AI and Business Model Innovation

IRI TRACK Workshop

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Outside Insight

Agenda

Jim

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- Former VP, Growth Strategy and Innovation, Pitney Bowes
- Former VP, Network Systems R&D, Bell Atlantic

- MS, Mechanical & Aerospace Engineering, Princeton University
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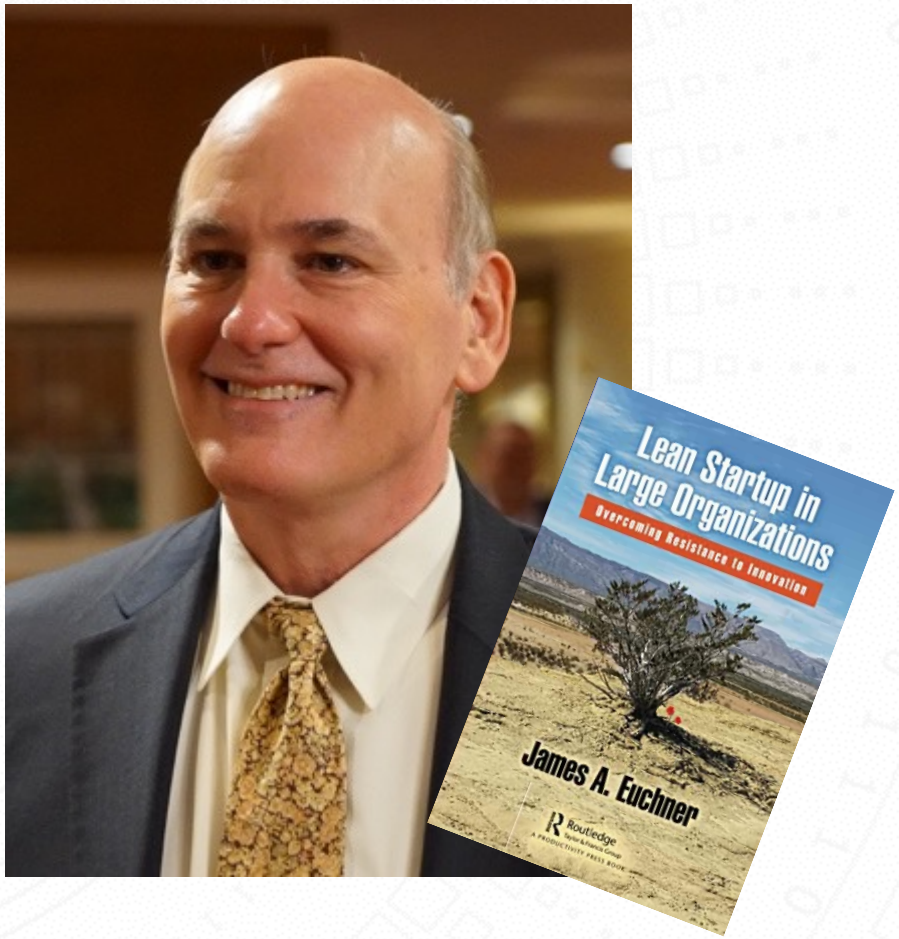
- MBA, Southern Methodist University



Outside Insight

INNOVATION RESEARCH INTERCHANGE
Accelerating Value Creation

Objectives and Focus

- ✓ Understand how AI can radically transform a business design
- ✓ Distinguish among the types of artificial intelligence applications (from a business perspective)
- ✓ Give examples of each type
- ✓ Provide frameworks for thinking about business models and their essential elements
- ✓ Discuss key questions for thinking about business model innovation with AI

Ground Rules

- ✓ Feel free to ask questions
- ✓ Actively participate
- ✓ Compare what you hear with your experience
- ✓ Share. . . But be cognizant of proprietary information
- ✓ Connect with one another . . . a key benefit of IRI

Agenda

1	Introduction
2	**AI and Business Model Innovation**
3	Business Model Definition
4	The Uses of AI in Business Improvement
5	AI-enabled Business Models
6	AI-first Business Models
7	Key Questions to Ask
8	Conclusions

AI will disrupt business models.

All of them. Faster than you think possible.

- ✓ Value is already migrating to new digital business models
- ✓ AI creates new sources of competitive advantage
- ✓ The capabilities make entirely new business models possible
- ✓ These new models are powerful – *and will drive out long-established models*

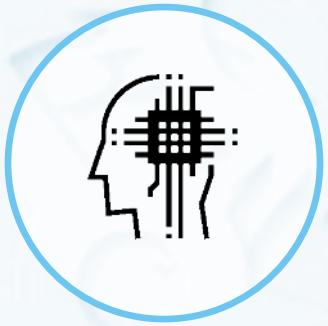
Outside Insight

There is a boom in new applications of AI

- Computer vision-platform and apps
- Smart robots
- Gesture control
- Speech recognition
- Machine learning
- Natural language processing
- Virtual assistants
- Recommendation engines
- Video content recognition
- Context-aware computing
- Speech translation

Five key drivers that position AI to become critical to strategic advantage

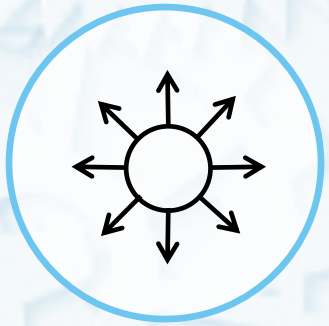
Deep learning advances



The explosion of data for learning

Tools/infrastructure for managing disparate data types

Cheap/elastic computing power



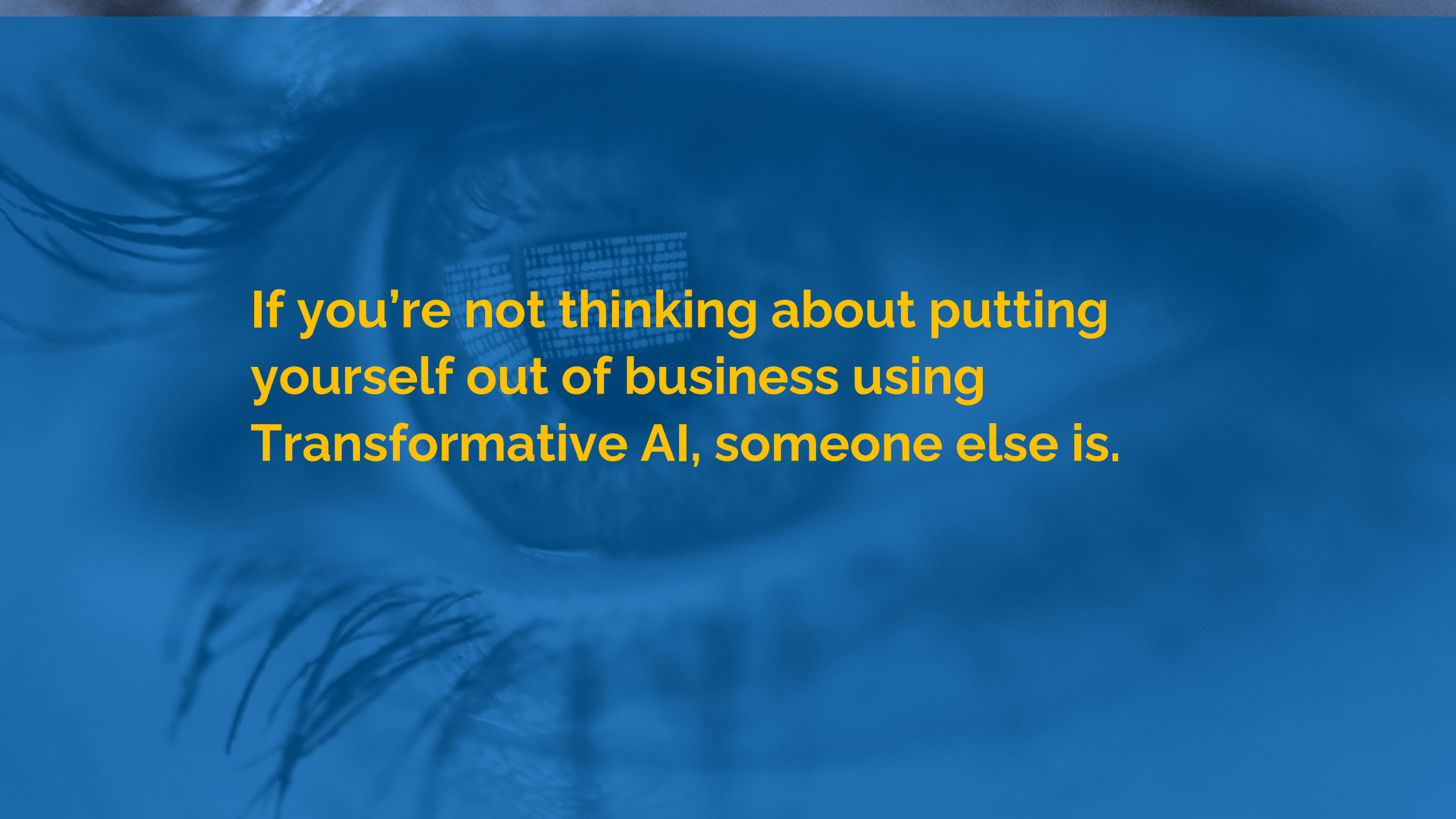
Inexpensive tools that "democratize" AI (including LLM)

AI is a strategic technology

- ✓ It has the potential to be significantly better than people at critical tasks
- ✓ It gets better with experience
- ✓ It has the potential to change industry boundaries and business models
- ✓ It takes you from early indicators of emerging trends to big insights informed by multiple variables in seconds.
- ✓ It allows you to ask fundamentally different questions with a foundationally different point of departure
- ✓ It is the basis for radically new and scalable operating models

The potential of AI

	FROM	TO
Mobility	Adaptive cruise control	Autonomous vehicles
Medicine	Increased speed and accuracy of X-Ray interpretation	Eliminating the need for radiologists; distributed medicine
Agriculture	Increased efficiency	Precision agriculture
Retail	Inventory management	Anticipation of demand


If you’re not thinking about putting yourself out of business using Transformative AI, someone else is.

