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Business and data – current status and challenges

By Volodymyr Getmanskyi,
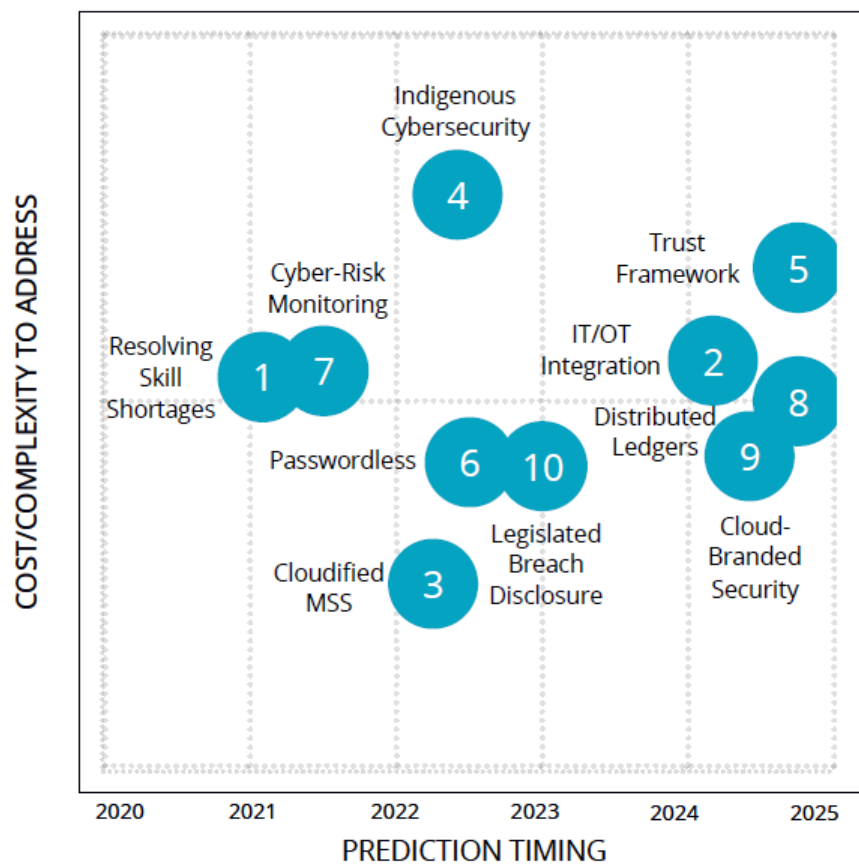
Head of Data Science Office

GENERAL PREDICTIONS

By 2025, nearly two-thirds of enterprises will be prolific software producers with code deployed daily, over 90% of new apps cloud native, 80% of code externally sourced and 1.6 times more developers.

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SECURITY PREDICTIONS

Source: IDC, 2019

Prediction 1: Hampered by perpetual security skill shortages, by 2021, 50% of tier 1 security operations center (SOC) analysts will permanently elevate their productivity and improve operational security metrics by harnessing artificial intelligence (AI) and machine learning (ML).

Prediction 2: Advancements in operational technology (OT) visibility tools will propel 60% of global industrial firms to adopt an IT-OT integrated approach to security monitoring by 2024.

Prediction 3: Shifting of workloads to the cloud is shifting consumption of managed security services (MSS), and by 2022, 35% of MSS customers will be served by cloudified MSS providers.

Prediction 4: Driven by rising aversion to "foreign" technology, 40% of developing markets will mandate the use of indigenous cybersecurity vendors to secure government and critical infrastructure by 2022.

Prediction 5: With the business criticality of digital trust rising, 25% of spending on security services will be devoted to developing, implementing, and maintaining a "trust framework" by 2025.

Prediction 6: Intolerant of trade-offs between superior digital experiences and identity assurance, consumers demand both; by 2022, 35% of consumer online transactions will be high trust and passwordless.

Prediction 7: Brand and attentiveness to cyber-risk have become tightly entwined, and by 2021, 80% of publicly traded companies will embed cyber-risk monitoring into their business planning and quarterly reporting.

Prediction 8: Explosions in data and analysis force the adoption of edge computing; to guarantee data provenance and security, 25% of enterprise data will reside in distributed ledger systems by 2025.

Prediction 9: Innovation, opportunity, and market demand collide to place hyperscale cloud providers directly and permanently in the security business; by 2025, 9% of their revenue will be attributed to security.

Prediction 10: Effectively combating attacks by nation-states and cybercriminals is data dependent, and by addressing this dependency, 20% of developed markets will legislate full cyberbreach disclosure by 2023.

