yonder

Artificial Intelligence

Too early or too late?

Paul Cirstean

Portfolio Managers Focus Group



The AI impact on CSI

What disruptions should we anticipate?

Practical AI use cases

Where can CSI companies capture immediate value?

Successfully adopting AI

How to go from resistance, to adoption and then transformation?



a history of hope and hype

1958: All is going to change the world!

•

2019: All is going to change the world!

2020: All is going to change the world!

2021: Crypto is going to change the world!

2022: ...umm... Al is going to change the world!

2023: All is going to change the world!

2024: All is going to change the world!

WHY NOW?

"We are about to witness the birth of a machine capable of perceiving, recognizing and identifying its surroundings without any human training or control."

- Frank Rosenblatt, Ph.D.



Al coding improvements



CEO Sundar Pichai says 25% of new code Google creates is written by AI



According to CEO Sundar Pichai, AI is being used to write around 25% of new code at Google. During the company's third-quarter 2024 earnings call.

Oct 30, 2024



Garry Tan 💸 💟 @garrytan · 40m



For 25% of the Winter 2025 batch, 95% of lines of code are LLM generated.

That's not a typo. The age of vibe coding is here.

TECH

Mark Zuckerberg says AI could soon do the work of Meta's midlevel engineers

Lakshmi Varanasi Jan 11, 2025, 8:28 PM EET

→ Share

□ Save





		Three months ended December 31,		Period-Over- Period Change		Year ended December 31,		Period-Over- Period Change	
	2024	2023	<u>\$</u>	<u>%</u>	2024	2023	<u>\$</u>	<u>%</u>	
	(\$ in mi	llions, exce _l	ot percent	ages)	(\$ in mil	lions, exce	ept percent	tages)	
Professional services	292	272	20	7%	1,155	1,043	112	11%	
Maintenance	278	227	51	23%	1,069	855	215	25%	
Research and development	361	328	33	10%	1,437	1,215	222	18%	
Sales and marketing	164	152	12	8%	635	563	71	13%	
General and administrative	270	223	48	21%	1,026	817	209	26%	
	1,366	1,202	164	14%	5,322	4,493	828	18%	

https://www.csisoftware.com/docs/default-source/press-releases/csi-financial-statements-q424---final.pdf



Al coding improvements

Competitive programming

CodeForces Benchmark

Context window size

Number of tokens

Software engineering

SWE Benchmark



1. Competitive programming

CodeForces Benchmark

2024 (GPT 4o)

~900

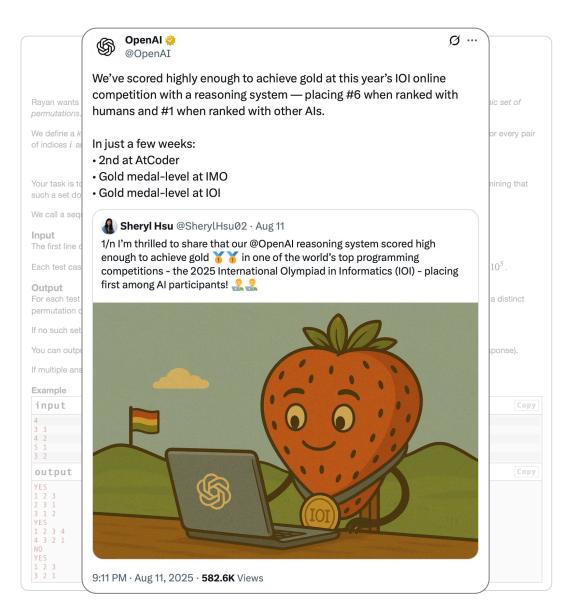
2025 (o3)

2727

Average senior developer: ~1600

Only ±150 developers in the world are better

Al coding improvements





Al coding improvements

2. Context window size

Number of tokens (words)

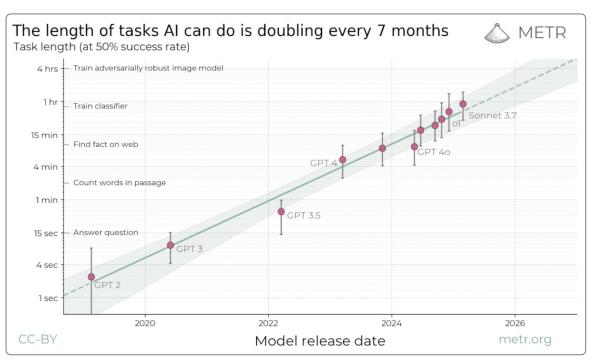
2023 (GPT 4)

8,192

2025 (Gemini)

2,000,000

Medium size project (100,000 LoC): ~ 1,000,000 tokens



metr.org/blog/2025-03-19-measuring-ai-ability-to-complete-long-tasks/



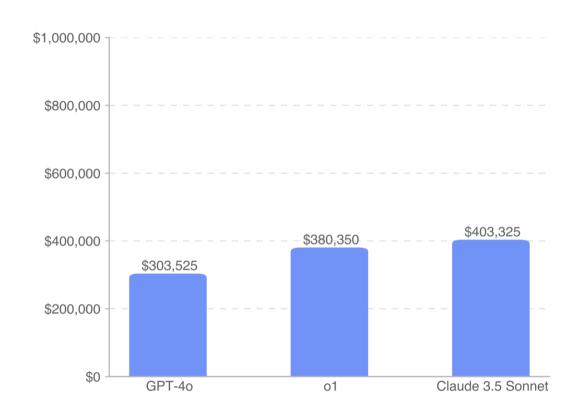
Al coding improvements

3. Software engineering

SWE-Lancer

Can frontier LLMs earn \$1 million from real-world freelance software engineering?

"We introduce SWE-Lancer, a benchmark of over 1,400 freelance software engineering tasks from Upwork, valued at \$1 million USD total in real-world payouts. SWE-Lancer encompasses both independent engineering tasks - ranging from \$50 bug fixes to \$32,000 feature implementations."







Competitive programming

CodeForces Benchmark

Context window size

Number of tokens

Software engineering

SWE Benchmark

Are the models going to get even better?

How is this going to impact CSI companies?

Are we ready for what's about to come?

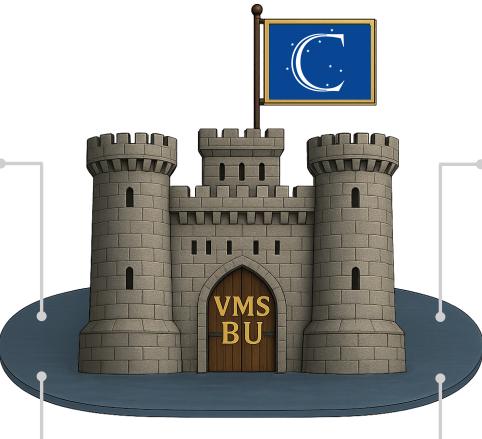






Time to build

Al drastically cuts software development time and cost, eroding CSI's former competitive shield built on lengthy, expensive development cycles.



Vertical expertise

Al accelerates reverse engineering, diminishing the competitive advantage of vertical expertise, which was historically costly and difficult to replicate.

High switching costs

As AI reduces development costs, competitors can offer modern solutions at lower prices, easing the financial and operational burden of switching solutions.

Market distribution

Distribution remains mostly resilient to AI disruption, reinforcing the importance of customer intimacy as key differentiator.



Vulnerabilities

- Low complexity SaaS solutions
- Smaller business that are overwhelmed by day to day operations and cannot adapt to the new reality
- High ticket businesses with low NPS
- Horizontal businesses
- Point solutions

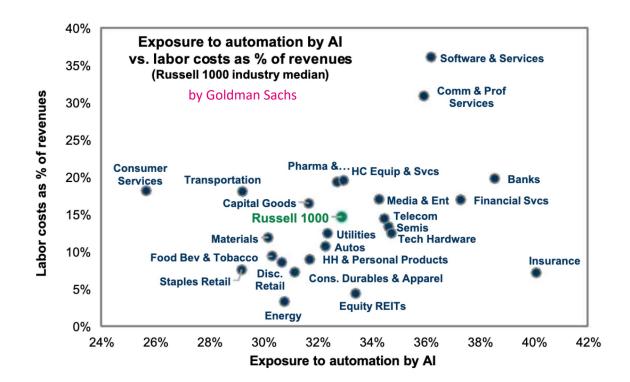
Opportunities

- Deliver more value from your backlog
- New initiatives with higher ROI when doing AI first development
- Certain software modernizations might make financial sense
- Maintaining legacy solutions becomes more accessible
- More efficient customer support departments



Questions for M&A

- Part for the DD process, does it make sense to create an AI risk register and to evaluate the disruption risk?
- Which of the verticals and companies that you target are more likely to be impacted by AI?
- Should you consider being more pessimistic in the wipeout scenario and more optimistic in the winner scenario?
- Should we put a higher weight on the quality of the distribution (NPS and other metrics)?
- How will AI impact our build vs buy decisions? If we already have the distribution, will it make sense to build our own products leveraging AI?





