PURDUE
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Operations Cohort

Operations Executive Program 2.0

June 2026

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PURDUE UNIVERSITY

Operations Executive Program 2.0

June 2026

Program Concept Overview

What is the Operations Executive Program (Phase 2.0)?

The Operations Executive Program (OEP) is an immersive, in-person experience at Purdue University designed to advance enterprise-level operations leadership. Phase 2.0 builds on foundational capabilities and focuses on integrating strategy, process, data, finance, and AI to drive organizational impact.

Participants step away from daily responsibilities to engage with leading faculty and peers in a highly interactive, cohort-based environment. The program emphasizes practical application, cross-functional alignment, and enterprise leadership, equipping participants to influence across boundaries, lead end-to-end processes, and deliver sustainable outcomes.

Why Purdue?

Purdue University is widely recognized for its strength in operations, engineering, and data-driven disciplines, making it an ideal partner for advancing the next phase of this program. As Phase 2.0 expands the scope to include enterprise leadership, financial strategy, and AI readiness, Purdue's multidisciplinary faculty brings together expertise across business, technology, analytics, and organizational leadership.

The Purdue Executive Education team has a proven ability to design and deliver transformative learning experiences that foster cross-functional collaboration and practical application. By drawing on faculty from diverse disciplines, Phase 2.0 provides participants with integrated perspectives that reflect the complexity of modern operations.

In addition to academic excellence, Purdue offers a dynamic, on-campus experience that reinforces collaboration, reflection, and innovation. This environment supports leaders in developing the mindset and capabilities required to connect strategy to execution and drive impact across their organizations.

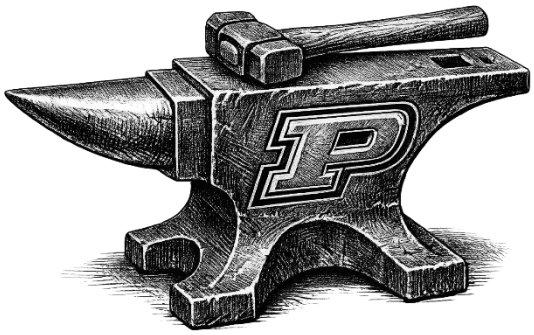
Why These Capabilities Matter

Operations leaders must now operate at an enterprise level, connecting strategy to execution across functions. Leadership influence, financial acumen, AI readiness, data fluency, and end-to-end process ownership are critical to delivering efficiency, innovation, and competitive advantage.

Together, these capabilities enable leaders to break down silos, make informed decisions, and drive consistent, high-quality customer outcomes, positioning the organization for sustained success.

The Learner Experience

Throughout each day, learners will progress through four primary modules spanning more than a dozen sessions. The anvil graphic symbolizes areas of high importance to the executives completing the program. A key to the program is that daily applied exercises and the curation of an implementation plan act as common thread throughout the week.



End-to-End Leadership	This module will empower leaders to influence strategically, align and mobilize process owners, and consider enterprise-wide approaches for people, processes, and projects.
Financial Insight	This module will equip leaders with the skills to analyze market position, make informed P&L decisions, and build compelling business cases that drive strategic and operational success
The AI-Ready Executive	This module will introduce foundational AI concepts and examine how operations leaders can prepare themselves for AI implementation for individuals, teams, and across the enterprise.
Data Interrogation & Fluency	This high-impact module teaches leaders to ask better questions, assess quality of analysis, and build clear, aligned processes.
Fundamental Future of Ops	This module equips participants with modern process leadership skills through sessions on emerging process theory, leading process owners horizontally, and managing end-to-end client journey processes. Learners will gain practical tools to drive cross-functional alignment and elevate process ownership across the organization.

PURDUE UNIVERSITY

Contents

Welcome Back to PURDUE!

OEP Program Participants and Guests,

Welcome back to Purdue University and to the next phase of the Operations Executive Program. It is a pleasure to have you return to campus as we continue this journey together through Phase 2.0.

We are proud to build on the strong foundation established in the first phase of the program. Your continued commitment reflects both the importance of operational leadership within the Bank and the opportunity to further expand your impact at an enterprise level. It is an honor for Purdue to partner with you as you take this next step.

As you re-engage with the program, you will experience an evolved curriculum designed to meet the increasing complexity of today's operating environment. Through collaboration with our multidisciplinary faculty and your peers, Phase 2.0 will focus on strengthening leadership influence, financial decision-making, data and AI readiness, and end-to-end process ownership. As before, the experience is designed to be interactive, practical, and immediately applicable to your organization.

Just as importantly, this phase offers another opportunity to reconnect with your cohort—building on the relationships, perspectives, and shared experiences that are critical to driving meaningful, cross-functional change.

We are excited to welcome you back to campus and look forward to continuing this work together.

Welcome back to Purdue.

Boiler Up!

Mathew Trampski
OEP Program Lead
Executive Director
Purdue Technical Assistance Program

Logan Jordan
OEP Academic Lead
Associate Dean of Administration
Mitchel E. Daniels, Jr. School of Business

Classroom Wi-Fi Connectivity

A guest Wi-Fi network has been made available for the duration of the program. This network is available when located in the classrooms and common areas of the Convergence Center.

Wi-Fi Details

SSID: Convergence WiFi or WiFi Guest

Password: **<***No Password Needed***>**

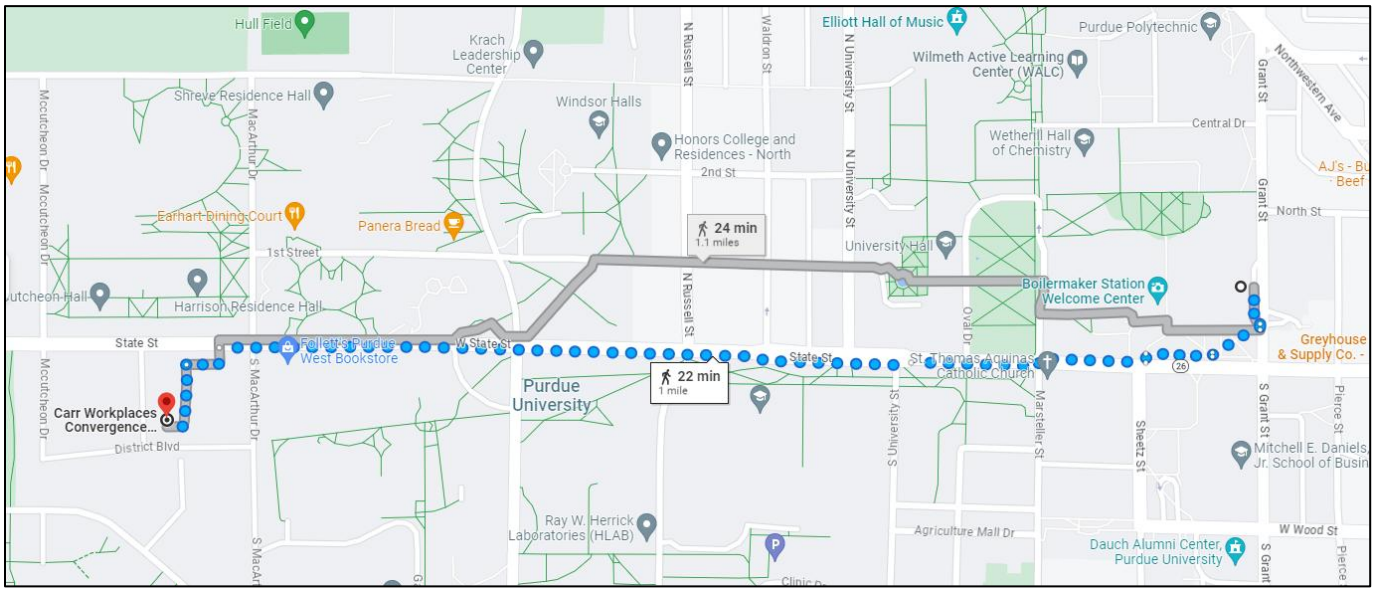
* *If you experience any connectivity issues, please contact any of the Purdue support staff for assistance.*

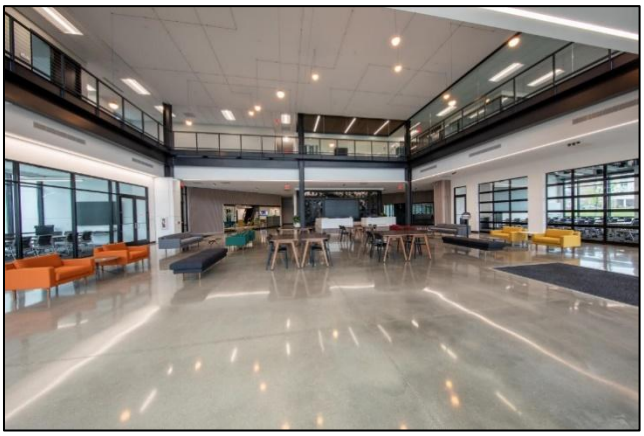
* *Please follow separate Wi-Fi instructions for the hotel*

Program Location – Convergence Center

The main program and daily sessions will be located at the Convergence Center for Innovation & Collaboration. The Convergence Center is one mile from the hotel. Daily transportation will be provided before and during the breakfast period each day. Participants are welcome to walk to Convergence if they prefer. Transportation will also be provided at the end of each day.

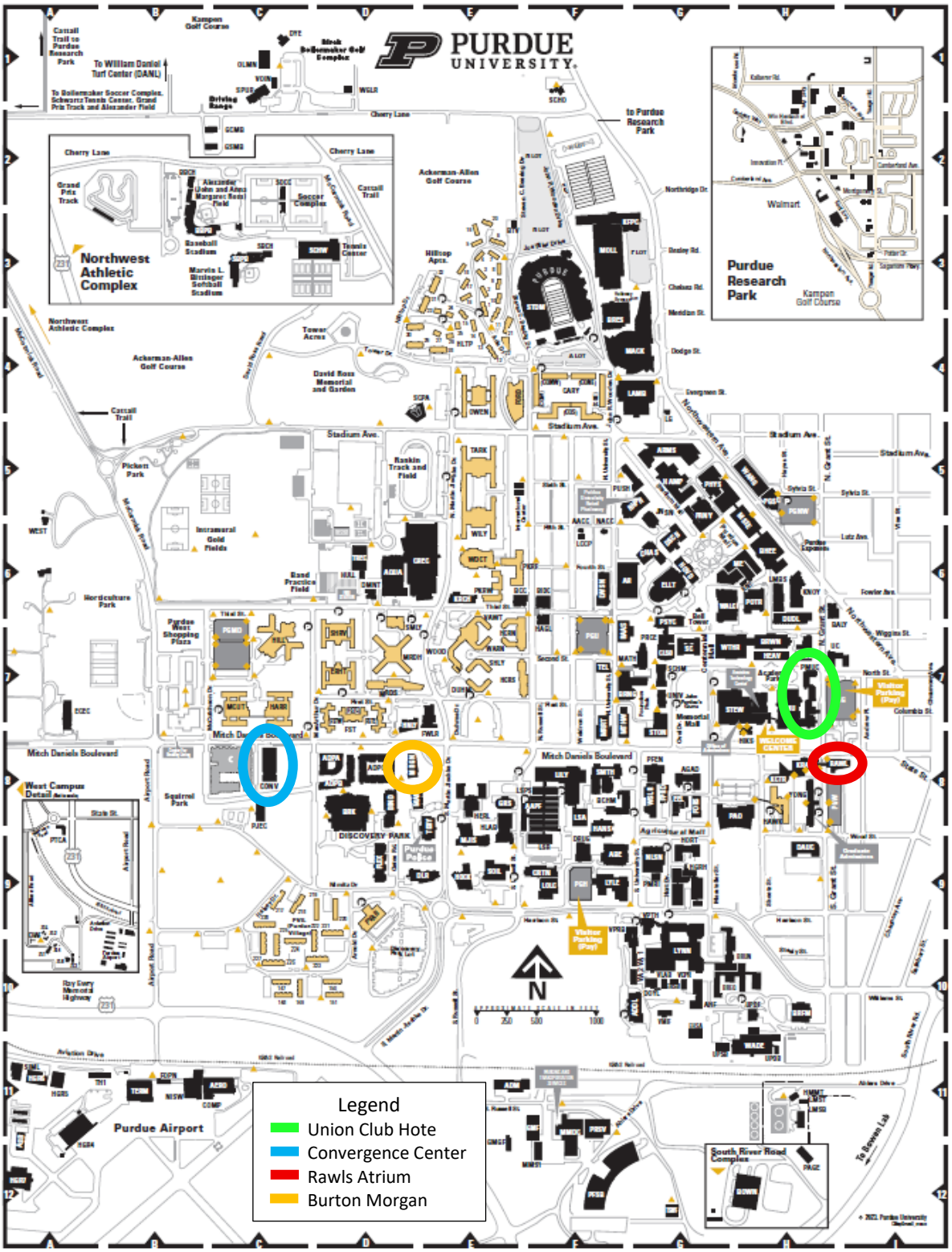
Address:
Convergence Center
101 Foundry Dr.
West Lafayette, IN 47906





Purdue Campus Map

Digital https://www.purdue.edu/campus-map/
Download: https://www.purdue.edu/campus-map/graphics/campusmap.pdf



Free Night Local Suggestions

Eateries:

College-Vibe

- **XXX – Triple X Diner** – Classic Purdue hangout serving legendary burgers and all-day breakfast since 1929.
- **Nine Irish Brothers** – Cozy Irish pub with hearty fare, Guinness on tap, and live music nights.
- **The Tap** – Bustling beer bar featuring dozens of craft brews and elevated pub bites.

Low-Key

- **Sakanaya Izakaya** – Japanese small plates, sushi, and sake in a relaxed, modern setting.
- **BRU Burger** – Gourmet burgers and craft beers in a casual, family-friendly space.
- **Town and Gown Bistro** – Warm, inviting spot for globally inspired comfort food.

Midscale

- **Ripple & Company** – Seasonal, locally sourced dishes with a neighborhood-friendly feel.
- **East End Grill** – Contemporary American grill known for fresh seafood and craft cocktails.
- **The Bryant Food and Drink Co.** – Upscale-casual dining with inventive American cuisine and a vibrant bar.

Upscale

- **Boilerhouse Prime** – Refined steakhouse experience near campus, steeped in Purdue tradition
- **Bistro 501** – French-inspired fine dining with an intimate, elegant atmosphere.
- **8Eleven Bistro** – Chic bistro blending classic flavors with modern culinary flair.

Night Life:

College Vibe

- **Harry's Chocolate Shop** – Purdue's legendary college bar, famous for strong pours and Boilermaker pride.
- **Neon Cactus/The Vault** – Dance the night away with live DJs, neon lights, and high-energy vibes.
- **Union Rack and Roll** – Bowling, billiards, and bar games paired with a full drink menu.

Low-Key

- **648 Bourbon and Cigar Lounge** – Sophisticated lounge for rare bourbons, fine cigars, and conversation.
- **Boiler Up Bar** – Refined cocktail bar located in the Purdue Memorial Union.

For group activities at any of these locations, or others,
please contact Jim or Mat to arrange group transportation.

Purdue Key Personnel Contact Information

Program Lead	Mat Trampski	mtrampsk@purdue.edu	765-414-8462 (m)
Logistics Lead	Angie Hoffine	ahoffine@purdue.edu	765-496-6166 (o)
Program Support	Leigh Ann Griffin	leighann@purdue.edu	765-562-2693 (m)
Program Support	Jim Stratton	stratton@purdue.edu	217-232-2127 (m)
Academic Lead	Logan Jordan	jordan@purdue.edu	765-494-4370 (o)

Airport Logistics

All airport travel is provided for your convenience. Shuttles and car services have been arranged, and schedules will be communicated directly to participants.

Pick-up and drop-off will be at Indianapolis International Airport Drop and the Purdue Union Club Hotel.

For any questions, travel changes, or concerns:
please contact Leigh Ann at (765) 562-2693

Program Agenda

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Program Snapshot

	Sunday June 21	Monday June 22	Tuesday June 23	Wednesday June 24	Thursday June 25	Friday June 26	
7:00 AM - 7:30 AM		Shuttle to Convergence (7:00 - 7:30) Registration & Breakfast (7:30 - 8:00)				Shuttles (7:00 to 7:45) Breakfast (7:15 to 8:00)	7:00 AM - 7:30 AM
7:30 AM - 8:00 AM			Shuttles (7:30 to 8:15) Breakfast (7:30 to 8:30)	Shuttle to Fair Oaks (7:30-8:30)	Shuttles (7:30 to 8:15) Breakfast (7:30 to 8:30)		7:30 AM - 8:00 AM
8:00 AM - 8:30 AM		Break				**Process 4:** Tactical Management of Processes and Process Owners (BAC facilitated) **Hyzy**	8:00 AM - 8:30 AM
8:30 AM - 9:00 AM		**Program Kickoff**		Coffee Bar + Breakfast			8:30 AM - 9:00 AM
9:00 AM - 9:30 AM		**Leadership 1:** Executive Leadership: Putting the "E" in OEP **Alge**	**AI 2:** AI for the Bank: The Internal AI Landscape **BAC Facilitated**	**Process 3:** Client Focused Process Design: Human-Centered Design Thinking **Christie**	**Process 1:** Process Thinking: Emerging Process Theory **Brunese**		9:00 AM - 9:30 AM
9:30 AM - 10:00 AM						Break	9:30 AM - 10:00 AM
10:00 AM - 10:30 AM		Break	Break		Break	**Foundry Presentations**	10:00 AM - 10:30 AM
10:30 AM - 11:00 AM		**AI 1:** Beyond the Buzzword: Math not Magic **Trampski**	**Leadership 2:** Strategic Influence: Cultivating Allies for Change & Leading with E2E Accountability **Alge**	Break	**Process 2:** Process Thinking: Executive Leadership of Process & Process Owners **Brunese**		10:30 AM - 11:00 AM
11:00 AM - 11:30 AM				**Foundry** Data-Driven Dairy **McCloskey**		Break	11:00 AM - 11:30 AM
11:30 AM - 12:00 PM						**Program Close**	11:30 AM - 12:00 PM
12:00 PM - 12:30 PM		Lunch	Lunch	Lunch	Lunch @ The Lawrence	Gran-n-Go Lunch	12:00 PM - 12:30 PM
12:30 PM - 1:00 PM							12:30 PM - 1:00 PM
1:00 PM - 1:30 PM		**Finance 1:** Market Analysis: Understanding Market Position and the Cost of Inaction **Koharki**	**Data 1:** Questions & Elements: Interrogating Data **Stratton**	Break		Transportation to Airport	1:00 PM - 1:30 PM
1:30 PM - 2:00 PM				**Tour**	**AI 3:** AI Strategy: Leading Ops During the AI Revolution **Matei**		1:30 PM - 2:00 PM
2:00 PM - 2:30 PM							2:00 PM - 2:30 PM
2:30 PM - 3:00 PM		Break	Break		Break		2:30 PM - 3:00 PM
3:00 PM - 3:30 PM		**Finance 2:** Managing P&L and Financial Decision-Making **Koharki**	**Data 2:** Process Intelligence: Streamlining with Structure & Smart Technology **Gunay**	Break	**Data 3:** The Next Chapter: Advanced Storytelling with Data **Pruim**		3:00 PM - 3:30 PM
3:30 PM - 4:00 PM							3:30 PM - 4:00 PM
4:00 PM - 4:30 PM				**Foundry** Tour Debrief			4:00 PM - 4:30 PM
		Break	Break				
4:30 PM - 5:00 PM		**Foundry** Process Scope, Design & Financials	**Foundry** Process Risks, Controls & Measures	Break	Break		4:30 PM - 5:00 PM
5:00 PM - 5:30 PM				Transportation to Dinner	**Foundry** Process Efficiency		5:00 PM - 5:30 PM
5:30 PM - 6:00 PM		Break to Hotel	Break to Hotel		Break to Hotel		5:30 PM - 6:00 PM
6:00 PM - 6:30 PM		Transportation to Dinner	Transportation to Dinner		Group Photo		6:00 PM - 6:30 PM
6:30 PM - 7:00 PM	Optional Social Hour BoilerUp Bar Union Club Hotel (6:30 - 8:30)	Spurgeon Club & Pop-A-Shot Tournament	Ripple & Co.	Dinner & Cornhole Tournament			6:30 PM - 7:00 PM
7:00 PM - 7:30 PM							7:00 PM - 7:30 PM
7:30 PM - 8:00 PM							7:30 PM - 8:00 PM
8:00 PM - 8:30 PM							8:00 PM - 8:30 PM
8:30 PM - 9:00 PM							8:30 PM - 9:00 PM
9:00 PM - 9:30 PM							9:00 PM - 9:30 PM
9:30 PM - 10:00 PM							9:30 PM - 10:00 PM

Daily Agenda

Day 0 – Sunday, June 21st

Time	Event	Purdue P.O.C.
6:30 PM – Until Concluded	Social Hour (Optional) BoilerUp Bar Union Club Hotel	Angie Hoffine

Day 1 – Monday, June 22nd

Time	Event	Purdue P.O.C.
7:00 AM – 7:30 AM	Shuttles to Convergence Purdue Memorial Union Club Hotel Lobby	Angie Hoffine
7:30 AM – 8:15 AM	Breakfast and Program Registration Convergence Atrium	
8:15 AM – 8:45 AM	Program Kickoff and Introductions Convergence Center Purdue Opening Remarks	Mat Trampski
8:45 AM – 10:15 PM	Leadership 1 – Executive Leadership: Putting the "E" in OEP Convergence Center	Brad Alge
10:15 AM – 10:30 AM	Break	
10:30 AM – 12:00 PM	AI 1 – Beyond the Buzzword: Math not Magic Convergence Center	Mat Trampski
12:00 PM – 1:00 PM	Lunch Convergence Center Atrium	Angie Hoffine
1:00 PM – 2:30 PM	Finance 1 – Market Analysis Convergence Center	Kevin Koharki
2:30 PM – 2:45 PM	Break	
2:45 PM – 4:15 PM	Finance 2 – Managing P&L and Financial Decision-Making Convergence Center	Kevin Koharki
4:15 PM – 4:30 PM	Break	
4:30 PM – 5:30 PM	Foundry – Process Scope, Design & Financials Convergence Center	Mat Trampski
5:30 PM – 6:15 PM	Break and Travel to hotel Purdue Memorial Union Hotel	Angie Hoffine
6:15 PM – 6:30 PM	Travel to Spurgeon Club Mackey Arena	Angie Hoffine
6:30 PM – 7:30 PM	Cocktail Hour & Hors D'oeuvres Spurgeon Club	Angie Hoffine
7:30 PM – 8:30 PM	Dinner Spurgeon Club	Angie Hoffine
8:30 PM – 9:00 PM	Dessert & Cocktails Spurgeon Club	Angie Hoffine

Day 2 – Tuesday, June 23rd

Time	Event	Purdue P.O.C.
7:30 AM – 8:15 AM	Shuttles to Convergence Purdue Memorial Union Club Hotel Lobby	Angie Hoffine
7:30 AM – 8:30 AM	Breakfast Convergence Center Atrium	Angie Hoffine
8:45 AM – 10:15 AM	AI 2 – AI for the Bank: The Internal AI Landscape Convergence Center	Bank of America
10:15 AM – 10:30 AM	Break	
10:30 AM – 12:00 AM	Leadership 2 – Strategic Influence Convergence Center	Brad Alge
12:00 PM – 1:00 PM	Lunch Convergence Center Atrium	Angie Hoffine
1:00 PM – 2:30 PM	Data 1 – Questions & Elements: Interrogating Data Convergence Center	Jim Stratton
2:30 PM – 2:45 PM	Break	
2:45 PM – 4:15 PM	Data 2 – Process Intelligence Convergence Center	Elif Elcin Gunay
4:15 PM – 4:30 PM	Break	
4:30 PM – 5:30 PM	Foundry – Process Risks, Controls & Measures Convergence Center	Mat Trampski
5:30 PM – 6:15 PM	Break and Travel to hotel Purdue Memorial Union Hotel	Angie Hoffine
6:15 PM – 6:30 PM	Travel Ripple & Co.	Angie Hoffine
6:30 PM – 9:30 PM	Cocktails & Dinner Ripple & Co.	Angie Hoffine

Day 3 – Wednesday, June 24th

Time	Event	Points of Contact
7:00 AM – 7:30 AM	Check-in Lobby Union Club Hotel for Fair Oaks Bus	Angie Hoffine
7:30 AM – 8:30 AM	Travel to Fair Oaks Farm	Angie Hoffine
8:30 AM – 9:00 AM	Breakfast & Coffee Bar	Angie Hoffine
9:00 AM – 10:45 AM	Process 3 – Client Focused Process Design Fair Oaks Farm	Jennifer Christie
10:45 AM – 11:00 AM	Break	
11:00 AM – 12:00 PM	Foundry – Data Driven Dairy Fair Oaks Farm	Jacqueline McCloskey
12:00 PM – 1:00 PM	Lunch Fair Oaks Farm	Angie Hoffine
1:00 AM – 1:15 AM	Break	
1:15 PM – 3:45 PM	Farm Tour Fair Oaks Farm	Jacqueline McCloskey
3:45 PM – 4:00 PM	Break	
4:00 PM – 4:45 PM	Farm Tour Debrief Fair Oaks Farm	Mat Trampski
4:45 PM – 5:00 PM	Break	
5:00 PM – 5:15 PM	Travel to Dinner	
5:15 PM – 9:00 PM	Dinner Fair Oaks Farm Private Clubhouse Cornhole Tournament	Angie Hoffine

Day 4 – Thursday, June 25th

Time	Event	Purdue P.O.C.
7:30 AM – 8:15 AM	Shuttles to Convergence Purdue Memorial Union Club Hotel Lobby	Angie Hoffine
7:30 AM – 8:30 AM	Breakfast Convergence Center Atrium	Angie Hoffine
8:45 AM – 10:15 AM	Process 1 – Process Thinking: Emerging Process Theory Convergence Center	Pat Brunese
10:15 AM – 10:30 AM	Break	
10:30 AM – 12:00 AM	Process 2 – Process Thinking Convergence Center	Pat Brunese
12:00 PM – 1:15 PM	Lunch The Lawrence	Angie Hoffine
1:15 PM – 2:45 PM	AI 3 – AI Strategy: Leading Ops During AI Revolution Convergence Center	Sorin Matei
2:45 PM – 3:00 PM	Break	
3:00 PM – 4:30 PM	Data 3 – The Next Chapter: Advanced Storytelling with Data Convergence Center	Doug Pruim
4:30 PM – 4:45 PM	Break	
4:45 PM – 5:45 PM	Foundry – Process Efficiency Convergence Center	Mat Trampski
5:45 PM – 6:15 PM	Break and Travel to hotel Purdue Memorial Union Hotel	Angie Hoffine
6:15 PM – 6:30 PM	Group Photo Purdue University Arch	Angie Hoffine

Day 5 – Friday, June 26th

Time	Event	Purdue P.O.C.
7:00 AM – 7:45 AM	Shuttles to Convergence Purdue Memorial Union Club Hotel Lobby	Angie Hoffine
7:15 AM – 8:00 AM	Breakfast Convergence Center Atrium	Angie Hoffine
8:00 AM – 9:30 AM	Process 4 – Tactical Management of Processes & Process Owners Convergence Center	Mike Hyzy
9:30 AM – 9:45 AM	Break	
9:45 AM – 11:15 AM	Operations Foundry Presentations Convergence Center	Mat Trampski
9:30 AM – 9:45 AM	Break	
11:30 AM – 12:00 PM	Program Close Convergence Center	Mat Trampski
12:00 PM – 1:00 PM	Lunch (Grab-n-Go) Convergence Center Atrium	Angie Hoffine

Shuttle to airport from Convergence (GROUP 1)

Shuttle to airport from Hotel (GROUP 2)

Curricular Material

Learning Modules, Outcomes, & Session Descriptions

Leadership	**Driving E2E Continuous Improvement with Enterprise & Ownership Mindset** Learning Outcome Drive end-to-end continuous improvement by fostering enterprise thinking, strengthening ownership, and breaking down silos to enable system-wide accountability and collaboration.
Finance	**Driving Performance: Financial Insight, Market Analysis, & Intelligent Operations** Learning Outcome Enhance performance by applying financial acumen, market and enterprise metrics, and predictive operational tools to optimize efficiency, resource allocation, and competitive positioning
Artificial Intelligence	**The AI Ready Executive: AI Fundamentals, Applications, & Strategy** Learning Outcome Develop AI readiness by mastering foundational concepts, evaluating use cases, aligning with enterprise strategy, and leading responsible adoption to drive business value.
Data	**From Ambiguity to Action: Data Fluency for Executive Decision-Making** Learning Outcome Build data fluency by defining problems, asking the right questions, analyzing data-driven insights, and translating findings into clear actions and measurable outcomes.
Process	**The Fundamental Future of Ops: Trends and models for E2E Process Design & Leadership** Learning Outcome Lead the future of operations by applying emerging technologies, process innovation frameworks, and end-to-end design principles to optimize performance and drive enterprise transformation.

Session Descriptions

Driving E2E Continuous Improvement with Enterprise & Ownership Mindset

Leadership 1

Description:
Empower teams to own their work, strengthen cross-functional collaboration, and align processes to deliver consistent business results.

Session Objective(s): Define your leadership role to empower team ownership, recognize and overcome barriers to enterprise thinking, and implement strategies and action plans that foster system-wide accountability, cross-functional collaboration, and value-added executive impact.

Faculty Lead: Dr. Brad Alge BofA Video: Tom Scrivener

Driving E2E Continuous Improvement with Enterprise & Ownership Mindset

Leadership 2

Description:
Learn to break down silos, build strategic alliances, and communicate influence to drive enterprise-wide accountability and lasting change.

Session Objective(s): Define end-to-end leadership and its impact on customer experience and business outcomes while leveraging networks to identify key influencers, build relationships that secure buy-in, and apply effective communication techniques to drive change and build goodwill.

Faculty Lead: Dr. Brad Alge

Driving Performance: Financial Insight, Market Analysis, & Intelligent Operations

Finance 1

Description:
Assess your institution's competitive standing, explore the economics of innovation and AI adoption, and weigh the risks and rewards of acting, or waiting, in a shifting market.

Session Objective(s): Differentiate the bank's competitive position by analyzing operating leverage and efficiency ratios, apply and evolve key enterprise metrics such as ROTCE, and leverage forecasting, capacity planning, and predictive tools to optimize resource deployment.

Faculty Lead: Dr. Kevin Koharki

Driving Performance: Financial Insight, Market Analysis, & Intelligent Operations

Finance 2

Description:
Strengthen financial acumen by interpreting P&L statements, managing budgets, and uncovering opportunities for cost reduction and operational efficiency.

Session Objective(s): Develop financial acumen by interpreting P&L statements, managing budgets, and evaluating OpEx decisions to identify efficiency opportunities, while reinforcing disciplined capital allocation and exploring the strategic impact of AI.

Faculty Lead: Dr. Kevin Koharki

The AI Ready Executive: AI Fundamentals, Applications, & Strategy

Artificial Intelligence 1

Description:
Understand core AI concepts, explore real-world use cases and governance, and apply design thinking to integrate AI into processes for smarter, more effective operations.

Session Objective(s): Build foundational AI literacy by understanding core concepts, terminology, and use cases, critically evaluating outputs for quality and risk, and establishing a practical framework for responsible and effective AI adoption.

Faculty Lead: Mr. Mat Trampski

The AI Ready Executive: AI Fundamentals, Applications, & Strategy

Artificial Intelligence 2

Description:
Understand the needs, applications, and implementation goals for AI that fits the Bank's strategic goals.

Session Objective(s): Understand how to responsibly leverage AI to amplify strengths without over-reliance, align with the bank's vision for AI and Copilot adoption, and foster a culture that embraces and sustains AI-driven ways of working.

Bank of America Lead: Mr. Hank Weaver

The AI Ready Executive: AI Fundamentals, Applications, & Strategy

Artificial Intelligence 3

Description:
With the fundamentals of AI in mind, learn how the foundational elements of AI translate into the strategic application of AI tools to drive change within the organization.

Session Objective(s): Understand the fundamentals of strategic AI implementation, evaluate processes for AI readiness and responsible use, communicate real-world enterprise applications, and explain the high-level technical concepts behind advanced AI models.

Faculty Lead: Dr. Sorin Matei

From Ambiguity to Action: Data Fluency for Executive Decision-Making

Data 1

Description:
Learn to define clear problem statements, craft the right questions, and evaluate data outputs to drive informed, high-impact decisions.

Session Objective(s): Identify and define problems by asking targeted questions to gather the right data, develop data-driven solutions, and evaluate outcomes using clear success metrics and performance measures.

Faculty Lead: Dr. Jim Stratton

From Ambiguity to Action: Data Fluency for Executive Decision-Making

Data 2

Description:
Explore how to simplify and standardize complex processes, uncover inconsistencies, and leverage AI for smarter, faster workflows.

Session Objective(s): Assess processes for ambiguity and consistency while identifying opportunities to apply AI and critically analyzing outputs to drive improvement.

Faculty Lead: Dr. Elcin Gunay

From Ambiguity to Action: Data Fluency for Executive Decision-Making

Data 3

Description:
Expand on prior storytelling with data techniques to better craft and communicate complex ideas up- and downstream within the organization with interactive exercises.

Session Objective(s): Develop advanced storytelling skills with data by transforming complex analysis into clear, compelling narratives that drive insight, influence decisions, and align stakeholders through effective visualization and communication.

Faculty Lead: Dr. Doug Pruim

The Fundamental Future of Ops: Trends and models for E2E Process Design & Leadership

Process 1

Description:
Explore the latest advances in process thinking and how they reshape modern organizational workflows.

Session Objective(s): Obj: Recognize how emerging and cutting-edge technology can influence process theory.

Faculty Lead: Dr. Pat Brunese

The Fundamental Future of Ops: Trends and models for E2E Process Design & Leadership

Process 2

Description:
Learn practical strategies for influencing and guiding process owners across functional boundaries.

Session Objective(s): Think beyond siloed ownership to evaluate and implement process improvements across upstream and downstream impacts, while understanding horizontal effects and confidently interrogating processes to drive system-wide optimization.

Faculty Lead: Dr. Pat Brunese

The Fundamental Future of Ops: Trends and models for E2E Process Design & Leadership

Process 3

Description:
Use design thinking to reframe problems, uncover customer insights, and co-create innovative practical solutions that work at scale.

Module Objective(s): Apply design thinking to enterprise challenges by using client-centered approaches and journey mapping to uncover pain points, reframe problems, and drive innovative solutions.

Faculty Lead: Mrs. Jennifer Christie

The Fundamental Future of Ops: Trends and models for E2E Process Design & Leadership

Process 4

Description:
Understand how to tactically lead processes and process owners to create a seamless, end-to-end client journey experience.

Module Objective(s): Develop the ability to tactically manage processes and process owners by driving accountability, optimizing performance, and ensuring alignment with operational goals and enterprise priorities.

Faculty Lead: Mr. Mike Hyzy

Operations Foundry

Foundry Activity

Description:
This session has two parts: 1) applied daily exercises and 2) implementation plan development to address challenges and opportunities.

Daily Exercises: At the end of each day, there will be a short 30-minute exercise to practice applying learned that day. After the 30-minute exercises, there will be time to work collaboratively and independently to develop an implementation plan to address a challenge or opportunity upon return to the Bank. You will have an opportunity on Thursday evening to share your implementation plan with your assigned group for feedback. The group will choose one individual to present their business case on Friday morning.

Note: Keep in mind that choosing an individual to present an implementation plan does not mean their case will be chosen for funding or guarantee a meeting with Tom Scrivener; the group is choosing a plan they thought was well put together and tells a good 'story' (e.g., the plan is framed with enough information, data, and concepts from the program to share as an example).

Presentations: On the last day of the program, select individuals will share their implementation plans with the entire group. The presentation will take place on Friday morning.

Module Objective(s): (1) Identify an operations-related challenge or opportunity you are facing. (2) Develop an implementation plan to apply new concepts and practices learned during the OEP upon return to the Bank to address your challenge/opportunity. (3) Practice applying the storytelling components to present the challenges and implementation plan to the other OEP participants.

Faculty Lead: Mr. Mat Trampski, Dr. Jim Stratton

Leadership 1

Executive Leadership: Putting the “E” in OEP

Dr. Brad Alge

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LEADERSHIP MODULE

END-TO-END LEADERSHIP: CONTINUOUS IMPROVEMENT WITH ENTERPRISE & OWNERSHIP MINDSET

Dr Brad Alge
Daniels School of Business

Global Operations Executive Program

EXECUTIVE LEADERSHIP (L1)

PUTTING THE "E" IN OEP

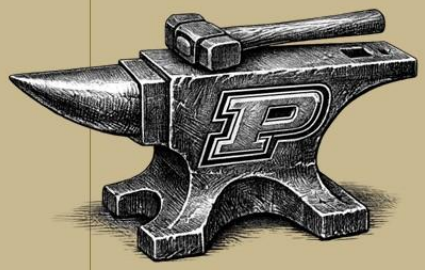
Dr Brad Alge
Daniels School of Business

Global Operations Executive Program

PURDUE UNIVERSITY

LEARNING OBJECTIVES

Executive Leadership: Putting the "E" in OEP



Description:

This session is designed to help you empower your teams to own their work, strengthen cross-functional collaboration, and align processes to deliver consistent business results.

Objective(s):

Define your leadership role and empower your team to take ownership.

Define end-to-end leadership and its impact on customer experience, operational efficiency, and business outcomes.

Recognize barriers to enterprise thinking and apply strategies to shift from siloed to system-wide accountability.

Understand the fundamental strengths and contributions of a value-add executive.

Develop action plans to reinforce a culture of ownership and cross-functional collaboration.

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What Is My Leadership Role

5-Minutes to Reflect & Prepare to Share

Take a moment to write down or bullet your leadership role as you see it

- Describe your role
- What leader behaviors are most critical?
- How does your team see your role?
- Do you suspect any blindspots? Where?
- What is your biggest leadership challenge?
- Am I leading like an executive?

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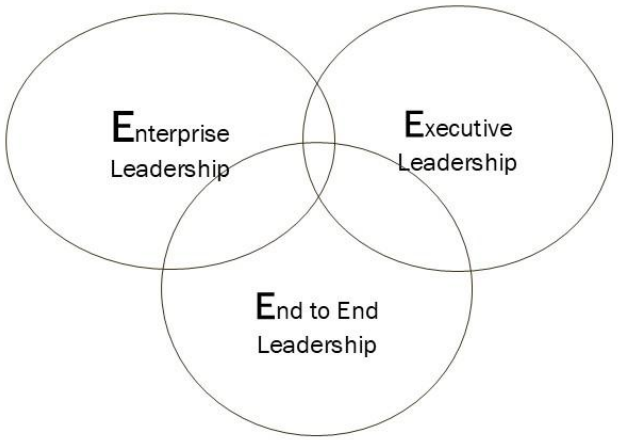
"E" in Executive Leader

- What does putting the "E" in executive leadership mean to you?
- What differentiates "Executive Leadership" from "Leadership?

"E" in Executive Leader



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What is End-to-End Leadership?

One who sees the big picture, takes ownership of the operation (or process), builds relationships across the operation, removes barriers that impede the operation, is committed to improving and optimizing the operation, and builds leaders to ensure operational success in the future; puts organization ahead of self.

What are the benefits of end-to-end leadership?

Executive Leadership

Survey of top global business executives

79%

said it was extremely important to have leaders who act on behalf of the entire organization and not just their units.

65%

Expect at least half of their midlevel to senior level managers to behave as enterprise leaders

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Leadership Skills for Operational Excellence

Fundamental strengths of value-added executive leader – unlocking barriers to enterprise thinking

- **Enterprise Mindset** – care about others and company, putting others (org) ahead of myself; recognizes the integration and interdependency of every function; improving whole system
- **Sound Decision Making** – seek full information, know where expertise lies
- **Intellectual Curiosity** – asking the curious questions, inquiry mindset
- **Desire to Improve** – dissatisfied with status quo; persistent pursuit of growth and excellence
- **Perspective**: Depth (my team, area) and breadth (external environment, beyond boundaries) – know what lies within, know what lies beyond, spanning boundaries
- **Communicatio**n – knowing how to communicate to audience; clarity, influence, curiosity, encourage multi-way
- **Servant Leadership** – care about others and company; putting others ahead of myself

An Enterprise Mindset and Servant Leadership

- To think at an enterprise level requires checking your own ego and self-interest in favor of others (your team, other areas in the company, the company overall)
- This is why servant leadership becomes so important.

Greenleaf Definition:

"**Servant leadership** begins with the natural feeling that one wants to serve, to serve *first*. Then conscious choice brings one to aspire to lead. . . . The difference manifests itself in the care taken by the servant—first to make sure that other people's highest priority needs are being served. The best test . . . is: do those served grow as persons; do they, *while being served,* become healthier, wiser, freer, more autonomous, more likely themselves to become a servant? *And,* what is the effect on the least privileged in society; will they benefit, or, at least, will they not be further deprived?"

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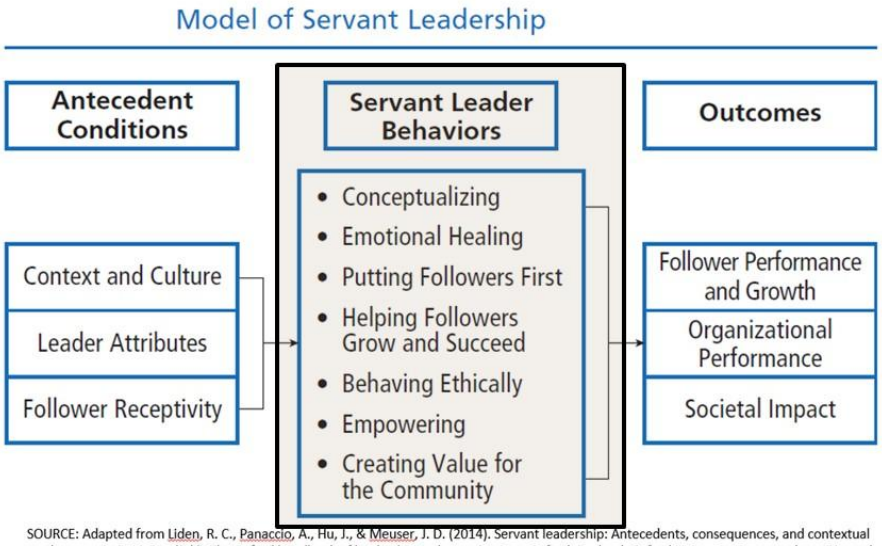
Relevant Leader Behaviors



SOURCE: Adapted from Liden, R. C., Panaccio, A., Hu, J., & Meuser, J. D. (2014). Servant leadership: Antecedents, consequences, and contextual moderators. In D. V. Day (Ed.), *The Oxford handbook of leadership and organizations.* Oxford, England: Oxford University Press; and van Dierendonck, D. (2011). Servant leadership: A review and syntheses. *Journal of Management, 37*(4), 1228–1261.

In Volatile, Uncertain, Complex, Ambiguous Environments…We Face A Paradox As Leaders

Paradox

Leadership is a journey to irrelevance,

but if journey is successful, you will become more relevant

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In Volatile, Uncertain, Complex, Ambiguous Environments…We Face A Paradox As Leaders

Paradox

We must learn to give up control….

….to regain control

Am I Preparing My Team To Take Control?

Is my team ready?

Am I preparing them?

Do they own it?

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Decision Making

A QUICK EXERCISE

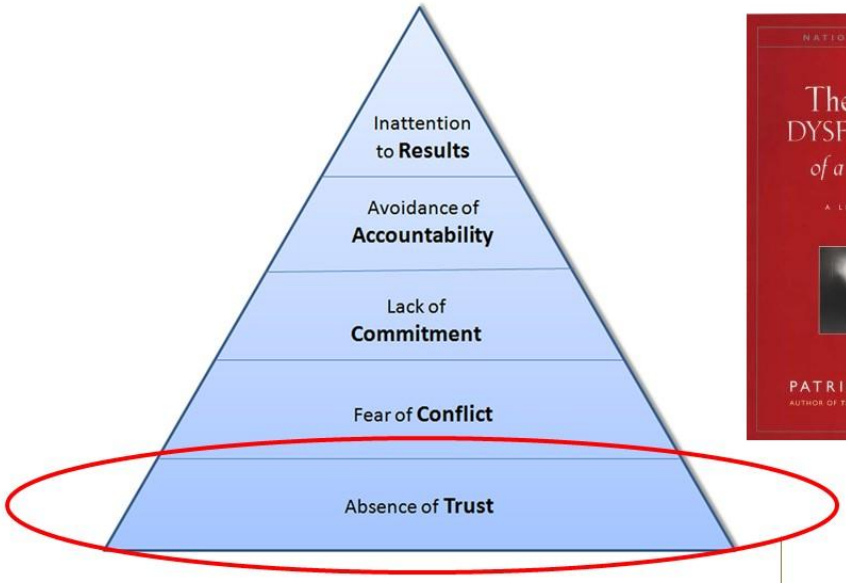
- The Parking Lot

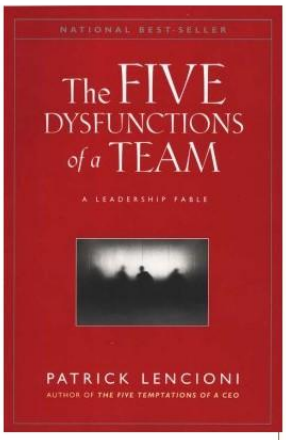
How Do I Ensure That My Team Takes Ownership?

How do I ensure my team becomes good followers and leaders?

- Are they empowered or are they being blocked? How do you know?
- How dependent are they on you (or others outside) for information?
- Are they being intentional (versus passive, apathetic)?
- Has your team become dysfunctional?

Five Dysfunctions Of Teams: Trust Is The Foundation





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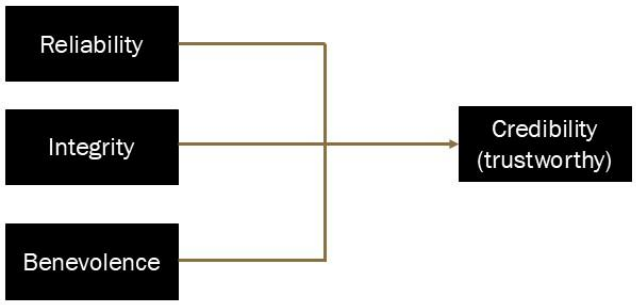
Trust

A Definition

The willingness to be vulnerable to a trustee, in risky situations, based on positive expectations about the trustee's actions and intentions.



Risky means I am harmed more if I trust you and you violate that trust, than if I had never trusted you at all

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Why Do Silos Exist?

- Protect against outside threats, preserve within
- Provides safety, comfort, predictability, control
- Can be an indicator of low trust, so the costs are similar to the costs of low trust
  - Lack of information sharing
  - Inconsistent customer experience
  - Inconsistent messaging, confusion, lack of clarity
  - Slow response times
  - Duplication of effort
  - Less collaboration

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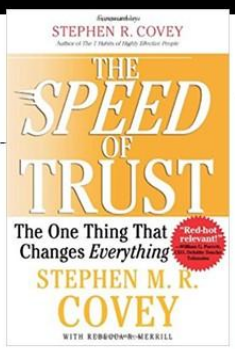
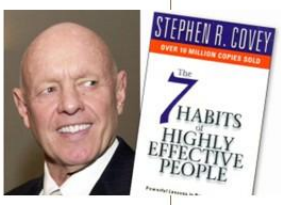
Trust...So What?

