



Section for Clinical Epidemiology and Biostatistics

Introduction to Data Science for Healthcare

14 May 2019

9.00-10.15

Dr.Oraluck Pattanaprteep



Data Science (วิทยาศาสตร์ข้อมูล)

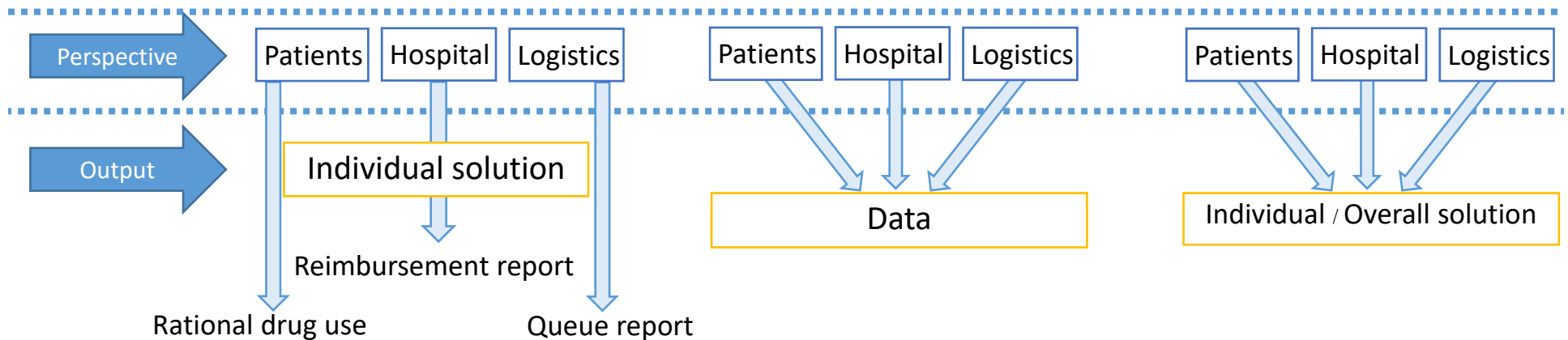
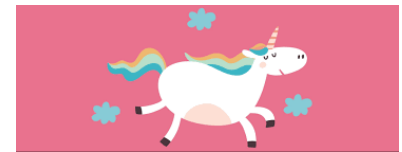
Clinician/Business/
Data analyst/



