

# 16th STS-AIChE Southwest Process Technology Conference

- ▶ Overview of Decision Analysis

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- ▶ Paul A. Wicker

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- ▶ Rosnik Solutions, LLC

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Sept 22-23, 2025, University of Houston





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**Paul Wicker**

Chemical Engineer – Purdue University 1981

Oil & Gas Industry for 40+ years

Last 27 years as a Decision Analyst

Retired from Chevron in 2024

Now work as a consultant for Rosnik Solutions

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## About Rosnik Solutions



- ✓ Strategy Development - Maximize ROI
- ✓ Engineering : Minimize Project Cost
- ✓ Operational Excellence : Maximize Margin
- ✓ Training courses (10)
- ✓ Presence in US, India & Middle East
- ✓ Focused on the Downstream & Chemicals Value Chains

### Strategy Development

- ✓ Decision Analysis (DA)
- ✓ Risk Value Balance
- ✓ **Agentic AI based DA (Unanimous)**
- ✓ **Enterprise heat map development (Accelare)**

### Engineering

- ✓ Develop Business Cases
- ✓ Early-Stage Project Development
- ✓ FEED & Detailed Engineering
- ✓ **Advanced Work Packaging (AWP - CX)**
- ✓ India Emissary Service

### Operational Excellence

- ✓ Troubleshooting
- ✓ Safety system studies
- ✓ Documentation
- ✓ **Visual workflow management tool for individuals & teams, DA & AI supported (Optimality)**

### **Problem Solving Course, offered through PetroSkills**

Interactive workshop with specific industry case studies targeting individuals responsible for operations and operations support of process plants with focus on Refining, Petrochemicals & Chemicals value chain

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Organized by the South Texas Section of AIChE<sup>®</sup>





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## What is Decision Analysis (DA)?

- “Decision Analysis” is poorly named
- A more appropriate name would be “Risk and Uncertainty Management”
- DA is a systematic methodology for making decisions under risk and uncertainty by:
  - Facilitating high quality, logical discussions
  - Bringing clarity to the chaos surrounding difficult decisions
  - Leading to a clear and compelling set of actions
- DA “puts the mental sidewalks where we walk”
  - Application the psychology of how we think and act to help make good decisions