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Creating New Business Models

Business Model Definition

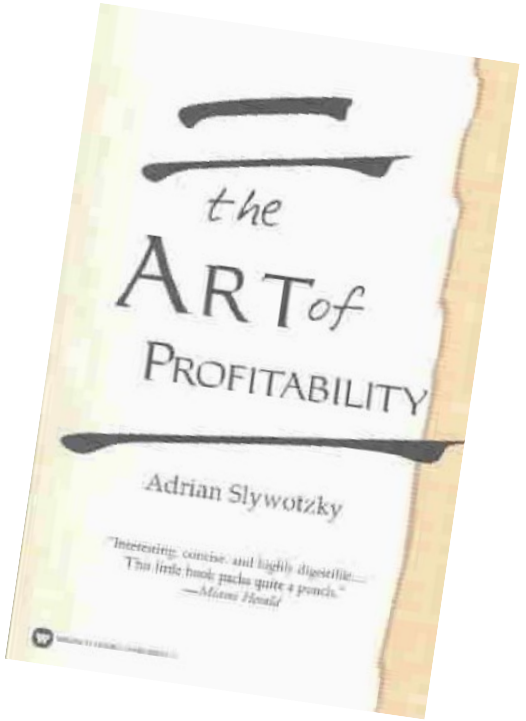
The ***set of choices*** a company makes
to ***capture value*** from an offering
in a ***competitive environment***

Creating New Business Models
Attributes of a Successful Business Model

- ✓ **Complete** – considers all necessary elements
- ✓ **Coherent** – the parts support one another
- ✓ **Profitable** – creates economic leverage
- ✓ **Competitive** – builds competitive advantage
- ✓ **Viable** – aligns all necessary stakeholders

Creating New Business Models
23 Traditional Business Model Archetypes

- Customer Solution Profit
- Pyramid Profit
- Multi-Component Profit
- Switchboard Profit
- Time Profit
- Blockbuster Profit
- Profit Multiplier Model
- Entrepreneurial Profit
- Installed Base Profit
- De Facto Standard Profit
- Brand Profit
- Specialty Product Profit
- Local Leadership Profit
- Transaction Scale Profit
- Value Chain Position Profit
- Cycle Profit
- After-Sale Profit
- New Product Profit
- Relative Market Share Profit
- Experience Curve Profit
- Low-Cost Business Design Profit
- Digital Profit



Outside Insight

Creating New Business Models
Emerging Digital Business Model Archetypes

Pure Digital

- E-tail Model
- 2-sided Digital Marketplace Digital Advertising Model
- Digitalization of Content Model
- Streaming of Content
- Open-Source Software
- Data Monetization

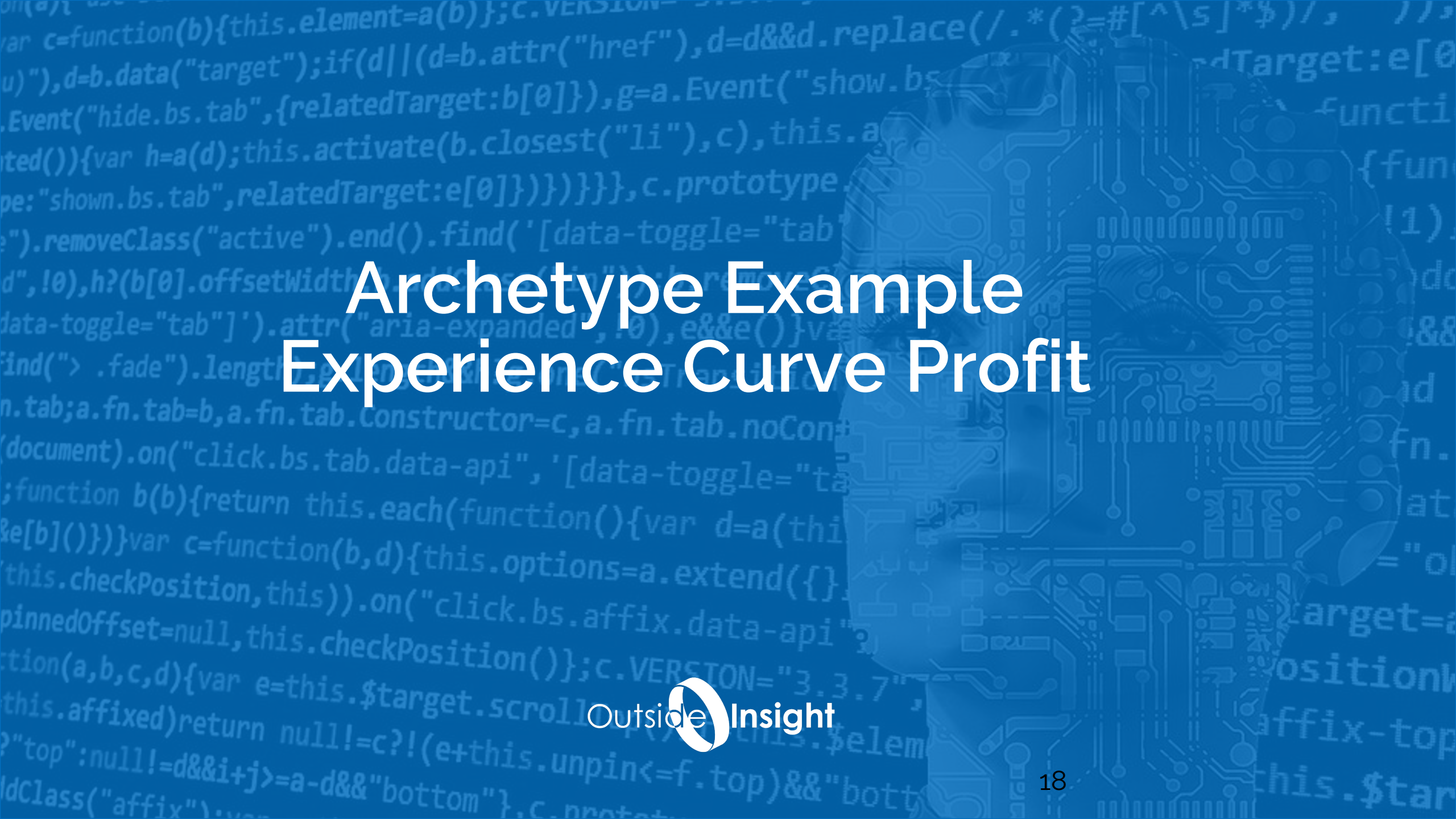
For Industrial Companies

- Proactive Solutions Model
- Product as a Service Model
  Direct to Consumer (D2C) Model
- Predictive Selling
- Mass customization
- Shared economy
- Digital First Product Design
- Bundled services
- Digital R&D
- …

Business model innovation requires systematic change
(not just a different revenue model)

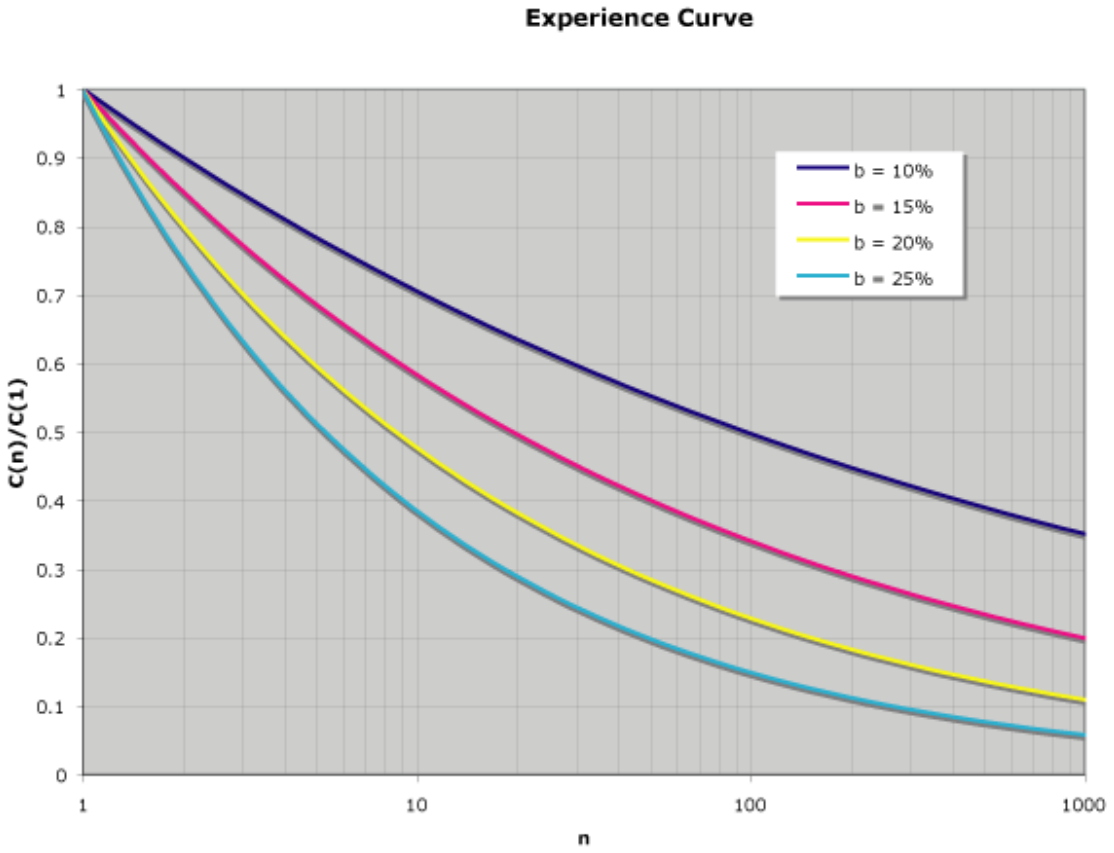
Outside Insight

Archetype Example
Experience Curve Profit



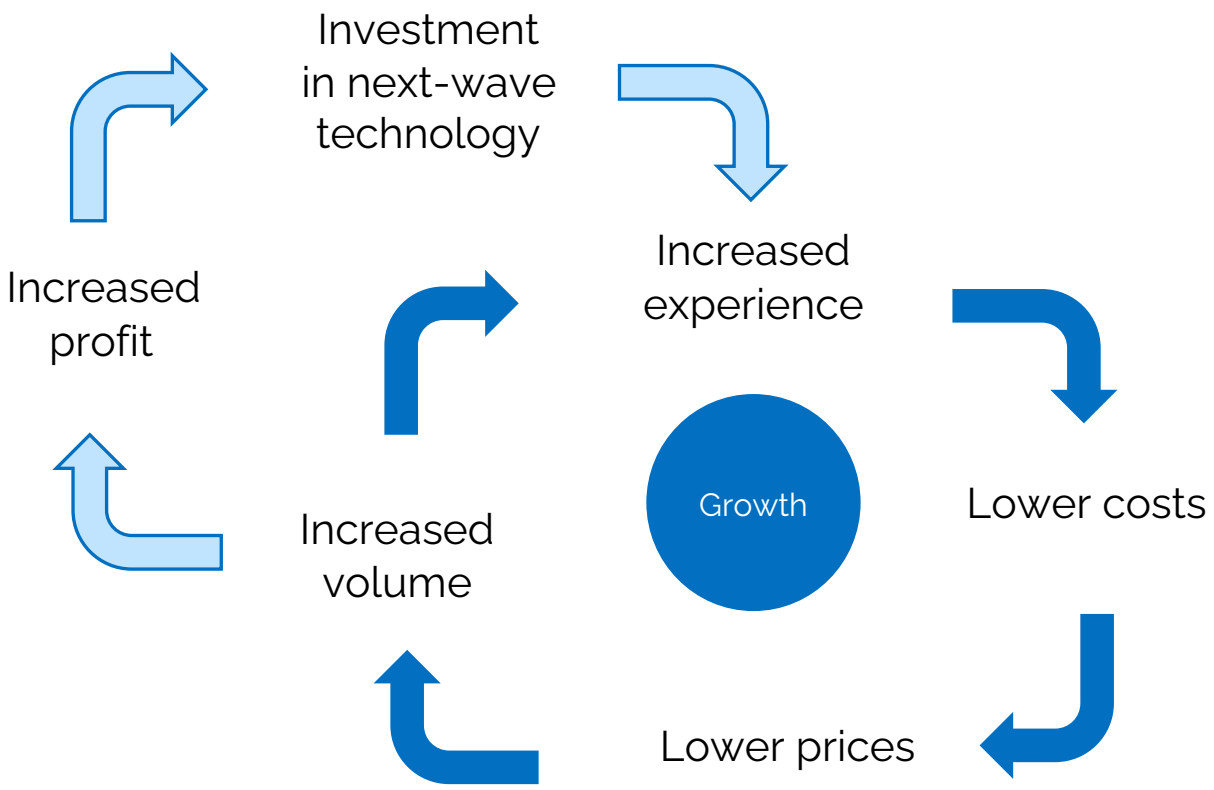
Outside Insight

Archetype: Experience Curve



- Costs drop with volume produced
- Requires a discipline of learning
- Volume can be increased by "pricing down the experience curve"
- The leader with a new technology has a distinct advantage