Data engineer

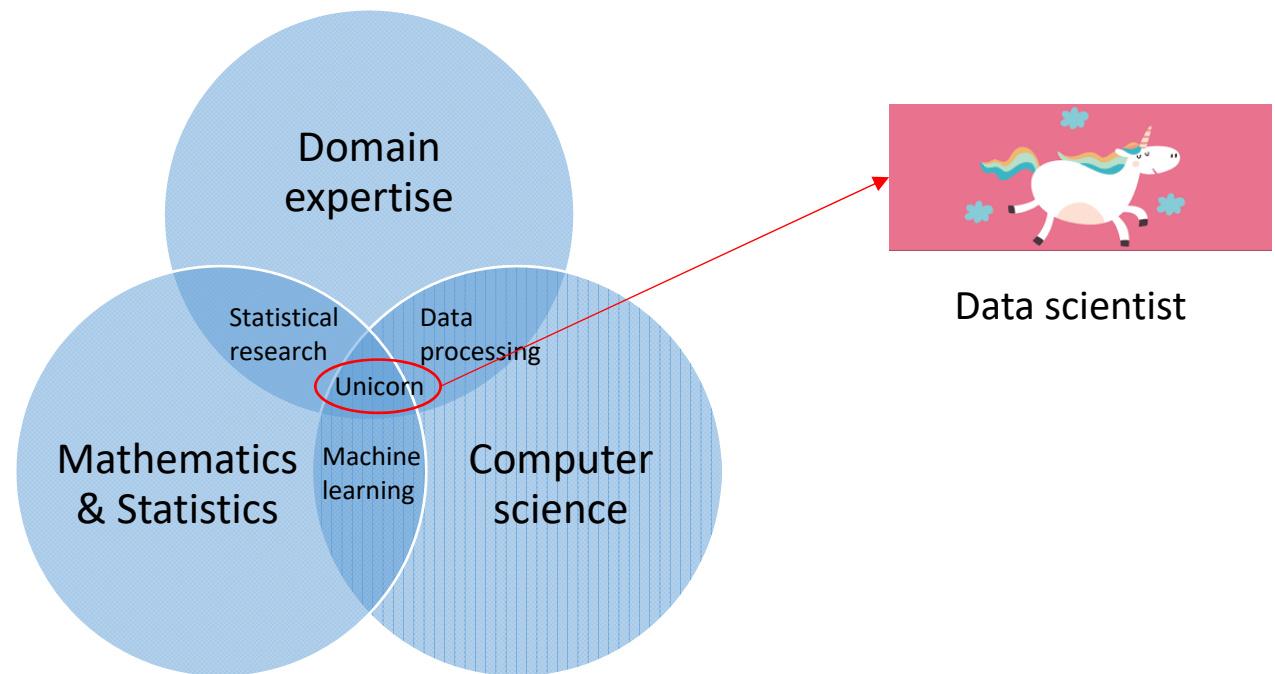


Data scientist





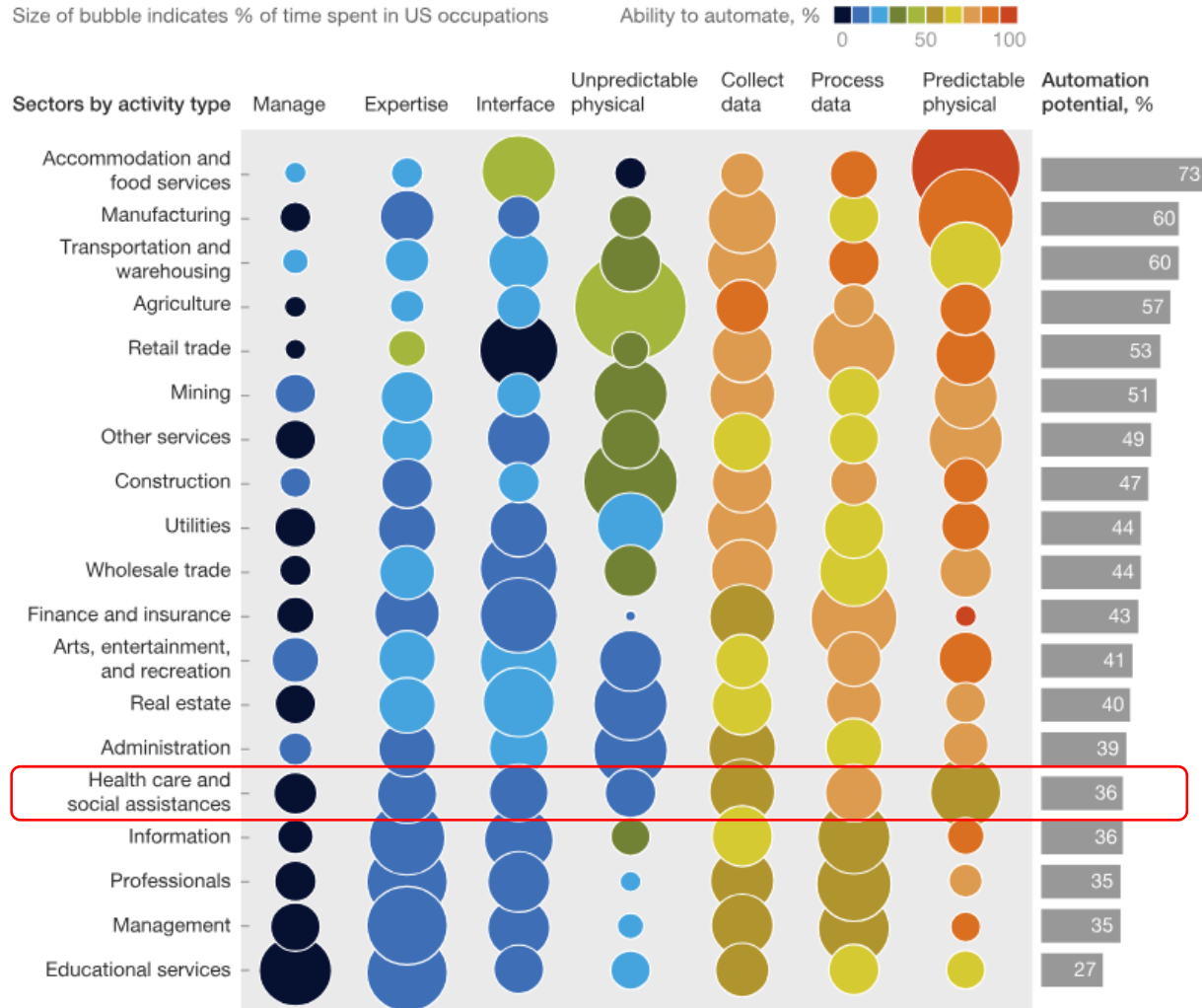
Data Science (วิทยาศาสตร์ข้อมูล)





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Automation potential varies across sectors and specific work activities.