The AI impact on CSI

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Practical AI use cases

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opportunities for VMS companies



Employee perspective

How employees design, develop and maintain the software



Product perspective

How products integrate with Al models to offer more value



Customer perspective

How end users interact with software products

Present

More opportunities right now

Future
Less opportunities right now



opportunities for VMS companies



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How employees design, develop and maintain the software



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Present

More opportunities right now

Future
Less opportunities right now



custom Al systems

Level 1

Direct Al Integration

One step predefined by the author



Level 2

AI Workflow

Multiple steps <u>predefined</u> by the author

Level 3

Al Agents

Multiple dynamic steps decided by the AI





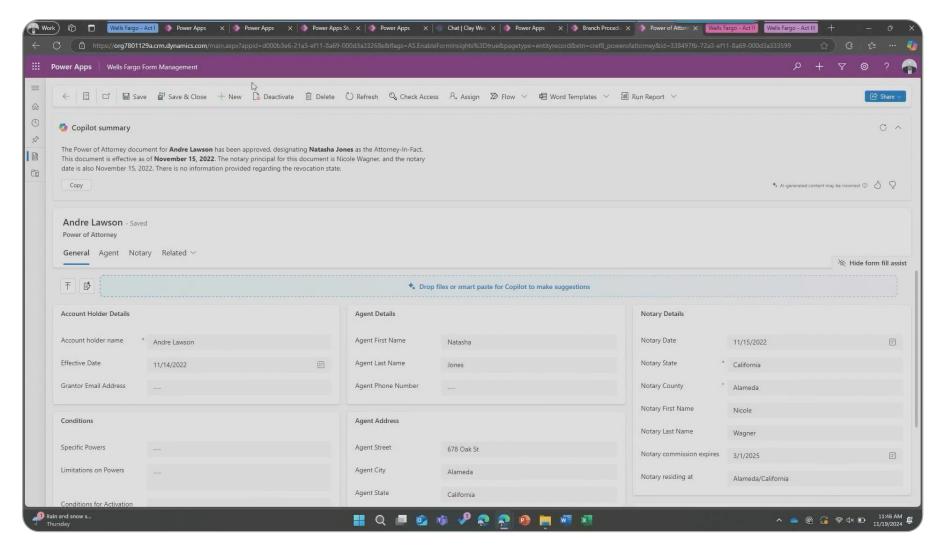
Little Oberveisen Sie Sokenden Betray von meinen Konto unter meinem ramen: CHO3 070703358025 CHF 800.25 Empsianes: CHG4 2719 1105 7893A Begunstigen: Jose Johanssen Besten Dank, Matthias Schloss

level 1 – document understanding

Thought for 3m 56s > Hand-written note – key details transcribed				
Field	Extracted text			
Greeting	Guten Tag			
Instruction	bitte überweisen Sie folgenden Betrag von meinem Konto unter meinem Namen			
Amount	CHF 800.25			
Sender IBAN / Konto-Nr.	CH03 0707 0335 8025 2924 3			
Recipient (Empfänger) IBAN	CH64 2719 1105 7893 A			
Beneficiary (Begünstigter)	Jose Johannsen			
Closing	Besten Dank,			
Sender name & signature	Matthias Schloss (hand-written signature follows)			



level 1 – unstructured data processing





Microsoft Copilot in Power Apps

A copilot embedded in web applications to automate tasks



custom Al systems

Level 1

Direct Al Integration

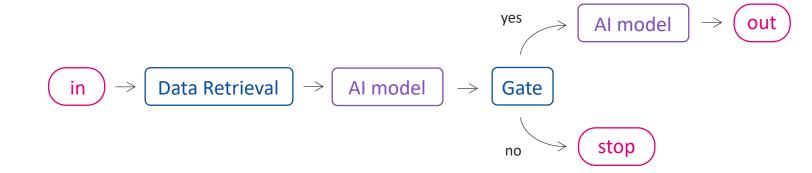
One step predefined by the author



Level 2

AI Workflow

Multiple steps <u>predefined</u> by the author



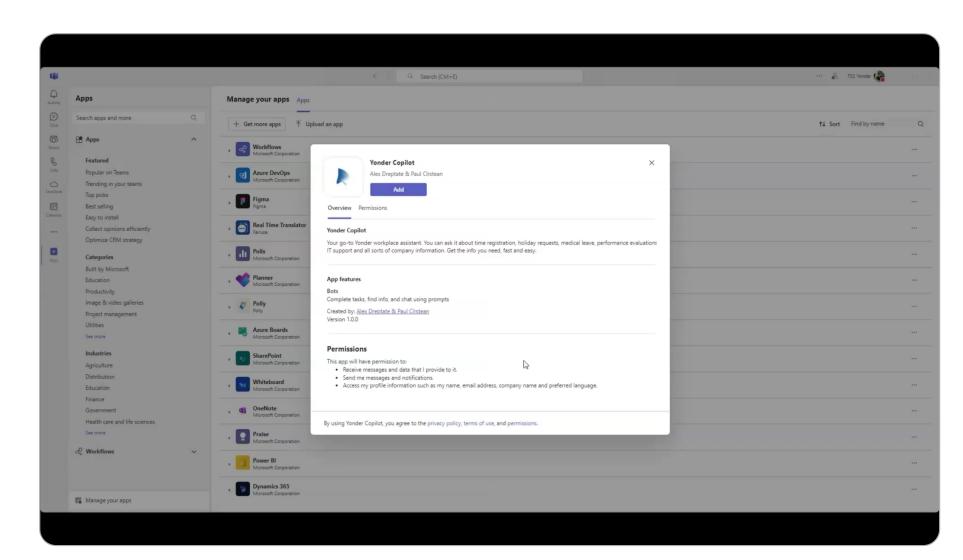
Level 3

Al Agents

Multiple dynamic steps decided by the AI



level 2 – onboarding assistant





Microsoft Copilot & Azure

A copilot that knows information about your company



custom Al systems

Level 1

Direct AI Integration

One step predefined by the author



Level 2

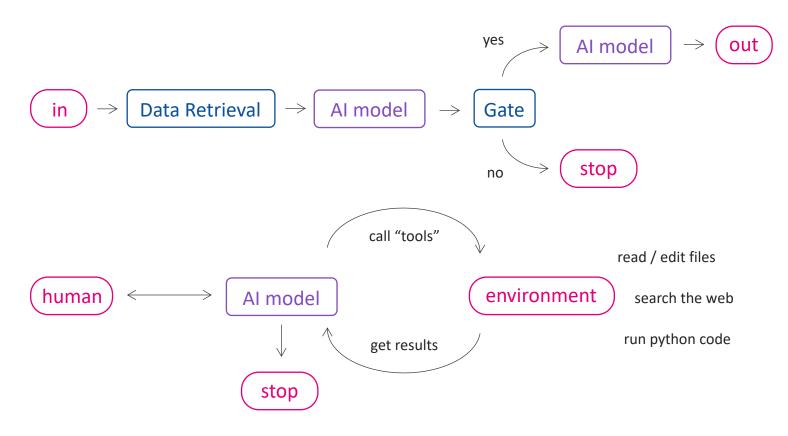
AI Workflow

Multiple steps <u>predefined</u> by the author

Level 3

Al Agents

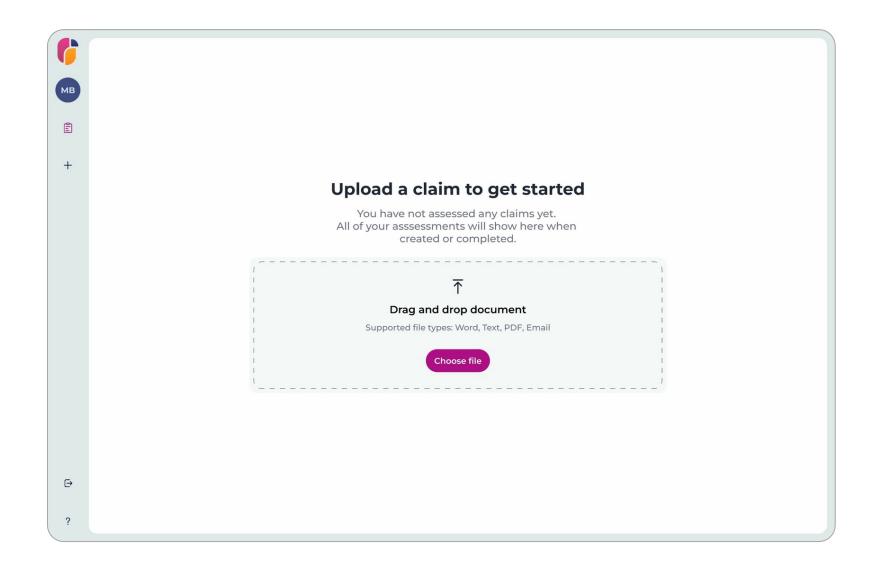
Multiple dynamic steps decided by the AI







