

Turning AI Uncertainty into Confidence and Expertise into Advantage



EVOLVE-AI

**The
Invisible
Architecture**

Neal Carboneau Consulting, LLC

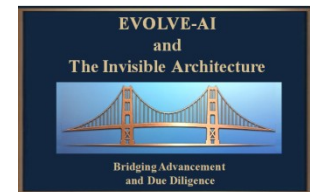
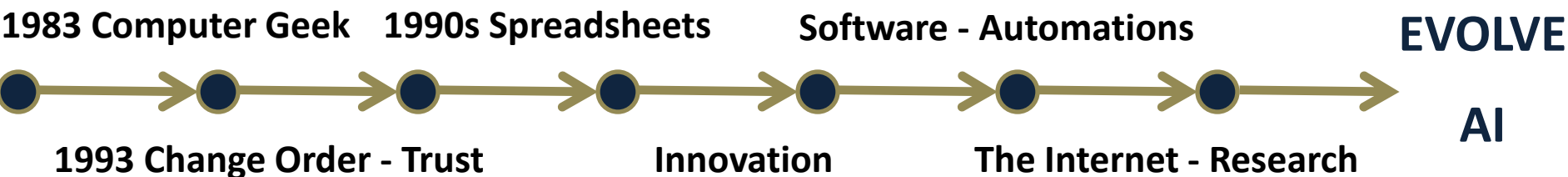
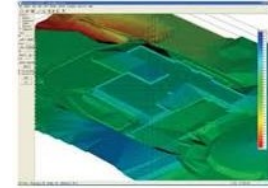
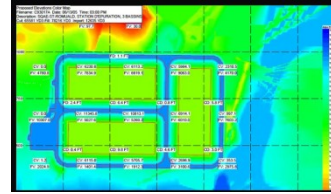
Bridging Advancement and Due Diligence

The Answers First

- Technology has changed often over time
- I've seen the same cycle repeat
 - New technology
 - Learn it
 - Check it
 - Get comfortable with it
 - Get more efficient
 - Do more work
 - Hire more people
 - The technology pays for itself
- And, the people side mattered as much as the technology side.



What I've Experienced



A Unique Perspective



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The Technological Transitions

1983, in high school

- Franklin Ace 1000 and VisiCalc.
- Paid for accounting.
- The technology paid for itself.



VISICALC™



Purdue

- Computers, spreadsheets, word processors, CAD, Planimeters
- Discipline, garbage in garbage out.
- Got comfortable with the instructor's caution.



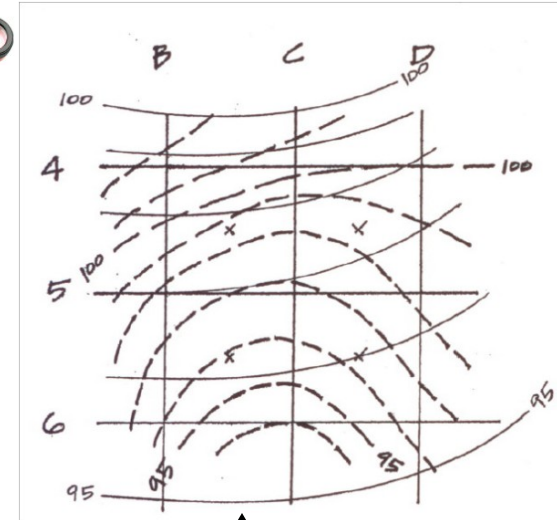
The Technological Transitions Continued

First Full Time Job and The Digital Planimeter. The Next Black Box

- Identified an earthwork quantity error
- Calculated by hand (rough average end area), bought a digital planimeter
- Its answers were much more accurate
- We checked it
- Got more comfortable
- We recovered \$ 76,000 dollars in unaccounted earthmoving.
- It paid for itself.



EARTHWORK GRID CALCULATIONS



↑

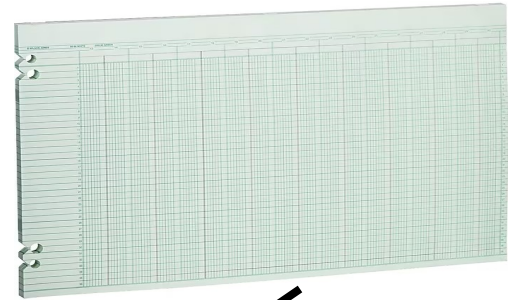
	B	C
5	FIN 97.0 EX 97.8 F-E -0.8	96.8 96.8 -0
6	95.6 96.0 -0.4	95.6 94.0 +1.6

AVG +0.100
Do Not Round ↗

The Technological Transitions Continued

Brought into the office my 2nd year

- Helped put paper ledger bid sheets in spreadsheets – The Next Black Box – To Them
- Used the same format to simplify side by sides
- Calculated by hand and in the spreadsheets
- Did side by side comparisons
- It checked out
- We continued to check
- Got more comfortable
- Got Faster and More Efficient
- Had More Time. Innovated.
- Got More Work. Hired More People.
- The Technology Paid for Itself.

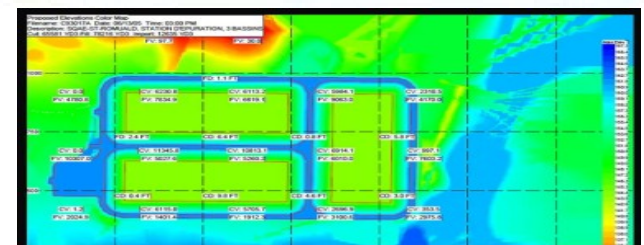
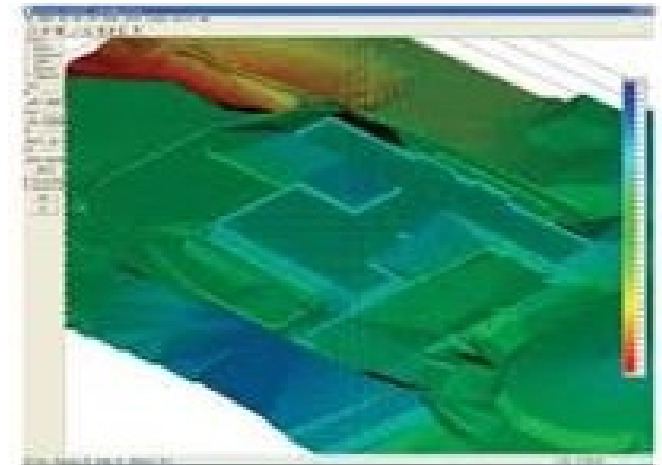