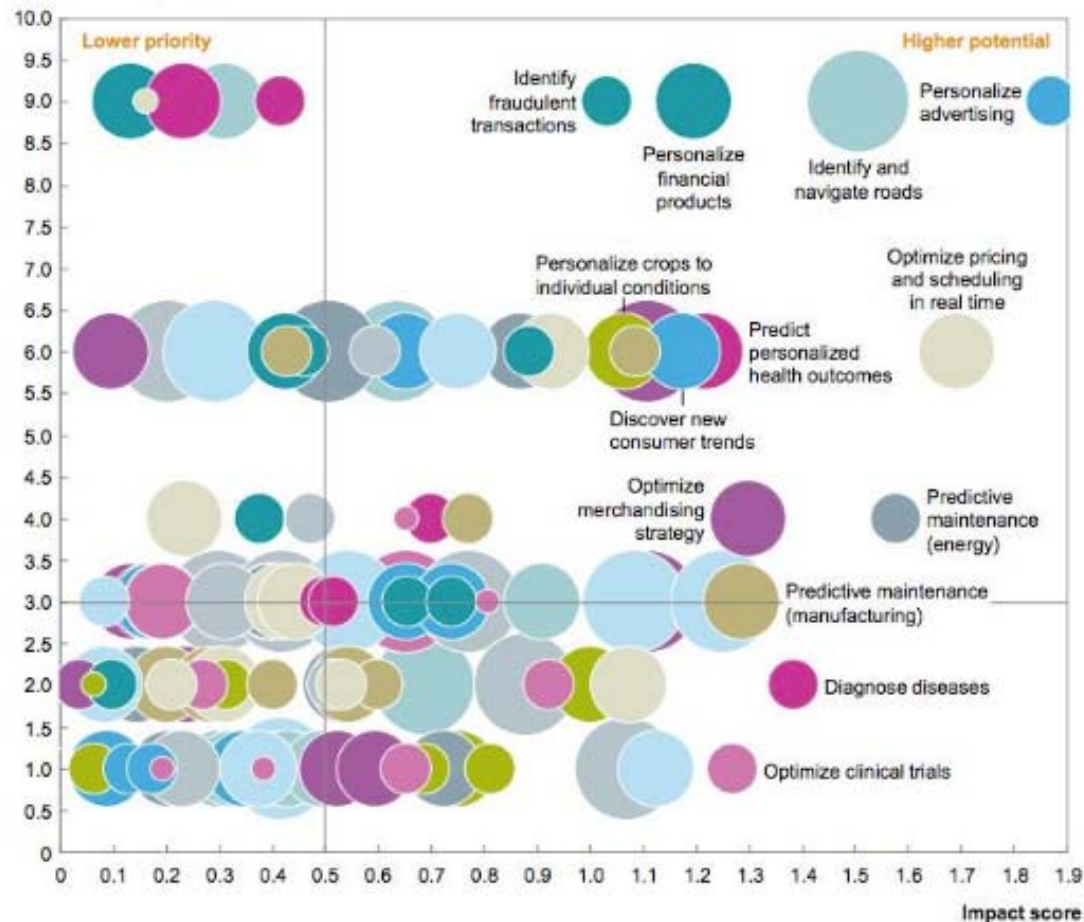
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Machine learning has broad potential across industries and use cases