Experience Curve
Flywheel



Experience Curve Profit
The Business Model Canvas

CUSTOMER SEGMENTS
- Large customers to reach scale quickly

CUSTOMER RELATIONSHIPS
- Deep customer relationships
- Joint planning

CHANNELS
- Direct

VALUE PROPOSITION
- Leading-edge products
- Price reductions over time

KEY ACTIVITIES
- R&D
- Strategic pricing
- Operating discipline

KEY RESOURCES
- Talent
- Mega plants

KEY PARNTERS
- R&D partners

REVENUE STREAMS
- Price down the experience curve
- Benefit from market share leadership

COST STRUCTURE
- Large R&D investment
- Large PPE investment

* After Osterwalder and Pigneur

Outside Insight

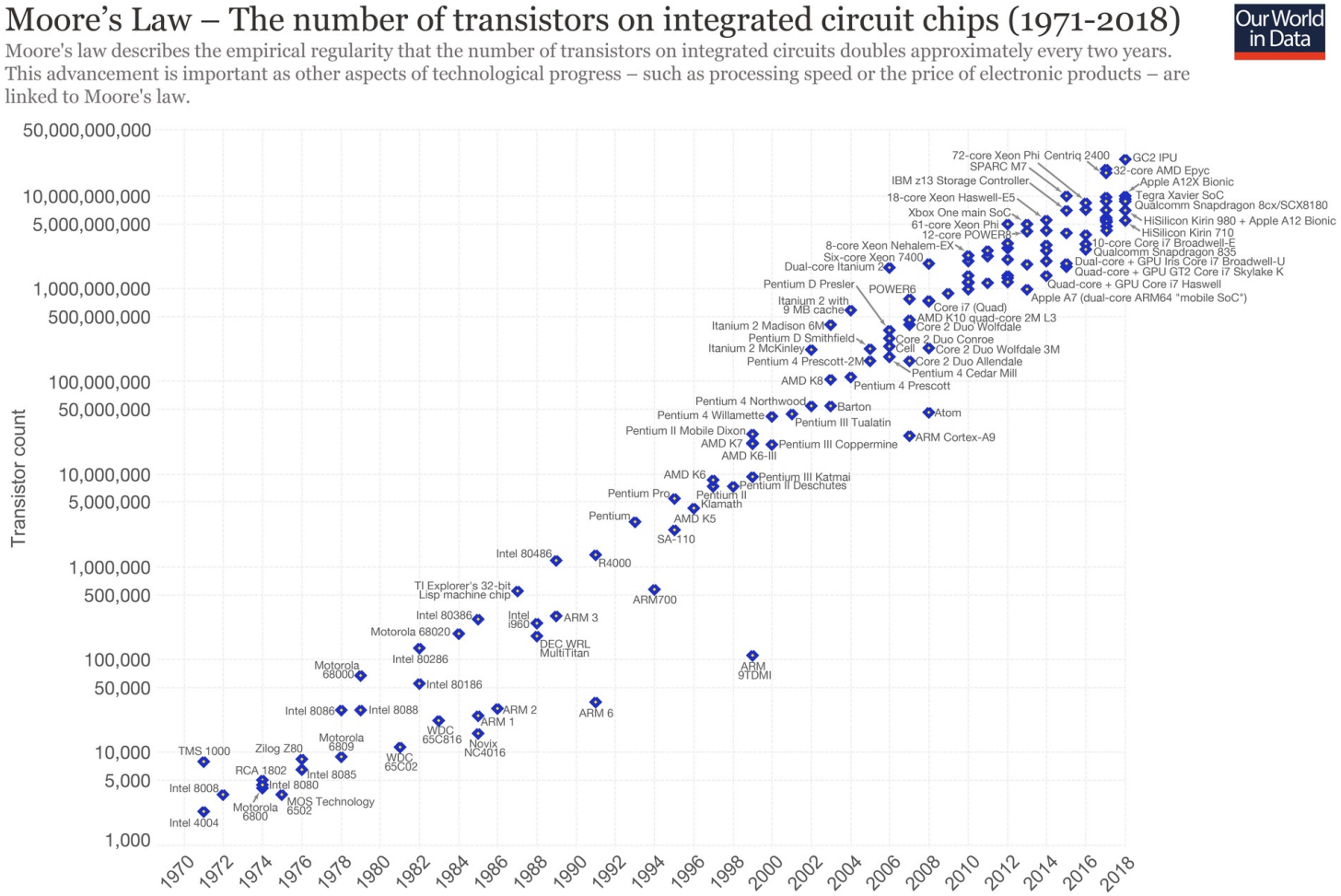
INNOVATION RESEARCH INTERCHANGE
Accelerating Value Creation

Experience Curve
Strategic Control Points

Slywotzky

Power	Index	Strategic Control Point	Examples
High	10	Own the standard	Microsoft, Oracle, **Intel**
	9	Manage the value chain	Intel, Coke Amazon
	8	String of super-dominant positions	Coke, internationally
	7	Own the customer relationship	EDS, GE Amazon
Medium	6	Brand, copyright	Countless
	5	Two-year product development lead	**Intel**
Low	4	One-year product development lead	Few
	3	Commodity with 10-20% cost advantage	Nucor, Southwest Air
None	2	Commodity with cost parity	Countless
	1	Commodity with cost disadvantage	Countless

Experience Curve
Technology Drivers



Data source: Wikipedia (https://en.wikipedia.org/wiki/Transistor_count)
The data visualization is available at OurWorldinData.org. There you find more visualizations and research on this topic.

Experience Curve
Critical Success Factors

- Early entry with a new generation of products => R&D leadership
- Willingness to invest throughout the economic cycle
- Disciplined learning
- Pricing for market share (vs. early profit)

AI puts continuous learning on steroids

Multi-sided Markets

Amazon

Outside Insight

Amazon Marketplaces Example
Moving from e-tail to a two-sided marketplace

Why: Provide greater product selection to customer base

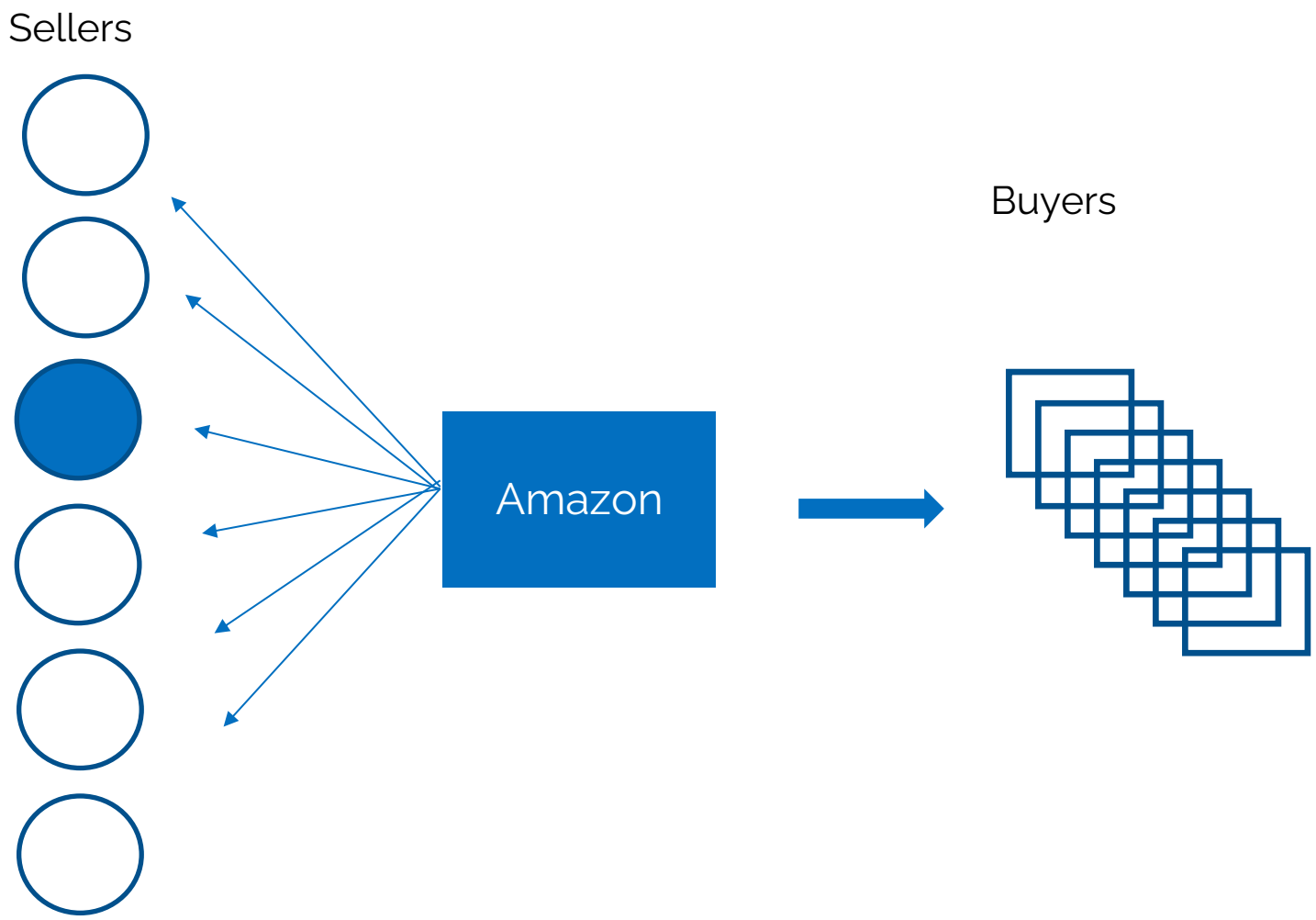
How: Open Amazon infrastructure to third-party sellers

- Storefront infrastructure
- Fulfillment infrastructure
- Transparent shopping experience

Become the "Everything Store"

Economic Leverage
The Flywheel

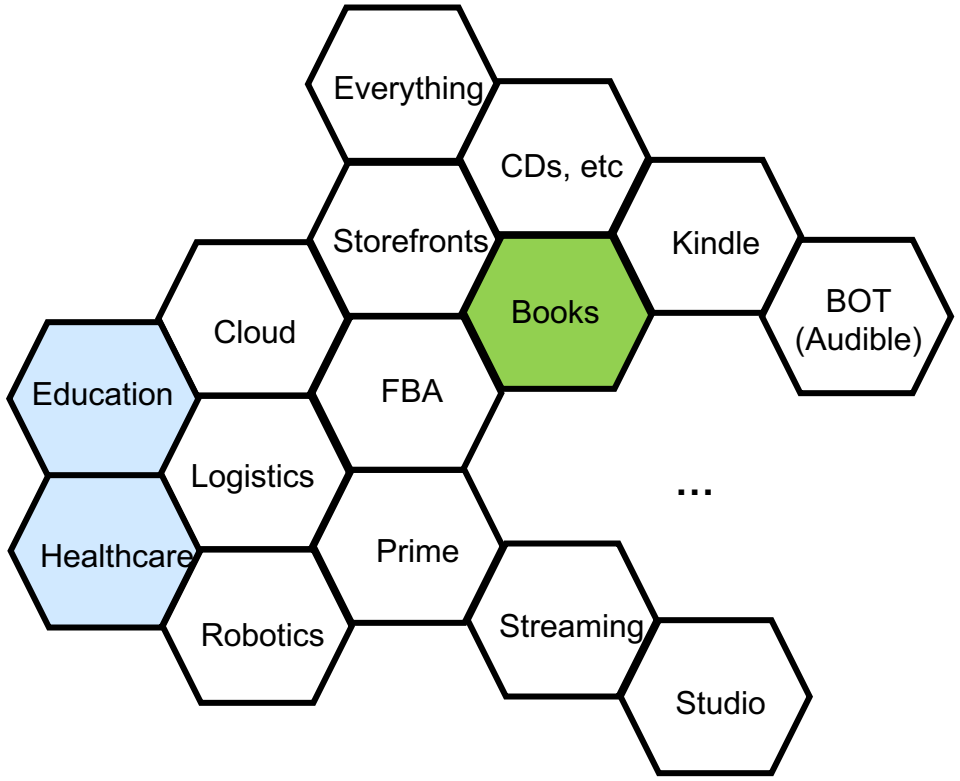
Amazon Switchboard Model



Switchboard Model
Profit Sources

- **Increased customer loyalty**
  - More selection
  - Lower prices
- **Increased traffic**
- **Increased data on customer behavior**
- **Fees from sellers**
  - Storefronts
  - Transactions
  - Fulfillment

