From a man-month to an AI-minute, myth or reality?

Observations and opinions about software productivity by:

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Presented at the ICEAA 2024 Professional Development & Training Workshop - www.iceaaonline.com/min2024

AI is evolving extremely fast!

Before GenAI

Machine Learning
Task oriented predictors
Corporate choice

After GenAI

Individual choice

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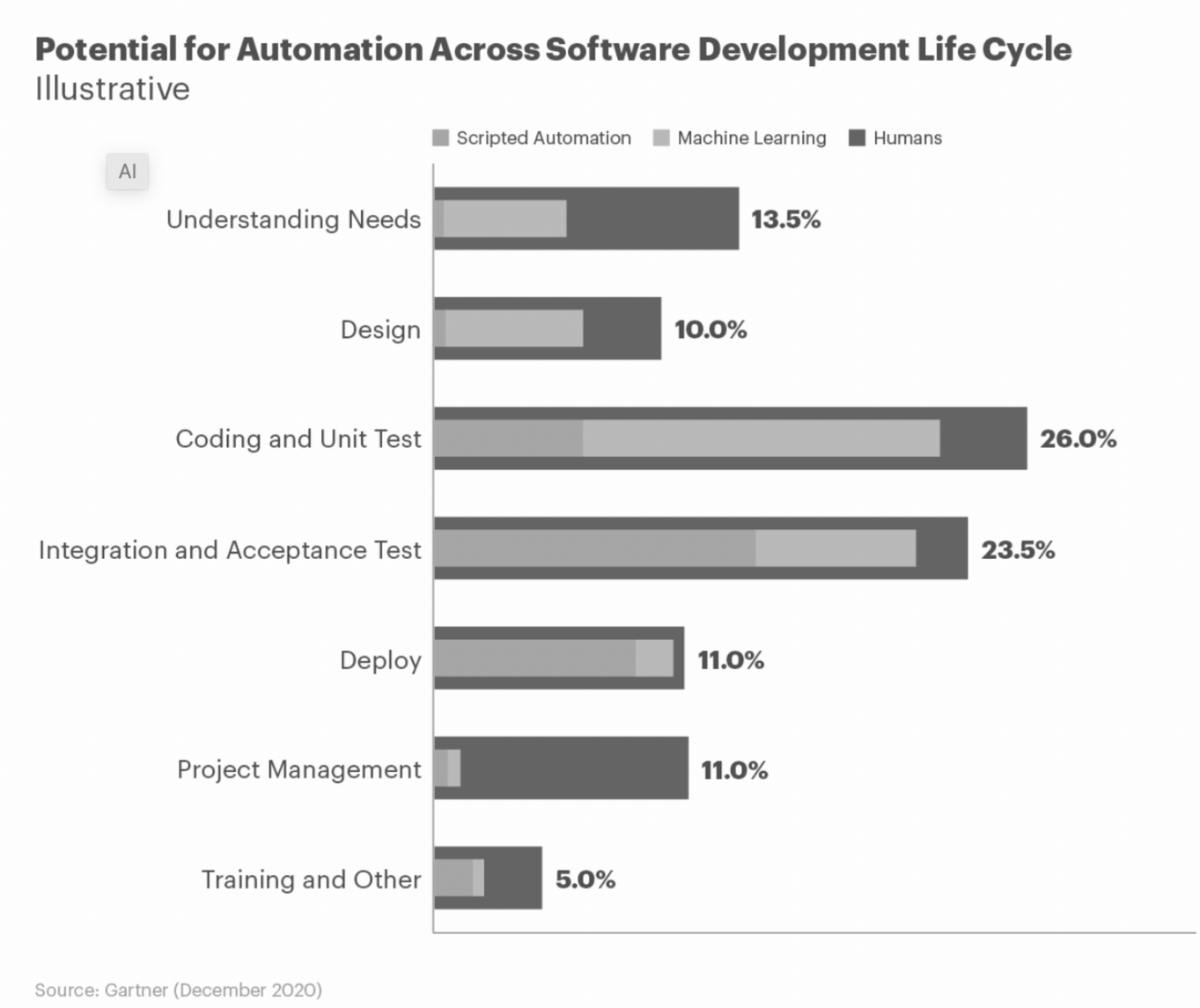
2020 Prediction - Gartner



AI-Augmented Software Development

Gartner Opinion 2020

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Caution!

Every ~~software~~ company is re-branding as an AI company.

