Business and IT Alignment

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- Operational model
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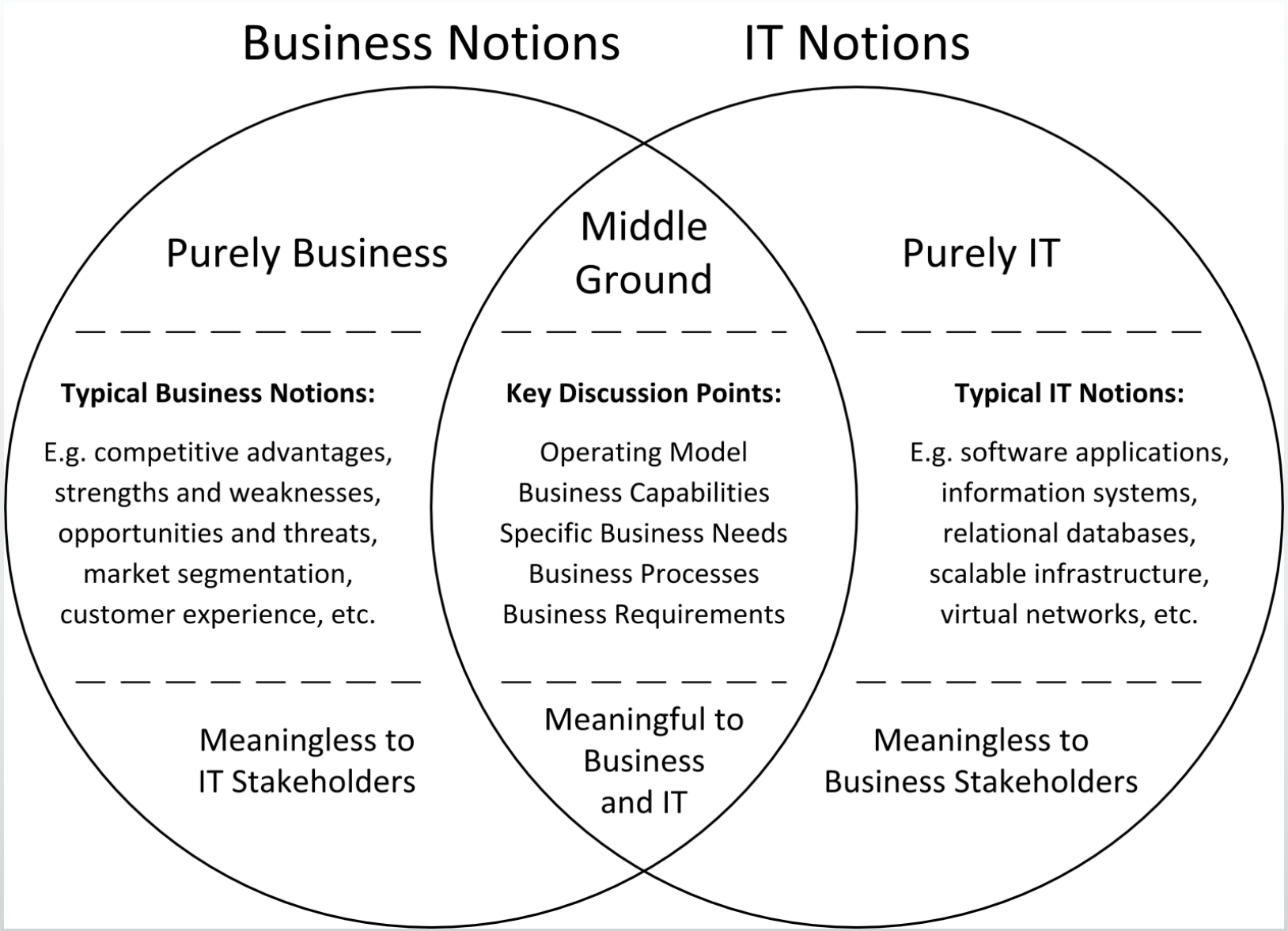
- Data Processing

