

DES MOINES UNIVERSITY



DMU Data Dojo

Community of Practice

Meeting 002 – Basic Principles of Data Analytics



Five Types of Data Analytics

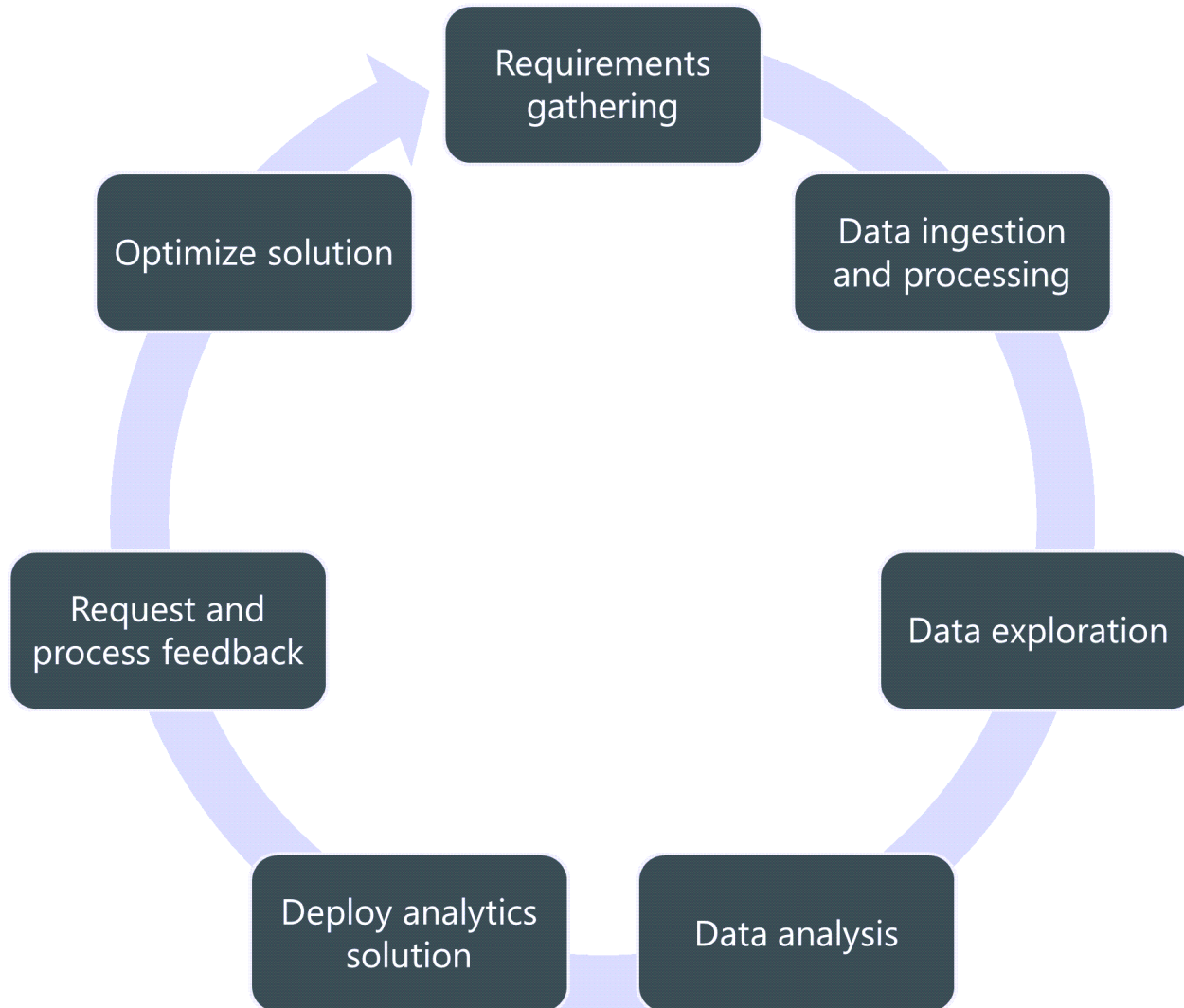
1. Descriptive
 - *“What happened, where, and when?”*
2. Diagnostic
 - *“Why did it happen?”*
3. Predictive
 - *“What will happen in the future?”*
4. Prescriptive
 - *“What actions should be taken?”*
5. Cognitive
 - *“How can the problem be solved best?”*



THE DATA ANALYTICS CYCLE

“I never guess. It is a capital mistake to theorize before one has data. Insensibly one begins to twist facts to suit theories, instead of theories to suit facts.”

— Sir Arthur Conan Doyle





STRUCTURED VS. UNSTRUCTURED DATA

“Not everything that can be counted counts, and not everything that counts can be counted.”