- Consider the **Actual benefit** that AI brings
- Risk of **unintended consequences** and biases
- Who **created** the AI
- Who is **using** the AI
- Who is **judging** it's reliability

Critical thinking required!

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Ability dependent

Low → Average → High → V. High

- Do more
- Don’t forget
- Learn
- Get unstuck

- Do more
- Don’t forget
- Learn

- Do more
- Don’t forget

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Most software is not new.

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Knowledge worker power tools

Developers

BAs / Product Owners

Testers

UI designers

Project Managers

Cost Estimators

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You prompt it & it builds the software.

Builder.ai®

Typical Promise is <3 months with customisation for a typical 500-1000 FP app

Cognition

Anticipating even faster using *"Devin"*

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Role and Task Specific Tools

Example AI tools for software work.

Requirements Analysis

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MODERN Requirements

Coding & Code Analysis

Copilot

stepsize

Testing

Tricentis Testim

curiosity

Example AI Features

Functional sizing
Requirements QA

Code completion,
bug detection

Functional Test generation

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My Opinion - AI in Software

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2024	2028	2050
Requirements syntax	Requirements syntax	Requirements syntax
Requirements semantics	Requirements semantics	Requirements semantics
Estimation	Estimation	Estimation
Design	Design	Design
Development / Test	Development / Test	Development / Test
Bug fixing	Bug fixing	Bug fixing
Risk &	Risk &	Risk &
Project Mgt	Project Mgt	Project Mgt
Average Cost Per FP (new, commercial)		
$1000	$850	$150

"We are still in the dial-up days"

OPINION

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Four predictions

1. AI-generated code is likely to be of decent quality, but relative cost of maintenance and customisation will be rise.

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2. Effort, Cost per FP/CFP likely to drop where AI tools are used well.

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3. Emphasis will shift to requirements

Scope definition, requirements, design, tech debt, expertise, domain knowledge

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4. Expectations will rise

Managers will expect faster, better & cheaper

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AI to help the Cost Estimator

Principles of software work & cost are unchanged.
Estimation is about minimising how wrong we are.

1. **Faster analysis for bottom-up estimates**
2. **More project comparisons**

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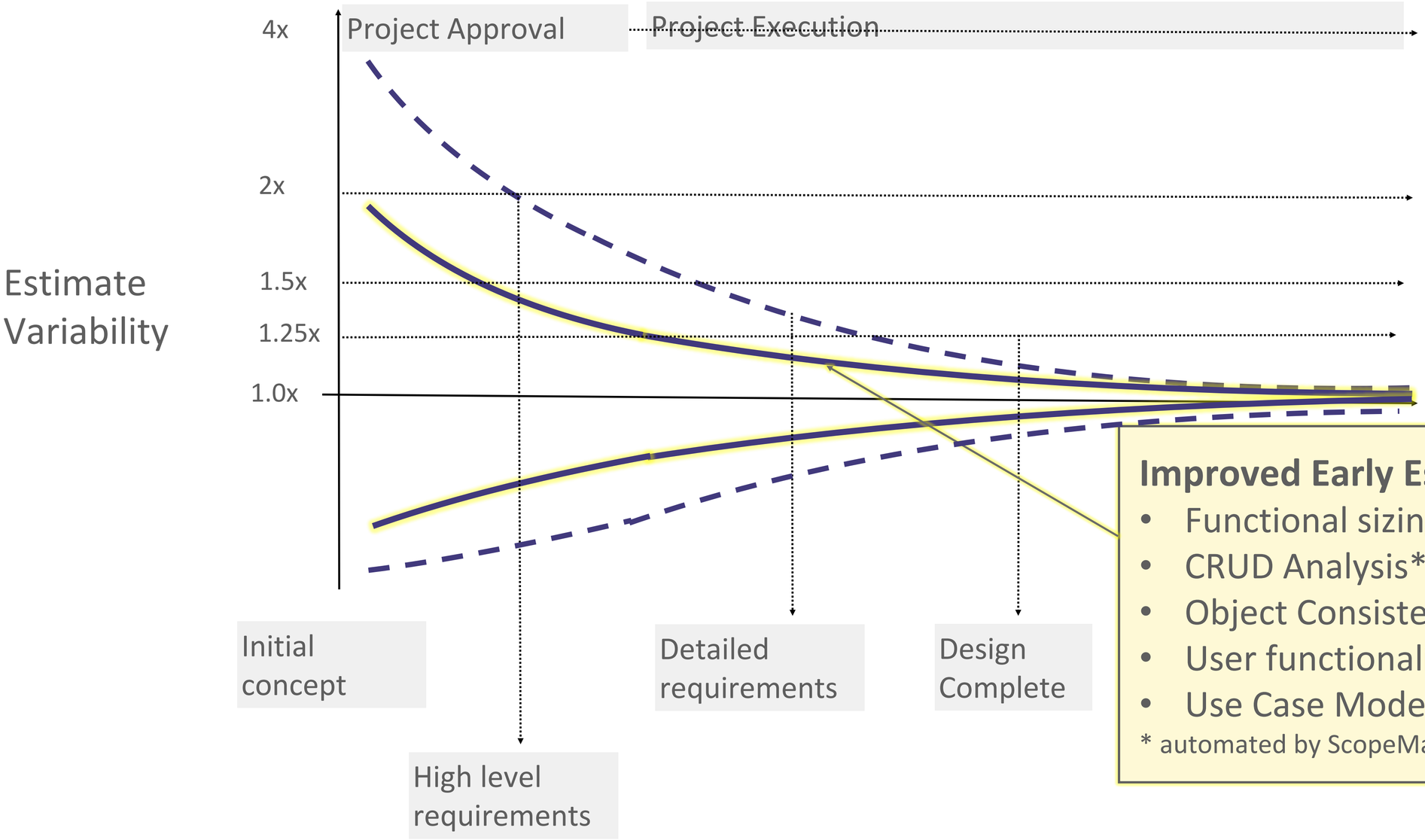
Improved Early Estimation Accuracy



