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Information Management: Business Intelligence

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Some facts

- **The data volumes are exploding, more data has been created in the past two years than in the entire previous history of the human race.**
- **About 1.7 megabytes of new informati… second for every hum… planet.**
- **Internet us… about 2.5 quintillion (10^30) bytes of data each day.**
- **Today it would take a person approximately 181 million years to download all the data from the internet (**download speed of 46Mbps)

equal to the number of all ants on the planet, multiplied by 100

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Some facts

- **Less than 0.5% of all data is ever analyzed and used.**
- **Using big data, Netflix saves $1 billion per year on customer retention.**

The Characteristics of Valuable Information

Characteristics	Definitions
Accessible	Information should be easily accessible by authorized users so they can obtain it in the right format and at the right time to meet their needs.
Accurate	Accurate information is error free. In some cases, inaccurate information is generated because inaccurate data is fed into the transformation process. [This is commonly called garbage in, garbage out [GIGO].]
Complete	Complete information contains all the important facts. For example, an investment report that does not include all important costs is not complete.
Economical	Information should also be relatively economical to produce. Decision makers must always balance the value of information with the cost of producing it.
Flexible	Flexible information can be used for a variety of purposes. For example, information on how much inventory is on hand for a particular part can be used by a sales representative in closing a sale, by a production manager to determine whether more inventory is needed, and by a financial executive to determine the total value the company has invested in inventory.

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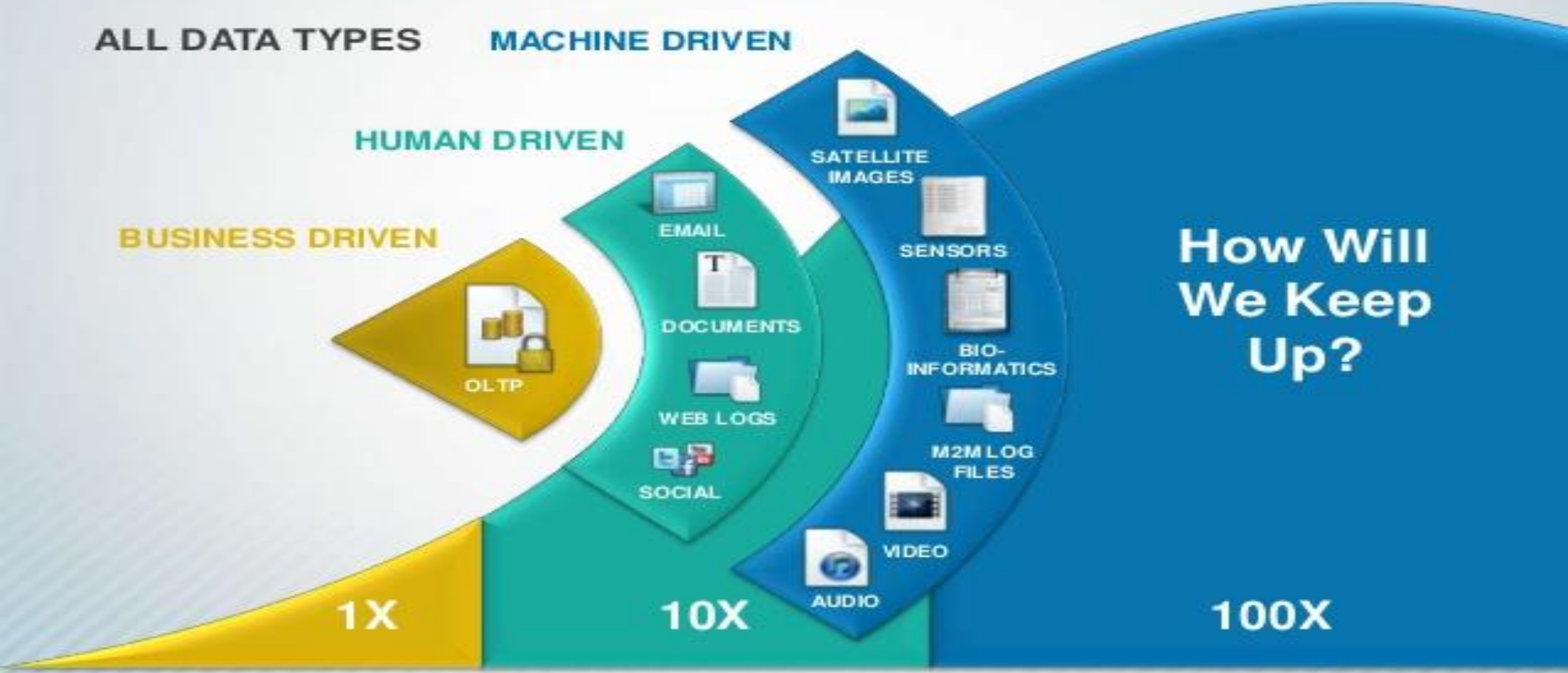
The Characteristics of Valuable Information (continued)

