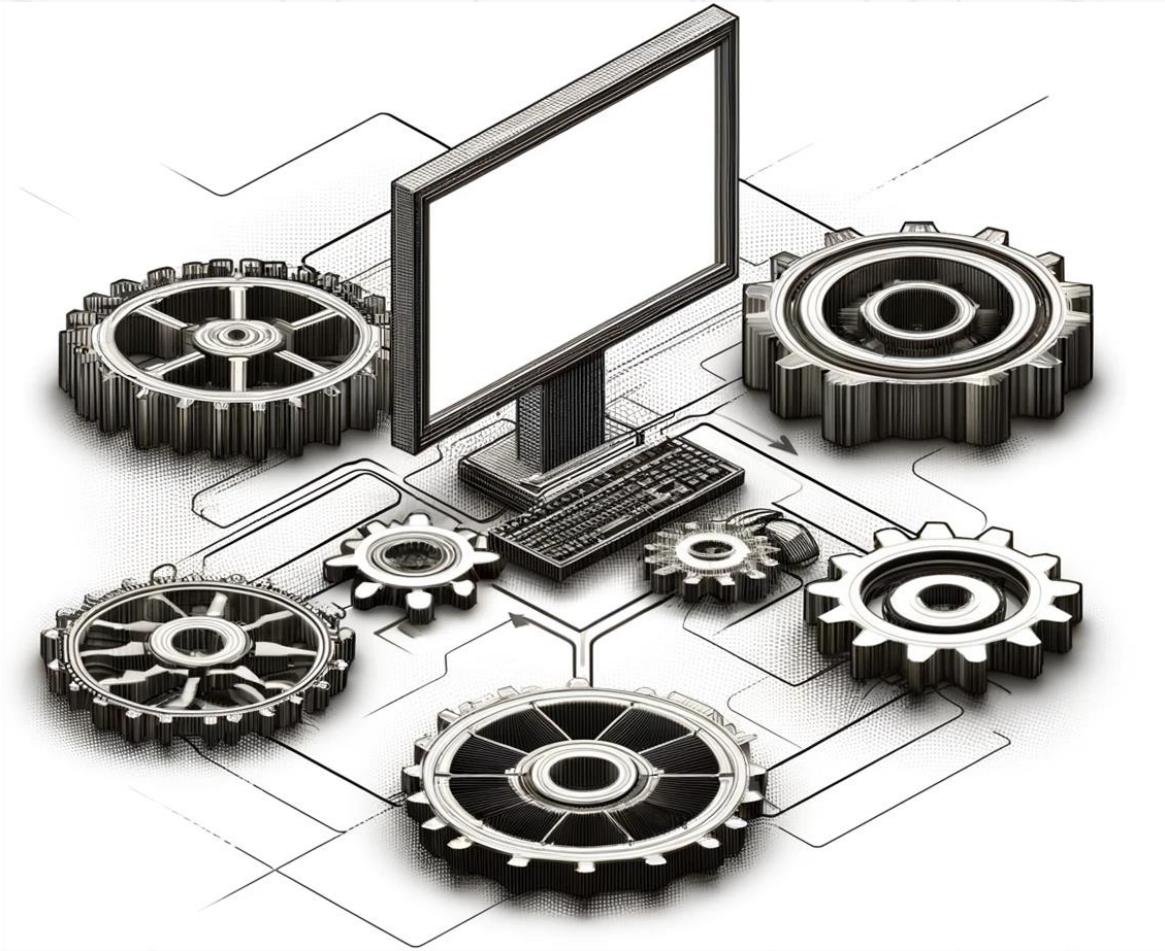


Human in the loop (HILP)

AI won't replace people—but people who use AI will replace people who don't.