Improved Early Estimation Accuracy:

- Functional sizing*
- CRUD Analysis*
- Object Consistency checking*
- User functionality checking*
- Use Case Models, insight*

* automated by ScopeMaster

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Product Backlog Refinement

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Slow Feedback

Manual user story reviews are very time consuming

Software development teams not using AI for requirements analysis will become uncompetitive (slow, less quality, and more expensive).

Fast Feedback

4x –20x faster

on average

Performs 100,000 tests on 100 stories in 4 minutes

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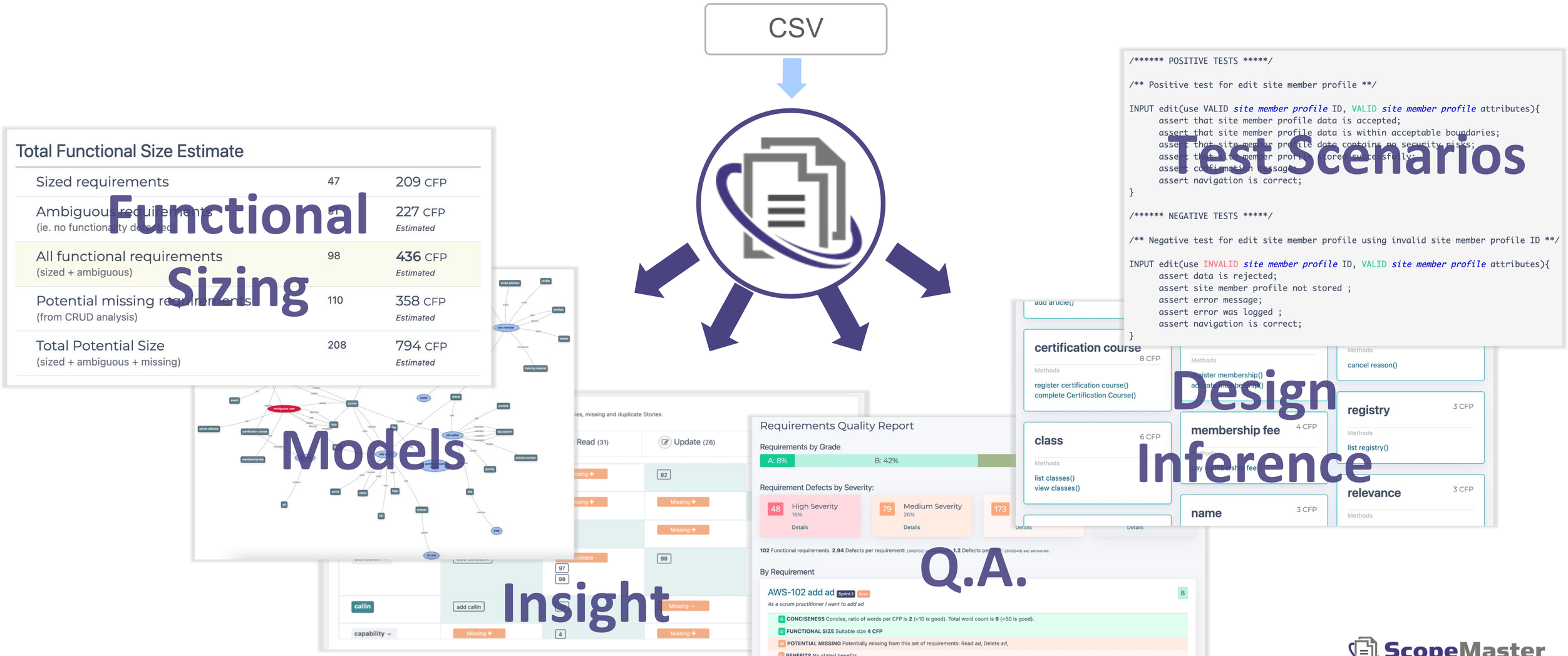
AI Software Requirements Analysis