Relevant	Relevant information is important to the decision maker. Information showing that lumber prices might drop might not be relevant to a computer chip manufacturer.
Reliable	Reliable information can be depended on. In many cases, the reliability of the information depends on the reliability of the data-collection method. In other instances, reliability depends on the source of the information. A rumor from an unknown source that oil prices might go up might not be reliable.
Secure	Information should be secure from access by unauthorized users.
Simple	Information should be simple, not overly complex. Sophisticated and detailed information might not be needed. In fact, too much information can cause information overload, whereby a decision maker has too much information and is unable to determine what is really important.
Timely	Timely information is delivered when it is needed. Knowing last week's weather conditions will not help when trying to decide what coat to wear today.
Verifiable	Information should be verifiable. This means that you can check it to make sure it is correct, perhaps by checking many sources for the same information.

INFORMATION GROWTH: THE DATA MULTIPLIER EFFECT

HITACHI
Inspire the Next



BI&A 1.0 ***BI&A 2.0*** ***BI&A 3.0***

BIG DATA

VOLUME

DATA SIZE

VELOCITY

SPEED OF CHANGE

VARIETY

DIFFERENT FORMS OF DATA SOURCES

VERACITY

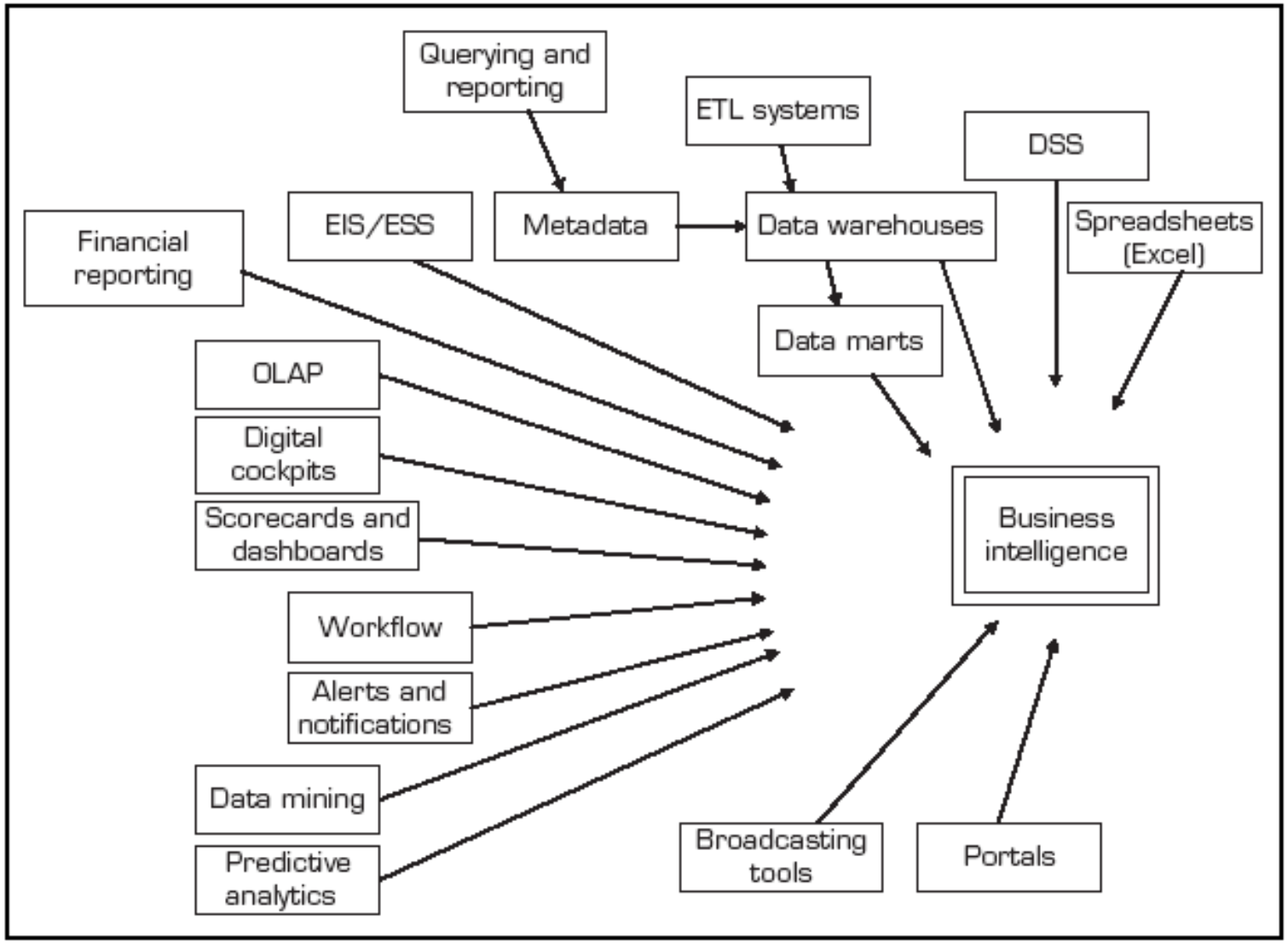
UNCERTAINTY OF DATA

Business Intelligence & Analytics (BI&A)

BI&A is broadly described as an application of ‘various techniques, technologies, systems, applications, practices, and methodologies, that analyse critical business data’ (Chen, Chiang, & Storey, 2012; Ramanathan et al., 2017) to enable evidence-based problem-solving and recognition within the context of business situations (Holsapple et al., 2014).

What Is Business Intelligence?