level 3 – legal agent





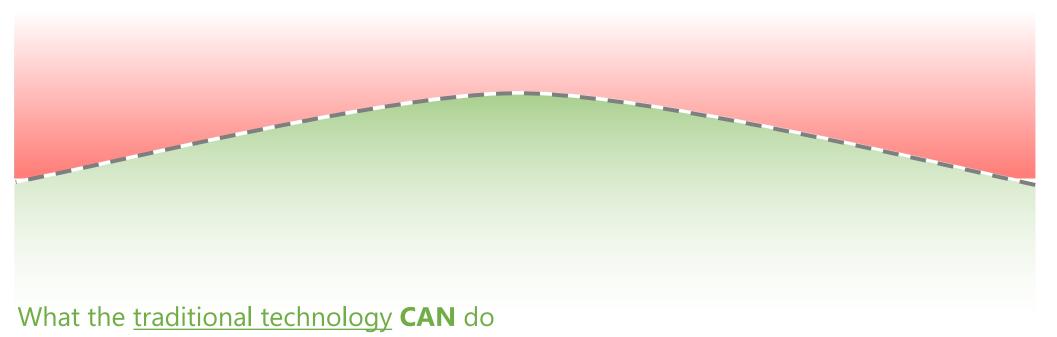
Azure Foundry & Pydantic Al

Legal dispute resolution agent that automates hours of human work







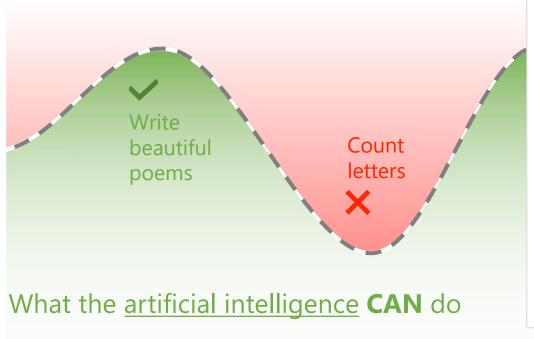


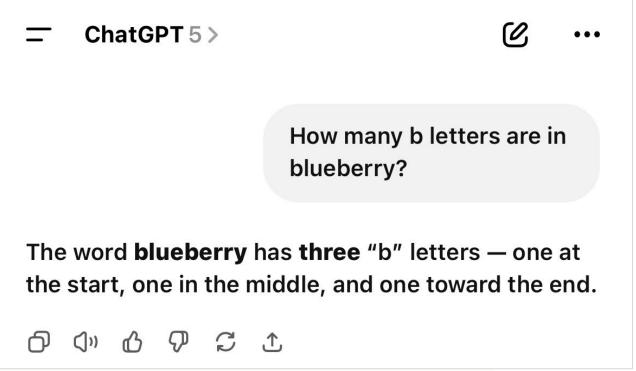
complexity



jagged AI frontier

What the <u>artificial intelligence</u> **CANNOT** do





8th of August 2025







Step 1

Define clear use cases

Outline the processes enhanced by AI and the process owners that will validate the pilot.



Step 2

Define success metrics

Clear KPIs (like time saved) to be measured during the pilot and afterwards.



Step 3

Create a golden dataset

Set of relevant examples with input and expected output. Will be critical for the next steps.



Step 4

Evaluate with LLM judges

Rigorous validation is time consuming. Parts of it can be automated with LLMs.



Step 5

Test with real users

Select the right test users and ensure they are actually testing the system.

Don't rely on vibe checks



gen Al COGS

Traditional SaaS

- Main cost: shared cloud compute & storage
- Marginal cost: ~zero per extra request
- Scaling: predictable, mostly linear with user growth
- Pricing: per seat or per features

Generative Al

- Main cost: per-token model inference or GPU hours
- Marginal cost: goes up with how much text is processed
- Scaling: bursty, long "context" (input + output) drives spend

Inference pricing

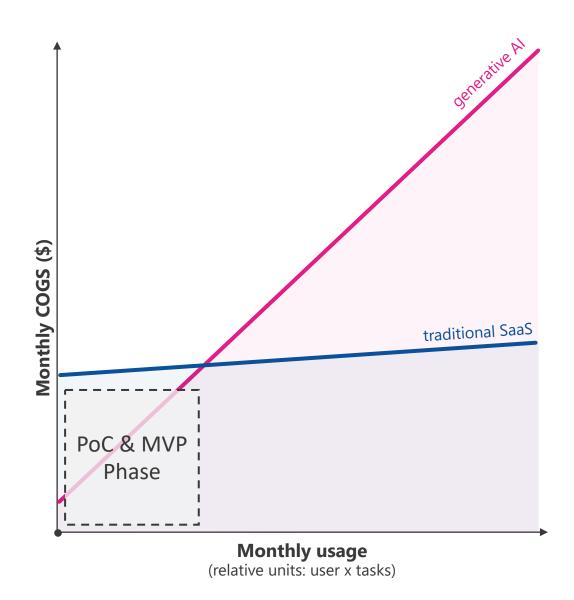
\$

Provisioned GPUs (AWS)

Qwen3-235B: **\$27.4 / hour** (8xA100 NVIDIA chips)

Model as a service (AWS)

Sonnet 4.5: **\$0.006 / 1000** input tokens **\$0.02 / 1000** output tokens





gen Al COGS – legal agent

Inference pricing

\$

Provisioned GPUs (AWS)

Qwen3-235B: **\$27.4 / hour** (8xA100 NVIDIA chips)

Model as a service (AWS)

Sonnet 4.5: **\$0.006 / 1000** input tokens

\$0.02 / 1000 output tokens

Step 1

(Data extraction and case overview)

18,803 input tokens & 3,191 output tokens

\$0.172

Step 2 (or user question)

≈ \$0.185

•••

Step 10 (or user question)

≈ \$0.2**5**2

ENTERING MOTIA HANDOMATION AGRIMANY
The language language framework of processors of p

PDF PDF PDF PDF 6 pages 1 page 1 page

Dove Limited v. Cuckoo Limited

Chronology of Failures, Operational Impact & Damages Claim

Prepared by Sarah Black, COO | 16 July 2025

PPTX 18 slides

Input data (legal agent)



gen Al product pricing

Core Al Products

Usage-based pricing

Per Query

- Pricing linked to model inference cost
- Pay-as-you-go for AI capabilities
- Count usage monthly
- Different counting strategies (tokens, queries, conversations)

Per Result

- Pricing tied to measurable business outcomes
- Usage-agnostic driver that grows based on delivered business value
- Ideal for embedding AI within business-critical workflows where value is outcome-driven

Add-on Al Features

Subscription-based pricing

Capped Packages

- Fixed AI "buckets" or usage tiers within subscriptions
- Recurring fees are charged per package, ensuring predictable spend
- Ideal for customers seeking budget certainty without full pay-as-you-go variability

Embedded AI Premium

- The overall product price increases modestly to reflect AI value-add
- Al operates behind the scenes and isn't itemized separately on the price list
- Ideal for mature products where AI boosts quality or automation



opportunities for VMS companies



Employee perspective

How employees design, develop and maintain the software



Product perspective

How products integrate with Al models to offer more value



Customer perspective

How end users interact with software products

Present

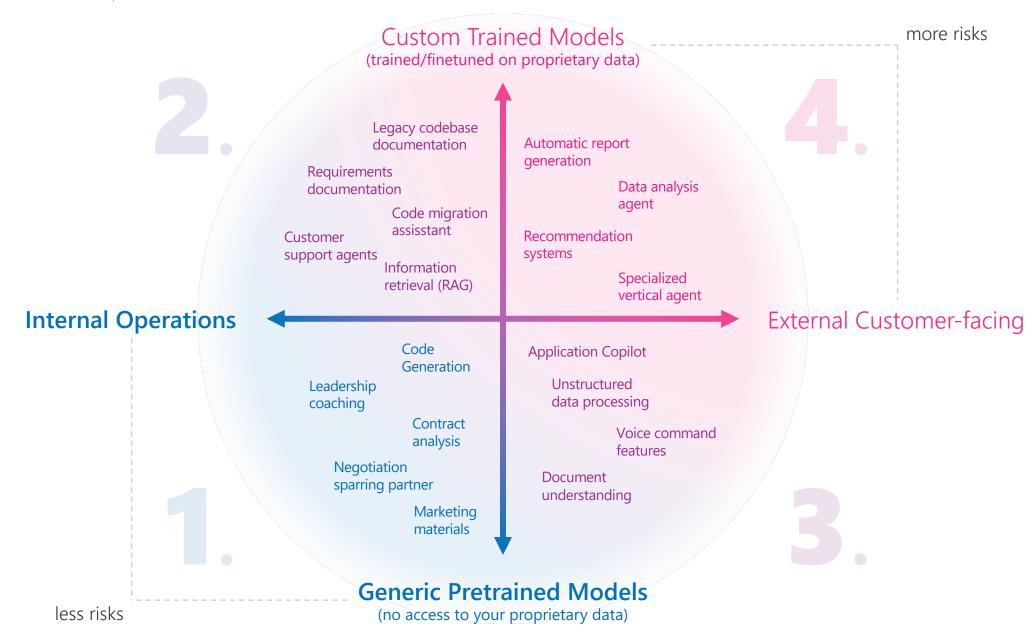
More opportunities right now

Future
Less opportunities right now





Al opportunities radar







Build new products

Reduce time to market, lower development costs, and improve ROI for new software initiatives **2**. Document legacy codebases

3Modernize legacy systems



1. Build new products

A Swedish company offering software for nuclear power plants was looking to build a new safety model versioning tool and convert high-level requirements into a production ready MVP.

