Module I:Introduction to Big Data

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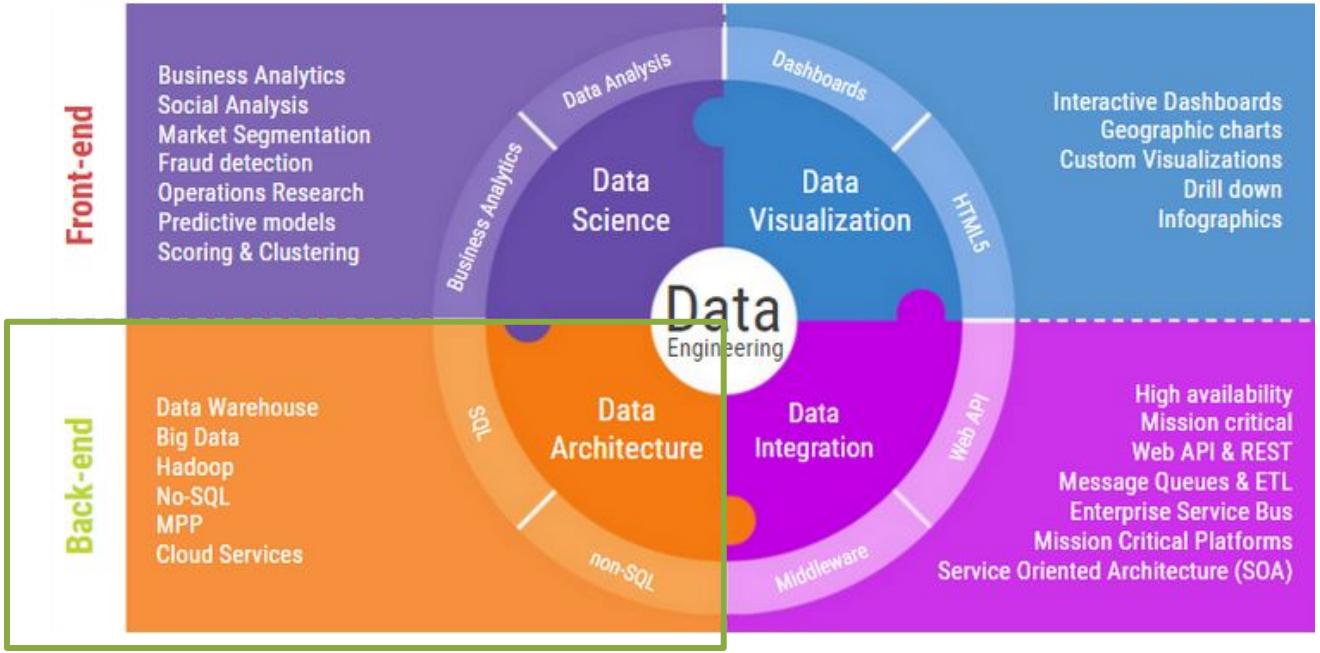
Big Data - Data Engineering



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Data Visualization.