~1000 requirements per hour



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Demo

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AI enhanced Requirements Work

Elicitation
Interpretation
Ambiguity detection
Completeness checking
Consistency checking
Insight to expose defects
Analysis
Functional Sizing

1. Total Effort Saved	66 - 366 days
Effort Saved - finding & fixing defects	18 - 318 days
Effort Saved - sizing	10 days
Effort Saved - generating tests	37 days
2. Rework Avoided	7 - 11%
3. Resource/Vendor Mgt	4 - 15%
4. Faster to Value	3 - 6%
5. Avoided Late Discovery	1-2%

DIRECT BENEFITS

CONSEQUENTIAL BENEFITS

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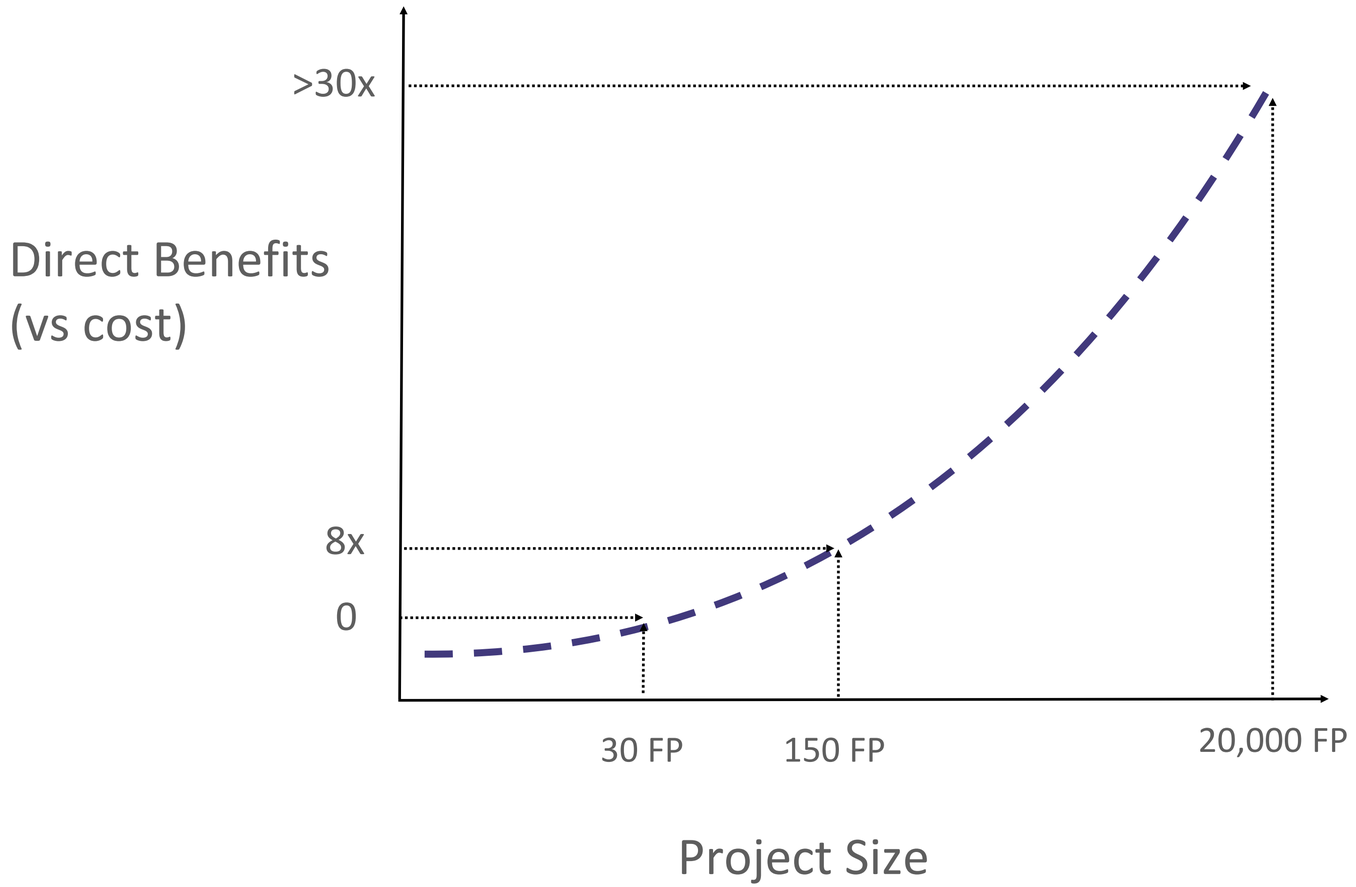
AI Benefits and Software Project Size