Project objectives

- 1. Start with a product definition phase to design the solution, select the right technical architecture and clarify the requirements
- 2. Detail the implementation effort for the minimum viable product
- 3. Leverage an Al-first software development approach





product definition streams



Design

Develop a clickable prototype to visualize the product and gather early feedback from customers.

Deliverables

- Design system
- High-fidelity mockups
- Clickable prototype



Technical

Evaluate and recommend the most suitable technical architecture and frameworks.

Deliverables

- Technical solution architecture
- Recommended technology stack



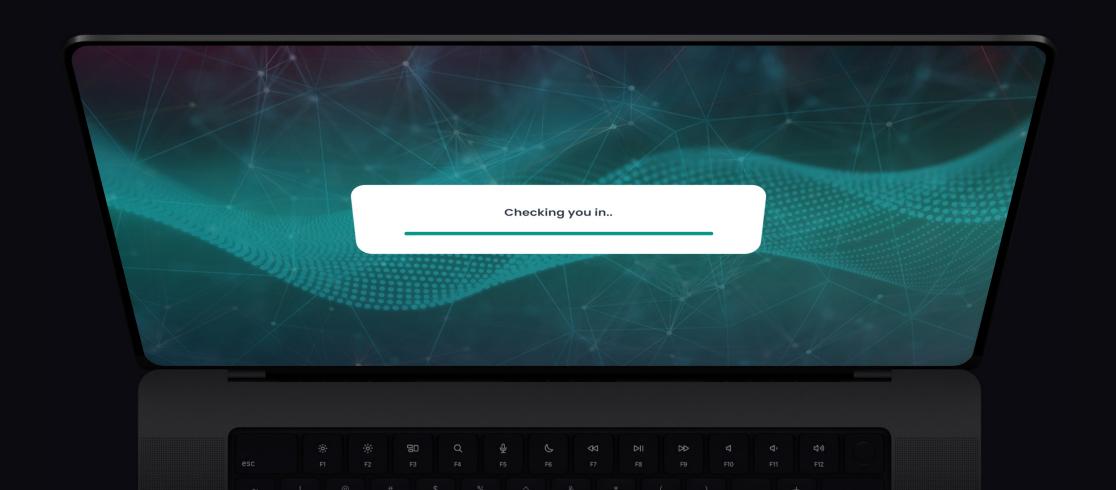
Requirements

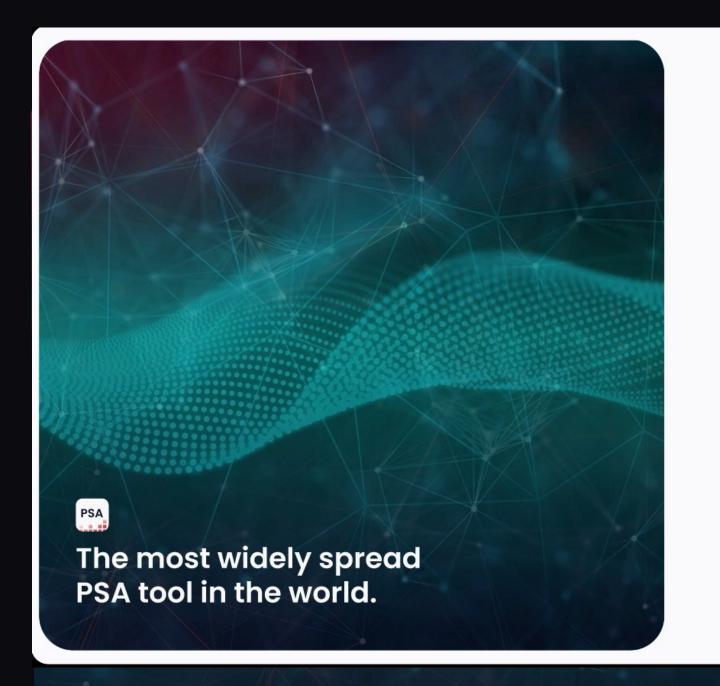
Elicit and document detailed functional and non-functional requirements.

Deliverables

- Detailed requirements for MVP
- High-level estimation for the MVP

MODEL VERSIONING SYSTEM







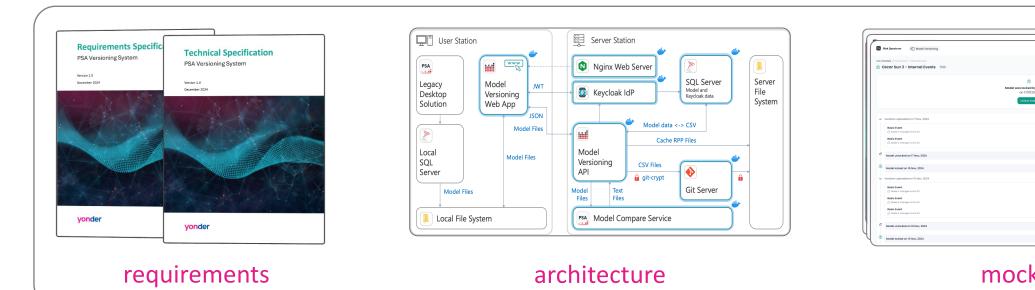
Log into your account

Let's log into your account to get started.