Amazon: Economies of Scope



Amazon.com adjacencies

- Align with corporate strategy
- Consider adjacencies to give yourself a right to win
- Leverage assets of the core
  - Customer base
  - Infrastructure
  - Technology
  - Channel
- Many adjacencies still require a mind-shift
- You cannot finesse the issue of where to play

Amazon has leveraged assets and capabilities to move into new business models many times

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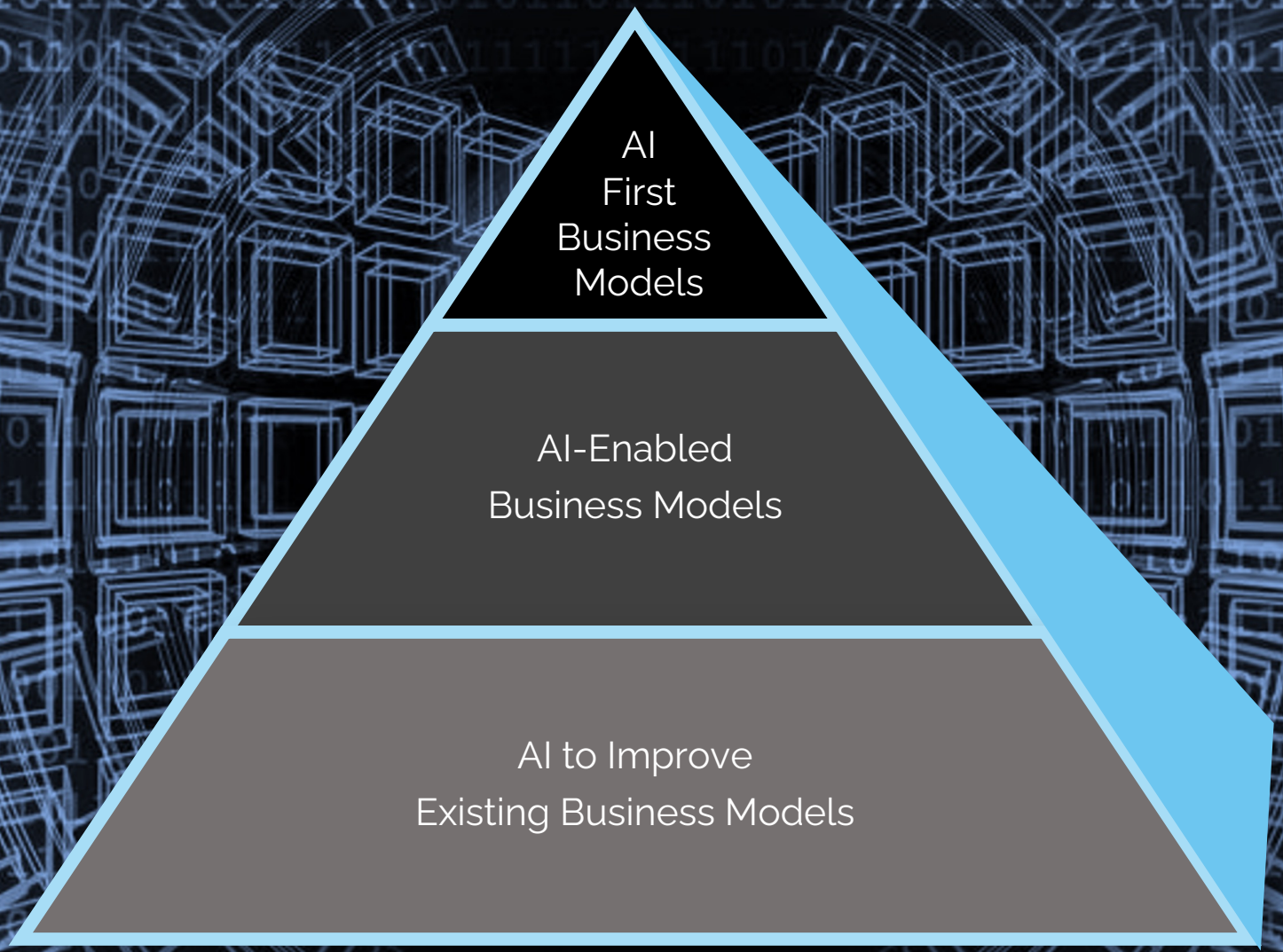
Transformational AI



Tactical AI

Improving Existing Business Models
Task Automation

- ✓ Automation of any routine task
  - ✓ Diagnosing a telephone line (MAX)
  - ✓ Diagnosing infectious diseases
  - ✓ Designing cements for oil wells (C-Mentor)
  - ✓ Placing online ads (Google)
- ✓ Providing intelligent support to people doing tasks
  - ✓ Call Centers (ASAPP)
  - ✓ Network Designers (Arachne)

Improving Existing Business Models
Process Re-engineering

- Traditional re-engineering
  - Top-down, technology-driven
  - Clean sheet of paper
    - Intelligent ERP Systems
    - Robotic Process Control
- Distributed re-engineering
  - Enabled by LLM tools
  - Work-oriented
  - Based on empowerment of individuals and teams

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Business Model Collection

Creating New Business Models
AI-enabled Business Models

Pure Digital

- E-tail Model
- 2-sided Digital Marketplace Digital Advertising Model
- Digitalization of Content Model
- Streaming of Content
- Open-Source Software
- Data Monetization

For Industrial Companies

- **Proactive Solutions Model (Goodyear)**
- **Product as a Service Model (Rolls Royce)**
- Direct to Consumer (D2C) Model
- **Predictive Selling (StitchFix)**
- Mass customization
- Shared economy
- Digital First Product Design
- Bundled services
- Digital R&D
- **…**

Business model innovation requires systematic change
(not just a different revenue model)

Proactive Solutions

Improve Performance of the Product in Use

Outside Insight

Proactive Solutions
Archetype

Value Proposition: Reduced unplanned downtime

Value Delivery System: Real-time monitoring
Predictive analytics
Actionable alerts
Integration with service network