A:B26: (.0-) [W12] @SUM(B13..B25)						Print	Graph	Data	System	Quit
Worksheet Range Copy Move File						End the 1-2-3 session				
A	B	C	D	E	F					
7	Net Sales				\$0					
8	Cost of Goods Sold / Sales	137,900	172,280	92,750	245,140	\$648,070				
9		(137,900)	(172,280)	(92,750)	(245,140)	(\$648,070)				
10	Gross Profit									
11										
12	Operating Expenses									
13	Wages	22,500	27,500	22,715	30,340	\$103,055				
14	Salaries	32,500	32,500	32,500	32,500	\$130,000				
15	Rent	4,500	3,600	4,400	3,800	\$16,300				
16	Telephone & Utilities	2,575	2,699	2,767	2,898	\$10,939				
17	Insurance	10,700	10,700	10,700	10,700	\$42,800				
18	Advertising	1,200	2,100	4,000	2,200	\$9,500				
19	Maintenance & Repairs	17,200	17,996	20,184	18,555	\$73,943				
20	Gas & Oil	1,520	1,075	1,247	1,659	\$5,501				
21	Depreciation	1,800	2,000	2,200	2,400	\$8,400				
22	Travel & Entertainment	1,500	3,000	2,500	4,500	\$11,500				
23	Non-Income Taxes	4,550	4,858	4,967	5,205	\$19,580				
24	Other Operating Expenses	0	0	0	0	\$0				
25										
26	Total Operating Expenses	108,503	108,028	108,180	114,757	\$431,568				
27										
28	Net Operating Income	(238,503)	(280,308)	(200,930)	(359,897)	(\$1,079,638)				
29	Income.vk3									

The Technological Transitions Continued

The next technological transition was to digitizing earthwork plans. The Next Black Box

- Learned digitizing software
- Checked with the planimeter
- Its answers were even more accurate
- And visual: Cuts and Fills, 3D
- We continued to check
- Got more comfortable
- Got Faster and More Efficient
- Had More Time. Innovated.
- Got More Work
- Hired More People
- The Technology Paid for Itself.



The Technological Transitions Continued

Estimating Software was the Next Transition

- It replaced the spreadsheets for bidding
- But we still used the spreadsheets
- And do to this day
- But we checked the software with the spreadsheets
- Did side by side comparisons. It checked out
- We continued to check. Got more comfortable
- Got Faster and More Efficient
- Had More Time. Innovated.
- Got More Work
- Hired More People
- The Technology Paid for Itself.
- The same was true for Bid Tabs

A screenshot of a spreadsheet application, likely Lotus 123, displaying a financial statement. The data is organized into columns and rows, with various financial metrics listed on the left and numerical values in the columns. The interface includes a menu bar at the top with options like 'File', 'Edit', 'Format', 'Tools', 'Window', and 'Help'. The spreadsheet content includes line items such as 'Net Sales', 'Cost of Goods Sold / Sales', 'Gross Profit', 'Operating Expenses', and 'Total Operating Income'. The values are presented in a tabular format with some cells containing formulas or calculated results.

The Technological Transitions Continued

The Internet

- It replaced libraries
- We could find what we needed where we were
- Still had to go to the library for some things
- That improved over time
- Innovated using information from the internet
- An Ohio River Harbor
 - Ohio River gage data and climate data
 - Sheet piling and design alternatives
 - Constructability
- It gave us a competitive edge
- Got more comfortable, Faster and More Efficient
- Had More Time. Innovated.
- Got More Work
- Hired More People
- The Technology Paid for Itself.



Teaching the Change – Technology Transfer

Went Back to Purdue

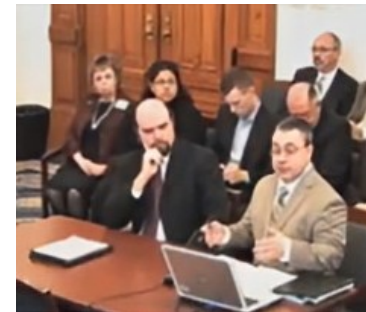
- A chance to work with researchers and students
- Translating technology into practical applications
- Training and Conferences
 - Taught how to implement it and check it
 - They got more comfortable
 - They got faster and more efficient
- The Training and Technology Paid for Itself

Continued

- Mentoring
- Specification Drafting
- Public Meetings, Legislation Guidance
- Indiana's financial health and quality of services improved



Public meeting
to address
the budget crisis



Presentation to
the Indiana
Senate
Appropriations
Committee

Teaching the Change – Technology Transfer

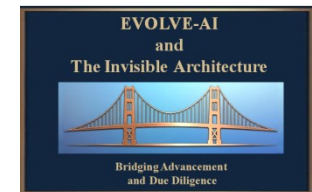
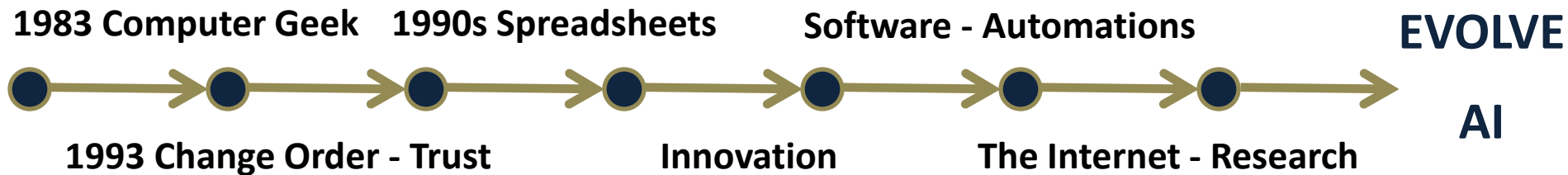
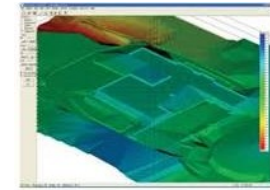
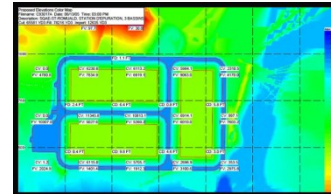
Started my own small business