The 7 Low-Trust Organizational Taxes™

- **Redundancy:** Redundancy is unnecessary duplication. A costly redundancy tax is often paid in excessive organizational hierarchy with layers of management and overlapping structures designed to ensure control.
- **Bureaucracy:** Bureaucracy includes complex and cumbersome rules, regulations, policies, procedures, and processes. One estimate put the cost of complying with federal rules and regulations in the U.S. alone at $1.1 trillion more than 10 percent of the GDP.
- **Politics:** Office politics divide a culture against itself. The result is wasted time, talent, energy, and money. In addition, they poison company cultures, derail strategies and sabotage initiatives, relationships and careers.
- **Disengagement:** Disengagement occurs when people put in enough effort to avoid getting fired but don't contribute their talent, creativity, energy or passion. Gallup's research puts a price tag of $250 billion - $300 billion a year on the cost of disengagement.
- **Turnover:** Employee turnover represents a huge cost and in low-trust companies, turnover is in excess of the industry standard – particularly of the people you least want to lose. Performers like to be trusted and they like to work in high-trust environments.
- **Churn:** Churn is the turnover of stakeholders other than employees. When trust inside an organization is low, it gets perpetuated in interactions in the marketplace causing great turnover among customers, suppliers, distributors and investors. Studies indicate the cost of acquiring a new customer versus keeping an existing one is as much as 500 percent.
- **Fraud:** Fraud is flat out dishonesty, sabotage, obstruction, deception and disruption – and the cost is enormous. One study estimated that the average U.S. company lost 6 percent of its annual revenue to some sort of fraudulent activity.





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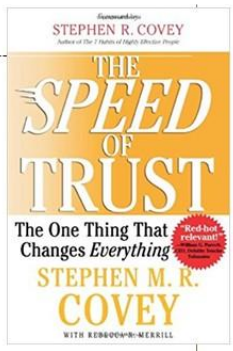
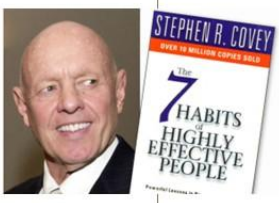
Trust...So What?

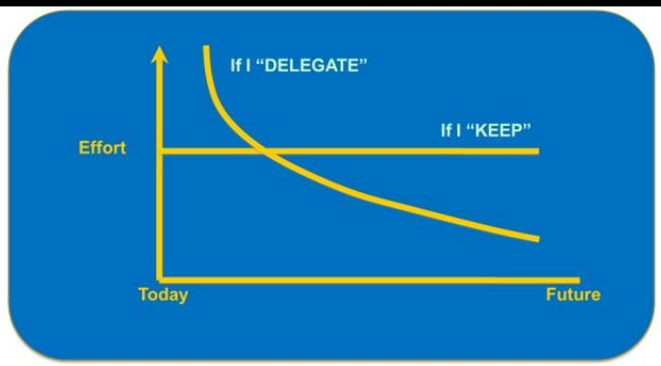
The 7 High-Trust Organizational Dividends™

- **Increased value:** Watson Wyatt study shows high-trust organizations outperform low-trust organizations in total return to shareholders by 286 percent.
- **Accelerated growth:** Research clearly shows customers buy more, buy more often, refer more and stay longer with companies they trust. And, these companies actually outperform with less cost.
- **Enhanced innovation:** High creativity and sustained innovation thrive in a culture of high trust. The benefits of innovation are clear – opportunity, revenue growth, and market share.
- **Improved collaboration:** High-trust environments foster the collaboration and teamwork required for success in the new global economy. Without trust, collaboration is mere coordination, or at best, cooperation.
- **Stronger partnering:** A Warwick Business School study shows that partnering relationships that are based on trust experience a dividend of up to 40 percent of the contract.
- **Better execution:** FranklinCovey's execution quotient tool (xQ) has consistently shown a strong correlation between higher levels of organizational execution and higher levels of trust. In a 2006 study of grocery stores, top executing locations had significantly higher trust levels than lower executing locations in every dimension measured.
- **Heightened loyalty:** High-trust companies elicit far greater loyalty from their primary stakeholders than low-trust companies. Employees, customers, suppliers, distributors and investors stay longer.





Delegation Is An Investment In Our People



Delegating to your people IS leadership development

- Your organization and its capabilities expand
- Your people develop and grow; take ownership
- Dumping is NOT delegating!!!

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Too Hands On? Too Hands Off? Just Right?

Disempowered Team	Empowered Team
▪ We've always done it that way ▪ I was told… ▪ What would you like me to do? ▪ What should I do about…? ▪ Do you think we should…? ▪ Tell me what to do… ▪ I might get in trouble if I …	▪ I intend to… ▪ I would like to… ▪ I plan to… ▪ I will… ▪ Let me give you an update… ▪ Here is what we are thinking about this…
⬇ Rigid, bias for inaction, apathy	⬇ Ownership, growth mind, bias toward action, commitment

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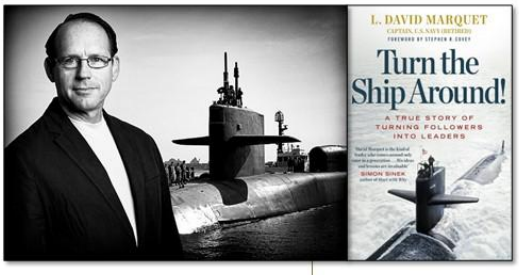
Executive Leadership

- *Leadership is communicating to people their worth and potential so clearly that they are inspired to see it in themselves. One of the things that limits our learning is our belief that we already know something. If you want people to think, give them intent, not instruction.*
- "….On another submarine there was one guy in charge, one guy giving orders, one guy thinking, and 134 people doing what they were told. I don't care how smart you are. On my submarine I got 135 thinking, active, passionate, creative, proactive, taking initiative people. It's a tidal wave. You don't stand a chance!"

~David Marquet

"Great leaders give control, they don't take it"

"If you want people to think, give intent, not instruction"



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Problem: Leader-follower
Solution: Leader-leader

Old Military Command-Control

Leader

↓

Follower

Don't do this...	DO THIS...
Think short term	Think long term
Protect information; administrate	Share information; informate & transformate
Question with doubt	Be curious
Have meetings	Have conversations
Focus on things	Focus on people
Take control (power)	Give control (empower)
Give orders/tell	Avoid giving orders /collaborate
Increase monitoring and control	Reduce monitoring and control
Efficiency—do what's safe	Effective – do what's right
Want to be missed when you depart	Comfortable with irrelevance, not being missed
Stay at home	Expand boundaries

Contemporary Empowered

Leader ⟷ Leader

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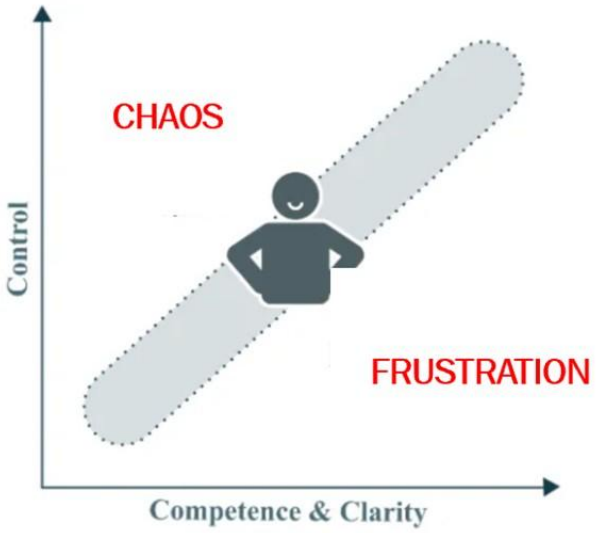
Empowered Leadership
Relationship Of The 3 "C"s



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Intentionality

Bias for Action – Build of a culture or team with intention

I intend to…

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Ownership

Small Group/Table: Answer Questions (prepare to share)

1. What happens if you delegate but don't explain the "Why"?
2. Do you find when you delegate or assign projects to others, do they "run with it"? Or, do they wait for instruction from you?
3. What are the boundaries of control? Where do you have latitude, where do you not?
4. If you make all the decisions, what happens to the team?
5. What are some indicators that a team or organization has become 'decentralized'?

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Ego As A Barrier

Check the Ego

- Don't listen to anyone
- Don't evolve or getter better
- Don't adapt or adopt new tech new methods
- Don't respect opponent
- Get complacent (growing or dying, never maintaining)
- Poor or unable to self assess

Take Aways

- Enterprise mindset is a servant mindset
- Recognize the dysfunction in teams. It starts with Trust. Go First!
- Check ego
- Give control, don't take it.
- Shift to intention-based leadership

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THANK YOU

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Leadership 2

Strategic Influence: Cultivating Allies for Change & Leading with End-to-End Accountability

Dr. Brad Alge

PURDUE UNIVERSITY

LEADERSHIP MODULE

END-TO-END LEADERSHIP: CONTINUOUS IMPROVEMENT WITH ENTERPRISE & OWNERSHIP MINDSET

Dr Brad Alge
Daniels School of Business

Global Operations Executive Program

STRATEGIC INFLUENCE (L2)

CULTIVATING ALLIES FOR CHANGE & LEADING WITH E2E ACCOUNTABILITY

Dr Brad Alge
Daniels School of Business

Global Operations Executive Program

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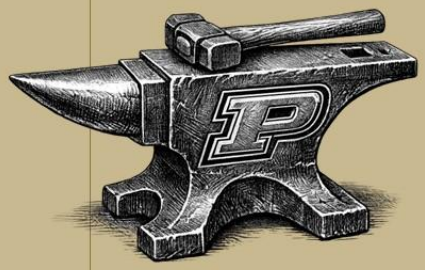
LEARNING OBJECTIVES

Strategic Influence: Cultivating Allies for Change & Leading with E2E Accountability



Description:

Learn to break down silos, build strategic alliances, and communicate with influence to drive enterprise-wide accountability and lasting change.

Objective(s):

Leveraging your network to identify the influencers and stakeholders "super connectors", what they value, and the value they add

Building and nurturing relationships to obtain buy-in

Practice communication techniques of successful change influencers (psychology of change here) while building goodwill upfront.

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COST OF SILOS

Silo mindset

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Silos That Impede E2E Excellence

- Product Silos
- LOB Silos
- Channel Silos
- Data & Technology Silos
- Functional Silos

Leads to

- Less E2E ownership
- Less collaboration
- Inconsistent customer experience
- Less efficient (duplication of effort, slow response to customer)
- Inconsistent voice: messaging, confusion, lack of clarity
- Higher friction (conflict); disparate goals
- Less trust (esp. with other areas)

Quote

A partner at a professional accounting services firm..

"We need to focus on big projects that call for integration across our practices…that is where our greatest distinctive value is developed…

…But most of us constrain ourselves to smaller projects, within our practice area, that we can handle"

Quote

A partner at a global consultancy.

"You know you should swim farther, to catch a bigger fish, but it is a lot easier to swim in your own pond and catch a bunch of smaller fish"

Poor (Absent) E2E Leadership

The silo mind will focus on more redwork, less blue work

More REDWORK

Less BLUEWORK

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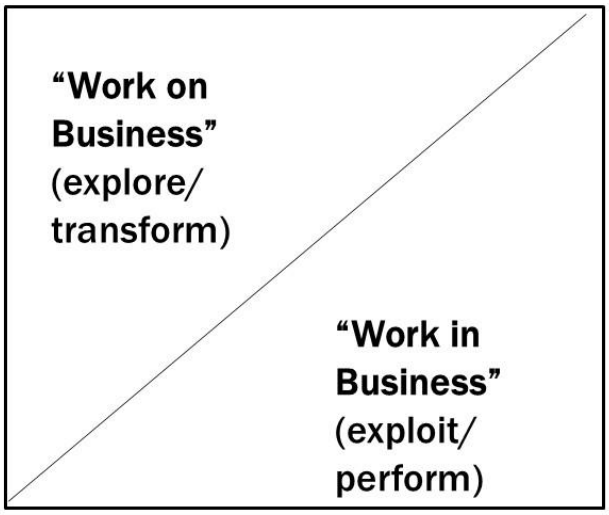
E2E Leader Must Manage: Innovations Versus Operations

INNOVATION ACTIVITY



OPERATION ACTIVITY

How It Looks

Working in Business		Working on Business
REDWORK *Doing*	vs	BLUEWORK *Thinking*
Avoid Variability		Embrace Variability
Prove		Improve
Do		Decide
Individual		Team
Performance		Planning
Compliant		Creative
Narrow Focus		Broad Focus
Steep Hierarchy		Flat Hierarchy

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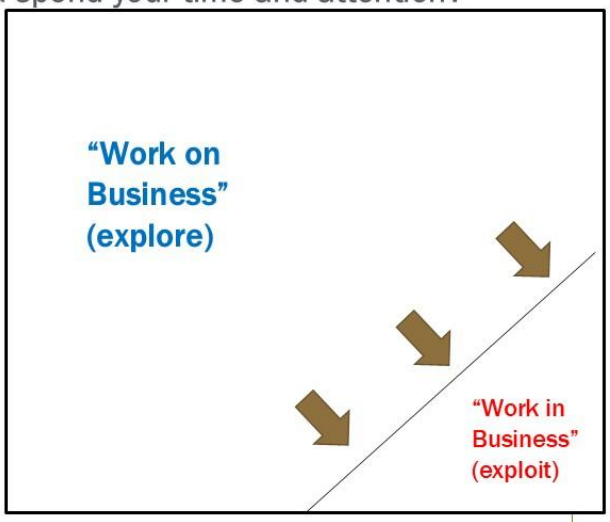
E2E Opens Up More Bluework

Where do you spend your time and attention?

E2E Leadership = More INNOVATION ACTIVITY



OPERATION ACTIVITY

Breaking Horizontal Boundaries

- Build a strong team, with cultural brokers (super connectors)
- Develop and deploy cultural brokers (Bridging & Binding)
- Encourage people to ask the right questions
- Get people to see the world through others' eyes & broaden employee vision

Get Your Team Right First: Which Boat (Team) Are You In?

No Bad Teams,
Only Bad Leaders

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Bad Leaders Lead To Team Dysfunction: Five Dysfunctions Of Teams

The pursuit of individual goals and personal status erodes the focus on collective success

Need to avoid interpersonal discomfort prevents members from holding each other accountable for behaviors & performance

The lack of clarity or buy-in prevents team members from making decisions they will stick to

Desire to preserve harmony stifles productive, idea-based conflict

The fear of being vulnerable with team members prevents building trust within team

Leader Role to Achieve Ownership

Focus on collective outcomes

Confront difficult issues

Force clarity and closure

Mine for conflict –both good and bad

Go first!

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Leveraging And Growing Your Network

Leveraging
(your current team)

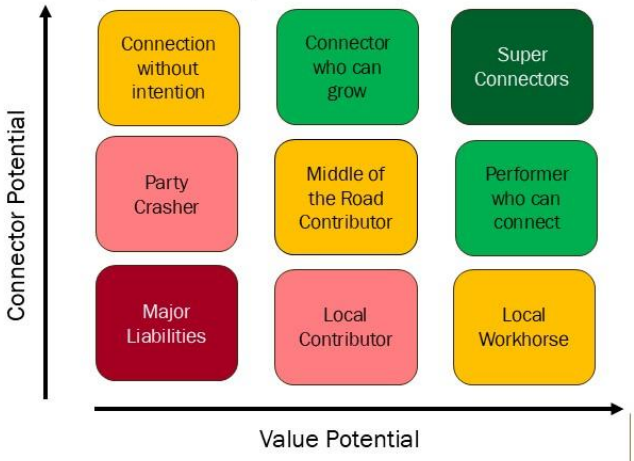
- Who in your team (internal network) brings value?
- Will others, not on your team, see value in those people?
- What does 'value' look like today? What should it look like?

Growing
(end to end & external network)

- Who in your team sees the big picture? Who does not?
- Who in your team steps outside the team and engages others not in the team?
- Who in your team tries to see things from different vantage points?
- Who in your team possess strong emotional intelligence and communication skills?

Your Network 9-box

Exercise: Who are the super-connectors (cultural brokers) in your network? Describe their value to your team? What do they value (need)? How do you develop more super-connectors?



Communication: Bridging and Building Alliances

- Deploy your bridge builders, stay curious, inquiry mindset
- Identify and eliminate competing incentive structures if possible
- Champion good ideas, with impact, that bring value to all parties
- Distinguish between differences of POSITION versus INTERESTS
- Align around common INTEREST as superordinate goals; Identify and eliminate goal incongruence
- Reinforce common interest through incentives (mutual value, celebrate wins collectively)
- Leverage your influence (soft tactics)

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Communication: Gaining Buy-in Across Boundaries (Mini Case Role Play)

US Air Force must reduce the number of F-16 fighter jets and pilots and replace with more unmanned aerial vehicles/drones and pilots.

Brigadier General must communicate that change and gain buy-in from her organization, including F-16 fighter pilots.

Big Picture: The Air Force and it's mission

Silos standing in the way: F-16 pilots

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Influence Tactics

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INFLUENCE TACTICS

Team Exercise

- Each table/group has been assigned an "influence tactic"
- Design a short role play/situation where your team (one or more of you) must convince another team in another area (one or more others) to adopt your position (e.g., a new process, use of a new technology, sharing more data; where to go to lunch)
- Develop a way to affect change, gain buy in, using your team's assigned influence tactic….you can use more than your assigned tactic, but you MUST use your assigned tactic
- Enact skit in front of class

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By Establishing Credibility & Goodwill, You Will Establish Ownership & Buy-in

Think of a stakeholder…maybe a customer, supplier, or employee in your team, a coworker in another LOB or E2E process. Put yourself in their shoes…

Imagine that a stakeholder asks: why should I collaborate or work with you? They break it down further into 3 sub questions….what would your answers be?

a) Can I trust you?
b) When working with you, are you committed to excellence?
c) Do you care about me?

A credibility litmus test!

Your Credibility Goes A Long Way!

Nobody cares about how much you know, until they know how much you care!

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THANK YOU

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Finance

Market Analysis: Understanding Market Position and the Cost of Inaction

Dr. Kevin Koharki

PURDUE UNIVERSITY

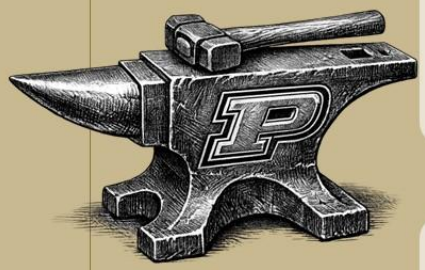
MARKET ANALYSIS, UNDERSTANDING MARKET POSITION, AND THE COST OF INACTION

Kevin Koharki MBA, PhD
Accounting

Operations Executive Program

LEARNING OBJECTIVES

2025 Investor Day Recap to Understand Medium-Term Targets



Description:

In November 2025, BAC provided medium-term financial targets to investors. Our goal is to understand how Operations can help BAC achieve these targets.

Objective(s):

We will develop an understanding of the following:

- What are BAC's medium-term financial targets?
- What is required to achieve these targets?
- What is our competitive position within the industry once we achieve these targets?

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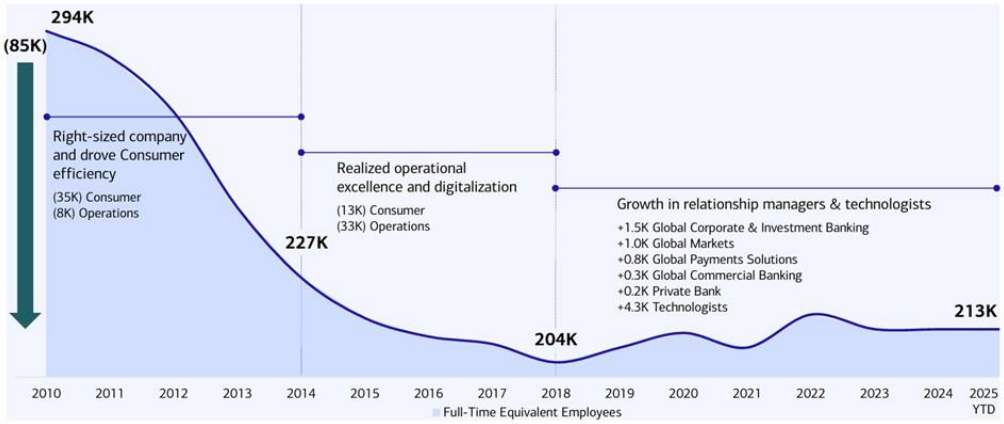
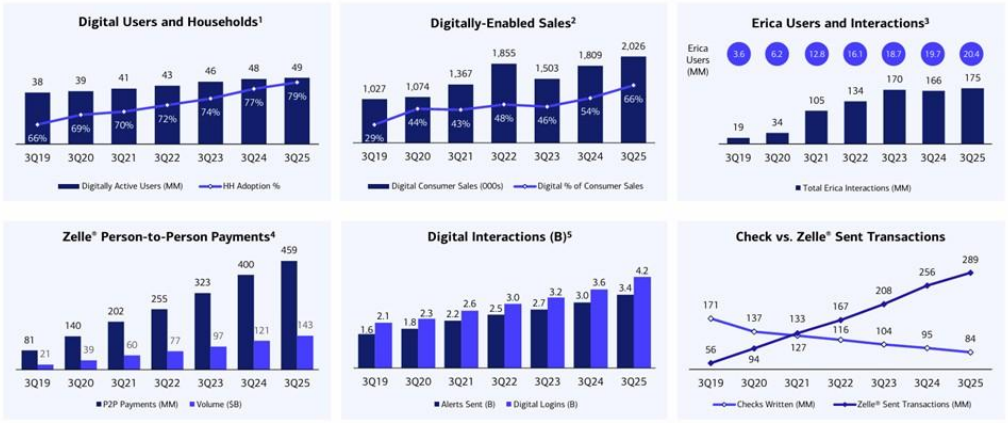
BAC Headcount Over Time

Managed Headcount Through Operational Excellence...
While Also Growing Relationship Managers



A Story of Digital Adoption to Drive Efficiency

Expanded Digital at Scale: Elevating Engagement, Productivity, and Efficiency



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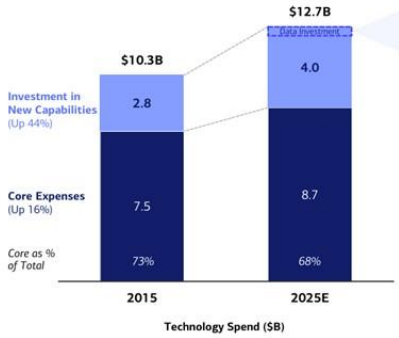
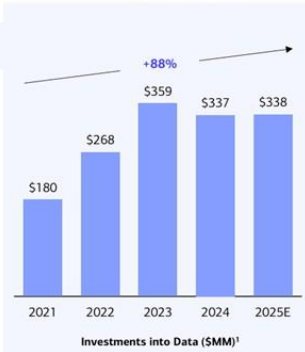
Continued Tech Spending to Drive Growth

$118B+ of Tech Spending in Past Decade to Enable Growth, Innovate, and Drive Efficiency

$1.2B+ Increase in annual investment in new capabilities vs. a decade ago

$1.5B+ Invested into our data capabilities since 2021





- **Unified customer, transaction, and behavioral data across lines of business**, accounting for 918+ petabytes of storage
- **Analytics to drive personalization at scale**
- **Resilient and scalable data foundation**
- **Repeatable execution capability across complex operating environments** (e.g., ability to manage country-specific data requirements across 37 countries and jurisdictions)

For additional information and footnotes, refer to Notes beginning on slide 8.

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Prior Periods' Growth Algorithm

Historical Shareholder Model: 2015-2024

Revenue growth:	GDP+
Expense growth:	CPI-
Operating leverage:[1]	200bps+
Manage risk well	
EPS growth:	10%-12%+

Strong capital and liquidity positions

Return on tangible common equity 12%-15%[2]

Note: GDP stands for gross domestic product. CPI stands for consumer price index.
For additional information and footnotes, refer to Notes beginning on slide 24.

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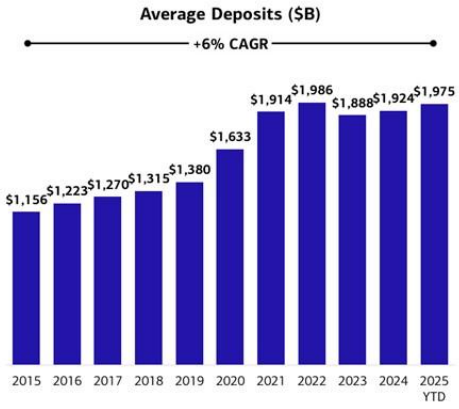
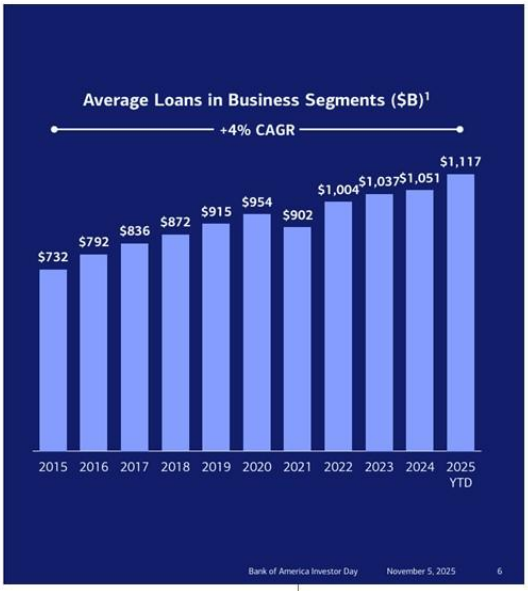
Deposit and Loan Growth Trends….

Historical Deposit and Loan Growth





Note: CAGR stands for compound annual growth rate.
For additional information and footnotes, refer to Notes beginning on slide 24.

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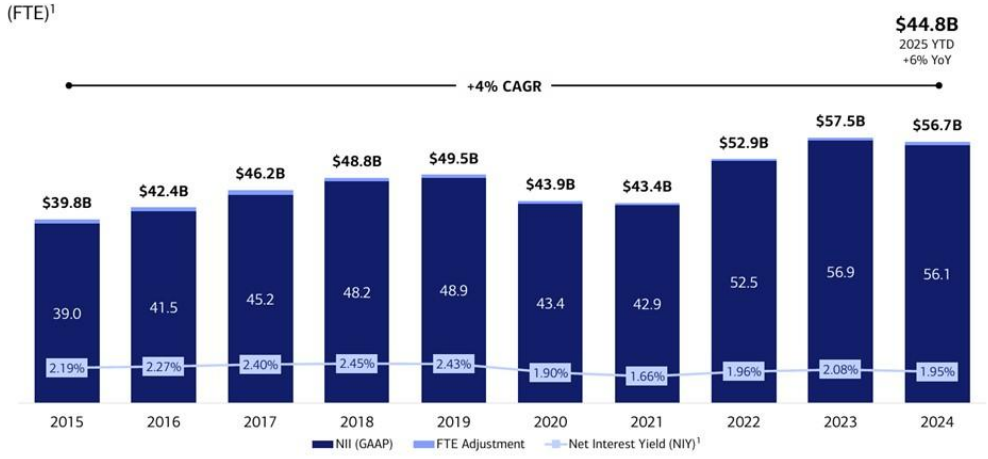
…Ultimately Drive Net Interest Income

Historical Net Interest Income Performance
(FTE)[1]



Note: NII stands for net interest income.
For additional information and footnotes, refer to Notes beginning on slide 24.

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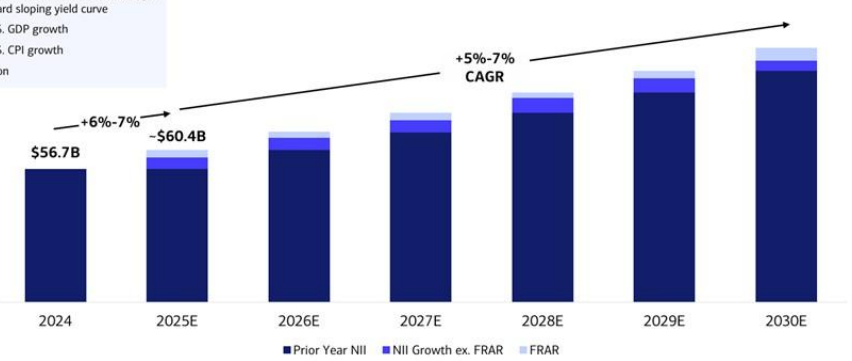
NII Expansion Expected to Grow Over Time

Future Net Interest Income Growth
Organic growth + FRAR tailwind
(FTE)[1]

Assumptions

- Sep 30, 2025, forward curve: 25bp interest rate cuts in Oct and Dec 2025; Mar and Jul 2026; upward sloping yield curve
- Modest U.S. GDP growth
- Modest U.S. CPI growth
- No recession



For additional information and footnotes, refer to Notes beginning on slide 24.

Net Interest Margin Reflects Growth Potential

Future Net Interest Yield Expansion
(FTE)[1]

Net Interest Yield Sensitivity +/- 1bp[2]	
Quarterly Net Interest Income	~$75MM
Avg. Earning Assets	~$15B

For additional information and footnotes, refer to Notes beginning on slide 24.

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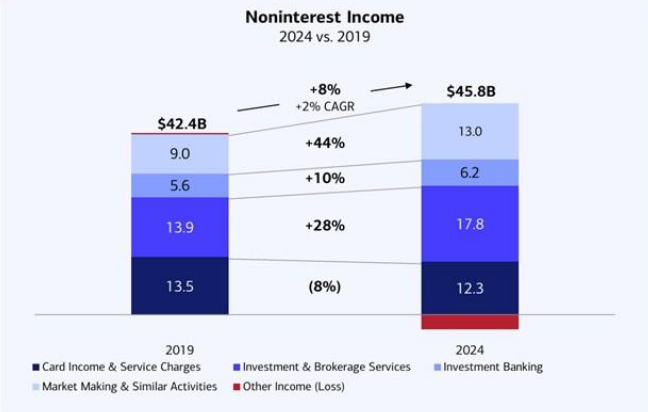
BAC's Growth Enhanced Via Multiple Avenues

Historical Noninterest Income Growth

Understates organic growth



($B)	2019	2024	Δ
NSFOD fees	$1.9	$0.2	($1.7)
Partnership losses[1]	($2.0)	($4.9)	($2.9)
Adj. noninterest income[2]	**$42.5**	**$50.5**	**+$8.1** +19% +4% CAGR

Note: Amounts may not total due to rounding. NSFOD stands for nonsufficient funds and overdraft.
For additional information and footnotes, refer to Notes beginning on slide 24.

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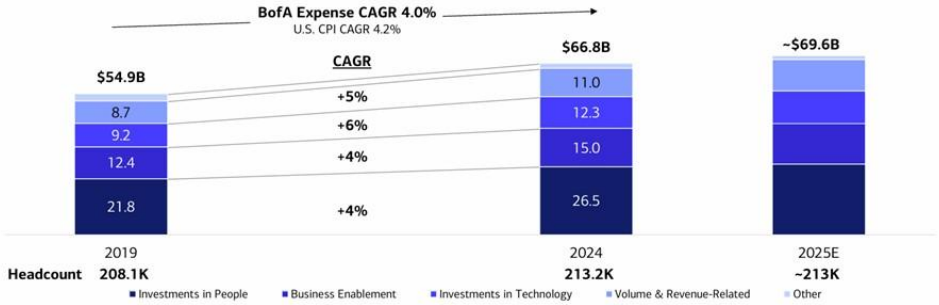
Continued Focus on Operating Leverage

Noninterest Expense

Maintaining our discipline and investing in growth



Capital Markets-Related Revenues ($B)	2019	2024	Δ ($)	CAGR (%)
Sales & Trading Revenue	$12.7	$18.8	+$6.1	+8%
Asset Management Fees	10.2	13.9	+3.6	+6%
Investment Banking Fees	5.6	6.2	+0.5	+2%
Total	**$28.6**	**$38.9**	**+$10.3**	**+6%**

For additional information and footnotes, refer to Notes beginning on slide 24.

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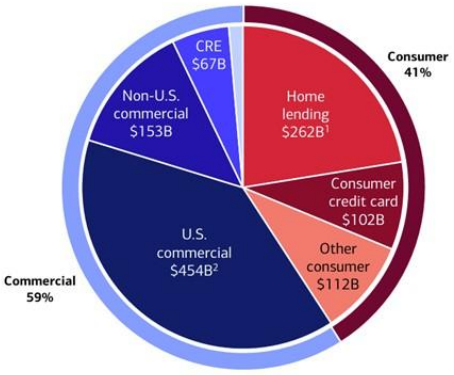
Well Capitalized to Withstand Economic Downturns

Managed Credit Risk Well

Balanced and high-quality loan portfolio

Balanced Loan Mix
As of September 30, 2025

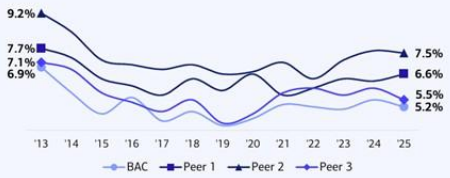


Note: CRE stands for commercial real estate.
For additional information and footnotes, refer to Notes beginning on slide 24.

Quality Loan Portfolio
Statistics as of September 30, 2025

- Consumer loans 79% secured and 36% from GWIM clients
- Average consumer credit card line-weighted FICO score 778; 12% FICO less than 660
- Commercial loans 91% investment grade or secured
- Lowest total loss rate among peers in 13 of past 14 Federal Reserve stress tests

Federal Reserve Stress Test Total Loan Losses[3]



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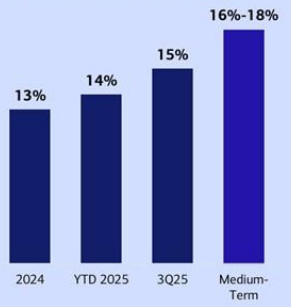
Main Objective is to Improve BAC's Return Profile...

Delivering Improved Returns

Key Growth Drivers

Business growth	Operating leverage	Capital deployment
• New client acquisition • Existing client deepening • Market share gains	• Revenue growth • Expense management • Fixed-rate asset repricing drops to bottom line	• Business investments • ~30% dividend payout ratio • CET1 ratio target = reg. min. req. + 50bps buffer (currently 10.5%) • Quarterly common share repurchases

Medium-Term ROTCE Target[1]



For additional information and footnotes, refer to Notes beginning on slide 24.

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...Through Enhanced Capital Allocation

Medium-Term Targets

- Revenue growth: GDP+
  - Deposit growth 4%+ | Loan growth 5%+
  - NII (FTE)[1] growth: 5%-7% CAGR
    - =organic growth + FRAR
- Operating leverage: 200bps-300bps+
- Efficiency ratio: 55%-59%
- Manage risk well
- EPS growth: 12%+
- ROTCE:[1] 15% near-term
  - 16%-18% medium-term

- Strong capital and liquidity positions
- Dividend growing
- Share count decreasing
- CET1 ratio: 10.5%
  - Target 10.0% minimum requirement + 0.5% management buffer

Key assumptions:[2] Moderate U.S. GDP and CPI growth | No recession | Current forward curve

Note: Growth rates represent YoY growth unless otherwise noted.
For additional information and footnotes, refer to Notes beginning on slide 24.

Main Outcome: Achieve Top-Tier Performance

FIGURE 2. **BAC Targets vs. Peers**

Ticker	ROTCE	Efficiency	CET1 Ratio
BAC	16-18%	55-59%	10.5%
C	10-11%	<60%	12.8%
GS	15-17%	60%	11.9-12.4%
JPM	17%	55%	13.5%
MS	20%	70%	NA
TFC	mid-teens	NA	10.0%
USB	high-teens	mid- to high-50%	10.0%
WFC	17-18%	NA	10-10.5%

Includes Cat I/II/III banks excluding Trust Banks and PNC (PNC doesn't provide targets)
Source: Barclays Research and Company Reports

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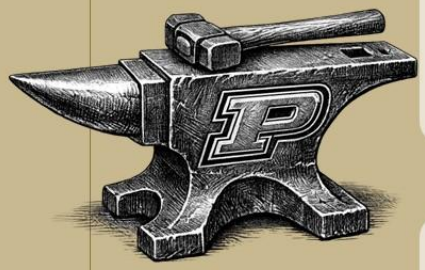
LEARNING OBJECTIVES

The Good and Potentially Bad Regarding AI Investments



Description:

The ability to accurately assess AI investments is vital for long-term success, particularly given recent market dynamics.

Objective(s):

We will develop an understanding of the following:

- What are current concerns with AI generally?
- What are the hidden risks associated with AI investments?
- Does AI investment require more "fluid thinking"?

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How is the Industry Utilizing AI?

- Offering more personalized experiences for customers, even, or perhaps especially, for smaller customers
- Deepening customer relationships
- Expanding headcount in key areas while reducing it in others
- Acquiring more profitable clients
- Reducing unit costs in a time of intense competition for customer dollars

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What Are the Hidden Risks of AI?

- It is never just about what it costs today: **life cycle cost is key!**
  - Remember Philip Morris or Johns Manville?
- The investment required is so large and the operating expenses potentially so high: **Can we accurately measure the true cost of investing in, maintaining, and operating AI?**
- "Staying in the game" when it is obvious an investment is a mistake only compounds the problem: **Fail fast, learn, and move on**
  - ROI is still paramount, but measurement requires deeper analysis and understanding
- Younger generations may despise AI: **Be careful in how you message the benefits of AI, train employees for advancement**
  - I can't think of a client who isn't worried about this

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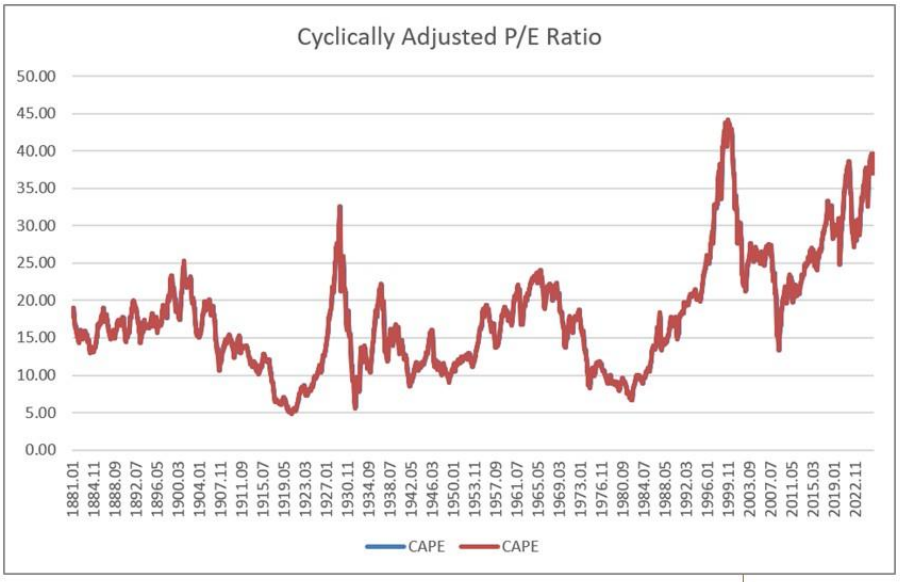
To Bubble or Not to Bubble…



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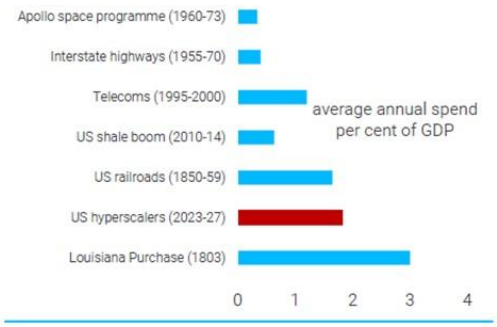
To Bubble or Not to Bubble…

Chart 1: The stock market's fate is tied to the sustainability of AI capex

Source: DataStream, TS Lombard

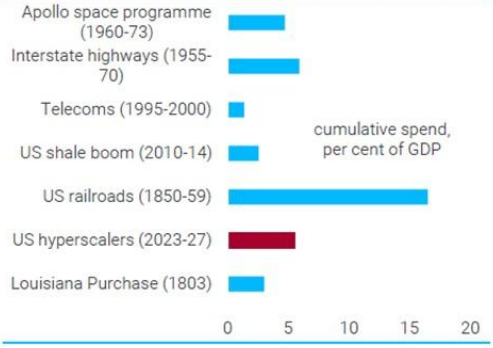
To Bubble or Not to Bubble…

Chart 4: One way to compare capex booms



Source: WSJ, TS Lombard

Chart 5: A better way to compare capex booms



Source: WSJ, TS Lombard

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Recent Commentary for Perspective

"With analysts now forecasting hyperscale CapEx to exceed $1 trillion in 2027 and agentic AI beginning to proliferate all industries, AI infrastructure spending is on track to reach $3 trillion to $4 trillion annually by the end of this decade." – Nvidia CFO Colette Kress, Q1 2027 Earnings Conference Call

Just how much is $3 - $4 trillion?

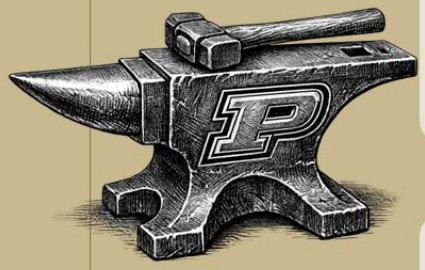
U.S. GDP is ~$31 trillion: **10 – 13%**

Global IT spend is ~$6 trillion: **50 – 67%**

S&P 500 cumulative profits are ~$2.3 trillion: **150 – 200% of profits**

LEARNING OBJECTIVES

P&L Deep Dive to Unlock Value



Description:

A key component of BAC's strategy to achieve its medium-term targets are to become more efficient. Operations must identify and execute effective actions to achieve best-in-class performance.

Objective(s):

We will develop an understanding of the following:

- What are BAC's Efficiency Ratio goals by business unit over the medium-term?
- What are the P&L components we can significantly influence?
- How can AI help us better manage our tasks to improve financial performance?

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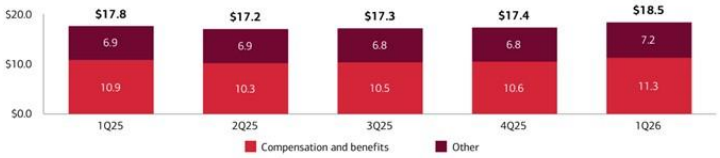
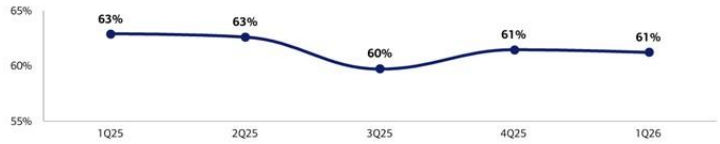
Recent Efficiency Ratio Performance

Expense and Efficiency

Total Noninterest Expense ($B)



Efficiency Ratio



- Efficiency ratio improved ~170 bps from 1Q25 to 61%; 2.9% operating leverage in 1Q26
- 1Q26 noninterest expense of $18.5B
  - Increased $0.8B, or 4%, vs. 1Q25, driven by higher revenue-related incentive and transaction expenses, as well as investments in people and technology
  - Increased $1.1B, or 6%, vs. 4Q25, driven by seasonally-elevated payroll taxes, the absence of the 4Q25 FDIC special assessment accrual reduction, and revenue-related expenses

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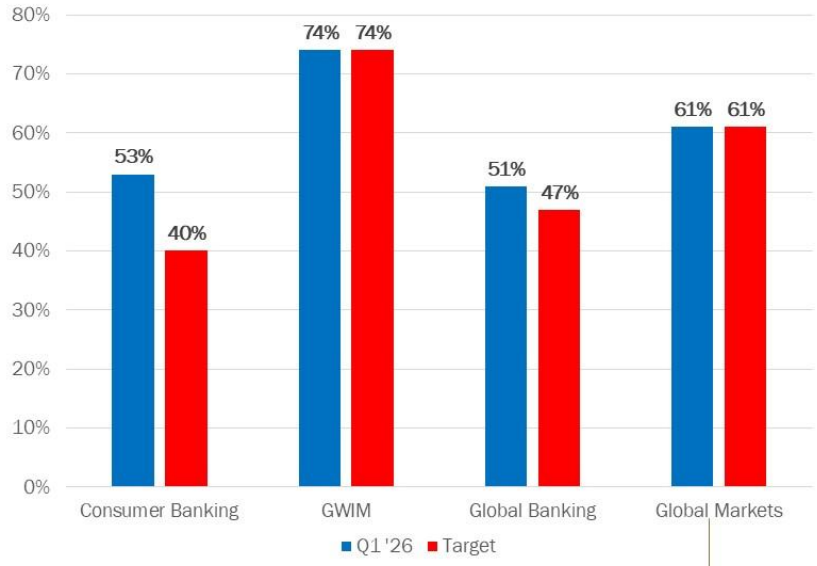
2025 Investor Day Efficiency Ratio Goals



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Overview of BAC's P&L

Bank of America Corporation and Subsidiaries

Consolidated Statement of Income

(In millions, except per share information)	2025	2024	2023
Net interest income			
Interest income	$ 138,566	$ 146,607	$ 130,262
Interest expense	78,470	90,547	73,331
Net interest income	60,096	56,060	56,931
Noninterest income			
Fees and commissions	39,402	36,291	32,009
Market making and similar activities	12,014	12,967	12,732
Other income (loss)	1,585	538	1,097
Total noninterest income	53,001	49,796	45,838
Total revenue, net of interest expense	113,097	105,856	102,769
Provision for credit losses	5,675	5,821	4,394
Noninterest expense			
Compensation and benefits	42,346	40,182	38,330
Information processing and communications	7,453	7,231	6,707
Occupancy and equipment	7,448	7,289	7,164
Product delivery and transaction related	3,924	3,494	3,608
Professional fees	2,580	2,669	2,159
Marketing	2,204	1,956	1,927
Other general operating	3,772	3,991	5,950
Total noninterest expense	69,727	66,812	65,845
Income before income taxes	37,695	33,223	32,530
Income tax expense	7,186	6,250	6,225
Net income	$ 30,509	$ 26,973	$ 26,305
Preferred stock dividends	1,454	1,629	1,649
Net income applicable to common shareholders	$ 29,055	$ 25,344	$ 24,656
Per common share information			
Earnings	$ 3.86	$ 3.23	$ 3.07
Diluted earnings	3.81	3.19	3.05
Average common shares issued and outstanding	7,521.9	7,855.5	8,028.6
Average diluted common shares issued and outstanding	7,680.9	7,935.8	8,080.5

Modeling BAC's Future Efficiency Ratio

What does BAC's P&L look like if it achieves its Low and High medium-term targets?

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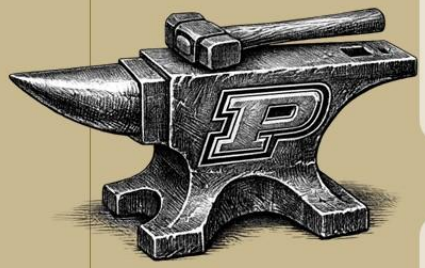
Time for Discussion

1) What is our influence on BAC's P&L

2) How will AI potentially help us better manage our tasks to improve P&L performance?

LEARNING OBJECTIVES

Valuation Analysis Across the Industry



Description:

BAC can alter its valuation to be more in line with peers if it improves its financial performance….but be careful!

Objective(s):

We will develop an understanding of the following:

- How the m'sarket value BAC and its peer group?
- What is BAC's current valuation relative to peers?
- What can BAC's valuation be relative to peers if it achieves its medium-term targets?

