

# Data Synergy:

## Bridging Business, Management, Computers and Engineering Globally

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# Data Synergy

The collaborative and integrated use of data across various domains or disciplines to achieve enhanced outcomes

Approximately 328.77 million terabytes of data are created each day

Approximately 120 zettabytes of data will be generated this year

Videos account for over half of internet data traffic

The U.S. has 2,214 data centers





# Break down traditional silos...





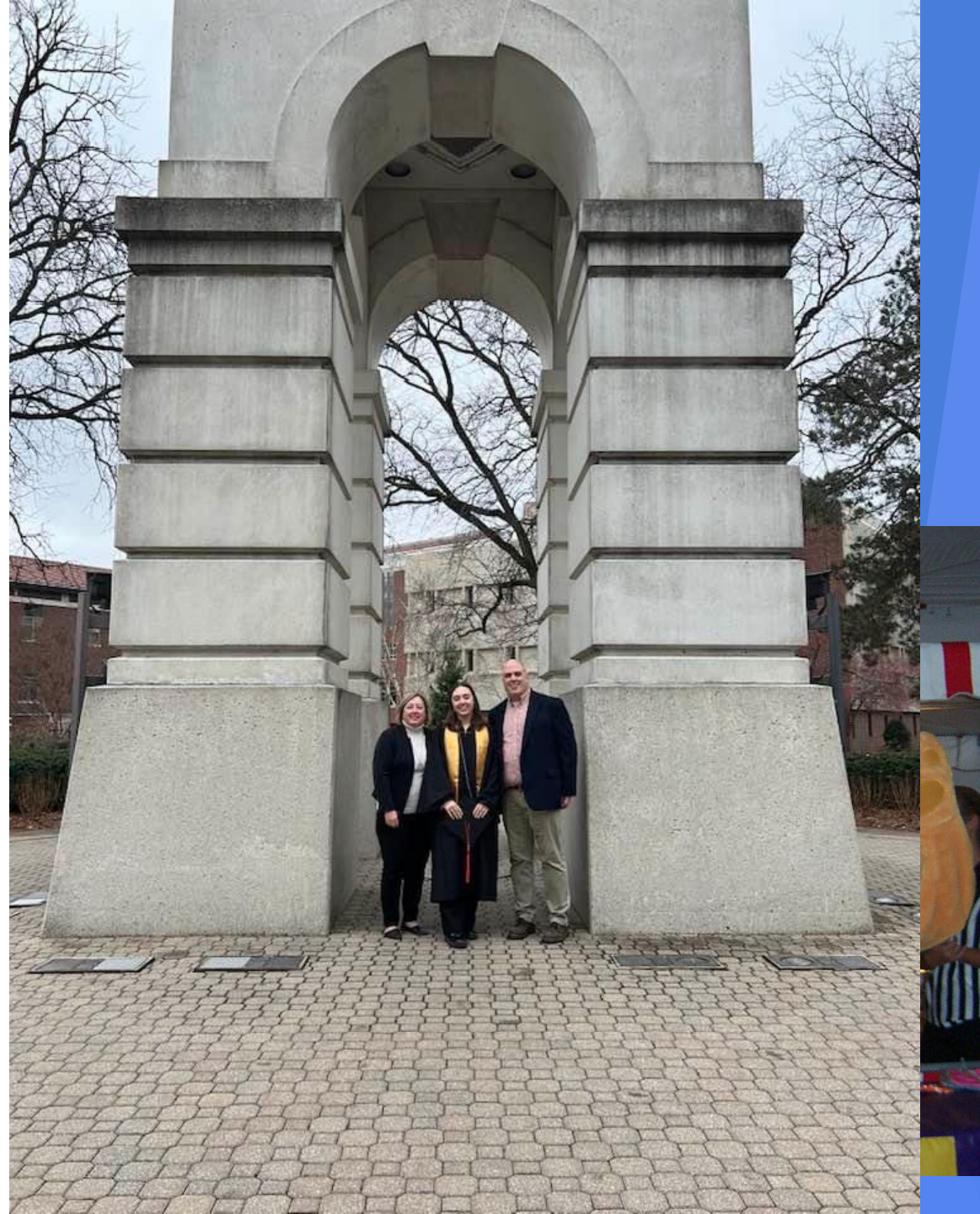
Utilize collective intelligence



# Data Synergy = Industrial Engineering and Management Systems

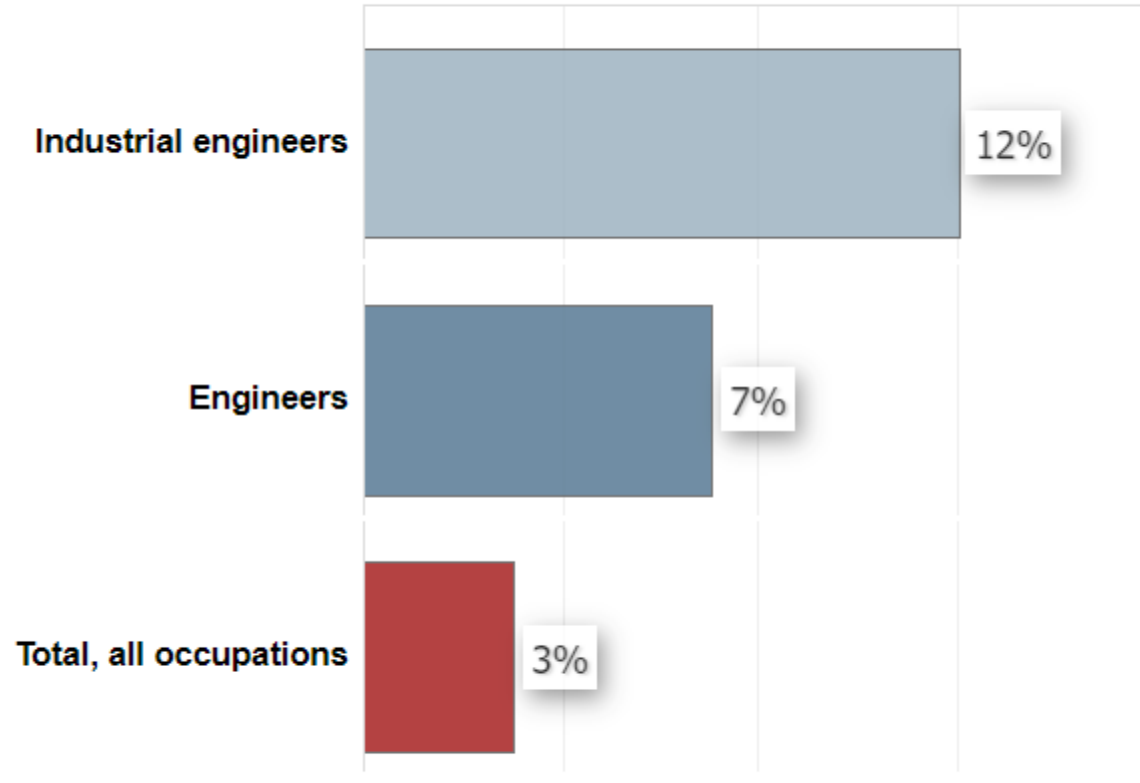






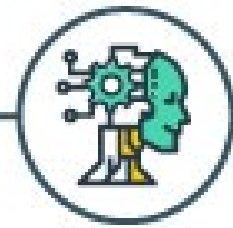
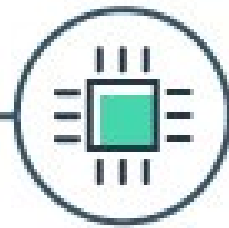
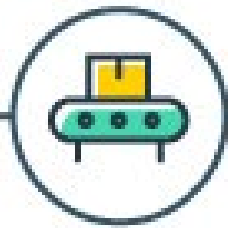
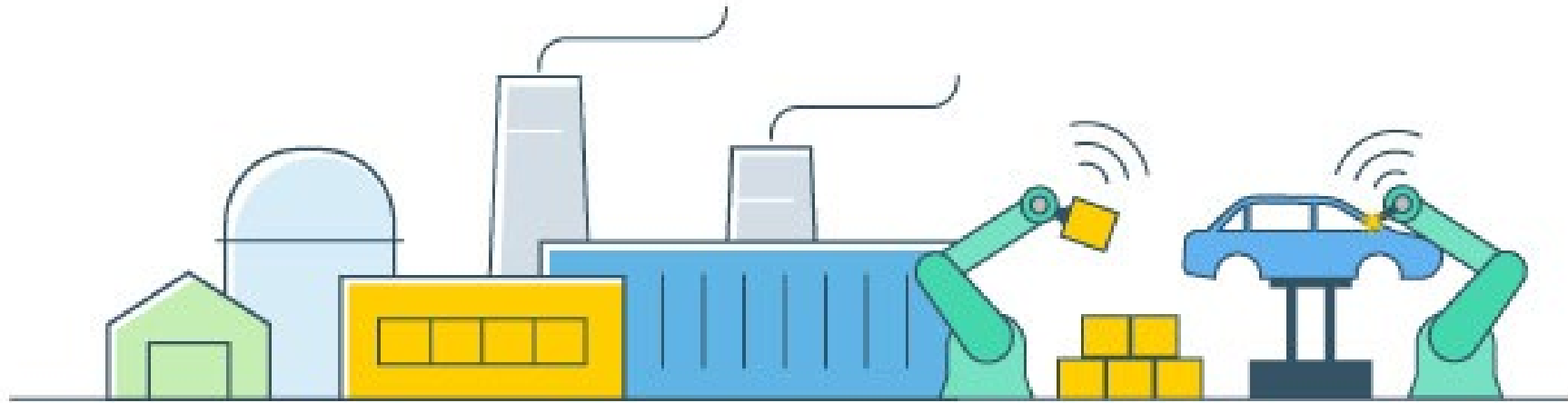
# Industrial Engineers