- The Smartphones and the Internet put information at our fingertips
 - Accounting, legal, marketing
 - Research
 - Customer information, websites, marketing
 - Went from needing the SBA and SCORE advisors to having it on my phone.
- Grew, hired people.
- Continued Technology Transfer and Implementation
- Organizational Improvement
- Leadership and Management Training
- Refined the “People Side”
- The people and organizations
 - They got more comfortable
 - They got faster and more efficient
 - The Training and Technology Paid for Itself



Trained > 6,000 People Across 17 states

The History that Laid the Foundation for Today



A Unique Perspective



The Path

- New technology
- Learn it
- Check it
- Get comfortable with it
- Get more efficient
- Do more work
- Hire more people

And, I had to learn the personal side of it on the job.

Those are the themes I wanted to get across today.

Now, the Inspiring Part

AI Changed My Life



- In 2020, I lost my business, my financial health and my physical health to COVID
- I developed Long COVID and have it to this day
- It's been debilitating
- The ongoing exhaustion and other ongoing symptoms made it hard to work
- I worked part time to recover and figure out what was next
- **AI helped with that too**



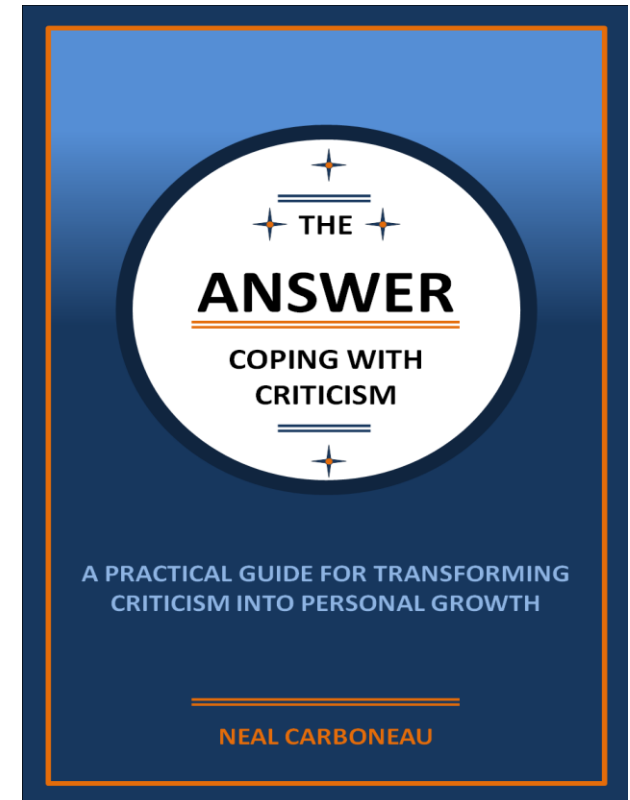
The Key A small icon of a key, with a circular head and a long shaft ending in a small rectangular base.

Now, the Inspiring Part

AI Changed My Life



- I saw how my coworkers were affected by customers
- I used Google's Bard and Microsoft's CoPilot
 - Psychology Research
 - Syntheses
 - My life's experience managing construction work and people
- and wrote a book

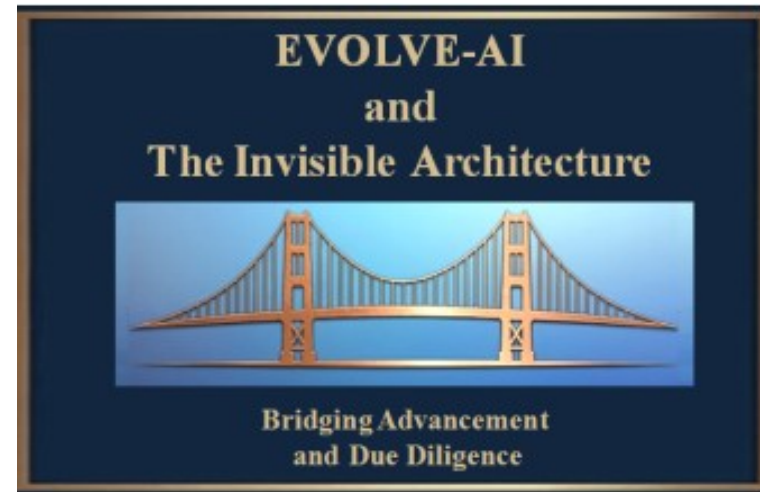


Now, the Inspiring Part

AI Changed My Life



- While doing the research I found a citation that didn't exist
- I looked into why
- The more I worked with AI LLMs the more issues I found
- I kept a log and the workarounds
- Knowing engineering and construction are high risk environments, I knew AI would present a problem
- So I developed EVOLVE-AI and the Invisible Architecture



Now, the Inspiring Part

AI Changed My Life

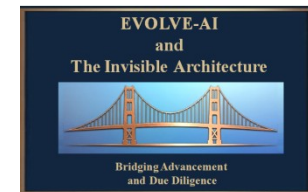
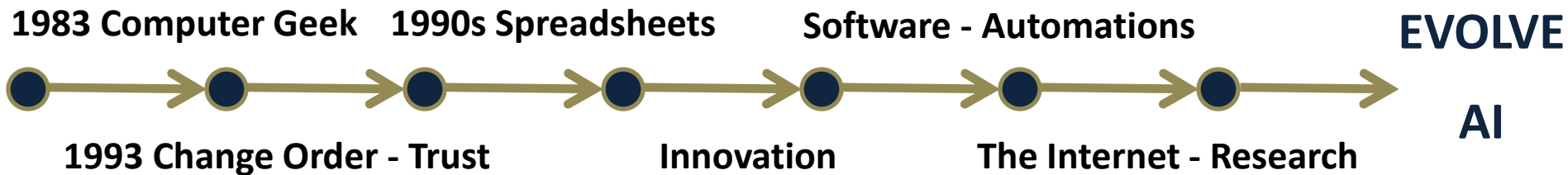
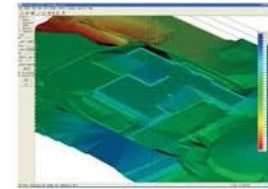
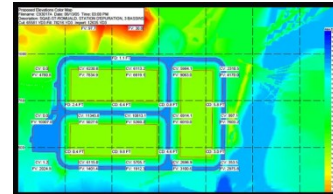


