



# Manufacturing Transformation

Manufacturing IP Solutions

# How Concurrency Helps You Leverage Technology to Drive Business Outcomes



# Scenarios for Transformation



Automate Supply  
Chain Optimization



Automation Sales  
Quoting with  
Intelligent Agents



Predictive Maintenance  
Manufacturing  
Framework



Smart Warehouse & AI  
for Good



Smart Products



Customer Insights



Quality Management



Cycle Counting

# Concurrency Manufacturing IP & Offers



Concurrency Manufacturing IP Solution	MFG Priority Solution Impacted	Activation Method	Customer Cost (funding available)	Customer ROI	Customers	Workloads
Demand & Inventory Forecasting	<ul style="list-style-type: none"> <li>Create more resilient supply chain</li> <li>Build more agile factories</li> </ul>	Customer Two Hour Workshop, Leading to Pilot	\$50k pilot \$250k - \$500k project	10% – 30% inventory & logistics optimization = \$40m	Clover, Ryerson, Dominion, Milwaukee Tool, Brunswick, Valmont	Azure ML, AKS, Azure Synapse, Databricks, Power BI
Inventory Location & Shipping Optimization	<ul style="list-style-type: none"> <li>Create More Resilient Supply Chain</li> <li>Build More Agile Factories</li> </ul>	Customer Two Hour Workshop, Leading to Pilot	\$50k pilot \$250k - \$500k project	Up to 60% reduction in customer shipping costs = 80% optimization	Clover, Ryerson, Dominion, Milwaukee Tool, Brunswick, Valmont	Azure ML, AKS, Azure Synapse, Databricks, Power BI
Cycle Counting	<ul style="list-style-type: none"> <li>Accelerate cycle counting processes</li> </ul>	Customer Two Hour Workshop, Leading to Pilot	\$50k pilot \$250k project	50% reduction in cycle counting, 75% increase in accuracy over manual	Clover	Azure ML, AKS, Azure Synapse, Databricks, Power BI
Flash Quoting with Intelligent Agent or Bots	<ul style="list-style-type: none"> <li>Engage customers in new ways</li> </ul>	Customer Two Hour Workshop, Leading to Pilot	\$50k pilot \$650k project	1 – 2% sales uplift = \$40m	Ryerson, Duff & Phelps, Clover Technologies	Bot Framework, AKS, Synapse, Azure ML
Quality Management	<ul style="list-style-type: none"> <li>Inspect quality of produced products</li> </ul>	Customer Two Hour Workshop, Leading to Pilot	\$50k pilot \$900k project	25% reduction in re-work, 300% reduction of inspection time, 25% increase in revenue tied to discovered service failures	Quad, Brunswick, Clover, Burgess & Nipel, Perigen, Hereaus, Barr Engineering, Baliwick	Bot Framework, AKS, Synapse, Azure ML
Predictive Maintenance Manufacturing Framework	<ul style="list-style-type: none"> <li>Build more agile factories</li> </ul>	Customer Two Hour Workshop, Leading to Pilot	\$50k pilot \$250k - \$500k project	Per hour manufacturing cost optimization and repair cost optimization = \$10m+	Johnson & Johnson, Burgess & Nipel, Hereaus, Brunswick, Perigen, Barr Engineering	Azure IoT, Azure ML, AKS, Synapse
Smart Warehouse and (AI for Good)	<ul style="list-style-type: none"> <li>Build more agile factories</li> <li>Transform your workforce</li> </ul>	Customer Two Hour Workshop, Leading to Pilot	\$50k pilot \$200 – \$300k project	Improved picking efficiency, ability to employ individuals with cognitive disabilities	Clover, Open Source, CESMII	Bot Framework, Cognitive Services, Azure ML
Product IoT Framework	<ul style="list-style-type: none"> <li>Unlock innovation and deliver new services</li> </ul>	Customer Two Hour Workshop, Leading to Pilot	\$50k pilot \$250k - \$1m project	10 – 20% price increase through “smart” product uplift= \$25m+	Burgess & Nipel, Hereaus, Brunswick, Perigen, Barr Engineering, Microsoft, Reinhart, Clover	Azure IoT, Azure Sphere, Synapse, Azure ML
Product Catalog & Customer Usage	<ul style="list-style-type: none"> <li>Unlock innovation and deliver new services</li> </ul>	Customer Two Hour Workshop, Leading to Pilot	\$50k pilot \$200k – \$500k project	5% sales uplift tied to new products or offers to customers with existing needs discovered	FedEx, UL, Sun Country, MPTC	Azure Synapse