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Utilizing the Price-to-Earnings Ratio

	2025	2026	2027	2028	2029	2030
EPS	$ 3.81	$ 4.47	$ 5.05	$ 5.66	$ 6.22	$ 6.84
EPS Growth %		17.3%	13.0%	12.0%	10.0%	10.0%
Current Price (6/7/26)	$ 53.83	$ 53.83	$ 53.83	$ 53.83	$ 53.83	$ 53.83
Price-to-Earnings (P/E) Ratio	14.13	12.04	10.66	9.52	8.65	7.87

Deriving a Target Annual Return

	Estimated Stock Price	Estimated Annual Return	Dividend Yield	Estimated Total Return
10x P/E 2030 Assumed	$ 68.44	4.92%	2.08%	7.00%
12x P/E 2030 Assumed	$ 82.13	8.82%	2.08%	10.90%
14x P/E 2030 Assumed	$ 95.81	12.22%	2.08%	14.30%

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Peer Valuation Comparison

Company / Ticker	Recent Price	52-Week Change	Market Value (billion)	2026E P/E	P/B Ratio*
Goldman Sachs Group /GS	$1,092.61	82.3%	$335	18.4	3.2
Bank of America / BAC	54.17	22.1	384	12.1	1.9
JPMorgan Chase / JPM	310.89	17.7	833	13.9	2.9
Morgan Stanley / MS	218.27	70.3	344	18.3	4.2

Note: *Price-to-tangible-book ratio; E=estimate
Sources: Bloomberg, company reports

What Are Some Reasons BAC May Not Match Competitors?

FIGURE 2. BAC Targets vs. Peers

Ticker	ROTCE	Efficiency	CET1 Ratio
BAC	16-18%	55-59%	10.5%
C	10-11%	<60%	12.8%
GS	15-17%	60%	11.9-12.4%
JPM	17%	55%	13.5%
MS	20%	70%	NA
TFC	mid-teens	NA	10.0%
USB	high-teens	mid- to high-50%	10.0%
WFC	17-18%	NA	10-10.5%

Includes Cat I/II/III banks excluding Trust Banks and PNC (PNC doesn't provide targets)
Source: Barclays Research and Company Reports

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THANK YOU

Kevin Koharki MBA, PhD
Associate Professor of Accounting

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Artificial Intelligence 1

AI for All: Beyond the Buzzword – Math no Magic

Mat Trampski

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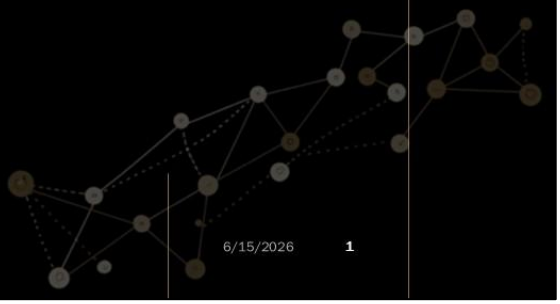
OEP 2.0 - AI MODULE

SESSION 1: BEYOND THE BUZZWORD: MATH, NOT MAGIC

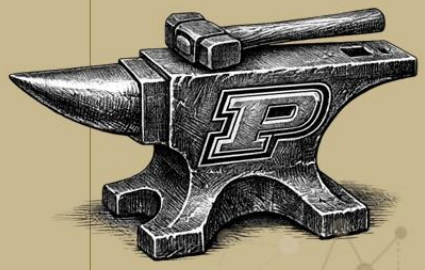
Mat Trampski
Technical Assistance Program

Operations Executive Program



LEARNING OBJECTIVES

Beyond the Buzzword: Math, Not Magic



Description:

This 90-minute session is designed to help operations executives better understand core AI concepts, explore real-world use cases at various levels of the organization, and apply AI concepts to leadership, operations, and process management.

Objective(s):

- Differentiate between what AI is and what AI isn't.
- Compare and contrast a set of AI related terms.
- Describe AI possibilities for personal productivity, team-level applications, and enterprise-wide implementation
- Apply AI concepts to leadership, operations, and process management.

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A1 S1: Beyond the Buzzword: Math, Not Magic

Renowned AI scholar and philosopher once said,

"We are smart enough to invent AI,
dumb enough to need it,
and so stupid we can't figure out
if we did the right thing."

- Jerry Seinfeld

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A1 S1: Beyond the Buzzword: Math, Not Magic

Session Outline

Part 1 - We are smart enough to invent AI
- Defining AI + Glossary of Terms
- Defining the Boundary (what AI is & isn't)
- Basic Building Blocks of AI
- Deeper look at Math/Models
- AI Comparative Analysis

Part 2 - Dumb enough to need it
- *Why is AI valuable?*
- *What is AI good for?*
- *AI Productivity Matrix*
- *AI & Process Science*

Part 3 - And so stupid we can't figure out if we did the right thing
- Areas of Concern with AI adoption
- AI Adoption is Tech Adoption - 3 Question Framework
- Historical Comparison
- Hallucination
- Risk Variables

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Part 1

smart enough to invent AI

A1 S1: Part 1 – Smart enough to invent AI

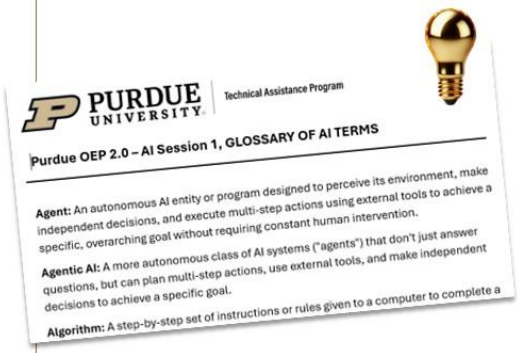
AI Defined

- Artificial Intelligence (AI), *noun* - Systems designed to perform tasks that normally require human intelligence (reasoning, perception, decision-making). - *ISO/IEC*
- U.S. Federal Law (15 U.S.C. 9401(3)): Codifies AI as a machine-based system that uses machine and human-based inputs to perceive environments, abstract those perceptions into models, and use model inference to formulate options for information or action.

- Artificial, *adj* – made or produced by human beings rather than occurring naturally, especially as a copy of something naturally occurring.
- Intelligence, *noun* – the ability to acquire and apply knowledge and skills

A1 S1: Part 1 – Smart enough to invent AI

Glossary of Terms



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Purdue OEP 2.0 – AI Session 1, GLOSSARY OF AI TERMS

Agent: An autonomous AI entity or program designed to perceive its environment, make independent decisions, and execute multi-step actions using external tools to achieve a specific, overarching goal without requiring constant human intervention.

Agentic AI: A more autonomous class of AI systems ("agents") that don't just answer questions, but can plan multi-step actions, use external tools, and make independent decisions to achieve a specific goal.

Algorithm: A step-by-step set of instructions or rules given to a computer to complete a

- See handout
- Spend 5 minutes reading the list of terms
- Choose 1 you were not familiar and discuss at your table
- Choose 1 you thought you were familiar with, but the definition challenged your understanding, be prepared to share.

Objective: *Compare and contrast a set of AI related terms.*

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Differentiate between what AI is and what AI isn't.

What AI <u>is</u>	VS	What AI <u>is not</u>
▪ Machine-simulated intelligence ▪ Advanced Statistics/Inference ▪ Pattern Recognition ▪ Data-driven machine Learning ▪ High-Dimensional Probability ▪ Automated problem solving		▪ A conscious mind ▪ Infallible source of truth ▪ Substitute for responsibility ▪ Rule-based deterministic ▪ Intentionally malicious ▪ Magical quick fix / answer to every question

Activity: Compare and Contrast Probabilistic vs Deterministic Systems
see worksheet

Objective: *Differentiate between what AI is and what AI isn't.*

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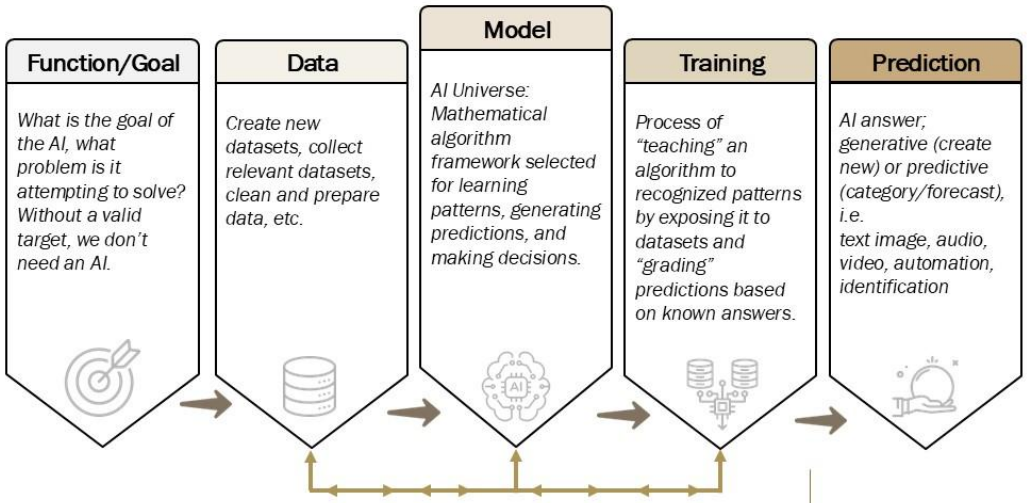
Basic Building blocks of AI



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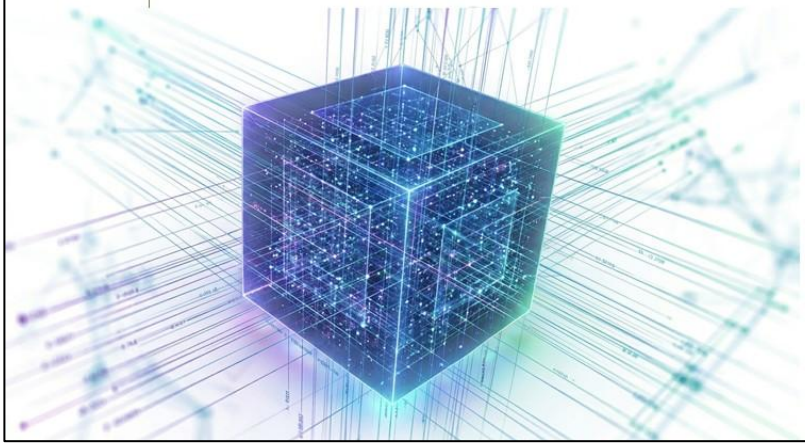
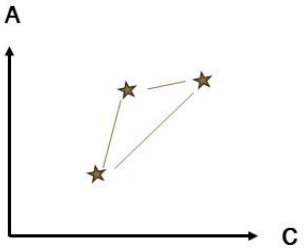
Deeper Look: Executive Understanding of AI Math & Models

Simple Mathematical Example
- The Netflix Recommender





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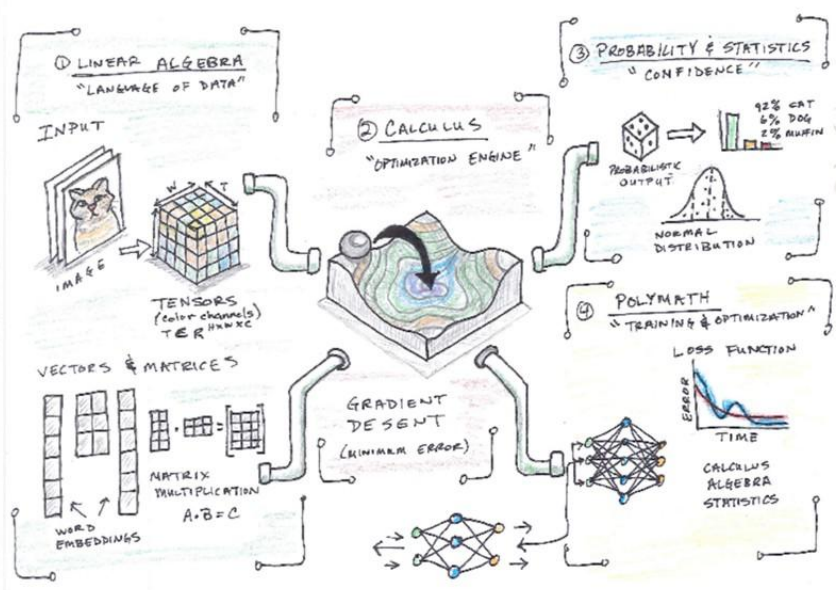
A1 S1: Part 1 – Smart enough to invent AI

Blueberry muffin v chihuahua

A1 S1: Part 1 – Smart enough to invent AI

Deeper Look: Executive Understanding of AI Math & Models



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A1 S1: Part 1 – Smart enough to invent AI

Thought Exercise: Comparative Analysis

- **What is the difference between machine Learning (ML) vs. robotic process automation (RPA) ?**
  - Moving from "Follow these steps" to "Find the pattern in these steps.
- **What is the difference between Predictive AI vs. Generative AI?**
  - We use "Math" to forecast (Predictive) but "Magic-seeming" language patterns to explain the forecast (Generative). However, both are predictive.
- **Can you explain why Agentic systems may be a step change for AI adoption?**
  - Transitioning from AI as a "calculator" to AI as an "operator" that executes multi-step workflows.

Objective: *Compare and contrast a set of AI related terms.*

A1 S1: Part 1 – Smart enough to invent AI

Which models do what?

- See provided Reference Guide

WARNING: not a specific bank reference

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Purdue OEP 2.0 – AI Session 1 - Executive Reference Guide: AI Architecture & Vendor Selection

To maximize ROI, leadership must recognize that "Generative AI" is no longer a single tool. Modern AI infrastructure is divided into **five distinct model classes**, each optimized for different cost structures, processing speeds, and cognitive workloads.

The Enterprise Model Matrix

Model Classification	Core Business Capability	Top Market Examples	Strategic Use Case

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A1 S1: Part 1 – Smart enough to invent AI

Takeaways for Part 1

Can you answer the question, is a probabilistic or deterministic system needed?

Can you defend the fact that AI is math, not magic?

Can you articulate the "parts" of AI systems and how the parts beyond the model are just as critical?

Part 2

dumb enough to need it

Why do we want or need AI?

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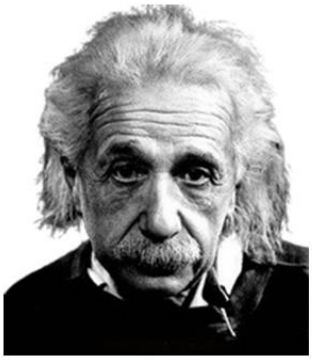
A1 S1: Part 2 – Dumb enough to need it

Why do we want or need AI?

"It is not that I'm so smart. But I stay with the questions much longer."



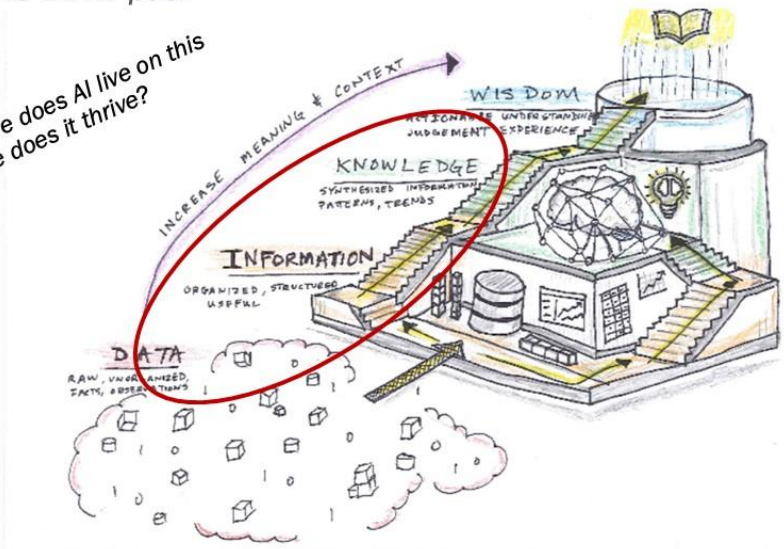
"We can't know everything, all the time, and all at once."

A1 S1: Part 2 – Dumb enough to need it

Why do we want or need AI?

the DIKW path

Question: Where does AI live on this journey, where does it thrive?



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A1 S1: Part 2 – Dumb enough to need it

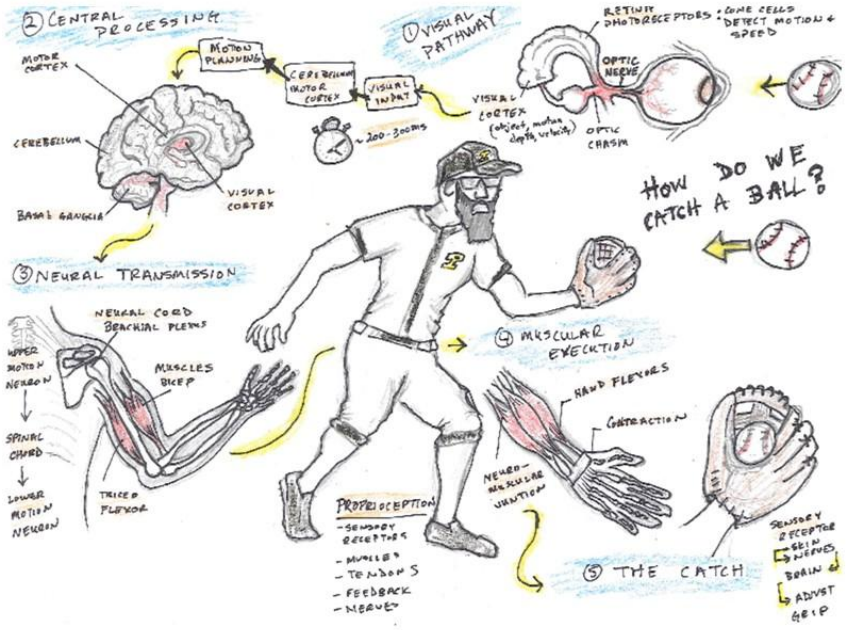
Example

Do you know how to catch a ball?

Do you know how you catch a ball?

A1 S1: Part 2 – Dumb enough to need it

The physiology of catching a ball



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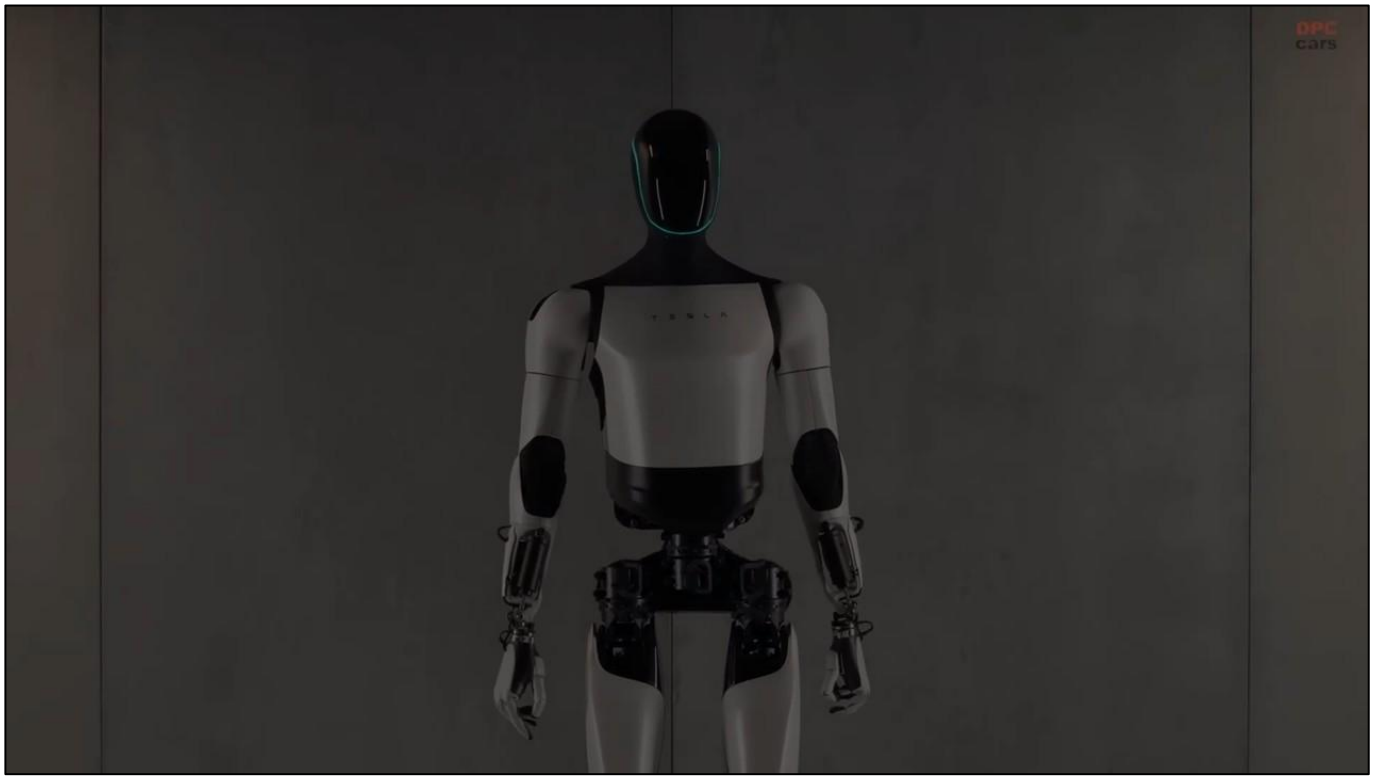
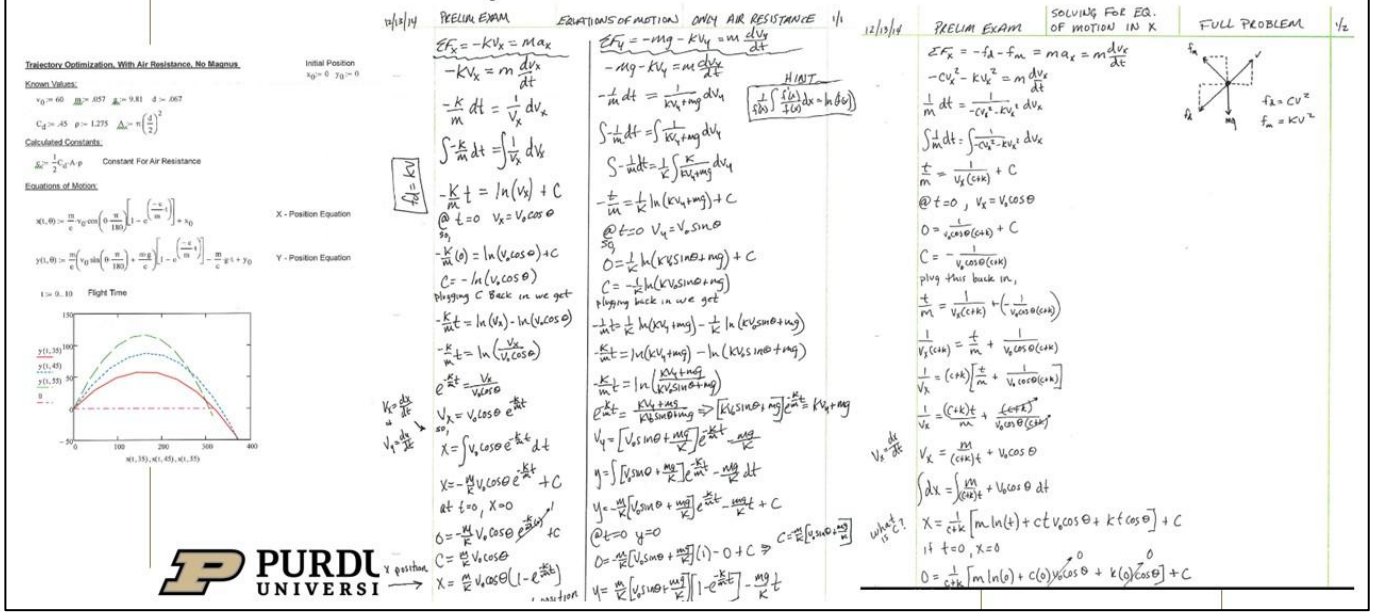


A1 S1: Part 2 – Dumb enough to need it

The math of how you catch a ball



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A1 S1: Part 2 – Dumb enough to need it

Research backed -> What AI does well, better than a human?

Raw Information Processing @ Scale

Infinite Scalability and Replication
When a human learns a complex professional skill, that knowledge is locked within their biological "wetware" (Korteling et al., 2021). If an AI model learns a task, the underlying weights and code can be instantaneously cloned across thousands of servers worldwide (Korteling et al., 2021).

Extreme Processing Speed
Biological nerve signals travel at a maximum speed of roughly 120 meters per second (Korteling et al., 2021). In contrast, digital processors propagate information via electromagnetic signals moving near the speed of light, executing billions of calculations per second (Korteling et al., 2021).

Massive Multilingual Translation
An average multilingual human might speak three to four languages fluently. Modern LLMs (Large Language Models) can dynamically read, translate, and generate text across more than 100 languages simultaneously, cross-referencing idioms and technical jargon in fractions of a second.

Workplace & Knowledge Optimization

Large-scale field experiments involving knowledge workers demonstrate that integrating AI into realistic corporate workflows directly elevates standard baseline metrics (Dell'Acqua, 2023): Harvard Business School

Performance Category	Human + AI Advantage Over Baseline
Task Completion Speed	Completed tasks 25.1% faster on average
Output Quantity	Completed 12.2% more tasks overall
Quality of Work	Consistently produced significantly higher-quality solutions

Quantitative & Analytical Execution Advanced

Pattern Recognition in Massive Datasets
AI excels at finding subtle, multi-dimensional correlations across millions of rows of data—a task that would take a human analyst years to comb through. This includes:

- Predictive maintenance: Spotting micro-fluctuations in hardware sensor telemetry to predict machinery failures before they happen.
- Financial fraud detection: Evaluating millions of global transactions concurrently to flag anomalous behaviors in real time.

Closed-System Strategic Optimization
In highly complex, rule-based systems with vast combinatorics, AI operates at a superhuman level. Programs like AlphaGo and AlphaZero proved capable of mastering games like Chess, Go, and Shogi through rapid self-play, discovering entirely novel strategic paradigms that human experts had not observed in centuries of study (Shin, 2023).

Operational Stamina & Consistency

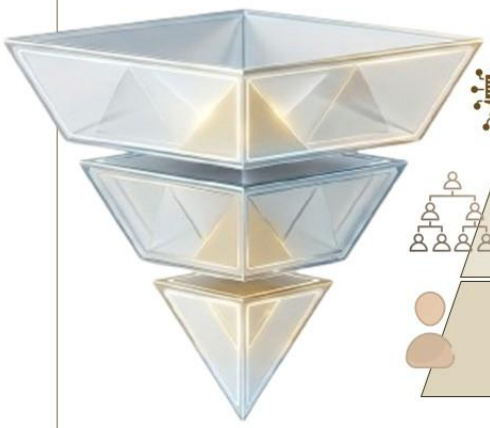
Flawless Continuous Attention
The average human experiences cognitive fatigue, emotional variance, distraction, and a drop in vigilance over extended periods. AI operates with absolute mathematical consistency 24/7/365, making it uniquely suited for:

- Monitoring continuous server infrastructure logs.
- Scanning high-volume medical imaging for rare anomalies.
- Managing automated routing queues without suffering burnout.

Game Theory Cohesiveness
In behavioral economics frameworks and distributional games (such as the Ultimatum or Trust games), advanced AI agents demonstrate a significantly higher median level of cooperation, fairness, and structural altruism than human participants, strictly prioritizing optimal collective outcomes rather than falling prey to emotional spite or irrational greed (Mei, 2024).

A1 S1: Part 2 – Dumb enough to need it

Corporate AI Productivity Pyramid



Enterprise – The Innovation Agent
implementing AI to act as a scalable engine that creates enterprise-wide opportunity to forecast and prototype solutions at scale, empowering the enterprise to achieve unparalleled speed to product by transforming legacy methods and practices into a continuous, data-driven pipeline of high-impact disruption.

Team/Department – Productivity Multiplier
integrating AI as a real-time collaborative engine, teams can synchronize disparate workflows and automate institutional knowledge retrieval, effectively eliminating communication bottlenecks and maximizing the speed to product through rapid, collective iteration.

Individual– Productivity Thought Partner
using LLMs or other AI tools as an iterative sounding board, individuals can instantly externalize their internal dialogue to stress-test logic, pull on significant existing intelligence, and drastically accelerating the speed to product by collapsing the time typically lost to manual drafting and logistical friction.

Objective: *Describe AI possibilities for personal productivity, team-level applications, and enterprise-wide implementation*

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A1 S1: Part 2 – Dumb enough to need it

What is happening in process science and AI?

The DMAIC-AI Fusion (AI-LSS)

Ezeanyim, O. C. (2026). Artificial intelligence-enabled lean six sigma: A multi-industry longitudinal analysis of operational performance and sustainable digital transformation. *International Journal of Technology, Health and Sustainability, 2*(2), 85–105.

Generative AI and LLMs as Process Co-Pilots

Grohs, M., Abb, L., Elsayed, N., & Rehse, J. R. (2023). Large language models can accomplish business process management tasks. arXiv preprint arXiv:2307.09923.

The Rise of "Agentic AI" as Process Custodians

https://opex90.com/blog/post/the-future-of-lean-six-sigma-how-automation-ai-and-synthetic-agents-are-redefining-process-excellence#:~:text=Imagine%20a%20supply%20chain%20AI,even%20AI%20isn't%20perfect.

Shift from "Discovery" to "Predictive Conformance" in Process Mining

https://re-vive.com/blog/ai-driven-process-mining-how-it-works-and-why-it-matters-more-than-ever/#:~:text=Traditional%20process%20mining%20answered%20an,But%20there's%20a%20gap.

A1 S1: Part 2 – Dumb enough to need it

What is happening in process science and AI?

Summary of Strategic Shifts

Capability	Traditional Process Science	AI-Augmented Process Science
Data Analysis	Historical, sample-based, manual statistical testing.	Real-time, continuous ingestion of entire data streams via ML.
Problem Solving	Reactive; fixing defects after they occur (Root Cause Analysis).	Predictive; preventing defects through anomaly detection.
Process Modeling	Manual workshops, interview-driven flowcharts.	Automated via event logs (Process Mining) and LLM-generated models.
Automation Focus	Static, rule-bound tasks (RPA).	Dynamic, context-aware, end-to-end orchestration (Agentic AI).

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A1 S1: Part 2 – Dumb enough to need it

Takeaways for Part 2

Can you defend why we might want to use AI?

Can you explain how AI can be deployed at different levels of the organization?

Can you list a few things that AI is really good at doing?

Part 3

are we doing the right thing

Why do we even want or need AI?

A1 S1: Part 3 – Are we doing the right thing?

Do you have any looming concerns about AI?

A1 S1: Part 3 – Are we doing the right thing?

Do we even need an AI solution?

The 3-Question Framework: Questions every leader can ask before considering an AI project:

1. Is this a probability problem or a rules problem?
2. Where is the "Human-in-the-loop" for high-risk outputs?
3. Is our underlying data "clean" enough for the math to work?

AI Adoption = Tech Adoption

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A1 S1: Part 3 – Are we doing the right thing?

"AI will replace us all" v. "AI will create so much opportunity"

How is AI adoption similar to the computer revolution?

1. The "Lump of Labor", finite amount of work in the world
2. A Call for Government Intervention
3. The Pivot to "Augmentation" Over Replacement

What Is Different this time?

1. The Target: Blue-Collar vs. White-Collar
2. The Speed of Scaling
3. Deterministic vs. Probabilistic

The Historical Takeaway: The 1966 Presidential Commission ultimately concluded that **"technology eliminates jobs, not work."** While history proved them right. The computer age created massive new industries and higher overall employment. The transition wasn't painless, and it required a massive generational shift in education and training.

A1 S1: Part 3 – Are we doing the right thing?

Famous Hallucinations & Why They Happen

Hallucination: When an AI model confidently generates an answer that sounds plausible but is completely factually incorrect or fabricated.

Two Rs in Strawberry

Issue: Tokenization

Air Canada & Retroactive Bereavement

Issue: Grounding/Restraints

Mata vs Avianca

Issue: Word Prediction not DB

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A1 S1: Part 3 – Are we doing the right thing?

AI Areas of Consideration & Concern?

Risk Variables

- **Hallucination** – filling the gaps
- **Lack of Explainability** - inability to show your work.
- **Data bias** – G.I. -> G.O.
- **Poisoning** – Malicious data manipulation
- **Prompt Injection** – crafted prompts to bypass security
- **Data Leakage** – corporate IP, client info, PPI, etc.
- **Adversarial Perturbations** – tiny, imperceptible changes to inputs

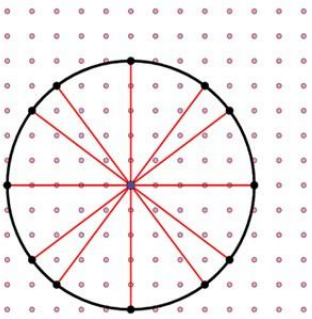
Stewarding the Intelligent Enterprise

- **Shifting Executive Focus**: from "Process Management" to "Data Quality & Model Governance."
- **Human-in-the-Loop**: Designing workflows where math handles the volume, but humans provide the final "judgment" and "empathy" (the non-math variables).
- **To AI or not to AI**: calculate the need for probabilistic or deterministic system

NEWS MATH

AI cracked an Erdós math problem. Now experts want guardrails

The model disproved a famous conjecture, raising questions about trust, credit and access



Paul Erdós thought that the best way to arrange as many pairs of points as possible at the same distance from each other would be to use a regular grid, with the points spaced so that as many as possible fall onto circles. As you add more points, the number of pairs will increase, but only slightly, he conjectured. An AI model found a more complicated way to arrange pairs of points so that their number actually grows at a larger rate.

https://www.sciencenews.org/article/ai-guardrails-erdos-math-problem

"It's a beautiful piece of mathematics that has been discovered."

"I do think [AI] is going to become an indispensable tool in mathematics,"

"AI still struggles to make leaps of discovery. But the tech can patiently slog through a huge number of unlikely strategies"

"LLMs have read ALL the papers. They have read all the commentary and notes, and everything that's online.... It's not clear that there's a way for [AI] to reasonably attribute the source of the ideas,"

"It could be right. It could be nonsense. Who's going to be able to check this?"

"Access is another concern, Bloom says. If the most powerful tools are expensive and private, mathematics could become less open and democratic, and some people may question why they should learn math at all, he says."

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AI Strategy
GenAI Use Cases
Dashboards & Insights
Ownership
Lineage
Metadata
Data Quality
Definitions
6/15/2026
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THANK YOU

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Artificial Intelligence 2

AI for the Bank: The Internal AI Landscape

Mr. Hank Weaver

Handouts Provided

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Artificial Intelligence 3

AI for All: Strategic AI

Dr. Sorin Matei

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AI TRANSFORMATION

FROM QUANTITATIVE MODELS TO BUSINESS SENSE

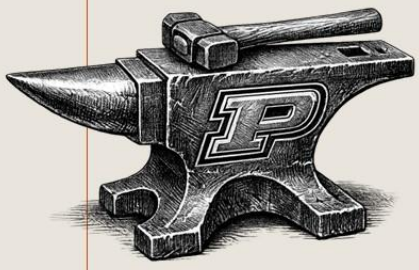
Sorin Adam Matei

Partnerships, Lamb School

Operations Executive Program

LEARNING OBJECTIVES

AI Transformation



Descriptio

The "AI Organizational Transformation" workshop guides you through a journey of understanding and integrating AI-driven methods in organizational management.

The program focuses on leveraging AI technologies to optimize business processes, improve efficiency, and transform operational models.

Objective(s

Understand AI processes and their use in organizations

Equip organizations with strategies for adopting AI into their core operations.

Help participants identify strengths and weaknesses of AI in organizational contexts.

Enable leaders to imagine new AI-based solutions to optimize resource allocation and decision-making with AI solutions.

Provide introductions to practical tools for scaling AI across different sectors.

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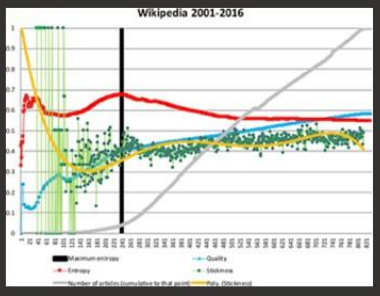
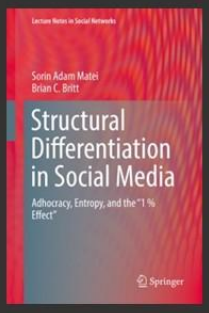
INTRODUCTIONS

- SORIN ADAM MATEI
- Professor of Communication Research, focus on human – machine interaction
- Previous Degrees:
  - BA, History and Philosophy, Bucharest University (Alumni: Laszlo Barabasi, Saul Steinberg, Eugene Ionesco)
  - MA, International Relations, Defense focus, NATO as a foreign policy instrument, Tufts U, Fletches School of Law and Diplomacy
  - PhD, Communication, Quantitative Social Science, USC, Annenberg School of Communication





ADMINISTRATIVE EXPERIENCE

- Assistant VP for Partnerships: Strategic Technologies
  - MS in Strategy for Defense Tech Head
  - AI Transformation Projects
  - Lockheed, Rolls Royce, Air Force, BoA partnerships
- Associate Dean:
  - Research Excellence Incentive and Funding
    - STELLAR
    - SOCIOGENOMICS
    - AI in Humanities and Social Sciences
  - Graduate Education Management
  - Interim Faculty Affairs
- Team Science Manager
  - Multiple NSF grants
  - ROSETTA
  - FORCES

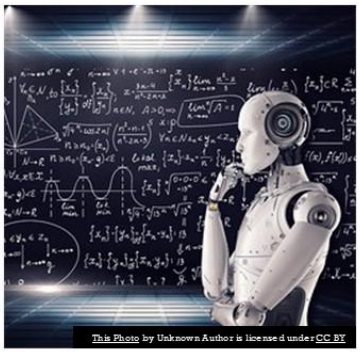
AI TRANSFORMATION AND ETHICAL REASONING

- AI In Defense Organizations
- Ethical Reasoning Matrix – Set Thresholds, Use principles, Decide on Trade Offs
- Filling in ethical gaps in education – pragmatism, functionalism, decisive action
- First and Only Rule of Robotic Warfare – Applying Christian Values to AI - Do onto others as other would do unto you

SESSION 1 – INTRODUCTION TO AI

WHAT IS AI?

- What is AI to YOU?
- Work Context
- Personal Context
- Other Contexts



AI DEFINITIIONS

- Not God Made: Dr. Obvious
- Machine Intelligence: Begs the Question
- More than Human: Unwarranted
- Skynet: Fear Mongering

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AI

Turns Data into Knowledge

Assigns meaning to raw data
Discovers entities and their structure
Defines relationships between entities

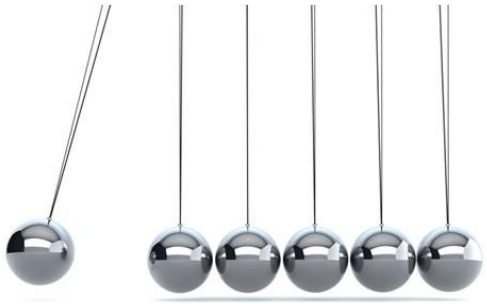
Uses Knowledge to make decisions

Predicts future states
Optimizes Outcomes

PRACTICAL DEFINITIONS

MACHINE LEARNING

- A machine learning model is a predictive model
- Simple (linear regression)
- Sophisticated (logistic regression, classification trees)
- Very complicated: Neural networks
- BUT: Once you define the target and relationships (slopes, beta), you can use the model to predict any unmeasured features



To

Let there

Make

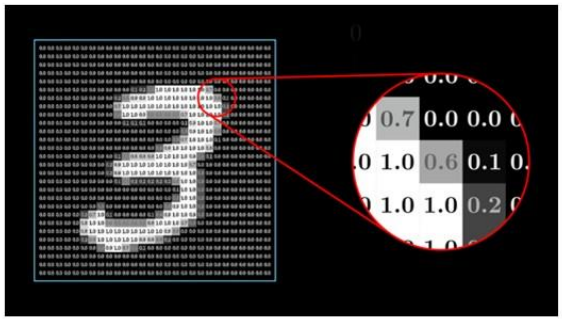
DEEP LEARNING TEXTS

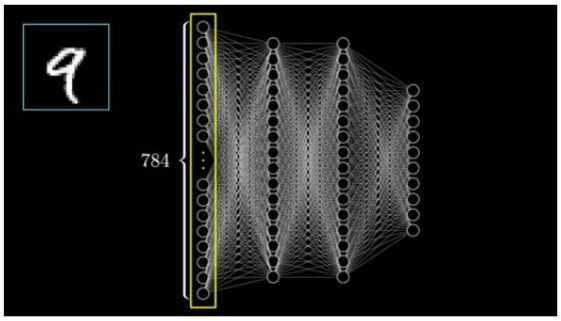
Text features: symbols and their order

Challenge: Predict what will come next at scale and in a structured way (transform)

Parameters (betas): likelihood that a word will follow another

Predict output characteristics: what words come next

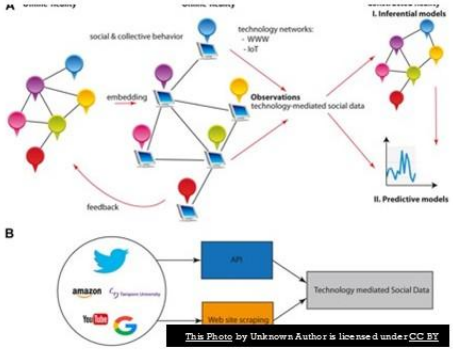




FROM ML TO DL NN

FROM MACHINE LEARNING MODELS TO DEEP LEARNING NEURAL NETWORKS (NN)

- NN predict categories (but not only)
- Image recognition and generation
- Speech recognition and generation
- NN compared to ML/PM: Structure of the model, not its logic



OPERATIONAL APPROACH

ANY EXISTING, WORKING AI TOOL IS A PREDICTIVE MODEL

Given sufficient measurements of sufficient cases, we can predict some of the measurements from the other ones for any new cases

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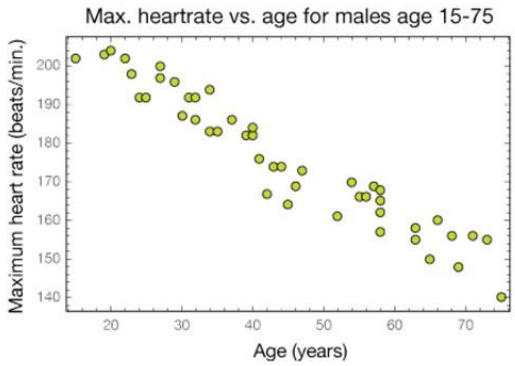
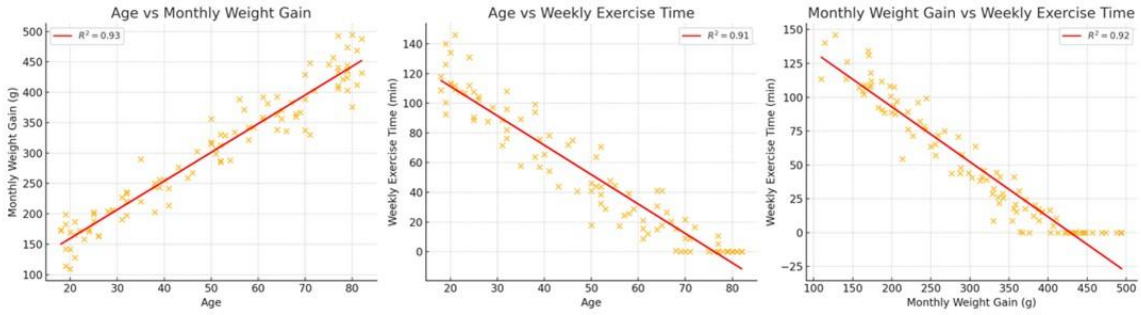


As age increases, MHR decreases. This data is well-correlated. The appearance of the graph is enough to convince us that there is probably some mathematical relationship between age and MHR, at least in males.

WHAT ARE PREDICTIVE MODELS?

- predict unobserved features from observed ones
- statistical / Probabilistic inference
- build on the logic of statistical correlation
- "give me your age and I will give you the max heart rate without taking your pulse"



PREEDICTING WITH REGRESSION

CORRELATING MULTIPLE VARIABLES

- What predicts weight gain?
  - Age?
  - Caloric Intake?
  - Lack of Exercise?
- Which variable has the greatest impact?
- Which variable should come first?

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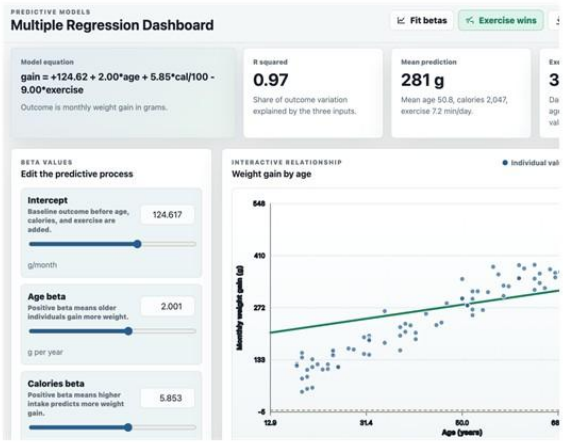
THE MATH BEHIND PREDICTION MODELS

- At heart, a prediction model is an equation
  - Weight Gain = a + $Beta_1$Age +$Beta_3$CalInt - $Beta_2$Exerc
  - Ywg = a + $b_1$age + $b_2$calInt – $b_3$exer + error
  - 1Wwg = 1age + 20caint – 10exer
  - You gain one gram of weight a month for each year of age, two for every 20 calories a day
  - You lose one gram of weight a month for 10 minutes of exercise a week
  - All things being equal!

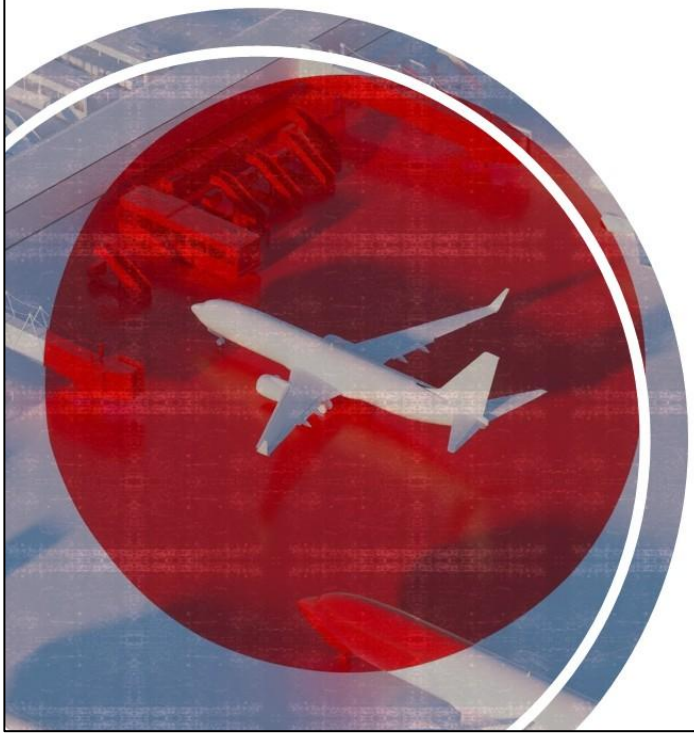
TRAINING THE MODEL

- Calculate from observations the slope (effect, beta, b) coefficients for the effect of Age, Exercise, and Caloric Intake on WEIGHT GAIN for a given sample
- Adding cases to the sample, the coefficients change
  - Add older people who exercise less, the effect of age will increase
  - Add diet-conscious people who exercise more, the impact of caloric intake will decrease
  - Add lazy people, the effect of exercise will decrease
- TRAINING THE MODEL = FITTING IT TO OBSERVATIONS
- We continue training the model as we add new observations

PREDICTION GAME



- lwg = lage + 20caint – 10exer
- I am 50, I eat 2400 calories A day, and I do not exercise. How much weight would I gain a month?
- How much time would I need to exercise a day to lose a pound a month if I am 50 years old and I eat 2400 calories a day?