IBM Report "Augmented work for an automated, AI-driven world

Source: https://www.ibm.com/downloads/cas/NGAWMXAK



Development of Intelligent Applications

Choice of LLM + Fine-tuning LLM + Application integration

Challenges of Generative AI in Intelligent Applications

Challenges of Generative AI in Intelligent Applications

Quanter AI

Smart AI Estimation

Choice of LLM:
OpenAI ChatGPT

Training dataset:
Create a set of examples for the fine-tuning of the LLM

Data security:
ChatGPT Enterprise (Do not share data with anyone outside the company)

Prompt hacking:
Audit, measures against prompt hacking

Deterministic:
We verify the answer, but it is creative by nature

Language:
English, Italian, Spanish, Portuguese, French, …

Hallucinations:
Model developed to produce less than 1% of hallucinations

The Superpowers!

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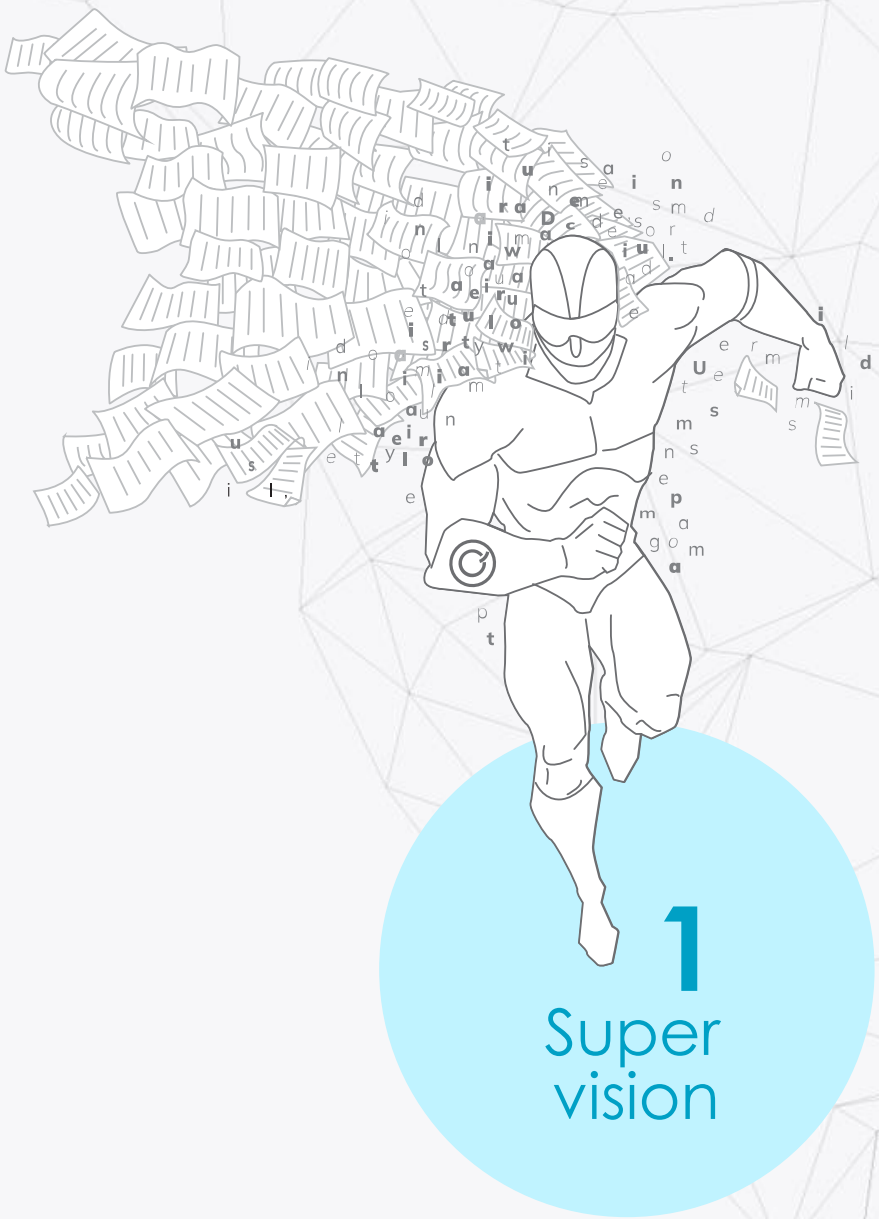
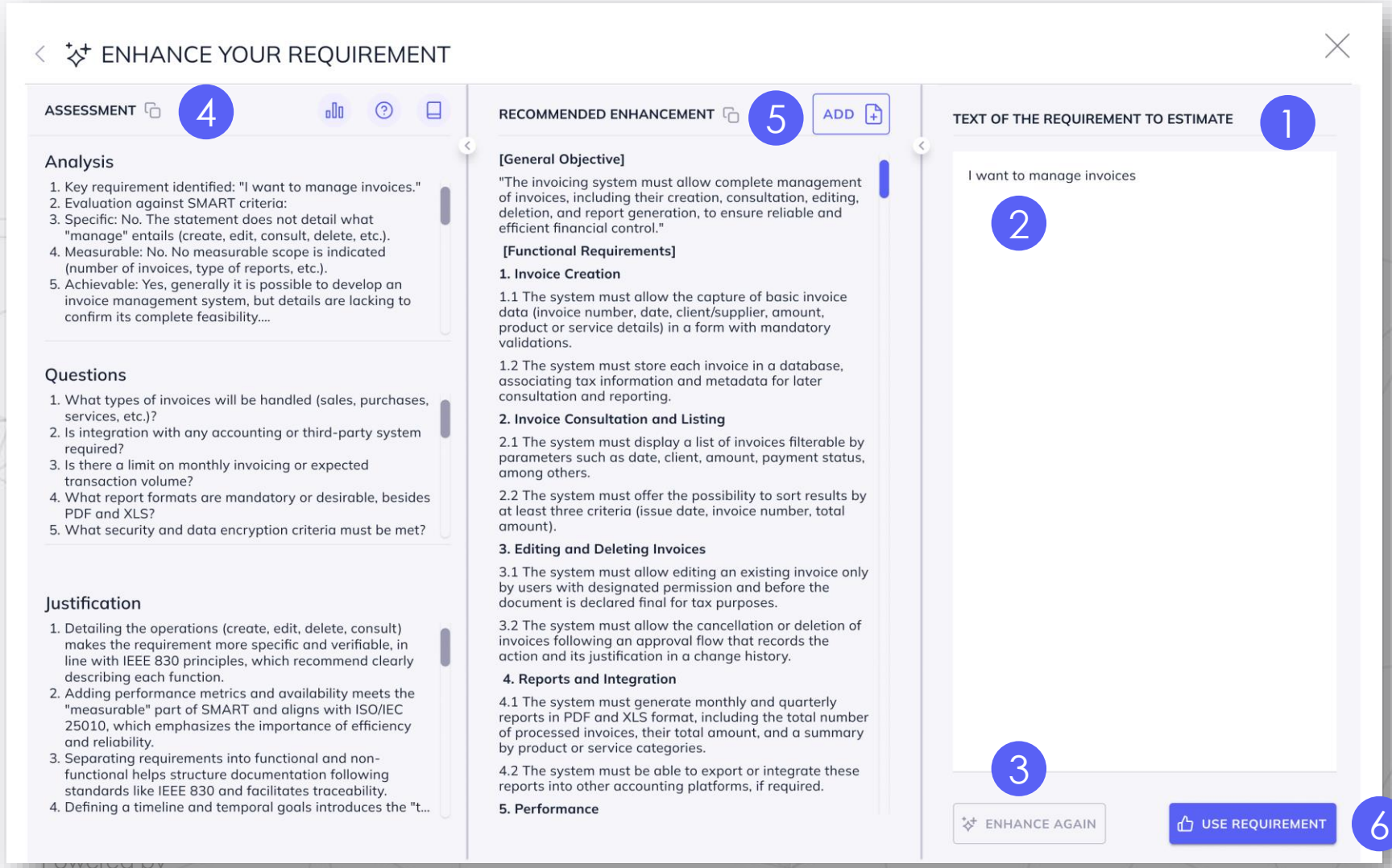
Supervision…