# Customer Insights

Big data driving intelligence in supply chain and new sales

# Customer Insights



## Summary

Gain insights into customer opportunities and monetize data by acceleration into big data approaches. In essence we're enabling the exploration of data over just reports and scorecards for use cases that require a serious transition



## Customer ROI

**New revenue stream** tied to monetizing aggregate de-identified customer data

**Accelerated sales** to target customers based on awareness of deployed product

**Time to decision decrease** for critical ROI driven opportunities



## Customer Examples

FedEx, UL, Sun Country



## Timeline

An initial model activated **over 5 weeks**, with 16 week operationalized environment

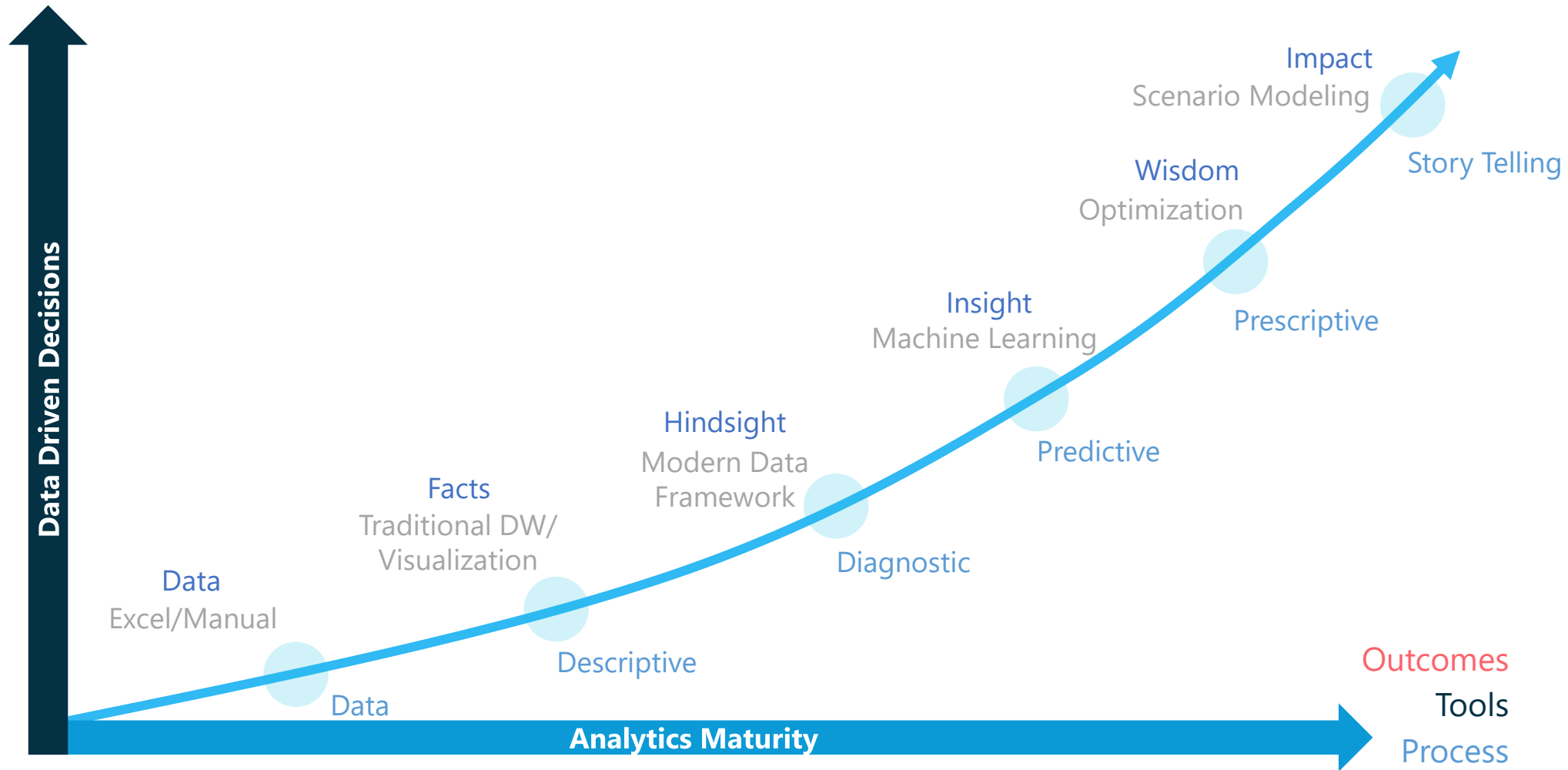


## Workloads

Modern Data Framework

- Synapse
- Azure ML

# Analytics Maturity Curve



# Data Science and Business Analytics

view data in very different ways



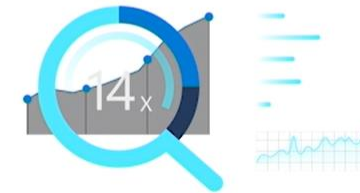
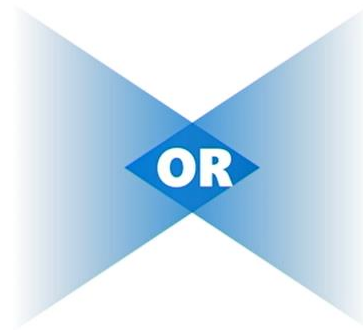
## DATA SCIENCE