- To put a process around AI adoption
 - To manage use
 - Verify outputs
 - Document decisions
 - Keep the judgment in the hands of the professional
- To guide implementation and adaptation
 - Using human centered leadership, management, organizational improvement and psychology strategies



The People Side this Event is About

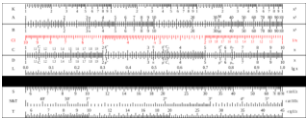
That's how I got here – and why



A Unique Perspective



So to summarize, we've all done this before



Slide Rules

Spreadsheets

Software Automations

Smartphones



Calculators

Software

Internet Searches



chrome



What Happened

We did less

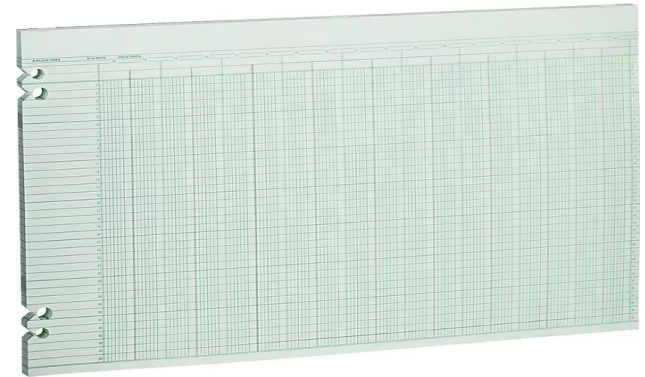
- Math
- Hand Work
- Digging
- Brute Force

We had more time to

- Think
- Create
- Discuss
- Improve

None of it was easy

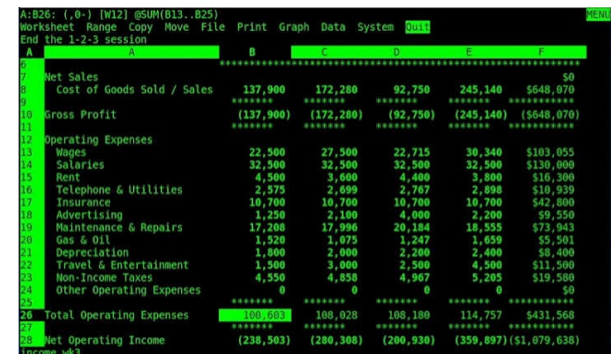
When we first started using spreadsheets we still did hand calculations to **check the math**.



It took longer at first, we got faster, did less side by sides, **gained confidence, earned trust** then developed an indispensable need.



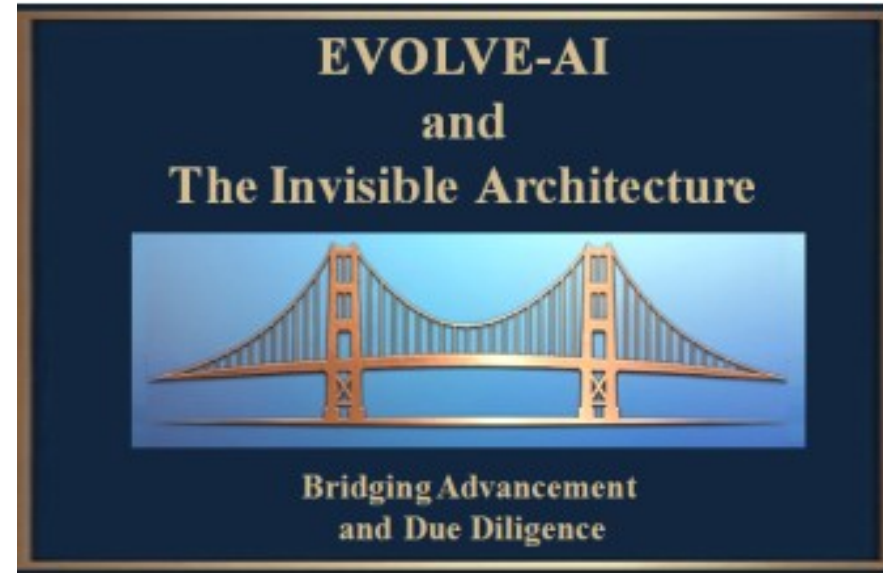
And, each of us likely had similar experiences with each technology transition.



A screenshot of a Lotus 1-2-3 spreadsheet titled 'income.wk3'. The spreadsheet displays a financial statement with columns for various categories and rows for specific items. The data is as follows:

	B	C	D	E	F
Net Sales					\$0
Cost of Goods Sold / Sales	137,900	172,200	92,750	245,140	\$648,070
Gross Profit	(137,900)	(172,200)	(92,750)	(245,140)	(\$648,070)
Operating Expenses					
Wages	22,500	27,500	22,715	30,340	\$103,055
Salaries	32,500	32,500	32,500	32,500	\$130,000
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Gas & Oil	1,520	1,075	1,247	1,659	\$5,501
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Non-Income Taxes	4,550	4,955	4,967	5,205	\$19,580
Other Operating Expenses	0	0	0	0	\$0
Total Operating Expenses	106,503	108,028	106,180	114,757	\$431,568
Net Operating Income	(238,503)	(280,308)	(200,930)	(359,897)	(\$1,079,638)

The People Side and Making it Work



Helping organizations in regulated industries put a process around AI adoption so they can manage use, verify outputs, document decisions, and keep the judgment in the hands of the professionals.