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DATA, INTEGRATION AND ANALYTICS PREDICTIONS
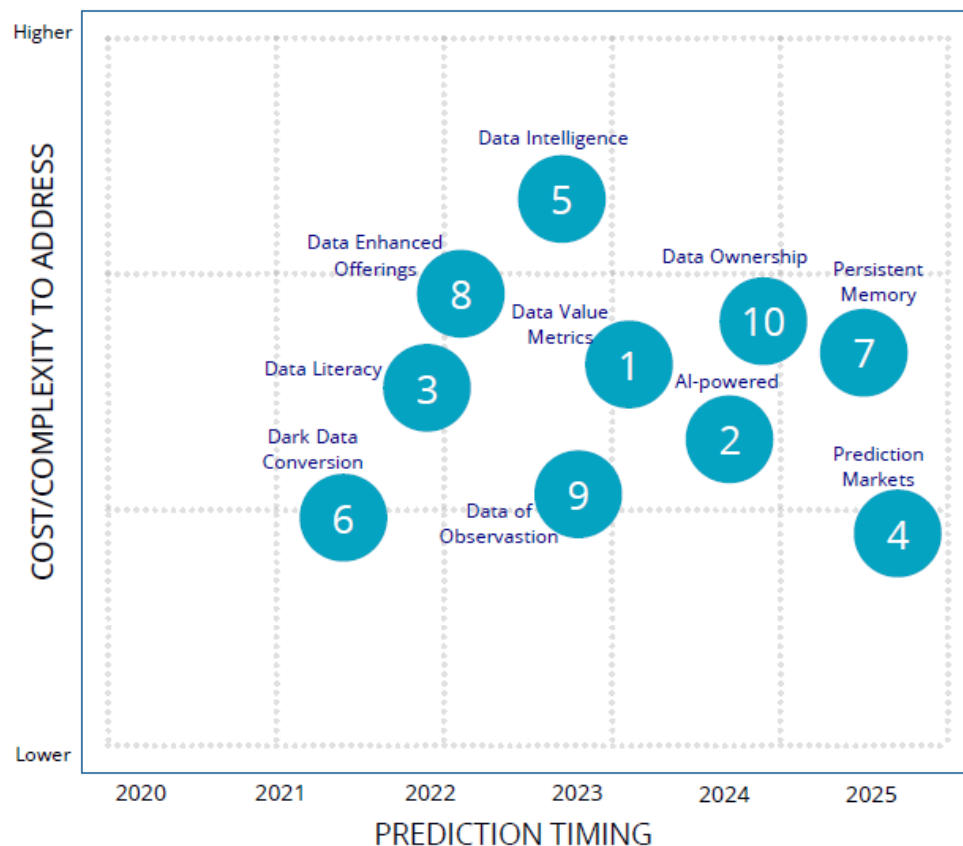
Source: IDC, 2019

1. By 2023, 70% of G2000 companies will have metrics in place to evaluate value realized from data, with those at more mature stages gaining resource allocation agility and efficiency over competitors

2. By 2024, the productivity gap will double between enterprises that deploy ML-enabled data management, integration, and analysis to automate IT and analytics-related tasks and those that do not

3. By 2022, a third of G2000 companies will have formal data literacy improvement initiatives in place to drive insights at scale, create sustainable trusted relationships, and counter misinformation

4. By 2025, 30% of organizations will be using internal or external prediction markets to make important business decisions

5. By 2023, 60% of organizations will use data catalogs to unify data discovery, access and intelligence and to bring increase transparency and trust in DataOps and business outcomes

6. By 2021, 25% of data-driven organizations will have turned 30% of their unstructured data into repurposed discrete elements that fuel adaptive decision-making and automate data-driven workflows

7. By 2025, 100% of memory-optimized DBMSs will use persistent memory, broadly enabling AI/ML, and yielding competitive advantages in areas such as logistics, financial services, and IoT management

8. By 2022, 50% of ICT vendors will use anonymized data collected within their platforms to provide insights and benchmarks, leading to increased value and differentiation for their offerings

9. By 2023, the drive to monitor operations pervasively will have shifted to workers, with 25% of enterprises engaging in detailed digital work monitoring to improve the value of work performed

10. By 2024, 10% of adults in developed economies will manage their personal data via data trusts, with new controls and transparency affecting digital business models and mediating customer relationships

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AI PREDICTIONS
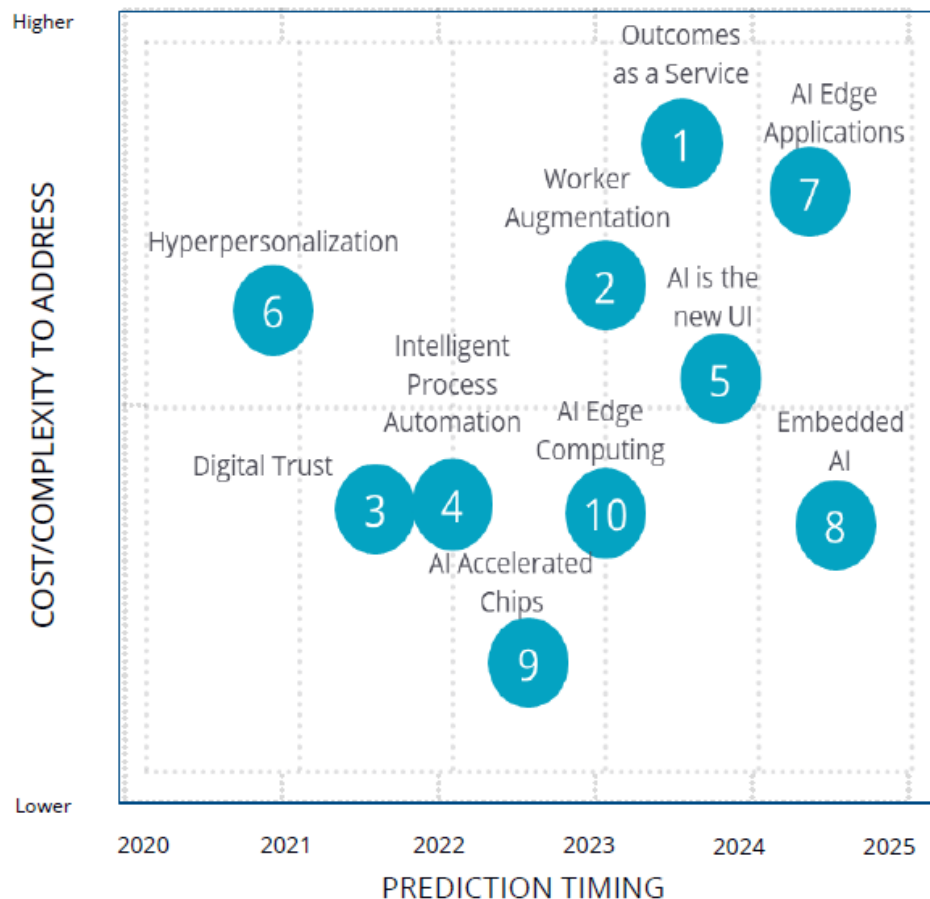
1. By 2024, AI will be integral to every part of the business, resulting in 25% of the overall spend on AI Solutions as 'Outcomes-as-a-service' that drive innovation at scale and superior business value