Big data

Experimentation

Fast exploration

Semi-structured



## BUSINESS ANALYTICS

Relational data

Proven security & privacy

Dependable performance

Structured



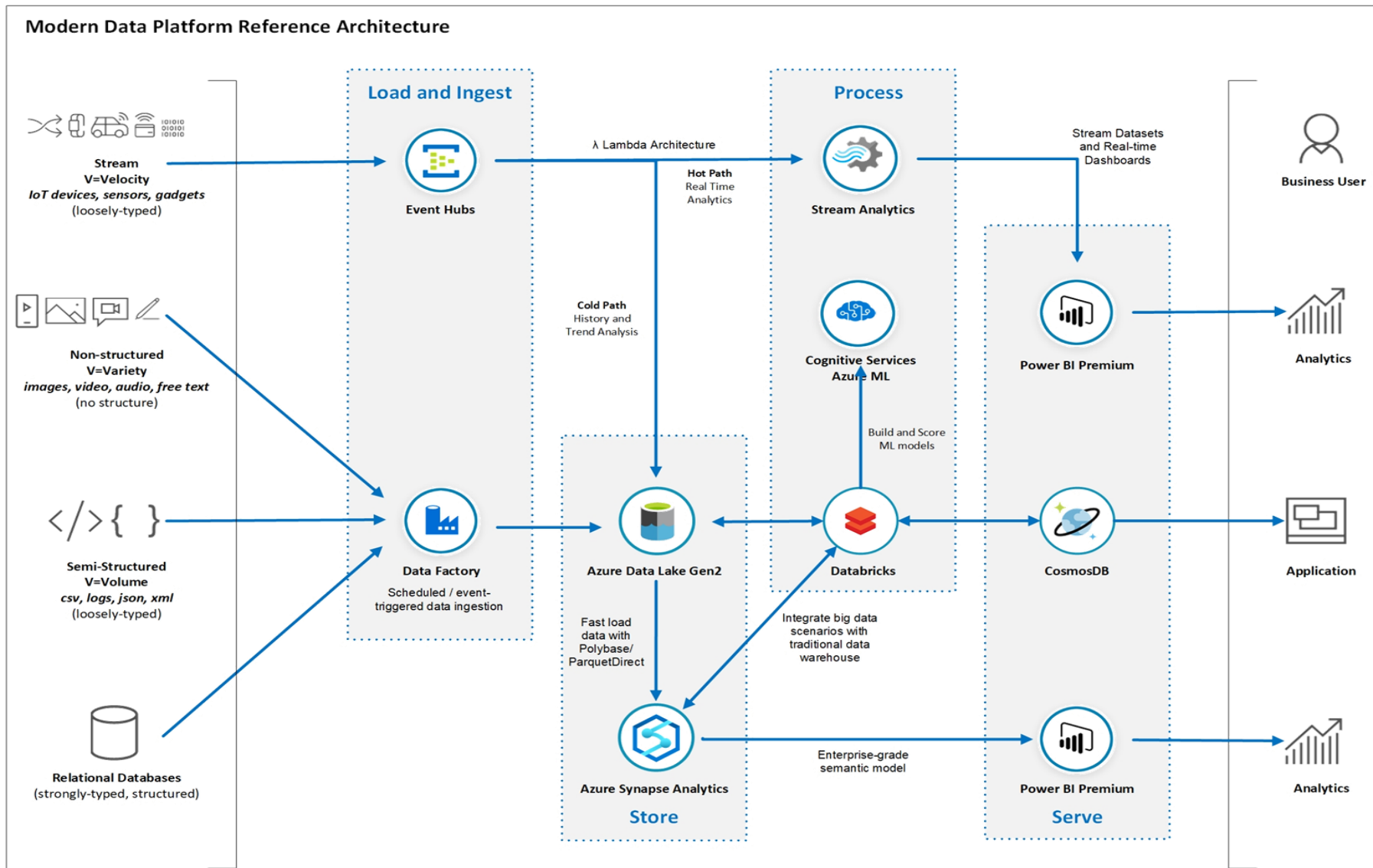
## DATA LAKE



## DATA WAREHOUSE



# Azure Data Environment



# Architecture



# B2B Engagement

Driving enhanced B2B sales with  
intelligent NLP and bots

# B2B Engagement



## Summary

Create B2B relationships that resemble B2C selling advancements by optimizing the Time to Quote and customer-centricity of ordering/fulfilling/delivering



## Customer ROI

**Advanced revenue** tied to optimizing customer interactions with B2C technologies

**Revenue efficiency** from supply chain awareness and optimization

**Time to decision decrease** for critical ROI driven opportunities



## Customer Examples

Ryerson, Clover, Brunswick, Navistar



## Timeline

An initial model activated **over 5 weeks**, with 16 week operationalized environment