**Turning AI Uncertainty into Confidence
and Expertise into Advantage**

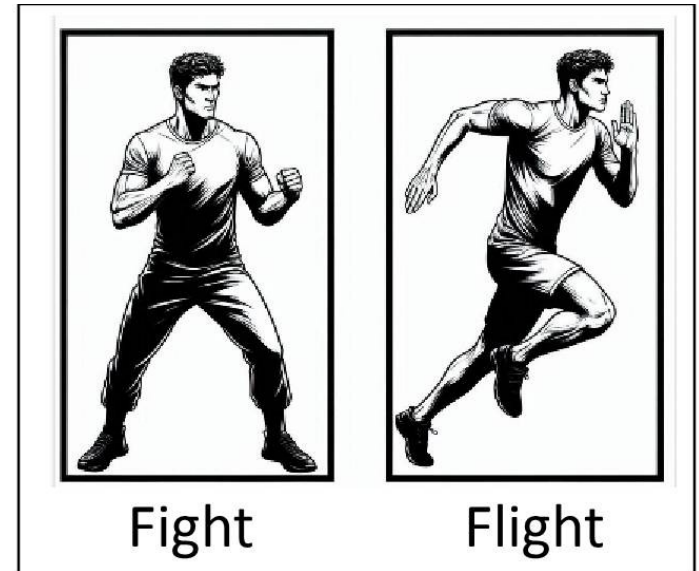
What I learned throughout my life

It's really about people, not the technology

Organizational change is often challenging because we miss the key component.

As humans, we're hard wired to resist change.

It's the fight or flight mode.



Stress narrows attention and makes learning harder.

It's hard to ask someone to learn something new when they're thinking about their job and survival.

What do they need to succeed



Full Potential

Esteem

Belonging

Safety

Survival

Maslow's Hierarchy

WHY THE YOUNGER WORKERS FEEL IT FIRST

Technology makes us efficient by doing the repetitive work

- Seasoned workers adapt more easily. Experience lets them create and innovate with the time AI frees up.
- Younger workers are affected first. Much of their work is the repetitive work: summaries, research, comparisons, data analysis, coding.
- If AI does that work, what do they do?
- They don't yet have the experience to step up easily like the seasoned workers.
- That's the disconnect.

WHY THE YOUNGER WORKERS FEEL IT FIRST

The plan has to match the technology

- Put as much effort into adapting roles as into adopting the tool.
- Reinvest part of the savings into process development, training, verification, documentation, and audits.
- Most technology rollouts fall short when this planning is skipped
and the change becomes just a directive.

EVOLVE-AI was built to address exactly this

NEW ROLES, NOT LOST ROLES

Adopting AI creates new roles.

Someone needs to perform them.

- Verify the work AI now does.
- Document and record the process.
- Manage the prompt library and knowledge base.
- Audit, monitor changes, and support the senior staff

NEW ROLES, NOT LOST ROLES

This repurposes younger workers into their first supervisory role: Supervising AI.

- It builds problem solving, analytical thinking, and cross functional skills.
- It teaches the job faster with less time spent on the repetitive work.
- It aligns with the skills employers say the future workforce needs.
- Resilience, analytical thinking; creative thinking, leadership, agility and motivation; among others.

Plan it alongside the adoption, not after.

AI'S NOT TAKING THE JOBS

We hear AI is replacing jobs. I read that differently.

- The tech sector has had large layoffs. That pain's real.
- But I see two other forces driving most of it.
 - **Poor implementation**
 - Most technology rollouts fall short when the process is not well planned.
 - **Financial pressure**
 - Heavy pandemic era hiring and very significant financial leveraging, meeting rising interest rates, debt service and investor demands pushes fast cost cutting.

AI'S NOT TAKING THE JOBS

I don't see AI taking jobs. I see poor implementation costing jobs.

- The replacement narrative also helps sell AI,
So it spreads.
- If AI replaces workers, companies will want AI to reduce costs,
and the narrative helps further AI industry revenue.
- Don't get misled by the headlines. There are usually hidden factors.

But, the job losses are real and devastating. I've lived it.
We have to make sure companies keep the eye on the people.

What does it mean on the job

I remember it by saying the team needs to
SCARF down the new information.

Status	Certainty	Autonomy	Relatedness	Fairness
Am I Still Valued	What are the rules now	Do I have a say	Are we in this together	Will I be treated fairly

SCARF was developed by **David Rock**, a leadership and neuroscience researcher and founder of the NeuroLeadership Institute.

How do we do it

Leaders build the conditions

People produce the change

Trust

**Safe to
Speak Up**

**Room to
Think**

**Room to
Make
Mistakes**

**Helpful
Framing**

**Sustainable
Pace**

**Clear
Decisions**

**Steady
Leadership**

The People Side – Life Long Learning

- Studied Psychology and Communication at Purdue
- Put into supervisory roles right out of college
- Managed people much older with decades of experience
- Had to lead on something other than position
- I continued studying people and management
- Some great examples and authors helped me along the way