FIGURE 1.6 Evolution of BI



A Framework for Business Intelligence

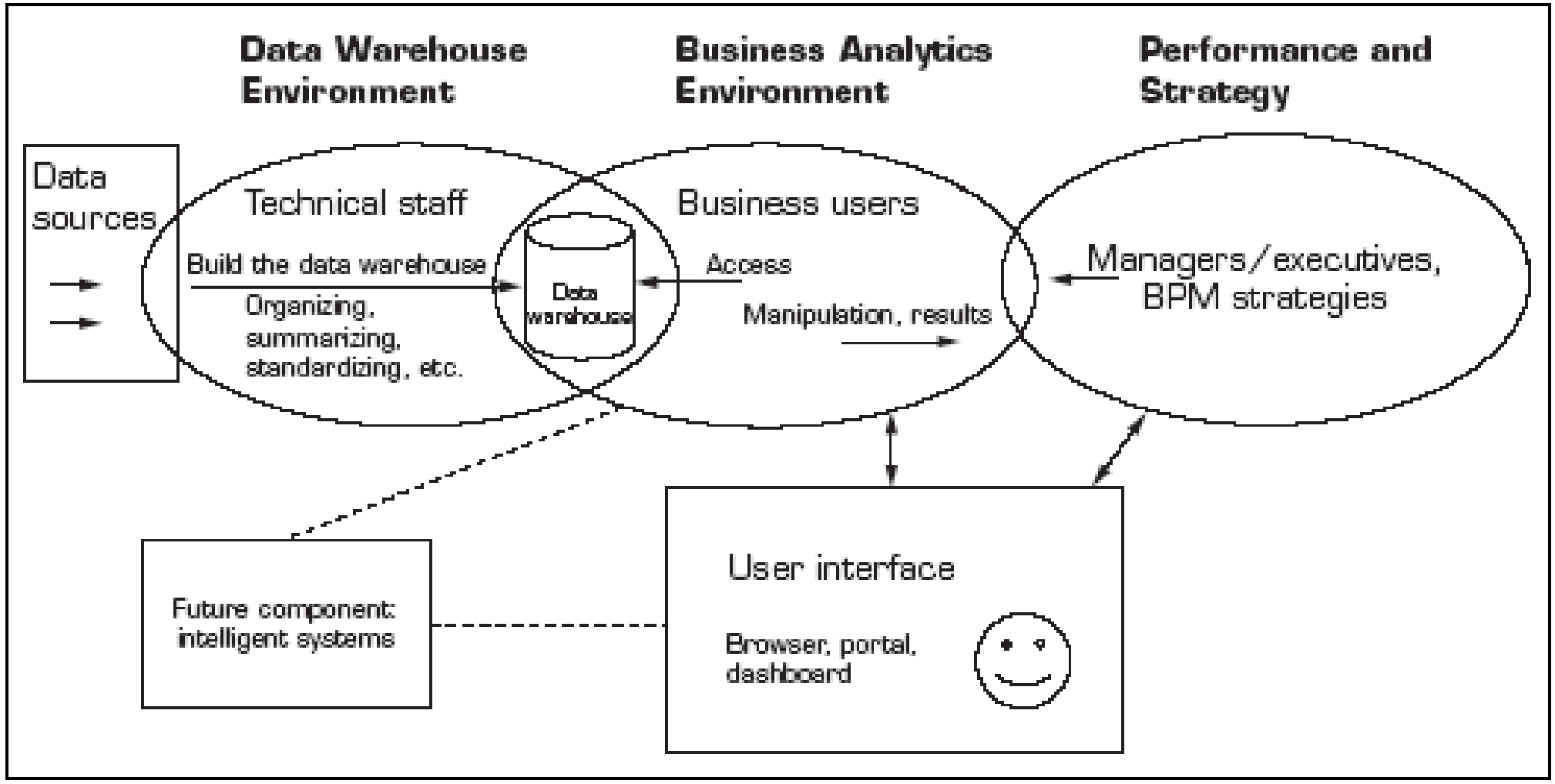
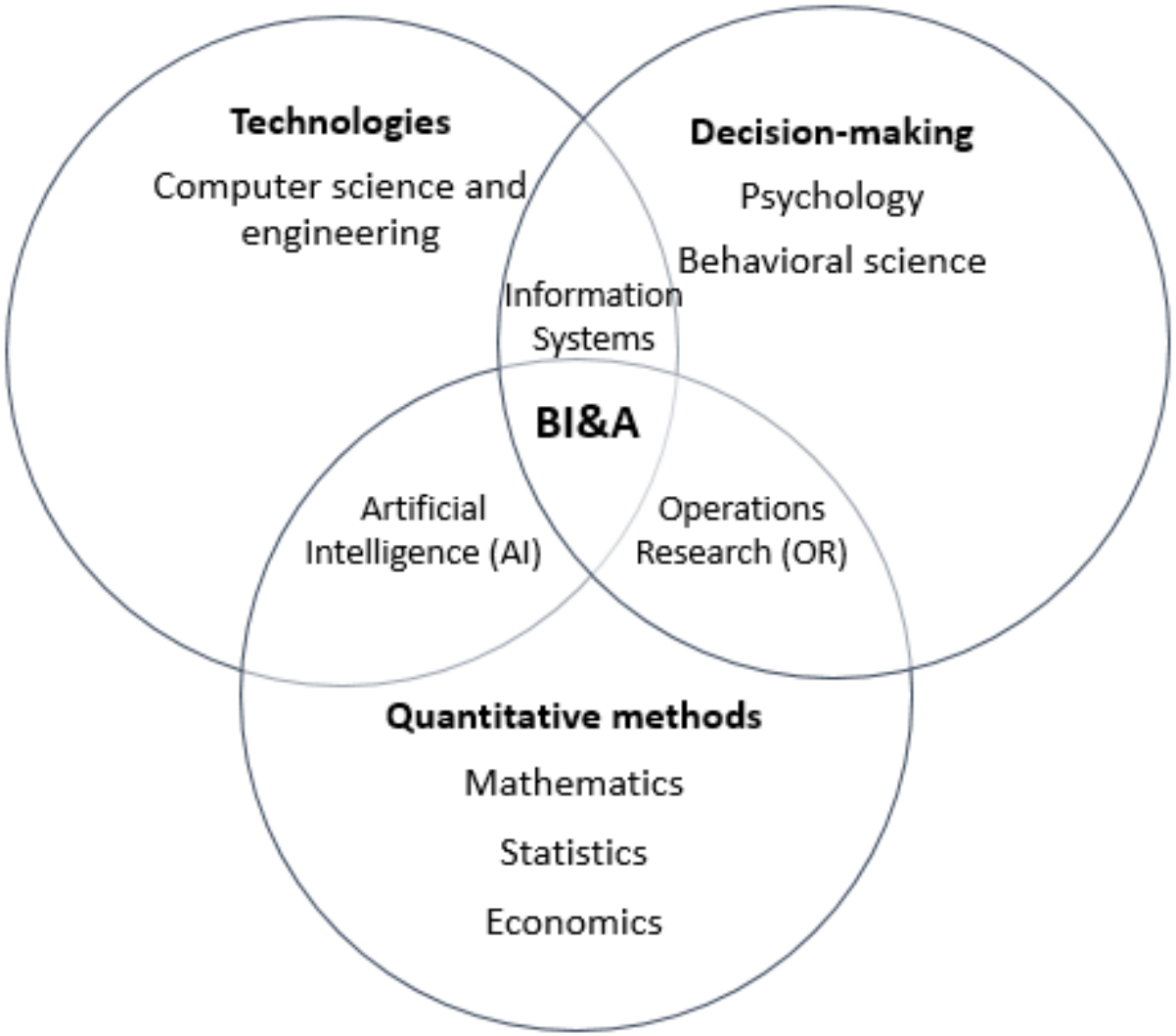