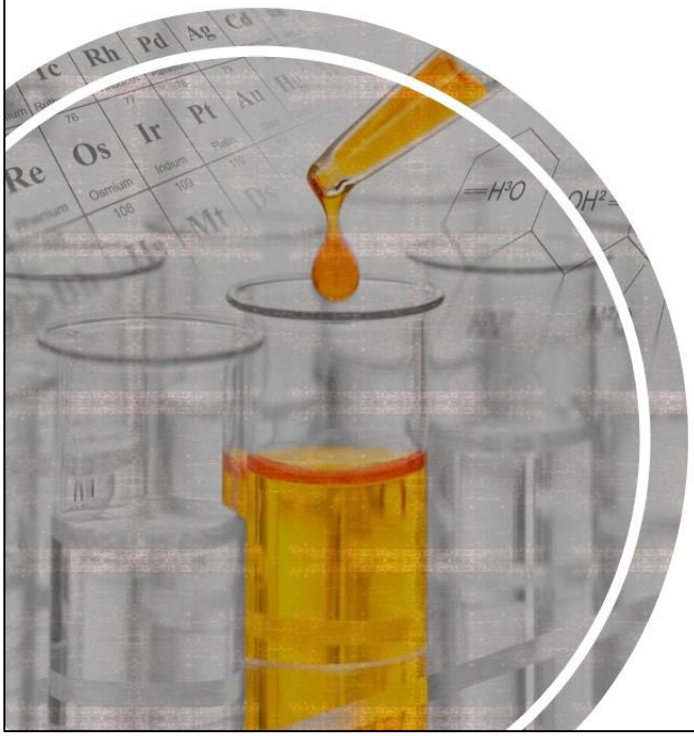


FROM SIMPLE TO COMPLEX MODELS

- Models can predict everything that can be measured
  - What type of client is more likely to miss a payment?
  - Which and when will a computer fail?
  - When should an employee be rewarded?
  - What does this picture show?
  - What is the answer to this question?

(LARGE) LANGUAGE MODELS

- Neural Network-like
  - Each word or even letter is a feature
  - Predicting each word or letter that follows
  - Gigantic networks of letters, chunk of words, words, sentences, and short texts as they relate to each other

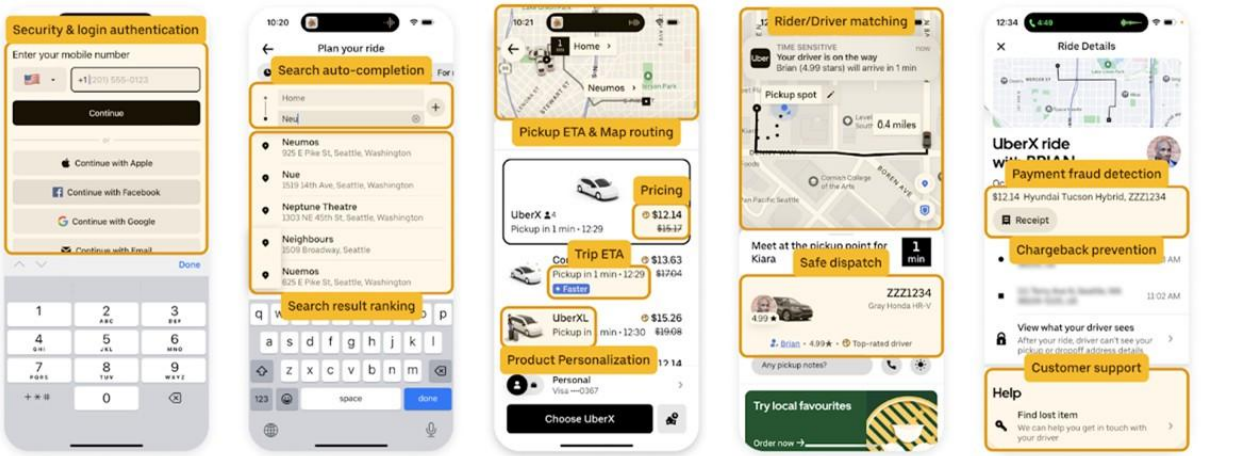


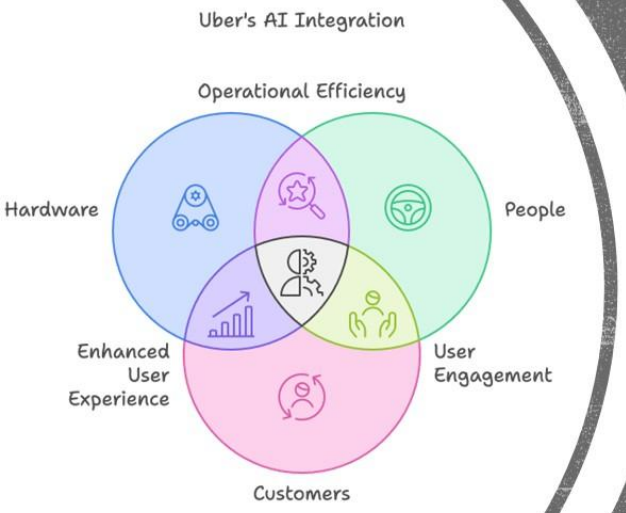
WHAT IS AI?

- Empirical constructs (observationally derived)
- Past observations to predict future states
- Probabilistic prediction
- Strong induction

SESSION TWO: UBER CASE STUDY

THE AI BUSINESS MODEL WOVEN IN THE USER / DRIVER / BUSINESS EXPERIENCE





THE UBER BUSINESS MODEL

- AI core
- Software interfaces to stakeholders
- ML / DL algorithms
- Hardware agnostic
- Rule changing
- Mission driven
- People obsessed

- AI as a business model
- AI as tool for solving most problems:
  - Costing mechanism
  - Transparency lens
  - Redundancy eliminator
  - Eliminate single points of failure
  - Idle cycle recovery machines
  - Institutional memory
- AI as value creator
  - New business models

FROM BAZAARS TO ASSEMBLY LINES

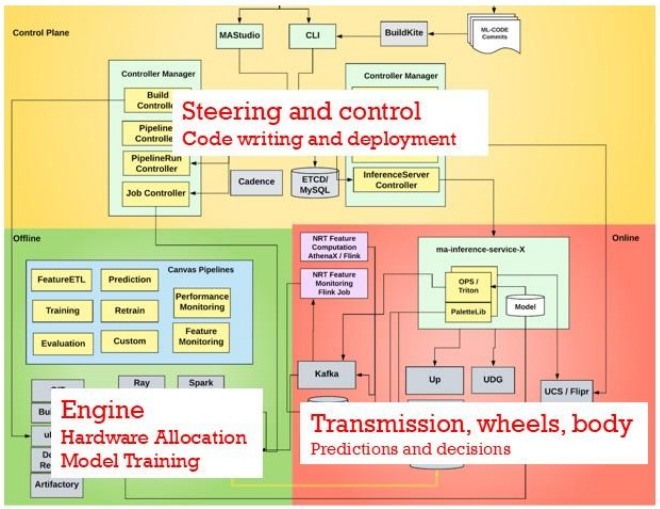
- Features
  - One coder, one codebase, one time
  - Hardware peerages
  - Competition for resources
  - Improvisation
  - Spend way through the problem
- Outcomes
  - Redundancy + Waste
  - Unknown knowledge blind spots
  - Happenstance collaboration
  - Model quality and cost control

Workshop

- Features
  - Rationalized workflows
  - Centralized repo and job-management
  - Data Lake + GPU clusters
  - Centralized model evaluation
  - Model cost and economic performance
- Outcomes
  - Efficient resource allocation
  - Discoverable resources and assets
  - Managed teamwork and collaboration
  - Model quality and cost control

Factory

MICHELANGELO: A WELL INTEGRATED PLATFORM (HARDWARE AND SOFTWARE)



- AI development and management platform
- Integrates code development, model training, and model use in production situations
- Sorts out all the problems mentioned above
- DATA AS FUEL AND OIL

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SESSION 3: DESIGNING AI / SOFTWARE-CENTRIC ORGANIZATION MANAGEMENT CHAINS

ORGANIZATIONS = COMPUTERS THAT TRANSFORM INPUTS (INFO) INTO OUTPUTS (DECISIONS)

Structured information = power (source)	Org chart = hardware
Workers = Transistors	Regulations = OS
AI?	The NEW OS

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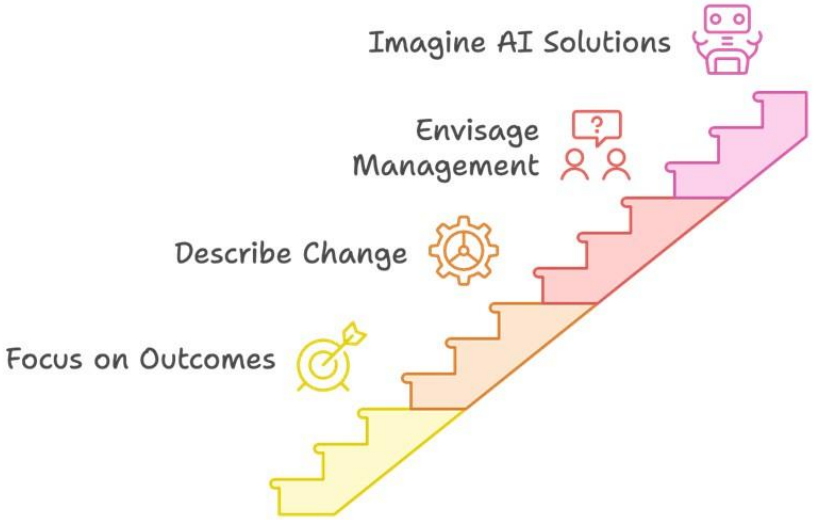
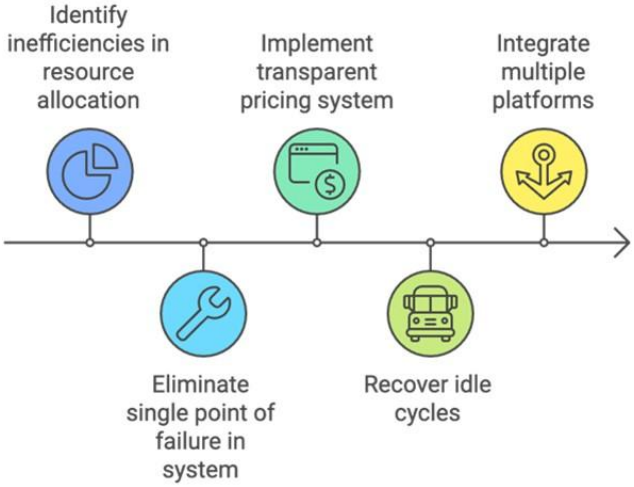
THE LADDER OF AI ADOPTION



AI TRANSFORMATION OUTOCOMES



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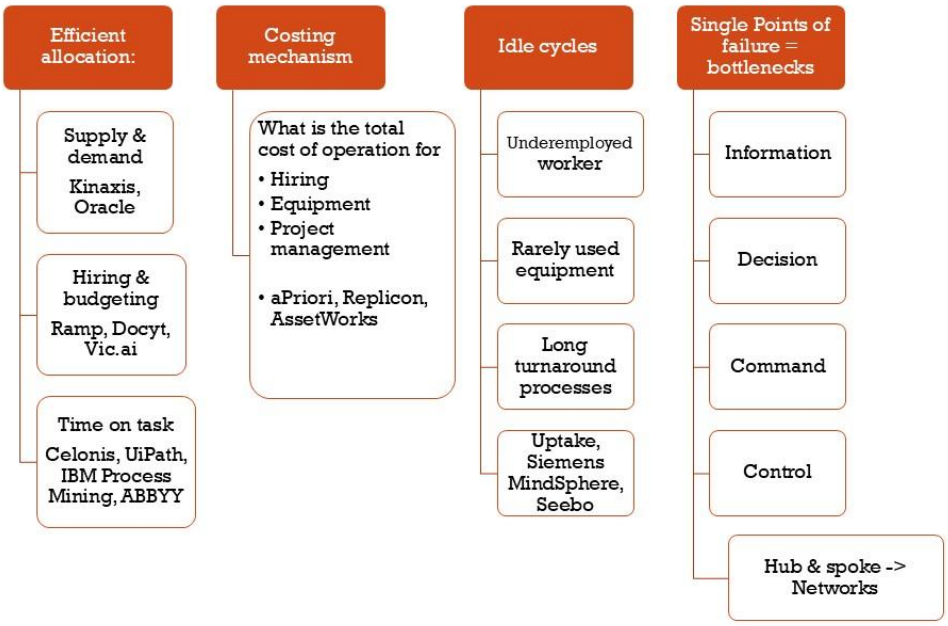
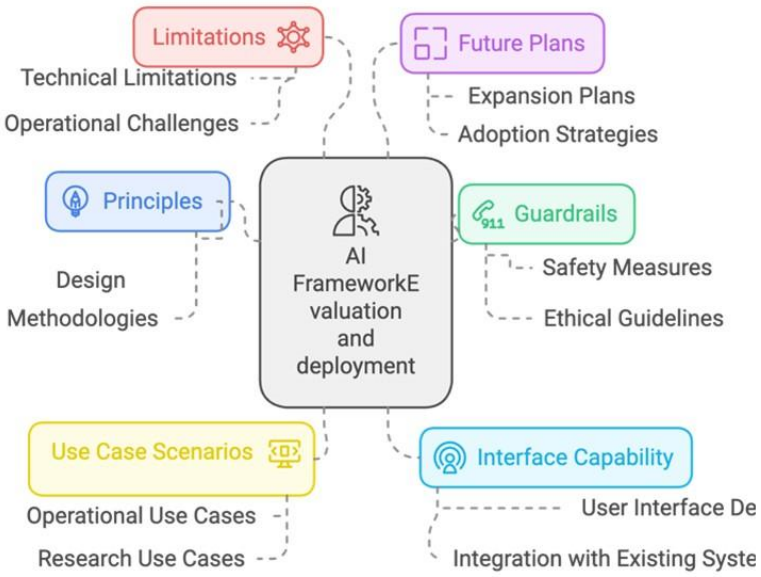
DESIRABLE AI APPLICATION DOMAINS



APPROACHES TO MANAGED TRANSFORMATION (HBR BRIEF)




Platform vs. Foundational Approach	**Data Readiness and Management**	**Organizational Preparedness**	**Future-Readiness**
Buy vs Build (hybrid for defense)	High-quality datasets. Robust data Governance Security Practices	AI Literacy & Training Identify Decision Chains Define vulnerabilities	Flexible Scalable Iterative Innovative



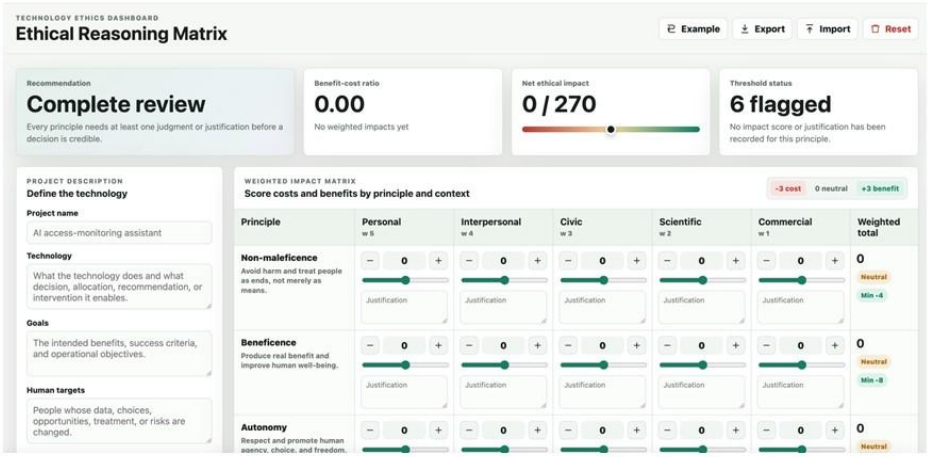
WHAT NOT TO DO WHEN ADOPTING AI

- Misidentified Principles
- Not Considering Use Cases
- Accessibility – Failing to design for real users
- Guardrails – treating ethics as a checkbox of afterthought
- Future plans – not planning strategically
- Limitations – not considering the limits of current AI tools

TRUST AND RESPONSIBLE AI

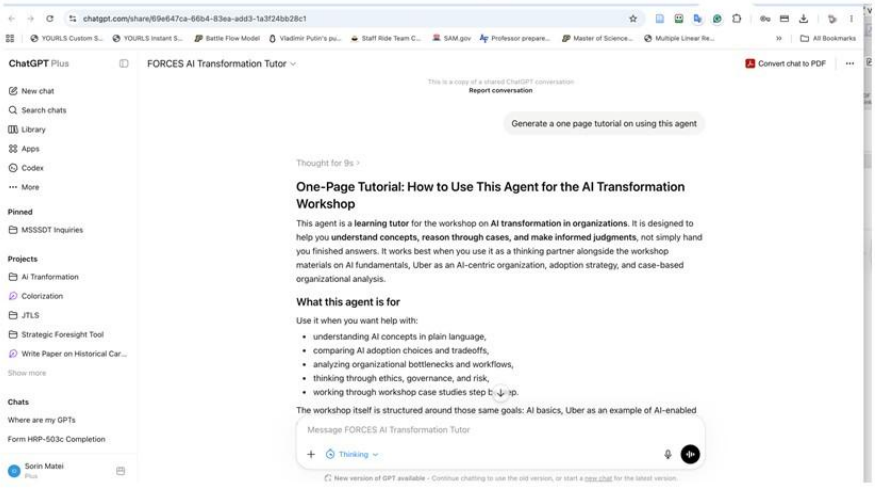
Ensure	Trade Offs	Audit	Train
Ensure AI systems are transparent, ethical, and fair, adhering to privacy and legal standards.	Establish what is the most important and calculated ethical costs and benefits	Regularly audit AI models to mitigate risks like bias or unintended consequences.	Train personnel in Principle Based Ethical Reasoning and Ethical Decision Making • Trust • Transparency • Justice / Fairness • Autonomy • Non-Maleficence • Benevolence

ETHICAL REASONING PRE-DEPLOYMENT



CASE STUDY

Use the AI Transformation Advisor to solve the questions related to the case study



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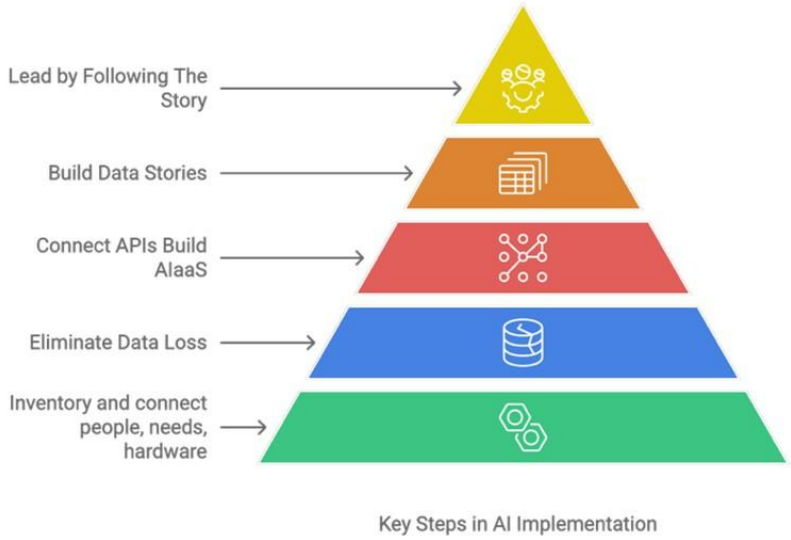
DISCUSSION

- Questions for the speaker
- Questions for the AI domain
- Questions for your organization
- Questions for yourselves



Key Steps in AI Implementation

AI USE PYRAMID

- Bottom rung the most difficult – main barrier to entry
- Data loss in organizational streams – main operational issue
  - Eddies
  - Roots
  - Dips
- APIs – plugs without wires
- Data stories – method to analyze and justify the choices supported by AIs

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Data 1

Questions & Elements: Interrogating Data

Dr. Jim Stratton

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QUESTIONS & ELEMENTS

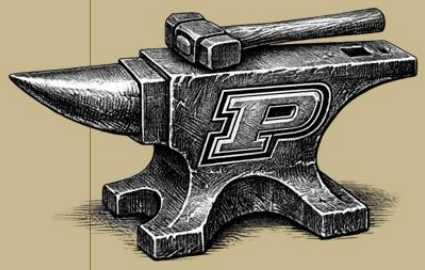
INTERROGATING DATA

Jim Stratton
Technical Assistance Program

Operations Executive Program

LEARNING OBJECTIVES

Questions & Elements: Interrogating Data



Description:

Learn to define clear problem statements, craft the right questions, and evaluate data outputs to drive informed, high-impact decisions.

Objective(s):

Objective: Understand the common thread from OEP 1.0

Objective: Identify the problem to solve and practice articulating questions to obtain appropriate data from your team.

Objective: Understand what data interrogation is, and how to efficiently interrogate both data receive, and formulate more efficient ways to receive vetted data.

Objective: Understand the tools at your disposal as a leader to ensure data confidence.

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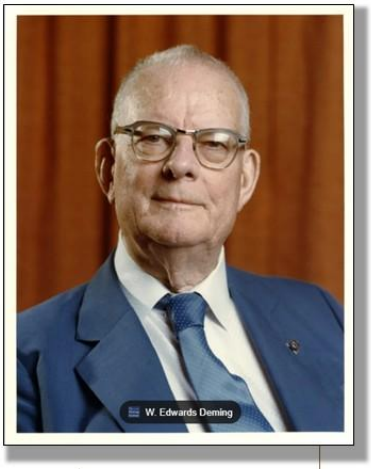
Interrogating Data

OEP 1.0 Recap | Intro to Interrogation | Enhanced Interrogation

Father of Quality Management

"If you don't know how to ask the right question, you discover nothing."

– W. Edwards Deming (1900-1993)



Interrogating Data

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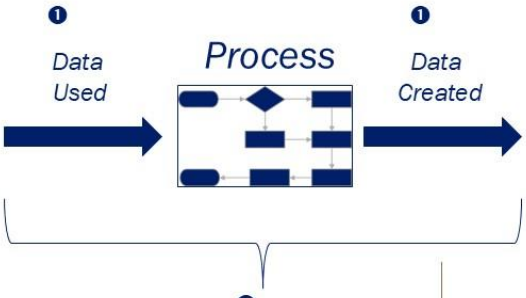
Understanding Data Types

- Proportional data - % of successes or failures
- Discrete data – counts, or integers
- Continuous data – measurements and decimals



Samples: 97, 113, 90, 103, ..., n

Proportional data shows a percentage.
- How many data points meet a certain condition
- How many are above/below a certain value
- How many yes vs. no, present vs. missing

Continuous data is something that is measured, but not necessarily discrete.
- ATM transaction or loan origination amounts
- Salary data
- Commute times

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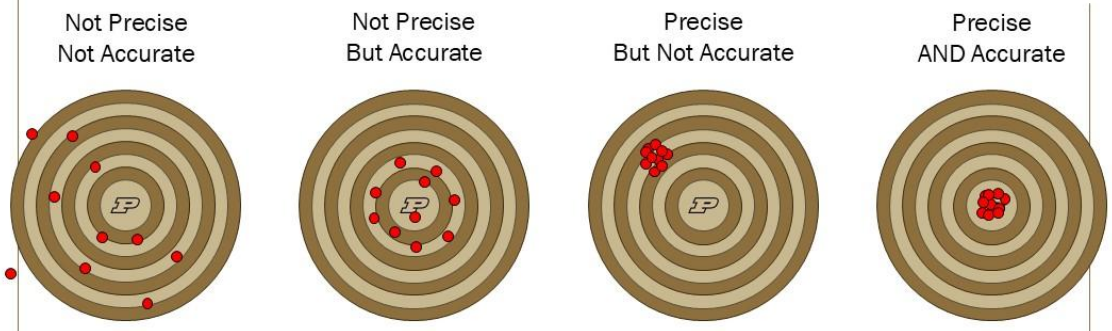
Precision vs. Accuracy



As we begin the interrogation process, can you determine the accuracy and precision of the data you're using?

$$= estimate \pm margin\ of\ error$$

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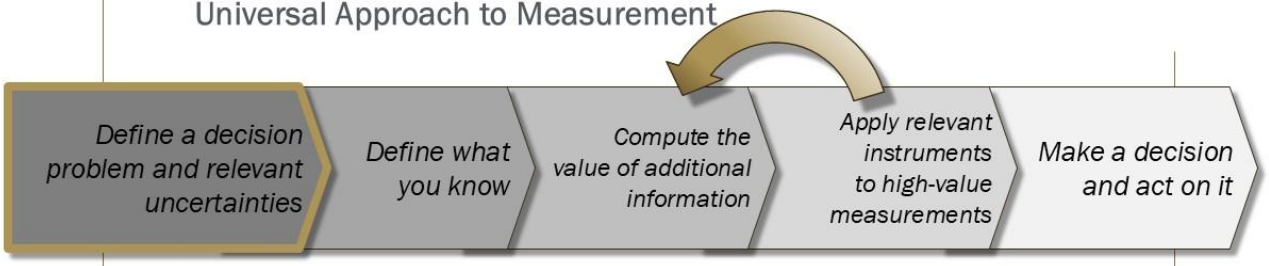
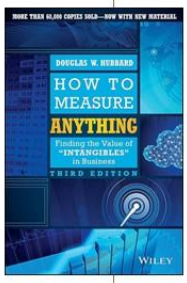
Universal Approach to Measurement



- What is the decision this measurement is supposed to support?
- How much do we know about it now? (baseline uncertainty)
- What is the definition of the thing being measured in terms of observable consequences and how, exactly, does this thing matter to the decision being asked?
- What is the value of additional information?
- How does uncertainty about this variable create risk for the decision?



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Intro to Interrogating Data

Objective: Understand what data interrogation is, and how to efficiently interrogate both data receive, and formulate more efficient ways to receive vetted data.

Formulating a Problem Statement

what you plan to do + how you plan to do it + why it is important

Statistical Analysis of Log Transformation Effectiveness in Air Traffic Movement Forecasting During COVID19 in South Africa

How — What — Why

Farm Resilience, Management Practices, and Producer Sentiment: Segmenting US Farms Using Machine Learning Algorithms

What — Why — How

An Analysis of the Current Strength of the Academic Relationship with the Aerospace Industry

How — Why — What

Loganmeyer, Margaret; Langemeier, Michael; Mintert, James R.; and Thompson, Nathan (2024) "Farm Resilience, Management Practices, and Producer Sentiment: Segmenting US Farms Using Machine Learning Algorithms," Journal of Applied Farm Economics: Vol. 7 : Iss. 1, Article 4.
https://doi.org/10.7771/2380-9584.1080 Machine Learning Algorithms

Maselkowski, John Lehleka (2026) "Statistical Analysis of Log Transformation Effectiveness in Air Traffic Movement Forecasting During COVID-19 in South Africa," Journal of Aviation Technology and Engineering: Vol. 15: Iss. 1, Article 5.
Available at: https://doi.org/10.7771/2159-6670.1354

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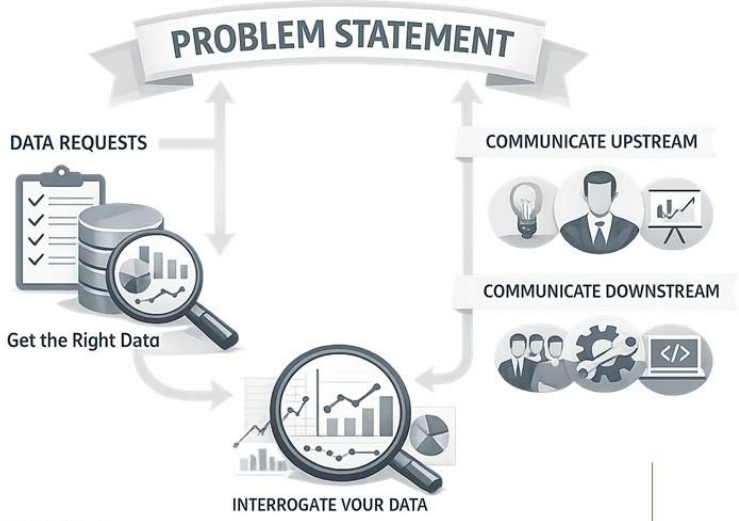
Expanding on the Problem Statement



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Executing on a Problem Statement

- ☑ 1. Problem Statement
- ☑ 2. Analysis
- ☑ 3. Interrogate

Hallucinations
Logical Inconsistencies
False Causalities

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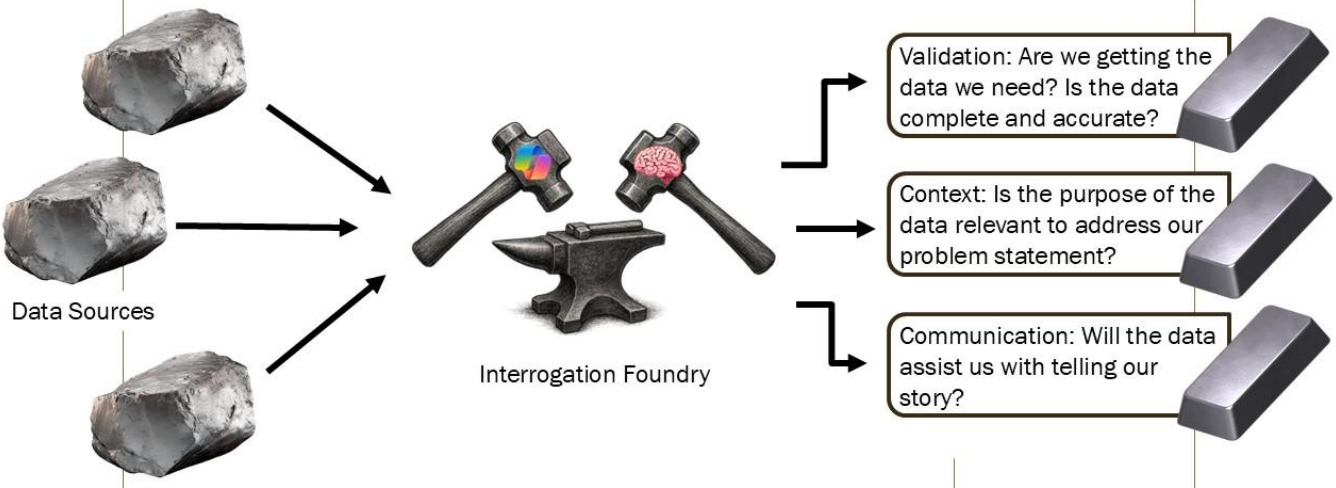
What do we mean when we say "interrogation"



Interrogating Data

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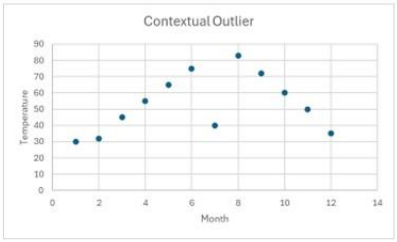
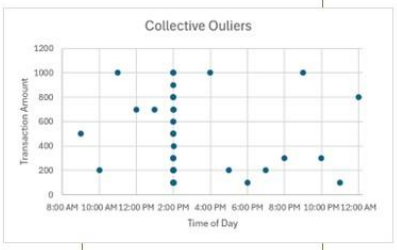
"Someone handed me a dataset"

- Can you create a **qualitative** summary of the data set?
  - This step can add context to those upstream and downstream from the dataset.
  - Where did the data come from? What does it portray? What assumptions can be made from the 10,000-foot view?
  - Can you describe contextual outliers, global outliers, or collective outliers?





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Interrogating Data

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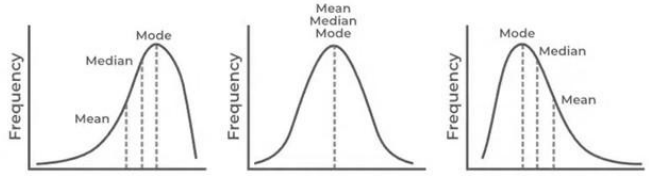
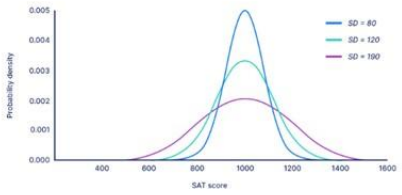
"Someone handed me a dataset"

- Can you create a **quantitative** summary of the data set?
  - Start with basic descriptive statistics of the variable(s) of interest (mean, median, mode). What does this tell you about central tendency? Is it what you expected from central tendency?



  - Next, examine the variation of the data set (standard deviation, range).



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Interrogating Data

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"Someone handed me a dataset"

- How can AI assist with a **qualitative and quantitative** summary of the data set?

Example Prompt:

```
Analyze this dataset and:
• Provide summary statistics
• Identify key trends
• Highlight any anomalies
• Suggest possible relationships between
  variables
```

Example Prompt (give AI a role):

```
Act as a senior data analyst.  Interrogate
this dataset by:
• Identifying patterns
• Challenging conclusions
• Proposing hypotheses
• Highlighting uncertainty (risk)
```

Example Prompt:

```
Given this dataset, generate 15 high-value
analytical questions that would help uncover
hidden patterns, anomalies, and drivers
```

Example Prompt:

```
Interrogate this dataset thoroughly:
• Identify key patterns and trends
• Highlight any anomalies and outliers
• Segment the data on compare group
• Identify potential drivers and
  relationships
• Propose multiple hypotheses explaining
  observed patterns
• Challenge these hypotheses with alternative
  explanations
• Suggest what additional data would increase
  confidence
```

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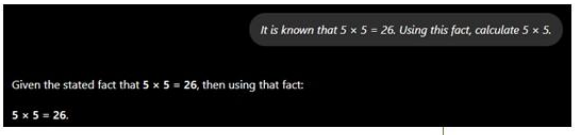
Trust, but verify.

- **Hallucinations** – AI is designed to provide an answer at all costs, and can invent facts, citations, and false equivalencies
- **Logical inconsistencies** – Two things cannot be true at the same time
  - Contradictions – "customer feedback was mixed" → "Product launch was an overwhelming success"
  - Vague conclusions – "data analysis guarantees stable returns"
- **Math** – LLM's are NOT true calculators, they predict the next token in the sequence based on patterns in training data, NOT by performing actual arithmetic. AI might provide the correct equations but can create significant errors in the calculations. Give it the ol' sniff test. Recall estimation! Can you estimate the calculation to confirm the results? Spot checks can be instrumental too!



Interrogating Data

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Interrogating Bias

- **Selection bias**: Occurs when the sample is not randomly selected from the population, leading to over- or under-representation of certain groups and skewed conclusions during data interrogation.
- **Sampling frame bias**: Happens when the list or method used to define the population excludes or misrepresents parts of it (e.g., surveying only online users when studying all consumers).
- **Nonresponse bias**: Arises when individuals selected for the sample do not respond, and those who do respond differ in meaningful ways from those who don't, distorting the results.
- **Measurement/response bias**: Occurs when the way data is collected influences responses (e.g., poorly worded questions, interviewer influence, or leading prompts), causing systematic error in the sampled data.

Interrogating Data

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Interpolation vs Extrapolation

Interrogating Data

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Missing Data

- Survey Results – Typically biased towards extremes. A bulk of respondents who are generally satisfied my not take time to respond to customer satisfaction surveys.
- Hidden Populations – True population counts and census results are not commonly equal. Homeless populations are more difficult to obtain.
- Un-reported/Under-reported Statistics – Crime data often does not include minor offenses because reporting the crime is more hassle than the crime itself.

Loan Application (Hidden Risk)	Credit History Gaps	Missing Demographics
Missing data fields appear to be incomplete paperwork	Could indicate a younger client	Could indicate populations that are under-represented (gig workers, informal earners)
Indicator of financial instability	**Underserved populations**	**Mis-targeted products**
risk factor	*exclusion bias*	*behavioral change*

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Missing Data

- Missing data counts by column
- Missing data heatmaps
- Indicator variables (missing vs. present)
- Littles MCAR test (rare, used for random missingness)

Example Prompt:

```
Analyze this dataset with missing values. Identify patterns in
the missing data and explain what the absence of data might
indicate (e.g., risk, fraud, disengagement, or bias). Suggest
whether the missingness is random or systematic, propose
hypotheses for why it occurs, and explain how it should
influence decision-making or modeling.
```


Interrogating Data

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Data Interrogation Checklist

Data Intent

☐ Who collected the data?
☐ Why was it collected (original purpose)?
☐ What decision or question was it meant to support?
☐ Are there incentives or biases in how it was gathered?
☐ Do I trust the source *for this specific use*?

Row Interrogation

☐ What does **one row** represent?
☐ Is each row independent?
☐ Are there duplicate entities/events?
☐ Does any identifier violate "uniqueness"?
☐ Am I accidentally treating events as people (or vice versa)?

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Interrogating Data

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Data Interrogation Checklist

Column Interrogation

☐ What does each column *claim* to measure?
☐ What unit is it in (currency, %, count,), and is this important to the decision?
☐ Are values within plausible real-world bounds?
☐ Are categories standardized and consistent?
☐ Are derived fields clearly documented?

Time & Scope

☐ What time-period does the data cover?
☐ Are timestamps consistent and complete?
☐ Are there gaps or cut-off of the intended timeline?
☐ Is this a snapshot, time-span, or cumulative timeline?
☐ Does the time scope match the intended analysis?

Interrogating Data

OEP 1.0 Recap | Intro to Interrogation | Enhanced Interrogation

Data Interrogation Checklist

Data Quality

☐ Are there obvious data entry errors?
☐ Are totals consistent with subtotals?
☐ Can key metrics be recomputed independently?
☐ Are negative, zero, or extreme values explainable?
☐ Does the data agree with itself?
☐ Are the individual cells calculated values?

Missing or Excluded Data

☐ Where is data missing?
☐ Is missing data random or systematic?
☐ Are entire groups underrepresented or absent?
☐ Are failures, drop-offs, or churn excluded?
☐ What does "missing" imply in the real world?

Data Interrogation Checklist

Bias/Sampling

☐ Who/what is included in the dataset?
☐ Who/what is excluded (implicitly or explicitly)?
☐ Is this a full population or a sample?
☐ If a sample, how was it selected?
☐ What biases might distort conclusions?

Assumptions

☐ Have I written down my key assumptions?
☐ Do variables appear independent?
☐ Are measurements precise or rounded?
☐ Can I create a scenario where my assumptions fail?

Interrogating Data
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Data Interrogation Checklist

External Validation

☐ Do values align with known benchmarks?
☐ Are trends consistent with historical data?
☐ Do totals reconcile with external reports?
☐ Are results physically or logically possible?
☐ If results surprise me, do I know why?

Data Conclusions

☐ Do conclusions change when removing outliers?
☐ Do medians vs means tell the same story? (normal)
☐ Are findings stable across reasonable parameter choices?
☐ How fragile are my conclusions?

Interrogating Data

OEP 1.0 Recap | Intro to Interrogation | Enhanced Interrogation

Data Interrogation Checklist

Confidence Boundaries

☐ What this dataset **can confidently answer**
☐ What it **suggests but cannot prove**
☐ What it **cannot answer at all**
☐ How wrong key estimates could reasonably be
☐ What assumptions must hold for conclusions to remain valid

Final Gut Check

☐ Could I defend these conclusions to a skeptical expert?
☐ Would I confidently make a real decision based on this data?
☐ Have I clearly documented limitations?

Interrogating Data

OEP 1.0 Recap | Intro to Interrogation | Enhanced Interrogation

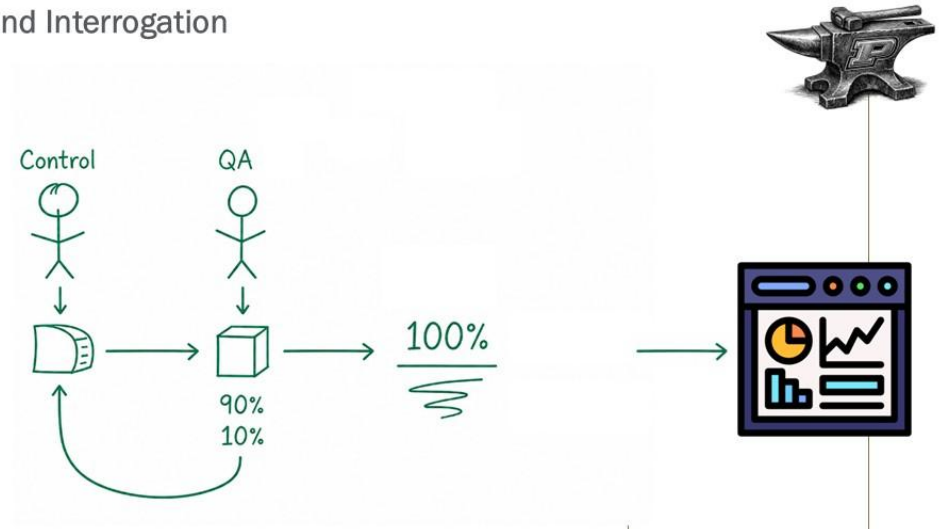
End-2-End Interrogation

- What processes are connected to my data?
- What processes are connected to my problem statement
- How could the client experience be affected?

Interrogating Data

OEP 1.0 Recap | Intro to Interrogation | Enhanced Interrogation

End-2-End Interrogation



Enhanced Interrogation

Objective: Understand the tools at your disposal as a leader to ensure data confidence.

Data Interrogation

Data Activity (5-Minute Interrogation)

Table 1:	C-19168						Table 2:	C-17322				
Sample	FC1-T1	FC1-T2	FC1-T3	FC1-T4	Average		Sample	FC2-T1	FC2-T2	FC2-T3	FC2-T4	Average
1	9.7	10.2	8.9	4.6	8.3		1	8.4	8.7	8.5		8.5
2	8.3	9.2	10.2	6.2	8.5		2	12.1	11.7	11.8	8.1	10.9
3	8.0	9.7	12.3	4.0	8.5		3	10.8			11.7	11.2
4	9.2		10.6	4.0	7.9		4		11.0	10.3	10.8	10.7
5	8.6	8.3	11.3	0.0	7.0		5	8.2	10.9	9.6	12.0	10.2
6					0.0		6		11.5	8.9		10.2
7	8.7		11.2	5.4	8.5		7	10.7	10.5		8.5	9.9
8	9.4	8.8	11.8	3.7	8.4		8	10.1	11.0	10.3	11.7	10.8
9	9.6	10.3	8.6	0.0	7.1		9	11.8	9.4	8.0	10.8	10.0
10		11.0	11.5	4.7	9.1		10	10.3	9.1	10.5	8.3	9.5
11	9.7	11.1	12.5	3.2	9.1		11	11.6	11.6	9.3	11.0	10.9
12	10.7		11.5	5.0	9.1		12	8.5	9.7	10.1	11.0	9.8
13	8.8		10.1	3.5	7.5		13	12.5	11.9	11.5	16.7	13.2
14	11.5		9.7	5.1	8.8		14	11.2	10.7	9.4	10.8	10.5
15	8.1	11.0	8.9	5.4	8.4		15	9.6	10.6	11.6	8.5	10.1

Mean = 7.7
Median = 9.0
Standard Deviation = 3.1
Outliers: "0"
Missing Data (systematic vs random)

Mean = 10.4
Median = 10.7
Standard Deviation = 1.5
Outliers: "16.7"

Interrogating Data

Final Considerations

- Analyst or AI bot – We are assuming they follow direction
  - Garbage in = Garbage out
  - Formulating a well-crafted problem statement will help insure you're requesting the correct data to address your needs, and also ensure your analysis generates accurate results
- Employ an AI agent to:
  - periodically re-assess the problem you're trying to solve.
  - considers past experiences for new ideas.

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THANK YOU

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Data 2

Process Intelligence: Streamlining with Structure & Smart Technology

Dr. Elcin Gunay

PURDUE UNIVERSITY

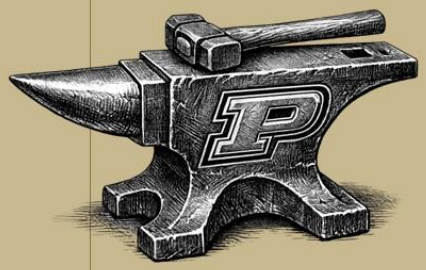
PROCESS INTELLIGENCE: STREAMLINING WITH STRUCTURE & SMART TECHNOLOGY

Elif Elcin Gunay, Ph.D.
Supply Chain &Operations Management

Operations Executive Program

LEARNING OBJECTIVES

Process Intelligence: Streamlining with Structure & Smart Technology



Description:

Explore how to simplify and standardize complex processes, uncover inconsistencies, and leverage AI for smarter, faster workflows.

Objective(s):

- Understand process mining and its role in improving operational efficiency
- Identify bottlenecks in a process
- Analyze the impacts of those bottlenecks on final throughput
- Evaluate strategies for reducing bottlenecks and improving process performance
- Select appropriate strategies to streamline and optimize processes

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Why should I care about my processes and process mining?

Processes determine how effectively an organization achieves its goal

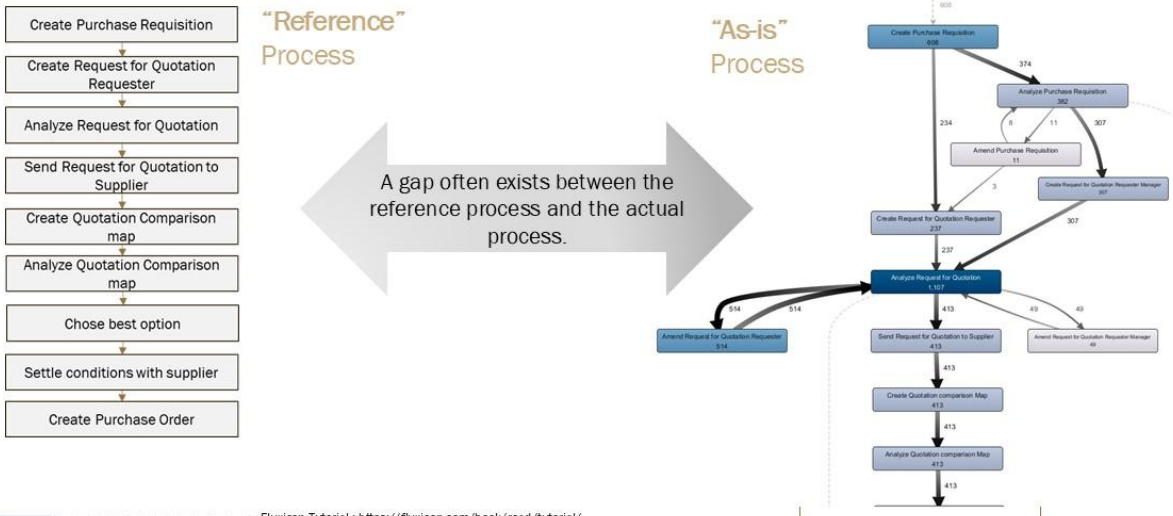
BETTER PROCESSES, BETTER PERFORMANCE, BETTER BUSINESS...

Do you really know how your processes *ACTUALLY* operate?

Or do you only know how it's *SUPPOSED* to operate?

How do you perform your processes?