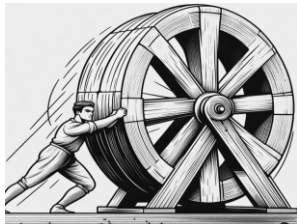
The Four Seasons Example

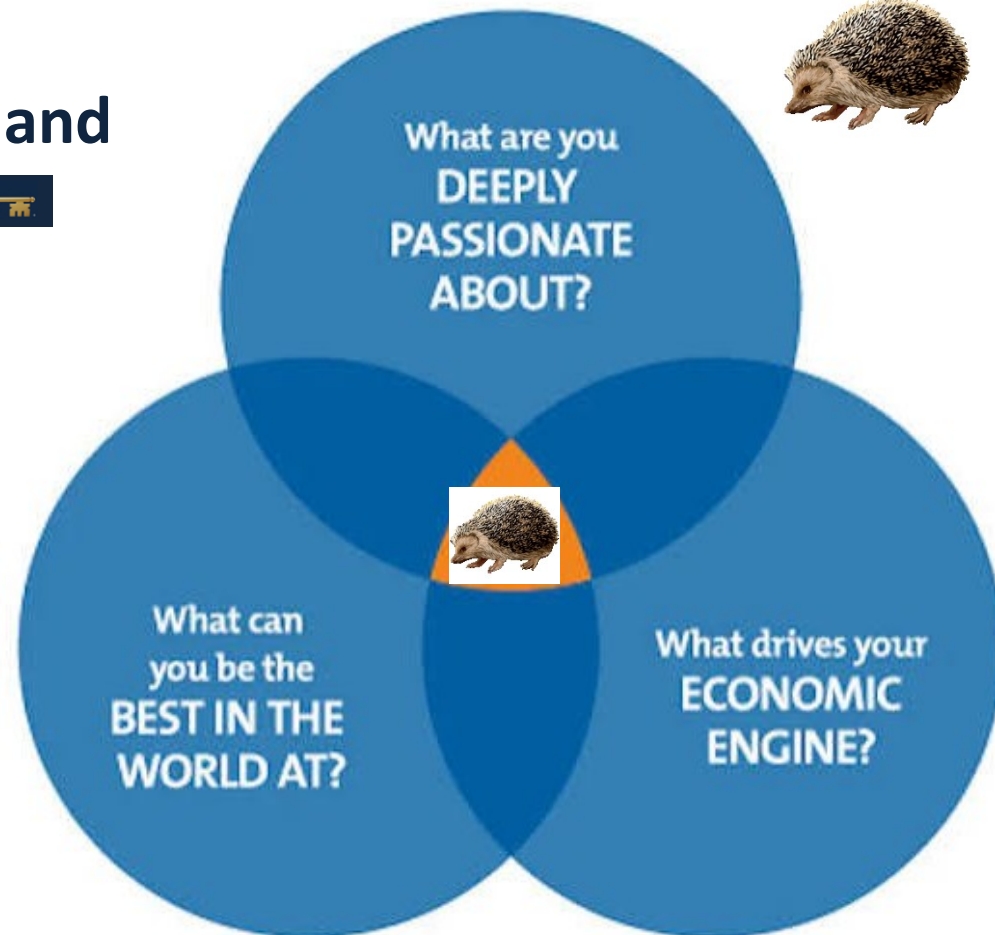
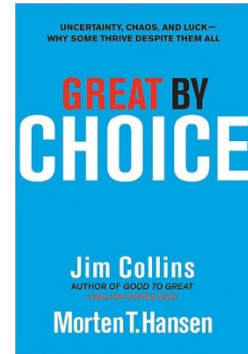
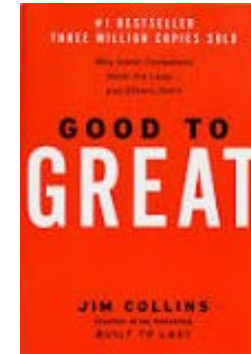


- Isadore Sharp, Four Seasons: The Story of a Business Philosophy
 - The Golden Rule **The Key** 
 - **Treat people the way you would want to be treated**
 - Employees first
 - The Reasoning
 - Staff would extend the guests the same care
 - How he supported it
 - He hired for warmth and attitude over skills
 - Pushed authority to the front line staff
 - **They solved problems on the spot**
 - He held the culture with real will
 - Parted ways with senior managers who would not live it.

Jim Collins

Good to Great

- Level 5 leadership
 - Deep personal humility with fierce professional will
 - **Leaders who give credit and absorb blame** 
- Start with people
 - First who and then what
- The Stockdale Paradox
 - Confront the brutal facts
- The Flywheel 
- The Hedgehog Concept

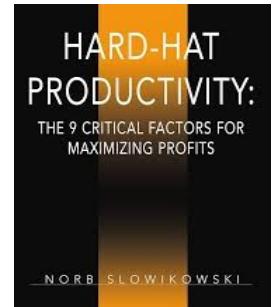


Norb Slowikowski

Hard-Hat Productivity

- A productivity consultant trained in psychology and industrial relations
- TEMMITS, not Tennis: How I remember it

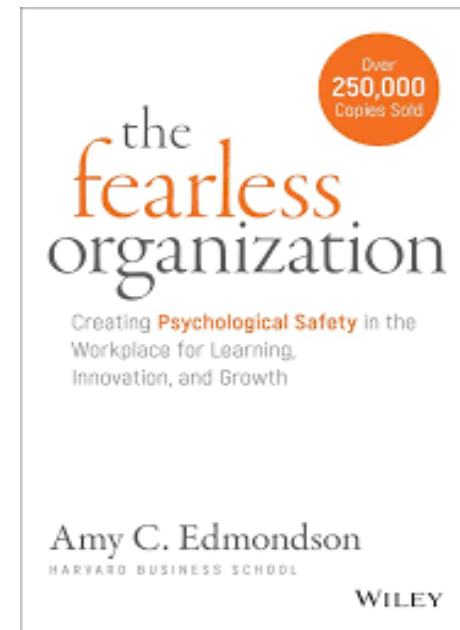
The Information Worker Version



What they need		Do they have it?	
Tools		The right software and access	
Equipment		The hardware to run it	
Materials		The data, files, and inputs the task needs	
Manpower		Proper staffing	
Information		Clear direction and the standards that apply	
Training		Real skill building, not a one time demo	
Support The Key 		A person to turn to that has their back	