Modern Visual Communication

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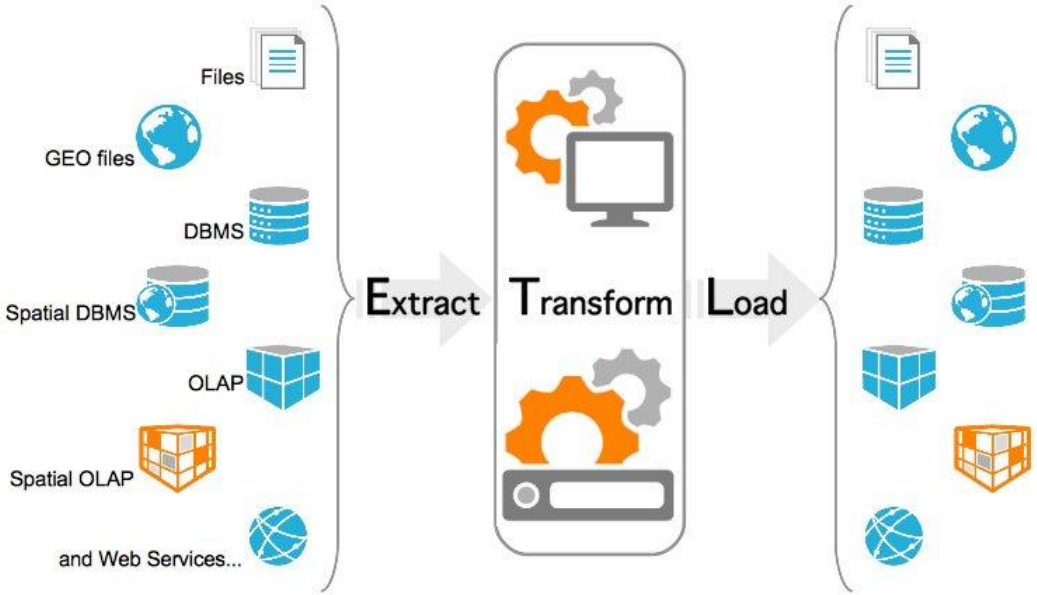
Data Integration.



The combination of technical and business processes used to combine **data** from disparate sources into meaningful and valuable information.

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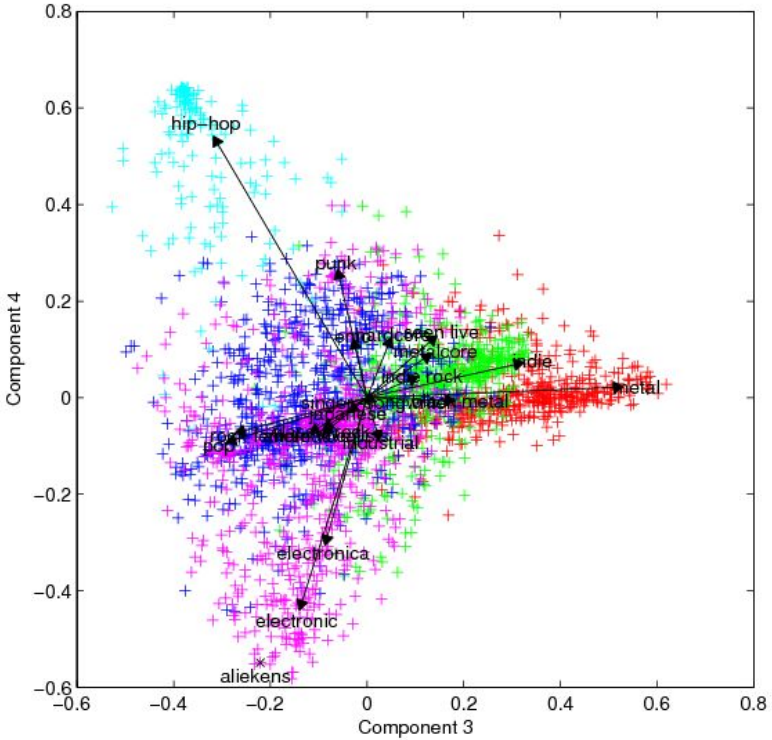
Data Science



