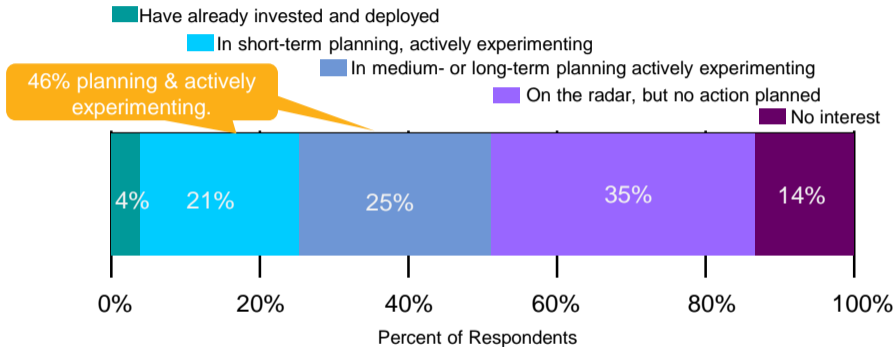


# A Framework For AI in Procurement

Magnus Bergfors  
2019-06-03

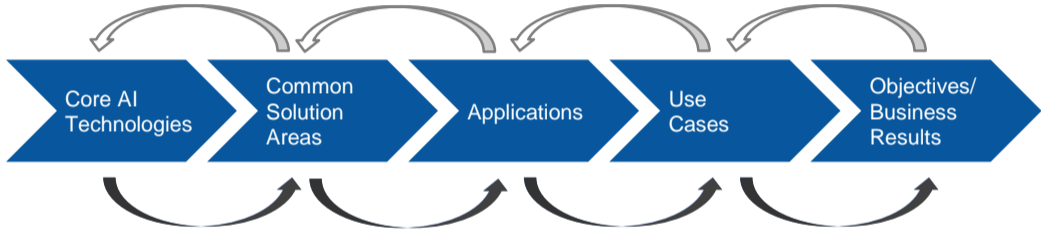
# Plans for Artificial Intelligence, 2018



Base: Respondents to the 2018 Gartner CIO Survey, excludes DK, n = 3,138

Question: What are your organization's plans in terms of the following digital technologies and trends? ID: 328115

## Define objectives first,



**then evaluate how to accomplish them.**

From document: *A Framework for Applying AI in the Enterprise*

From Gartner document: *How to Define and Use Smart Machine Terms Effectively*

# A Framework for Applying AI in the Enterprise

## Core AI Technologies

Learning
Language
Vision

## Key AI Support Technologies

Analytics
Data Science
Automation



## Common AI Solution Areas

Virtual Assistants
Conversational
Predictive Analytics
Process Automation
Imbedded AI



## AI Throughout the Enterprise

Customer Service
HR
Marketing
Sales
Security/Fraud
... Many others

## Strategic AI Applications

Competitive Differentiation
-----------------------------

## Use Cases

Use cases, vary by segment and industry

## Objectives

Objectives and business results vary by business



Adapted from document: *A Framework for Applying AI in the Enterprise*

# Or A Framework For AI in Procurement

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Predictive Analytics

Process Automation

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## AI in Procurement

Analytics

Contract Management

Supplier Management

Sourcing

P2P

... Many others

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Competitive

Differentiation



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... Many others

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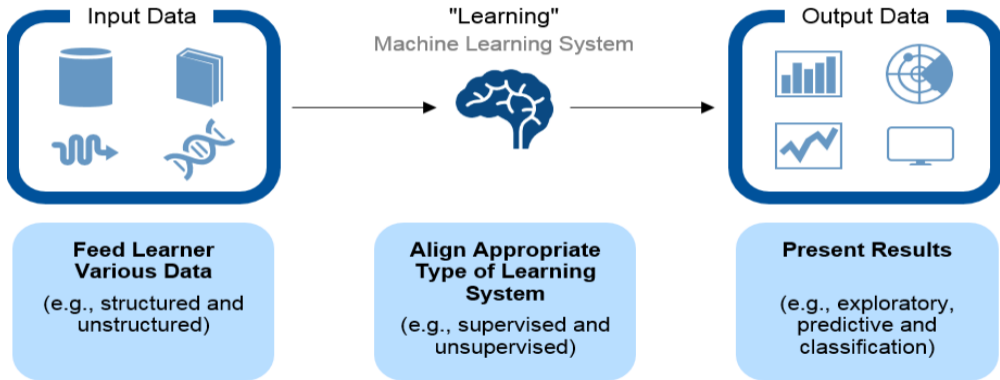
## Objectives