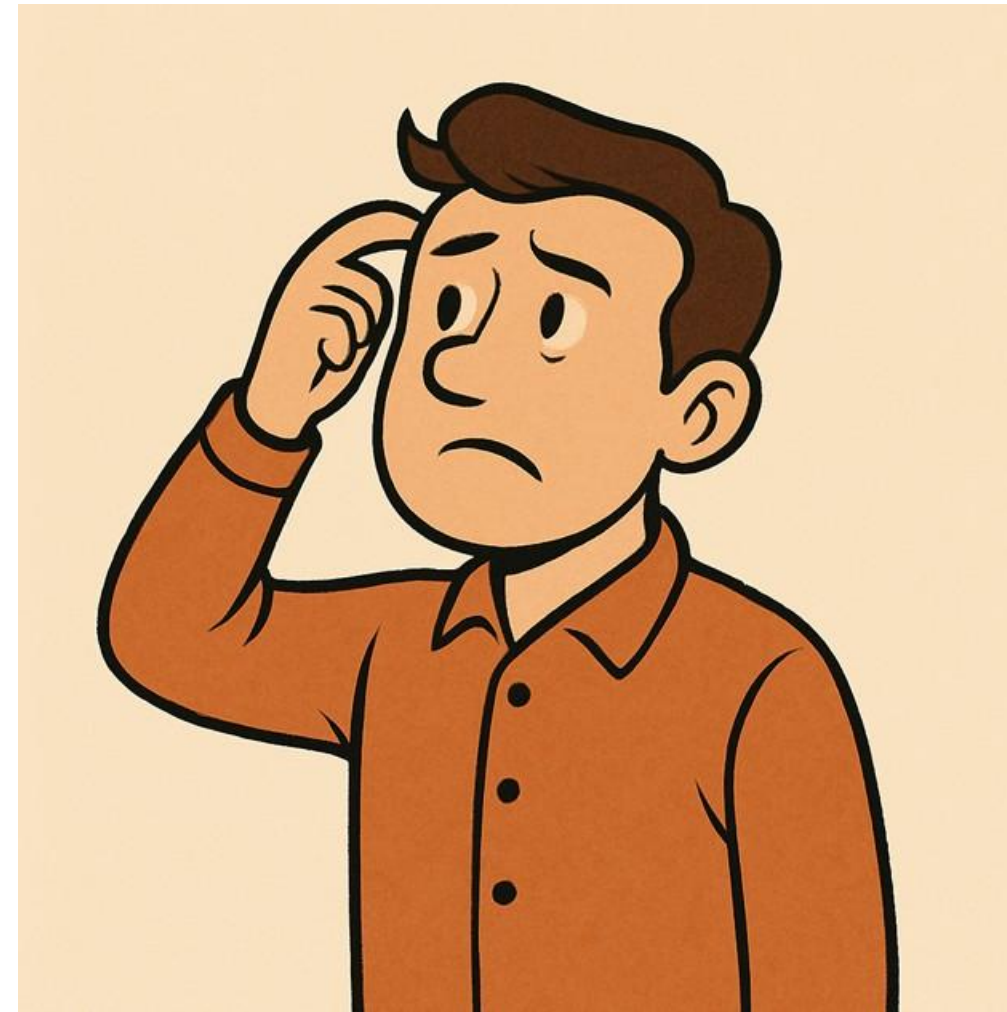


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## How do organizations make decisions?

- Advocacy approach
- Bring me a rock approach
- Analysis Paralysis
- Group Think
- “Satisficing”



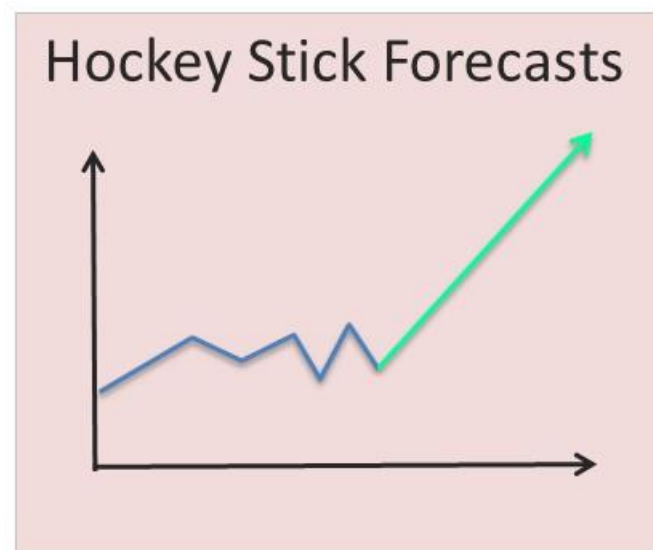


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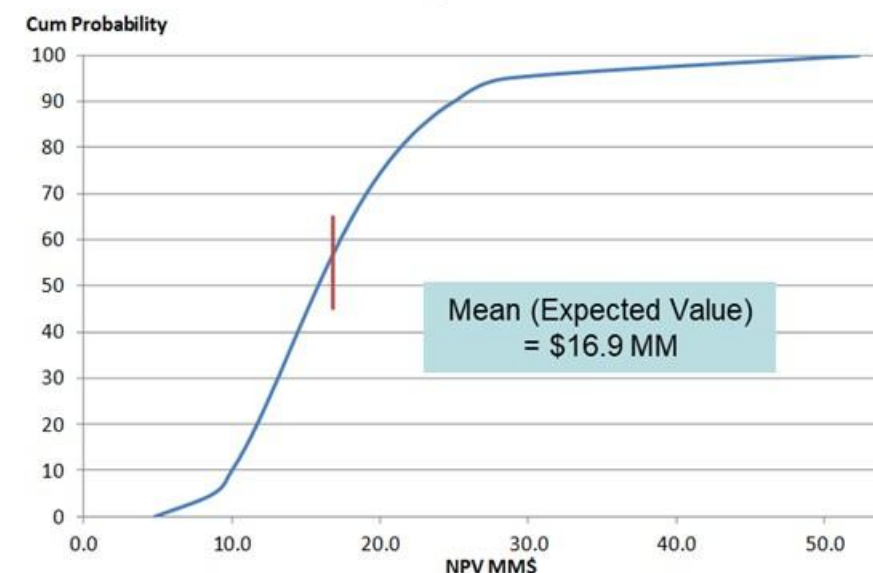