FIGURE 1.7 A High-Level Architecture of BI

Business Intelligence & Analytics (BI&A)



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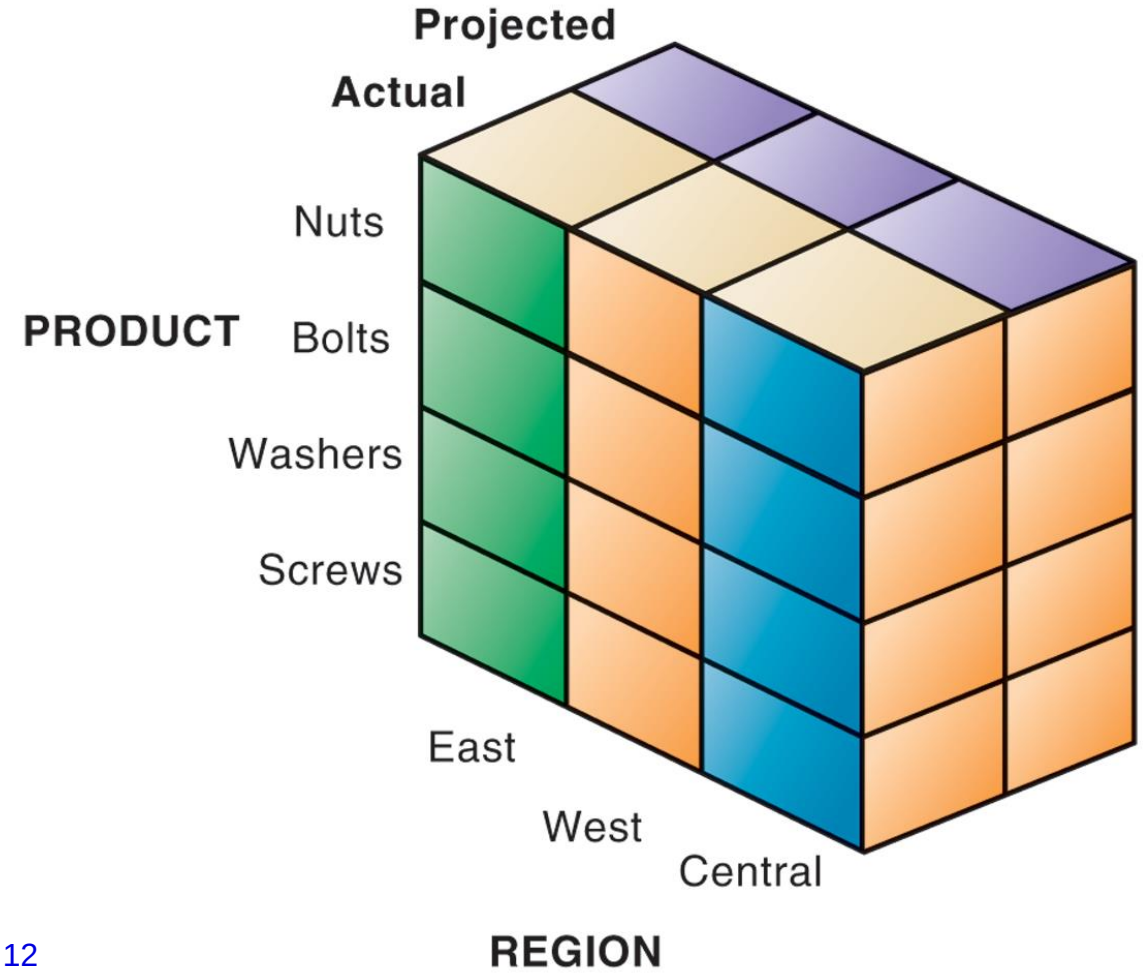
Three types of BI&A: Descriptive Analytics