Amy Edmondson's Psychological Safety and Google's Project Aristotle

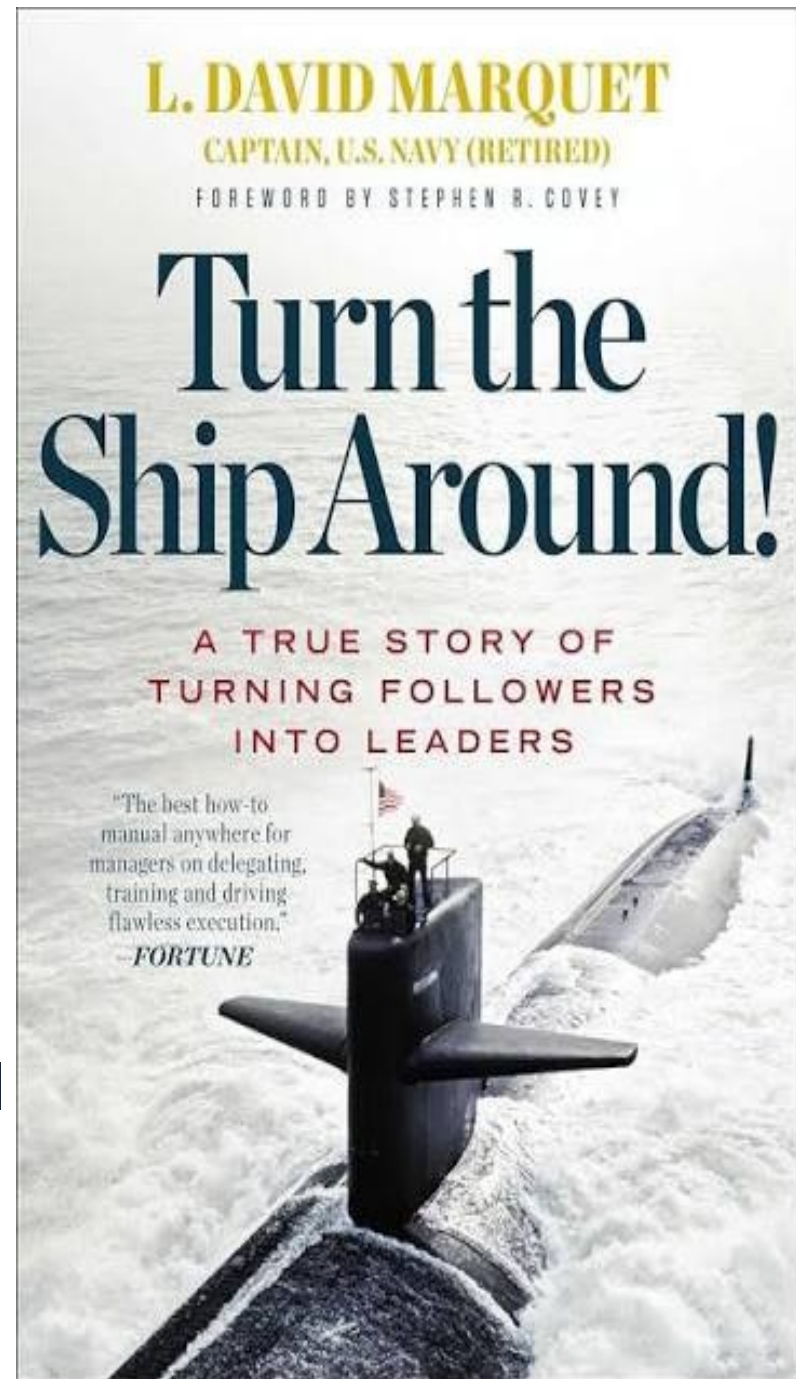
- Psychological safety – It's safe to 
 - Take risks
 - Ask questions
 - Disagree
 - Admit uncertainty
 - **Report mistakes without fear of punishment or humiliation.**
- **It's not about being nice or lowering the bar. It works alongside high standards**
- Frame the work
 - Learning
 - Inviting input
 - And, responding to candor with appreciation
- Google's Project Aristotle - re:Work team-effectiveness study 
 - **Psychological safety was the most important of five key dynamics**
 - Ahead of dependability, structure and clarity, meaning, and impact.
 - Supports the human case with a large scale data driven anchor.



David Marquet

Turn the Ship Around

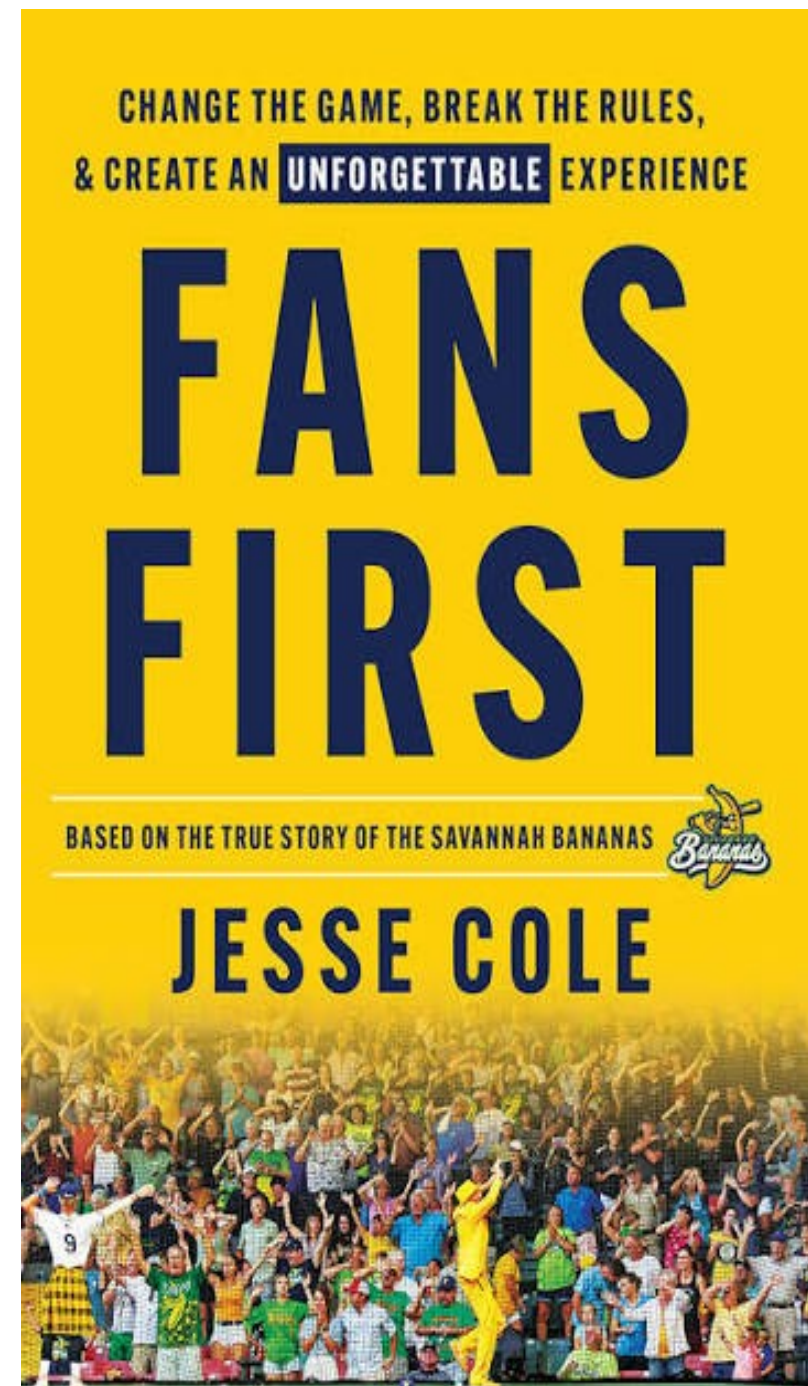
- The Leader - Leader Principle
- **Push decision authority down to where the information and competence already live**
- People at every level think and act like leaders
- How they phrase it
 - Replace a request with, “I intend to”
 - Require “we” instead of “they” when pointing at issues
- Delegation and Giving Control **The Key** 
 - **“Breathing through your teeth”**
 - Capitalizing on technical competence and organizational clarity