The extraction of knowledge from data

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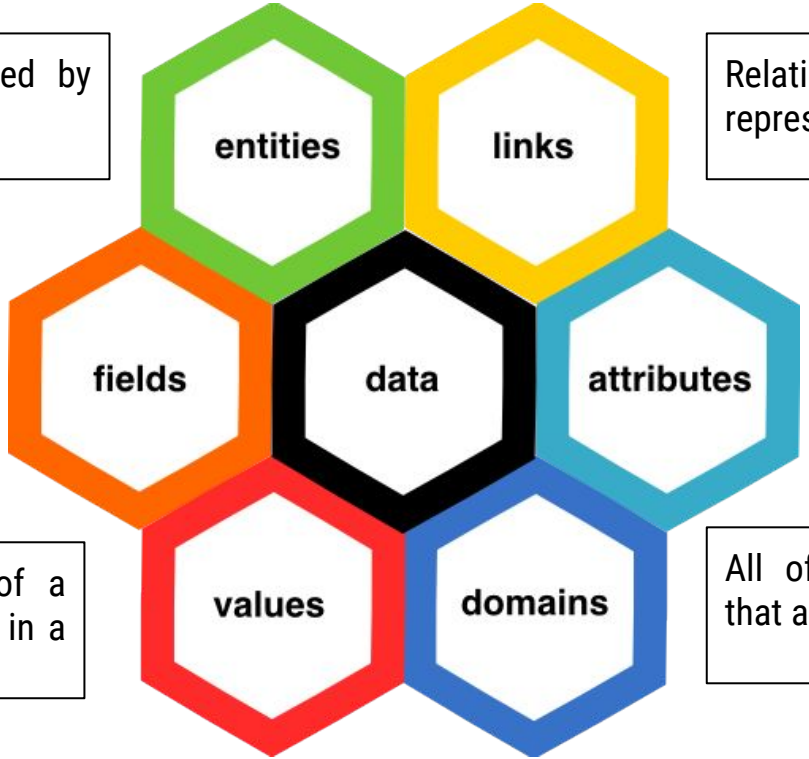
Definitions

Data structure modeled by one or more tables.

Relationship between tables representing interaction.



Minimum division within a record defined by a table.

Particular characteristic of a given entity.

Actual representation of a characteristic of a field in a particular record.

All of the potential values that a given field could take.

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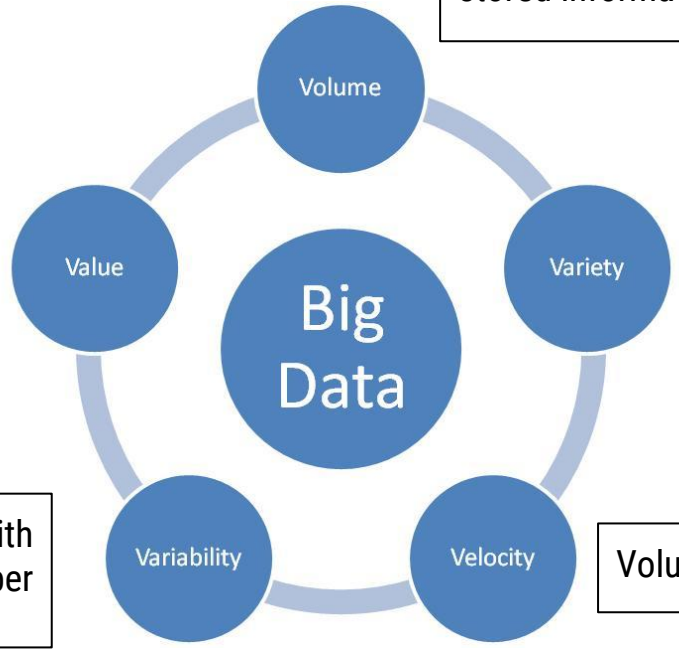
Big Data Characteristics

Accumulated size of stored information



Possibility of extracting useful information.