Objectives and business results vary by business
--




Adapted from document: *A Framework for Applying AI in the Enterprise*

# Machine Learning — The Basics



From Gartner document: *Preparing and Architecting for Machine Learning*

# Supervised Learning Examples: Mapping Inputs to Outputs

Input		Output	Example Application
Voice recording	➔	Transcript	Speech recognition
Historical market data	➔	Future market data	Trading bots
Photograph	➔	Caption	Image tagging
Drug chemicals	➔	Treatment efficacy	Pharmaceutical
Store transactions	➔	Fraudulent transactions	Fraud detection
Recipe ingredients	➔	Customer reviews	Food recommendations
Purchase histories	➔	Future purchasing	Customer retention
Car locations and speeds	➔	Traffic flow	Traffic light timing
Faces	➔	Individuals' names	Face recognition

From Gartner document: *Comparison of Amazon, Google, IBM, Microsoft*



# Three Common Technology Areas Driving AI Solutions



**NOTE: All three may be leveraged for a complete solution.**



## Deep Neural Network Machine Learning

Pattern recognition, data mining, train on large datasets. Basis for advances in NLP, computer vision, analytics.



## Natural Language Processing (NLP)

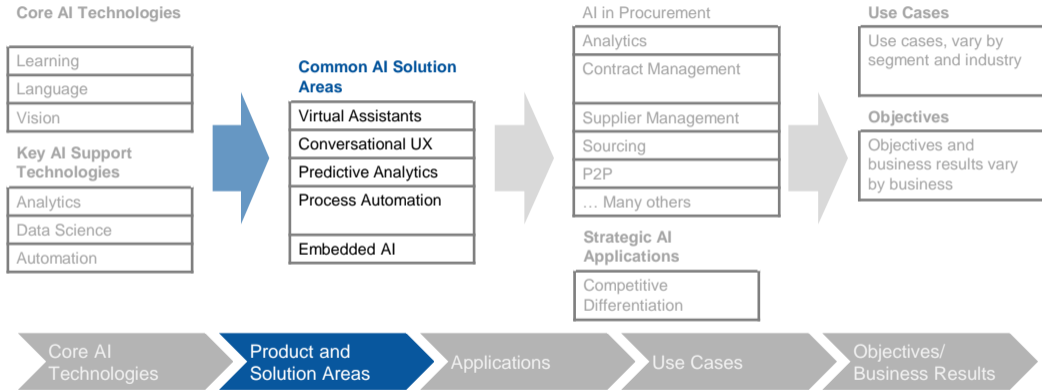
Translation, speech transcription, virtual assistants, sentiment analysis, language generation, content moderation ...



## Computer Vision

Label extraction from image (car, person, tree, etc.), face recognition, image attributes (face gender), OCR to text ...

# A Framework for Applying AI in the Enterprise



Adapted from document: *A Framework for Applying AI in the Enterprise*

# Three Common Focuses for AI Solution Benefits



**NOTE: All three may be leveraged for a complete solution.**



## Insights

- Uses DNNs and predictive analytics, as well as established analytic methods to identify patterns and trends
- E.g., Modeling, optimizing, forecasting, personalization, fraud detection