With ScopeMaster®, larger projects can benefit most.

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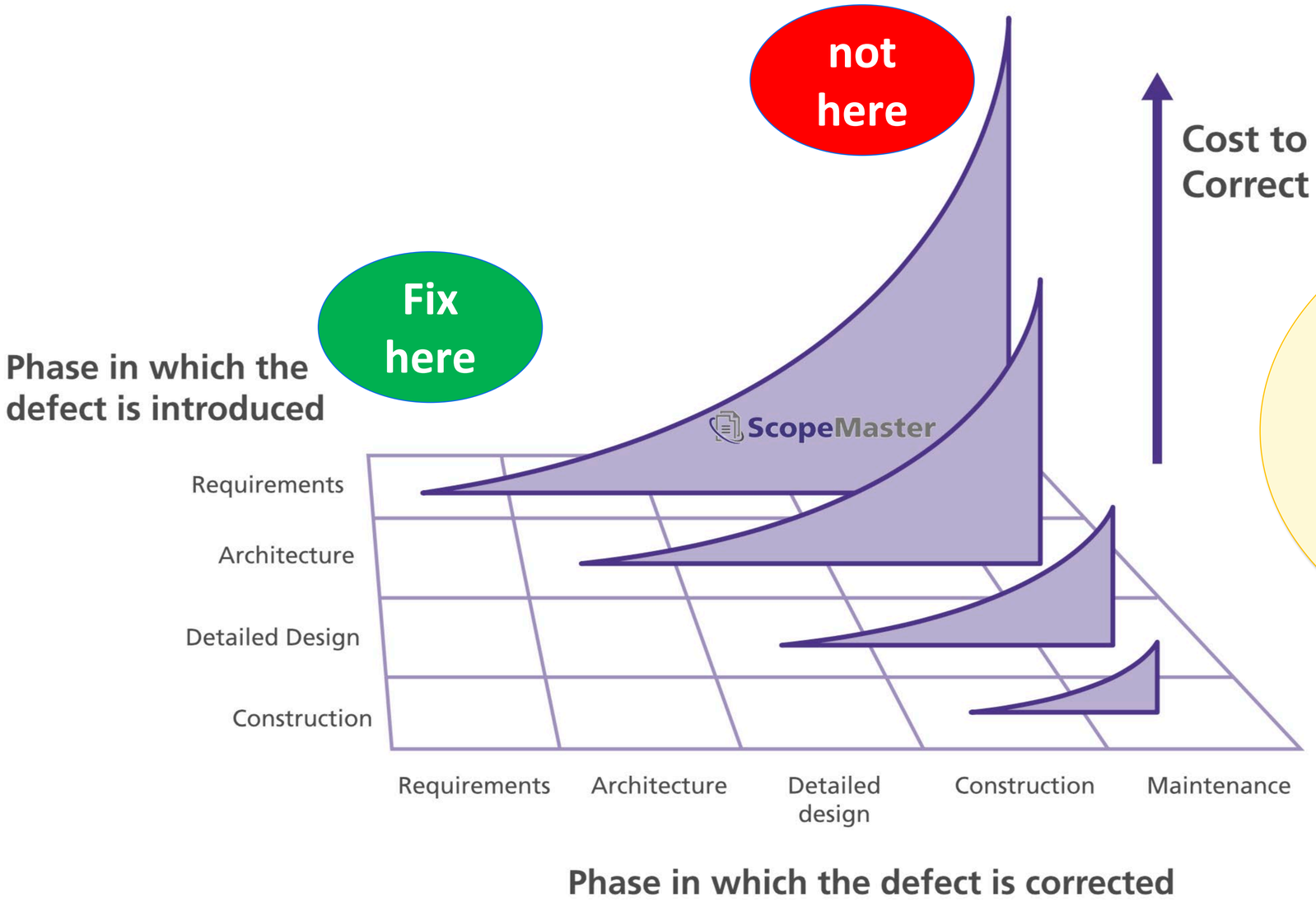
Shifting left is key to Faster, Better, Cheaper