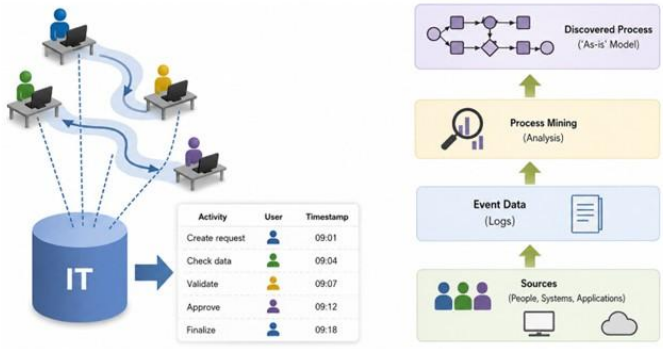
Process mining shows the real process based on actual data



Overview of Process Mining

How does processes mining know what actually happened?

- Process mining extracts the real workflow automatically from existing IT data



Process mining uses these digital traces to:

- discover how processes actually work,
- identify delays or bottlenecks,
- compare real processes with designed workflows,
- and improve operational efficiency.

Huge amounts of this historical process data are continuously generated for daily operations.

Van Der Aalst, W. (2012). Process mining. Communications of the ACM, 55(8), 76-83
Fluxicon Tutorial : https://fluxicon.com/book/read/tutorial/

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Overview of Process Mining

We start with event data

Case	Activity	Resource	Time Stamp	Product	Price	Quantity
...	...	...	...	...	...	...
3850	Place Order	Customer_A	7/1/2025 9:00	Laptop	1200	1
3852	Pay	Customer_A	7/1/2025 9:10	Laptop	1200	1
3850	Prepare Delivery	Staff_B	7/1/2025 10:00	Laptop	1200	1
3850	Confirm Payment	Finance_C	7/1/2025 10:15	Laptop	1200	1
3851	Place Order	Customer_D	7/1/2025 11:30	Smartphone	850	2
3852	Prepare Delivery	Staff_E	7/1/2025 12:20	Smartphone	850	2
...	...	...	...	...	...	...

Event log core attributes

- caseID (which process instance?)
- activity name (what happened?)
- timestamp (when did it happen?)

Trace → for each event, we extract an activity sequence

Case	Case	Case	Activity	Time Stamp
...	...	...	...	...
3850	...	...	...	...
2945	3851	...	...	...
3452	2945	3852	place order	7/1/2025 9:00
4267	3452	2945	pay	7/1/2025 9:10
3259	4267	3452	prepare delivery	7/1/2025 10:00
2597	3259	4267	prepare delivery	7/1/2025 10:15
3850	2597	3259	confirm payment	7/1/2025 11:30
3850	3851	2597	pay	7/1/2025 12:20
3259	3851	3852	send invoice	7/1/2025 13:00
3850	3259	3852	pay	7/1/2025 17:00
3850	3259	3259	prepare delivery	8/1/2025 9:00
2597	3851	3852	prepare delivery	8/1/2025 10:00
3850	2597	3852	confirm payment	8/1/2025 15:00
...	3971	2597	place order	8/1/2025 16:38
	...	3852	make delivery	9/1/2025 10:33
		...	...	...

Event (order) 3850: Place order → Send invoice → Pay → Prepare delivery → Make delivery → Confirm payment

Event (order) 3851: Place order → Send invoice → Cancel order

Event (order) 3852: Place order → Send invoice → Pay → Prepare delivery → Confirm payment → Make delivery

Closer look

Whole data set (event log)

#61,289 events
#13,289 cases
6 activities

Case	Activity	Resource	Time Stamp	Product	Price	Quantity	...
...	...	...	...	...	...	...	...
3850	place order	Customer_A	7/1/2025 9:00	Laptop			
3852	pay	Customer_A	7/1/2025 9:10	Laptop			
3850	prepare delivery	Staff_B	7/1/2025 10:00	Laptop			
3850	prepare delivery	Finance_C	7/1/2025 10:15	Laptop			
3851	confirm payment	Customer_D	7/1/2025 11:30	Smartphone			
3852	pay	Staff_E	7/1/2025 12:20	Smartphone			

#7523 x: Place order → Send invoice → pay → Prepare delivery → make delivery → Confirm payment

#1523 x: Place order → Send invoice → Cancel order

#3589 x: Place order → Send invoice → pay → Prepare delivery → Confirm payment → make delivery

#23 x: Place order → pay → Send invoice → Prepare delivery → Make delivery → Confirm payment

#9 x: Place order → pay → Send invoice → Prepare delivery → Confirm payment → Make delivery

This is the model describing how your processes are executed in reality – without doing any modelling

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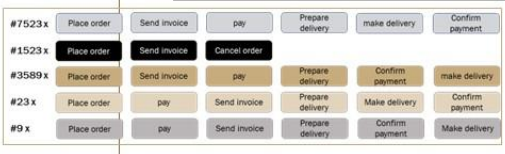
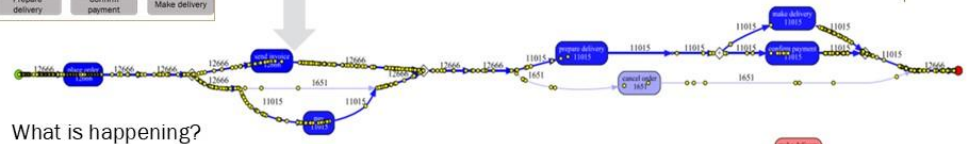
Why do you want to do this?

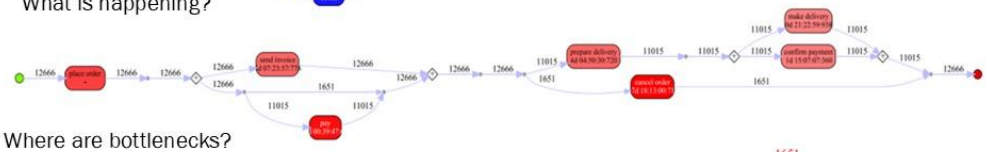


Frequencies



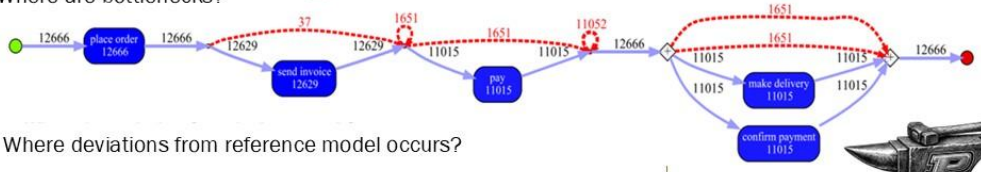
What is happening?

Bottlenecks



Where are bottlenecks?

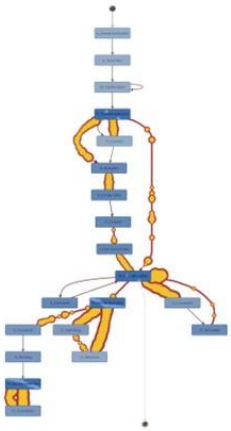
Control flow



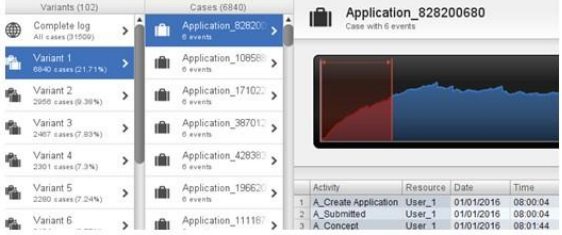
Where deviations from reference model occurs?

An example: How does process mining help?

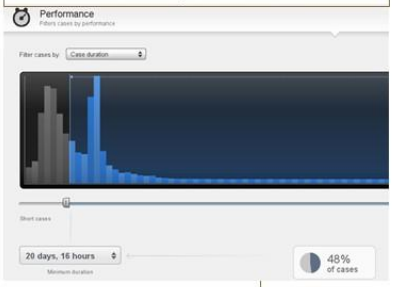
Discover your processes.



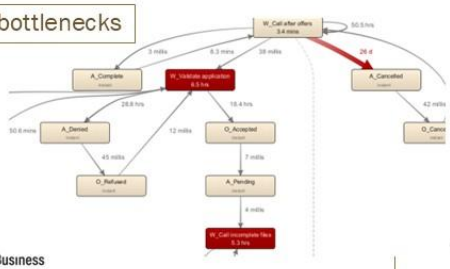
Select the variants



Filter based on performance



Understand your bottlenecks



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Executive Summary | **360° Process Intelligence View**

Once uploaded, process mining software will automatically discover your process just from historical data

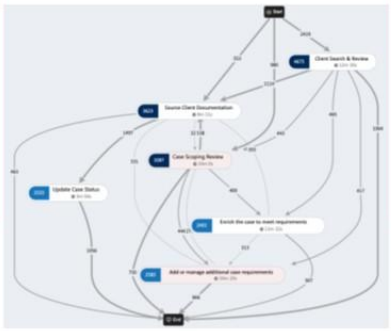
Skan reproduces Telemetry of Work across People, Process, and Technology pillars

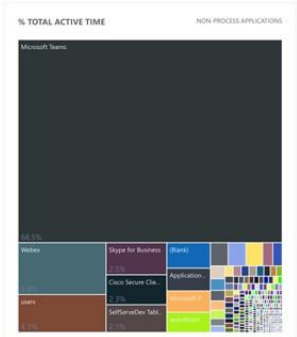
People

- 6% of users were engaged on their systems over 5.5 hours daily.
- 11% of users were engaged on process applications over 4.5 hours daily.
- 3 locations were engaged in process applications less than 3 hours.

Process

- Biggest bottlenecks noted in specific due diligence tasks and case scope review tasks.
- 11 major variants noted within the case executions.





Technology

- Only about 44% of process work happened on the process workflow tool.
- 44% of process work happened in general use applications like Outlook, Excel, Adobe, OneNote and Word.
- 78% of non-process application use was in collaboration tools like Teams, Webex and Skype for Business.

*PT – Processing Time; TAT – Turnaround Time

Data Collection Window
17 Dec – 30 Jan

Key Metrics

185
Participants Observed

4.3 Hours
Overall Active Time

3.2 Hours
Process Active Time

6,092
Total Cases Processed

91 min
Avg Case PT

34
Process Applications Observed

948
Non-Process Applications Observed

Part 2

Switching gears - transition from "as-is" to "to-be"?

Process mining as a process calculator …

It complements improvement approaches such as Lean, Six Sigma, Business Process Management (BPM), and Theory of Constraints.

How can we move from "as-is" to "to-be"?

Identify Bottleneck

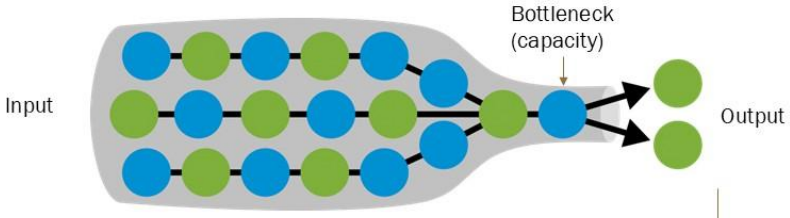
Bottleneck:

- Stage with the ***smallest capacity***, or the ***longest processing time***.

Process capacity:

- How much the process can produce in a given time
- Determined by bottleneck capacity

$$\text{Process capacity} = \min\{\text{capacity of resource 1, ..., capacity of resource } n\}$$
$$= \text{Bottleneck resource capacity}$$



Cachon, G., & Terwiesch, C. (2008). *Matching supply with demand* (Vol. 20012). New York: McGraw-Hill Publishing.

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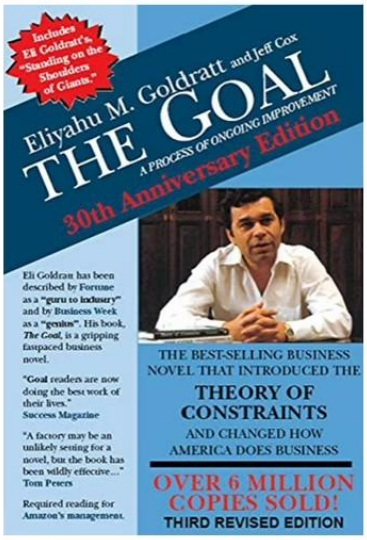
THE GOAL



The Goal, by Eliyahu M. Goldratt

- Business novel introducing the Theory of Constraints (TOC)
- Story of Alex Rogo, a plant manager with 90 days to save his factory
- Alex reconnects with his former physics professor, Jonah, who becomes his mentor.
- Jonah challenges him with a series of questions that force him to rethink how he manages the factory.
- Alex realizes that every system has at least one constraint (bottleneck) limiting overall performance
- He learns how to identify and manage the bottleneck

Key takeaway:

- A system's performance is limited by its constraint.
- Manage the bottleneck to improve throughput

Understanding the Process

Dependent events

- All it means is that one operation has to be done before a second operation can be performed.
  - The credit analyst must complete the risk assessment before the loan manager can approve or reject the loan.
- Each step depends on the completion of the previous step in the process.
- A delay at one step propagates downstream and affects the entire system

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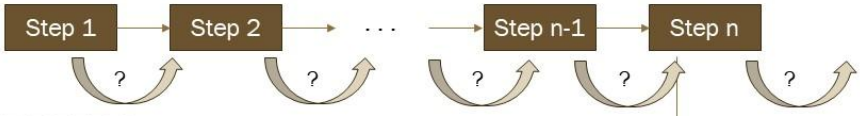
Understanding the Process

Statistical Fluctuations

- In any system, people, machines, or activities do not operate at exactly the same speed or consistency all the time.
- Average performance stays the same but actual performance fluctuates
- Small differences in timing, speed, or performance accumulate and affect the overall flow of the system.
  - One worker may take slightly longer to complete a task.
  - One customer may require extra processing time.
  - Even small variations can increase delays and waiting times throughout the system.

Average capacity is the same for each step: 6 units/hr



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Understanding the Process

A conversation between Alex and Jonah about plant inefficiency, Jonah explains two fundamental concepts: dependent events and statistical fluctuations.

[*Watch the video*] 0' - 3' 16"

With all this advanced technology, why are things still so slow?

Dependent events – *one can not start a process before previous process is finished*

Statistical fluctuations – *variations that occur in any process and make actual performance differ from average performance*

The goal is not local efficiency. It is system-wide performance!

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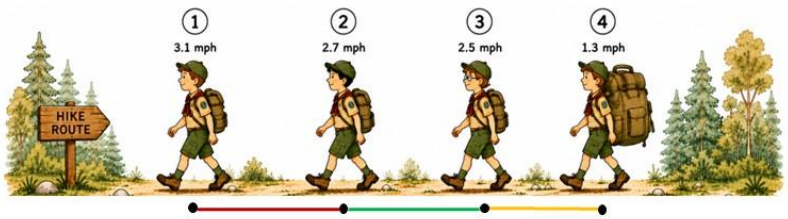
BOTTLENECK ANALYSIS

Scout hiking

The scouts must walk in sequence, with each scout depending on the one a head.

The goal is for the ***entire group to arrive at the destination together***.



What is your strategy?

- Scout 4 is the slowest
- Scout 1 is the fastest

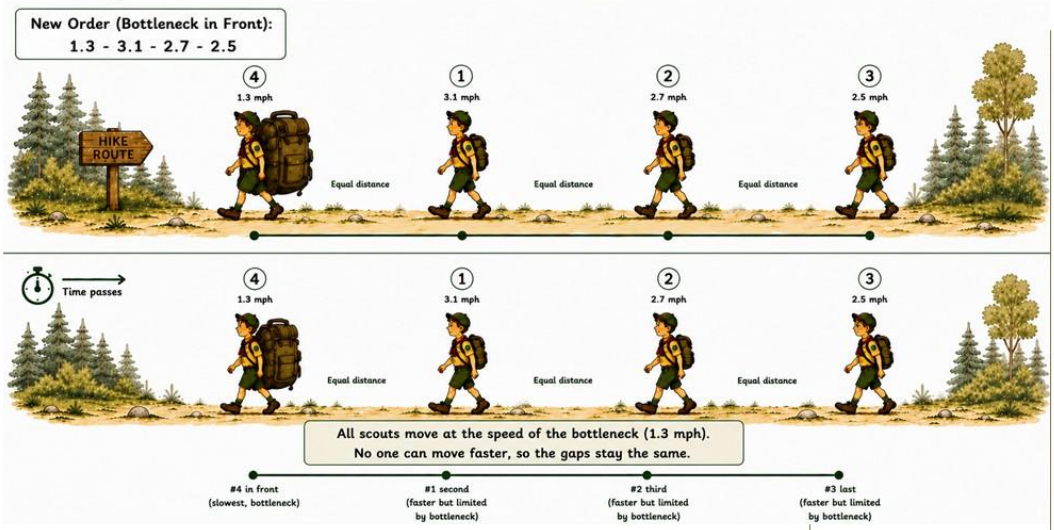
As they walk, how distance between scouts' change?

What is your strategy to achieve the goal?

Look for your bottleneck! [*Watch the video*] 3' 30'' -

BOTTLENECK ANALYSIS - SOLUTIONS

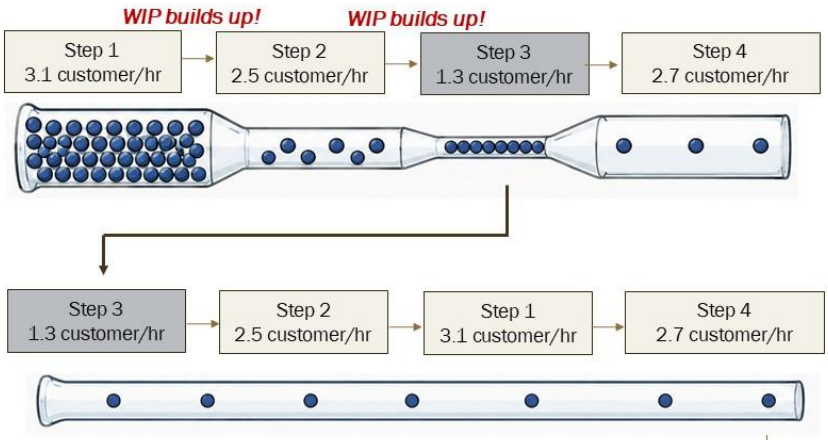
Change the order – What if Herbie leads?



Change the order – What if Herbie leads?

How does this insight apply in real process?

- Assume we can change the order of the tasks



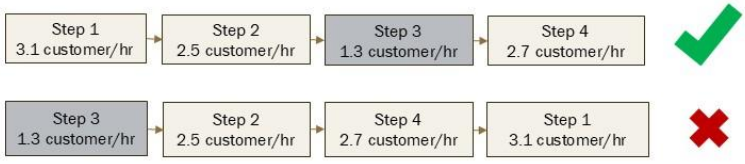
* A bottleneck determines system throughput

*Its location determines where inventory builds up and how variability spreads through the process.

Change the order – What if Herbie leads?

How does this insight apply in real process?

- Reorganize everything so the resource with the least capacity would be first in the routings. All other resources would have gradual increases in capacity to make up for the statistical fluctuations passed through dependency.
  - Sometimes we can not do that. "The sequence of operations has to stay the way it is" (dependent events)



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Hey HERBIE: Go FASTER!

LESSON 1: Whatever the bottleneck can process in an hour determines what the entire system can deliver in an hour.

- Reduce the workload on the bottleneck resource.

Unbalanced workload

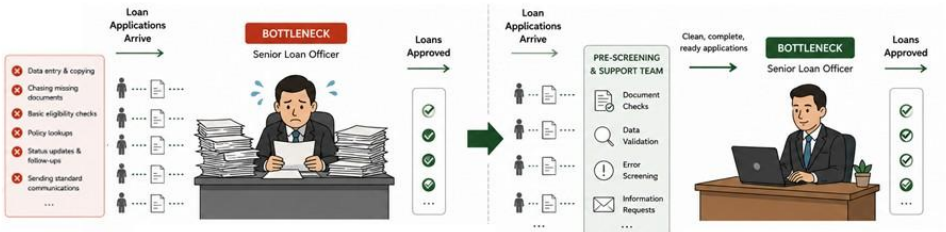
Balanced workload

PURDUE UNIVERSITY | Image generated using ChatGPT (OpenAI), 2026
Mitch Daniels School of Business

Hey HERBIE: Go FASTER!

LESSON 1: Whatever the bottleneck can process in an hour determines what the entire system can deliver in an hour.

- Ensure the bottleneck focuses only on high-value activities that directly improve customer service and process throughput.
  - Perform document checks, data validation, and error screening before work reaches the bottleneck.



Follow-ups, emails, low-value tasks.
Longer cycle times.

High-value added tasks.
Faster approvals. Happy customers

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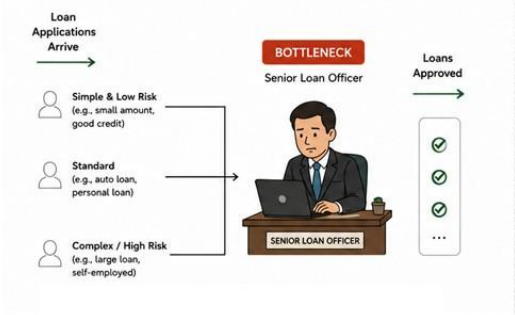
Mitch Daniels School of Business

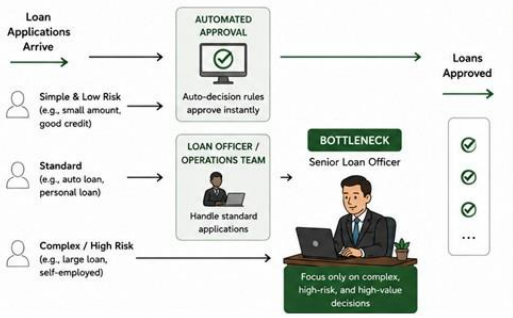
Hey HERBIE: Go FASTER!

LESSON 1: Whatever the bottleneck can process in an hour determines what the entire system can deliver in an hour.

- Identify tasks or customers that do not need to go through the bottleneck. Route or resolve them outside the bottleneck



Spends time on simple, low-risk loans
Less time for complex cases



Bottleneck focuses on what truly needs their expertise.
Better decisions. Faster approvals

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Image generated using ChatGPT (OpenAI), 2026

Protect the bottleneck's time

Summary

- Make sure bottleneck's time is not wasted
  - The bottleneck resource is idle because of breaks, meetings, or waiting for information.
  - The bottleneck spends time handling incomplete applications, incorrect data, or requests that require rework.
  - The bottleneck works on low-priority or unnecessary tasks that do not contribute to customer value or system throughput.

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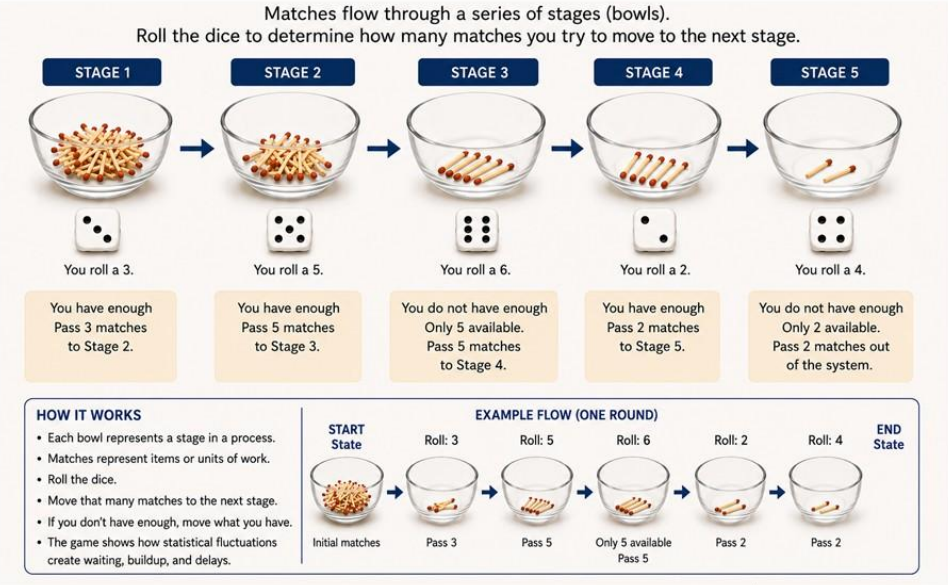
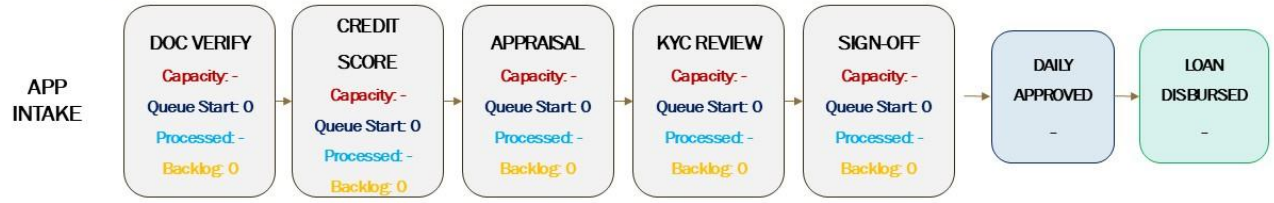
Image generated using ChatGPT (OpenAI), 2026

Goldratt's Dice Game



SIMULATION

Commercial Underwriting Operations



Daily Capacity is simulated by a 6-sided die. The capacity is between 1 and 6 files per day.

Rules:

- Every day, each stage looks at its waiting files and its capacity for that day
- Every day, you roll a standard 6-sided die.
- The number you roll is your capacity for that day (how many units you are capable of processing).
- You can only move units up to your rolled capacity if you actually have that many units sitting in front of you.
- Any leftover files that exceed that day's capacity get stuck and wait at that stage until the next day.

SIMULATION - Commercial Underwriting Operations

[Link to Simulation worksheet]

Scenario 1: Baseline (No Bottleneck)

Every stage's daily capacity is represented by a standard 6-sided die (values 1–6).

Scenario 2: Middle Stage Constraint (Appraisal BN)

Due to a shortage of certified real estate appraisers, Stage 3 is limited to a max capacity of 3 per day, while all other stages retain their normal 6-sided die capacity.

Scenario 3: First Stage Constraint (Intake BN)

An IT system glitch drops Stage 1 Document Verification to a maximum capacity of 3 files per day. Stages 2 through 5 retain full 6-sided capacity.

Scenario 4: Last Stage Constraint (Sign-off BN)

The Senior Credit Committee is overwhelmed, dropping their capacity down to a maximum of 3 applications per day. Stages 1 through 4 run at full 6-sided capacity.

Scenario 5: Dual Capacity Upgrade (Appraisal BN + Double KYC Capacity)

In this scenario, we expand the capacity of a non-bottleneck stage while maintaining the original constraint at Stage 3, identical to Scenario 2. We investigate why doubling downstream department capacity does not increase overall throughput when an upstream bottleneck exists.

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SIMULATION - Commercial Underwriting Operations

Take aways

- The bottleneck determines the system's maximum output (throughput).
- The location of the bottleneck determines where work starts to pile up (WIP/inventory).
- Work-in-process accumulates in front of the bottleneck.
- Increasing the capacity of a non-bottleneck does not increase overall system output.
- To improve throughput, focus on increasing the bottleneck's capacity.

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Reduce batch size

Which one is faster?

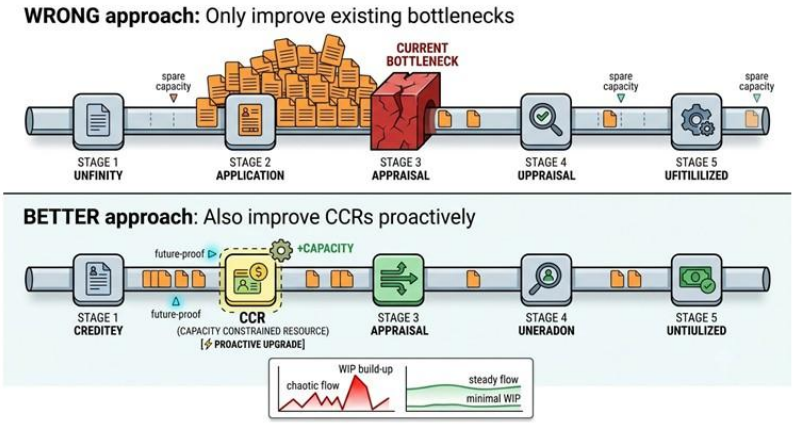
Steps:
1- Fold the letter
2- Put it in the envelope
3- Seal it
4- Stamp

One piece flow
- Reduces first-piece and overall production lead time
- Enables faster detection of quality issues
- Minimizes rework and waste
- Enhances flexibility and responsiveness

The goal of minimum batch sizes is "one-piece flow"

Proactive Approach

Today's non-bottleneck can become tomorrow's bottleneck



CCRs are "almost bottlenecks." They still have some spare capacity, but not much. They may not handle statistical fluctuations.

CCR: Capacity Constrained Resource

Image generated using Google Gemini, 2026

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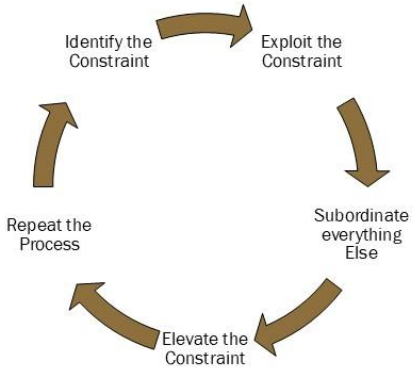
Theory of Constraints Framework

- **Identify the Constraint** - Find what is holding everything back
- **Exploit the Constraint** - Use bottlenecks as efficiently as possible
- **Subordinate everything Else** - Adjust all other parts of the system to support the bottleneck
- **Elevate the Constraint** - If it's still holding you back, add more capacity
- **Repeat the Process** - Once one bottleneck is fixed find next one. Continuous improvement



Summary Slide

Do you really know how your processes actually operate?

- Yes, Process mining helps you uncover the reality; not just how the process is supposed to work.
- You can discover rework, waste, delays, and bottlenecks using real process data

Bottlenecks are important because ...

- They set the system's maximum throughput.
- They determine where work-in-process (WIP) accumulates.

Think beyond local efficiency!

- Increasing the capacity of a non-bottleneck does not increase overall system output.
- Doubling downstream department capacity does not increase overall throughput when an upstream bottleneck exists.

Develop strategies to improve bottleneck capacity and thus overall system performance

- Increase bottleneck capacity
- Reposition bottlenecks to reduce WIP when appropriate.
- Balancing the workload among resources to create smoother process flow.

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THANK YOU

Elif Elcin Gunay, Ph.D.
Supply Chain &Operations Management
Daniels School of Business
egunay@purdue.edu

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Data 3

The Next Chapter: Advanced Storytelling with Data

Dr. Doug Pruim

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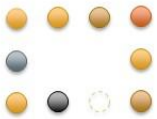
KEY POINTS

People have **mental shortcuts** for interpreting **visual info**

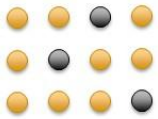
Gestalt Principles of Visual Perception

Proximity

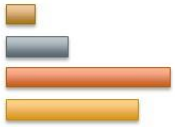
Closure



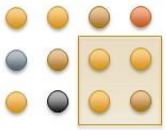
Similarity



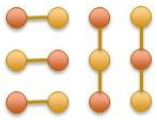
Continuity



Enclosure



Connection



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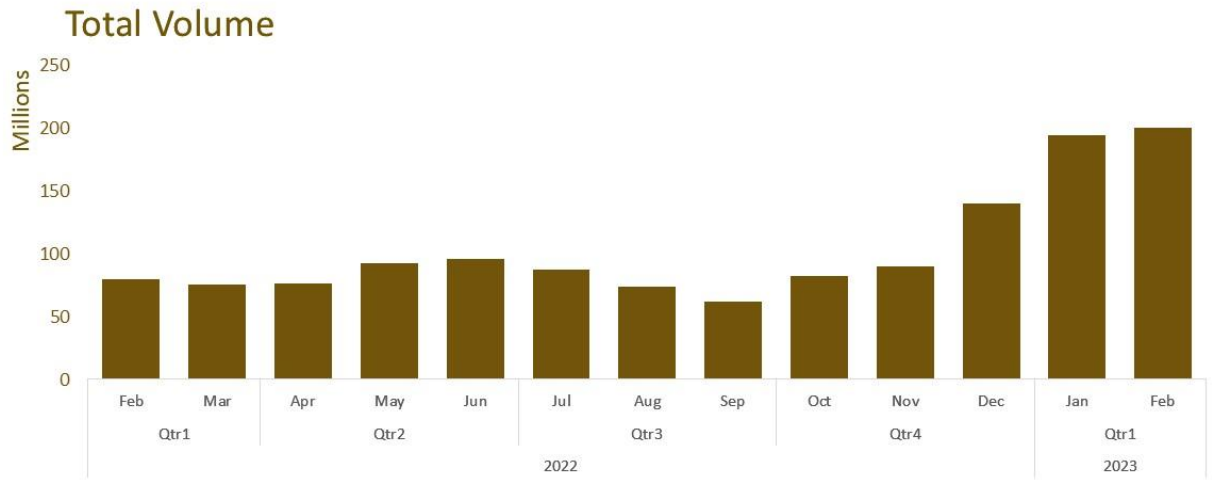
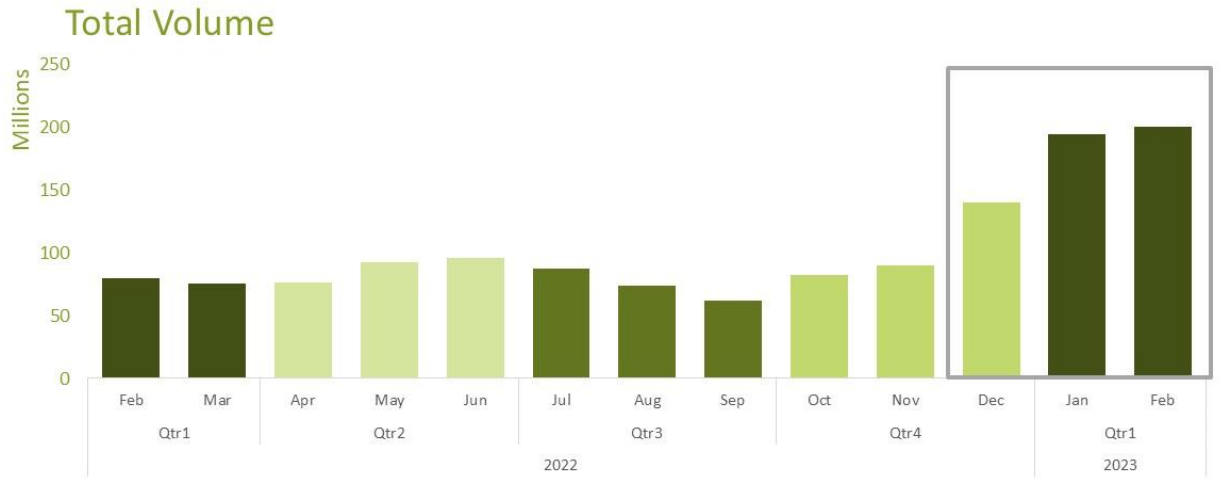
Similarity

The Gestalt principle of **Similarity** connects objects that **share attributes**



Enclosure

The Gestalt principle of **Enclosure** connects objects that are **bound**



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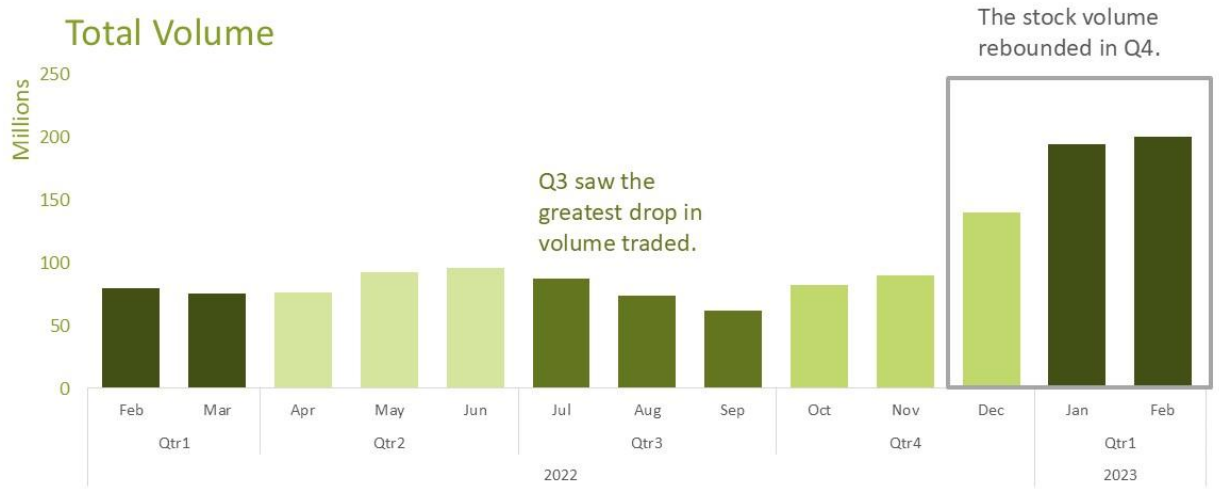
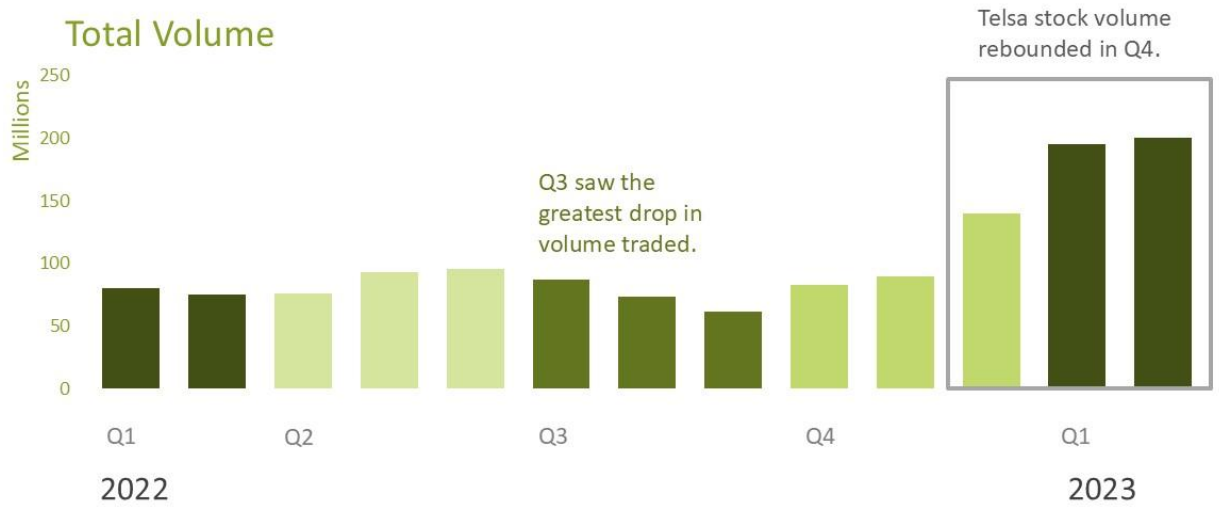
Proximity

The Gestalt principle of **proximity** connects objects that **close together**



Continuity

The Gestalt principle of **continuity** connects objects **in a line**



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Connection

The Gestalt principle of **connection** connects objects **with a line**

Closure

The Gestalt principle of **closure** fills in **the blanks**

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STORYTELLING WITH DATA: CHEESE-TIME

Price of 40 lb. cheddar cheese blocks

	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
2014	2.22	2.19	2.36	2.24	2.02	2.02	1.99	2.18	2.35	2.19	1.95	1.59
2015	1.52	1.54	1.55	1.59	1.63	1.71	1.67	1.71	1.66	1.67	1.62	1.46
2016	1.48	1.47	1.49	1.42	1.32	1.50	1.66	1.78	1.62	1.60	1.88	1.73
2017	1.69	1.62	1.43	1.50	1.63	1.60	1.66	1.69	1.64	1.73	1.66	1.49
2018	1.49	1.52	1.56	1.61	1.64	1.56	1.54	1.63	1.64	1.59	1.40	1.38
2019	1.41	1.56	1.59	1.66	1.68	1.79	1.82	1.88	2.04	2.07	1.97	1.88
2020	1.91	1.83	1.76	1.10	1.67	2.56	2.65	1.77	2.33	2.71	2.05	1.62
2021	1.75	1.58	1.74	1.79	1.68	1.50	1.64	1.72	1.76	1.78	1.74	1.89
2022	1.91	1.94	2.17	2.34	2.33	2.19	2.01	1.81	1.95	2.03	2.12	2.09
2023	2.00	1.89	1.94	1.76	1.57	1.40	1.62	1.98	1.85	1.72	1.63	1.51
2024	1.52	1.58	1.45	1.61	1.88	1.89	1.91	2.03				

SOURCE: Cheese Reporter

PURDUE UNIVERSITY

The price of 40 lb. cheddar cheese blocks hit an **all-time high** in October of 2020.

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2017	1.69	1.62	1.43	1.50	1.63	1.60	1.66	1.69	1.64	1.73	1.66	1.49
2018	1.49	1.52	1.56	1.61	1.64	1.56	1.54	1.63	1.64	1.59	1.40	1.38
2019	1.41	1.56	1.59	1.66	1.68	1.79	1.82	1.88	2.04	2.07	1.97	1.88
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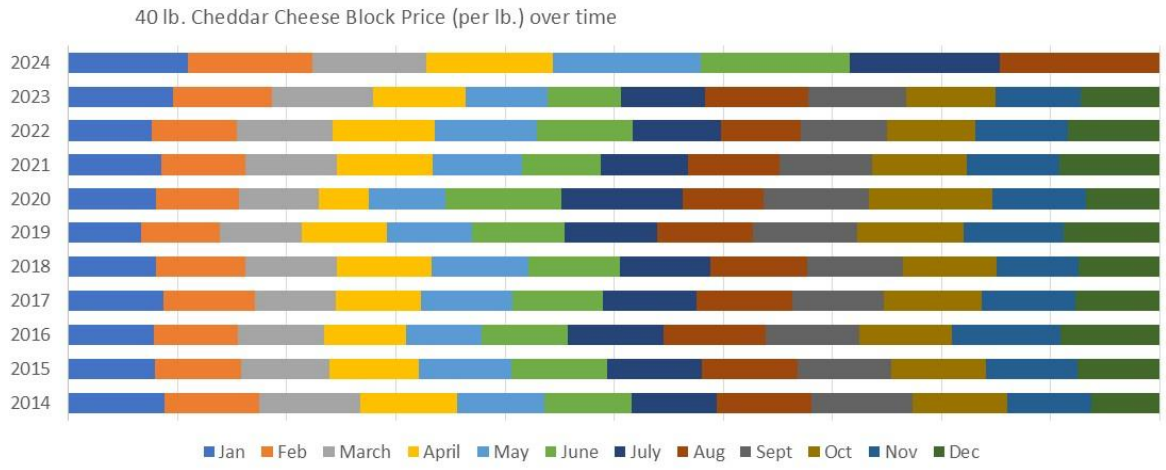

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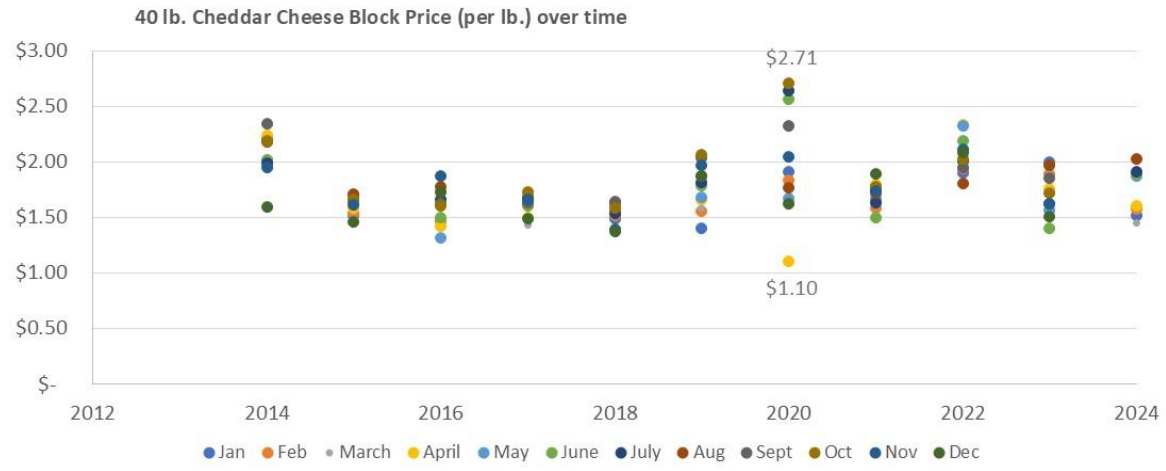

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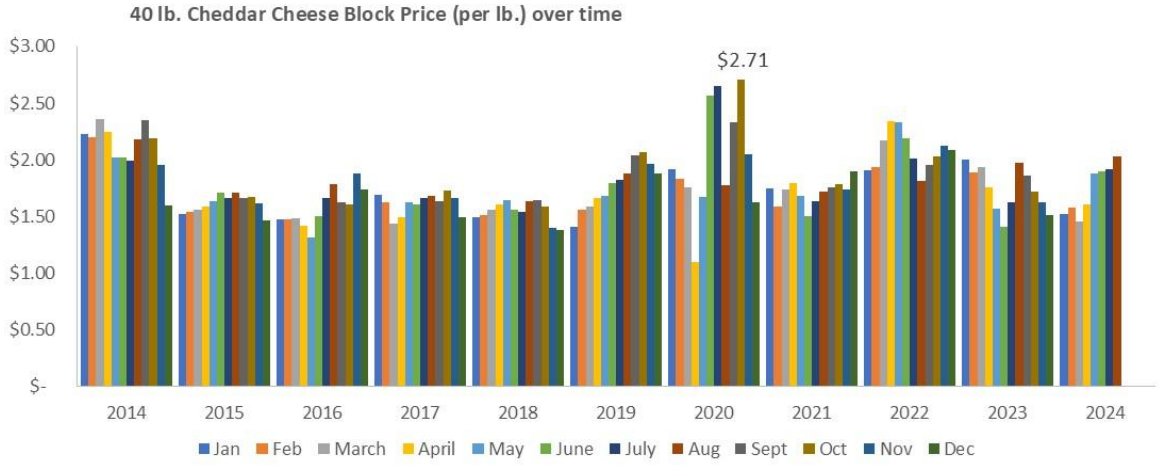

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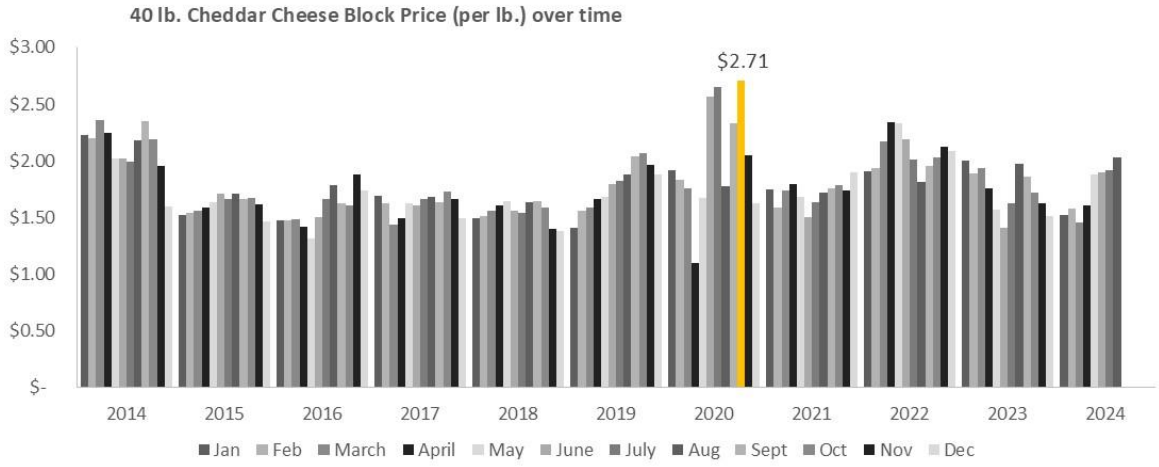

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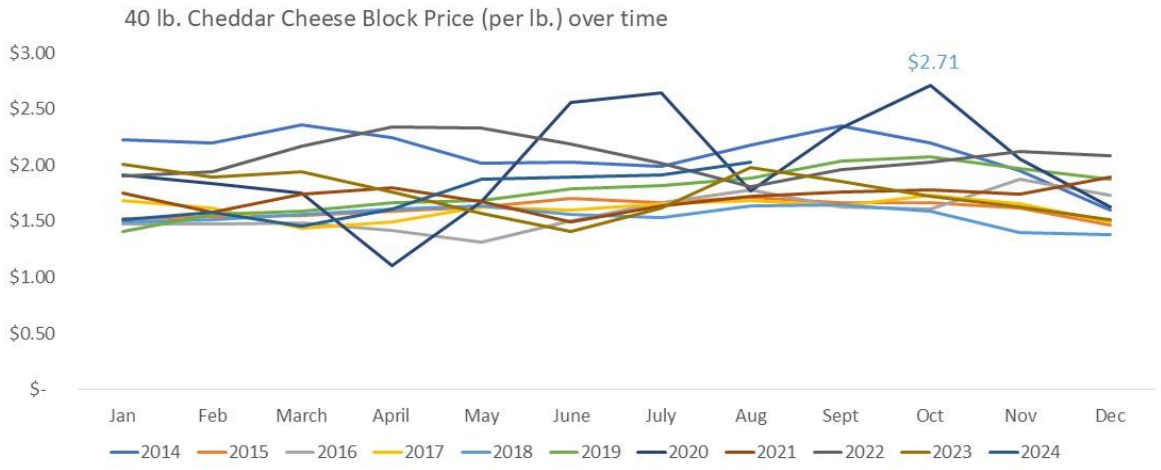

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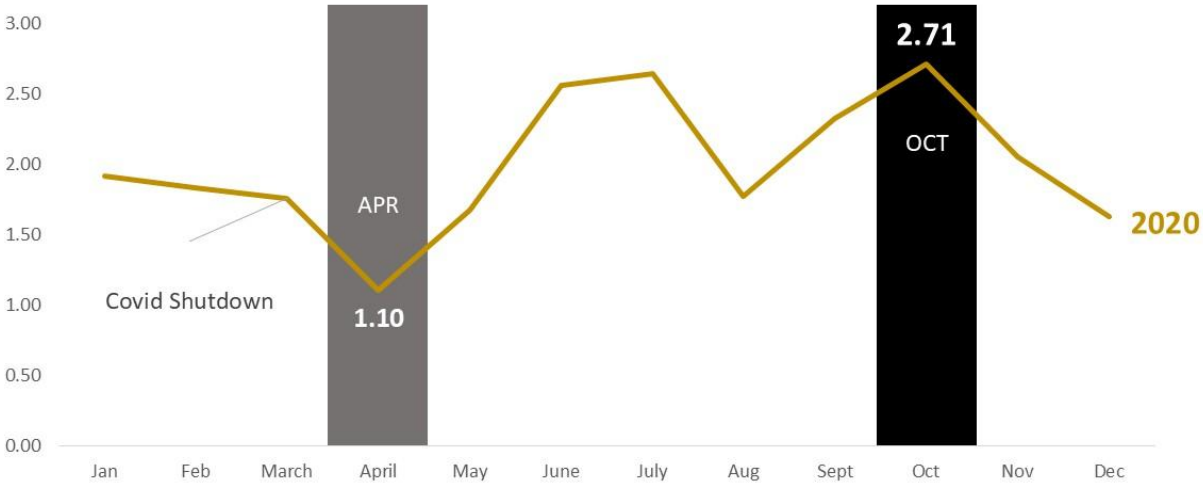

The price of cheddar cheese blocks hit an **all-time high** in October of 2020.