Revenue Model: Subscription per vehicle
Extension into additional services

Business Model: Pay for uptime

GOODYEAR PROACTIVE SOLUTIONS

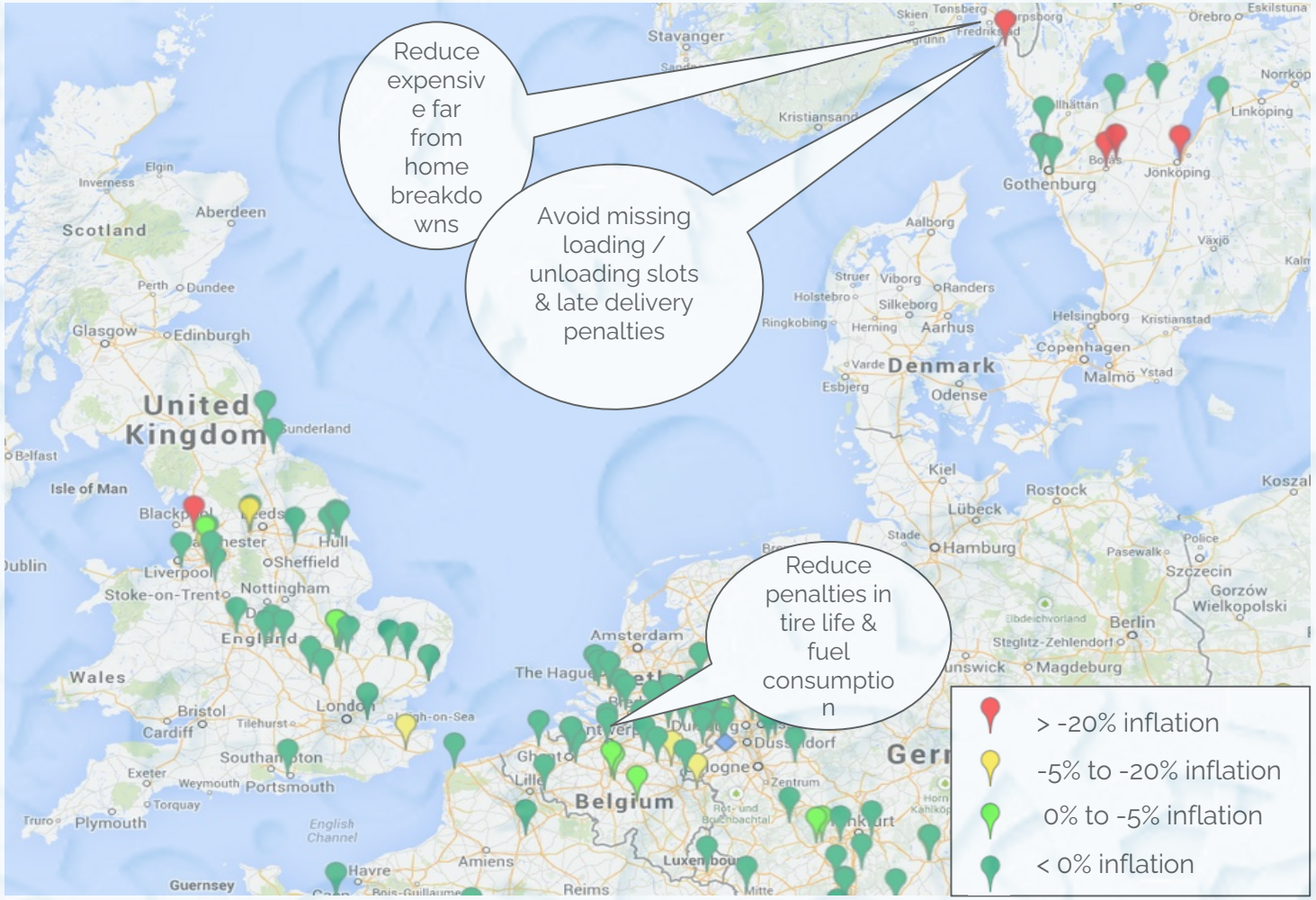
Thompson CAT
FABICK CAT
WAGNER CAT

eurocopter

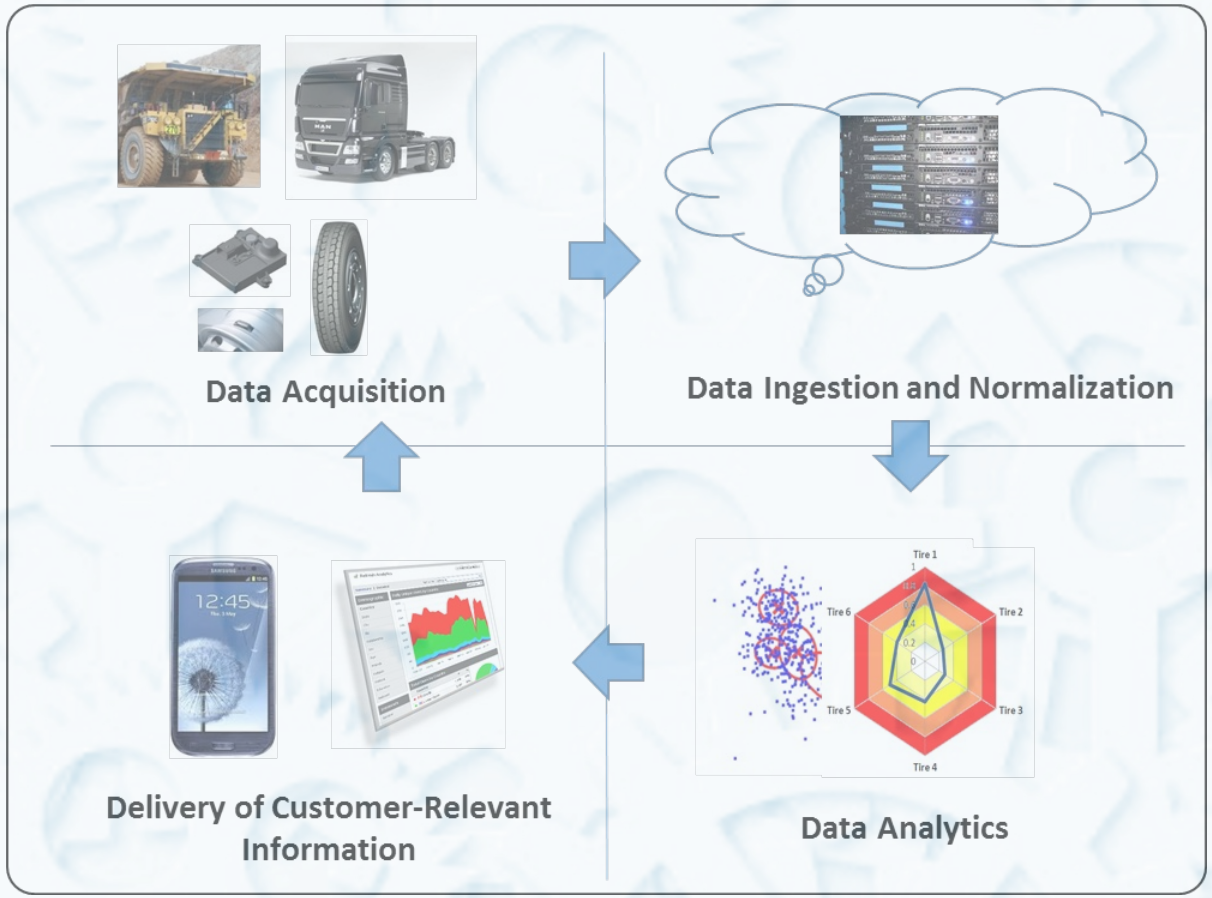
* After Tim Baines, Made to Serve

Outside Insight

Proactive Solutions
Predictive Tire Maintenance



Proactive Solutions
Value Creation



GOODYEAR
PROACTIVE SOLUTIONS

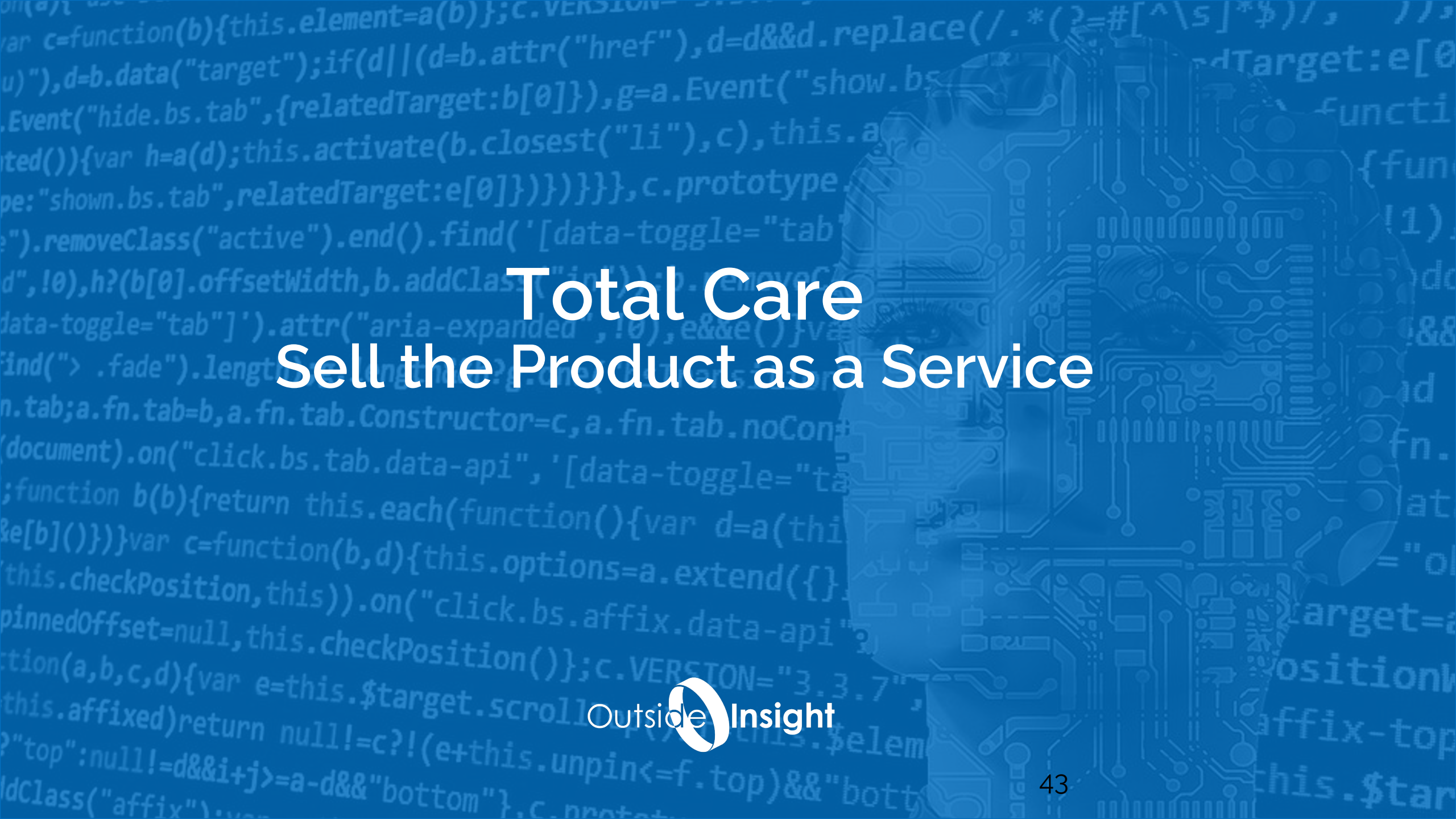
Prevents 80+% of roadside failures

Proactive Services
Critical Success Factors

- Focus on customer metrics
- Move downstream into the value chain
- Provide actionable data
- Integrate with customer operations
- Partner with the product business to improve outcomes

Requires systematic change
(not just a different revenue model)

Total Care
Sell the Product as a Service



Outside Insight

Total Care
Archetype

Value Proposition: Pay by the hour of flight time
Reduced unplanned downtime

Value Delivery System: Robust engine monitoring and predictive analytics
Design for service
Relocate service to customer location
Re-engineered spare parts supply chain
Customer-facing service personnel

Revenue Model: Value pricing

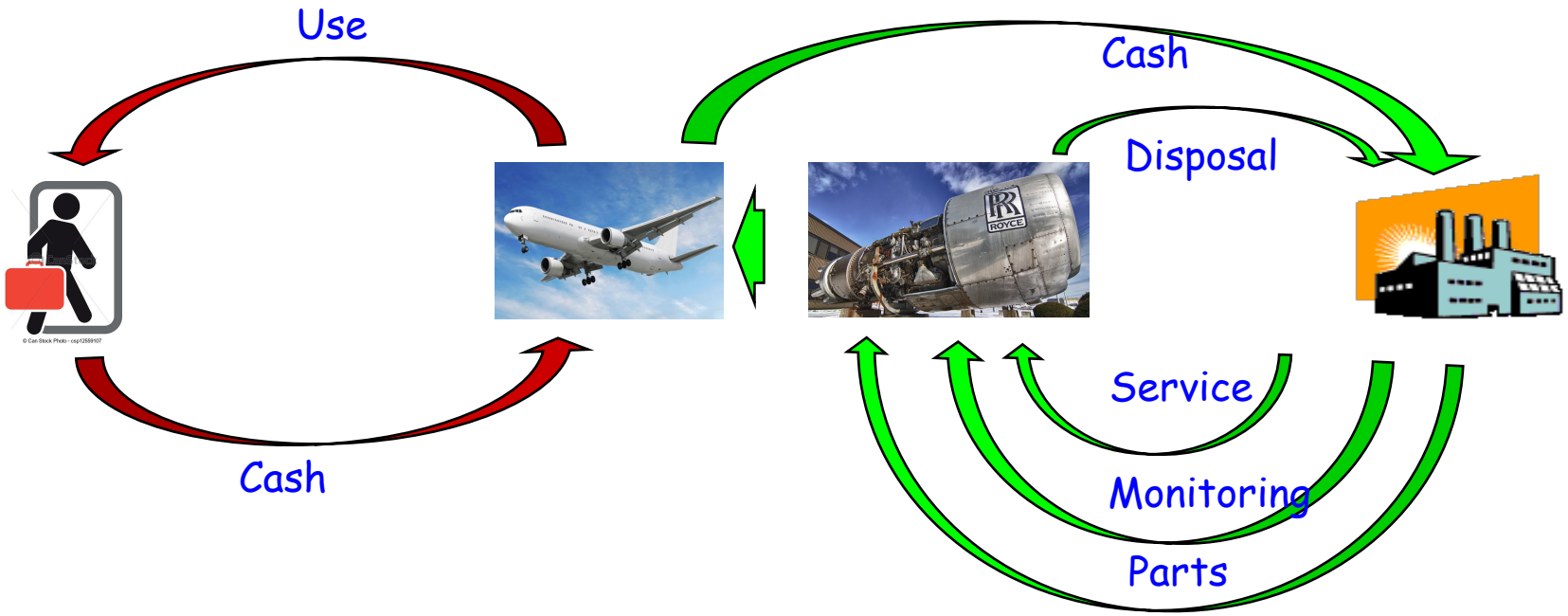
Business Model: "Servitization" of products

* After Tim Baines, Made to Serve

Total Care
Value Creation

Value Creation

- Create value through intelligent systems
- Differentiate product with service (sell outcomes, not products)
- Reduce customer's total cost of ownership
- Participate in a larger part of the customer's value chain
- Increase customer intimacy



* After Tim Baines, Made to Serve

Total Care
Critical Success Factors

- Focus on customer outcomes and customer metrics
- Invest in *prevention* of failure
- Invest in rapid recovery from failure
- Invest in staff skills in customer relationships

Predictive Selling
Anticipate Demand

Outside Insight

Predictive Selling
Archetype

Value Proposition: Convenient fashion
Reduced time shopping

Value Delivery System: Deep customer analytics (data)
Strong predictive algorithms
Strong design
Effective logistics

Revenue Model: Subscription (like Book of the Month Club)

Business Model: Predictive Selling

STITCH FIX

amazon

* After Tim Baines, Made to Serve

Outside Insight

Predictive Selling
Value Proposition

- Reverse the e-tail experience

From	To
1. Shop	1. Pay
2. Try on	2. Ship
3. Decide	3. Try on
4. Pay	4. Decide
5. Take home	5. Return

- Profitability critically depends on predictions that result in few returns

* After Tim Baines, Made to Serve

Predictive Selling
Value Proposition

amazon

Customers will always want
- More selection
- Faster delivery
- Cheaper prices

Examples
- Amazon Storefronts
- Fulfillment by Amazon (FBA)
- USPS Sunday delivery
- Predictive Analytics

Relentless focus on the customer

Process discipline

Predictive Selling
Critical Success Factors

- Focus on customer desires; be ahead of the curve
- Invest in predictive analytics
- Invest in operational excellence