AI-enhanced requirements

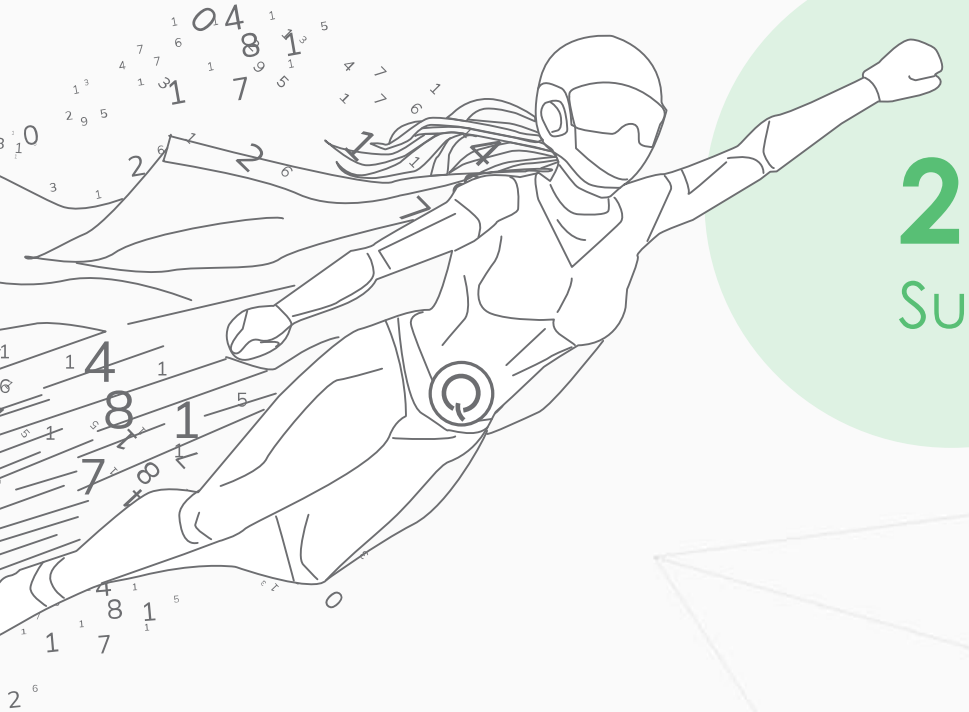


AI Requirement Enhancement



1. Enhance your requirements written in natural language (English, Italian, Spanish, …)
2. Copy or write your requirement.
3. Improve it with our AI.
4. Review the Assessment.
5. Copy the improved requirement and change it.
6. Use the improved version.

Smart AI Estimation…



2

Super speed

AI-enhanced estimation

Smart AI Estimation

1 Copy your requirements or upload a pdf file

TEXT OF THE REQUIREMENT TO BE ESTIMATED

The user requires a list of stock orders to be placed. The user will be able to enter several criteria to include in the list. There is a user requirement that allows you to save these selection criteria.

2 Let Quanter AI estimate

3 Expert validate the result and go

	Name	Action	Typology	Complexity	IFPUG FP	NESMA FP
☑	Generate List of Stock Orders	NEW	EO	A	5	5
☑	Save Stock Order List Selection Criteria	NEW	EI	A	4	4

3.200€

80 hrs.

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Speed Study Intelligent Estimation