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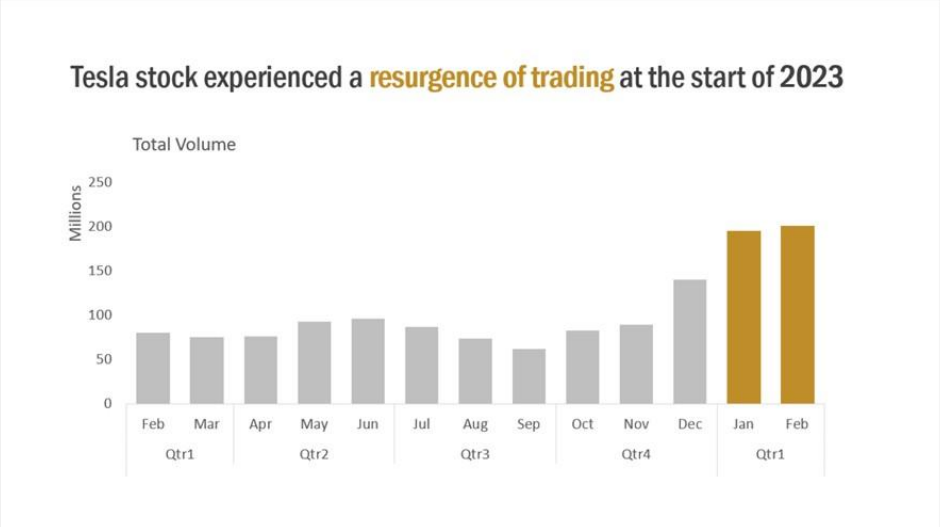
SOURCE: Cheese Reporter

Write a **sentence** about the **big takeaway** of your slide instead of just using headers



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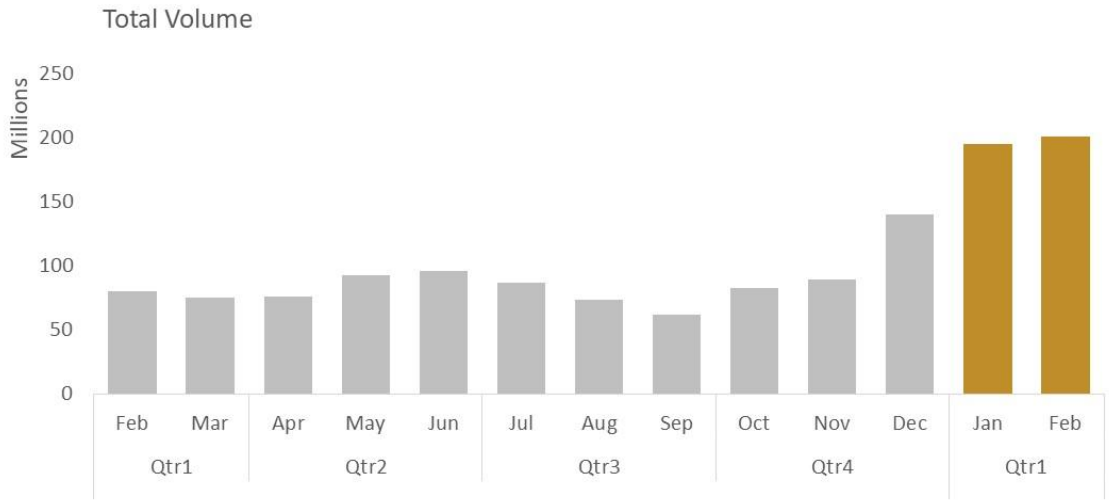
Tesla stock experienced a resurgence of trading at the start of 2023



DECLUTTERING WALKTHROUGH

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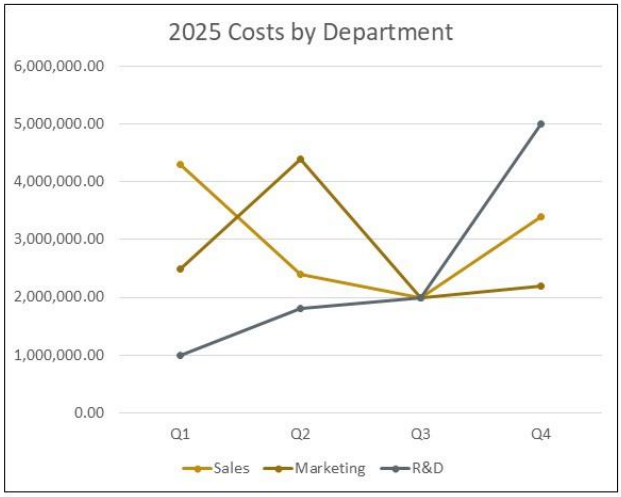
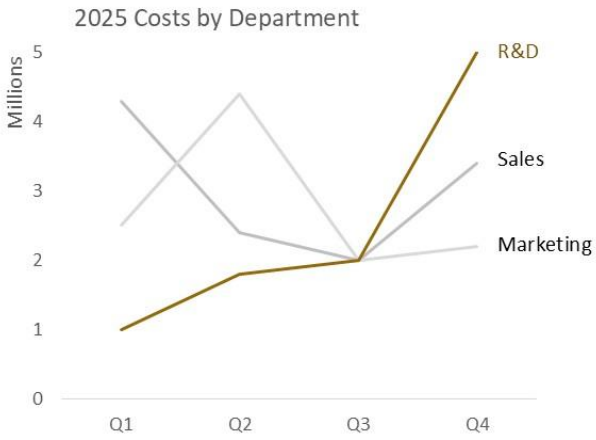
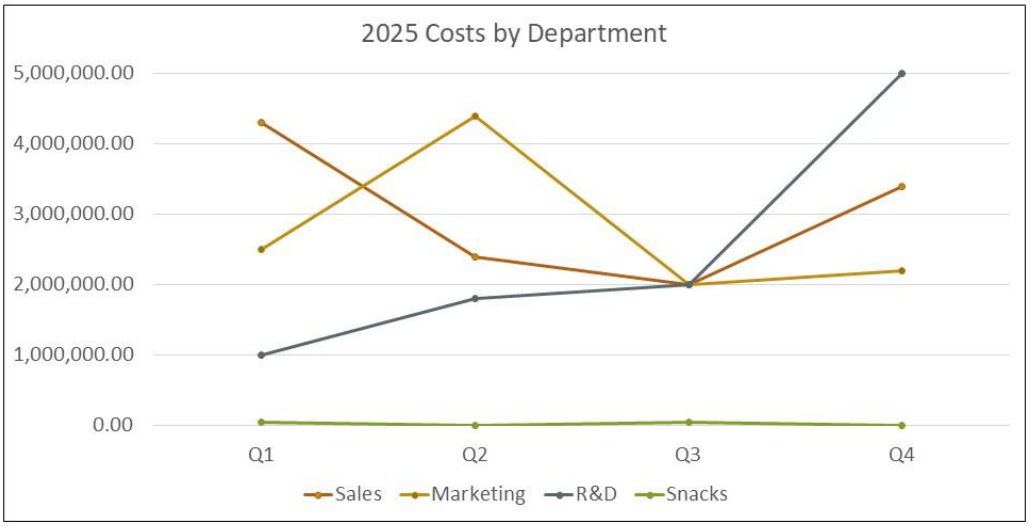
Removing clutter makes visuals easier to understand

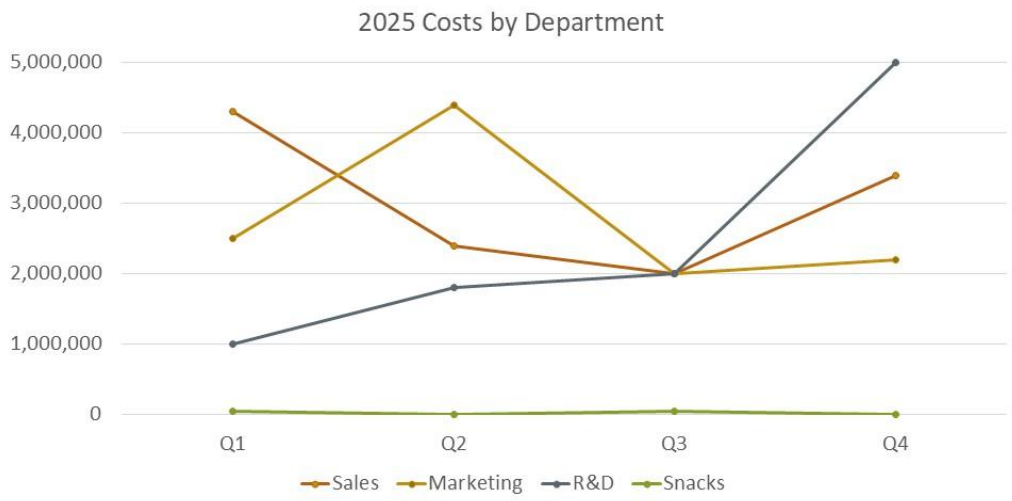
Clutter



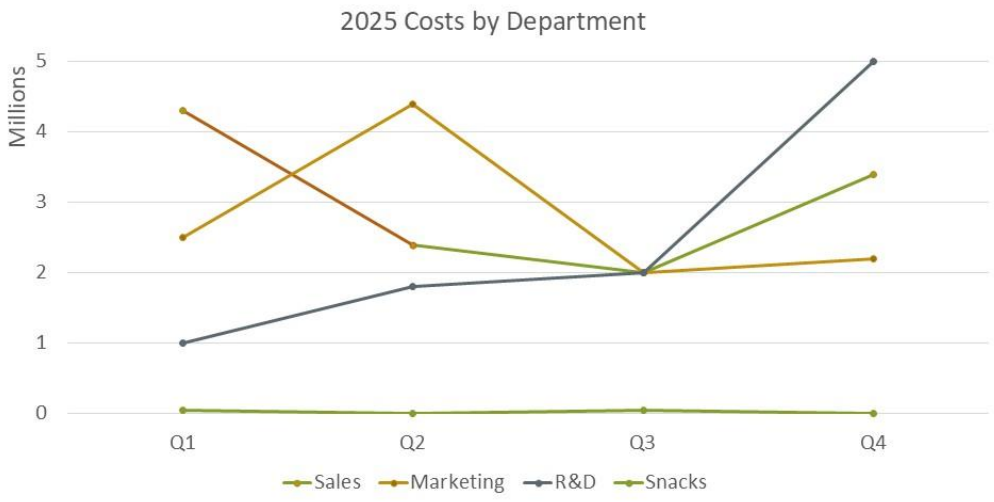




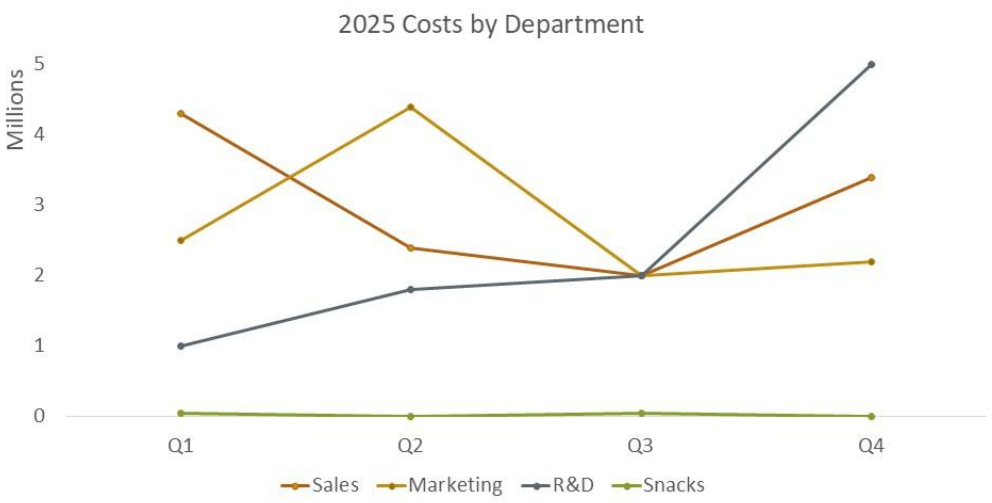
Original



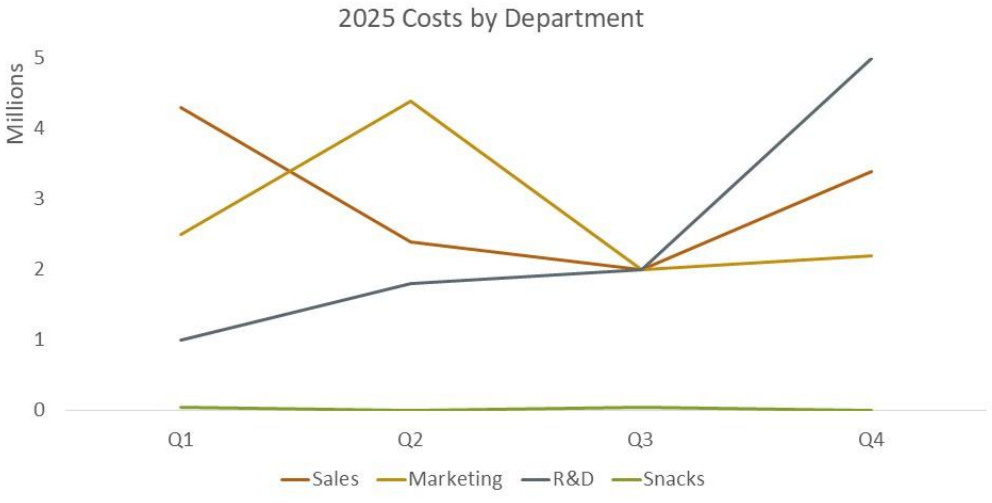
Remove box outline and extra decimals



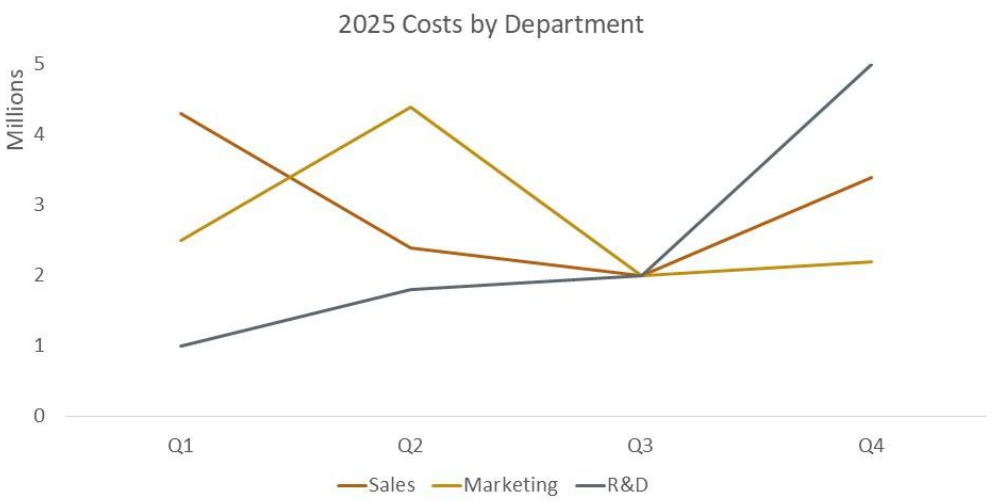
Change the unit size of millions



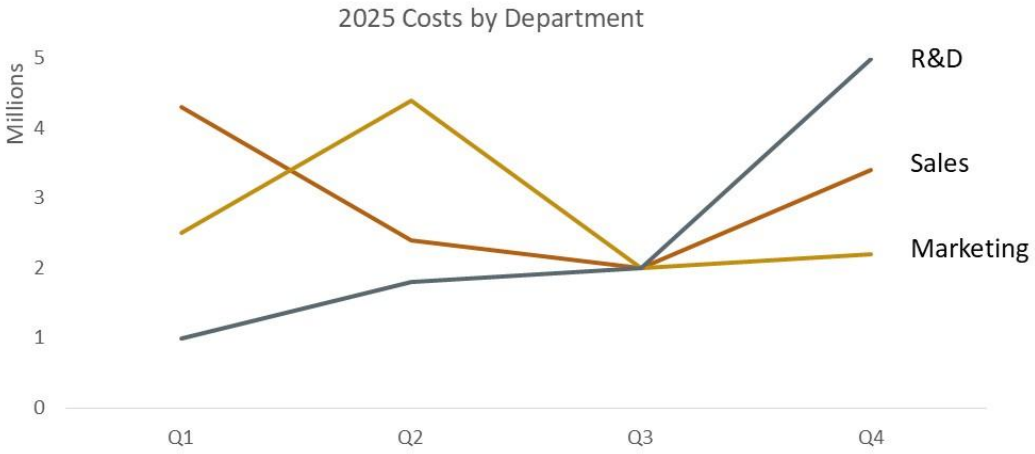
Remove gridlines



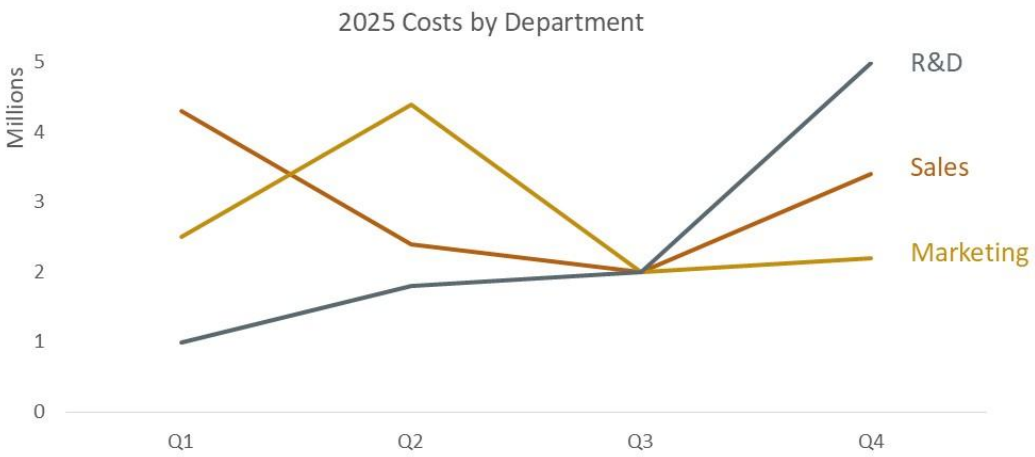
Remove data point markers



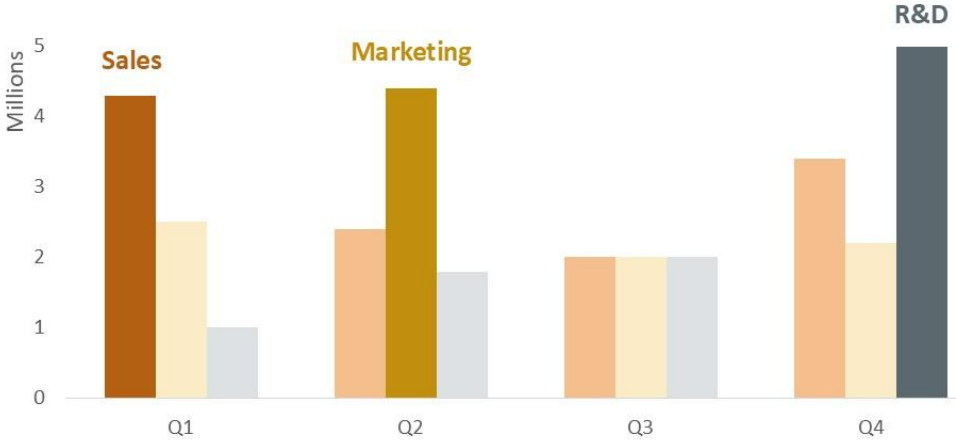
Remove or gray out less important lines



Label lines directly



Color code labels



Consider alternative ways to present the data

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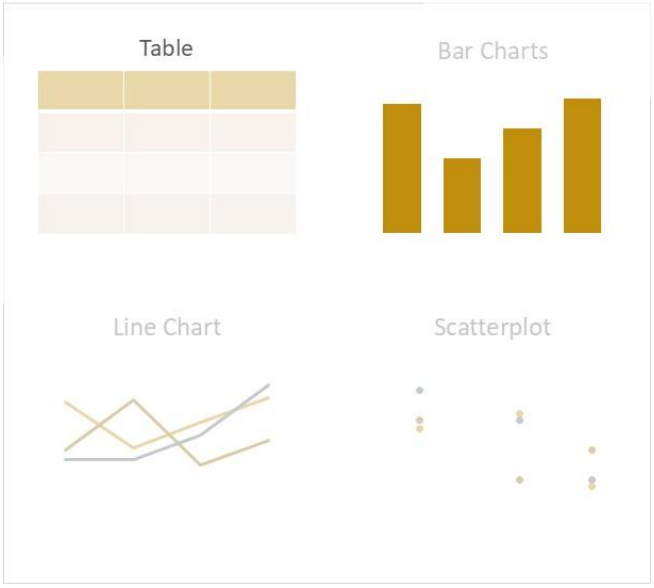
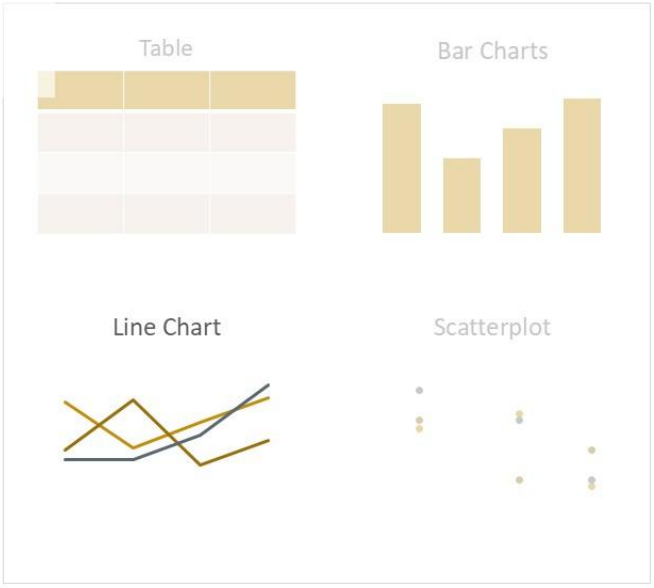
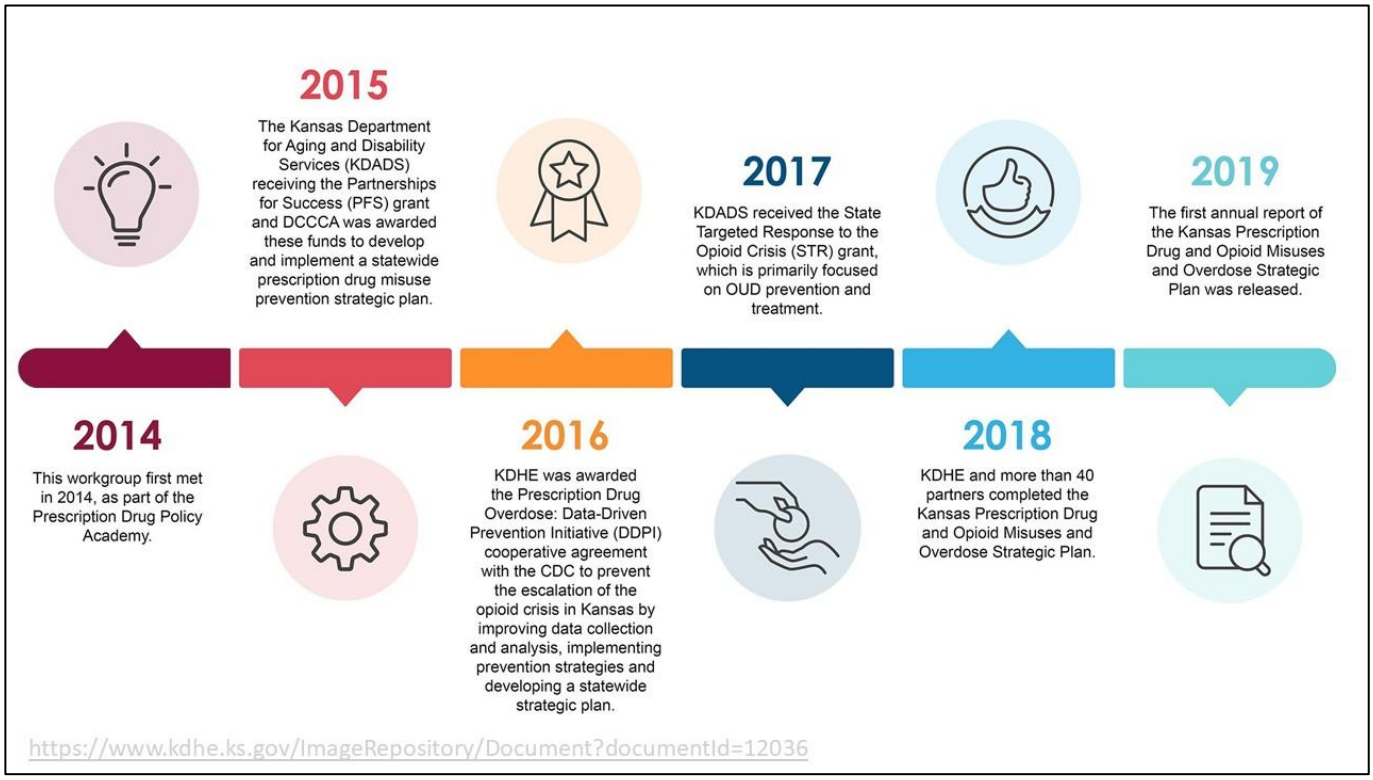
EXTRA TIPS

"Ghosting" can help guide your audience's attention







https://www.kdhe.ks.gov/ImageRepository/Document?documentId=12036

2015
The Kansas Department for Aging and Disability Services (KDADS) receiving the Partnerships for Success (PFS) grant and DCCCA was awarded these funds to develop and implement a statewide prescription drug misuse prevention strategic plan.
2017
KDADS received the State Targeted Response to the Opioid Crisis (STR) grant, which is primarily focused on OUD prevention and treatment.
2019
The first annual report of the Kansas Prescription Drug and Opioid Misuses and Overdose Strategic Plan was released.
2014
This workgroup first met in 2014, as part of the Prescription Drug Policy Academy.
2016
KDHE was awarded the Prescription Drug Overdose: Data-Driven Prevention Initiative (DDPI) cooperative agreement with the CDC to prevent the escalation of the opioid crisis in Kansas by improving data collection and analysis, implementing prevention strategies and developing a statewide strategic plan.
2018
KDHE and more than 40 partners completed the Kansas Prescription Drug and Opioid Misuses and Overdose Strategic Plan.

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Key Takeaways

Know your point (clear messages)
and
make it easy for **your audience** to **understand**
(clean visuals)

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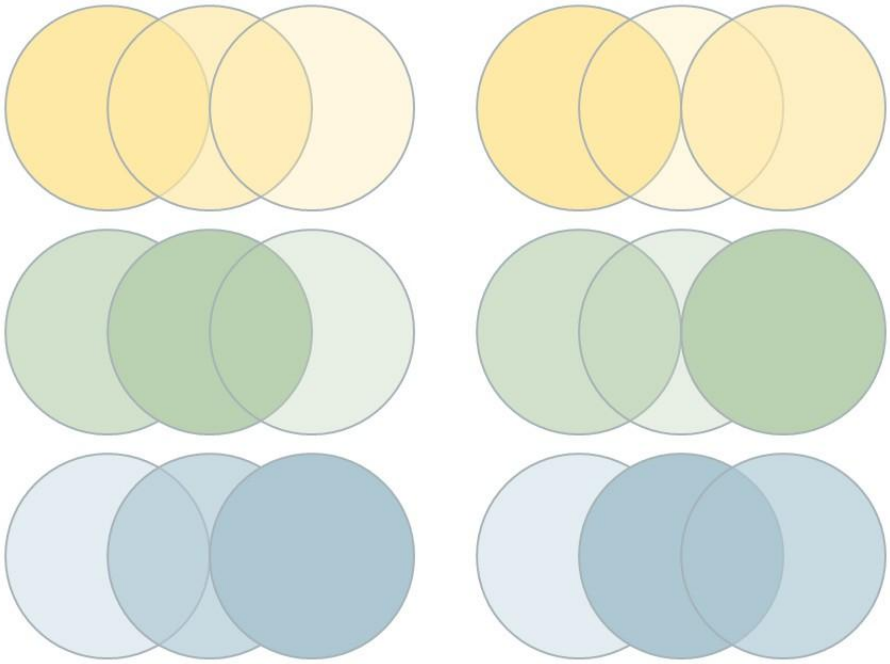
Story Order Options

Choosing the right path based on your audience

Stories can be ordered in a variety of ways **based on your audience** and **the situation**.



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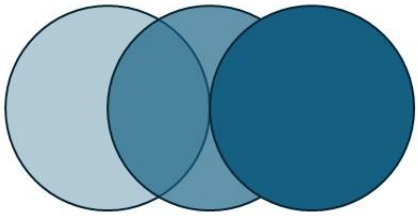
Downstream

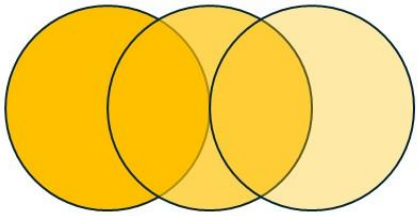


Standard story:
Once upon a time…
Unfortunately …
Here's what we did…
Finally, we won.

Audience:
People who don't know the context

Interested clients, workers, investors

Upstream



The BLUF
(bottom line up front)
Here's the deal…
Here's our rationale…
Here's the problem it solves.

Audience:
People who already know the context, limited time

CEOs, bosses, higher ups, people who don't have time for "stories"

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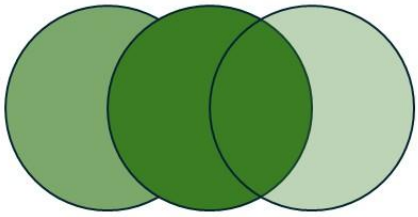
Cross-stream



The Record Scratch
As you're aware, we've been…
Which is why we need…
Remember why we started.

Audience:
People who already know the journey

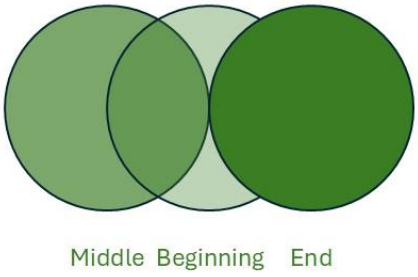
Team members, partners, co-workers, fellow travelers

Cross-stream

Half-time Speech
It was a tough first half…
Remember why we started…
Which is why we need…

Audience:
People who already know the journey

Team members, partners, co-workers, fellow travelers ***who might need some motivation***



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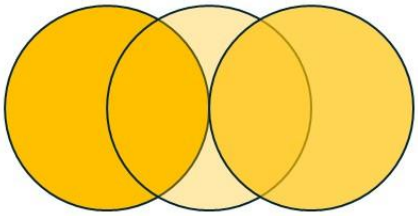
Upstream

The "Calling in a Favor"
Here's what we need…
Remember, you said…
Here's our rationale.



Audience:
People who already know the context, limited time

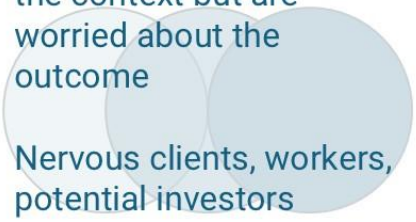
Important people who need a gentle reminder or perhaps a little bit of a guilt trip; parents

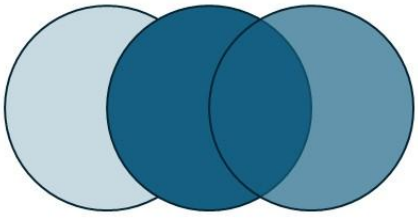
Downstream

"Don't be anxious" story:
Once upon a time…
Unfortunately…
Don't worry; we won.
Here's how it happened…

Audience:
People who don't know the context but are worried about the outcome

Nervous clients, workers, potential investors





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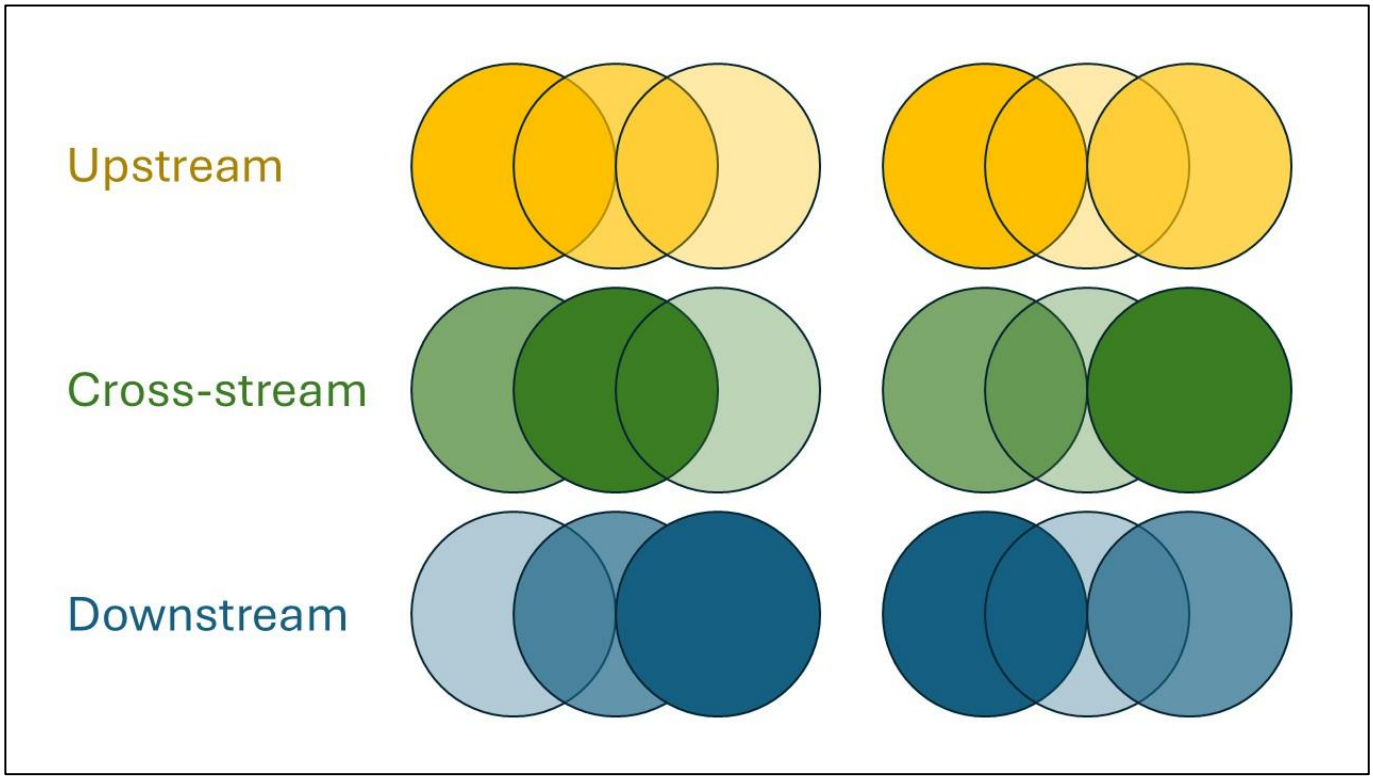

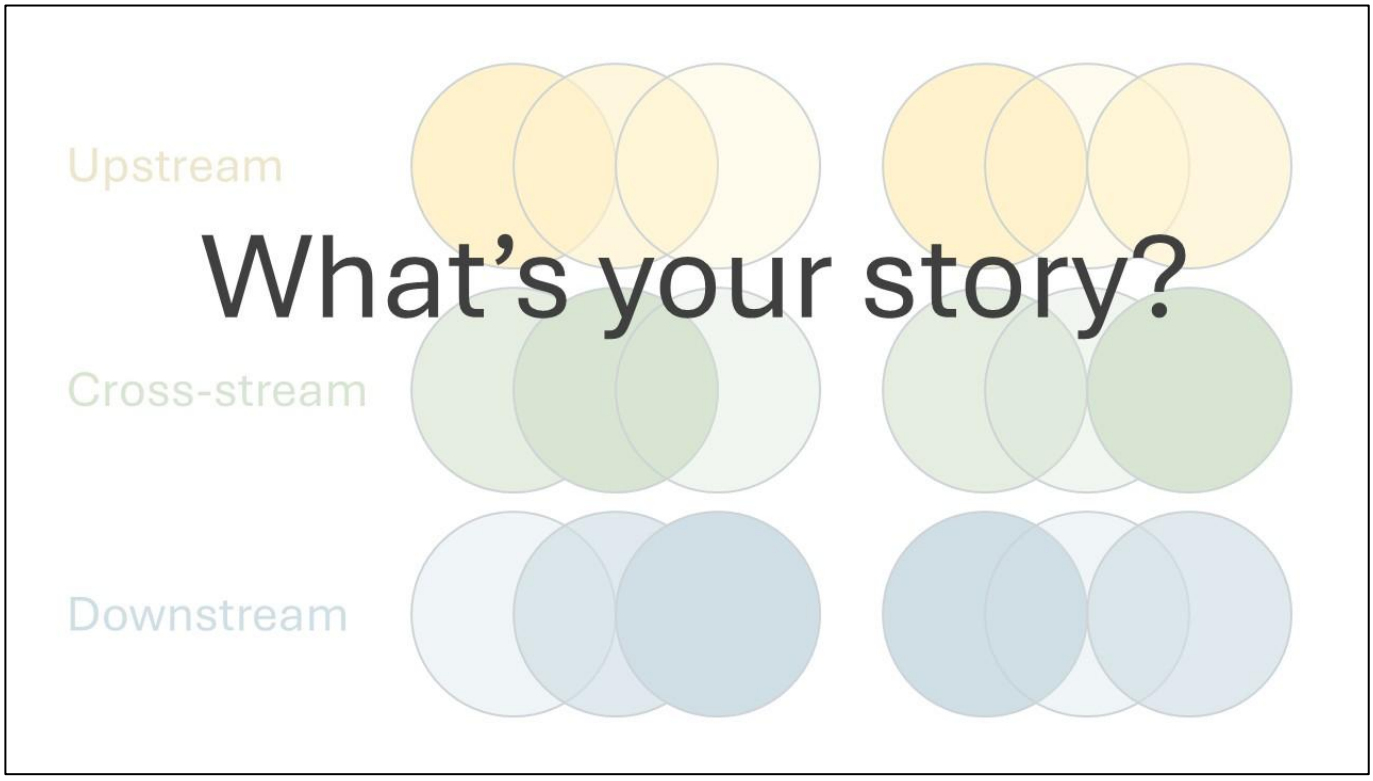

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Intelligent prompts guide the AI to **better results**

Role	What **role** should the AI play?
Audience	Who is your **audience**?
Purpose	What is your **goal**?
Criteria	What **must be included**?
Constraints	What are the **parameters**? *(Tone, length, medium, etc.)*
Examples	What is your **desired style**?
Options	**How many options** would you like to see?

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Process 1

Process Thinking: Emerging Process Theory

Dr. Pat Brunese

PURDUE UNIVERSITY

P1: PROCESS THINKING:

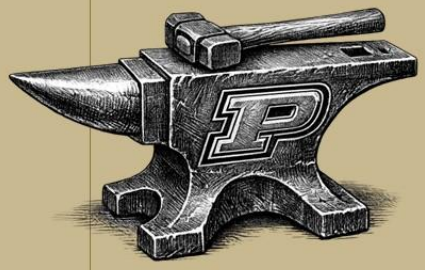
EMERGING PROCESS THEORY

Dr. Patrick Brunese
(Formerly) Edwardson School of Industrial Engineering

Global Operations Executive Program

LEARNING OBJECTIVES

P1: Process Thinking — Emerging Process Theory



Description:

Explore key elements of process thinking and analysis while considering recent advances in technology and how they are reshaping modern organizational workflows.

Objective(s):

1. Understand key process analysis principles.
2. Understand limits to process improvement based on typical performance measures.
3. Frame emerging technology in terms of potential for process improvement.

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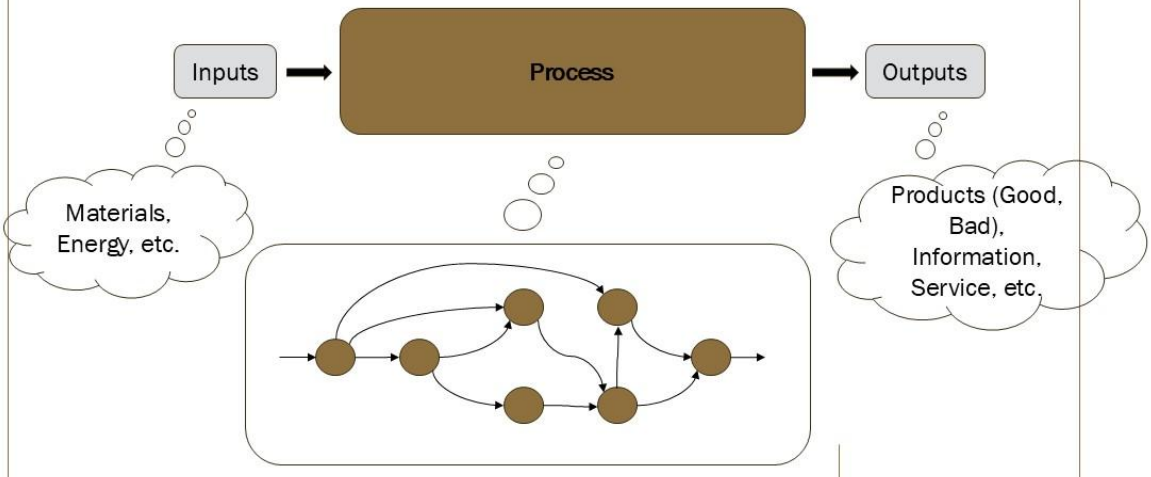
Part 1:

Process Thinking

A process is an inter-related series of actions (activities, operations) needed to produce an object according to some objective (goal).

Systems and Processes

Processes involve *Transformation*



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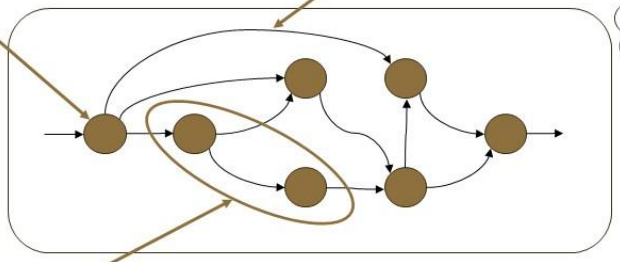
States, Activities, and Transitions

Key Definitions

State: The status of an input undergoing transformation

Activity: Transformation action in between two states



"Check Ticket"

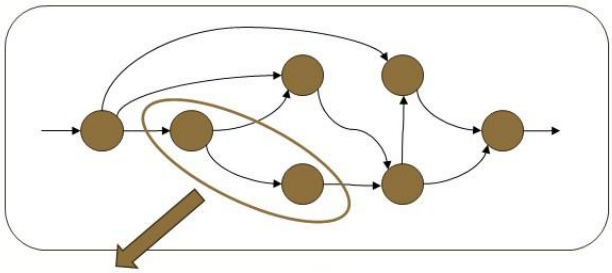
Transformation types:
- Physical
- Location
- Exchange
- Storage
- Physiological
- Informational

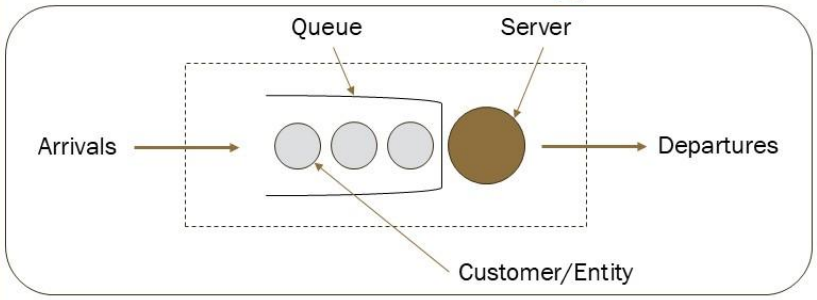
Transition: {Input state, activity, output state}

S_2, Check Ticket, S_4

States, Activities, and Transitions

Diving Deeper





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Experiencing Processes

Small group discussion

What do you notice when you are in a process?
As the customer? As the server?