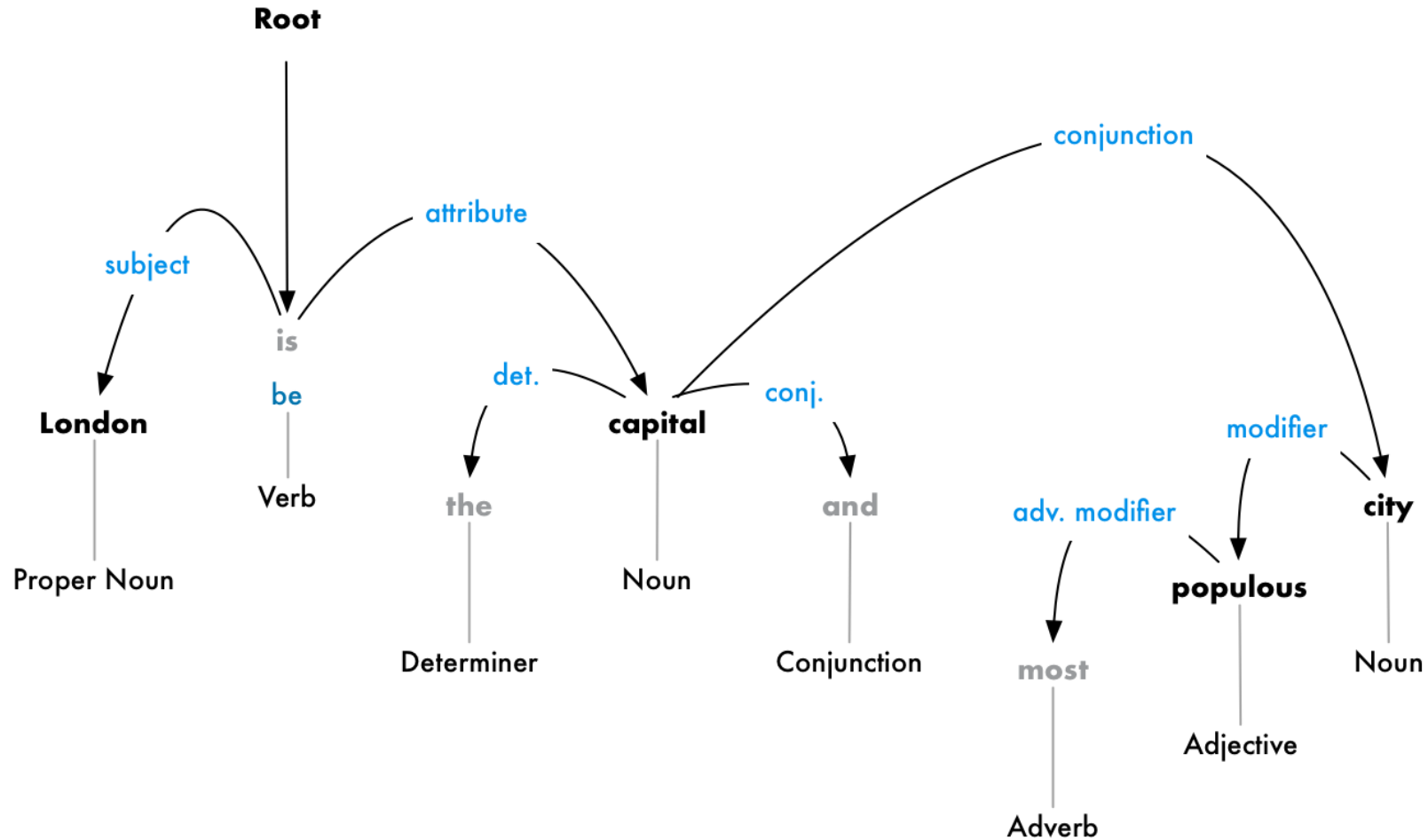


## Workloads

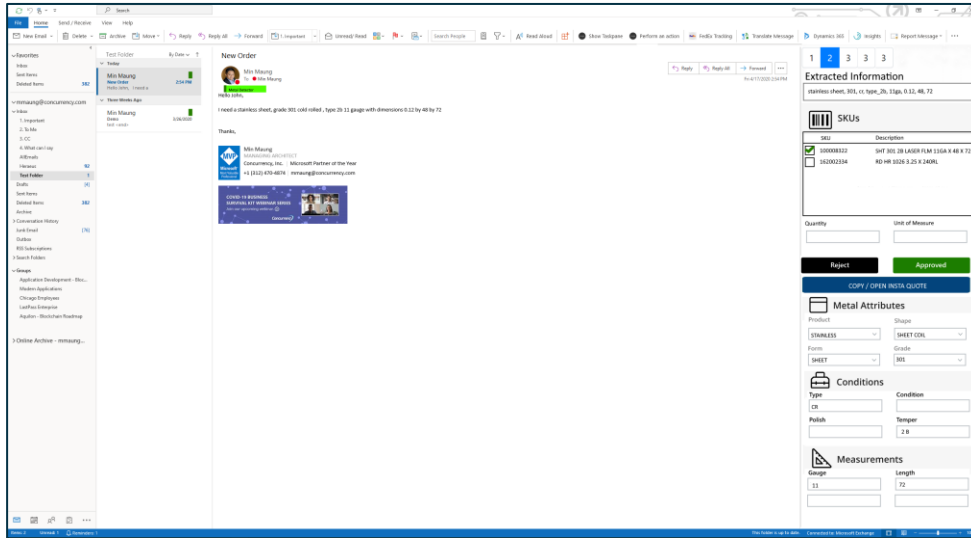
Modern Data Framework

- Synapse
- Azure ML
- Azure Bot Service

# AI – ML and Data Story



# The actual outcome and how



 Min Maung  
To  Min Maung  
**Metal Detector**

Hello John,  
I need a stainless sheet, grade 301 cold rolled , type 2b 11 gauge with dimensions 0.12 by 48 by 72

1 2 3 3 3

### Extracted Information

stainless sheet, 301, cr, type\_2b, 11ga, 0.12, 48, 72

### SKUs

SKU	Description
<input checked="" type="checkbox"/> 100008322	SHT 301 2B LASER FLM 11GA X 48 X 72
<input type="checkbox"/> 162002334	RD HR 1026 3.25 X 240RL