Fixing late can cost 100x

fix cost
+ recovery cost
+ reputational cost

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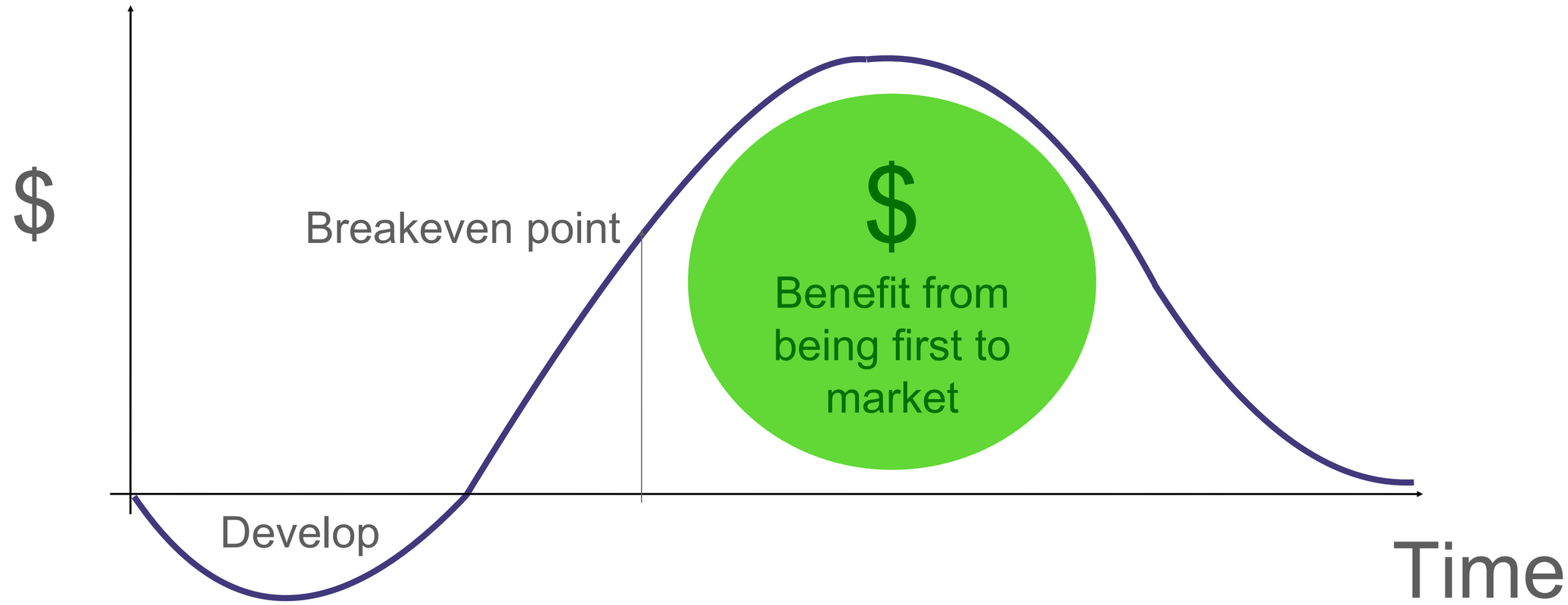
Speed matters - Leverage