Different Data sources Generating different entities

Same entities with different attributes per row

Volume growth speed

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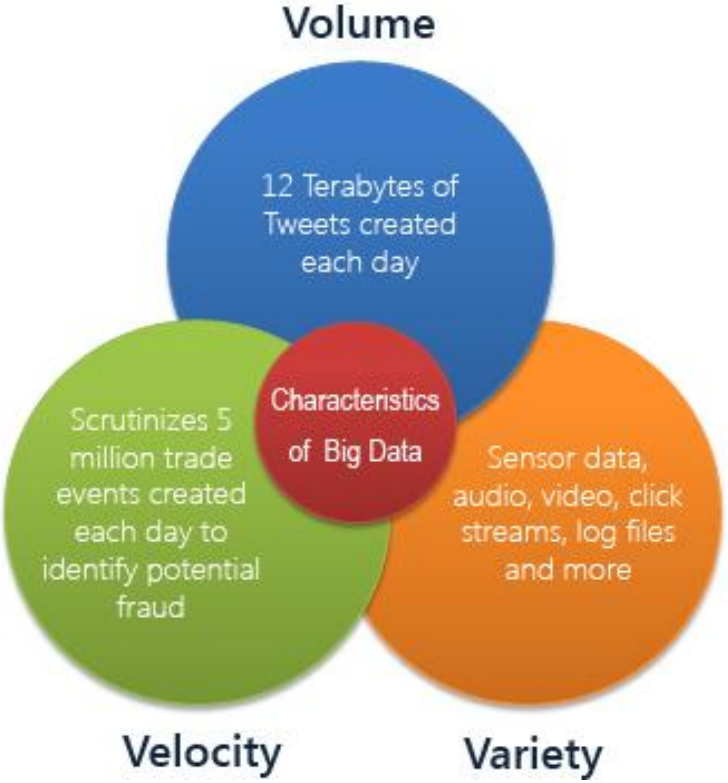
Big Data Characteristics



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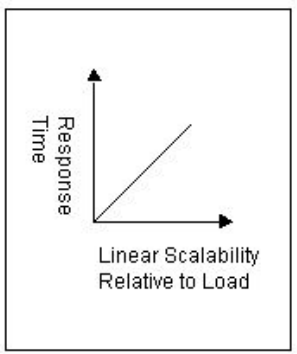
What is the Big Data practice?

It is a set of tools that provide the means to exploit datasets.

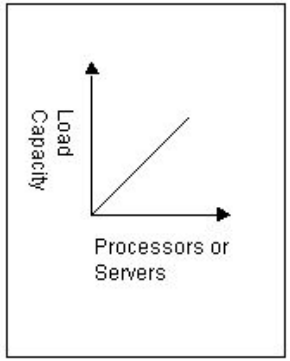
It is completely measurable.

It scales horizontally, in terms of processing, hardware requirements and costs. Linearly or sub-linearly.

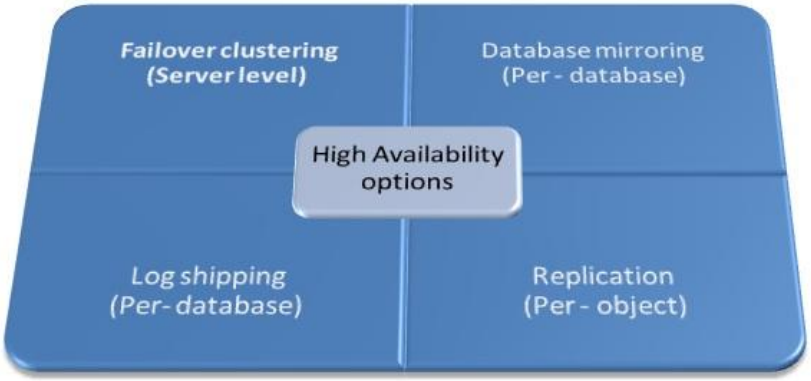
It provides persistence through high availability.



Linear Scalability Relative to Load



Linear Scalability Relative to System Resources (e.g. haradware)



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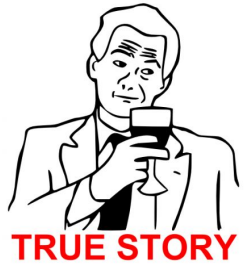
Big Data Is not for everyone



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Architecture questions

- What does the customer want to do with his data?
- Where is the Data now?
- How much data is it?
- How fast does it growth?
- How fast do we need to process the results?
- What technology does the customer already have?
- What sort of end user will consume the results and how?