Business and IT Notions



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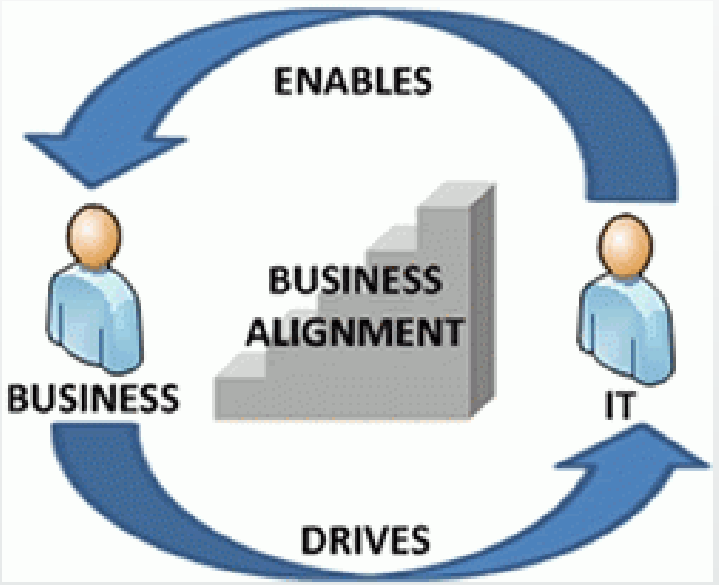
Operating Model

- An operating model is the desired level of organization-wide process standardization and data integration

- An operating model defines what business processes are standardized and what business data is shared across major business units, e.g. lines of business, business functions or regional offices



- An operating model determines global standardization and integration requirements for the key business-enabling EA domains, i.e. business, applications and data