Percent change in employment, projected 2022-32



Note: All Occupations includes all occupations in the U.S. Economy.

Source: U.S. Bureau of Labor Statistics, Employment Projections program



## Industry 1.0

Mechanization,  
water power,  
steam power

## Industry 2.0

Mass production,  
assembly line,  
electricity

## Industry 3.0

Computer and  
automation

## Industry 4.0

Cyber physical  
systems

## Industry 5.0

Mass customization  
& cyber physical  
cognitive systems





# Interdisciplinary Collaboration



**83 percent of “digitally maturing” companies reported using cross-functional teams**

**73% of digitally maturing companies create an environment where cross-functional teams can succeed**

**Teams make 75 percent better decisions than individuals**



# Informed Decision-Making

A background image showing a business meeting with people in suits sitting around a table, looking at documents and laptops.

**Up to 50% of companies that have failed have done so because of not making informed decision making**

**Direct and indirect job losses impact between 5 and 7 million employees annually**

**80 percent of organizations report struggles with decision making**





# Data Integration

**The global data integration market size was evaluated at USD 12.14 billion in 2022 and is expected to hit around USD 39.25 billion by 2032**

**On average, companies' are experiencing a data creation growth rate of 23% through 2025**

**67% of enterprises are relying on data integration to support analytics and BI platforms today, and 24% are planning to in the next 12 months**

<https://www.precedenceresearch.com/data-integration-market>

<https://thenewstack.io/the-future-of-data-integration/>

<https://www.forbes.com/sites/louiscolombus/2020/03/29/the-state-of-enterprise-data-integration-2020/?sh=215205dfc466>



# Technology Integration



**At least 92 percent of manufacturers, including leaders like GE and Boeing, are already exploring metaverse tools**



**Combining generative AI with all other technologies, work automation could add 0.5 to 3.4 percentage points annually to productivity growth**

<https://epsnews.com/2023/10/19/integration-is-industry-4-0s-biggest-challenge/>

<https://www.mckinsey.com/capabilities/mckinsey-digital/our-insights/the-economic-potential-of-generative-ai-the-next-productivity-frontier#key-insights>