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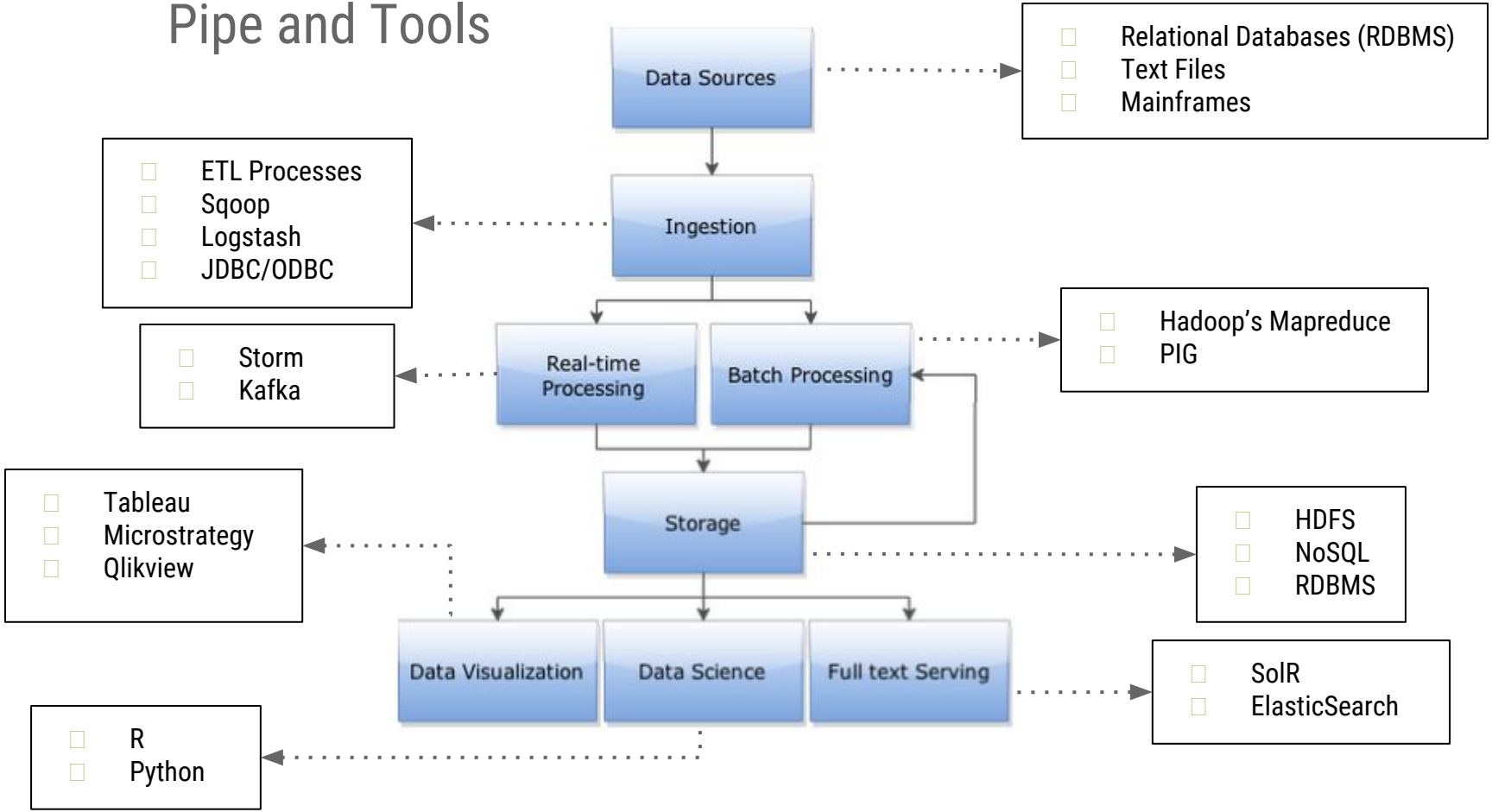