Volume

Breadth and frequency of data

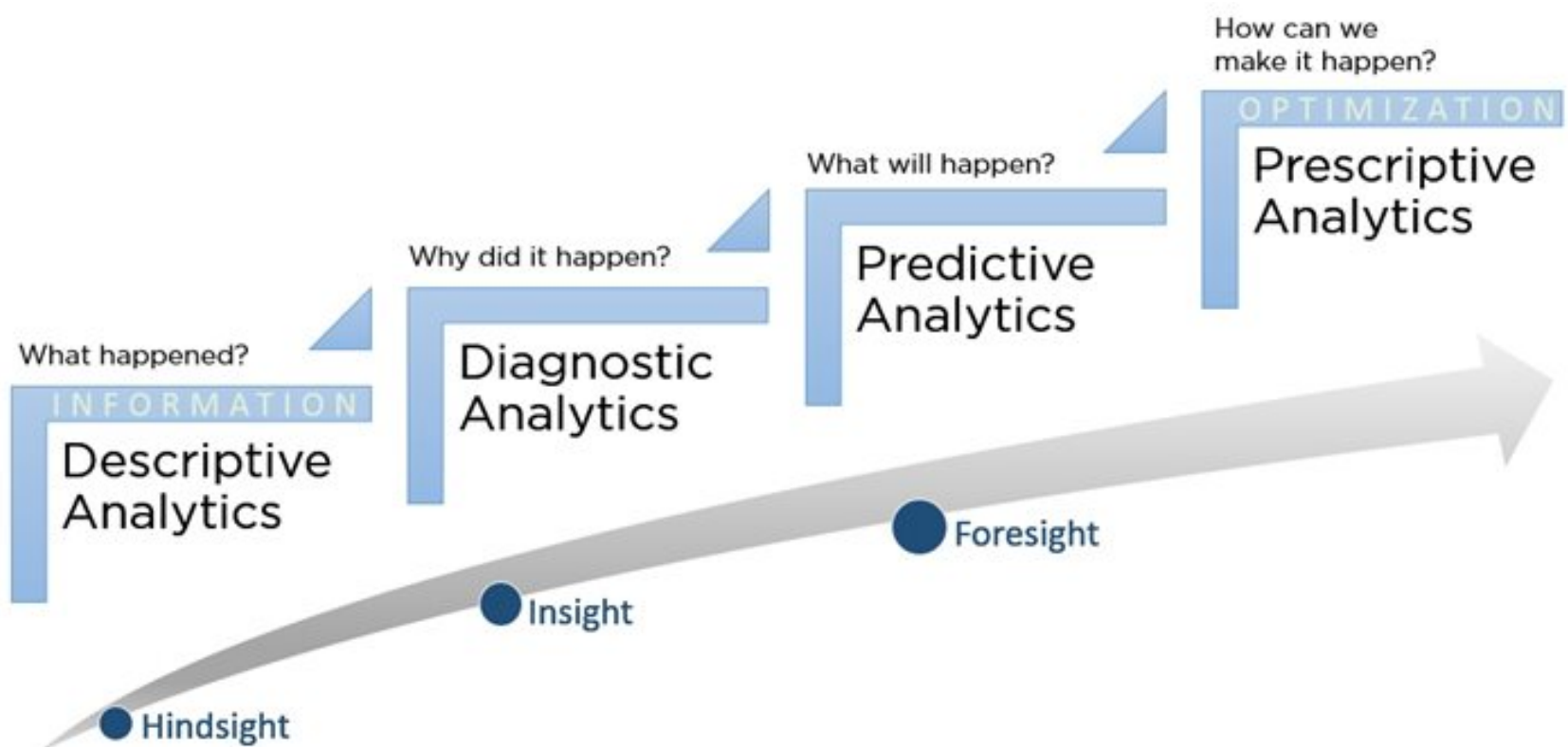


SOURCE: McKinsey Global Institute analysis

Wisdom of the Land



Healthcare analytics perspectives





Overview of using data science technologies in the health care sector Needs

- Breaking down data silos in healthcare
- Standardization and interoperability
- Privacy and ethics
- Increase focus on prevention
- Policy



Opportunities

- Healthy living: prevention and health promotion
 - Lifestyle support
 - Better understanding of triggers of chronic disease for effective early detection
 - Population health
 - Infectious diseases

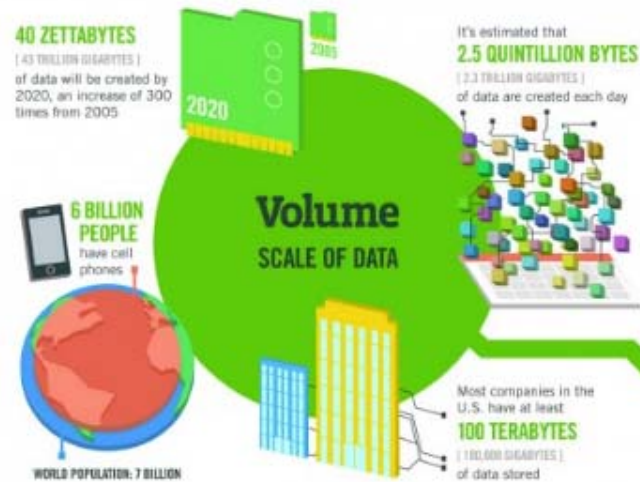


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- Healthcare
 - Precision medicine
 - Value-bases healthcare
 - Optimizing workflow in healthcare
 - Infection prevention, prediction and control
 - Social-clinical care path
 - Patient support and involvement