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6	**AI First Business Models**
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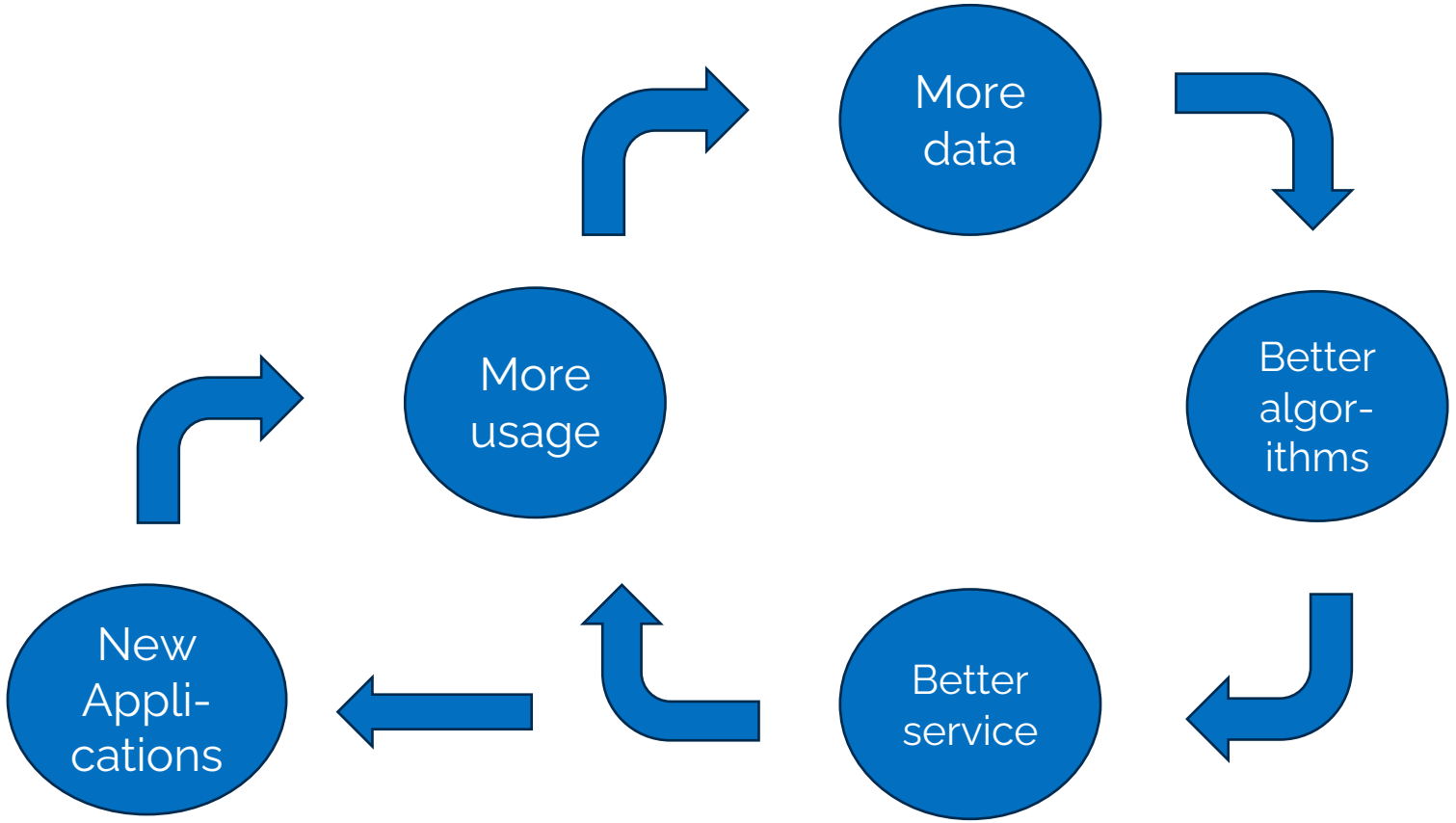
“AI is the ‘runtime’ that is going to shape all that we do.”
Satya Nadella, Microsoft

AI First Business Models

- ✓ Radically redesigned operating model based on an AI Factory
- ✓ Enables the best of all worlds
  - ✓ Economies of scale
  - ✓ Economies of scope
  - ✓ Accelerated learning
- ✓ Efficiencies can be 100X or 1000X

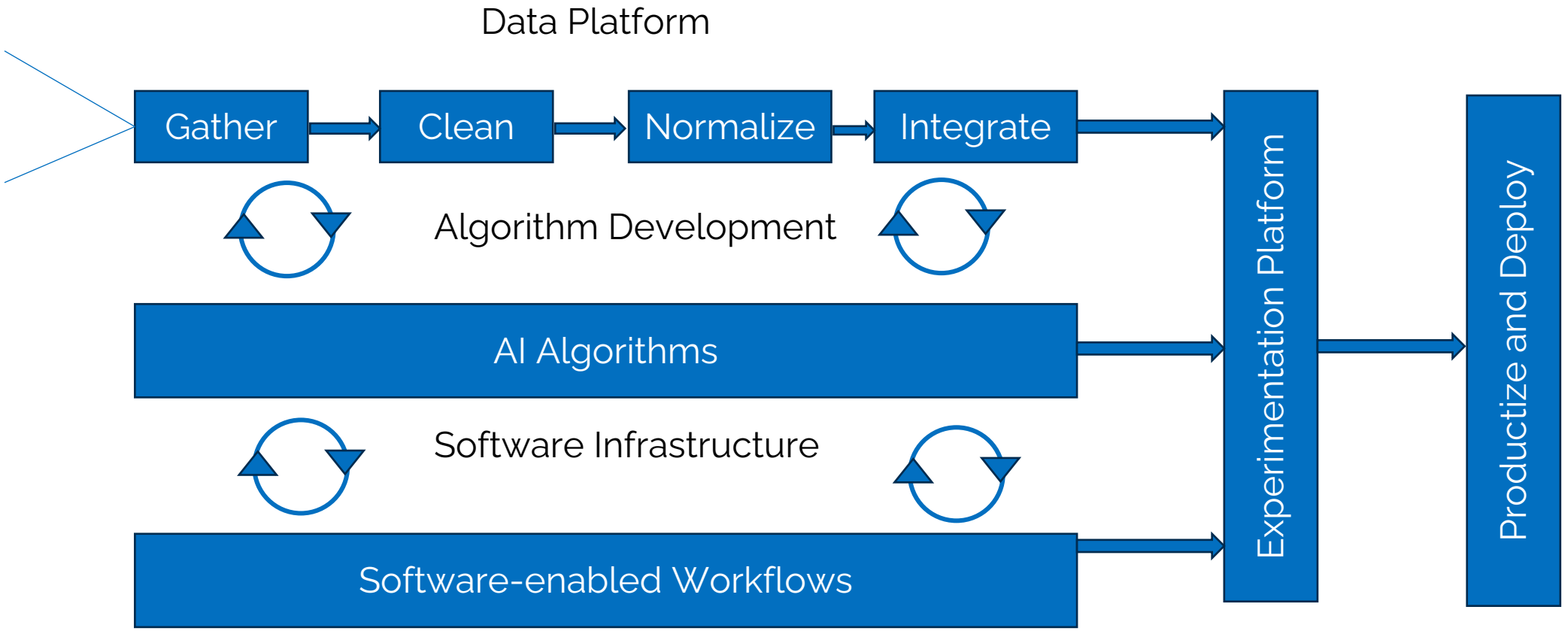
See Iansiti and Lakhani: Competing in the Age of AI

AI Factory



* After Iansiti and Lakhani: Competing in the Age of Ai

AI Factory



* After Iansiti and Lakhani: Competiting in the Age of AI

AI First Benefits

- ✓ Economies of Scale
- ✓ Economies of Scope
- ✓ Accelerated Learning
- ✓ Speed

Traditional strategic trade-offs do not apply

See Iansiti and Lakhani: Competing in the Age of AI

AI/Digital Business Models
Key Enablers

1. Data	feeds insight (customization, diagnosis)
2. Cloud computing	enables scale provides ubiquity
3. Artificial Intelligence	enables prediction improves all aspects of marketing improves operations
4. Internet of Things	greatly expands data
5. Mobile	greatly expands data provides point of customer access

Quantitative differences become qualitative differences

Creating New Business Models
AI First Business Model Archetypes

Pure

- E-tail Model
- *Multi-sided Digital Marketplace (Amazon)*
- Digital Advertising Model
- Digitalization of Content Model
- Streaming of Content
- Open-Source Software
- **Data Monetization *(Ant Financial)***

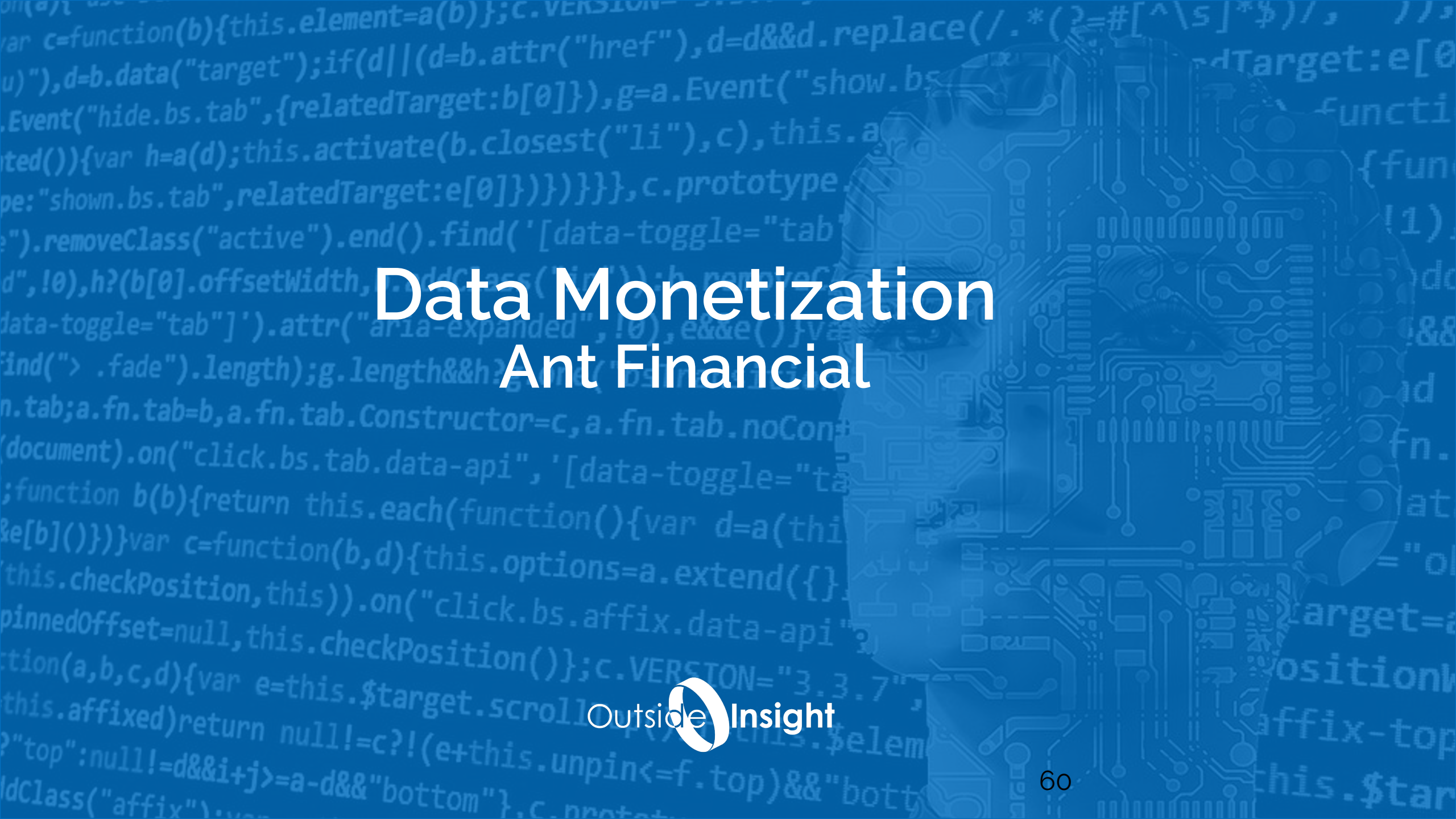
For Industrial Companies

- Proactive Solutions Model
- Product as a Service Model
  Direct to Consumer (D2C) Model
- Predictive Selling
- Mass customization
- Shared economy
- **Digital First Product Design (Tesla)**
- Bundled services
- **Digital R&D *(Moderna)***
- **…**