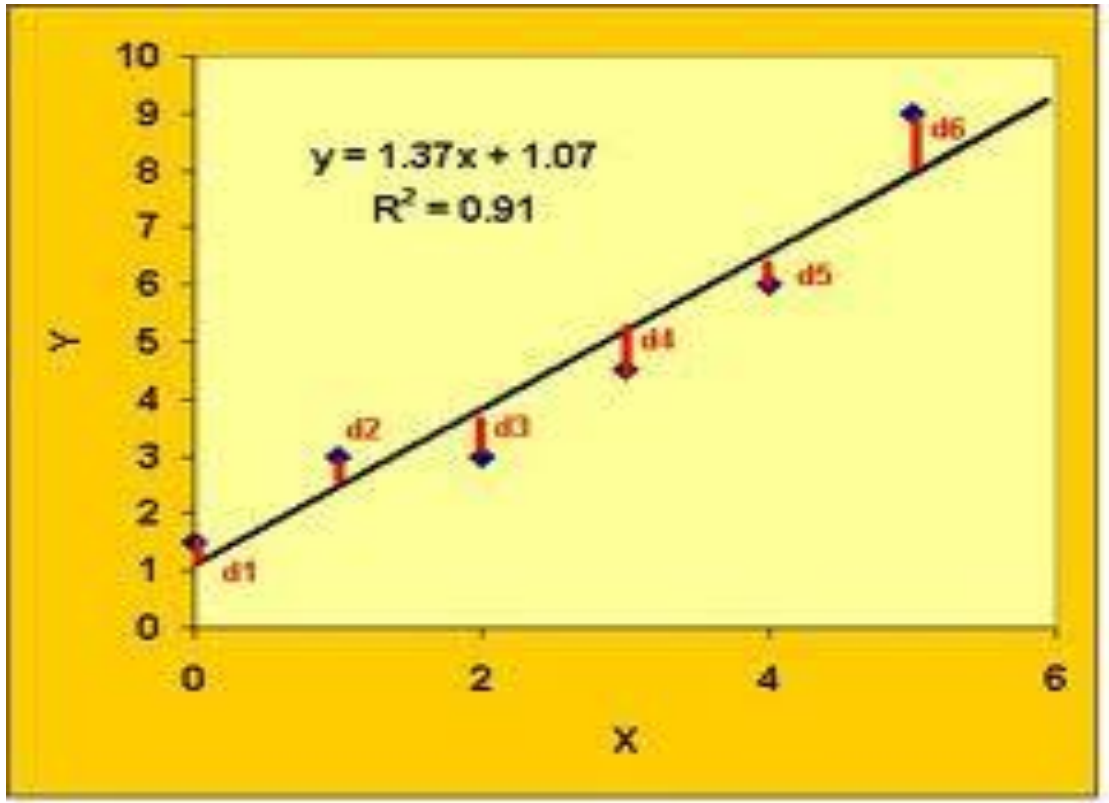
What has occurred?

Year	2000			
	Audio Division		Video Division	
Line Items	Budget	Actual	Budget	Actual
Cost of Goods Sold	$6,851,006.49	$7,132,961.38	$4,322,514.74	$4,526,954.71
Marketing Expense	$750,179.20	$756,596.17	$455,048.05	$462,815.40
Research and Development Expense	$538,243.39	$536,014.73	$329,890.95	$336,808.13
Selling Expense	$1,632,921.64	$1,579,790.18	$986,887.49	$927,970.90
Taxes	$314,659.05	$319,390.19	$202,636.67	$200,205.01
Year	2001			
	Audio Division		Video Division	
Line Items	Budget	Actual	Budget	Actual
Cost of Goods Sold	$2,564,556.31	$2,700,773.16	$1,726,031.16	$1,773,448.08
Marketing Expense	$294,766.22	$290,696.70	$187,757.29	$176,778.55
Research and Development Expense	$200,719.90	$193,236.83	$134,270.95	$125,725.88
Selling Expense	$620,427.30	$611,649.47	$405,092.93	$400,181.91
Taxes	$130,926.70	$122,526.31	$82,450.78	$80,671.87

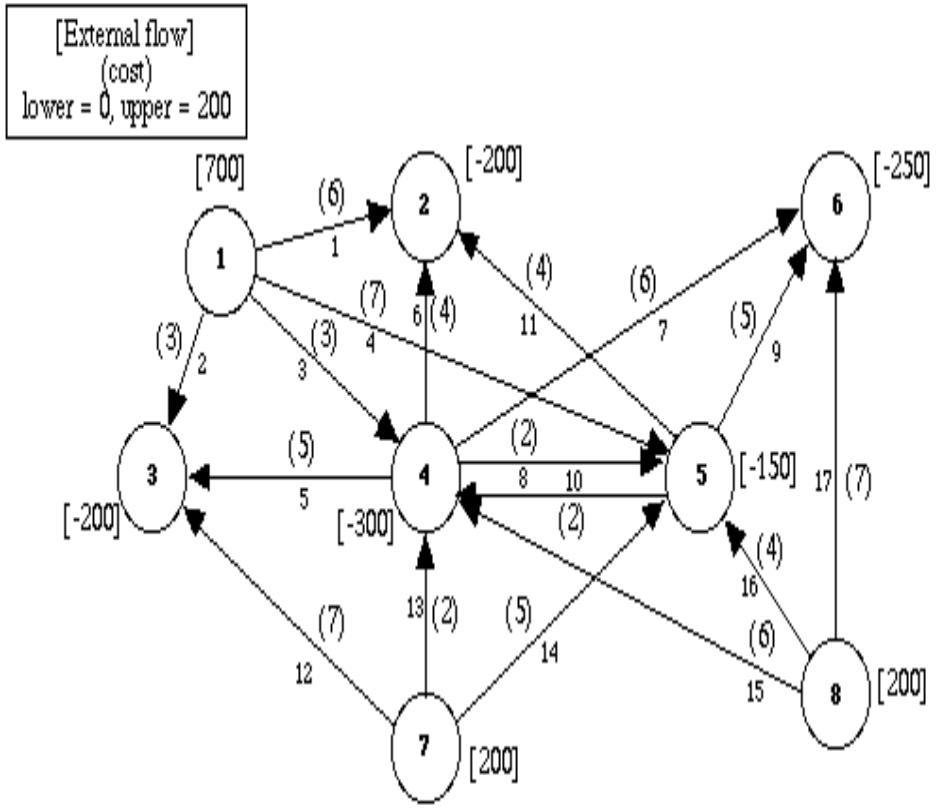
Online analytical processing (OLAP)