First-to-market wins



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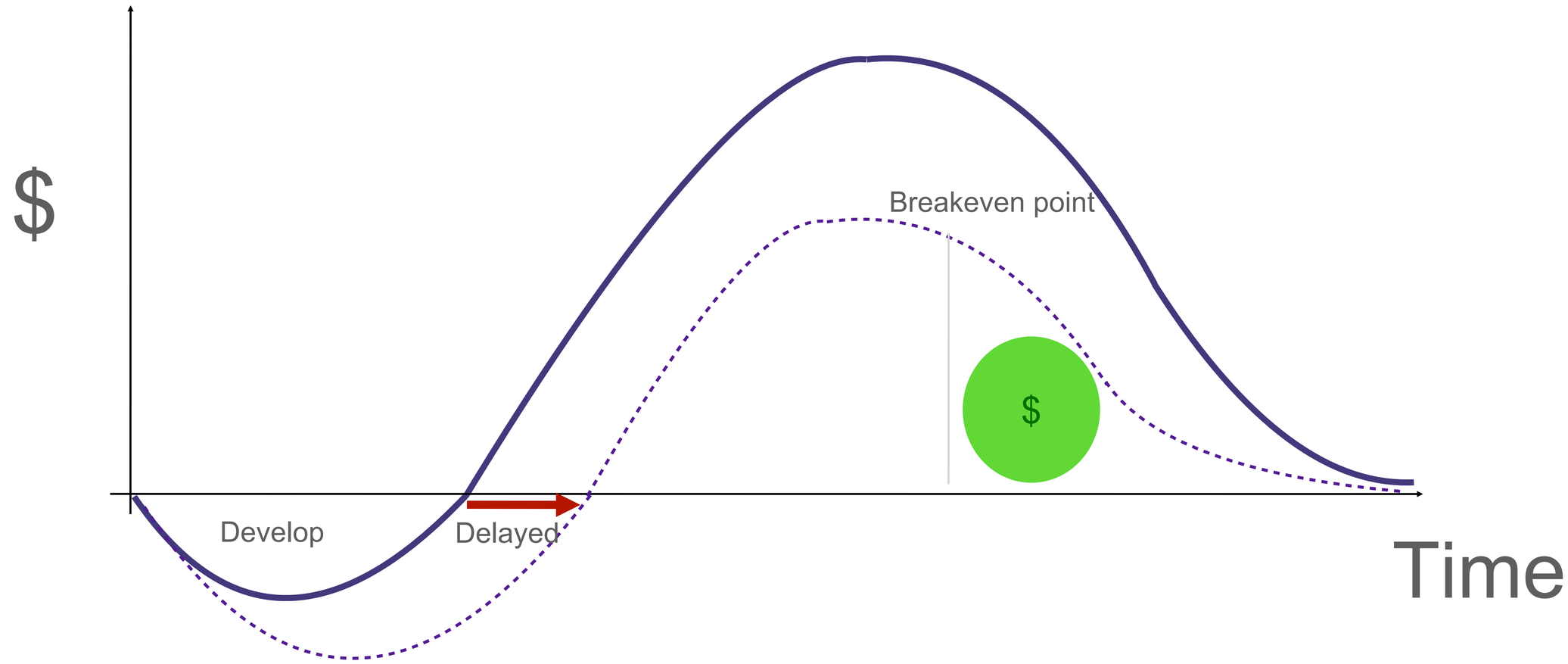
Impact of delay is compound

Small delay = big loss



AI for faster delivery.

Faster delivery brings very significant value in a competitive market.

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Man month to an AI minute…?

A month to a minute is about 20x7x60 : 1 = **8400:1**

Estimated savings of using ScopeMaster® on 200+ requirements set:	**FROM**	**TO**	**Time Savings Multiple**
Defect detection	40 minutes to find and fix	2 minutes	**20x**
Consistency	20 minutes	1 minute	**20x**
Interpretation	10 minutes	1 minute	**10x**
Insight to expose defects	1 day	5 minutes	**84x**
Ambiguity detection/fix	10 minutes	1 minute	**10x**
Analysis (e.g CRUD, use case, permissions)	20 minutes	1 minute	**20x**
Functional Sizing	10 minutes	1 minute	**10x**
Test Generation	20 minutes	1 minute	**20x**

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Man-month to AI minute - NO

2024 – 10x or more for some tasks only

“We are still in the dial-up days”

2034 – Man-month to a man-week (4x) in software overall will be achievable for many new developments.

*only if the tools are a good fit and used appropriately

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