Quantity  Unit of Measure

### Metal Attributes

Product  Shape

Form  Grade

### Conditions

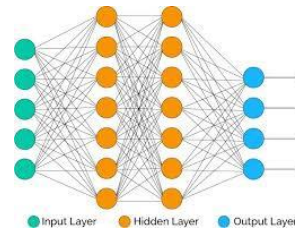
Type  Condition



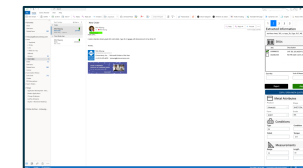
Cloud Transformation



Secure Modern Workplace



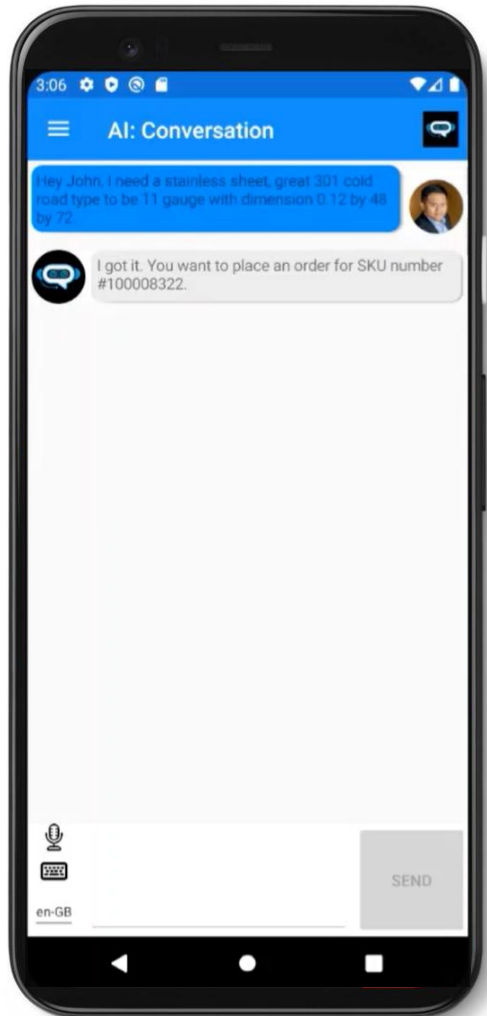
Data & AI



Apps & Product

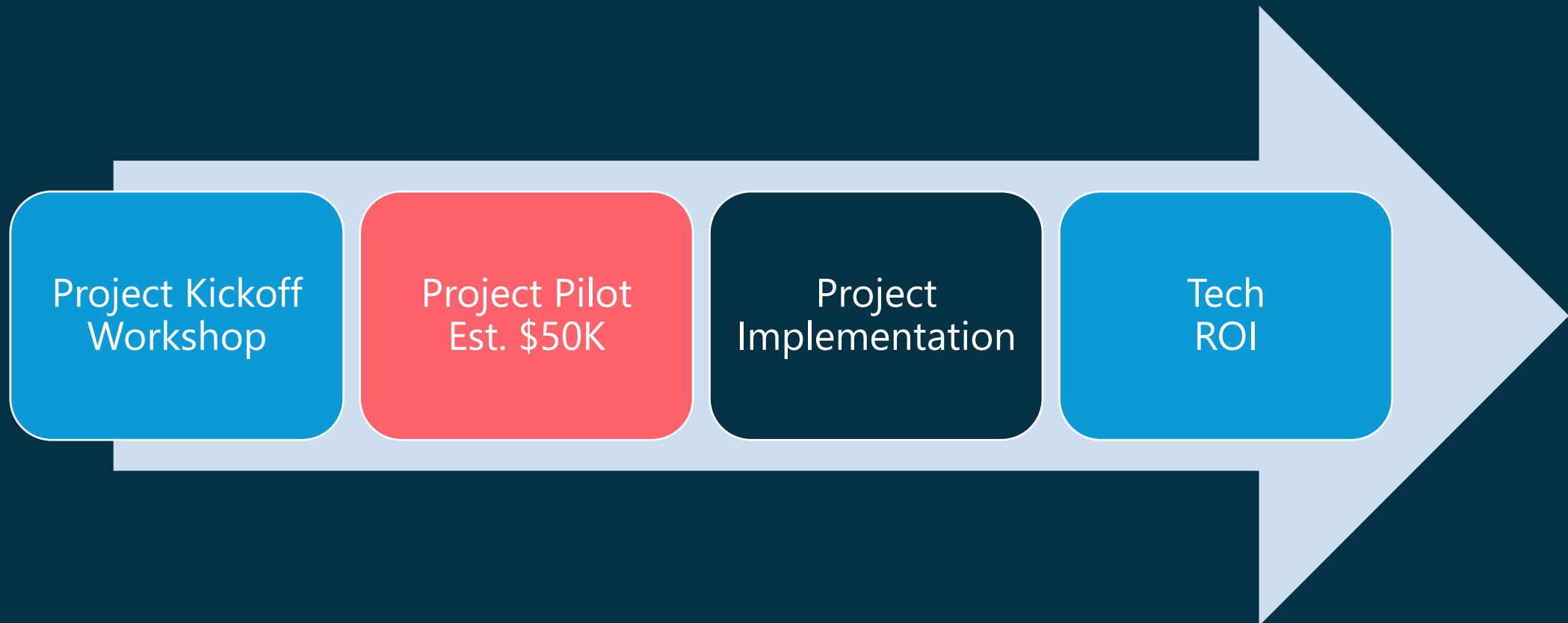


# Painting the next steps



# Getting Started

- Manufacturing IP Solutions offer a simple path to execution so your organization can quickly realize the benefits