Business model innovation requires systematic change
(not just a different revenue model)

Outside Insight

Data Monetization
Ant Financial



Outside Insight

Data Monetization
Archetype

Value Proposition: Full range of financial services
Fast, inexpensive, broad market

Value Delivery System: Deep data on customers from many apps
Enables hyper targeting
Enables extensive cross-sell
Extremely low-cost delivery model

Revenue Model: Fees of various types

Business Model: Data Monetization

ANT FINANCIAL

* After Tim Baines, Made to Serve

Outside Insight

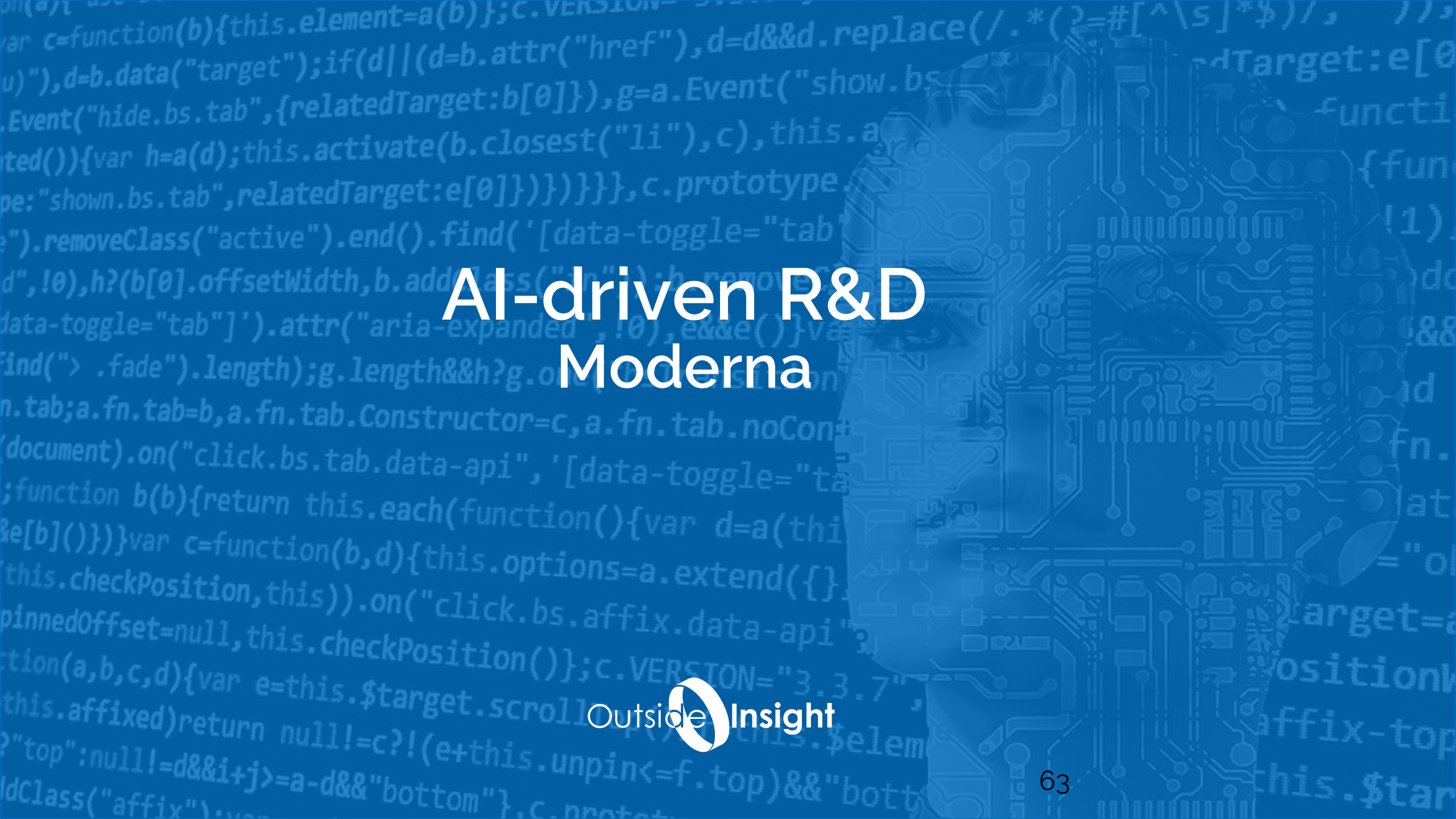
INNOVATION RESEARCH INTERCHANGE
Accelerating Value Creation

Data Monetization
Flywheel on Steroids

Diagram 14: User engagement across Ant's expanding ecosystem

Source: Alibaba Group Investor Day, June 2016

AI-driven R&D
Moderna



Outside Insight

AI-Driven R&D
Archetype

An AI-based bio-technology company

Value Proposition: Identification of possible mRNA molecules to test
Identification of process for synthesis
Automated testing of potential molecules

moderna

Value Delivery System: Speed (e.g., Covid-19 vaccine)
Breadth of application (many disease types)
Continuous improvement using AI

Revenue Model: Treatment sales

Business Model: AI-Driven R&D

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Outside Insight

INNOVATION RESEARCH INTERCHANGE
Accelerating Value Creation

AI-driven R&D
Critical Success Factors

- Design in virtual space
- Create the capability for rapid testing in the physical world
- Leverage generative AI techniques as well as machine learning
- Establish a culture of continuous improvement
- Extend the AI model to every aspect of the business
  - Science
  - Manufacturing
  - Quality control

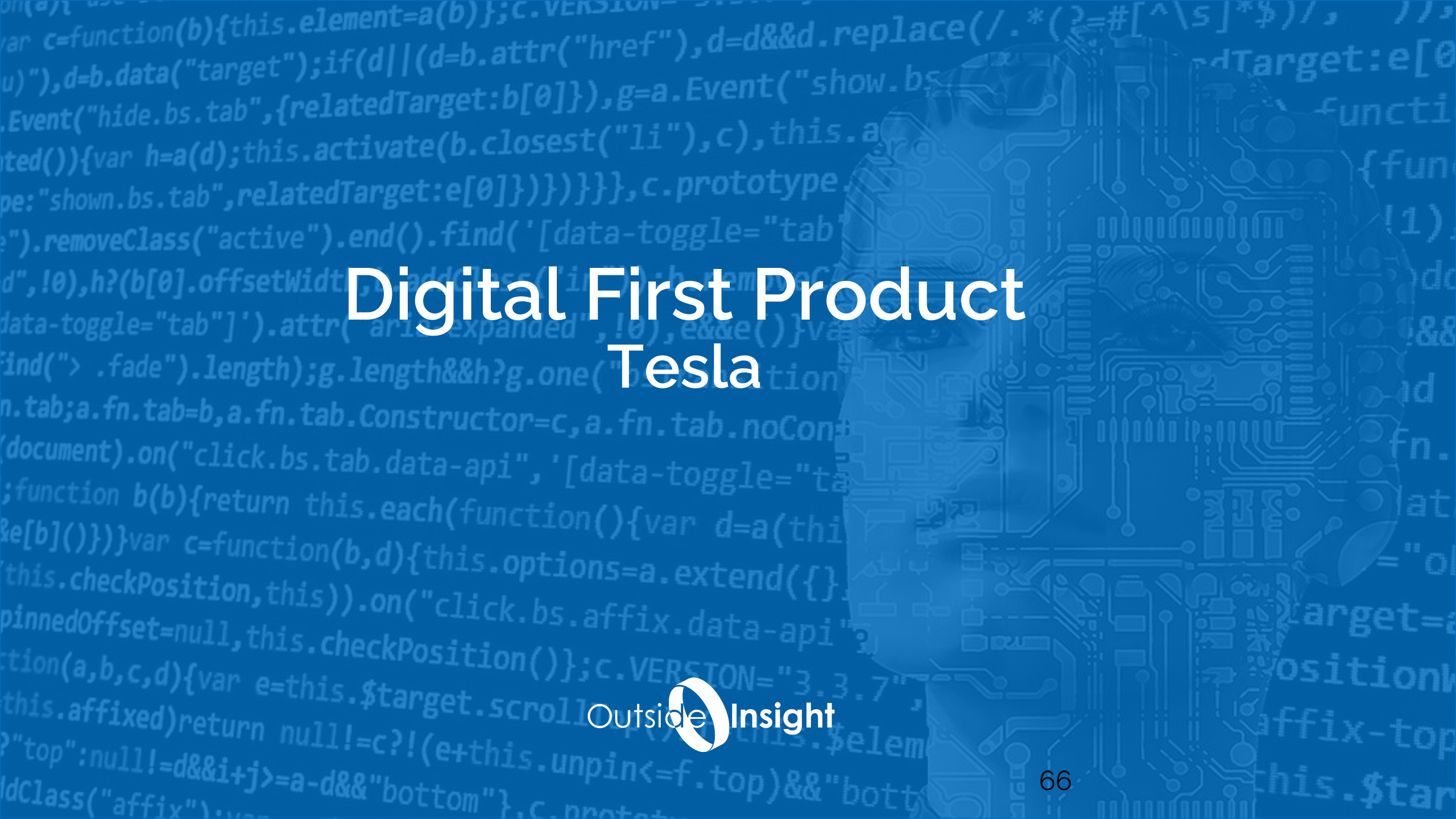
moderna

"We're using AI for schedule optimization, in vitro studies, clinical trial design, epidemiology studies and protein engineering and design…"

Andrew Giessel
Director AI and Data Science

Digital First Product

Tesla



Outside Insight

Digital First Product
Archetype

Value Proposition:
Great car that gets better
Promise of future features
Infrastructure enablers

Value Delivery System:
Unique concept (computer on wheels)
Innovative EV design
Internet sales channel
Over the air updates

Revenue Model:
Vehicle sales
Carbon credits
Subscription upgrades (autonomy)
Cross-sell insurance
Robo taxi (future)