natalicraig	
assword	
*****	0
Log	in
Please contact (Tsupport) you forgot you	
,	









Product documentation

Estimation (without AI): 4 – 6 months

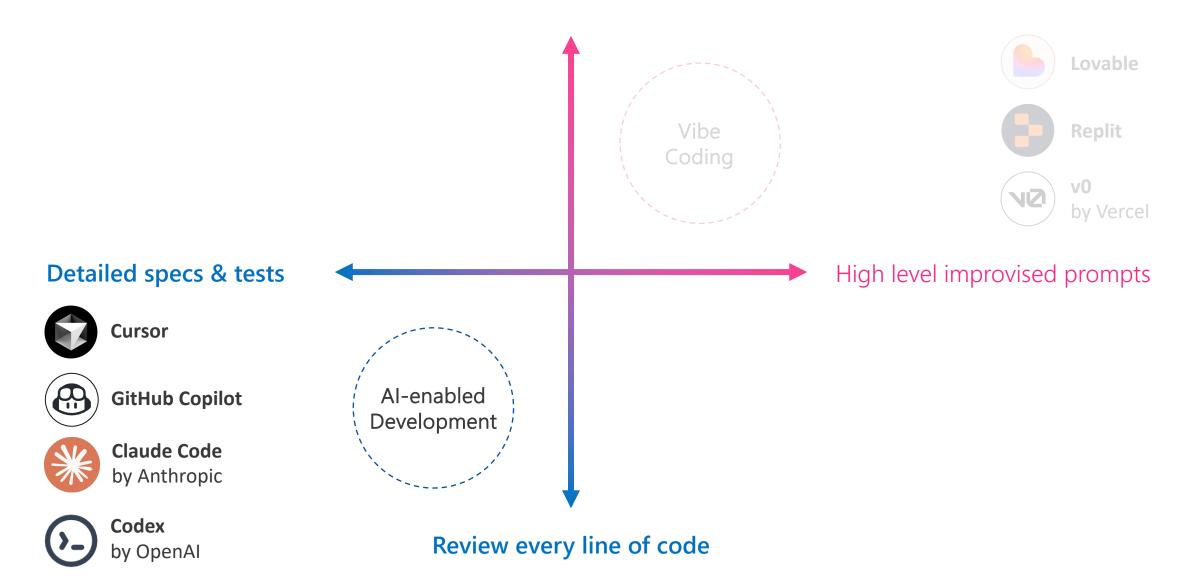


<u>Human</u> expert review and validation

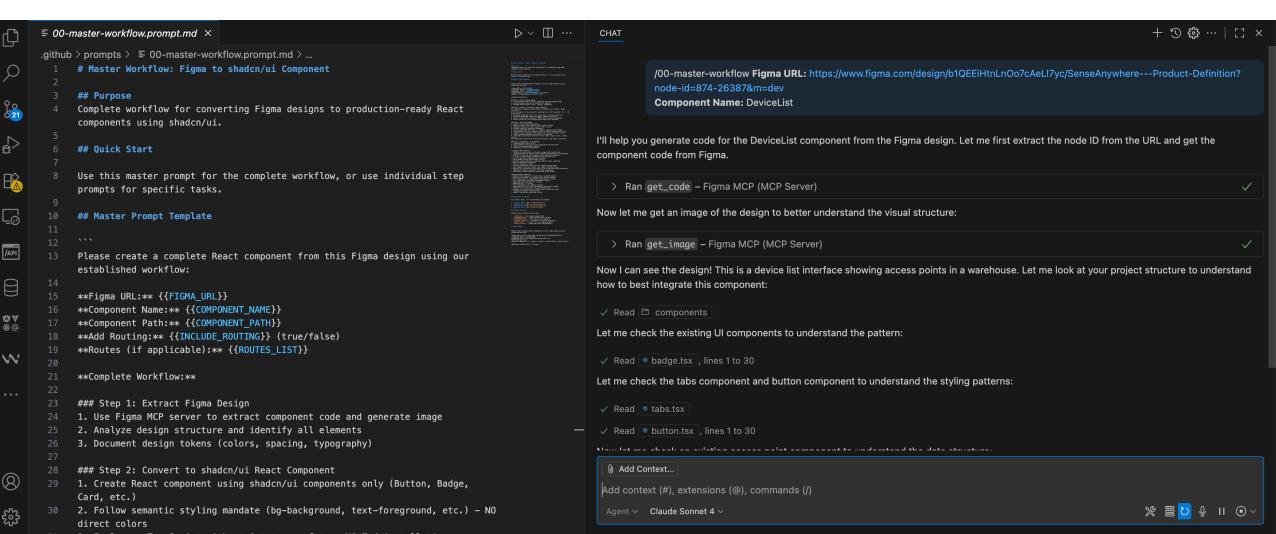
Working solution



Never look at the code





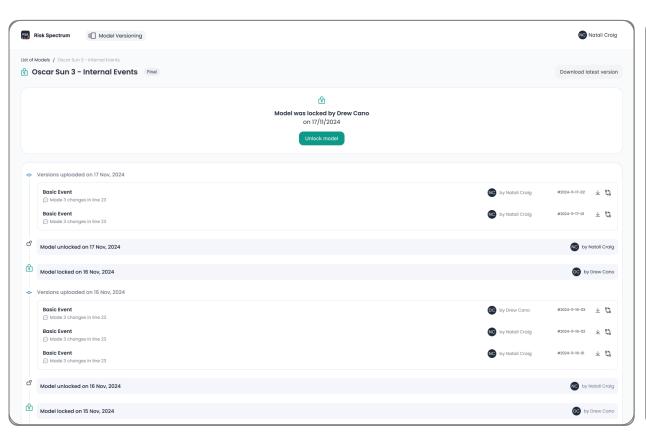


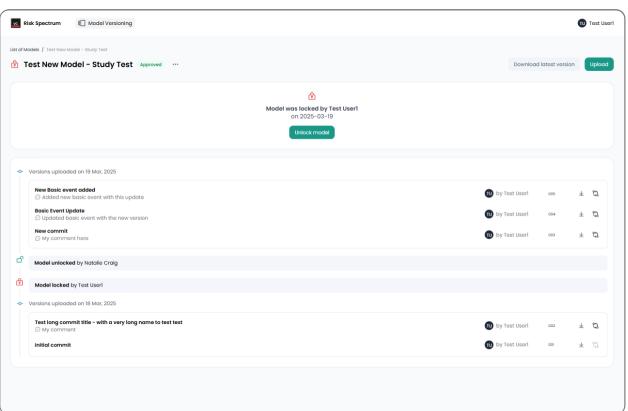






production ready results





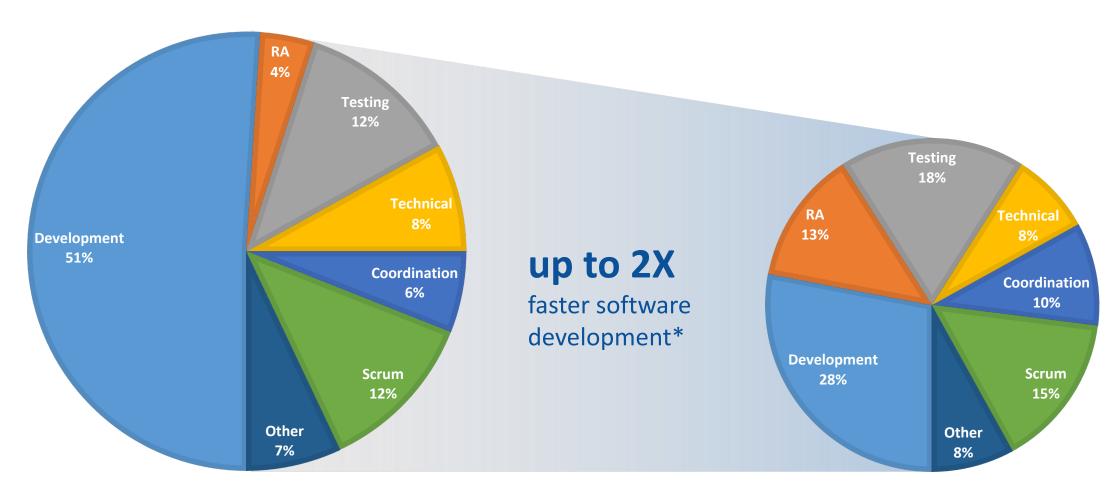
Figma Mockup

Real Implementation

Completed in 2.5 months

(4 - 6 months initial estimation without AI)





Effort distribution – without AI

based on 30+ years of experience

Effort distribution – with Al based on our small sample



Al-first software development – takeaways



- Information overload
- Documentation is critical
- Prompting makes a big difference
- Expert review is critical
- Watch out for falsely perceived productivity gains
- The velocity gains are highly dependent on the development team





Build new products

Reduce time to market, lower development costs, and improve ROI for new software initiatives **2**.
Document leg

Document legacy codebases

Minimize knowledge debt, improve onboarding efficiency, and simplify the maintenance of aging systems **3**Modernize legacy systems



document legacy codebases

2. Document legacy codebases

A German CSI company offering ERP solutions for social institutions was looking to help their developers maintain the 30+ years old legacy solution more effectively and reduce the knowledge debt withing the company.