# Next Steps

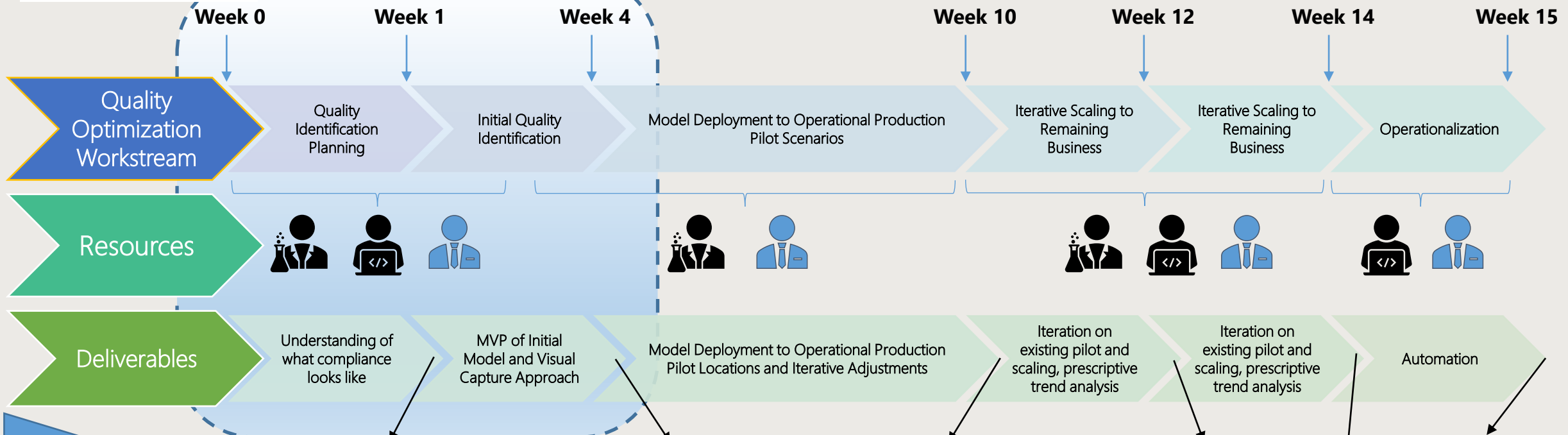
- Meet virtually one-on-one with Concurrency to discuss how a well thought out manufacturing transformation plan can benefit
- Visit [concurrency.com](https://concurrency.com) for blogs, videos and other resources

*Concurrency*

**Thank You**

# Quality Optimization Project

Proposed SOW



## Resources

- Data Scientist
- Data Engineer
- DBA

**Understanding of Compliance Parameters**  
identification of what compliance is and isn't as requirements, preparation of information necessary to train initial model

**MVP Model and Identification Approach**  
creation of initial train model and validation that it identifies compliant and non-compliant production. Combination with pilot capture

**Production Pilot Live**  
across target locations and providing real time quality improvements

**Holistic prescriptive analytics** - enable fast actions on inventory investment and replenishment

Scheduled analytics processes, which **automate actions or recommend actions** for inventory optimization

Prescriptive analytics that conform to business nuances **resulting in user acceptance**

