Only You Can Prevent AI Failures

The critical role of business analysts in delivering Machine Learning and AI

James Taylor, CEO

AI will add **$13T** to the global economy

97% are investing in AI

- ► **75%** AI will enable new businesses
- ► **85%** AI will allow a competitive advantage
- ► **76%** AI will "substantially transform" companies

AI will add $13T to the global economy over the next decade
—Building the AI Powered Organization, HBR July-2019
97% of firms are investing in big data and artificial intelligence (AI)
—2019 survey by New Vantage Partners
Three-quarters of executives believe AI will enable their companies to move into new businesses.
Almost 85% believe AI will allow their companies to obtain or sustain a competitive advantage.
—Reshaping Business With Artificial Intelligence, MIT Sloan Management Review September 06, 2017
76% [believed AI] will "substantially transform" their companies within the next 3 years
—Tom Davenport, The AI Advantage

- **Gartner 2019:**
  - 86% have initiated AI projects
  - 4% have AI deployed

  - **Most firms**
    - Ad-hoc AI pilots
      or AI in one business process
    - Struggle to move beyond pilots

- **Gap between ambition and execution**
  - 20% AI in some processes
  - 5% Extensive AI

Gartner's 2019 CIO survey points to the fact that, although 86% of respondents indicate that they either have AI on their radar, or have initiated projects, only 4% have projects currently deployed.

In a 2017 McKinsey survey with 3,000+ respondents, only 20% had adopted one AI technology in one part of their business

The gap between ambition and execution is large at most companies… only about one in five companies has incorporated AI in some offerings or processes. Only one in 20 companies has extensively incorporated AI in offerings or processes. Across all organizations, only 14% of respondents believe that AI is currently having a large effect on their organization's offerings.
—Susan Athey, Economics of Technology Professor at Stanford Graduate School of Business, quoted in MIT Sloan Management Review September 06, 2017

Many organizations' efforts with [AI] are falling short. Most firms have run only adhoc pilots of are applying AI in just a single business process… Firms struggle to move from the pilots to companywide programs
—Building the AI Powered Organization, HBR July 2019

A Definition

► **valuable ai**

► Adjective-Noun Pair: an algorithm of any type that has caused the organization that paid for its development to <mark>change its decision-making</mark> in a way that <mark>has added business value</mark> to that organization.

There are two critical issues in this definition. The first is that the organization must have changed its behavior – its decision-making. If you don't change your behavior you can't improve results and for AI that means changing decision-making behavior.
The second is that measures of success must be in business (not technical terms) and must have shown up in historical results. Too many AI projects are still projecting benefits not reporting on them.

A Show Of Hands

If You Have AI
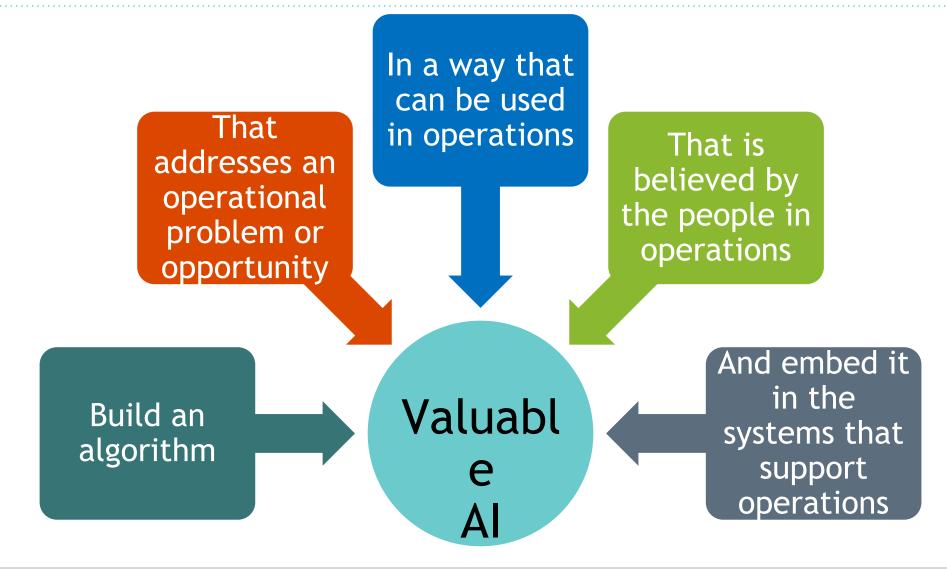
- ▶ Actually deployed and in use
- ▶ Positive results described in business terms
- ▶ Results measured in the past not projected in the future
  - ▷ Not RPA, chatbot, OCR or image recognition
  - ▷ No startups or tech firms