→ **Profile**

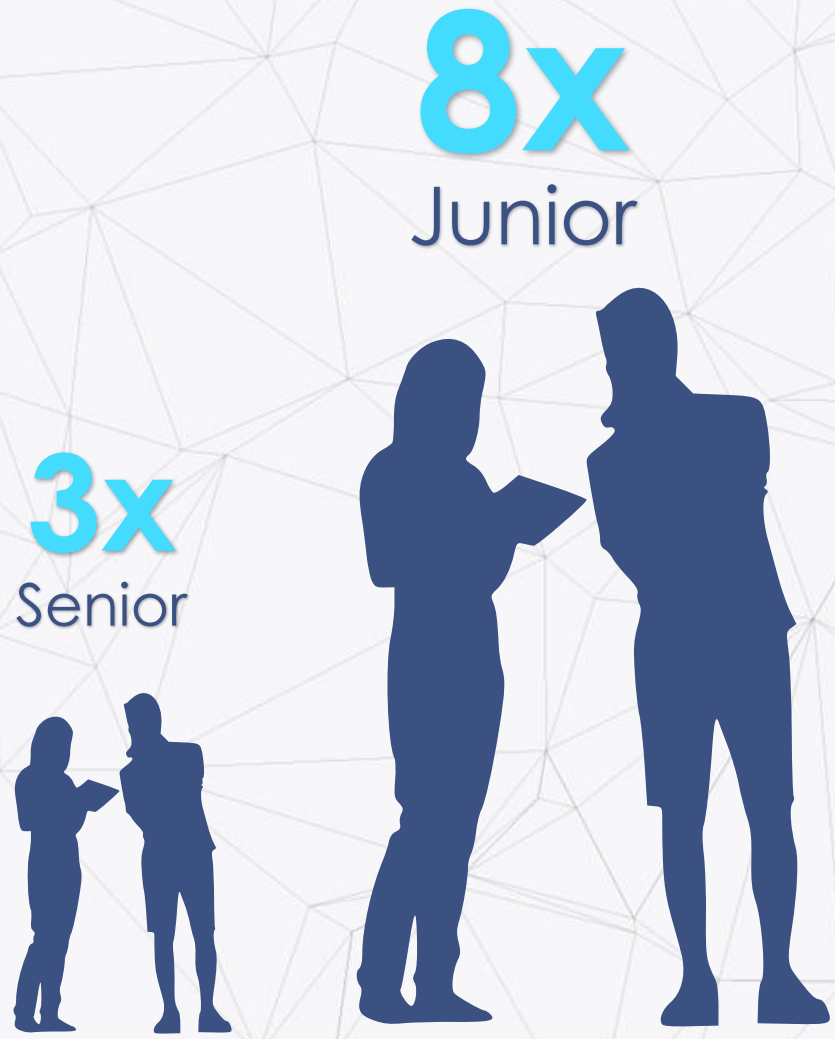
- ✓ Two groups of junior and senior metrics consultants.
  - *Junior: less than a year and a half of experience.*
  - *Senior: more than four years of experience.*

✓ **Test**

- ✓ Half an hour to measure functional requirements with similar but different characteristics.
  - First, Quanter without intelligent estimation
  - Second, Quanter with Intelligent Estimation