2. By 2024, 75% of enterprises will invest in employee retraining and development, including third-party services, to address new skill needs and ways of working resulting from AI adoption.

3. By 2022, over 70% of G2000 companies will have formal programs to monitor their 'digital trustworthiness' as digital trust becomes a critical corporate asset

4. By 2022, 75% of enterprises will embed intelligent automation into technology and process development, using AI-based software to discover operational and experiential insights to guide innovation

5. By 2024, AI will become the new UI by redefining user experiences where over 50% user touches will be augmented by computer vision, speech, natural language and AR/VR.

6. By 2021, 15% of customer experience applications will be continuously hyper personalized by combining a variety of data and newer reinforcement learning algorithms.

7. By 2025, 50% of computer vision and speech recognition models will run on the edge (including endpoints) and feature deep learning on convolutional and recurrent neural networks.

8. By 2025, at least 90% of new enterprise application releases will include embedded AI functionality, but truly disruptive AI-led applications will represent only about 10% of this total

9. In 2023, technology buyer spending on semiconductors (GPUs, FPGAs, AI-ASICs, and AI-ASSPs) used specifically to accelerate AI training and inferencing will reach nearly $9 billion.

10. By 2023, nearly 20% of servers that process AI workloads using AI-optimized processors and co-processors will be deployed at the edge.
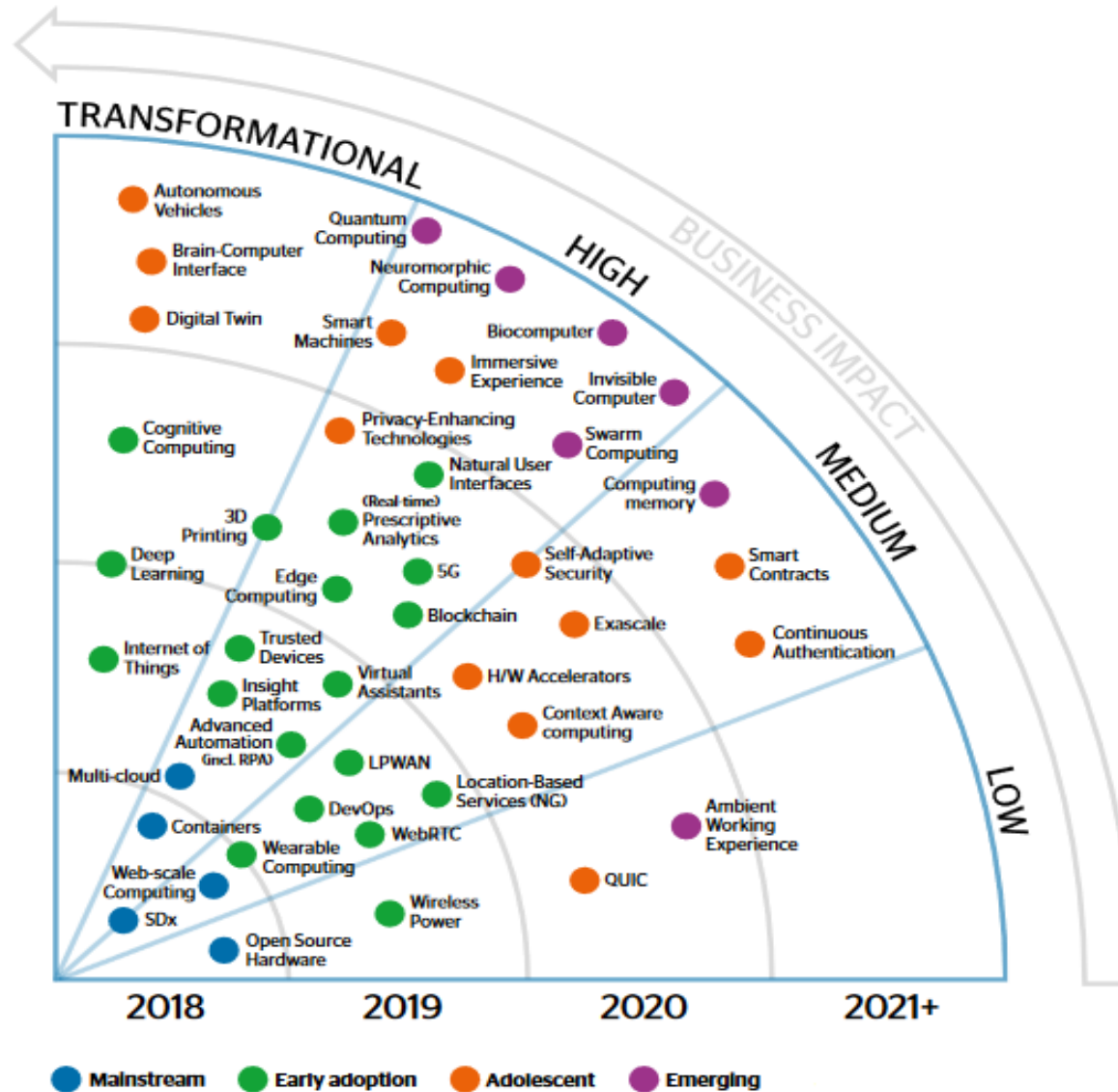
Read more   IDC