— Albert Einstein



Structured vs. Unstructured Data

Structured

- What most people think when they hear “data”
- Best for quantitative analysis
- Tables in HTML
- CSV files
- Excel
- Access Database
- SQL Server Database

Unstructured

- Unfamiliar to most people in abstract, but familiar in practice
- Best for qualitative analysis
- Documents (PDF, Word, etc.)
- Audio/Video
- IoT (Internet of Things)
- Social Media
- JSON files



Structured Data Example

ANNUAL FINANCIAL REPORT

Contoso

2022

KEY METRICS

Tap to change report Key Metrics



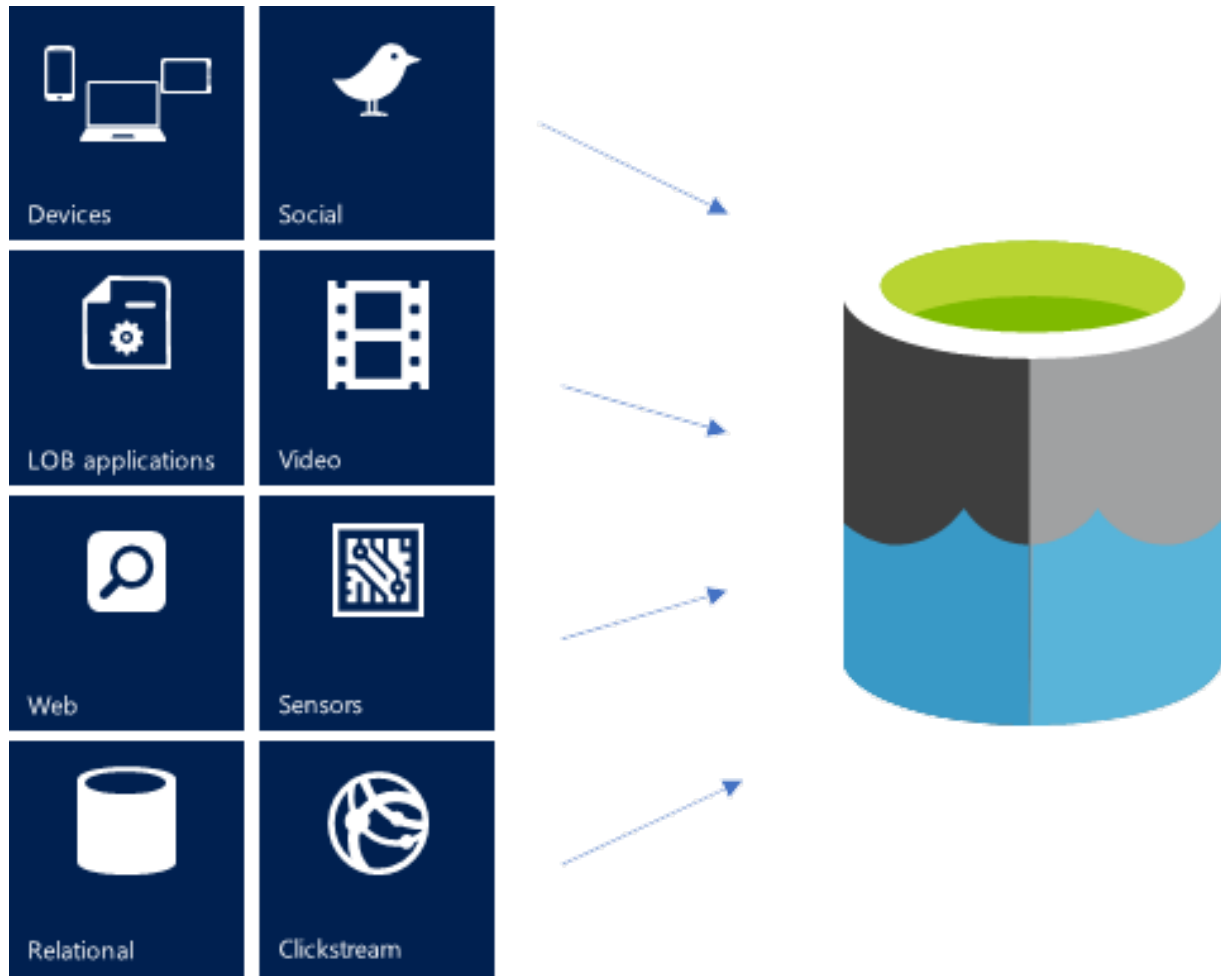
ALL METRICS

Do not modify the information below. Tap to enter Financial Data

METRIC	REPORT YEAR (2022)	PREVIOUS YEAR (2021)	% CHANGE	5 YEAR TREND
REVENUES	\$180,583.88	\$180,026.63	↑ 0%	
OPERATING EXPENSES	\$94,419.45	\$80,883.33	↑ 17%	
OPERATING PROFIT	\$73,425.99	\$77,317.83	↓ -5%	
DEPRECIATION	\$5,546.88	\$5,068.42	↑ 9%	
INTEREST	\$3,789.47	\$3,338.30	↑ 14%	
NET PROFIT	\$67,474.85	\$66,272.10	↑ 2%	
TAX	\$31,408.25	\$29,424.53	↑ 7%	
PROFIT AFTER TAX	\$50,247.68	\$42,438.20	↑ 18%	



Unstructured Data Example





Questions?