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Four Operating Models

- Decisions regarding **process standardization** and **data integration** defines four possible operating models:
  - Diversification
  - Coordination
  - Replication
  - Unification
- Each operating model implies different structure of the business, requires different structure of the IT landscape

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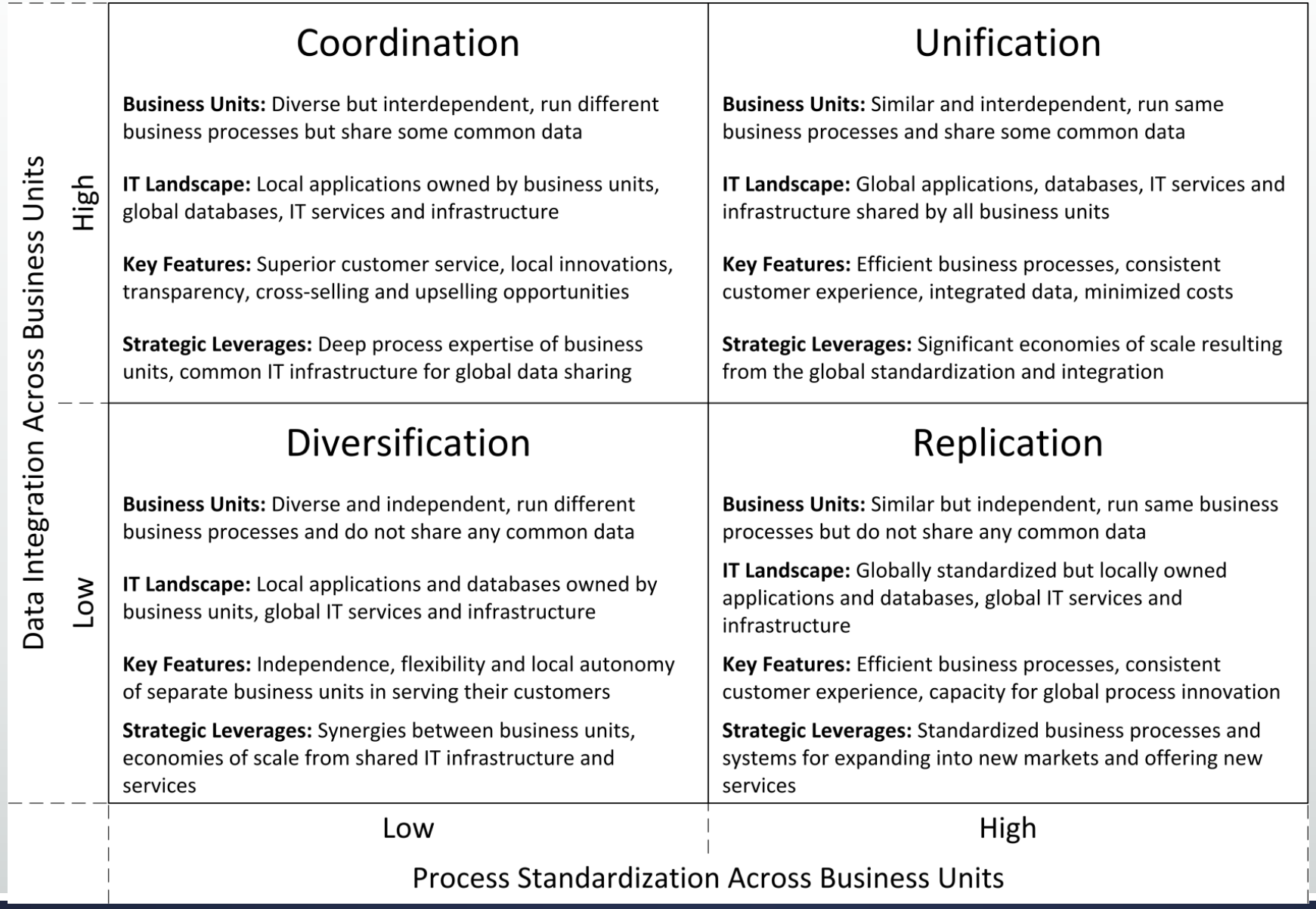
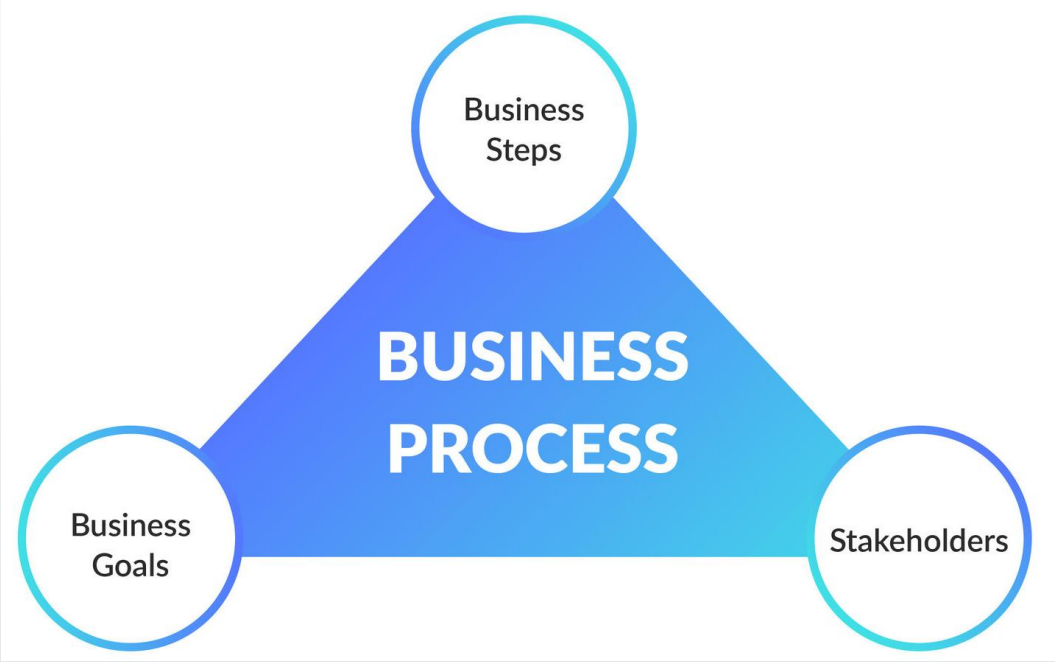
Operating Models Explained