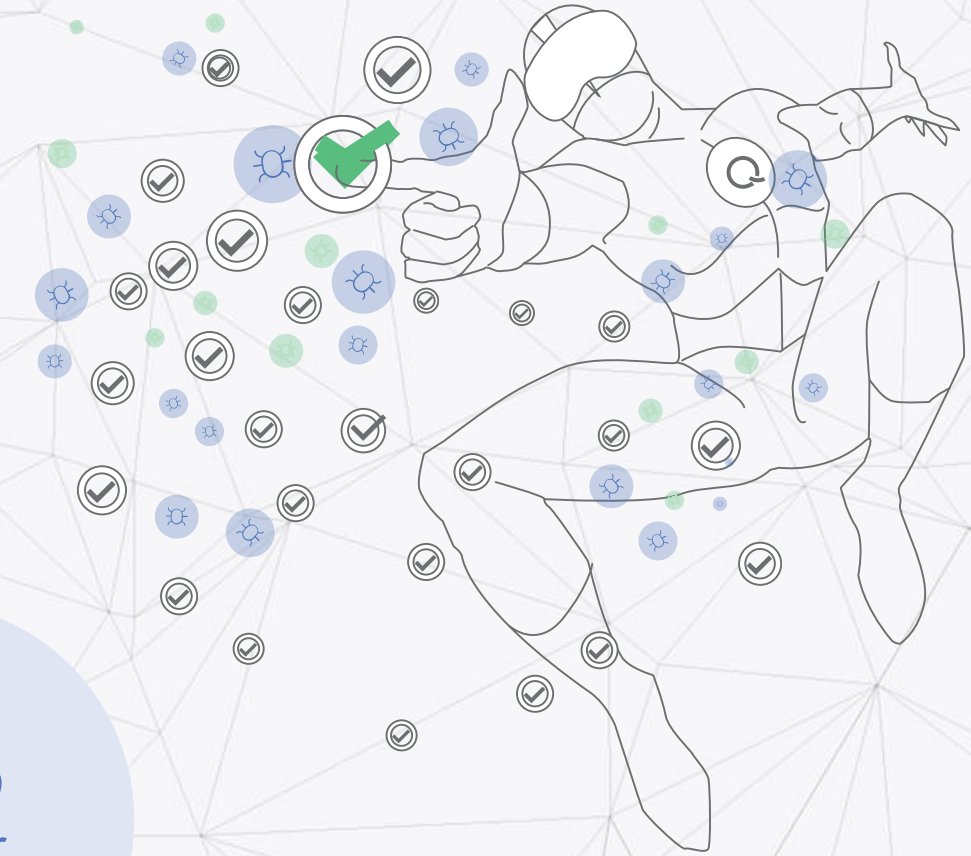
✓ **Results**

- ✓ As with other generative AI technologies, juniors improve significantly with its use, both in terms of speed and quality.
- ✓ Seniors have also improved a lot.



AI Test cases generation

AI-generated
test cases



3
Super
testing

Test case generation with AI

REQUIREMENT IN NATURAL LANGUAGE

In this task, we will address the necessary development to prevent offering the Seating Upselling functionality for seats issued under multi-coupon EMDs.

ACCEPTANCE CRITERIA

AC.001 – GIVEN a customer who retrieves their reservation in MMB/CKI with seats previously paid for and issued via the Digital channel
WHEN they access the seat product from the Ancillaries catalog
THEN the Seating Upselling functionality must be correctly offered to the customer.

AC.002 – GIVEN a customer who retrieves their reservation in MMB/CKI with seats previously paid for and issued via GDS/Call Center (multi-coupon)
WHEN they access the seat product from the Ancillaries catalog
THEN the Seating Upselling functionality must not be offered to the customer.

AC.003 – GIVEN a customer who retrieves their reservation in MMB/CKI with seats previously paid for and issued via both GDS/Call Center (multi-coupon) and Digital channel (single coupon)
WHEN they access the seat product from the Ancillaries catalog

From your requirements

To the list of test cases

#	Title	Objective	Preconditions	Steps	Expected Result	Acceptance Criteria	Classification
CP001	Verify Seating Upselling functionality for seats issued via Digital channel	Ensure that the Seating Upselling functionality is available	Customer has a reservation in MMB/CKI with paid seats via Digital channel	1. Log into MMB/CKI. 2. Access the Ancillaries catalogue. 3. Check the Seating Upselling offer.	Seating Upselling functionality must be available.	AC.001	Fundamental
CP002	Verify absence of Seating Upselling for seats issued via GDS/Call Center (multi-coupon)	Ensure that the Seating Upselling functionality is not available	Customer has a reservation in MMB/CKI with paid seats via GDS/Call Center (multi-coupon)	1. Log into MMB/CKI. 2. Access the Ancillaries catalogue. 3. Check the Seating Upselling offer.	Seating Upselling functionality must not be available.	AC.002	Fundamental
CP003	Verify Seating Upselling functionality for seats issued via GDS/Call Center (single coupon)	Ensure that the Seating Upselling functionality is only available for single coupon seats	Customer has a reservation in MMB/CKI with paid seats via GDS/Call Center (multi-coupon) and Digital (single coupon)	1. Log into MMB/CKI. 2. Access the Ancillaries catalogue. 3. Check the Seating Upselling offer.	Seating Upselling functionality must be available only for single coupon seats.	AC.003	Fundamental
CP004	Verify system behavior when accessing	Ensure the system handles seat reservations from different channels	Customer has seat reservations from	1. Log into MMB/CKI. 2. Access the Ancillaries catalogue. 3. Check the	The system must offer or not offer the functionality according	AC.001, AC.002,	Crucial

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