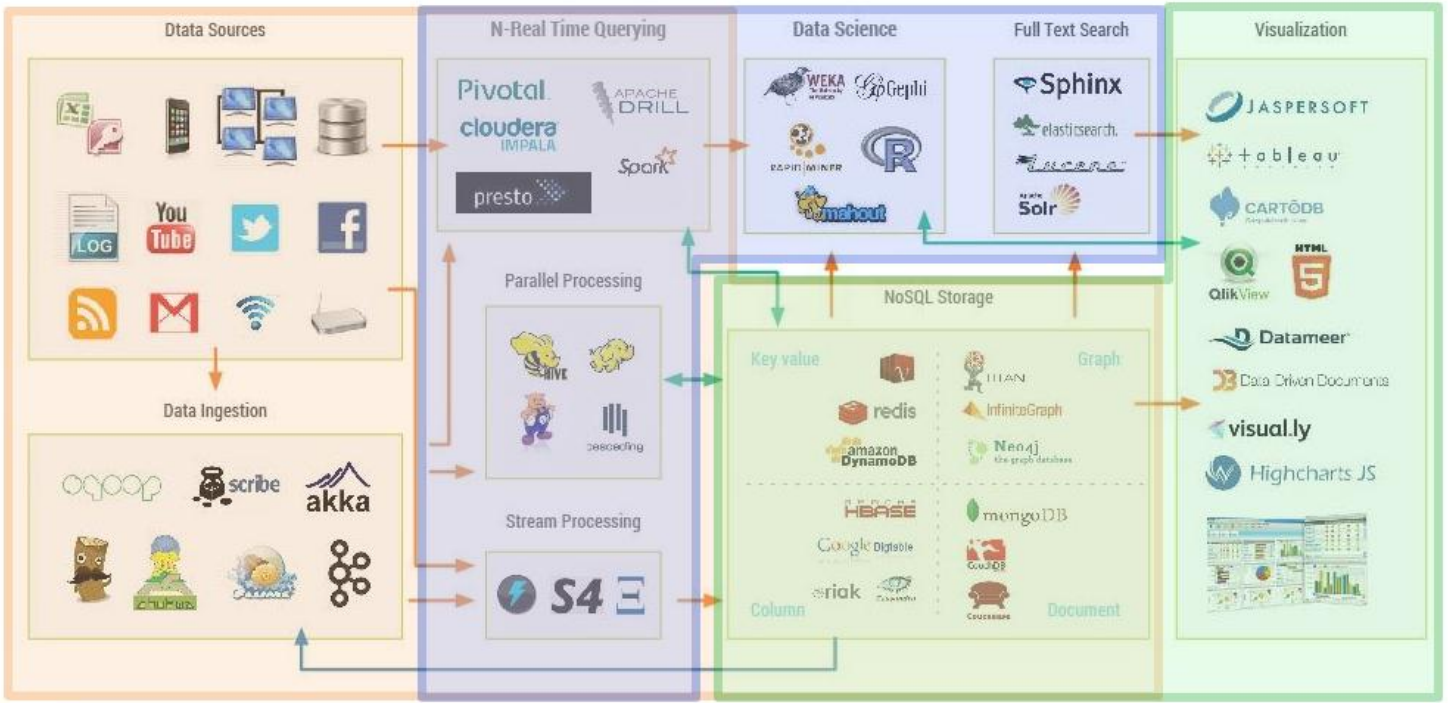
Pipe and Tools