Building Valuable AI Seems Straightforward

But It Isn't

Too Many Algorithms Are Either

Not Actionable

Solves wrong problem
Too hard to use
Too expensive to use

Not Actioned

Not Integrated
Not Believed
Not Used

Critical Success Factors

Experience is that AI projects must be focused on a specific decision from the beginning. You cannot simply develop an AI and then try to figure out how to improve a decision with it.

1 Decisions Matter

Adopt a business decision-centric approach to AI – one that puts business decisions first. This means focusing on decision-making and changing how you define AI requirements to bring more business knowledge into AI projects.

Because core AI algorithms are decision-making, AI is often presented as "replacing" other decision-making technologies like business rules, data mining or optimization. However, not all problems are best solved by AI and machine learning.

2 AI Does Not Stand Alone

Consider AI as one of a set of decision-making technologies not a standalone technology stack. Specifically, it must be combined with expert knowledge – business rules – to be effective

1

Decisions Matter

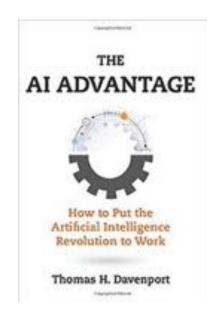## Particularly
Operational Decisions

Especially
Digital Decisions

Focusing AI on decision-making dramatically increases the odds of success.
Because operational decisions are made repeatedly and in large numbers, they generate the data you need for AI and repay an investment in an AI Algorithm.
It also turns out that embedding AI into an automated, digital decision is more effective than presenting the results to a human user, so digital decisions are key.

> *"There are relatively few examples of radical transformation with [AI] technologies actually succeeding, and many examples of 'low hanging fruit' being successfully picked "*

Tom Davenport

Applying one or more simple AI algorithms to solve an operational decision-making problem dramatically increases the odds of AI success and the multiplicative effect of many decisions made repeatedly creates real, strategic impact.
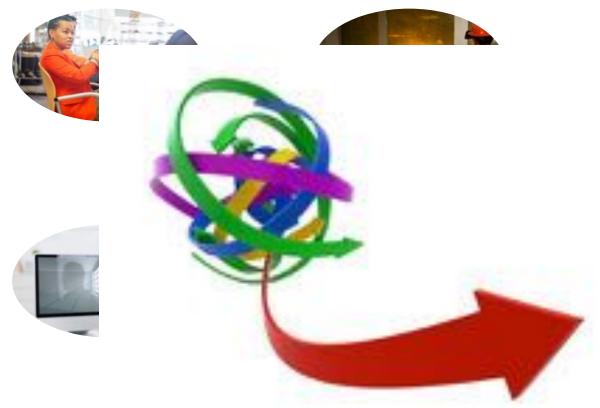
Let the data speak

Let the people speak too

There's a misconception that it's always going to be better to let an algorithm determine a solution, but that won't always be the case. AI isn't a good fit for every sort of problem.

—Building the AI Powered Organization, HBR July 2019

Data scientists and AI developers often say "let the data speak" and act as though an organization can do exactly what its data suggests is best. This is rarely true, especially in regulated industries and large companies where expertise, policy and regulation all matter.

You Need To Get Everyone On the Bus

This means that decisions – and therefore AI - live at the intersection of data science/AI, business, operations and IT. All these groups have a role and only working together will get you to a valuable AI
You have to get everyone on the bus if you are going to succeed with AI.