These approaches fail to deliver value because...

- Decisions are made based solely on experience and intuition
- Decisions are avoided or postponed
- Uncertainty and Risk are not understood and dealt with effectively
- A limited number of alternatives are considered
- Decisions are made autocratically or arrogantly



Poor Understanding of Uncertainties/Risks



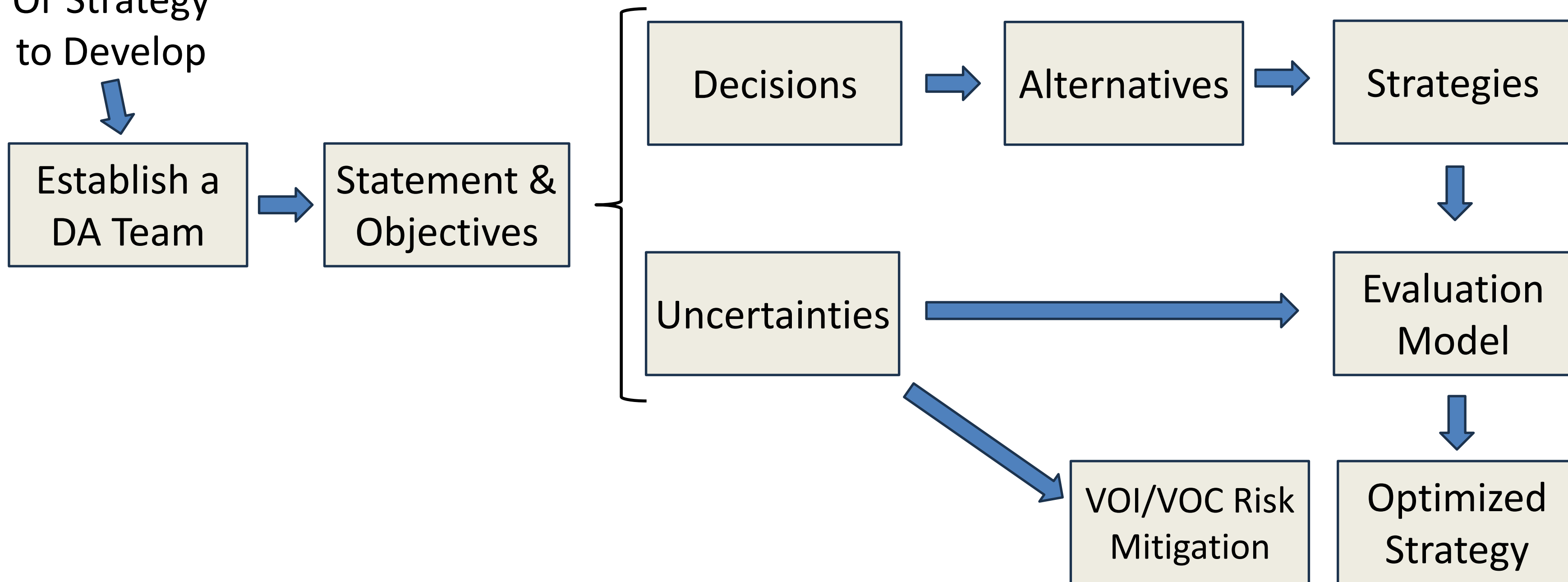


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## What is Decision Analysis (DA)?