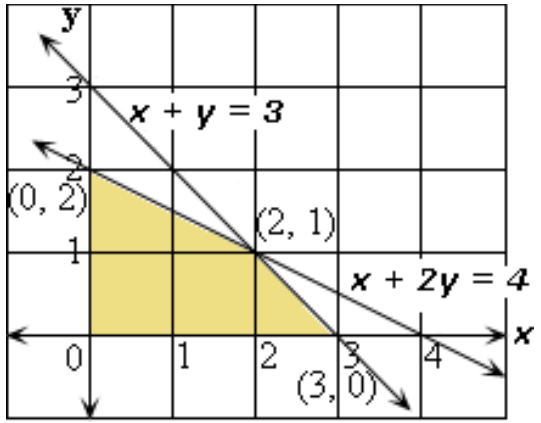
Three types of BI&A: Predictive Analytics

What will occur?



Three types of BI: Prescriptive Analytics

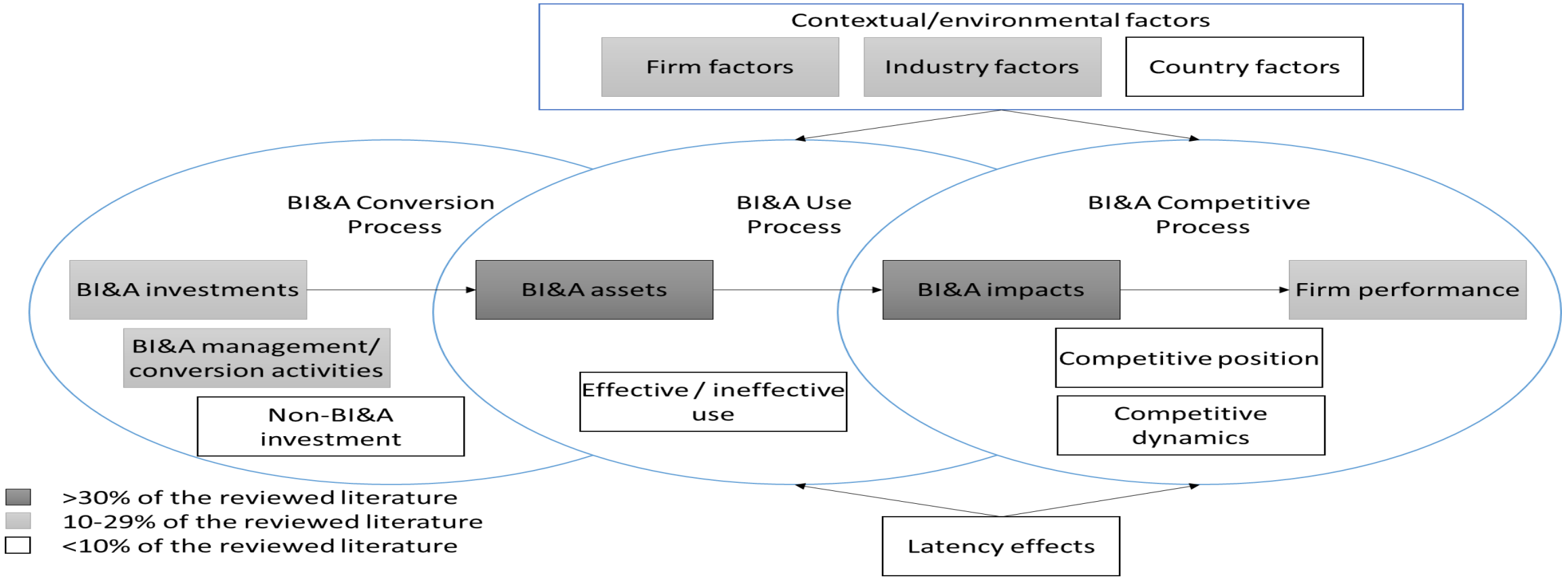




What should occur?