## User Experience

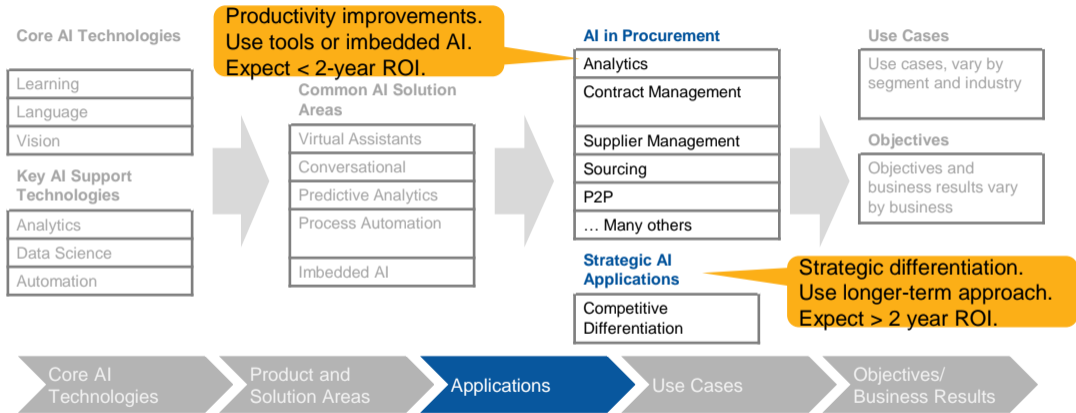
- Uses AI methods, including NLP language, specialized devices, and other software to improve the user experiences
- E.g., Natural language assistant, language translation



## Process Improvement

- Uses broad range of AI methods to improve automation and processes flows.
- E.g., IoT, robots, AI imbedded and with business applications

# A Framework for Applying AI Procurement



Adapted from document: *A Framework for Applying AI in the Enterprise*

# Differentiate Your Strategic and Operational AI Solutions

## Strategic Applications

- Unique initiatives
- Competitive differentiation
- Extensive curation of data
- Significant, multiyear, initiative and long-term ROI
- Operated by AI experts
- E.g., medical imaging



## Operational Applications

- Existing applications
- Departmental purchase
- Easier integration and configuration
- < 2-year ROI
- Operated by bus person
- E.g., Spend Classification



# A Framework for Applying AI in Procurement

Let you understand, communicate, and evaluate the options.

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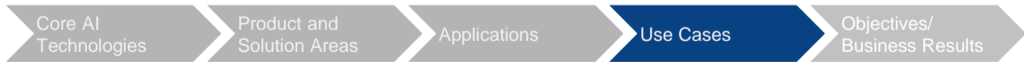
## AI in Procurement

Analytics
Contract Management
Supplier Management
Sourcing
P2P
... Many others
<b>Strategic AI Applications</b>
Competitive Differentiation



## Use Cases

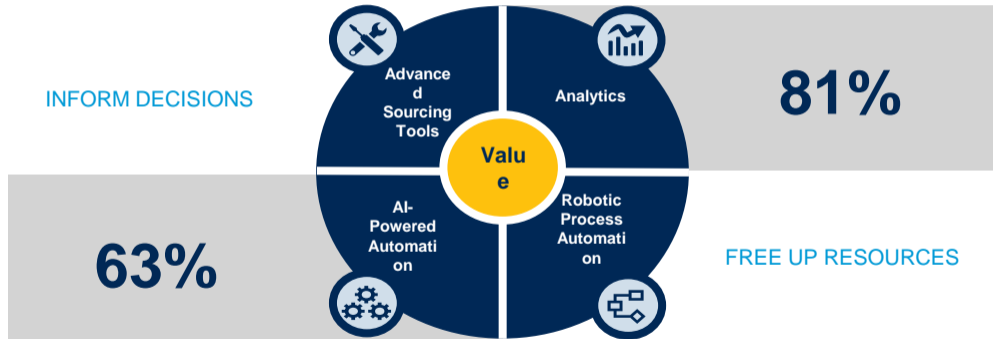
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<b>Objectives</b>
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Adapted from document: *A Framework for Applying AI in the Enterprise*