Decision to  
Make  
Or Strategy  
to Develop





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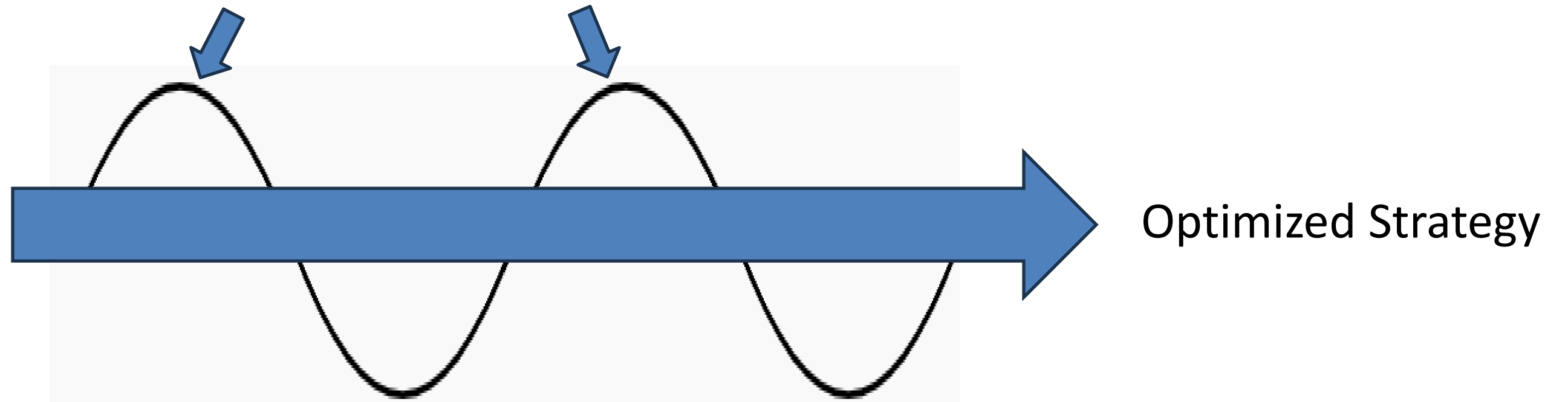
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Business Opportunity or  
Strategy Development



Meet with Decision Maker to Review  
Progress and Realign



Bringing the Decision Maker(s) along  
with the team eliminates recycle and  
working on the wrong problem



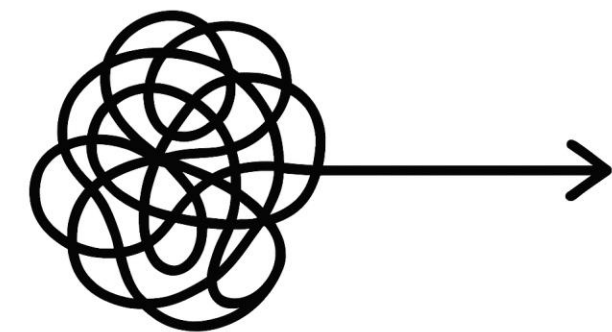


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## What is Decision Analysis and Where is the Benefit?

- Key Objectives of DA
  - Achieve alignment on Objectives
  - Develop robust set of alternatives to explore the entire decision space
  - Flexibility and scalability - Apply the appropriate tools given the strategic need
  - Provide a deep understanding of risk and uncertainty through probabilistic analysis
  - To bring confidence and clarity out of chaos and complexity
  - To develop executable, optimized strategic solutions
  - Improve VALUE





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## Decision Analysis Answers These Questions

- Did you consider all the alternatives?
- Was the Team creative in coming up with the solutions?
- What is the probability of making the key objectives?
- What is the greatest risk to the project?
- What is the upside to the project?
- Did you consider doing nothing? Or doing it later?
- If results go poorly, the dreaded “What were you thinking when you made that decision?” question.



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## Questions?