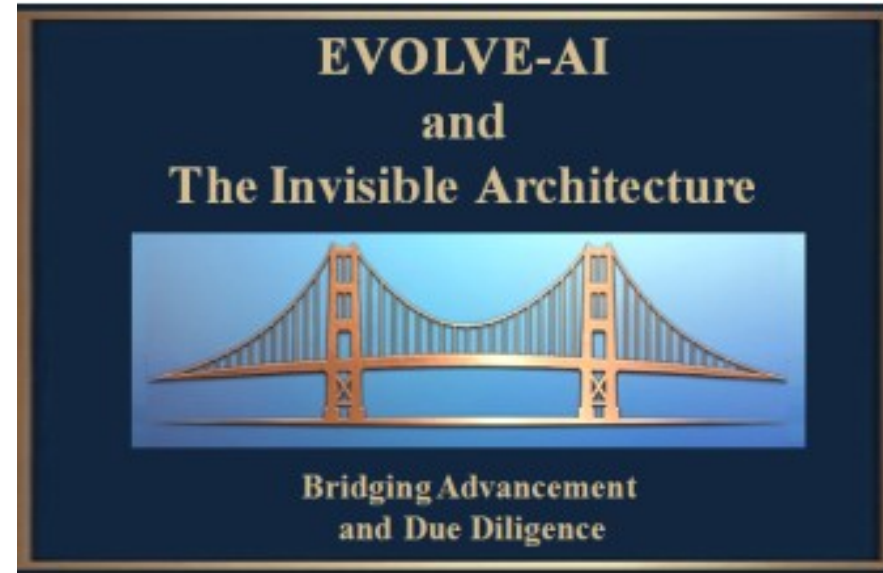
Jesse Cole, Savannah Bananas Fans First

Jesse Cole sold two tickets in three months and overdrew the bank account. He faced that brutal fact, kept the faith, sold his house, and built a sold out phenomenon. Faith and facts, together.

- Strip away friction **The Key** 🔑
- Short games
- No surprise fees
- Entertain relentlessly
- Experiment constantly
- Do the opposite
- Engage deeply
- Gestures that do not scale
- Empower the front line to act without permission. **The Key** 🔑
- Hire personality and energy over pedigree
- Love your people more than your customers



It's what guided me here



Helping organizations in regulated industries put a process around AI adoption so they can manage use, verify outputs, document decisions, and keep the judgment in the hands of the professionals.

**Turning AI Uncertainty into Confidence
and Expertise into Advantage**

How do we use AI safely

EVOLVE-AI



**Bridging Advancement and Due Diligence
Turning AI Uncertainty into Confidence**

AI Assists. Professionals Decide.

EVOLVE-AI

EVOLVE	In plain terms
Evaluate	How AI is already being used. Capabilities and uses. Who will drive it.
Validate	Map the capabilities to the work.
Optimize	Good timing and effective prompting.
Learn	Save what works: A shared prompt library. Create repeatable steps.
Verify	Verify Everything. Cross check with multiple models. Humans in the loop. The Key 
Expand	Grow the wins. Scale.

ACCURACY

ACCURACY	In plain terms
Assess timing	AI congestion is like highway traffic. It slows down and has crashes.
Choose the model	Match the tool to the job. Claude for projects and analysis. ChatGPT for conversational writing. Gemini for large files.
Craft the prompt	Use CLEAR prompts: Concise, Leverage Formatting, Eliminate excess, Ask one thing at a time, Review
Understand Hallucinations	It synthesizes instead of quoting exactly. Can create plausible sounding but incorrect answers. Can fabricate answers.
Run verification protocols	Assign risk to tasks. Verification intensity should match risk. Low verification does not mean no verification.
Automate routine processes	Use structured processes to complete work: Semi-automated Use N8N, Zapier or Make.com with IT when appropriate
Check compliance	Monitor evolving insurance, licensing and regulatory requirements. Adjust protocols and documentation.
Your sign off	The professional carries the responsibility, makes the final call and signs it.

Tier 5
Safety Critical
Full Intensive Stack
+ Sign Offs

Tier 4 Critical Work
3 Models, Review, 1 Model,
Final Reviews, Sign Off

Tier 3 Technical Analyses
Three Models + Full Review + Sign Off

Tier 2 Research and Preliminary Analyses
2+ Models, Verify Sources, Review, Approve

Tier 1 Routine, Administrative Work
1 Model + Read and Spot Check

How to get it done

Go at the speed people can absorb

Stabilize Days 1 to 30	Normalize Days 31 to 90	Mobilize Days 91 to 180	Keep Evolving Day 181 on
Listen Emphasize Verification Reassure Early wins	Assign Decisions Create Templates Support the Pace	Build Champions Create a Library Check Verification	Observe Assess Orient Decide Act

* A variation of the OODA Loop by U.S. Air Force Colonel John Boyd

Closing Thoughts

We navigated calculators, spreadsheets, software, and the internet.

Each one started with doubt, moved to comfort, and became something we could not do without.

The key then as it is now is verification and human judgment.

The lessons from world class researchers and cultures, like the Four Seasons: Build on awareness, understanding, respect, and trust.

Clear away friction, back the front line, and bridge advancement and due diligence.

AI speeds up the analysis, sparks ideas, and clears busywork.

But AI doesn't hold responsibility, weigh ethics, or protect the public.

AI Assists. Professionals Decide.

EVOLVE-AI



Bridging Advancement and Due Diligence Turning AI Uncertainty into Confidence

If this connects with something you're wrestling with, I'm glad to talk through where to start. Start with one low risk task (one you've done), verify it, document it, and expand what's useful.

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