PREDICTIONS BY INDUSTRY

By 2022, 50% of global tier 1 banks will use quantum computing to review portfolio allocations, algorithmic trading, and pricing strategies.

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TECHNOLOGY RADAR

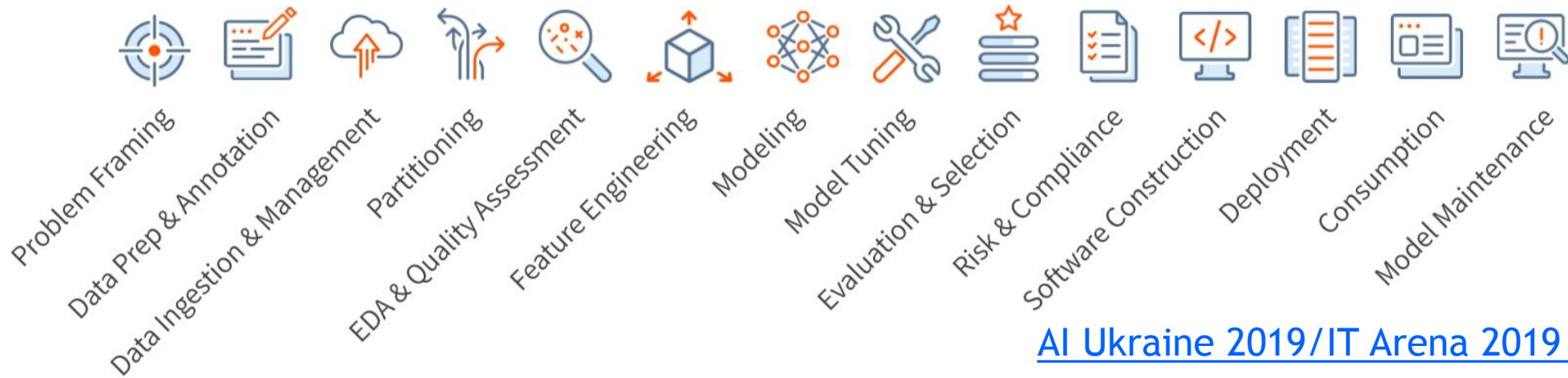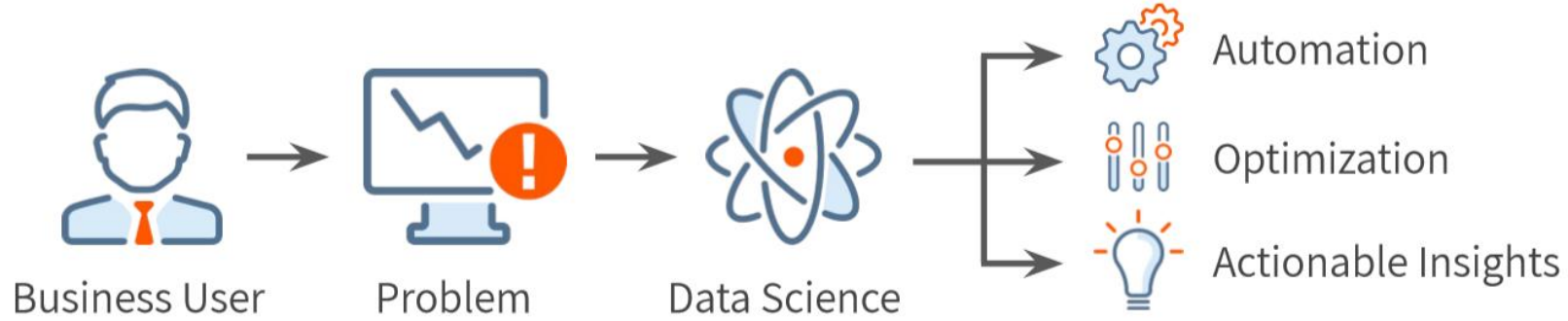Read more

Atos

THE RIGHT WAY

AI?

Security?

https://youtu.be/mzYyuCHgS2c

"Data Scientist is an statistician who lives in California."

"Data Scientist is an statistics on Mac."