Business Model:
Digital First Product

TESLA

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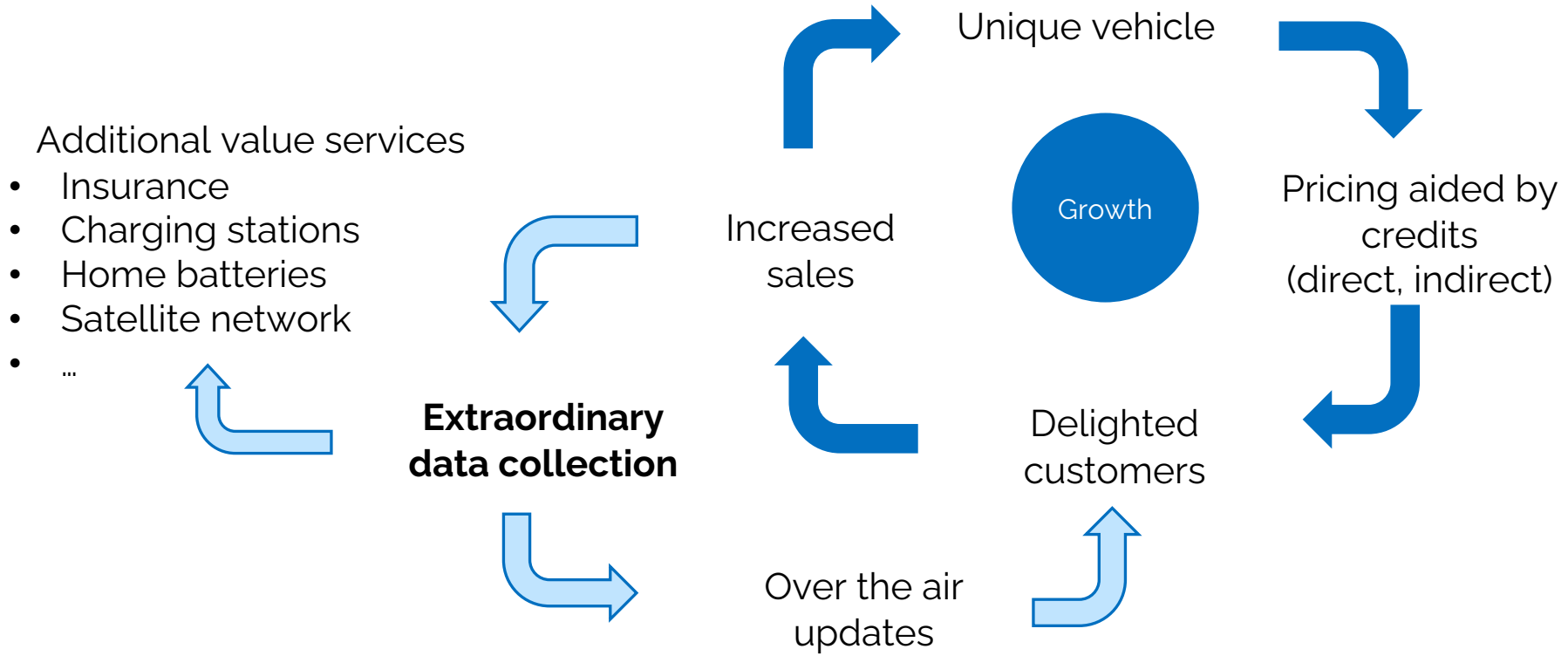
Outside Insight

INNOVATION RESEARCH INTERCHANGE
Accelerating Value Creation

Digital First Product
Flywheel



Digital First Product
Critical Success Factors

- Completely reconceived product
  - EV
  - OTA updates
  - Autonomy (AI)
- Digital foundations
- Enabling infrastructure
- Regulatory skills
- Brand management

Deere Precision Farming

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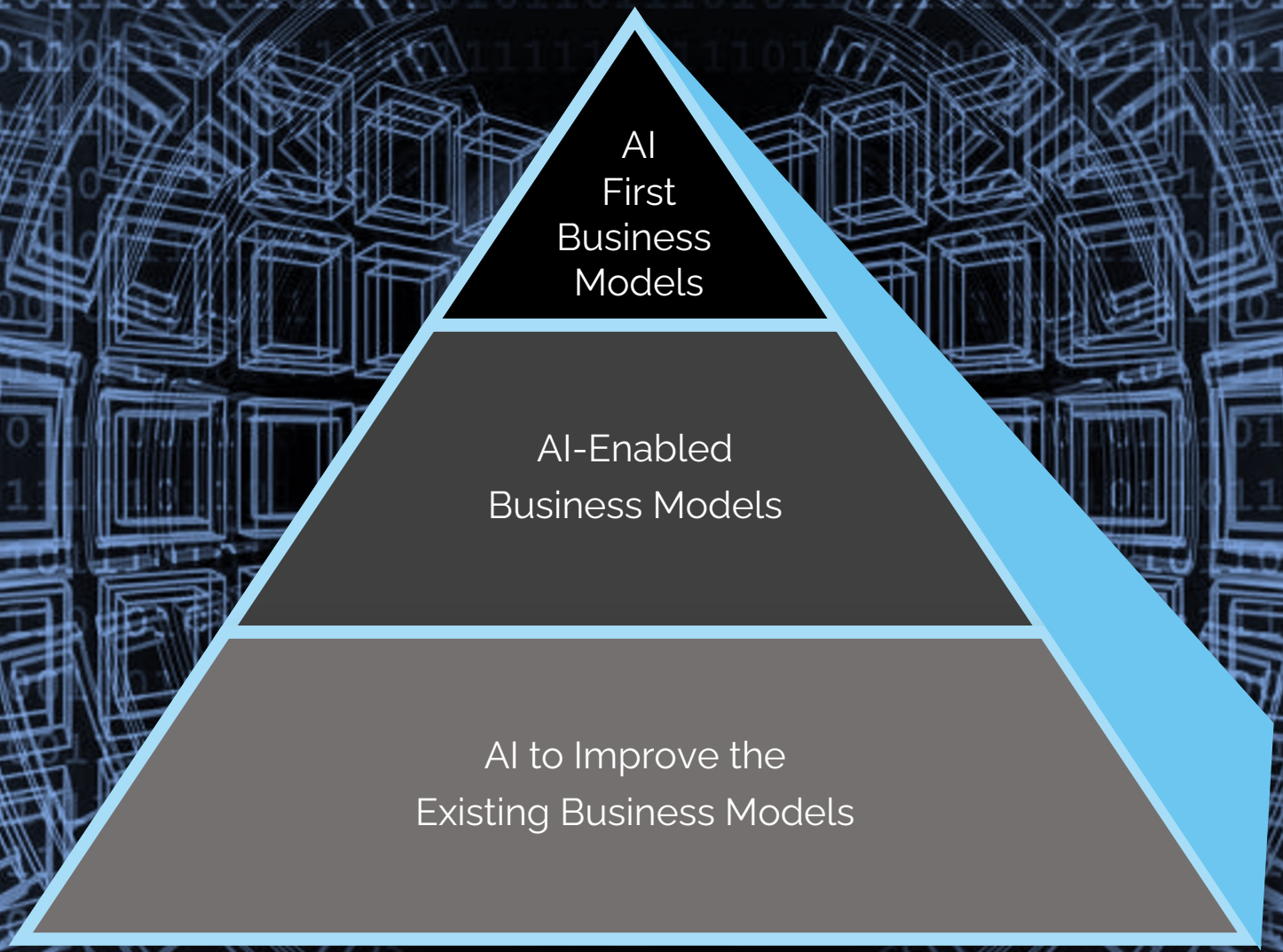
Transformational AI



Tactical AI

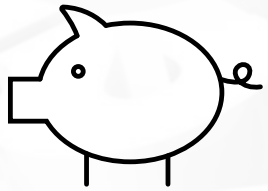
AI to Improve the Existing Business Model

1. Where are people doing repetitive work?
2. What data are they using to do the work?
3. Can the data be tagged to create a training set?
4. How should the AI be integrated with the work
   - task automation
   - person-in-the-loop (cyborg)
   - process redesign
5. What does the learning curve look like (empirical)?
6. What is the ROI?

AI to Enable New Business Models

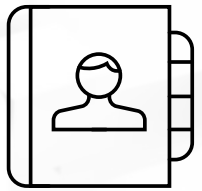
1. Where are people (workers or customers) managing the consequences of uncertainty?
2. If the uncertain information were known, what would change?
3. How could we create a data set to make this possible?
4. What business model would best exploit the new capability?
5. How good could an AI system get? How good would it have to get?
6. What is the potential of the business model?

Which assets will you leverage? Where do you have proprietary data?

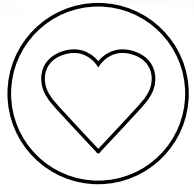


Financial Resources

A large reservoir of ideas in the form of the workforce



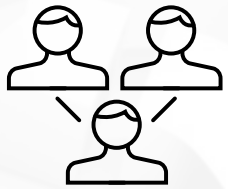
Established customer relationships



Brand strength

Scale through multiple locations

Communications infrastructure for mobilizing a workforce



Channel relationships

AI First Business Models

1. What decisions are critical to our business?
2. What are the bottlenecks in making these decisions?
3. What would our business processes look like if these were fully automated?
4. What data would permit us to deliver this automation?
5. How good could an AI system get? How good would it have to get?
6. What are the risks in an AI First business model in our industry?

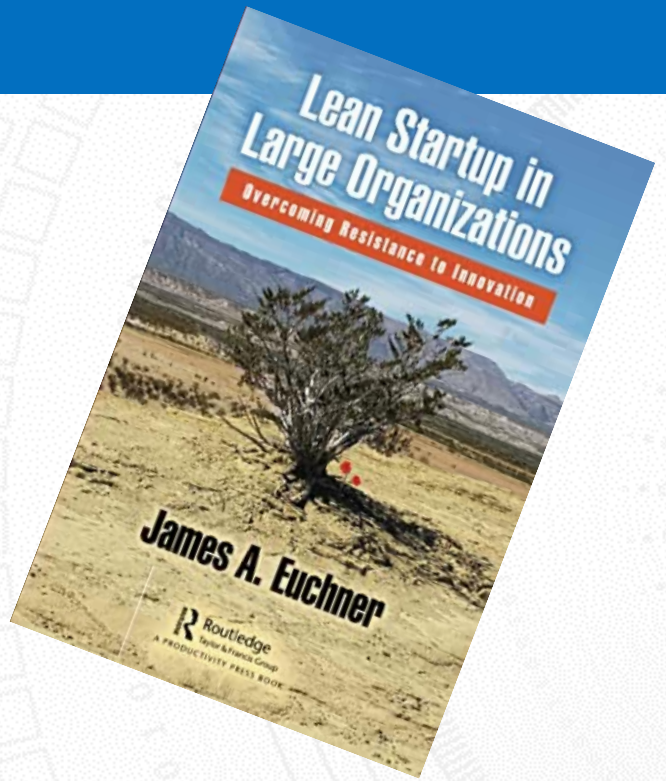
Agenda

1	Introduction
2	AI and Business Model Innovation
3	Business Model Definition
4	The Uses of AI in Business Improvement
5	AI-enabled Business Models
6	AI First Business Models
7	Key Questions to Ask
8	**Conclusions**

Critical success factors

- Focus on the transformative implications of better prediction ability
- Think about creating data, not just using what is there
- Redesign the business model around the new economics
- Experiment and learn before committing (Lean Startup)
- Once the model is understood, bet to win
- Challenge yourself to think of entirely new questions: “How might we…”

Follow up



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I am glad to schedule 30 minutes to talk with you and answer any further questions you may have.

References
RTM Resources on AI and Business Model Innovattion

Interviews (with Jim Euchner)	
Ron Adner	Innovation Ecosystems
Steve Blank	The Genesis and Future of Lean Startup
Mark Johnson	Developing New Business Models
Alex Osterwalder	Business Model Innovation
Youngjin Yoo	Design in the Generative Economy
John Rossman	Innovation the Amazon Way
Adrian Slywotzky	Business Design
Marco Iansiti	Corporate Operating Models in the Age of AI

Other Useful References

	Books
Marco Iansiti and Karim Lakhani	*Competing in the Age of AI*
Ajay Agrawal, et. al	*Prediction Machines*
Adrian Slywotzky	*The Art of Profitability; Profit Patterns*
	Blogs and Papers
Ethan Mollick	*One Useful Thing*
Jim Euchner and Abhijit Ganguly	Business Model Innovation in Practice
Jim Euchner	Big AI, Little ai; Good AI, Bad AI (column)
Jim Euchner	Generative AI (resources)