The Good News

Same problem for AI as for other projects

This is your skill set

This challenge, creating a shared understanding of requirements across business, operations, IT and data science teams, is one business analysts are uniquely positioned to address.

The Bad News

Traditional
requirements
approaches don't work
for decisions

You can't just
write documents,
harvest rules
or model processes

Requirements documents, business rules and business processes all turn out
to be very poor ways to write requirements for AI. You need to own the
definition of AI requirements, but you can't use your existing techniques.
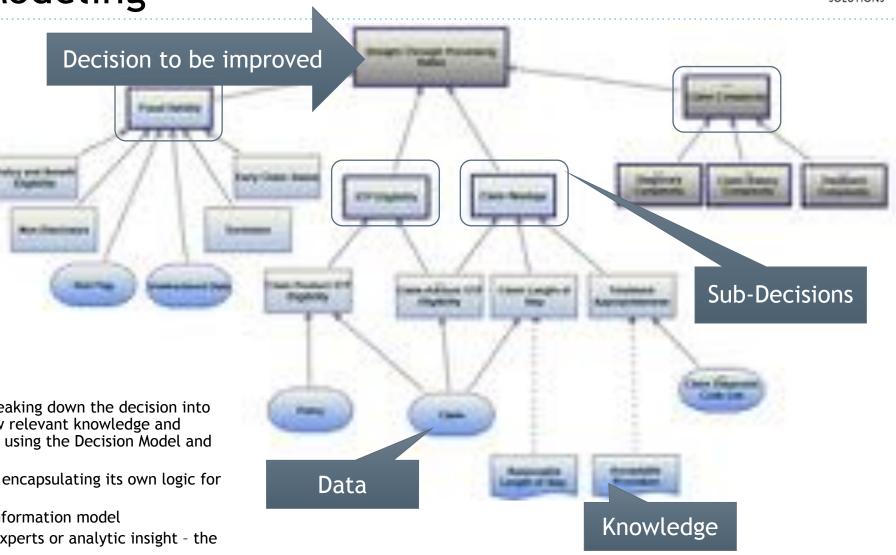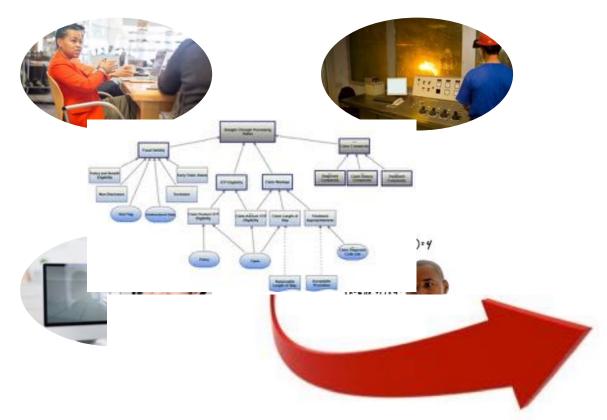
I WANT YOU TO MODEL DECISIONS

What Is Decision Modeling

► **Decision**
  ► Specific question
  ► Allowed answers

► **Data**

► **Sub-Decisions**

► **Knowledge Sources**

A decision model clarifies the decision-making, breaking down the decision into sub-decisions, showing where data is used and how relevant knowledge and analytics are applied. Decision models are defined using the Decision Model and Notation (DMN) standard.

- Decisions break down into sub-decisions, each encapsulating its own logic for reuse and clarity
- Input Data are logical entities, each with an information model
- Knowledge Sources are policies, regulations, experts or analytic insight – the sources of rules and AI

Decision Models Get Everyone On the Bus

A decision model
maps it to busine
A decision model is built using the expertise of business and operations people, so it reflects operational reality.
A decision model has a formal structure and captures business rules and decision logic for implementation.
Finally a decision model shows the AI and data science team what algorithms are needed and where they fit, framing the problem precisely to ensure valuable AI is what gets developed.