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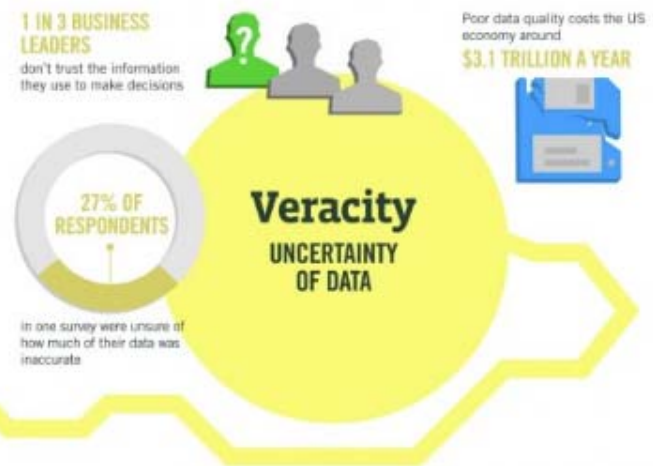
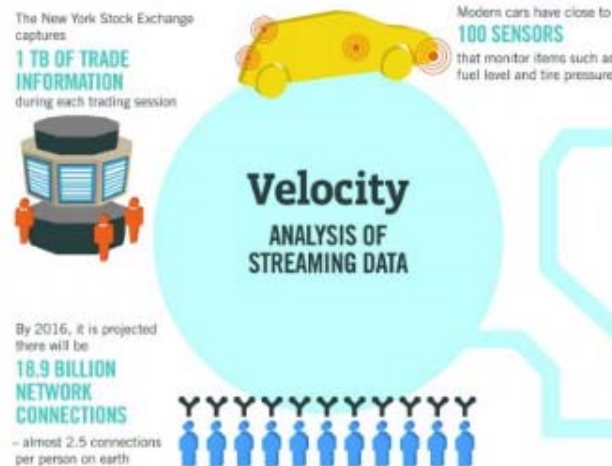
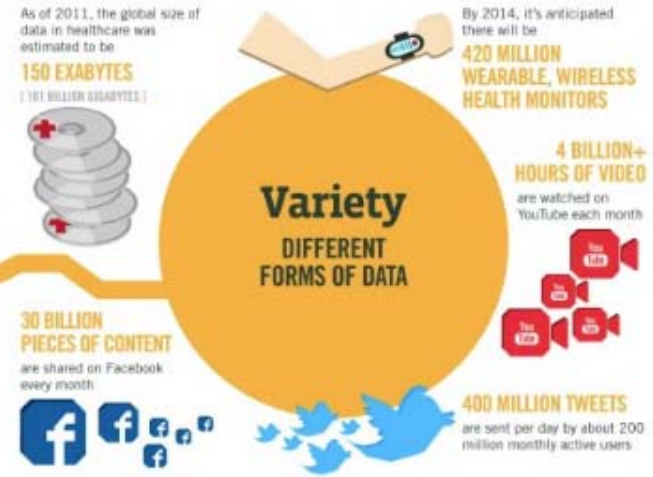
The FOUR V's of Big Data

From traffic patterns and music downloads to web history and medical records, data is recorded, stored, and analyzed to enable the technology and services that the world relies on every day. But what exactly is big data, and how can these massive amounts of data be used?

As a leader in the sector, IBM data scientists break big data into four dimensions: **Volume, Velocity, Variety and Veracity**

Depending on the industry and organization, big data encompasses information from multiple internal and external sources such as transactions, social media, enterprise content, sensors and mobile devices. Companies can leverage data to adapt their products and services to better meet customer needs, optimize operations and infrastructure, and find new sources of revenue.