PxPlus is a Business Basic derived programming language originally developed in the 1980s

```
CALL "PXPOPA", H8$, FEHL$, Q5$, FENSTER; PRINT 'PUSH', #9
PRINT @(0,0), 'SCROLL'(0,0,80,20), 'SF', 'SCROLL'("RESET"), #9
DIM H$(1980); LET H$(1)="2
CALL "DXMAKA", H8$, FEHL$, Q5$, H$, RAUS$, 0, 1, 80, 23, "1"
PRINT 'SCROLL'("OFF"),""+""+RAUS$, 'SCROLL'("ON"), #5
DIM-H$(1980); LET-H$(1)="66
CALL "DXMAKA", H8$, FEHL$, Q5$, H$, RAUS$, 0, 21, 80, 3, "0" "
PRINT 'SCROLL'("OFF"), 'SF'+RAUS$, 'SCROLL'("ON"),@(2,1), "Auskunft" #9
PRINT @(2,2), 'SF'+"Suche nach",@(2,3), "Suchschlüssel",@(2,4), "Bis-Schlüssel",@(2,5), "Gefundene Pos",@(29,7), "Pos 0/ 0"+@(1,9)+COI
          -CALL-"DXPOPA", H8$, FEHL$, Q5$, NEUFENSTER+1 # 9
LET-MENH$="Beenden*Artikel-Auskunft*Verprobung*Drucken*Hilfe*", HOTH$="BAVDH"#9
!-LET-WAHL=0;-CALL-"PXMENH",H8$,FEHL$,Q5$,22,MENH$,"","",WAHL,WAHL$,2,78,"00011"
LET·MENU$="Suche·nach*Artikelnummer*Arbeitsgangbezeichnung*Arbeitsgangnummer*Kostenstelle*Auftragsnummer*Bemerkung*Zeichnungsnummer*Da
PRINT @(0,0), 'SCROLL'(0,0,80,20), 'SF', 'SCROLL'("RESET"), #9
PRINT @(2,2),'SF'+"<mark>Suche nach",</mark>@(2,3),"<mark>Suchschlüssel"</mark>,@(2,4),<mark>"Bis-Schlüssel",@</mark>(2,5),<mark>"Gefundene Pos",@</mark>(29,7),"<mark>Pos</mark>
LET WAHL=MENU_WAHL ! CALL "DXMENX", H8$, FEHL$, Q5$, 0, 0, 1, 2, MENU$, 0, "", WAHL, HOTK$, "", "", "0000111200"
LET - XT$="4123056789ABCD-"#
CALL "DXHEAD", Q5$, " Auskunft", 0, 0, 78 4
IF WAHL=0 THEN PRINT 'POP',; GOTO MENU_STCKLIST#9
LET A$=XT$(WAHL,1)=9
IF A$="-" THEN PRINT (0, ERR=*NEXT) POP',; GOTO MENU_STCKLIST
LET SUCHTYP$=A$#9
IF · EINPOS=1 · THEN · GOTO · LBL_01050
LET P$=@(16,2)+%ER$+'SF'+SUCHNACH$; GOSUB LBL_03100 [
LET P$=P$+@(16,3)+SUCH$#
LET . P$=P$+@(16,4)+"-"; . PRINT . P$=9
LET AUFSETZ$="0"+SUCHTYP$+SUCH$, ANZAHL=0, ERGEBNIS$="", ZEILE=0, BASIS=0||9|
READ (K[111], KEY=AUFSETZ$, DOM=*NEXT, END=LBL_01200)
           LET A$=KEY(K[111], END=LBL_01200); IF POS(AUFSETZ$=A$)=0 THEN GOTO LBL_01200
GOSUB-LBL 02200; GOSUB-LBL 02300
READ (K[111], END=LBL_01200)
GOTO LBL 01160
```

```
PRINT @(0,0), 'SCROLL'(0,0,80,20), 'SF', 'SCROLL'("RESET"), #9
CALL "DXMAKA", H8$, FEHL$, Q5$, H$, RAUS$, 0, 1, 80, 23, "1" 49
PRINT 'SCROLL'("OFF"),""+""+RAUS$, 'SCROLL'("ON"), #9
CALL "DXMAKA", H8$, FEHL$, Q5$, H$, RAUS$, 0, 21, 80, 3, "0" "
PRINT- 'SCROLL' ("OFF"), 'SF'+RAUS$, 'SCROLL' ("ON"), @(2,1), "Auskunft" #9
PRINT @(2,2), 'SF'+"Suche nach",@(2,3), "Suchschlüssel",@(2,4), "Bis-Schlüssel",@(2,5), "Gefundene Pos",@(29,7), "Pos 0/ 0"+@(1,9)+COL
LET-WAHL=0
LEL OLOSSON CALL "DXPOPA", H8$, FEHL$, Q5$, NEUFENSTER+1 4
LET MENH$="Beenden*Artikel-Auskunft*Verprobung*Drucken*Hilfe*",HOTH$="BAVDH"#9
! LET WAHL=0; CALL "PXMENH", H8$, FEHL$, Q5$, 22, MENH$, "", "", WAHL, WAHL$, 2, 78, "00011" "
LET MENU$="Suche nach*Artikelnummer*Arbeitsgangbezeichnung*Arbeitsgangnummer*Kostenstelle*Auftragsnummer*Bemerkung*Zeichnungsnummer*Dat
LET - WAHL=0-WAHL
PRINT @(0,0), 'SCROLL'(0,0,80,20), 'SF', 'SCROLL'("RESET"), #9
PRINT @(2,2), 'SF'+"Suche nach",@(2,3), "Suchschlüssel",@(2,4), "Bis-Schlüssel",@(2,5), "Gefundene Pos",@(29,7), "Pos 0/ 0"+@(1,9)+COL
REM WAHL=5; GOTO 1085
LET WAHL=MENU_WAHL ! CALL "DXMENX", H8$, FEHL$, Q5$, 0, 0, 1, 2, MENU$, 0, "", WAHL, HOTK$, "", "", "0000111200" "
LET · XT$="4123056789ABCD-"#9
! CALL "DXHEAD", Q5$, " - Auskunft", 0, 0, 78 9
IF WAHL=0 THEN PRINT 'POP',; GOTO MENU_STCKLIST
LET A$=XT$(WAHL,1)=9
IF A$="-" THEN PRINT (0, ERR=*NEXT) POP',; GOTO MENU_STCKLIST
LET SUCHTYP$=A$
LET-WAHLMERK=WAHL
GOSUB-LBL 06000
LET - WAHL=WAHLMERK
IF EINPOS=1 THEN GOTO LBL 01050
REM "Suche beginnen"
LET P$=@(16,2)+%ERS+'SF'+SUCHNACH$; GOSUB LBL_03100¤9
LET P$=P$+@(16,3)+SUCH$#
LET - P$=P$+@(16,4)+"-"; PRINT - P$=9
LET AUFSETZ$="0"+SUCHTYP$+SUCH$, ANZAHL=0, ERGEBNIS$="", ZEILE=0, BASIS=0||9|
```

LET-FLAG\$="S"#9

CALL "PXPOPA", H8\$, FEHL\$, Q5\$, FENSTER; PRINT 'PUSH', #9

READ (K[111], KEY=AUFSETZ\$, DOM=*NEXT, END=LBL_01200)

GOSUB LBL 02200; GOSUB LBL 02300

READ (K[111], END=LBL_01200)

GOTO LBL 01160 9

LET A\$=KEY(K[111], END=LBL 01200); IF POS(AUFSETZ\$=A\$)=0 THEN GOTO LBL 01200



```
CALL "PXPOPA", H8$, FEHL$, Q5$, FENSTER; PRINT 'PUSH', #9
PRINT @(0,0), 'SCROLL'(0,0,80,20), 'SF', 'SCROLL'("RESET"), #9
DIM H$(1980); LET H$(1)="200
CALL "DXMAKA", H8$, FEHL$, Q5$, H$, RAUS$, 0, 1, 80, 23, "1" 49
PRINT 'SCROLL'("OFF"),""+""+RAUS$, 'SCROLL'("ON"), #
DIM H$(1980); LET H$(1)="60000
CALL "DXMAKA", H8$, FEHL$, Q5$, H$, RAUS$, 0, 21, 80, 3, "0" "
PRINT 'SCROLL'("OFF"), 'SF'+RAUS$, 'SCROLL'("ON"),@(2,1), "Auskunft" #9
PRINT @(2,2), 'SF'+"Suche nach",@(2,3), "Suchschlüssel",@(2,4), "Bis-Schlüssel",@(2,5), "Gefundene Pos",@(29,7), "Pos 0/ 0"+@(1,9)+COL
         CALL DXPOPA", H8$, FEHL$, Q5$, NEUFENSTER+1 4
LET-MENH$="Beenden*Artikel-Auskunft*Verprobung*Drucken*Hilfe*",HOTH$="BAVDH"¤9
! LET WAHL=0; CALL "PXMENH", H8$, FEHL$, Q5$, 22, MENH$, "", "", WAHL, WAHL$, 2, 78, "00011"=5
LET-MENU$="Suche-nach*Artikelnummer*Arbeitsgangbezeichnung*Arbeitsgangnummer*Kostenstelle*Auftragsnummer*Bemerkung*Zeichnungsnummer*Dat
PRINT @(0,0), 'SCROLL'(0,0,80,20), 'SF', 'SCROLL'("RESET"), #9
PRINT @(2,2), 'SF'+"Suche nach",@(2,3),"Suchschlüssel",@(2,4),"Bis-Schlüssel",@(2,5),"Gefundene Pos",@(29,7),"Pos 0/ 0"+@(1,9)+COL
REM · WAHL=5; · GOTO · 1085
LET-WAHL=MENU_WAHL-!-CALL-"DXMENX",H8$,FEHL$,Q5$,0,0,1,2,MENU$,0,"",WAHL,HOTK$,"","","","0000111200"
LET - XT$="4123056789ABCD-"#9
! CALL "DXHEAD", Q5$, " - Auskunft", 0, 0, 78
IF WAHL=0 THEN PRINT POP',; GOTO MENU_STCKLIST
LET A$=XT$(WAHL,1)¤¶
IF A$="-" THEN PRINT (0, ERR=*NEXT) POP',; GOTO MENU_STCKLIST
LET SUCHTYP$=A$#9
GOSUB - LBL 06000
IF · EINPOS=1 · THEN · GOTO · LBL_01050
LET P$=@(16,2)+WER$+'SF'+SUCHNACH$; GOSUB LBL_03100 4
LET P$=P$+@(16,3)+SUCH$#
LET P$=P$+@(16,4)+"-"; PRINT P$=9
LET-AUFSETZ$="0"+SUCHTYP$+SUCH$,ANZAHL=0,ERGEBNIS$="",ZEILE=0,BASIS=045
READ (K[111], KEY=AUFSETZ$, DOM=*NEXT, END=LBL_01200) #9
        LET A$=KEY(K[111],END=LBL_01200); IF POS(AUFSETZ$=A$)=0 THEN GOTO LBL_01200 [
GOSUB LBL_02200; GOSUB LBL_02300
READ (K[111], END=LBL_01200) #9
GOTO LBL 01160
```

LLM: What is this code doing?