# Where Technology Will Most Benefit Procurement

'Disruptive and important' for future strategy



Source: Gartner SCM World Future of Supply Chain Survey 2018

% of procurement respondents, n=125

# Spend Analytics Will Become Procurement Analytics

- Predictive and prescriptive analytics across all procurement and sourcing data
- Chatbot/VEA interactions.
- Embedded contextualized analytics
- ML based spend classification.
- Smart enrichment.
- Automated data discovery



Insights



User  
Experience



Process  
Improvement



# Better Sourcing Decisions

- Community Intelligence
- Cost breakdowns
- Sourcing Optimization
- Strategy recommendations (lots, format etc.)
- Automated supplier feedback



**Insights**



**User  
Experience**



**Process  
Improvement**

# Higher Levels of Automation in CLM

- Contract Creation Virtual Assistant
- Automated Contract Reviews
- Obligation extraction and monitoring
- Dynamic search and alerts



Insights



User  
Experience



Process  
Improvement

# Focus Supplier Management on Strategic Activities

- Leverage procurement analytics to create supplier 360 views
- Automated data collection
- Automated alerts
- Predictive and prescriptive risk and performance management



Insights



User  
Experience



Process  
Improvement

# Autonomous Procure-to-Pay

- VEA and chatbot interfaces
- Embedded analytics
- Simplified e-invoicing
- Automated approvals



Insights

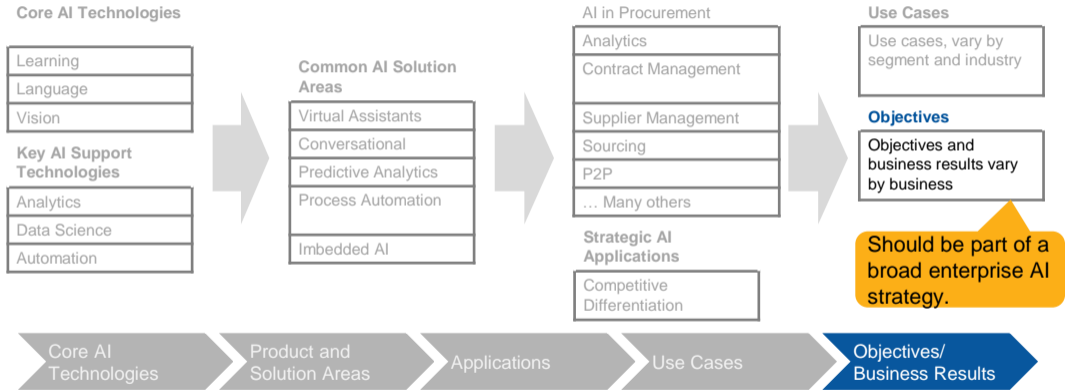


User  
Experience



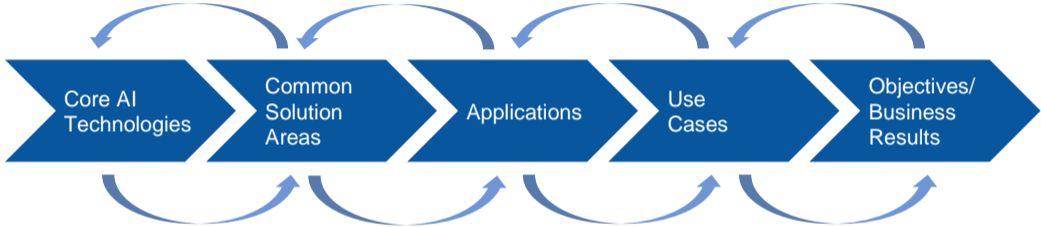
Process  
Improvement

# A Framework for Applying AI in the Enterprise



Adapted from document: *A Framework for Applying AI in the Enterprise*

**Gain experience, and review objectives,**



**continuously iterate how to accomplish objectives.**

# Planning Your AI Roadmap — In a Nutshell

User Profile	Now	By Three Years From Now
Modest Adoption	Case studies to understand what might be useful.	Use pre-integrated AI solutions.
Advanced Adoption	Establish a vision and roadmap for AI.	Develop AI skills, data capabilities, and experience.
Aggressive Adoption	Establish a cross organization AI structure.	Launch initiatives w/AI continuously.