"A data scientist is someone who's is ~~better~~ worse at statistics than any ~~developer~~ statistician and ~~better~~ worse at development than any statistician"

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PROBLEMS TO SOLVE

Business User → Problem → Data Science → Automation / Optimization / Actionable Insights

Problem Framing · Data Prep & Annotation · Data Ingestion & Management · Partitioning · EDA & Quality Assessment · Feature Engineering · Modeling · Model Tuning · Evaluation & Selection · Risk & Compliance · Software Construction · Deployment · Consumption · Model Maintenance

AI Ukraine 2019/IT Arena 2019 by Yuriy Guts

https://www.facebook.com/yuriy.guts

The Road is not Easy

Author: Swami Chandrasekaran

WHAT BUZZ IS AROUND?

SECURITY CHECK

Is there your card in the hackers database?
You can easily check here, just enter your card info:

Card number:

CVC@ (CW2):

Check!

GREAT
JOB
SECURITY
GUARD
I Turned Out Awesome

The Road is not Easy

	FORENSIC	MALWARE ANALYSIS	IOT EXPLOITATION	PEN TESTING	SCADA
BEGINNER	CYBER SECURITY AWARENESS for Forensic	CYBER SECURITY AWARENESS for Malware Analysis	CYBER SECURITY AWARENESS for IoT Exploitation	CYBER SECURITY AWARENESS for Pen-Testing	CYBER SECURITY AWARENESS for SCADA Security for Beginner
ADVANCED	GENERAL CYBER FORENSICS — Mobile Forensic	PC Targeted Malware Analysis — Mobile Mobile Analysis	IOT Exploitation Analysis	WEB BASED Pen-Testing — MOBILE BASED Pen-Testing — OS & EMBEDDED Pen-Testing	
EXPERT	ADVANCED CYBER FORENSICS– APT Attack — ADVANCED CYBER FORENSICS–FINANCIAL — Advanced Forensic Experts For Mobile	ADVANCED Malware Analysis – APT Attack — Advanced Mobile Malware Analysis	ADVANCED IOT Exploitation for Expert	ADVANCED Pen-Testing for Expert	SCADA Advanced Security Training

We start from the problem and looking for the most efficient way to solve it through data power

INVESTMENT INITIATION / PRE-SALES PROCESS

01   **Defining the scope**

- **Business understanding**
- **Defining success criteria**
- **Defining data to be used**
- **Defining previous practices, if any**

02   **Specifying requirements**

- Important aspects to address
- **Acceptable deliverables**
- Time constraints

03   **Proposal preparation**

- Formalizing the proposed solution

05   **Discovery phase**

- Duration
- Agreed results

04   **Finalizing the documents**

- SLA
- SOW
- NDA, if not at the very beginning

ROI ?

$$\frac{\text{Return (Benefit)}}{\text{Investment (Cost)}} = \text{ROI}$$

OUTPUT

CONSTANT RETURNS (CRS)

VARIABLE RETURNS (VRS)

DMU$_5$

DMU$_{n...}$

DMU$_1$

ORIENTED OUTPUT

DMU$_3$

ORIENTED INPUT

INPUT
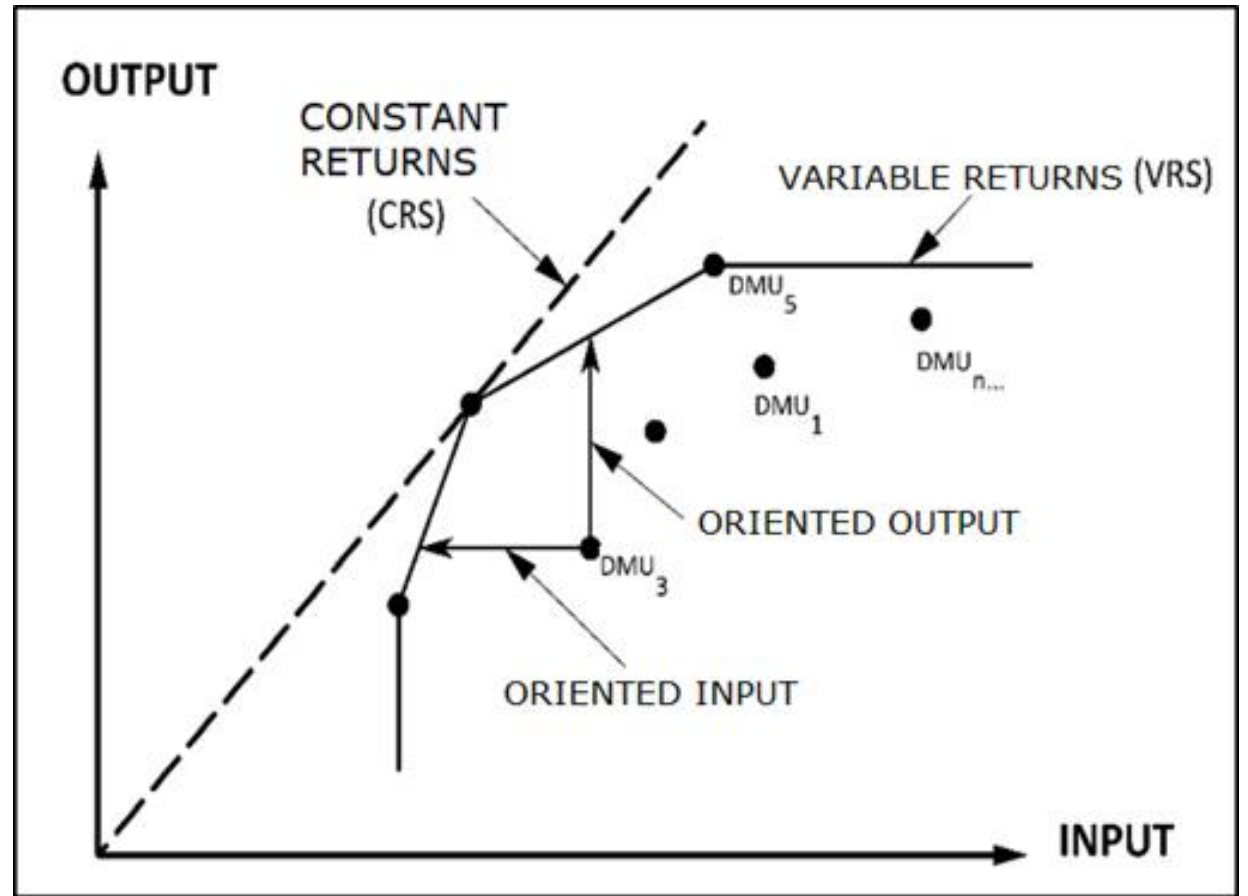
ROI FOR DATA SECURITY ?