Online shops, Uber, Airlines, Hotels

A framework of how BI creates business value



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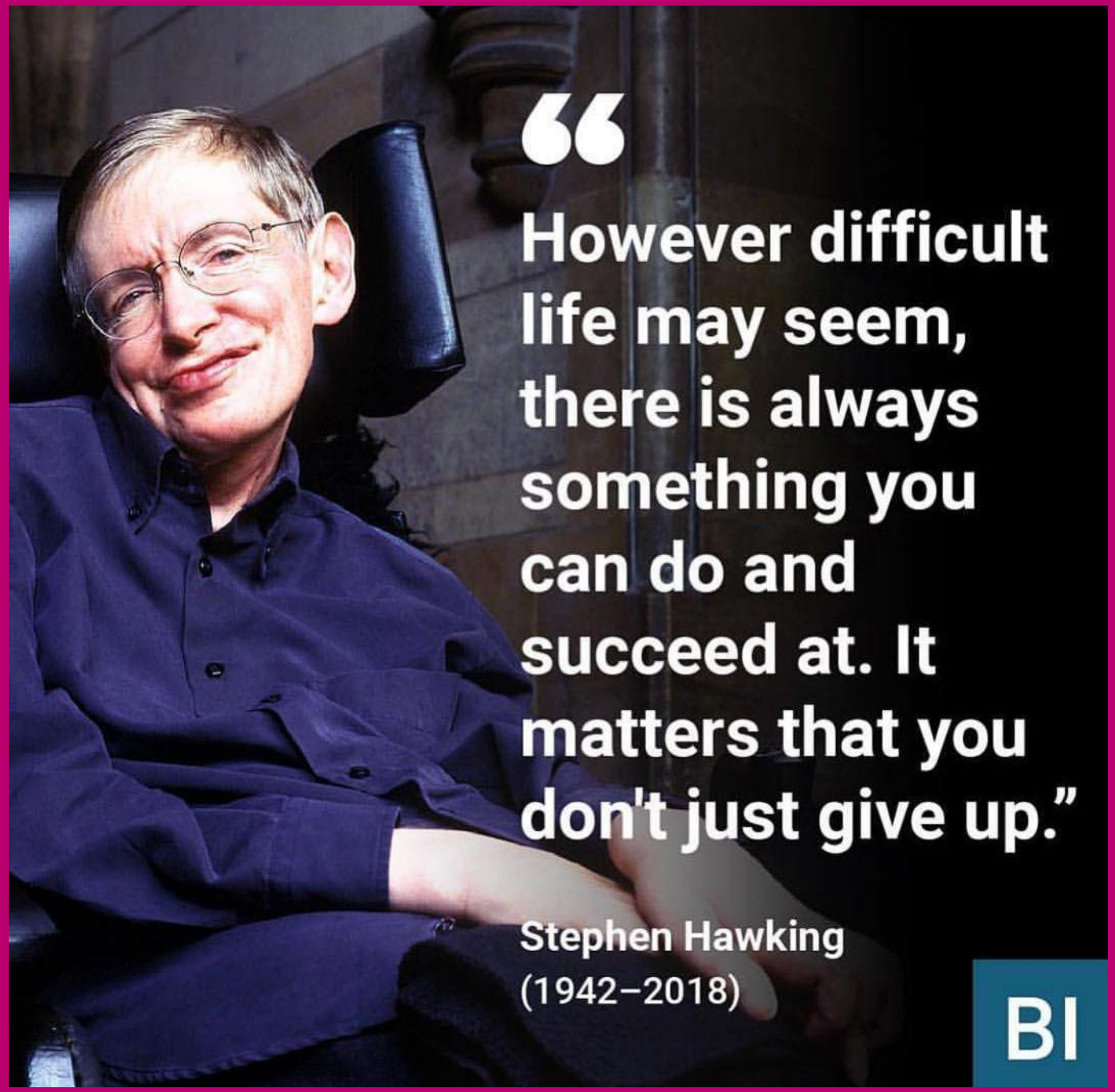

Thank you for your attention!

Questions, comments or remarks?

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