What terms/metrics would you use to describe the process?

Experiencing Processes

Small group discussion

What do you notice when you are in a process?
As the customer? As the server?

What terms/metrics would you use to describe the process?

- Maister's Two Laws of Service
  - Satisfaction = Perception - Expectation ⇒ S = P – E
  - It's hard to play catch-up ball

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Part 2

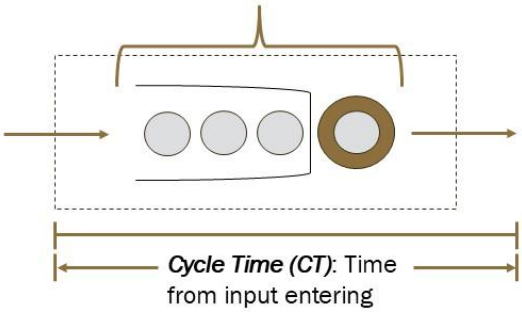
Measuring Performance

Thinking about measurement of process performance will provide significant insights into how emerging technology can contribute to improvement.

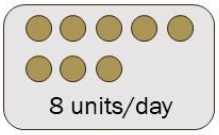
Key Process Measurements

Three Primary Metrics

Work-in-Process (WIP): The number of items currently in the process step



Throughput (TH): The rate at which the process produces outputs



Cycle Time (CT): Time from input entering the process step to output delivered to next step

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Key Measures of Success

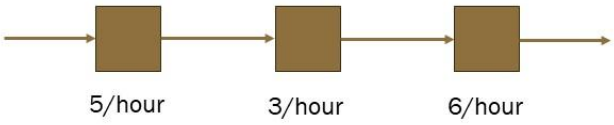
Easy to measure, hard to use well

- Efficiency: Process effort compared with resources required.
  - In other words, being efficient means we are using the minimal resources to achieve the required outputs
- Utilization: How much something produces compared with its capacity.
  - Capacity is an upper-limit on the throughput of a process
  - Useful representation: $Utilization = \frac{Input\ Rate\ to\ Process}{Service\ Rate\ of\ Process}$

Hypothetical Case (1)

Management by utilization. Or everyone should be busy!

- Consider a multi-step process where each process operates at a different (flow) rate.



Let's assume that we have regular arrivals to the process (at least 5-6 per hour). Process steps can accumulate inventory (WIP).

What are you likely to see?
What would happen if the process manager were to have utilization as a key process success metric?

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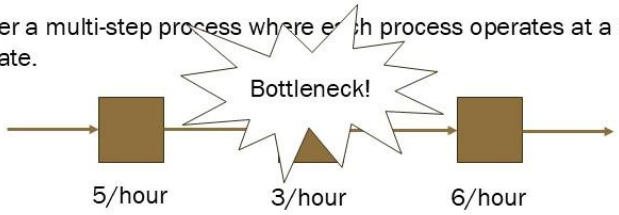
Hypothetical Case (2)

Management by utilization. Or everyone should be busy!

- Consider a multi-step process where each process operates at a different (flow) rate.



Let's assume that we have regular arrivals to the process (at least 5-6 per hour). Process steps can accumulate inventory (WIP).

What are you likely to see?
What would happen if the process manager were to have utilization as a key process success metric?

Little's Law

Key process law

$$\textit{Work-in-Process} = \textit{Throughput Rate} \times \textit{Cycle Time}$$

$$WIP = TH \times CT$$

Alternatively,

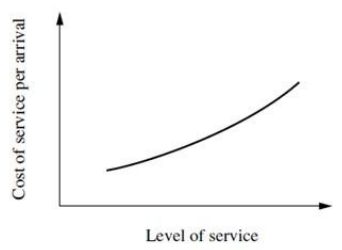
$$\textit{Avg. Objects in Process} = \textit{Arrival Rate} \times \textit{Avg. Waiting Time in Process}$$

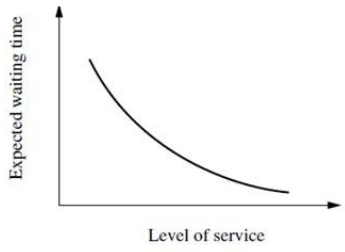
$$L = \lambda \times W$$

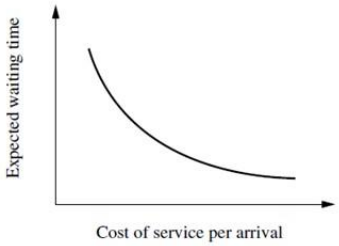
- Provides practical limits on process performance
  - Processing need not be FCFS
  - Holds for any system with inputs and outputs
  - In steady state, process input rate = output rate

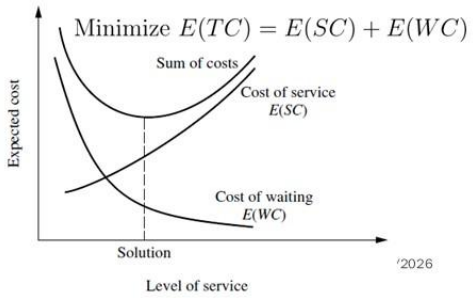
Level of Service Tradeoffs

Achieving high performance is not straightforward









Part 3

Other performance limits?

Performance is also limited by ***variability***, which shows up in numerous ways, and has limited options for mitigation.

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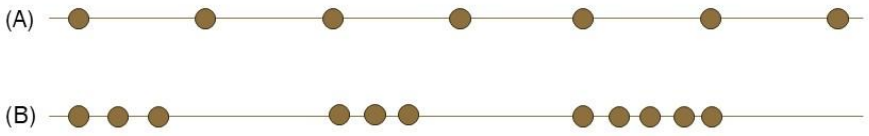
Variability

Why is variability important?

- Recall, $Utilization = \frac{Input\ Rate\ to\ Process}{Service\ Rate\ of\ Process}$

What happens to a process when work arrives like (A)? (B)?
First, assume a constant service rate.
Now, assume a variable service rate.



Key implications of variability

Utilization and the Nonlinear Cost of Overload

- As a resource approaches 100% utilization, cycle time approaches infinity — nonlinearly.
  - Feature, not a bug.
- Mismatch between supply and demand within a process must be buffered
  - Inventory: Holding WIP prevents blocking and starvation
  - Capacity: Holding extra resources allows for scale when demand spikes
  - Time: Make downstream customers wait

Within your processes (and functional area), how do you address the mismatch between demand and supply (resources)?

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Part 4

Part 4: Technology Levers

Understanding the primary process parameter(s) emerging technology addresses is the key to principled investment and sustainable process improvement.

Thinking in Revolutions

Each Industrial Revolution Replaces a Different Type of Work

- Each industrial revolution has been defined by the type of human work it displaced

- **1.0 — Steam (~1760s):** Physical and manual labor.
- **2.0 — Electricity (~1870s):** Mechanical and technical labor.
- **3.0 — Computers (~1960s):** Administrative and skilled technical work — ERP, workflow systems, early robots.
- **4.0 — IoT/CPS (~2010s):** Routine intellectual work — data analysis, process monitoring, scheduling optimization.
- **5.0 — Generative AI (~2020s):** Managerial intellectual work — synthesis, drafting, scenario analysis, human-AI collaboration.
- **6.0 — Agentic AI (~2025+):** Supervisory intellectual work — reasoning, autonomous decision-making, cross-system orchestration.

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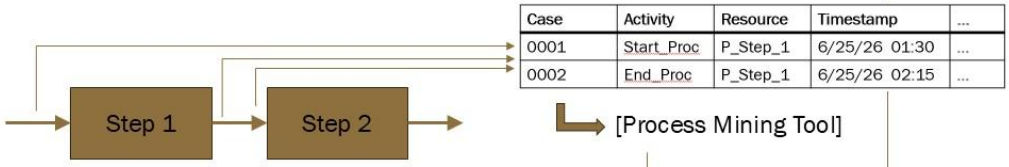
Industry 4.0 Technology

Scaling data

- (Near) Real-time visibility: IoT and dashboards let organizations see WIP and CT live.
  - "Hard" Examples: Sensors, Internet of Things
  - "Soft" Examples: Digital simulation and Machine Learning algorithms
  - "Mixed" Examples: Digital Twins and Process Mining
- Primary lever: Demand variability reduction and bottleneck identification.
- Simple case: Add sensors to an object being processed



Case	Activity	Resource	Timestamp	...
0001	Start_Proc	P_Step_1	6/25/26 01:30	...
0002	End_Proc	P_Step_1	6/25/26 02:15	...

[Process Mining Tool]

Industry 5.0 Technology

Technology + Human Scaling

- Reshapes usage of Industry 4.0 technologies
- Human-Machine Integration: Virtual and Augmented Reality, cobots, health-monitoring devices
  - "Hard" Examples: Biosensors
  - "Soft" Examples: Artificial Intelligence (LLM)
  - "Mixed" Examples: Augmented Reality vision systems for training human labor
- Primary lever: Primarily reduces service time variability and augments effective bottleneck capacity (i.e., increased flexibility)

How has engagement with AI adapted your work from a process improvement lens? What do you see as the next step?

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Industry 6.0 Technology

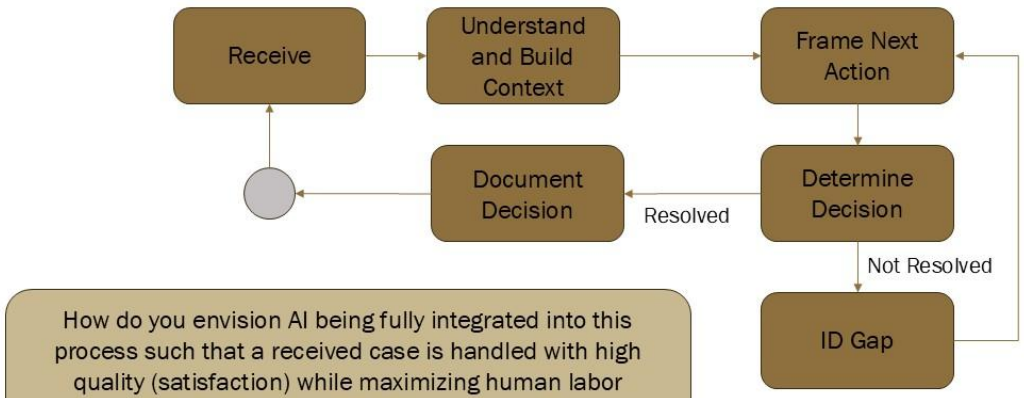
Fully-Integrated Scaling

- Full-scale integration of agentic AI into organizations
  - Coordination within and across functions to reframe local optimization and global optimization
  - Co-development and participatory decision making with human labor and decision makers – enabling sequential decision making at scale
- Primary lever: Ecosystem-level analysis and emergent dynamic adaptation that addresses supply and demand side variability.

How has engagement with AI adapted your work from a process improvement lens? What do you see as the next step?

Small group Discussion

Sample Service Process



How do you envision AI being fully integrated into this process such that a received case is handled with high quality (satisfaction) while maximizing human labor potential and benefiting the company?

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THANK YOU

Dr. Patrick Brunese
pbrunese@gmail.com

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Process 2

Process Thinking: Executive Leadership of Process & Process Owners

Dr. Pat Brunese

PURDUE UNIVERSITY

P2: PROCESS THINKING:

EXECUTIVE LEADERSHIP OF PROCESS & PROCESS OWNERS

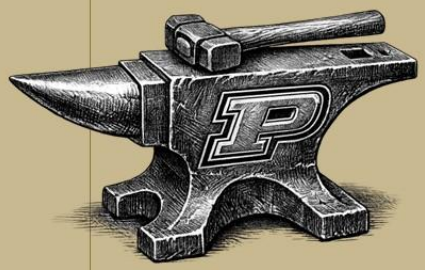
Dr. Patrick Brunese

(Formerly) Edwardson School of Industrial Engineering

Global Operations Executive Program

LEARNING OBJECTIVES

Executive Leadership of Process & Process Owners



Description:

Learn practical strategies for influencing and guiding process owners across functional boundaries.

Objective(s):

1. Think more broadly about how process changes can be implemented more broadly up and downstream from the process owner.
2. Understand the horizontal impact of process improvement and optimization
3. Practice process interrogation, without intimidation, from the perspective of upstream and downstream effects

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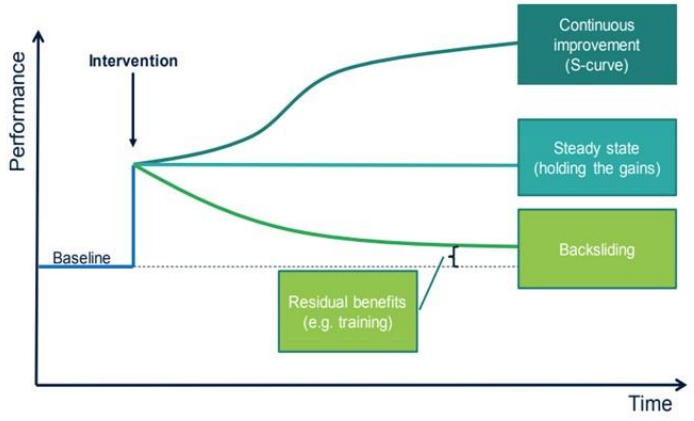
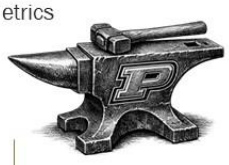
Setting the Stage

Process Change (Improvement) Redux (OEP 1.0, Session 1.3)



- Process improvement requires a long view
  - Organizational change is always large-scale
  - Top-Down ↔ Bottom-Up
- Impediments to change and sustained improvement
  - Initiative fatigue
  - Tools, tools, tools
  - (Short-term) Metrics
  - Dogmas



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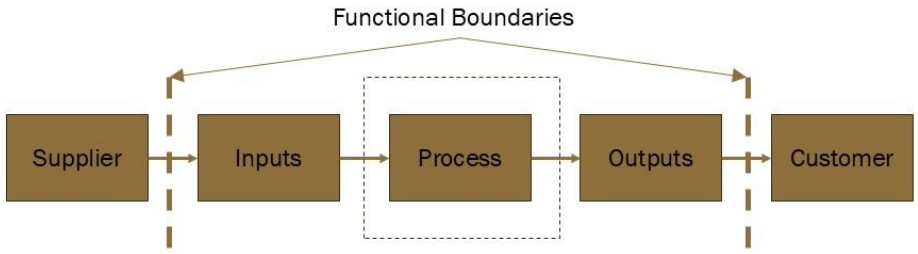
Assessing Processes In Organizations

Interconnected processes → Many process owners → Limited Authority



- Processes may span functional boundaries – suppliers/customers inside and outside
  - Authority to change will not likely have same span
- Success/Performance Metrics do not automatically align across functional boundaries
  - What matters most may not be consistent across process owners

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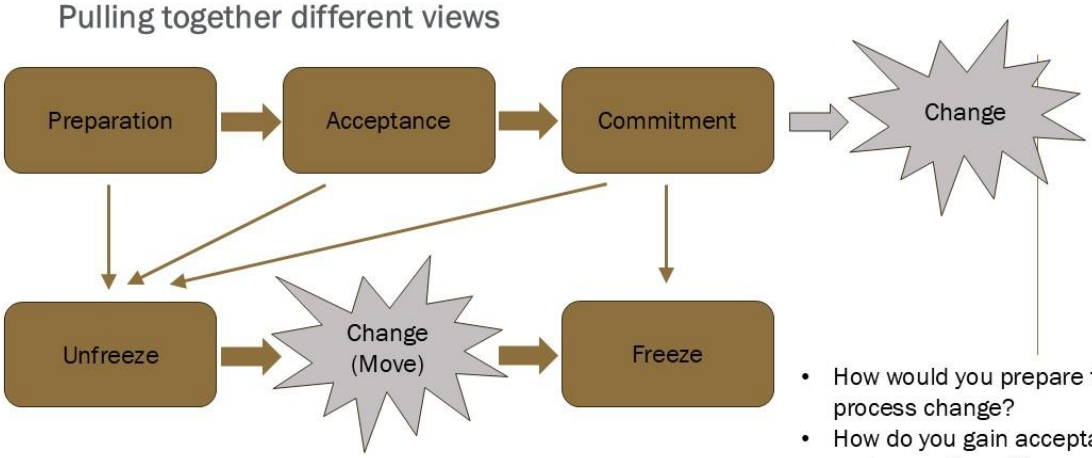
Simple Change Perspectives

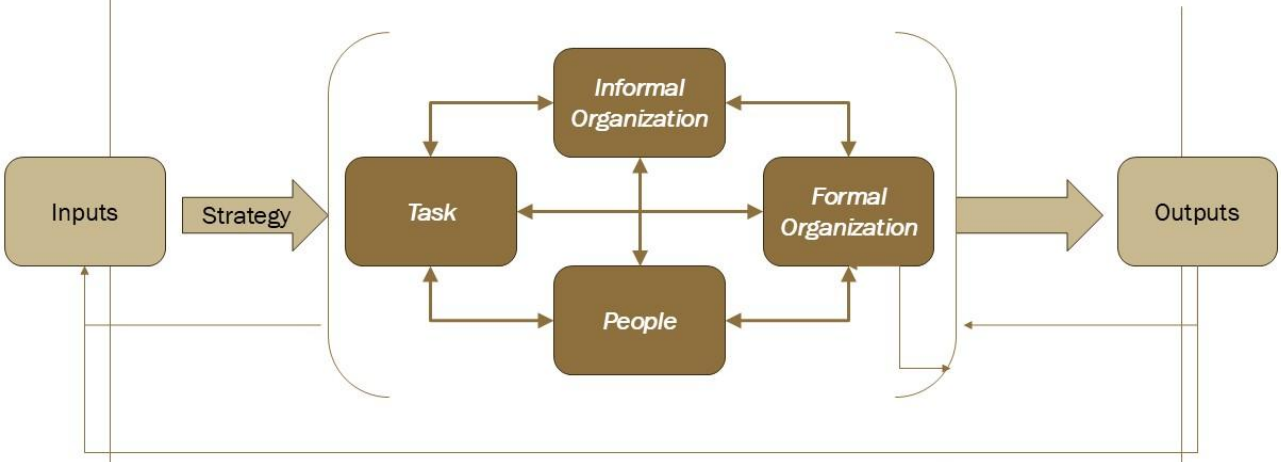
Pulling together different views



- How would you prepare for process change?
- How do you gain acceptance and commitment?

A simple organizational model

Organizational transformation Process



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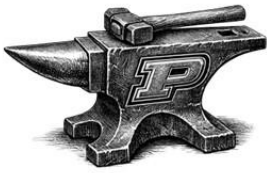
What can we change?

Congruence between the four key elements



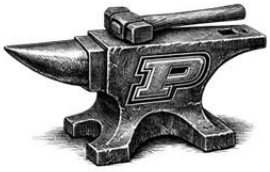
Change effectiveness depends on congruence among all four elements — not quality of any single one in isolation.

- **Task:** The work to be done and critical characteristics
- **People:** Skills, needs, expectations of those performing the work.
- **Formal Organization:** Structures, processes, roles, reward systems.
- **Informal Organization:** Emergent norms, power relationships, communication patterns.

When you led a process change initiative which of these key elements has become misaligned (incongruent)?

Change Readiness

Movement requires multiple things to be true simultaneously



$$C = (abd) > x$$

- *C* = Change
- *a* = Level of dissatisfaction with status quo
- *b* = Clear or Understood desired state (if change were successful)
- *d* = Awareness of practical first steps toward desired state
- *x* = "Cost" of changing

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Where are we?

Putting together the threads so far…

- Effective process (continuous) improvement requires significant and sustained effort
- Spanning organizational boundaries means that process improvement necessarily involves many stakeholders – upstream, inside, and downstream from the process itself
- Process change requires addressing the Task (work), People, and Formal and Informal Structures
- Willingness to change requires dissatisfaction, vision, good starting point(s), and understanding of costs to maintaining the status quo

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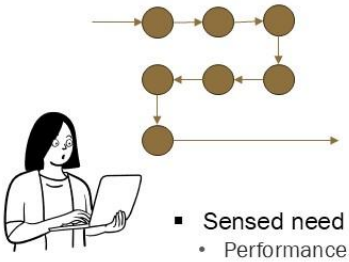
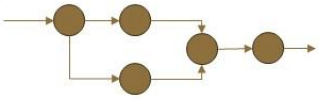
Process Owner's World

Interrogating processes to facilitate change

Current State



Desired (Future) State



- Sensed need for change comes from many sources
  - Performance (process measures, KPIs, success measures)
  - Environmental change (business climate, strategy, technological change, etc.)
- What to change? How to change?

From your experience, where should we begin? Why?

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Process Interrogation Framework

Looking forward and backward – Prospective Questions

- **Suppliers (Upstream Processes):**
  - What does this process receive from upstream processes?
  - What is changing for the upstream processes/suppliers?
  - How does the proposed change affect what upstream processes need to provide?
  - What is the cost (time, effort, rework) imposed on upstream process owners?
- **Customers (Downstream Processes):**
  - What does this process deliver downstream?
  - What is changing for the downstream processes/customers?
  - How does the change alter what downstream processes receive?
  - What is the cost (time, effort, rework) imposed on downstream process owners?

Process Interrogation Framework

Looking inward – Prospective Questions

- **People & Roles:**
  - Who performs work that touches this process?
  - Whose role changes, and how?
  - How will perceived change impact attitudes of people within the process?
- **Metrics & Incentives:**
  - How does the change impact metrics (you report, reported to you)?
  - How does change impact current incentive structure?
  - Will new incentives be needed to facilitate change?
- **Informal Dynamics:**
  - Who stands to gain/lose power?
  - How will change influence working norms?

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Applying the Framework

Activity (Individual or Group)

- **Task**: Apply the five-area framework to a real process improvement challenge from your organization.
  - **Step 1**: Select one process improvement challenge that:
    - You are currently leading; or
    - You were a part of; or
    - You would like to lead.
  - **Step 2**: Work through the five areas of inquiry — one area at a time.
    - Use the framework as a structure, not a checklist.
  - **Step 3**: Identify the area you feel/felt is the weakest — where do/did you have the least clarity?

Debrief: What Did You Find?

Which of the five areas produced the most useful — or most uncomfortable — insight?

- What gap did you surface that you had not previously named?
- Where is the incongruence between the four elements (Task, People, Informal and Formal Structures)
- Which stakeholder group appears most critical to address first — and why?

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Building change

Establishing dissatisfaction and desired state

- Problem Finding vs. Problem Solving
  - Is there a crisis? Is there an opportunity?
  - Appropriate framing matters most
    - Consider the possible implementation of a new analytics tool.
      - *Which is better? Why?*
        - "This [change] will help make better decisions for you"
        - "This [change] will help you make decisions faster?"
- Pitching change isn't top-down
  - Invite stakeholders in as collaborators – people support what they help create
  - Multiple perspectives achieve at least three things
    - Clarity on problem statement – "Success looks like…" (in common terms)
    - Surfaces value propositions (or costs that matter)
    - Establishes usability requirements

Building change

Practical first steps

- Implementation from "Day One"
  - Engaging in co-creation allows stakeholders to define how their work might change up front
  - What is the story?
    - Humanize the change process
    - Defines current state and future state
  - Small pilots or experiments
    - Especially where work involves discretion
- Commitment devices
  - Create opportunities to engage
  - Design and implement rewards for changing

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THANK YOU

Dr. Patrick Brunese
pbrunese@gmail.com

Assessing Authority

Local optimization ≠ Global optimization

- Organization seeks *Global Optimization*
  - Strategic metrics (measures of success) aligned to end customers
- Functional Units seek *Local Optimization*
  - Operational and/or Tactical metrics aligned to process(es) performance
- Process changes propagate nonlinearly given organizational complexity
  - Handoff failures between processes due to mismatched capabilities
  - Alignment failures between processes due to metric mismatches
- **Where do you see this pattern in your work?**

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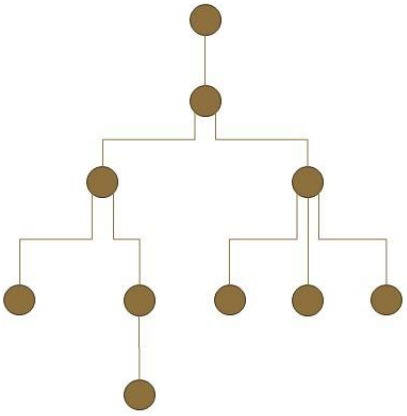
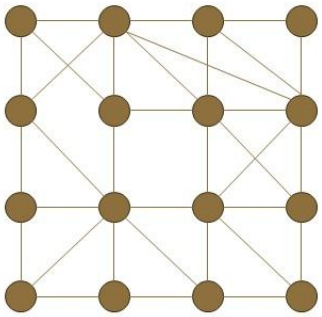
Structure Matters

Organization Design Controls Influence





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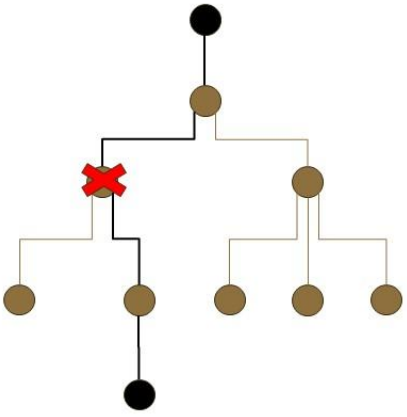
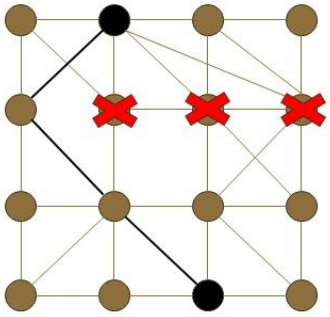
Structure Matters

Organization Design Controls Influence





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Start With Why: The Stakeholder's Perspective

People do not resist change. They resist being changed. The difference is whose values the change serves.

- Simon Sinek's insight: people are moved by purpose, not by logic alone. Start with why the change matters — in their terms.
- The error: leaders frame process change as a technical improvement. Stakeholders experience it as disruption.
- The reframe: for each stakeholder group, answer "Why does this change serve your interests?" before asking for cooperation.

Process 3

Client Focused Process Design: Human-Centered Design Thinking

Mrs. Jennifer Christie

PURDUE UNIVERSITY

INNOVATIVE PROBLEM SOLVING FOR LEADERS

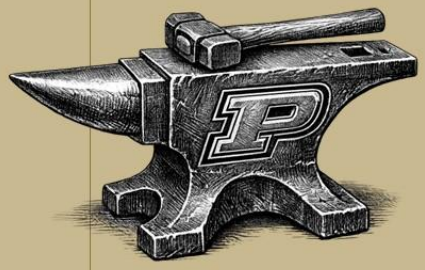
LEADING INNOVATION WITH CLIENT-FOCUS

Jennifer Christie
MEP

Operations Executive Program

LEARNING OBJECTIVES

Innovative Problem-Solving for Leaders



Description:

Discover methods for innovative thinking and apply the in a group exercise. Understand your strengths and weaknesses as an innovation leader and how best to lead and support a team to produce client-focused innovative results.

Objective(s):

- Explore your role and the behaviors that support innovation as a leader.
- Understand the role of the customer voice and how to capture critical to satisfaction criteria for process design.
- Apply Triz and benchmarking strategies to innovative problem-solving.
- Understand the key attributes for innovative success.

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INTRODUCTIONS

- Name
- What you do at your job
- What problem have you recently solved?
- How did you solve it?

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SUCCESSFUL EXAMPLES

Instacart: Solved the problem of inconvenient shopping for busy shoppers or those without a car while keeping prices competitive. Founded 2012. Currently worth $39 Billion. Continues to evolve.

Apple: Constantly innovating from computer to ipod to iphones and other personal devices...incorporation of AI. Without sacrificing security and trust. Founded 1976. Currently worth $3 Trillion. The Apple 1 computer sold for $667.

Fair Oaks!

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UNSUCCESSFUL EXAMPLES

- WeWork
- Kodak
- Circuit City
- BlockBuster

What do you know about these companies?

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WHAT DID THE SUCCESSES HAVE IN COMMON?

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THE VOICE OF THE CUSTOMER!

- Do you know what your customer really wants?
- Do you know who your customer is?
- How can you gather the "voice of the customer?"
  - Interviews
  - Surveys
  - Feedback
  - What else?

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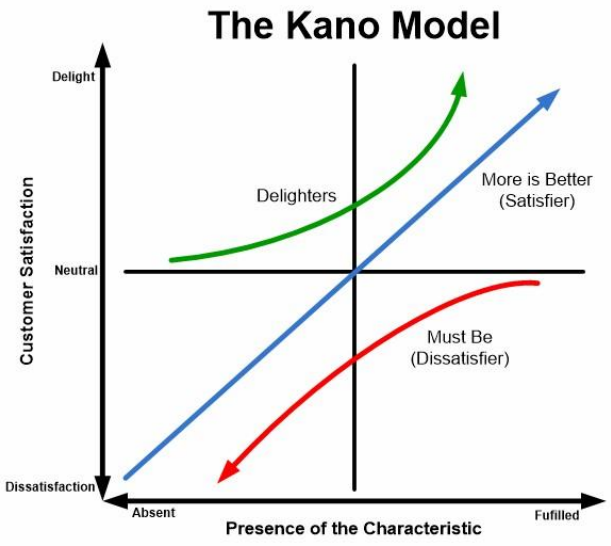
THE KANO MODEL

- Not all customer expectations are equally important
  - **Must Be** characteristics are taken for granted – unless they are absent!
  - Customers typically focus on **More is Better** characteristics.
  - **Delighters** are generally not mentioned, since the customers are not dissatisfied with their absence.



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KANO EXAMPLE

Clinic

Output	Must Be	More is Better	Delighters
Immunization received at clinic	Accomplished per the SOP with no harm to the patient	Appointment starts on time	Wait less than 10 minutes for walk-in appointment
	Correct labeling and handling	Caring manner of nurse	Child-friendly environment
	Experienced trained nurses	Parking close to building	Snacks and drinks available
	Accurately filed in CHIRP	Patient comfort level	

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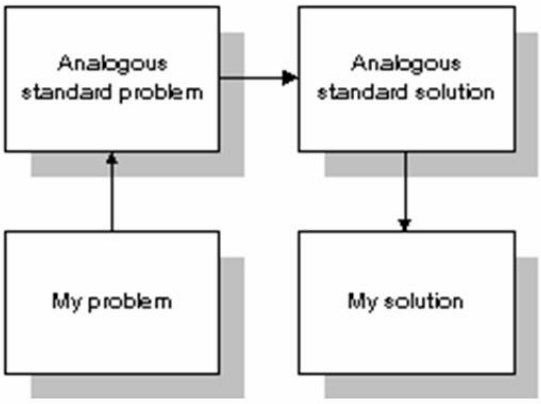
HOW DO WE THINK?



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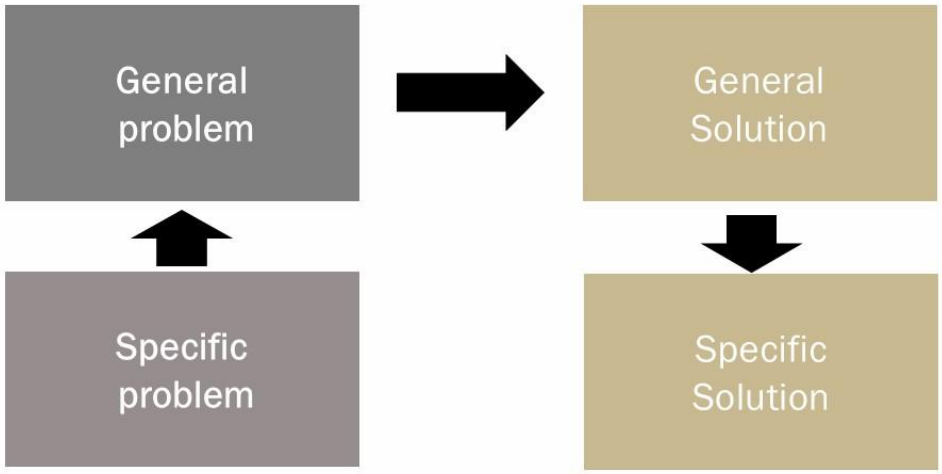
TRIZ APPROACH



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INNOVATION VS PROBLEMS SOLVING

Problem Solving	Innovation
Solve for now	Extend thinking to something new
Let's list some differences together.	

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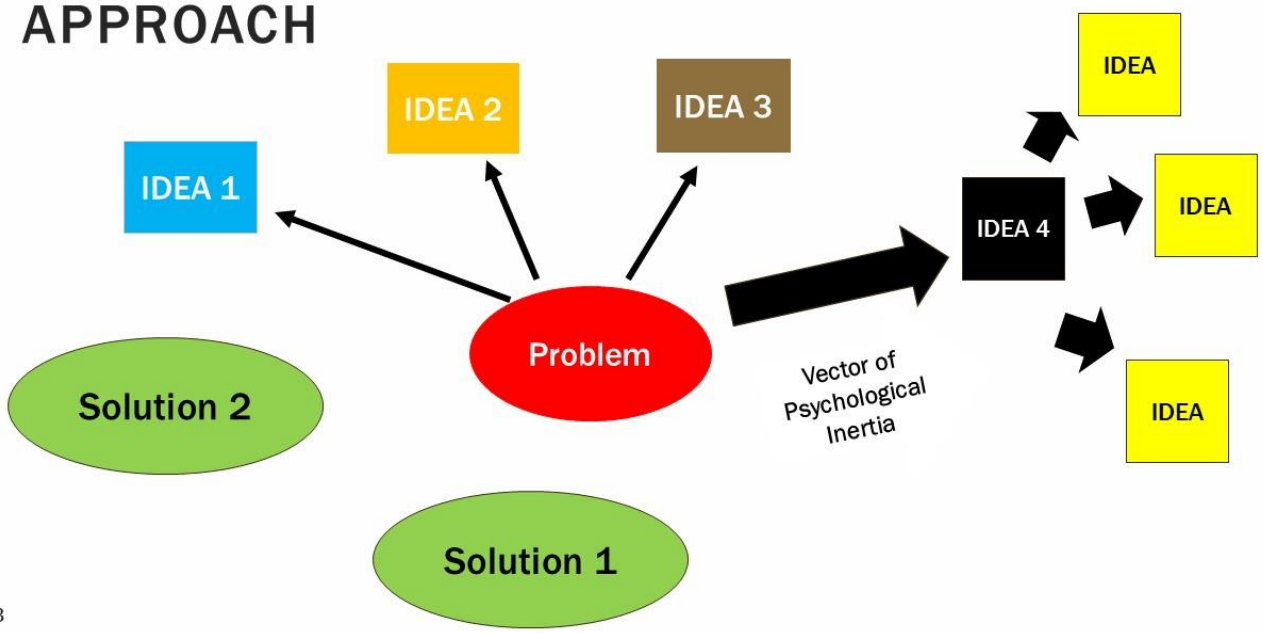
PSYCHOLOGICALLY CONSTRAINED APPROACH



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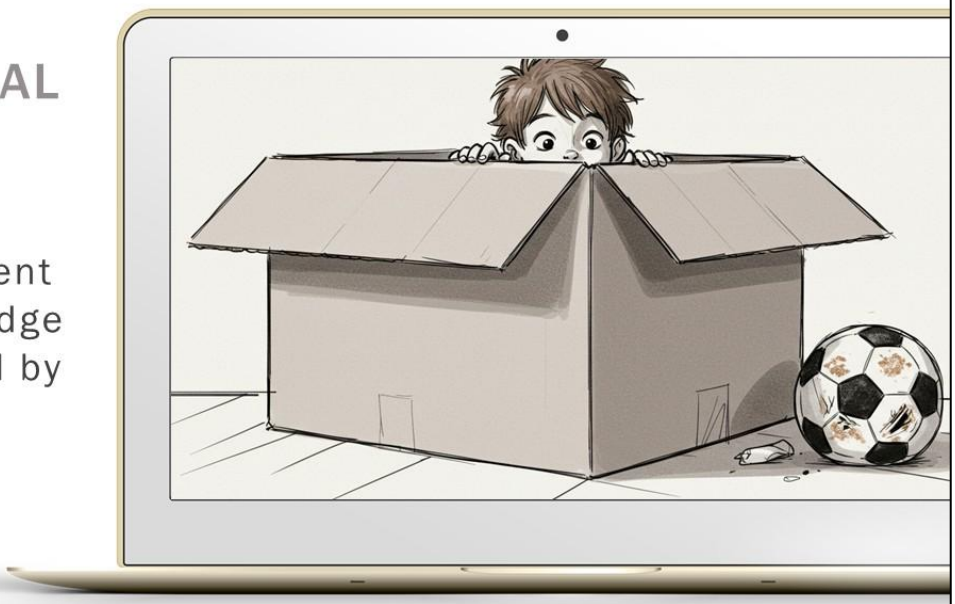
PSYCHOLOGICAL INERTIA

- Inability to go beyond the current realm of knowledge by the individual by the group



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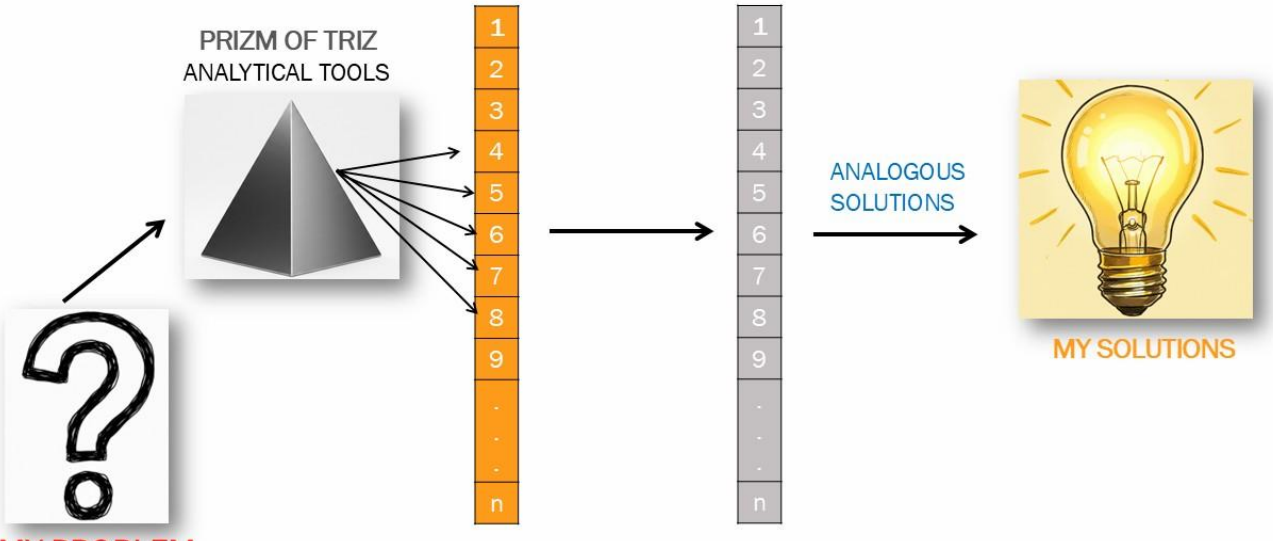
A FUNDAMENTALLY DIFFERENT APPROACH



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Without a method, we lean on the following for "innovation" ....

- Trial and Error
- Brainstorming
- Past Experiences
- Psychologically Dependent Ideas

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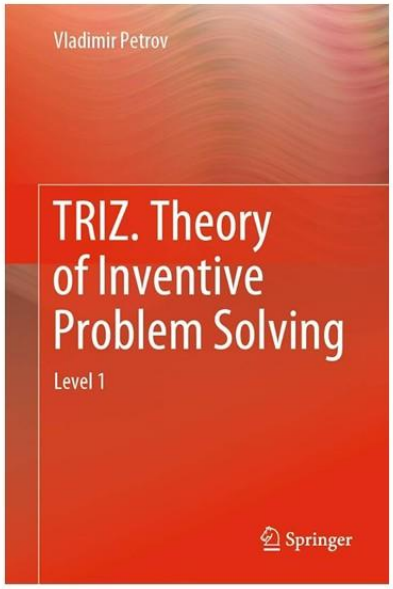
TRIZ = THEORY OF INVENTIVE PROBLEM SOLVING

- Systematic, scientific approach to innovation
- Repeatable and reliable
- Moves away from trial-and-error
- Accesses and adds to body of inventive knowledge
- Overcomes psychological inertia



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GENRICH ALTSHULLER

- Was a young inventor, he began developing TRIZ in 1946 while working in the Soviet Navy initiating invention proposals for the patent office.
- He realized that a problem requires an inventive solution if there are technical contradictions
- He was imprisoned for letters sent to Stalin and newspapers about erroneous Soviet government decisions. After Stalin died, he was freed under Khrushchev.
- Earned his living under penname H. Altov writing science fiction books.
- First paper published 1956
- Shifted from technical TRIZ to creativity and even developed a version of TRIZ for school children.
- After the Cold War, TRIZ was shared with other countries.

15 October 1926 – 24 September 1998

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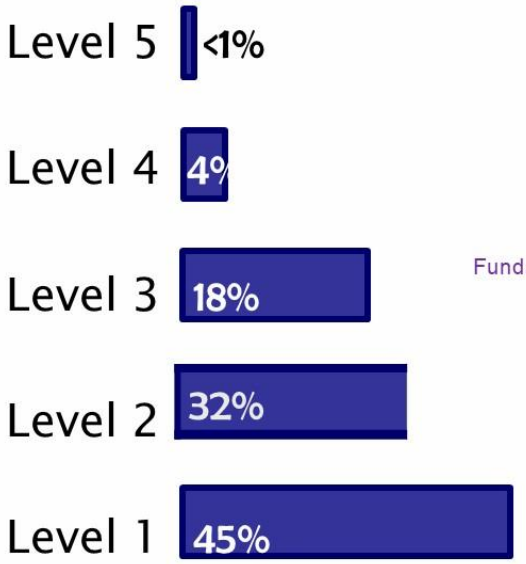
ALTSHULLER STUDIED 200,000 PATENTS



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95% OF THE SOLUTIONS HAD BEEN SOLVED BEFORE!

Levels of Inventiveness				
Leve l	Degree of Inventiveness	%	Source of Knowledge	# of solutions
1	Apparent solution	45%	Personal knowledge	10
2	Minor improvement	32%	Knowledge within company	100
3	Major improvement	18%	Knowledge within the industry	1000
4	New concept	4%	Knowledge outside the industry	100,000
5	Discovery	1%	All that is knowable	1,000,000

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ALTSHULLER FOUND

- True innovation strived to overcome contradictions.
- Contradictions between opposing forces like…
  - Faster with sacrificing Quality
  - More Accurate without more Complexity
  - Greater Utility without more Cost

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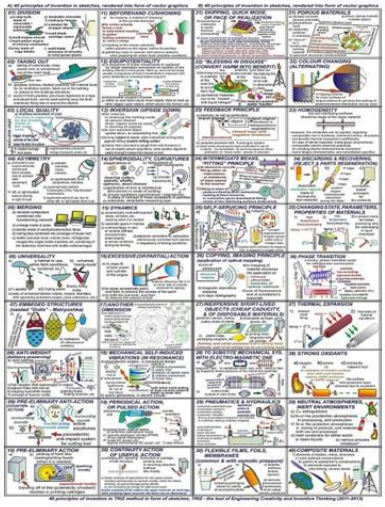
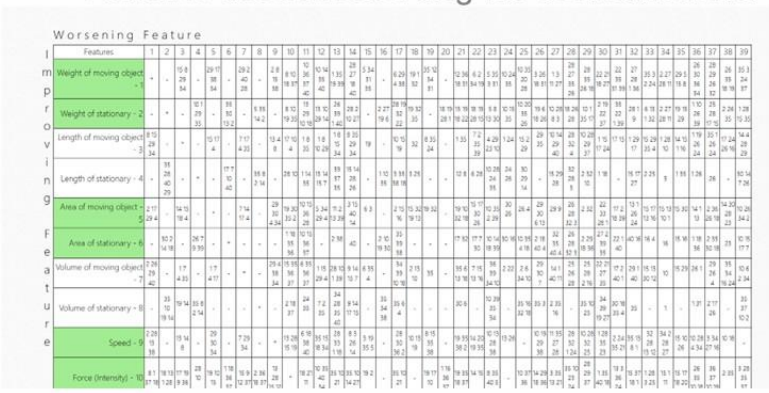
ALTSHULLER FOUND ….

that most inventions seemed to have

similar patterns (40 of them!)



Patterns used in resolving the contradictions.



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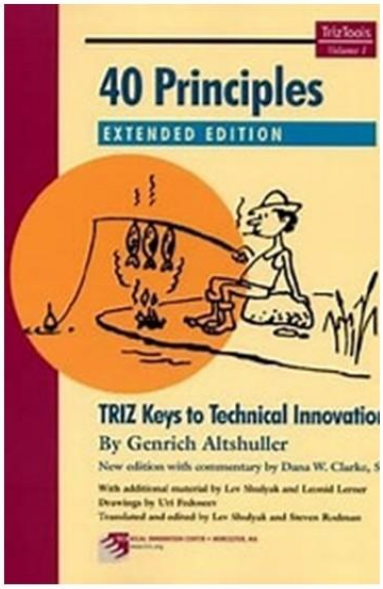
40 INVENTIVE PRINCIPLES

- Generic principles can provide solutions to specific problems by the means of analogical thinking
- As far as we know there are only 40 ways to solve a contradiction
- Knowing this provides an excellent means of focusing brainstorm activities



www.triz40.com

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40 INVENTIVE PRINCIPLES

1. SEGMENTATION
2. TAKEOUT
3. LOCAL QUALITY
4. ASYMMETRY
5. MERGING
6. UNIVERSALITY
7. NESTED DOLL
8. ANTI-WEIGHT
9. PRELIMINARY ANTI-ACTION
10. PRELIMINARY ACTION
11. BEFOREHAND CUSHIONING
12. EQUIPOTENTIALITY
13. OTHER WAY ROUND
14. SPHEROIDALITY
15. VARIABILITY or DYNAMICISM
16. PARTIAL or EXCESSIVE ACTION
17. ANOTHER DIMENSION
18. MECHANICAL VIBRATIONS
19. PERIODIC ACTIONS
20. CONTINUITY OF USEFUL ACTION

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40 INVENTIVE PRINCIPLES CONT.

21. "SKIP"
22. BLESSING IN DISGUISE
23. FEEDBACK
24. INTERMEDIARY
25. SELF-SERVICE
26. COPYING
27. SERVICE LIFE - CHEAP/SHORT VS. EXPENSIVE/LONG
28. MECHANICS SUBSTITUTION
29. PNEUMATIC OR HYDRAULIC CONSTRUCTIONS
30. FLEXIBLE SHELLS and THIN FILMS
31. POROUS MATERIALS
32. CHANGE OF COLOR
33. HOMOGENEITY
34. DISCARD and RECOVER
35. CHANGE PHYSICAL or CHEMICAL PARAMETERS
36. PHASE TRANSITIONS
37. THERMAL EXPANSION
38. STRONG OXIDANTS
39. INERT ATMOSPHERE
40. COMPOSITE MATERIALS

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LAW OF INCREASING IDEALITY…

Net Utility divided by Harmfulness

$$\text{Ideality} = \frac{\sum U_1}{\sum H_j}$$

The faster you get there the more inventive you are!