11. Does automated security reduce costs?

Organizations with security automation technologies that reduced the need for human intervention saw significantly lower costs after experiencing a data breach ($2.65 million vs $5.16 million)

It's becoming more costly to not use automation with the average growing from $4.43 million in 2018 to $5.16 million in 2019, whereas organizations with automation saw their costs decrease from $2.88 million in 2018 to $2.65 million in 2019.

https://www.upguard.com/blog/cost-of-data-breach

A recent study by Deloitte and the Financial Services Information Sharing and Analysis Center found that financial services on average spend **10%** of their IT budgets on cybersecurity. That's approximately **0.2% to 0.9%** of company revenue or **$1,300 to $3,000** spent per full time employee. For a bigger picture benchmark, consider that Microsoft CEO Satya Nadella recently revealed in a statement that the tech behemoth "will invest more than **$1 billion each year** in cybersecurity for the foreseeable future". Finally, it's worth noting that the 2019 U.S. President's budget allocated **$15 billion** in spending on cybersecurity, about **0.3%** of the entire fiscal budget ($4.746 trillion).
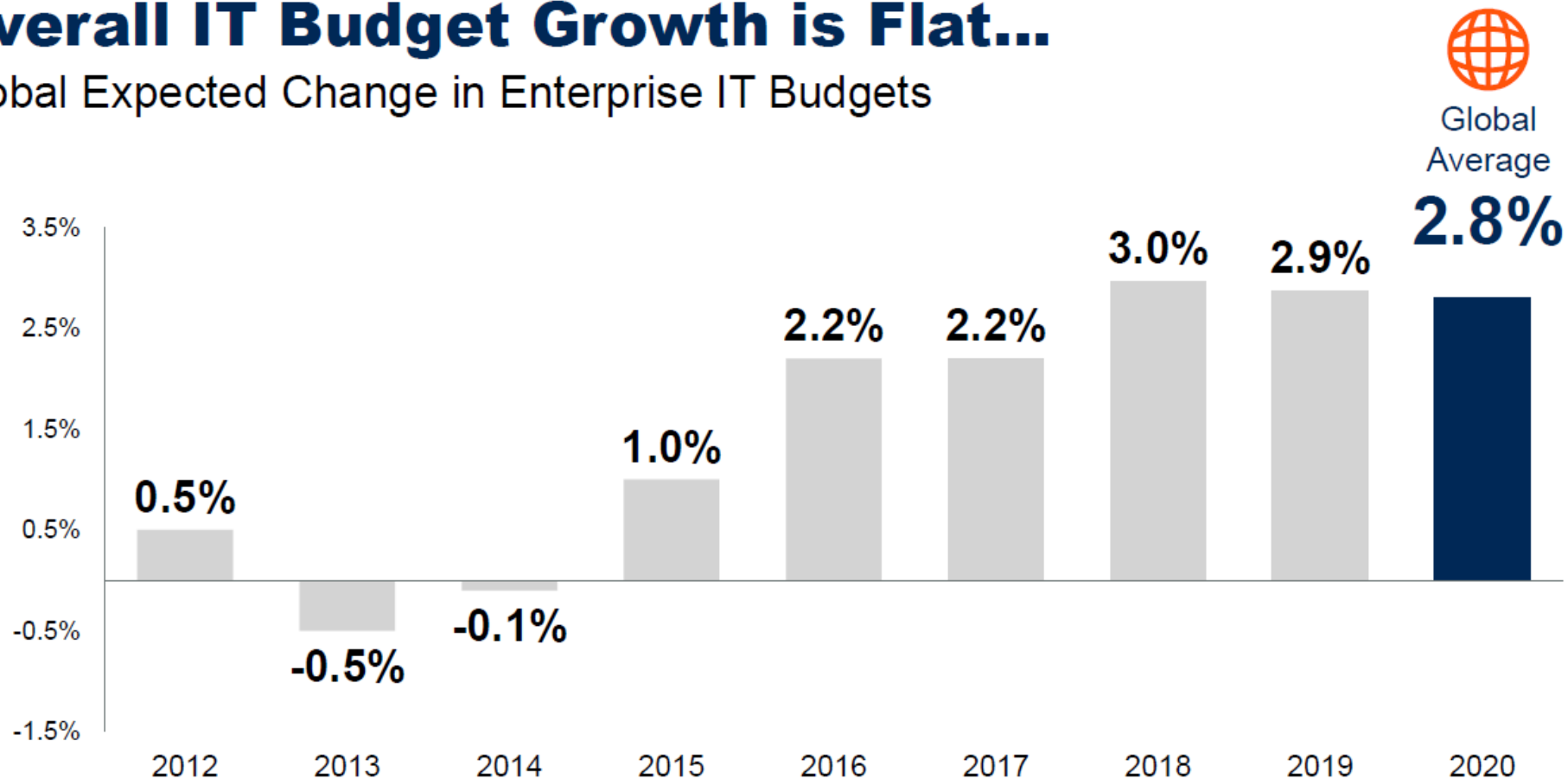
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REPLACING CONCEPTS (METRIC CHANGES)