Tools Framework



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Implementation Process

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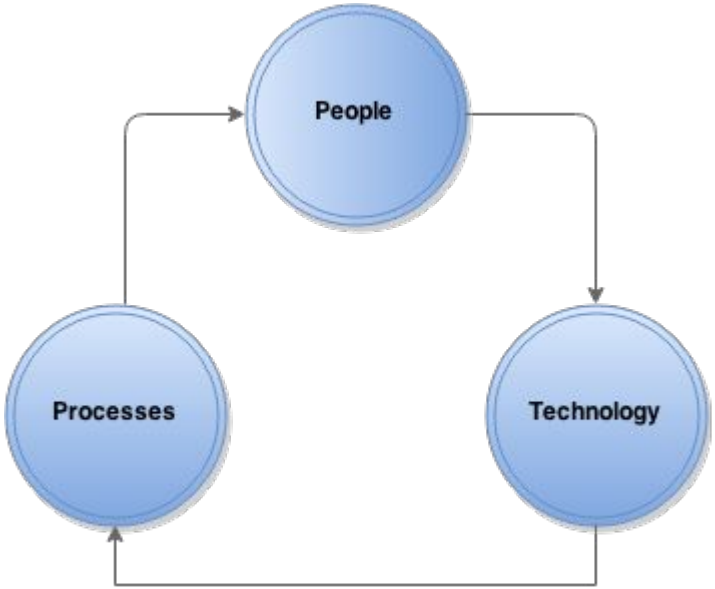
Data Excellence

- Making data consistent
- Improving data quality
- Making data accurate and complete
- Maximizing the use of data to make decisions
- Improving business planning
- Provide data access management and accountability



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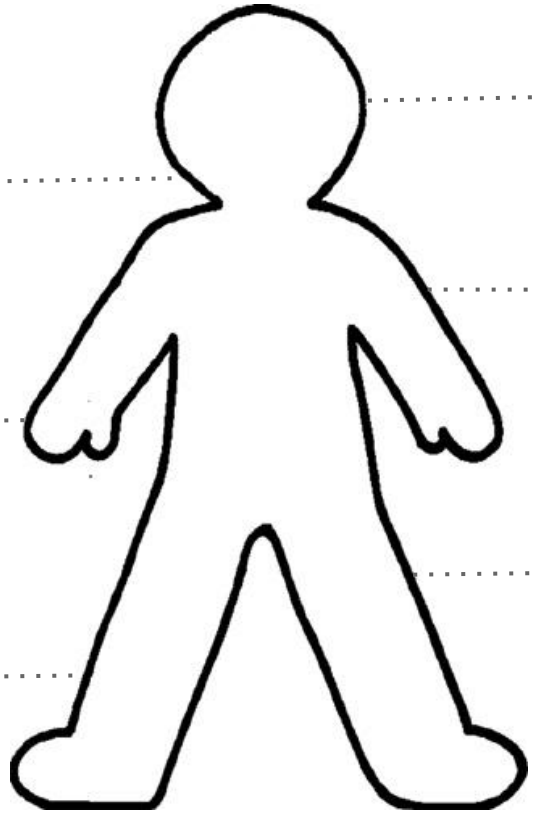
Data Architecture profile



Communicative: Able to explain problems, findings and solutions.

Technologically comprehensive: Able to spend enough time reading, learning and sharing feasible documentation on new technologies

Business Aware: Able to understand the end game of the implementations and the relevant business constraints.

Analytical: Able to decompose and transform **BIG** problems into manageable solutions.

Rigorous: Able to affirm with certainty results, implementations and tests.

Production ready: Able to develop and architect with the required business Service Level Agreements (SLAs) in mind.

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This coursework

Week 1

- Big Data Introduction
- NoSQL Introduction
- Apache Hadoop Introduction and architecture
- Hadoop Installation

Week 2

- Development in Python
- MapReduce in Python
- Amazon Infrastructure I
- Amazon Infrastructure II

Week 3

- MapReduce in Java
- Apache Sqoop
- Pig Querying
- Apache Hive

Training Team

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- Gonzalo Zarza
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