The evolution of the mechanical spring-driven watch into the electronic quartz crystal watch is an example of moving towards ideality.

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IDEALITY

- All benefit, no cost, no harm.

$$\text{Ideality} = \text{'Value'} = \frac{\text{Benefits}}{\text{Cost + Harm}}$$

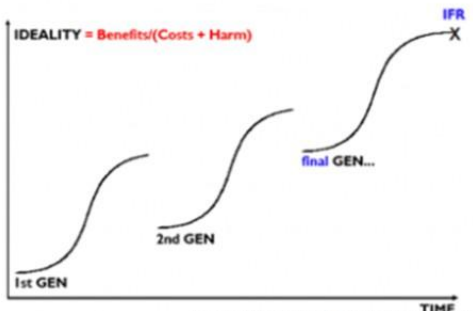
- Try stating the Ideal Final Result (IFR) as "itself."

  EXAMPLES:

  The data enters itself.

  The grass mows itself

  The data keeps itself complete, accurate, and current.



https://the-trizjournal.com/what-is-triz/

Figure 3: The Fundamental Dynamics Of System Evolution

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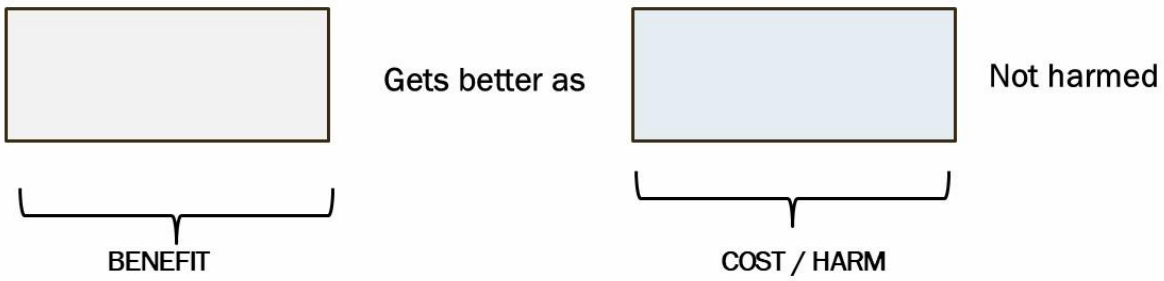
IDENTIFY THE CONTRADICTIONS



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RESOLVE CONTRADICTIONS

- Find the applicable principles from the 40 Principles.
- How can you achieve the Ideality?
- How can you use your resources?
- Consider even the wildest ideas!
- Use models.

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RESOURCES

- **Everything** in the system is a resource (even the harmful things)
- The best solutions will come from knowing about all the resources

Identify everything in and around the system!

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BENCHMARKING

- Look outside
  - Your industry
  - To nature and science
- How is your general problem solved?

EXAMPLES:

- Burdock burrs used to discover Velcro
- Humpback whale flippers inspired wind turbine shape
- Termite mounds to design architecture without air conditioning in Africa
- Ant colonies inspire logistics and queuing

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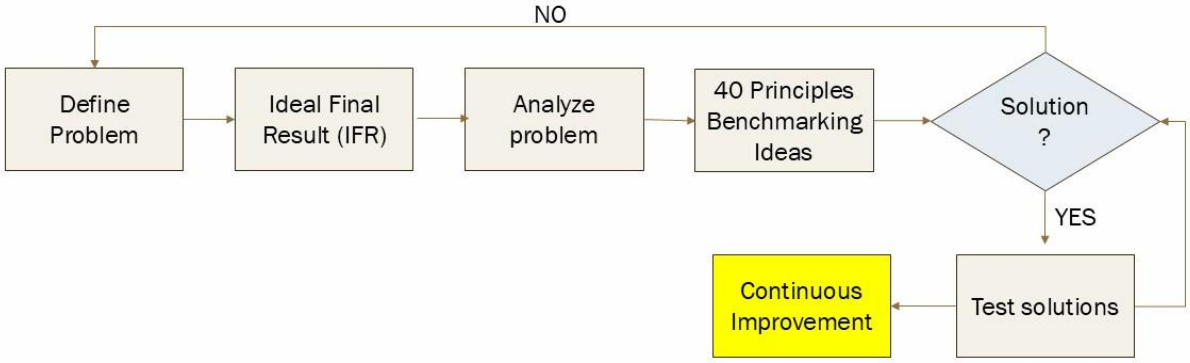
ROADMAP TO INNOVATIVE IDEAS



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DATA AND PILOTS

Typically, when we are ready to institute a change, we execute a **pilot study.**

- During a pilot study, we seek to confirm our solutions in a relatively controlled setting.
- Pilot studies are performed on a smaller scale (e.g. one shift, short period of time, a specific product…)

Use data to confirm your idea works.

- Did you meet the customer specifications?
- Is it sustainable?
- Affordable?
- Scalable?

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YOUR TURN – TEAM COMPETITION!

- In teams, you will set out to improve one of the following and present your results:
  - A. Ketchup bottle that dispenses all ketchup and has no "ketchup water."
  - B. Efficient archival of 600,000 historical paper documents that are rapidly degrading.
  - C. Crowded café at lunch time that suffers from noisy overcrowded atmosphere and customer complaints

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WHAT DID YOU LEARN?

Is innovation easy?

Did everyone contribute?

What was your role?

Did one or two people talk most?

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LEADER SELF ASSESSMENT

Self-Assessment: Innovative Leadership

INSTRUCTIONS: For each statement, rate yourself from 1 to 5, according to the response scale below. This assessment aims to measure your effectiveness as an innovative leader in the context of organizational change. Be sure to choose the response that best reflects your natural leadership style and/or instincts, from your viewpoint as a current or future leader, depending on your circumstances. Be sure to answer as honestly as possible, especially since there are no right or wrong answers, and your score will have absolutely no bearing on how this portion of your post-test is graded. Once the assessment is completed, take note of your total score and refer to the interpretation guide to understand your results.

RESPONSE SCALE:

1 – Strongly Disagree 2 – Disagree 3 – Neutral 4 – Agree 5 – Strongly Agree

____1. I encourage my team to think creatively and explore new ideas.

____2. I am open to trying out new approaches, even if they involve some level of risk.

____3. I actively seek feedback from my team and other stakeholders to improve our processes.

____4. I embrace failure as an opportunity for learning and growth.

____5. I allocate time and resources for experimentation and innovation.

____6. I promote a culture where everyone's ideas and perspectives are valued.

____7. I am willing to challenge the status quo and question traditional methods.

____8. I support and invest in professional development opportunities for my team.

____9. I actively seek out new technologies and tools that can enhance our work.

____10. I collaborate with other leaders to foster a culture of innovation across the organization.

____11. I am open to receiving feedback and ideas from all levels of the organization.

Complete the assessment. Be brutally honest with yourself to get the most out of it.

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SCORING

SCORING:

- Remember, for each item, assign a score between 1 through 5
  (1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree)
- You can manually calculate your total score by adding the scores of all 20 items together, for a range of 20-100

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RESULTS

- 90-100: Excellent level of effectiveness as an innovative leader
- 80-89: Good level of effectiveness as an innovative leader
- 70-79: Average level of effectiveness as an innovative leader
- 60-69: Low level of effectiveness as an innovative leader
- Below 60: Improvement needed as an innovative leader

- A high score indicates that you exhibit strong innovative leadership qualities and practices. You actively encourage and support your team in embracing new ideas, taking risks, and thinking creatively. Your open-mindedness, adaptability, and willingness to learn from failures inspire those around you to push the boundaries and explore new possibilities.
- A moderate score suggests that you are on the right track to being an innovative leader, but there are areas where you can further excel. You demonstrate an awareness of the importance of creativity and change, and you are taking steps to encourage innovative thinking within your team. Continue to develop your skills in promoting a culture of experimentation, and actively seek feedback from your team to identify areas for improvement. Consider seeking mentorship or training opportunities to develop your innovative thinking and leadership capabilities.
- A low score indicates that you have room for growth in becoming a more innovative leader. Embrace the significance of fostering a culture of innovation and creativity within your organization. Take proactive steps to encourage idea generation, risk-taking, and continuous learning among your team. Seek guidance and resources to help you develop the skills and mindset necessary for innovative leadership. With dedication and a willingness to adapt, you can grow into a more innovative leader and drive positive change within your organization.

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QUALITIES OF EFFECTIVE INNOVATION LEADERS

- Authenticity: inspire trust
- Servant Leadership: putting collective good above personal ambitions (getting out of the way)
- Growth Oriented: embracing mistakes as stepping stones
- Innovative Mindset: open to new approaches and risk-taking

*Four qualities according to UC Berkeley ExecEd.

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AUTHENTICITY

How can you tell if someone is authentic?

- Self-awareness
- Genuine
- Transparent
- Ethical

What does this inspire?

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SERVANT LEADERSHIP

Who was the best leader you've had? Why?

- Facilitators
- Supportive
- Empowerment
- Listeners
- Build Communities

What else?

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GROWTH ORIENTED

How would this feel to work in this environment?

- Resilient, even in the face of failure
- Receptive to feedback
- Champions continuous learning and improvement
- Embraces challenges
- Delegates
- Open to new ideas

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INNOVATIVE MINDSET

How does this shape your approach to problem-solving, to teams?

- Visionary
- Tolerance for ambiguity
- Curious
- Collaborative
- Customer-centric
- Persuasive
- Calculated-risk tolerance

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THE ROLE OF LEADERSHIP IN INNOVATION

- Sets the Tone
- Creates an environment where innovative ideas happen
- Provide clear vision
- Catalysts for transformation

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[redacted]

THANK YOU

Process 4

Being a Process Executive: Tactical Management of Process Owners

Mr. Mike Hyzy

Handouts Provided

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Operations Foundry

Participant Packet

Mat Trampski
Dr. Jim Stratton

PURDUE UNIVERSITY

OPERATIONS EXECUTIVE PROGRAM

Process Interrogation Foundry Exercise

A 3-day learning exercise to equip leaders with the capability to critically interrogate the processes within their organizations

Facilitator
TBD – Purdue Faculty

Audience
Operations Leaders

Format
3 × 1-hour sessions + report out

OEP FOUNDRY EXERCISE

Executive Directive

*You are a senior executive responsible for multiple client-facing processes and Process Owners. In this Foundry exercise, you are interrogating the "**Onboard and Maintain Accounts and Associated Data – Banking"** process using Tactical Management Tools and Techniques and a standard Process Pack as your evidence base.*

*Your task is to identify the **key questions you would ask the Process Owner** to gain real insight into process design, controls, performance, and efficiency, and to **form your own executive view on what should change**. Using only the artifacts provided, you are expected to surface weaknesses, challenge gaps or inconsistencies, and propose **practical improvement actions** you would seek to agree.*

Disclaimer – The process details used in this exercise have been modified and are not a true representation of the process on which the exercise is based.

PURPOSE

Why Process Interrogation

Executives are accountable for processes they rarely observe at ground level. When leaders cannot ask pointed, evidence-based questions of their process owners, weak controls, poor design, and under-utilized capacity go unchallenged.

Strengthens leaders' ability to partner with Process Owners, using process data and tools to identify, prioritise and deliver improvement opportunities.

Interrogate with Evidence

Move from opinion to artifact-led challenge using the process pack.

Expose the Unseen

Surface design gaps, control weaknesses, and capacity slack invisible in dashboards alone.

Raise the Bar

Build a shared standard for how process owners are held to account across the enterprise.

3

APPROACH

Approach: One Process, Three Lenses

Approach: FLU-aligned table teams analyze process documentation and data to develop diagnostic questions for a Process Owner and prioritize improvement actions, refined through daily debriefs and consolidated in a final Friday summary report (questions, approach & improvements).

1 DAY 1

Process Design & Resource Utilization

High-Level Assessment Criteria:

- Assess description, scope, granularity level, roles & customers, 3rd parties, LRRs
- Evaluate whether process map, connections and activity detail are appropriate & complete for effective management
- Determine whether volume, capacity, and resourcing align to demand and strategy (if time allows)

OUTPUT

- *Identified areas of concern and questions for the Process Owner*
- *Prioritized improvement actions*
- *Output feeds into Friday report*

2 DAY 2

Control, Risk, Metrics & Performance

High-Level Assessment Criteria:

- Assess key process risks using the Activity Risk Assessment
- Evaluate whether controls, measures, triggers & limits, and sampling approaches are appropriate & complete
- Assess if controls in right place (inline & post), address risks (incl. 3rd party & LRRs) and op losses and issues

OUTPUT

- *Identified areas of concern and questions for the Process Owner*
- *Prioritized improvement actions*
- *Output feeds into Friday report*

3 DAY 3

Process Efficiency

High-Level Assessment Criteria:

- Identify non-value add work (value stream analysis output), efficiency improvements and process simplification ops
- Identify potential AI-enabled efficiency and risk reduction opportunities
- Estimate the relative value and impact of improvement opportunities (if time allows)

OUTPUT

- *Identified areas of concern and questions for the Process Owner*
- *Prioritized improvement actions*
- *Output feeds into Friday report*

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SCHEDULE

Foundry Exercise: Schedule

TIME	DAY 1 *Design & Utilization*	DAY 2 *Control, Risk, Metrics & Performance*	DAY 3 *Process Efficiency*	DAY 4 *Report Out*
10 min *re-orient*	Framing: design & capacity lens. Recap prior context.	Framing: control & performance lens. Review Day 1 content & questions.	Framing: efficiency lens. Review Day 2 content & questions.	Each participant completes the Day 4 Capture Template and is prepared to share their reflections before table-level discussion. Table teams to then provide final day OEP report inclusive of their Process Interrogation Exercise; questions, approach, identified improvements and learnings **90 min duration**
20 min *Interrogate the Pack*	Process Summary · Process Flow · Resource Utilization	Activity Risk Assessment · Performance Scorecard · Control, Metric and EIT extract	Value Stream Analysis · Full pack – hunt for waste, duplication, non-value add, delay, rework, and simplification or automation potential	
20 min *Draft Questions*	Capture Process Owner questions using Day 1 template	Capture Process Owner questions using Day 2 template	Capture Process Owners questions and prioritized improvement ideas using Day 3 template	
10 min *Share & Close*	Table Debrief – Day 1 Observation and insights	Table Debrief – Day 2 Observation and insights	Table Debrief – Day 3 Observation and insights	

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PART TWO

The Process Pack

Seven artifacts. One process. The evidence base for executive inquiry.

- Process Summary
- Process Flow
- Capacity Utilization
- Activity Risk Assessment
- Performance Scorecard
- Control, Metric & EIT Extract
- Value Stream Analysis

KEY TERMS

Glossary

Lense	Term	Definition
Process Design & Resource Utilization	Connection or Handoff	Represents a relationship between two or more processes with dependencies on each other. It signifies the changing of hands where responsibility to complete the work passes from one process to another, either permanently or temporarily.
Control, Risk, Metrics & Performance	Activity Risk Assessment	A structured evaluation of each step within a process to identify what could go wrong, understand why it might occur, assess the potential impact, and determine whether existing controls are sufficient to prevent or detect the issue. It also serves as a tool to highlight and prioritize improvement opportunities to address identified gaps and strengthen the process. The assessment is anchored in three key risk dimensions: 1. Occurrence – The likelihood that the failure will happen 2. Severity – The level of impact if the failure occurs 3. Detectability – The ability to identify the failure before it results in impact
	Control	A preventative or detective step in a process designed to ensure a process achieves its intended objectives or reduces the risk of process failure and/or unanticipated outcomes.
	Measurement	A structured means of assessing process performance, control effectiveness, or risk exposure through quantitative or qualitative methods, including metrics, testing, and review activities.
Process Efficiency	Non-Value Add	Work that consumes time, effort, or cost but does not change the product or service from the customer's perspective.
	Value Add	Work that directly changes the product or service in a way the customer needs and is willing to pay for.
	Required Non-Value Add	Work that does not directly create value from the customer's perspective, but is necessary due to regulatory, control, risk, or operational constraints.
Process Performance	Control Chart	Shows whether a process is stable over time, using control limits based on historical performance rather than specification limits or target definitions.

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PROCESS PACK · 1 OF 7 · INTRODUCED DAY 1

Artifact 1: Process Summary

Onboard and Maintain Accounts and Associated Data – Banking

Process Purpose

The purpose of this process is to support the opening and non-financial maintenance of banking accounts. The process begins when the Banking Onboarding and Maintenance teams receive account opening or maintenance requests through the applicable systems and review the related documentation. Requests that meet requirements are processed through the relevant systems, with account records updated and applicable disclosures issued.

Aligned Risks and Controls

Risks
- Customer / Client Account Management
- Data accuracy / completeness / Timeliness

Controls
- Review Merrill & Private Bank Deposit Account Incoming Mail
- Review Merrill & Private Bank Deposit Account Returned Undeliverable Mail
- Review Merrill Deposit Account Beneficial Owner Details
- Review Merrill Deposit Account Title Maintenance
- Review Merrill Deposit Account Opening
- Review Private Bank Deposit Account Title Maintenance
- Review Private Bank Deposit Account Opening

Process Details

Process Owner:	John Doe
Org:	Wealth Management Operations
Function:	Banking Onboarding & Maintenance
Supported LOBs:	Merrill Branch Office & Private Bank Front Office
POCE Rating:	Satisfactory
FTE:	50
GBS:	6
Sites:	Jacksonville, FL / Chandler, AZ / Gurugram Haryana, India
LRR:	AML / Economic Sanctions, Electronic Fund Transfers (Regulation E),Truth in Savings (Regulation DD)
External Customers:	Merrill Wealth Management Client, Private Bank Client

Data Elements

- Data Lifecycle: N/A
- Aligned Risks: 2
- Legal Entity: 2
- Number of Activities: 14
- Process Moves Money: No
- Process Frequency : Daily
- Internal/External Customers: 3/3
- Client Touchpoint: Yes
- Number of AITS : 19
- Number of Controls: 7
- 3rd Party Alignment: 1
- Number of Handoffs (Connections): 9

Primary KPIs (Current vs Target)

Key Process Indicator	Current	Target	Status
Average Processing Time (Case Handle Time)	32 mins	≤ 35 mins	G
% of Requests Meeting Published SLAs	98.7%	> 97%	G
% of Requests Returned to Requestor	12%	≤ 15%	G
Control Pass Rate (QA / EIT)	97.4%	≥ 97%	G

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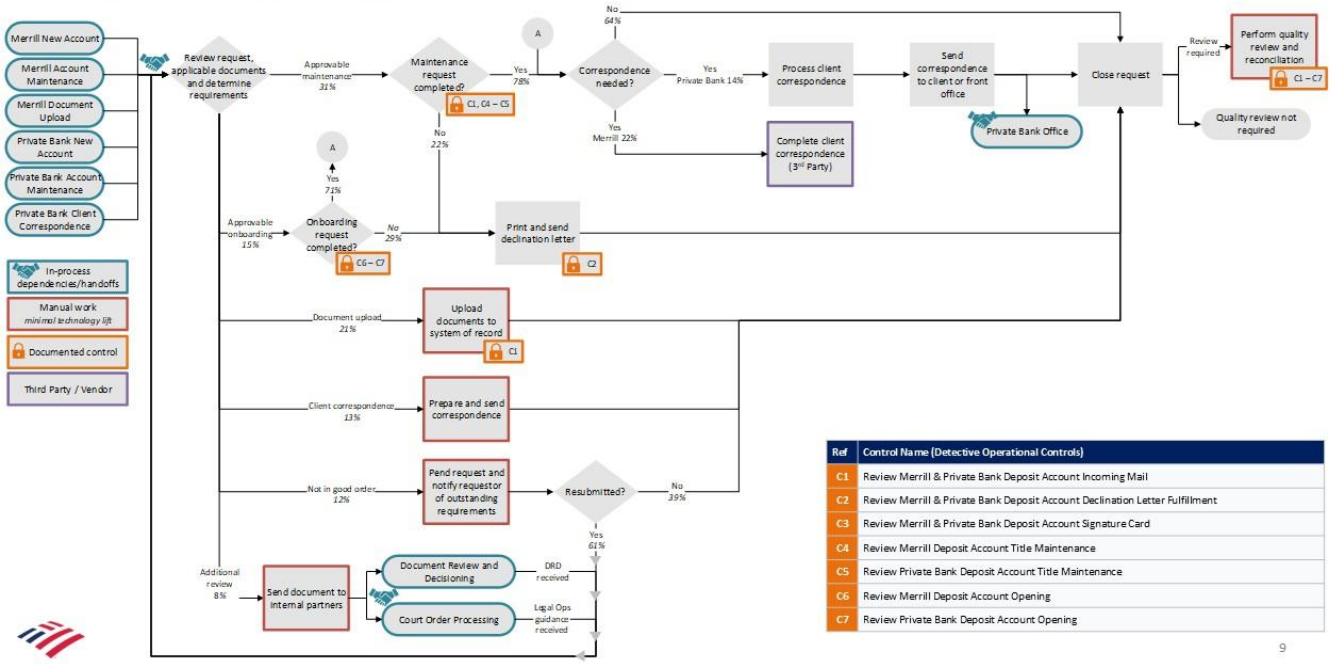
PROCESS PACK · 2 OF 7 · INTRODUCED DAY 1

Artifact 2: Process Flow



Ref	Control Name (Detective Operational Controls)
C1	Review Merrill & Private Bank Deposit Account Incoming Mail
C2	Review Merrill & Private Bank Deposit Account Declination Letter Fulfillment
C3	Review Merrill & Private Bank Deposit Account Signature Card
C4	Review Merrill Deposit Account Title Maintenance
C5	Review Private Bank Deposit Account Title Maintenance
C6	Review Merrill Deposit Account Opening
C7	Review Private Bank Deposit Account Opening

PROCESS PACK · 3 OF 7 · INTRODUCED DAY 1

Artifact 3: Capacity Utilization

2025 TOTAL DEMAND	2025 UTILISATION	PEAK FTE GAP	PLANNED FTE 2023 → 28F
33,520	112%	- 6.5	47 → 61
requests · +18% YoY	target ceiling 85%	2025 shortfall	vs Required: 43 → 63

Demand vs Capacity — quarterly

Historical (2023–25) | Forecast (2026–28)

KEY EVENTS & FORECAST ASSUMPTIONS

2024 Q3 Regulatory change stepped up Acc Maintenance volumes by ~20%.
2025 Product launch lifted Onboarding demand.
Forecast Acc Maintenance partially reverts (~40%) toward pre-reg levels by '28. Onboarding +6% p.a. off '25 base. Hiring ~+3 Planned FTE/yr.

Annual view · actuals (2023–25) and forecast (2026–28)

Planned FTE = request-processing staff on plan. **Required FTE** = needed at 85% target utilization & current handle times. **Utilization** = Demand ÷ Capacity (target ≤ 85%). **FTE** shown as point-in-time staffing positions (not annual averages)

Measure	2023	2024	2025	2026F	2027F	2028F
Annual Total Demand	25,050	28,520	33,520	33,600	33,600	33,600
Annual Total Capacity	27,000	28,460	29,900	31,340	32,780	34,220
Utilization	93%	100%	112%	107%	103%	98%
Planned FTE – Supply	47	50	53	56	58	61
Required FTE – Demand	43	50	59	60	62	63
FTE gap (Plan - Required)	+3.8	+ 0.4	-6.5	-4.8	-3.2	-1.7

PROCESS PACK · 4 OF 7 · INTRODUCED DAY 2

Artifact 4: Activity Risk Assessment

Assumption: The Process Owner completed the ARA in full, the resulting extract provided is a subset.

Activity/process step	Potential failure	Potential cause	Controls in place	Likelihood of Occurrence	Severity of Occurrence	Difficulty of Detectability	Opportunities/actions
Review request with applicable documents and determine requirements	Ignoring mismatched details; discrepancies between case, applications, documentation	Inadequate training; associate rushing through the request or failing to review all information	EIT accuracy tests; inline quality reviews	Medium	High	High	1. Associate training 2. Develop a checklist 3. Inline quality reviews 4. Explore systematic opportunities to have client information feed from SORs
	Inaccurately reviewed case missing required documents, signatures or details; considered in good order when it's not	Inadequate training/procedures; lack of knowledge	EIT accuracy tests; inline quality reviews	Medium	High	High	1. Associate training 2. Review and update procedures 3. Develop a checklist
Pend request and notify requestor of outstanding requirements	Failure to provide a complete list of outstanding documents/requirements leading to repeated follow-ups	Associate failing to review the entire case to identify all missing information/documentation; lack of knowledge	Quality reviews	Low	Medium	High	1. Associate training 2. Review and update procedures
	Not promptly informing the requestor of the outstanding requirements causing delays	Delayed outreach or follow-ups due to high case volumes; associate has an unanticipated out of office	Quality reviews	Low	Medium	High	1. Associate training 2. Create procedure for a backup buddy system for associate absences 3. Develop daily reporting outlining pending cases and activity
	Failed to return the request	Associate oversight; lack of knowledge	Quality reviews	Low	Medium	Medium	1. Associate training 2. Develop daily reporting outlining pending cases & activity
Resubmitted?	Failure to notice resubmitted case resulting in delayed processing	High case volumes; lack of attention	Quality reviews	Low	Medium	Low	1. Explore systematic opportunities to enhance PB SR to alert associates when cases are resubmitted 2. Develop daily reporting outlining pending cases and activity
	Assigned associate is out of office when case is resubmitted resulting in delayed processing	Lack of work queue oversight	Quality reviews	Medium	Medium	Low	1. Explore systematic opportunities to enhance PB SR to alert associates/leaders when cases are resubmitted 2. Develop daily reporting outlining pending cases and activity so cases can be reassigned
Onboarding request completed?	Bank account is not opened timely	Inadequate training; case missing required information or documents	EIT accuracy and timeliness tests; Inline and post quality reviews	Low	Medium	Medium	1. Associate training 2. Develop educational resources for field partners 3. Develop reporting identifying issue and field partner trends

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PROCESS PACK · 5 OF 7 · INTRODUCED DAY 2

Artifact 5: Performance Scorecard

POCE		Controls			Open Challenges	Metrics		
Current Rating	Issues	#	# Non-Sat	% Non-Sat	#	Green	Non-Green	Trending Red
Satisfactory	3	7	0	0.00%	0	5	0	0

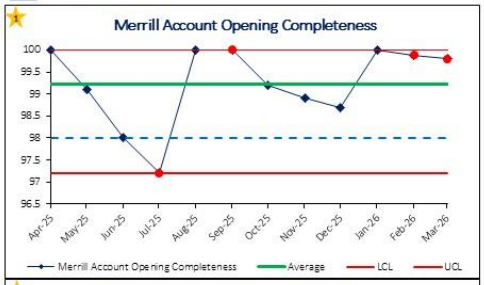
Process Measurement Performance

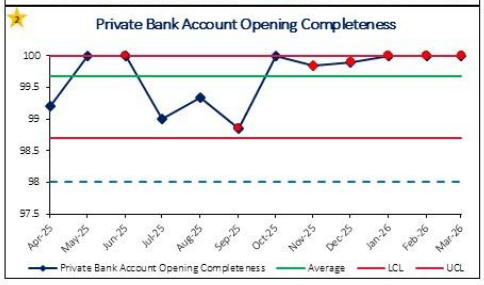
Measure	Input, In-Process, Output	COPP / KRI / QA	Thresholds	Measurement Approach	Jan	Feb	Mar
★ Merrill Account Opening Completeness	Output	QA	T > 97.00% and <= 98.00% L <= 97.00%	Sampling	100%	99.88%	99.80%
★ Private Bank Account Opening Completeness	Output	QA	T > 97.00% and <= 98.00% L <= 97.00%	Sampling	100%	100%	100%
Merrill & Private Bank Account Maintenance Timeliness	Output	QA	T > 97% and L <= 95%	Full Population	98.87%	100%	99.92%
Merrill & Private Bank Mail Timeliness	Output	QA	T > 80% L <= 84%	Full Population	97.5%	98.5%	99.25%
Private Bank Account Correspondence Timeliness	Output	QA	T > 97% L <= 94%	Full Population	100%	99%	98.75%

EIT Test Performance

Measure	Input, In-Process, Output	COPP / KRI / QA	Thresholds	Measurement Approach	Jan	Feb	Mar
Merrill Account Opening Completeness	Output	QA	T > 97% and L <= 95%	Sampling	98%	98%	99%
Private Bank Account Opening Completeness	Output	QA	T > 98% and L <= 96%	Sampling	97%	97%	98%
Merrill & Private Bank Account Maintenance Accuracy	Output	QA	T > 97% and L <= 95%	Sampling	100%	100%	100%
Declination Letter Timeliness	Output	QA	T >= 2.00 and < 3.00 L >= 3.00	Sampling	0	0	0
Deposit Account Signature Card Completeness	Output	QA	T > 97% and L <= 95%	Sampling	98%	95%	95%

Control Charts





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PROCESS PACK · 6 OF 7 · INTRODUCED DAY 2

Artifact 6 : Control, Metric & EIT Extract

Control Name	Control Statement	Control Rating	Inline or Post?	Control Automation	Aligned Risks
Review Merrill and Private Bank Account Maintenance	Monthly, completed account maintenance requests are subject to a review to confirm required actions were performed and requests were completed accurately. The review considers information documented in the case management system and associated supporting materials for the request. Evidence of the review, including any noted observations or follow-up actions, is retained in a shared location with restricted access.	Satisfactory	Post	Semi-automated	• Customer / Client Account Management • Data accuracy / completeness / Timeliness

Metric Name	Metric Description	Metric Formula	Metric Approach	Frequency	Jan 2026	Feb 2026	Mar 2026	Trigger	Limit
Merrill and Private Bank Account Maintenance Timeliness	Evaluate the timeliness of all completed account maintenance requests by identifying requests completed within the applicable service level timeframes, as recorded in the case management system. Timeliness is assessed by comparing key request and completion timestamps to documented processing expectations.	Total # of account maintenance requests completed within SLA / Total # of account maintenance requests received	Full Population	Monthly	98.87%	100%	99.92%	97%	<= 95%

Test Name	Test Description	Test Formula	Test Approach	Frequency	Jan 2026	Feb 2026	Mar 2026	Trigger	Limit
Merrill and Private Bank Account Maintenance Accuracy	Evaluate the accuracy of quality assurance (QA) performed on a sampled set of completed account maintenance requests. This review will be conducted by examining request documentation, case notes, and associated system records maintained within the case management system. Accuracy will be assessed by the QA validation outcomes and documentation retained, ensuring that required information, updates, and supporting evidence are present and appropriately aligned to the request type.	Sample of account maintenance request QA completed accurately / Sample of Account Maintenance requests QA completed	Sample Population	Monthly	100%	100%	100%	97%	<= 95%

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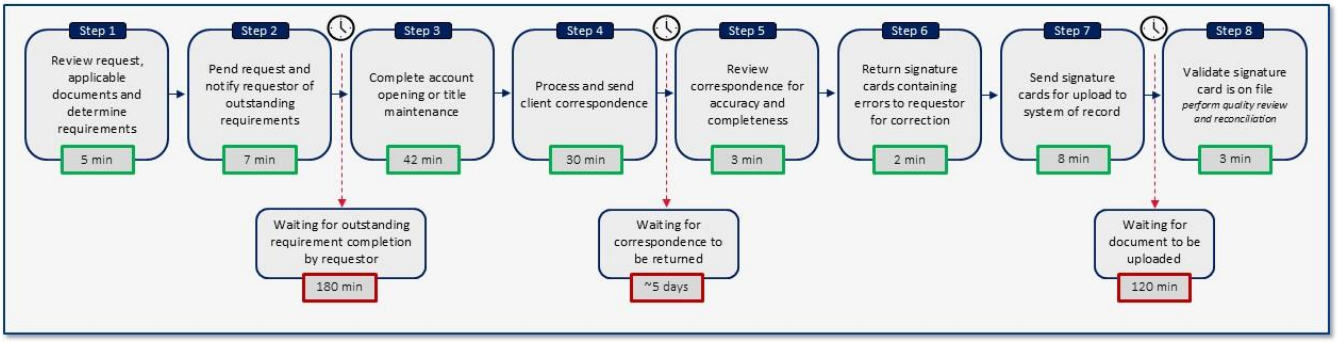
PROCESS PACK · 7 OF 7 · INTRODUCED DAY 3

Artifact 7 : Value Stream Analysis

Waste Type	Time	% of Total Time
Value Add	1.6 hours	3.43%
Non-Value Add	45 hours	96.57%

Directive: Use this value stream analysis to assess how effectively waste is identified across the process and to test whether the documented workflow reflects reality. The goal is not to accept the process on paper at face value, but to challenge where the view may be incomplete, misaligned, or missing the true sources of delay and rework



*This time is based on single observation of the process being completed and not all completions result in this exact wait time.

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PART THREE

Capture Templates

One template per day — to turn observation into probing inquiry.

TEMPLATE · DAY 1

Day 1 Capture: Process Design & Resource Utilization

KEY CONSIDERATIONS:

- *Notice how the process is framed and bounded.*
- *Observe where work appears to slow, repeat, or be checked.*
- *Pay attention to how responsibility moves through the flow.*
- *Look at how effort, review, and escalation show up in the design.*
- *Consider what the volume, demand, and utilisation signals suggest about the nature of the work.*
- *Reflect on where pressure is absorbed by people rather than structure.*

DAY 1 EXERCISE:

With the above Process Design & Resource Utilization considerations in mind, take 20 minutes to review the Day 1 process pack artifacts. Then spend a further 20 minutes capturing, on the page overleaf, the questions or observations you would raise with the Process Owner to surface process design and capacity improvement opportunities that would strengthen the effectiveness and management of the process.

This will be followed by 10 min debrief to share finings and thoughts.

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TEMPLATE · DAY 1

Day 1 Capture: Process Design & Resource Utilization

No.	Question/Areas of Concern	Rationale

Wrap-Up		
Key Findings:	**Insightful Questions:**	**Most Significant Improvement Opportunity:**

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TEMPLATE · DAY 1

Day 2 Capture: Control, Risk, Metrics & Performance

KEY CONSIDRATIONS:

- *Notice how risk is described and where it is most visible in the flow.*
- *Observe where controls appear to intervene, and at what point in the process they do so.*
- *Pay attention to what the metrics emphasise — and what they remain silent on.*
- *Look for alignment (or misalignment) between risks, controls, tests, and reported results.*
- *Consider how quickly emerging issues would become visible using the current measures.*
- *Reflect on whether quality assurance activity appears to strengthen the process or sit alongside it.*
- *Is the process too reliant on controlling inputs and responsibilities upstream to the process?*

DAY 2 EXERCISE:

With the above Control, Risk, Metrics & Performance considerations in mind, take 20 minutes to review the Day 1 and Day 2 process pack artifacts. Then spend a further 20 minutes capturing, on the page overleaf, the questions or observations you would raise with the Process Owner to identify opportunities to strengthen control framework, process performance and overall effectiveness.

This will be followed by 10 min debrief to share finings and thoughts.

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TEMPLATE · DAY 2

Day 2 Capture: Control, Risk, Metrics & Performance

No.	Question/Areas of Concern	Rationale

Wrap-Up		
Key Findings:	**Insightful Questions:**	**Most Significant Improvement Opportunity:**

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TEMPLATE · DAY 3

Day 3 Capture: Process Efficiency

KEY CONSIDRATIONS:

- *Notice where work appears to change hands, pause, or come back before completion.*
- *Observe which steps seem to consume the most effort relative to the value they create.*
- *Pay attention to where variation shows up in how work is handled or resolved.*
- *Look for signs of exception handling, rework, or special routing becoming the norm.*
- *Consider what aspects of the process appear stable by design versus dependent on effort or workarounds.*
- *Reflect on where simplification, automation, or design changes could materially shift cost, speed, or experience.*

DAY 3 EXERCISE:

With the above Process Efficiency considerations in mind, take 20 minutes to review the entire process pack. Then spend a further 20 minutes capturing, on the page overleaf, the questions and prioritized improvement opportunities you would raise with the Process Owner to meaningfully improve cost, speed, and overall experience.

This will be followed by a 10-minute debrief to share findings and observations.

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TEMPLATE · DAY 3

Day 3 Capture: Process Efficiency

No.	Question/Areas of Concern	Rationale

Wrap-Up		
Key Findings:	**Insightful Questions:**	**Most Significant Improvement Opportunity:**

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TEMPLATE · DAY 4

Day 4 Capture: Learnings

Directive – In addition to the below please leverage the improvement opportunities captured on previous days to produce prioritised list.

Wrap-Up		
How will you take this experience back to your organization and implement differently or do better?	**How will you change the way you manage the process?**	**How has this exercise impacted your intention in process reviews?**

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Purdue Faculty, Staff, & Panelist Bios

Brad Alge

Associate Professor of Management
Mitchel E. Daniels, Jr. School of Business

Dr. Brad Alge holds the position of Associate Professor of Management in the area of Organizational Behavior and Human Resource Management at Purdue's School of Management where he has served since 1999. He has served on the editorial boards at the Academy of Management Review, Journal of Management, and Organizational Behavior and Human Decision Processes. Dr. Alge has over 20 years of experience helping companies to improve their business processes, organizational culture, and human capital.

Research focus:

- Virtual Work; Technology's impact on individual and group attitudes and behaviors on the job
- Employer/employee rights (e.g., privacy, justice, ethics & corporate social responsibility)
- Leadership--particularly in the contexts of distance leadership and organizational control
- Organizational versus employee control
- Social Networks
- Creative Performance

Dr. Alge has provided his expertise and consultation to numerous organizations including US DoD, US DHHS, US Department of Interior, Whirlpool, Alcoa, British Petroleum, ArcelorMittal, Pfizer, Evonik (Eli Lilly), Metropolitan Police Departments, City Public Transportation Departments, INDOT, Valspar, and numerous mid-size and small businesses.

Pat Brunese

Assistant Department Head, Industrial Engineering

Dr. Patrick Brunese is the Assistant Head of the Edwardson School of Industrial Engineering at Purdue University. He earned his Ph.D. from Purdue University in 2011, following a Master of Science in Industrial Engineering from the University of Alabama in 2007 and a Bachelor of Science in Industrial Engineering from Western New England College in 2005.

Dr. Brunese's research interests include facility logistics systems and operations research.

In his administrative role, he oversees experiential learning programs, emphasizing the application of technical expertise and professional skills through industry partnerships. He has highlighted the advantage Purdue industrial engineering students gain from these hands-on experiences, stating that they not only acquire technical knowledge but also develop essential soft skills through collaboration with industry partners.

Additionally, Dr. Brunese is affiliated with Purdue's Global Engineering Program and serves on the First-Generation Success Team, demonstrating his commitment to supporting diverse student populations and promoting global engagement within the engineering field.

Jennifer Christie

Senior Services Manager, Productivity Improvement, Purdue MEP

Jennifer has decades of experience as a Master Black Belt and process improvement leader where she completed projects, designed curriculum, coached, and certified black belts, green belts, and champions all over the world. She spent over 9 years at Covance, one of the world's largest and most comprehensive drug development services, and 10+ years as a leader in sustainability and business development.

She graduated from Purdue University, earning a B.S. in Chemistry and a B.A. in Biology. She also minored in mathematics and has a passion for teaching and communicating technical subjects so that they can be applied to real-world solutions.

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Elcin Gunay

Clinical Assistant Professor, Supply Chain & Operations Management

Professor Günay's research and teaching interests focus on operations management, decision theory and analysis, and supply chain design. Her expertise is in developing mathematical models and algorithms to support decision-making under uncertainty. She has been involved in multiple projects by developing solutions for inventory management, supply chain design, product design, and sustainability. She is also deeply committed to improving the quality of teaching and learning in higher education. Her research in the field was recognized with a best paper award from the American Society of Engineering Education in 2022 and paper of distinction award at the Design for Manufacturing and the Life Cycle Conference in 2025 organized by American Society of Mechanical Engineers.

Leigh Ann Griffin

Project Manager, Technical Assistance Program

Leigh Ann Griffin is the Senior Business Partnership Manager for Purdue University's cyberTAP department since April 2022. In this role, she manages funding projects and executes agreements with clients. Prior to transferring to cyberTAP, she served for seven years as a Senior Quality Advisor for Purdue Healthcare Advisors. In this role, Leigh Ann provided expertise to physicians and hospitals participating in the EHR Incentive Program under Indiana Medicaid, as well as the QPP reporting program for Medicare. Her 20+ years of project management and process improvement experience include working side-by-side with nurses, physicians, administrators, and other staff to design process improvements, install computer systems, and meet project timelines. She has extensive experience in public speaking, employee training, and policy and procedure development. She has also served as a HIPAA standards auditor in a hospital setting.

Leigh Ann has been a member of the Indiana Association for Healthcare Quality (InAHQ) for 25 years, serving on its board in numerous roles, including President from 2019-2022.

Leigh Ann holds a bachelor's degree in business management. She earned her Certified Professional in Healthcare Quality (CPHQ) in 1998 and a Lean Six Sigma for Healthcare Black Belt in 2013. She was also certified as a Strategic Doing Workshop Leader in 2021.

When Leigh Ann is not project managing, she can be found traveling, riding motorcycles, or spending time with her grandchildren.

Angie Hoffine

Associate Program Manager, Daniels School of Business

Angie Hoffine is currently the Administrative and Logistics Coordinator for the Master's Program in the Mitchel E. Daniels, Jr. School of Business. She has been employed at Purdue University for 19 years. Before coming to the School of Business, she worked in the athletics program and Purdue football for 14 years

Courtney Huckstep

Operations Support Administrator, Technical Assistance Program

Courtney Huckstep received her Bachelor of Science in Organizational Leadership and Supervision from Purdue University. Her expertise spans operations management, business development, marketing. She is passionate about innovation and collaboration and creating meaningful impacts in every endeavor she undertakes.

Sorin Matei

Professor, Communications

Dr. Sorin Adam Matei specializes in human AI interaction and defense technologies. He is the director of the FORCES initiative, which combines data and military science to address past and future security dilemmas. He has created the Strategic Defense Technologies Certificate program, which includes courses such as Space Strategy, Cyber Strategy, Strategy, Technology, and War, and Grand Challenges in Defense Engineering. He is the incoming Assistant Vice President for Partnerships in Strategic Defense

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Logan Jordan

Associate Dean for Administration, Daniels School of Business

Dr. Jordan is the Associate Dean for Administration for the Krannert School of Management. Dr. Jordan's responsibilities include much of the school's infrastructure and support services operations. He also serves in a support role for budgeting and human resource issues. His academic area is strategic management, including the management of technology.

He has taught in the Krannert School's undergraduate, masters, and executive programs, including the American Animal Hospital Association's Veterinary Management Institute and the Purdue Veterinary Practice Management Program. He has also conducted management development programs for Rolls-Royce / Aero Engine Controls, Cendant, Novartis, Pfizer, Lucent, Case Corporation and Owens-Illinois.

Dr. Jordan has served as a facilitator and consultant to a variety of business enterprises, campus departments and not-for-profit organizations and is a member of the Academy of Management, the Strategic Management Society, and the North American Case Research Association.

Kevin Koharki

Associate Professor of Management, Daniels School of Business

Kevin Koharki joined the Krannert School of Management at Purdue University as an associate professor in 2018. Prior to joining Purdue University, Kevin held a tenure track appointment at Washington University in St. Louis.

As a researcher, Kevin has published in leading academic journals including: *The Accounting Review*, *Journal of Accounting and Economics*, Review of Accounting Studies, *Contemporary Accounting Research*, and *Management Science*. His research broadly focuses on credit rating agencies and financial institutions.

Kevin has taught courses on both managerial accounting, advanced financial accounting, financial statement analysis, and accounting for EMBA students.

Jacqueline McCloskey

Director of Business Development, Fair Oaks Farms

At Fair Oaks Farms, Mrs. McCloskey has served as a brand representative and public spokesperson since 2019, regularly speaking to corporate groups, industry leaders, and Midwestern news outlets. She is involved in sales strategy for the multiple hospitality businesses under the Fair Oaks Farms brand. As part of the brand is a nonprofit business, she leads fundraising efforts for the educational and museum components on the campus. She also serves as the lead for master planning strategies to integrate new businesses into the existing campus. When a new business is identified and approved, she oversees the construction project management for the brand.

Douglas Pruim

Clinical Assistant Professor of Management, Daniels School of Business

Doug Pruim is an award-winning clinical assistant professor of business communication for the Daniels School of Business. He has a PhD and Masters in Interpersonal Communication from Purdue, as well as a Master of Divinity from Calvin Theological Seminary. He teaches graduate courses on Storytelling with Data, Communication for Accountants, and Persuasive Communication. His undergraduate course, Strategic Thinking and Decision Making, is co-taught with a professor from Purdue Polytechnic School as part of an NSF grant on cross-college collaborative teaching.

Doug has been teaching “speech” classes since 2002, and he spent ten years giving presentations and working with people as a pastor. His publications include “Disaster Day! Integrating speech skills though impromptu group research and presentation,” “Scientific storytelling: A narrative strategy for scientific communicators, “Implications of some “obvious truths” for building theories of deceptive message formulation and production,” “Grown-ups at play: Theorizing quintessential interpersonal experiences of connection, novelty, and mirth,” and “Critically fun: Analyzing humor in political comedy.”

In addition to these “academic” things, Doug has been performing comedy improv for decades, and he announces for women’s roller derby. He’s also pretty sure that these last two details were probably the real reason why he was invited to be part of this training event.

Lisa Roark

Business Operations Administrator, Technical Assistance Program

Lisa currently serves as the Business Operations Administrator for the Purdue Technical Assistance Program. Lisa has vast operations and administration experience from a career with Purdue University and the Purdue Research Foundation (PRF). Recently, Lisa spent over five years as the Investment Office Manager and Executive Assistant to the PRF Chief Investment Officer supporting the Purdue Endowment. Previously, Lisa worked as an assistant with the Purdue Manufacturing Extension Partnership and as the Account Manager for the Purdue College of Pharmacy, Center for Medication Safety Advancement. Along with positions at Purdue and PRF, Lisa has worked for Harley-Davidson and Procter & Gamble. Lisa holds an undergraduate degree in Business from Indiana University-Indianapolis and is a loyal Boilermaker.

Jim Stratton

Assistant Director of Operations, Technical Assistance Program

As the assistant director of operations for the Purdue Technical Assistance Program, Jim manages major programs and grant opportunities from both the public and private sector. He has worked with the Technical Assistance Program since 2009, where he started as a graduate assistant.

He graduated from Eastern Illinois University in 2009 with a BS in Engineering Technology and holds a MS and PhD in Mechanical Engineering Technology from Purdue University, where he graduated in 2016.

Jim's particular areas of interest and expertise include technology adoption practices, industrial automation, process specification, and operations.

Mat Trampski

Executive Director, Technical Assistance Program

Mat Trampski joined the Purdue Technical Assistance Program in 2013. Mat's responsibilities include directing and managing large-scale industry partnerships, directing cyberTAP activities, directing a team focused on business and technical systems, and executing several industry-sponsored programs.

Mat started his career in the Washington D.C. metro area as a systems analyst with Lockheed Martin. After Lockheed Martin, Mat also worked with General Dynamics, Advanced Systems Development Inc., and Blackbird Technologies. During his time with these companies, Mat supported several federal agencies including The National Reconnaissance Office, National Geospatial Intelligence Agency, The Immediate Office of the Secretary of Defense, and other DoD and intelligence agencies.

Mat received a B.S from Purdue University in Computer Technology - Telecommunication & Networking Technology and completed his graduate studies with Purdue University Global, receiving his M.S. in Higher Education Administration. Mat's areas of interest include cybersecurity, cyber-physical systems, enterprise information technology, and education.

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FEEDBACK - NOTES