$$\delta(A,B) = A \longleftrightarrow B = \sqrt{(x_A - x_B)^2 + (y_A - y_B)^2}$$

$$\{x \in X \mid \delta(x,a) \le e\}$$
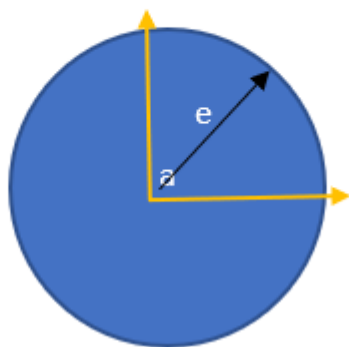
$$\delta(A,B) = A \longleftrightarrow B = |x_A - x_B| + |y_A - y_B|$$
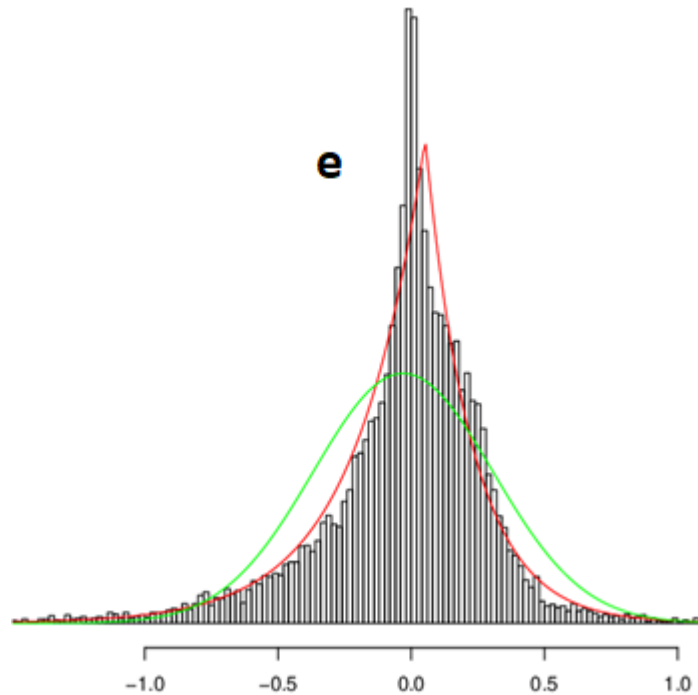
$$\{x \in X \mid \delta(x,a) \le e\}$$
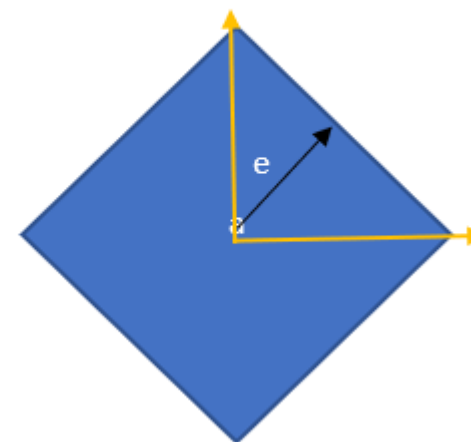
Replacing S/-MAPE with R/-MSE; AUC with accuracy/precision/f1 or even MAP

$$error(model) = 100\% - (validated\ accuracy \pm e) \quad in\ case\ if\ accuracy\ (for\ e.g.\ classification)$$

$$error(model) = validated\ error \pm e \quad in\ case\ if\ error\ (for\ e.g.\ regression)$$

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MOTHERBOARD
TECH BY VICE

Data Science Community Rocked by Pet Adoption Contest Cheating Scandal

A team of programmers scraped a pet adoption website to cheat in a $10,000 contest that was intended to help shelter pets get adopted.

By **Arielle Gordon**

Jan 14 2020, 3:00pm   Share   Tweet   Snap

IMAGE: GETTY IMAGES

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YEARS DIFFERENCES

11 March 2016

8 March 2019

Scene Optimizer — Intelligently recognizes up to 30 scenes and optimizes colors for brilliant shots.

Flaw Detection — Intelligently detects flaws, so it's nearly impossible to take a bad shot.

recognizes patterns in your mobile behavior and optimizes usage based on them - even predicting future behavior and loading frequently used apps ahead of time.

adapt to your life, reducing blue light and turning on Night mode to get your eyes ready for bed. And if you fall asleep without charging your phone, it turns off unnecessary functions to help save battery life.

will recognize your distinct voice and get straight to work.