document legacy codebases

Line(s)	What happens
LET FLAG\$="S"	Set an internal flag that this path is a Search.
	Saves the current screen in an internal stack so the routine can "POP" back when it exits.
PRINT @ (0,0),'SCROLL'(0,80,20),'SF',' SCROLL'("RESET")	Clears the whole 80×20 scroll region and turns scrolling off while the window is being painted.
DIM H\$(1980) + LET H\$(1)="20000"	Creates a string array that describes the border of a pop-up window and passes it to the DXMAXAwindow-builder: DXM = Display MaX window, A = array interface. Two different windows are built — the orange one in the back and the light-blue "Auskunft"
CALL "DXMAXA", PRINT	("information") panel in the front.
'SCROLL'("OFF") 'SCROLL'(
"ON")	Re-enable scrolling inside the new window area.
	PRINT @(2,2),'SF'+"Suche nach", @(2,3),"Suchschlüssel", @(2,4),"Bis-Schlüssel", @(2,5),"Gefundene Pos" prints the field labels ("search for", "search key", "to key",
UI heading	"hits").
LBL_01050:	Start of the main interaction loop. MENUH\$="Beenden*Artikel-Auskunft*Verprobung*Drucken*Hilfe*"
Top-level menu	HOTH\$="BAVDH" \rightarrow CALL "DXMENH" shows a hot-key menu bar. MENU\$="Suche
	nach * Artikelnummer * Arbeitsgangbezeichnung * Arbeitsgangnummer * Kostenstelle * Auftragsnummer * Bemerkung * Zeichnungsnummer * Dateiname"
Search-criteria sub-menu	CALL "DXMENX" shows that list and returns the user's selection in WAHL.
XT\$="4123 056789ABCD-"	Validation mask for the key entry: only digits, A–D and a minus sign are allowed. A\$=XT\$(WAHL,1) opens an ASK-style field, watches for the "from" and "to" keys and lets
Accept the search key	the user abort with '.' or POP the screen if they hit ESC.
LET SUCHTYP\$=A\$	Store the prefix that identifies the search type (article number, work-centre, etc.). Build the composite key used in the data file:
	P\$=@(16,2)*XERS\$+'SF'+SUCHNACH\$ etc.
REM "Suche beginnen"	$\label{eq:aufsetz} $$ - such type flag in the physical key. $$ - the extra "0" in front is probably the record-type flag in the physical key.$
	READ (K[111],KEY=AUFSETZ\$,DOM=*NEXT,END=LBL_01200)
	If the key that comes back (A\$) no longer begins with the desired prefix \rightarrow jump to LBL_01200 (loop end).
	Otherwise it falls through two display sub-routines (GOSUB LBL_02200, GOSUB LBL_02300) that put the hit on the scrolling list, then does another READ DOM=*NEXT (\rightarrow

If the user chose "Beenden" from the top menu (WAHL=0) the code immediately 'POP's the window off the screen and GOTO MENU STCKLIST (higher-level routine). Similar

Indexed read loop

House-keeping exits

label 01160).

jumps handle Help, Print, etc.





document legacy codebases

Where are report headers created?



Report headers are created using a specific method called **DWKOPF**. This method is responsible for managing the creation of report headers within the system. It is part of the overall printing functionality, which is essential for generating reports that include headers to provide context and information about the content that follows.

If you need more details about how report headers are structured or any related information, let me know!

Q Search docs *K		
ICK+WAGNER system. ction patterns.		
Ms by various criteria and		
d more through a menu-		
ace for relationship		
e availability and utilization		
ımmary and detailed		





Build new products

Reduce time to market, lower development costs, and improve ROI for new software initiatives 2.

Document legacy codebases

Minimize knowledge debt, improve onboarding efficiency, and simplify the maintenance of aging systems 3.

Modernize legacy systems

Accelerate modernizations, reduce manual effort, and lower the risks of migrating outdated codebases



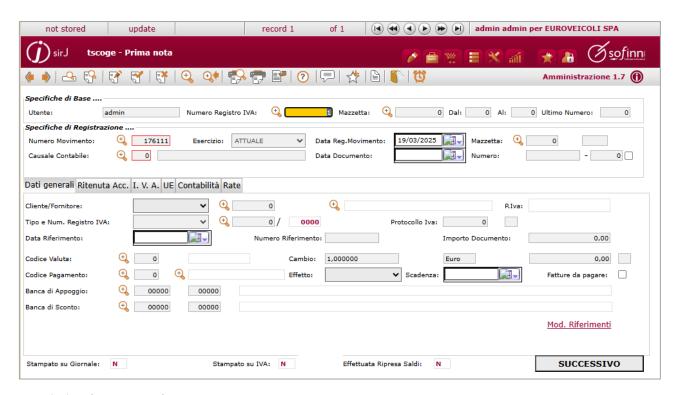
3. Modernize legacy systems

An Italian CSI company offering ERP solutions for automotive was looking modernize a solution that was build using 4GL due to being squeezed by the vendor. Last year they evaluated a low code tool for the modernization. This year, we evaluated using AI for the modernization.

Project objectives

- Out of the total 800 screens in the ERP, select one high and one medium complexity screen
- 2. Leverage the legacy files and screenshots associated to the screens
- 3. Use LLMs to generate screen layout configuration
- 4. Generate modern React screens that resemble the ordinal solutions





Original screenshot

modernize legacy systems

```
gBOX..box > ♀ div > ♀ table#specRegBOX:table1..table > ♀ tr > ♀ td#specRegBOX:table1_cell8. > ♀ div#specRegBOX:labe
           <link href="sirjstyle1.css" rel="stylesheet" type="text/css">
        <%=com.unify.nxj.awebServlet.Runtime.generateOnLoad(request, response, application)%>
        <br/><body onLoad="initPreview(false, -1, -1, 'file:///C:\Unify\NXJ/web-app/unify/images', 'file:///C:/
                add_allowed="true"
                aud_on_entry="false"
                auto_commit="true"
               binary_variables=""
               class="form"
               click_on_field="true"
               connection="<inherit&gt;"
                delete_allowed="true"
                displayheight="605"
                displaywidth="980"
                field_order=""
                find_allowed="true"
                footer="default"
                form_height="617"
                form_width="1008"
                foundation_type="Classes/Foundation/Form"
                header="default"
                is subclass="true"
                menu="default"
                name="NXJForm"
                object_type="form"
                records_in_memory="1000"
                update_allowed="true"
                view="form">
                   binary_variables=""
                   style="position: absolute; top: 0px; left: 0px; width:996px; height:605px">
                        add_allowed="true"
                        aud_on_entry="true"
                        auto_commit="true"
                        auto_refresh="false"
                        base_class="Classes/baseForm.fx"
                        baseform_1153593316671_024195d6b443e37bf1055c7544108c35aad81620_1207578191654-field
                        batch_record_update="false"
                        binary_variables="
```

Legacy Unify code





egBOX..box > 🔗 div > table#specRegBOX:table1..table > 🤣 tr > 父 td#specRegBOX:table1_cell8. > 父 div#specRegBOX:label <link href="sirjstyle1.css" rel="stylesheet" type="text/css"> <%=com.unify.nxj.awebServlet.Runtime.generateOnLoad(request, response, application)%> <body onLoad="initPreview(false, -1, -1, 'file:///C:\Unify\NXJ/web-app/unify/images', 'file:///C:/S activity="" add allowed="true" aud_on_entry="false auto_commit="true" binary_variables="" click_on_field="true" connection="<inherit>" delete_allowed="true" displayheight="605" displaywidth="980" field_order="" find_allowed="true" footer="default" form_height="617" form_width="1008" foundation_type="Classes/Foundation/Form" of 1 (4) (4) (5) (6) admin admin per EUROVEICOLI SPA not stored update Numero Registro IVA: 4 Mazzetta: 4 0 Dal: 0 Al: 0 Ultimo Numero: 0 Specifiche di Registrazione ✓ Data Reg.Movimento: Causale Contabile: Data Documento: Dati generali Ritenuta Acc. I. V. A. UE Contabilità Rate **⊕** 0 / Tipo e Num. Registro IVA Data Riferimento: ⊕ 0 Fatture da pagare: Codice Pagamento Banca di Appoggio Mod. Riferimenti Stampato su Giornale: N Stampato su IVA: N SUCCESSIVO

LLM

modernize legacy systems

```
Users > Paul.Cirstean > TS LayoutConfig.ts > 📵 tscogeFormConfig > 🔑 components > 🔑 tabs > 🔑 content > 🔑 children > 🛭
       import type { FormConfig } from "../types/form-config"
      export const tscogeFormConfig: FormConfig = {
         id: "tscoge-prima-nota", // Derived from filename/context
         title: "tscoge - Prima nota", // From form title/menu_label
         apiEndpoint: "/api/tscoge", // Updated to correctly point to tscoge collection
        primaryKey: "te_codice", // Primary key based on context
          endpoints: {
            movimenti: "/api/movimenti", // For te_codice lookup
            mazzette: "/api/mazzette", // For te_nummaz lookup
            causali: "/api/causali", // For te_causale lookup
            clients: "/api/clients", // For te_cfc_cf_num when type is 'C'
            suppliers: "/api/suppliers", // For te_cfc_cf_num when type is 'F'
             registriIva: "/api/registri-iva", // For te_regiva and Num_Regiva lookups
            valute: "/api/valute", // For te_valuta lookup
             pagamenti: "/api/pagamenti", // For te_condpag lookup
            banche: "/api/banche", // For te bap age bca, te bsc age bca lookups
            // Add other potential lookup endpoints if needed
           defaultValueField: "code", // Default field to use for the value
           defaultDisplayField: "description", // Default field to display
           cacheTimeout: 300000, // 5 minutes cache
         components: [
          // --- Specifiche di Base ---
            id: "specifiche-base-card",
            type: "card",
            className: "mb-6",
             children: [
                 id: "specifiche-base-section",
                 type: "section",
                 title: "Specifiche di Base ....", // From specBaseBOX legend
                 children: [
                     id: "base-grid",
                     type: "grid",
                     gap: "gap-x-6 gap-y-4", // Increase gap for better spacing
                         id: "utente-field",
                           id: "utente", // Mapped from specBaseBOX:te_nomeutente
                           label: "Utente:", // From specBaseBOX:label0003
```