3 Steps to Succeed

3. Frame AI

Build a decision model to frame AI | AI doesn't stand alone: Add rules

2. Let The Experts Speak

Talk to the business and operations | Let them tell you how they decide

1. Begin With The Decision In Mind

Know what decision you are improving | Know what improve means

Begin with the Decision in Mind

- ► **What (business) measures?**
  - ► Customer satisfaction

- ► **What (business) decisions have an impact?**
  - ► Pricing, claims handling, renewal

- ► **Which decision should we improve?**
  - ► Claims handling

- ► **What does improve mean?**
  - ► Increase STP rate without more fraud or waste

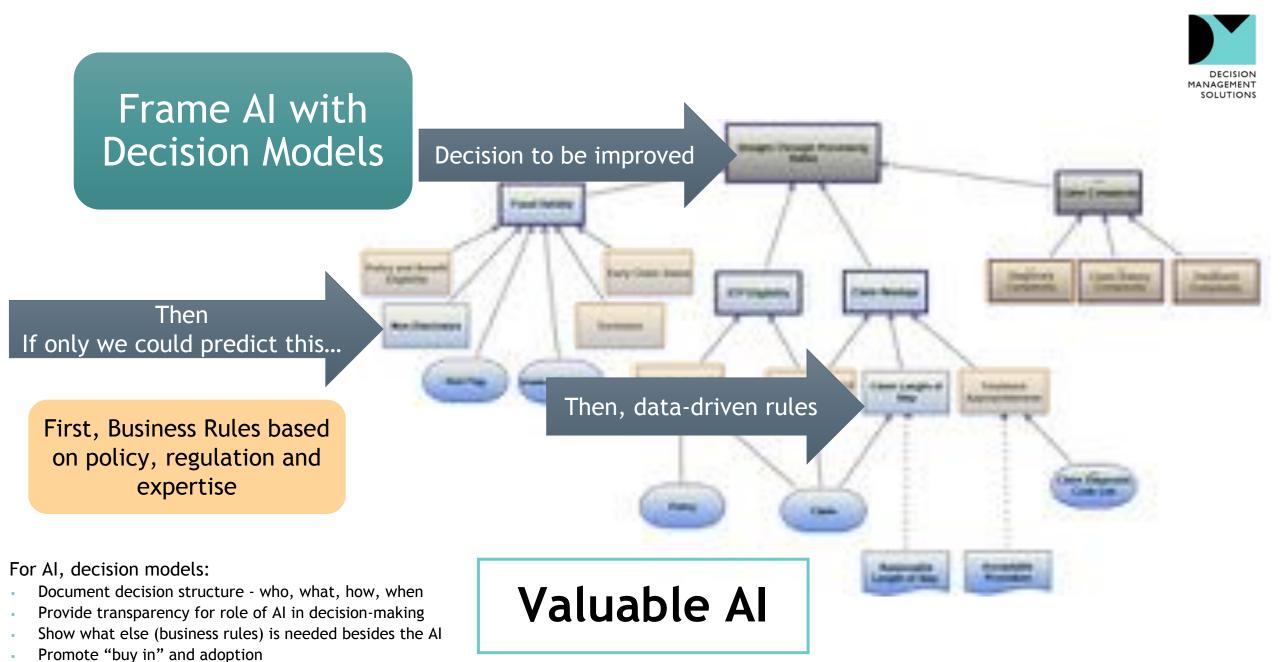## Make the project about the **Decision**, not **AI**

Let The Experts Speak

- **Actual business and operations people**
  - Not just analysts
  - Not just IT
  - Not just the people who know the system

Decisions First Design Thinking

Frame AI with Decision Models

Decision to be improved →

Then
If only we could predict this… →

First, Business Rules based on policy, regulation and expertise

Then, data-driven rules →

For AI, decision models:
- Document decision structure - who, what, how, when
- Provide transparency for role of AI in decision-making
- Show what else (business rules) is needed besides the AI
- Promote "buy in" and adoption

Valuable AI

ONLY **YOU**
CAN PREVENT AI FAILURES

Begin with the Decision in Mind

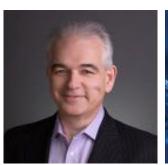Let The Experts Speak, Not Just the Data

Frame AI with Decision Models

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Thank You

For more on
Decision Management, go to:
decisionmanagementsolutions.com