**Duration**

15 weeks

**Estimate**

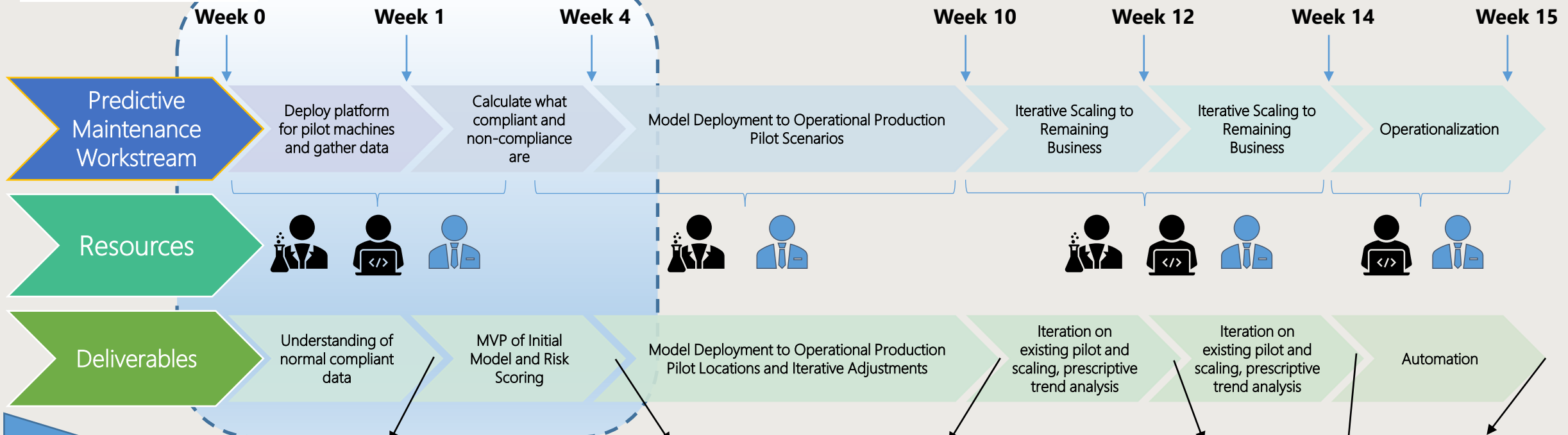
400k



Digital Transformation Realized™

# Predictive Maintenance

Proposed SOW



**Resources**

- Data Scientist
- Data Engineer
- DBA

**Understanding of Compliance Parameters**  
 identification of what compliance is and isn't as requirements, preparation of information necessary to train initial model

**MVP Model and Identification Approach**  
 creation of initial train model and validation that it identifies compliant and non-compliant production. Combination with pilot capture

**Production Pilot Live**  
 across target locations and providing real time quality improvements

**Holistic prescriptive analytics** - enable fast actions on inventory investment and replenishment

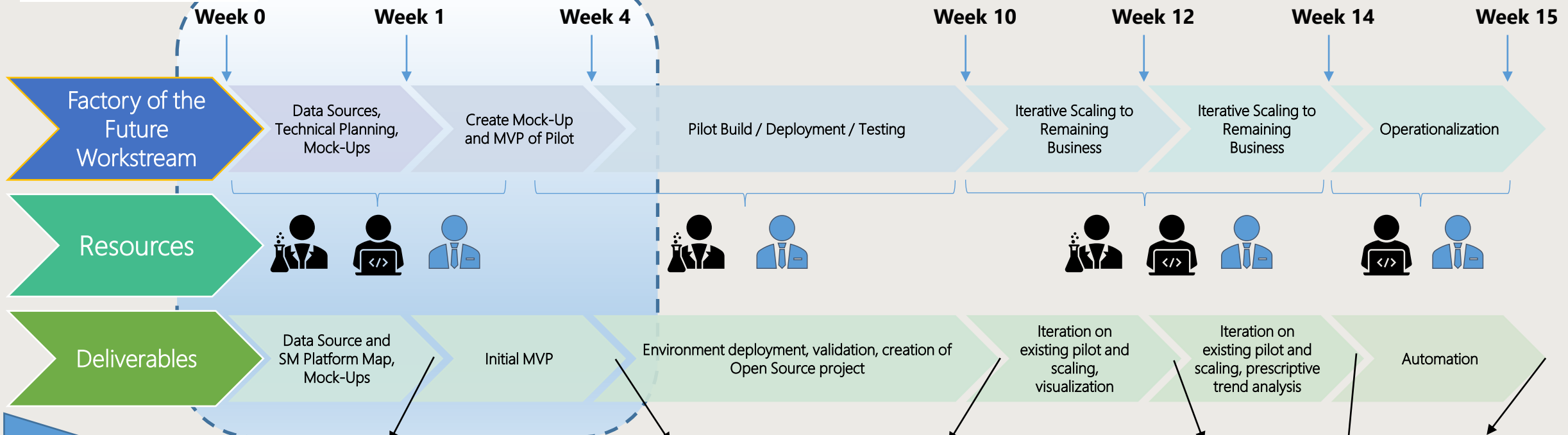
Scheduled analytics processes, which **automate actions or recommend actions** for inventory optimization

Prescriptive analytics that conform to business nuances **resulting in user acceptance**

**Duration** 15 weeks **Estimate** 400k

# Factory of the Future

## Proposed SOW



### Resources

- Data Scientist
- Data Engineer
- DBA

**Understanding of Data Sources, Mock-Up**  
 identification of data sources and SM profile / data map. Mock-ups for user interface

**MVP creation of initial MVP**  
 environment and actualization of mock-ups, initial sm profiles

**Production Pilot Live**  
 across target locations and providing real time quality improvements

**Holistic production usage-** enable global visualization of manufacturing environment

Scheduled analytics processes, which **automate actions or recommend actions** for inventory optimization

Prescriptive analytics that conform to business nuances **resulting in user acceptance**

**Duration** 10 weeks **Estimate** 200k