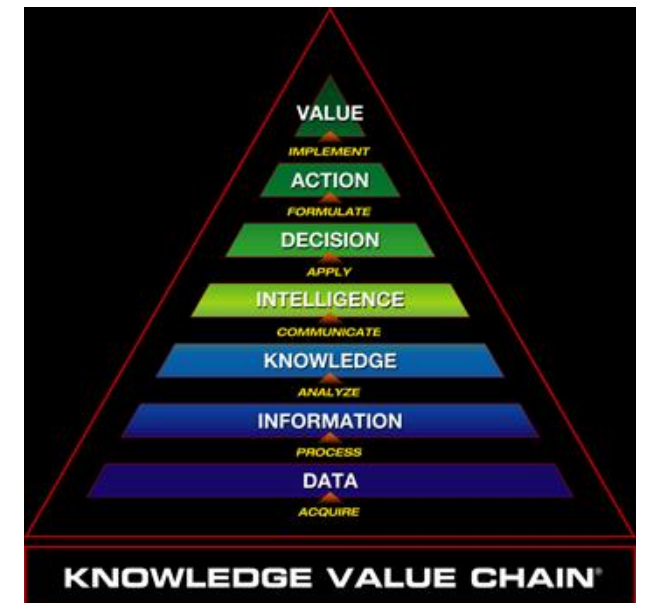point at something you want to eat, translate or buy and Bixby will show you what you're looking for.

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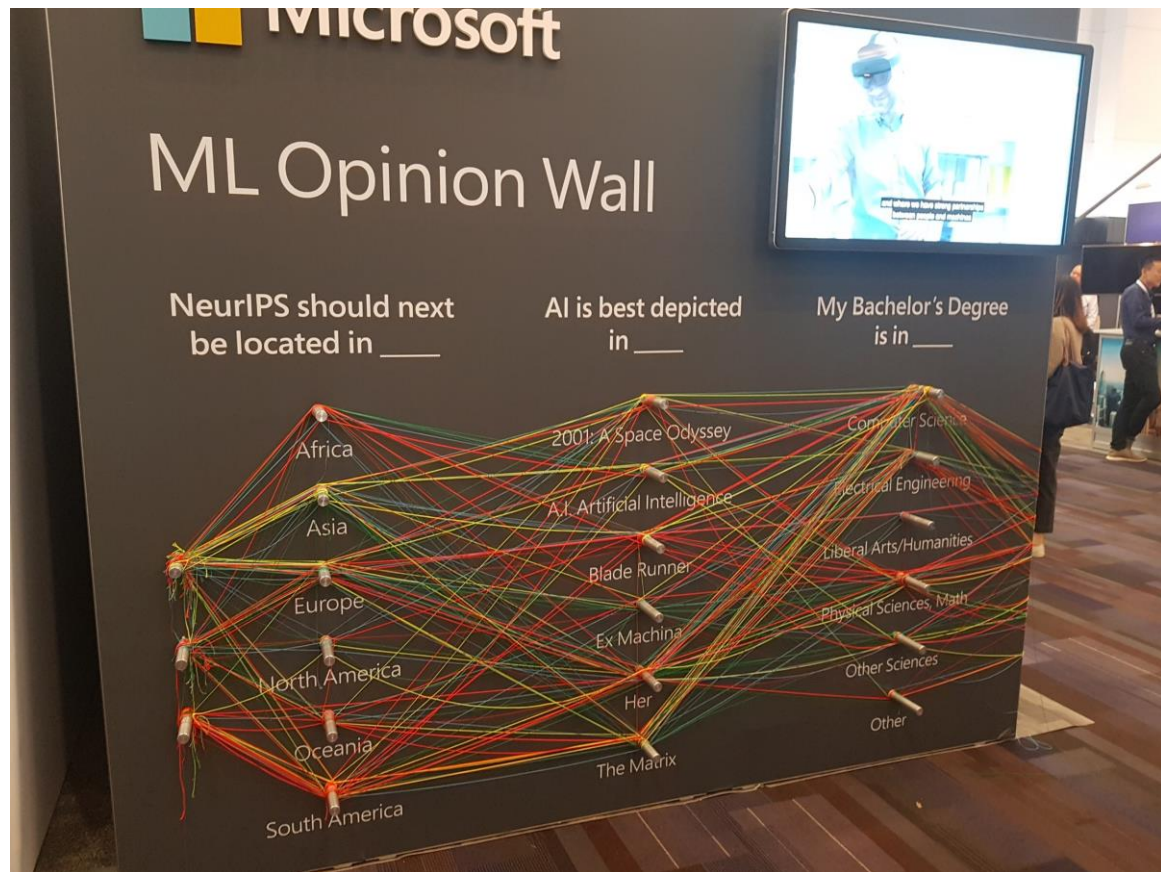
EVEN THE STRONG SUFFERING

DATA VALUE FOR BUSINESS

Data is an asset

Data is a knowledge

A New Category Is Being Created: Data as a Service.

https://medium.com/towards-artificial-intelligence/the-too-small-world-of-artificial-intelligence-553c0ee05856

https://deepindex.org/

https://datamanagement.iu.edu/tools/matrix.php

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Q&A

Thank you!

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