LLM generated Layout configuration file



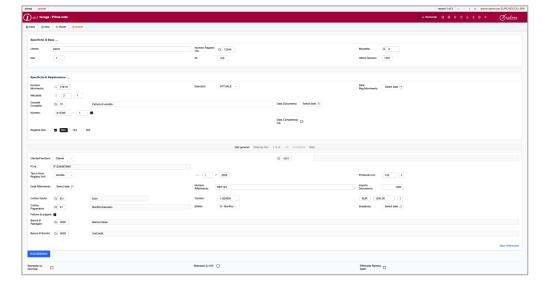


Users > Paul.Cirstean > TS LayoutConfig.ts > [@] tscogeFormConfig > \$\mathcal{B}\$ components > \$\mathcal{B}\$ tabs > \$\mathcal{B}\$ content > \$\mathcal{B}\$ children > \$\mathcal{F}\$ import type { FormConfig } from "../types/form-config" export const tscogeFormConfig: FormConfig = { id: "tscoge-prima-nota", // Derived from filename/context apiEndpoint: "/api/tscoge", // Updated to correctly point to tscoge collection primaryKey: "te_codice", // Primary key based on context endpoints: { movimenti: "/api/movimenti", // For te_codice lookup mazzette: "/api/mazzette", // For te_nummaz lookup causali: "/api/causali", // For te_causale lookup Numero Registro IVA: (Mazzetta: (Dal: O Al: O Ultimo Numero: O Specifiche di Registra 19/03/2025 🔃 Mazzetta: 🔾 0 Esercizio: ATTUALE ✓ Data Reg.Movimento: Causale Contabile: Dati generali Ritenuta Acc. I. V. A. UE Contabilità Rate Tipo e Num. Registro IVA Data Riferimento Importo Documento: Codice Valuta: Codice Pagamento Banca di Appoggio Mod. Riferimenti Stampato su IVA: N Effettuata Ripresa Saldi: N SUCCESSIVO Stampato su Giornale: N children: [id: "base-grid", type: "grid", gap: "gap-x-6 gap-y-4", // Increase gap for better spacing id: "utente-field", id: "utente", // Mapped from specBaseBOX:te_nomeutente label: "Utente:", // From specBaseBOX:label0003

Screenshot & layout config file

modernize legacy systems



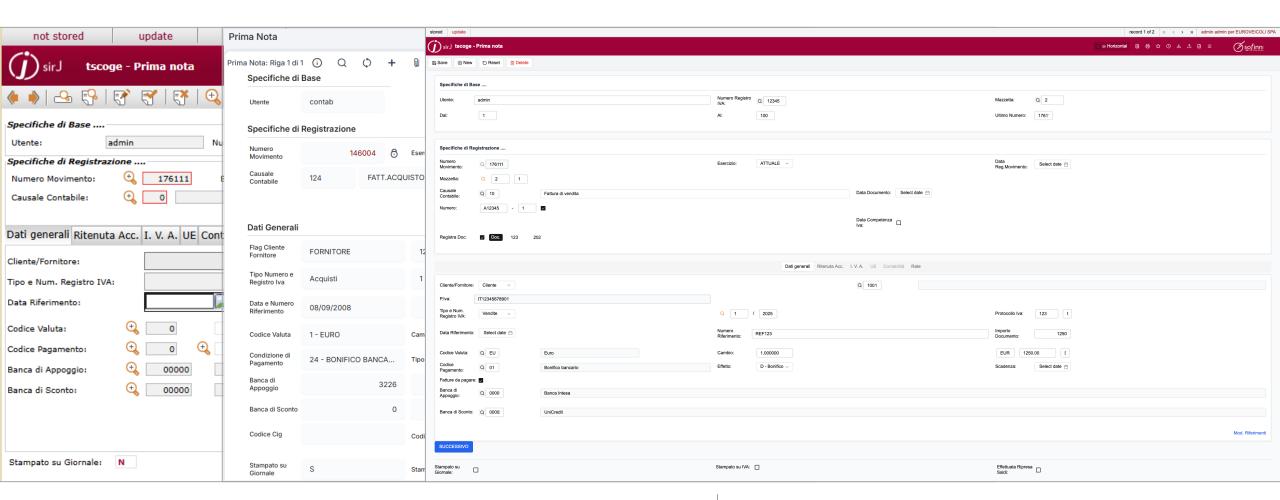


LLM generated React page

- Accurate layout
- Easy to modify and maintain
- Data & API mapping
- Deterministic implementation



modernize legacy systems



Original

Low code

LLM generated ReactJS

50-60% velocity increase compared to low code approach



1.

Build new products

30 - 50%

lower R&D cost on your new initiative P&L

2.

Document legacy codebases

40%*

faster learning curve for new developers on legacy systems

3.

Modernize legacy systems

up to 60%

faster legacy systems modernizations



opportunities for VMS companies



Employee perspective

How employees design, develop and maintain the software

Proactive adoption

Build new products

Modernizations
Fast prototyping
Speed up integrations
Automated code reviews
Product documentation



Product perspective

How products integrate with Al models to offer more value

Pragmatic experimentation

Data analytics
Document understanding
MCPs
Systems of Action
Specialized agents



Customer perspective

How end users interact with software products

Research only



The AI impact on CSI

What disruptions should we anticipate?

Practical AI use cases

Where can CSI companies capture immediate value?

Successfully adopting AI

How to go from resistance, to adoption and then transformation?



Mir

The GenAl Divide STATE OF ALIN BUSINESS 2025

MIT NANDA

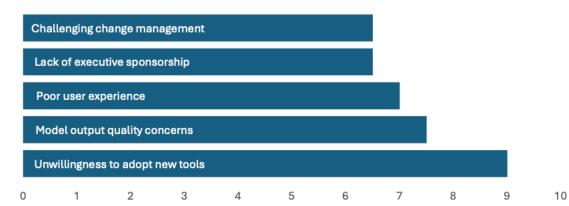
Aditya Challapally Chris Pease Ramesh Raskar Pradyumna Chari July 2025

95% of generative AI pilots fail

"Despite \$30–40 billion in enterprise investment into GenAI, this report uncovers a surprising result in that 95% of organizations are getting zero return. Just 5% of integrated AI pilots are extracting millions in value, while the vast majority remain stuck with no measurable P&L impact. **This divide does not seem to be driven by model quality or regulation but seems to be determined by approach.**"

Why GenAl pilots fail?

Top barriers to scaling AI in the enterprise





Al adoption strategy

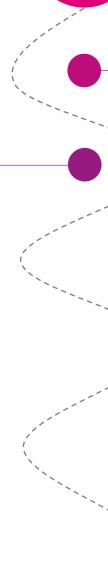
Droso

Awareness

Presentations, Al learning events, conferences & CSI summits

Strategy definition

Vision, readiness, risks and prioritization







Vision

Define how AI will drive your business goals, the specific benefits you expect, and how you will measure success.

Goals | Benefits | Success metrics

Prioritization

Identify the most promising AI initiatives to pursue by evaluating both their value and feasibility, with alignment between the business leaders.

Use cases | Feasibility | Added value

Readiness

Evaluate your current infrastructure, data assets, and team expertise to determine Al adoption readiness and gaps that need to be addressed.

Access to models | Data | People and skills

Risks

Identify potential risks in adopting AI, including technical, operational, and legal, and develop strategies to mitigate them.

Regulations | Security | Compliance





Al adoption strategy

Awareness

Presentations, Al learning events, conferences & CSI summits

Strategy definition

Vision, readiness, risks and prioritization

Experimentation

Hackathons, proof of concepts – must see to believe

Day to day adoption

Secured and compliant tools used for daily operations

Sharing

Monthly sharing session for learning and inspiration

Monitoring & improving

Monitor the AI adoption and usage metrics





What is the nature of your R&D projects?

technology, complexity, size



How good are the AI tools?

LLM benchmarks

How prepared are your companies?

skills and culture

yonder

How prepared are your companies?

yonder

Open Discussion

Paul Cirstean

Portfolio Managers Focus Group