# Innovation and Optimization

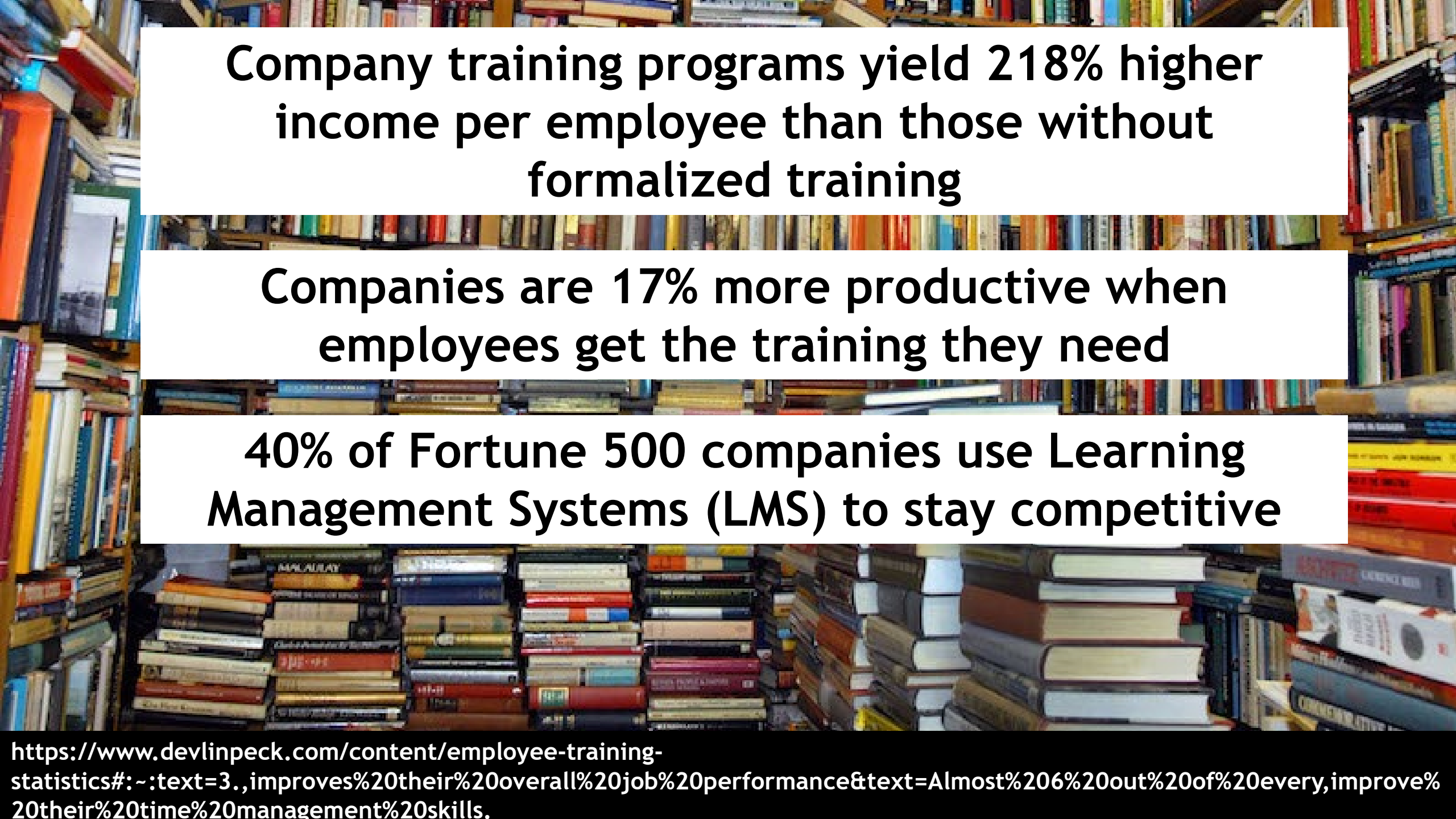
Innovation	Time Span from Hype to Productivity Plateau (years)	Expected Increase in Productivity (%)	People in the Workforce Affected (%)	IPI
Generative Artificial Intelligence	2-5 <sup>1</sup>	30-40% <sup>2</sup>	70% <sup>3</sup>	700
Cloud Computing	5	20-30%	90%	450
Big Data Analytics	5	15-20%	80%	280
Internet of Things	5-10	10-15%	60%	100
Robotics	5-10	10-15%	50%	83
Virtual Reality	5-10	5-10%	30%	30
Augmented Reality	5-10	5-10%	20%	20
Blockchain	5-10	5-10%	10%	10

Sources: <sup>1</sup> (Gartner, 2023), <sup>2</sup> (Somers, 2023) (Dell'Acqua et al., 2023), <sup>3</sup> (Adecco Group, 2023, S. 1)

$$IPI = \frac{(\text{Average Expected Increase in Productivity}) \times (\text{Average People in the Workforce Affected})}{(\text{Average Time Span from Hype to Productivity Plateau})} \times 100$$



# Continuous Learning and Adaptation



**Company training programs yield 218% higher income per employee than those without formalized training**

**Companies are 17% more productive when employees get the training they need**

**40% of Fortune 500 companies use Learning Management Systems (LMS) to stay competitive**



# Data Synergy

- ▶ Smart Cities
- ▶ Healthcare Analytics
- ▶ Supply Chain Optimization
- ▶ Financial Services Fraud Detection
- ▶ Manufacturing Process Improvement
- ▶ E-commerce Personalization
- ▶ Energy Grid Management
- ▶ Educational Analytics

# Thank you!

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