By 2015, **4.4 MILLION IT JOBS** will be created globally to support big data, with 1.9 million in the United States



Sources: McKinsey Global Institute, Twitter, Cisco, Gartner, EMC, SAS, IBM, MDPI/EC, GAD

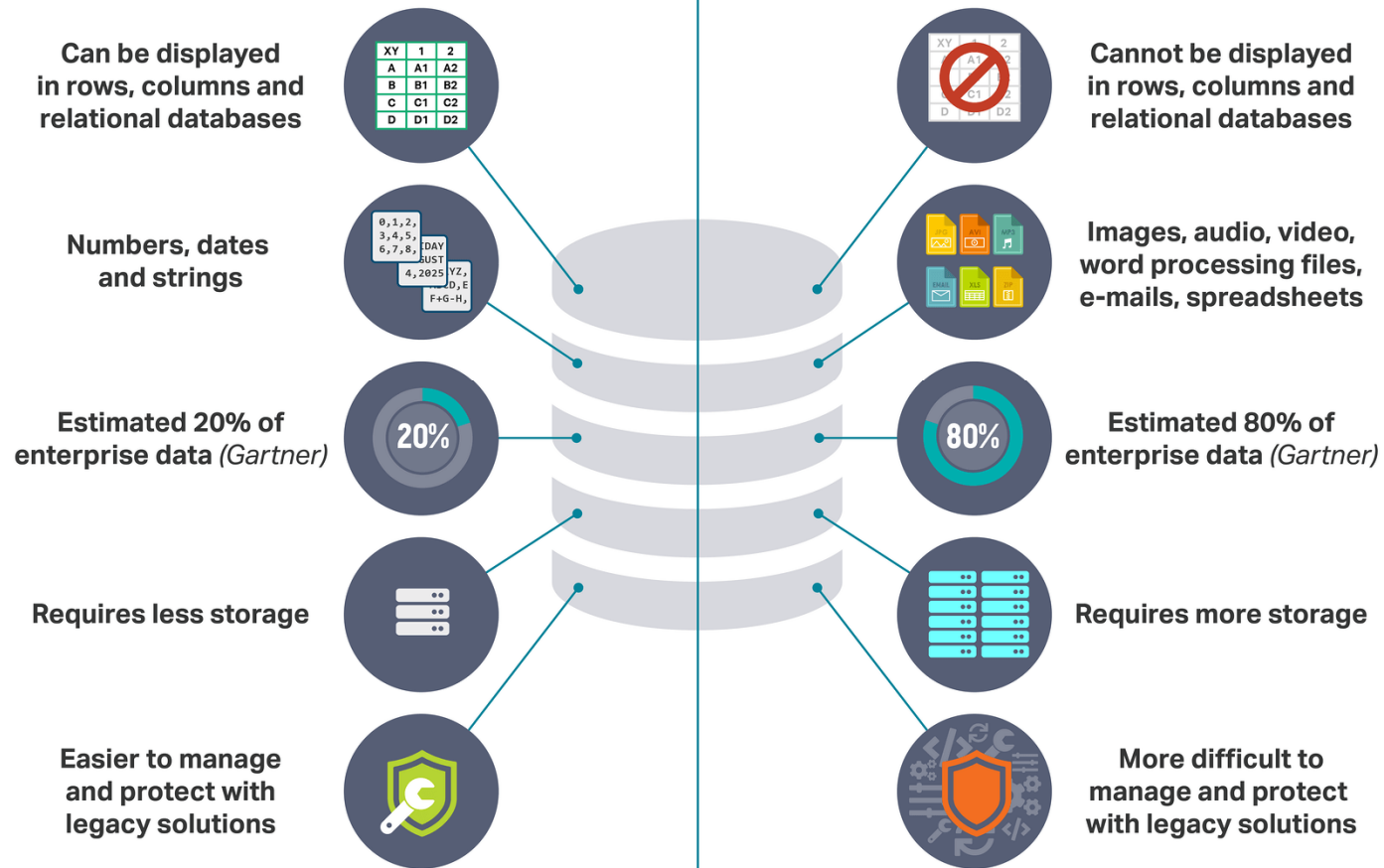


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Structured Data vs Unstructured Data



<https://lawtomated.com/structured-data-vs-unstructured-data-what-are-they-and-why-care/>



Top 6 use cases of data science in healthcare

<https://bigdata-madesimple.com/top-6-use-cases-of-data-science-in-healthcare/>

DATA SCIENCE

Top 6 use cases of data science in healthcare

Jan 6, 2019 Robby Gupta



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- Drug discovery
- Wearables
- Diagnostics
- Public health
- Reduced healthcare costs
- Optimal staffing