Business Processes

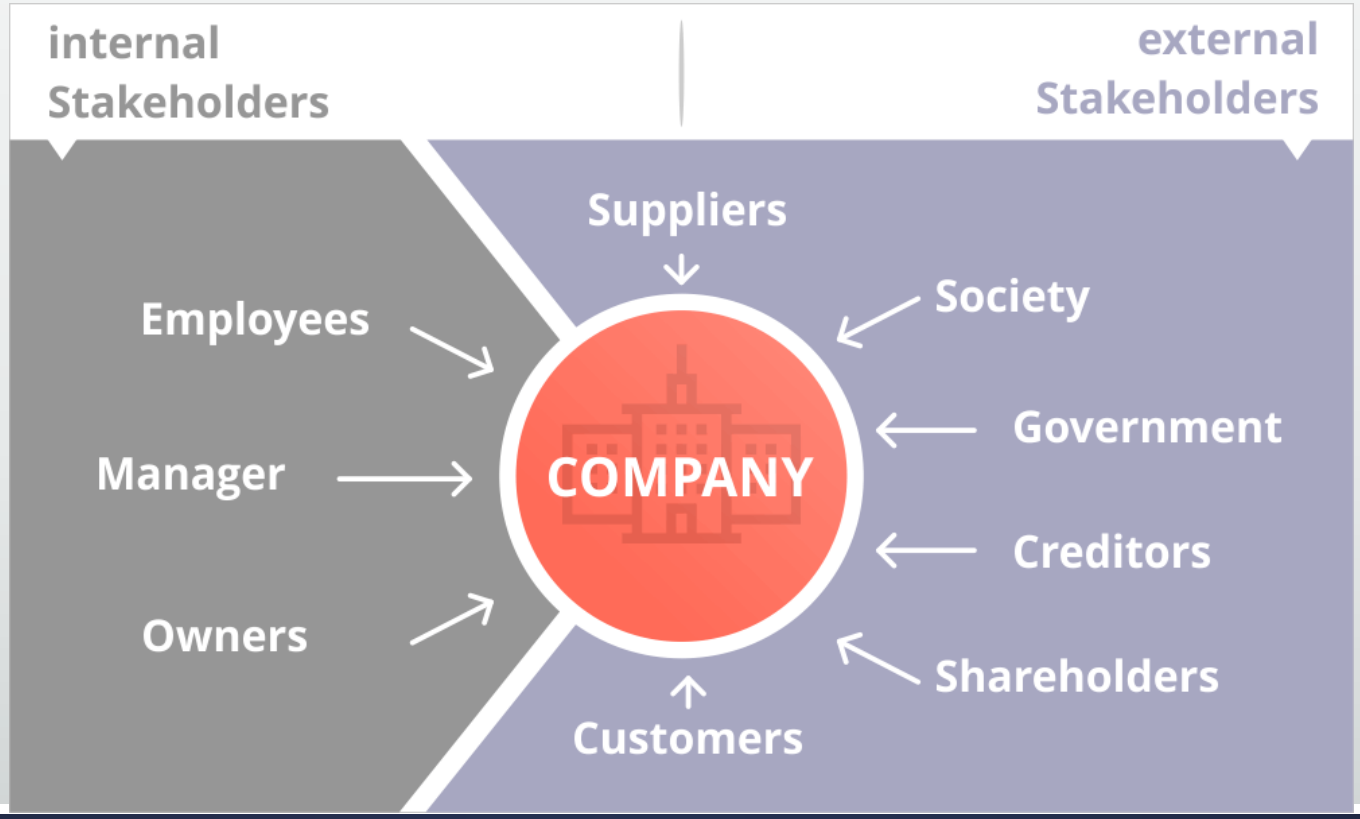
- A business process is a sequence of specific activities carried out by particular actors intended to produce some valuable business outcomes.

- Business processes are also characterized by certain inputs and outputs, material or immaterial, e.g. physical goods or information



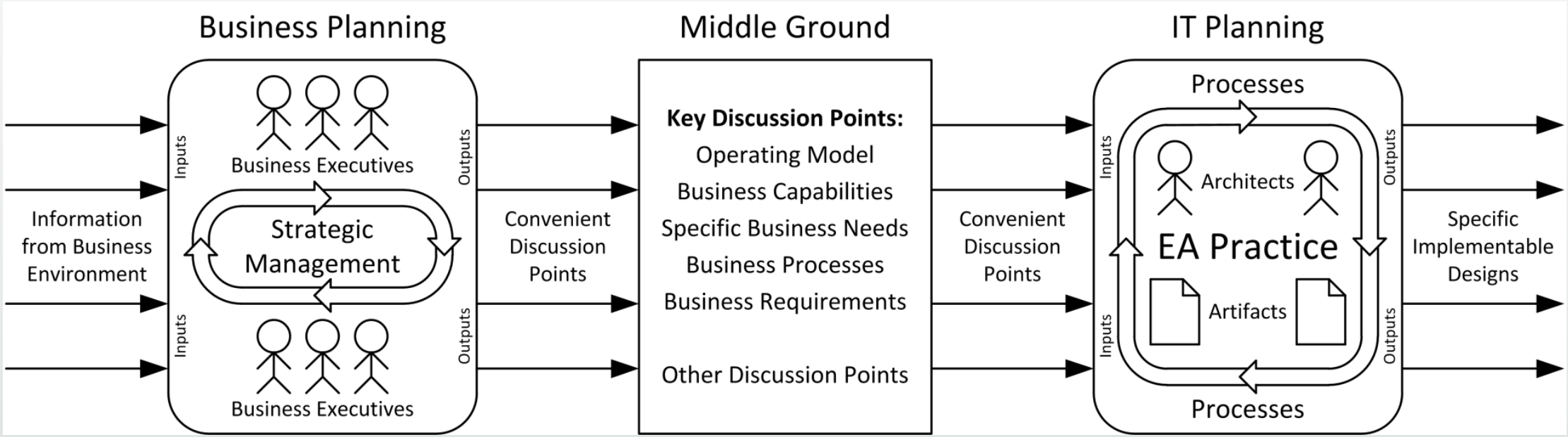
Business Requirements

- Business requirements, or system requirements, are detailed functional and non-functional specifications for concrete IT systems.
- Business requirements describe the expected behavior of a particular IT system from the business perspective.

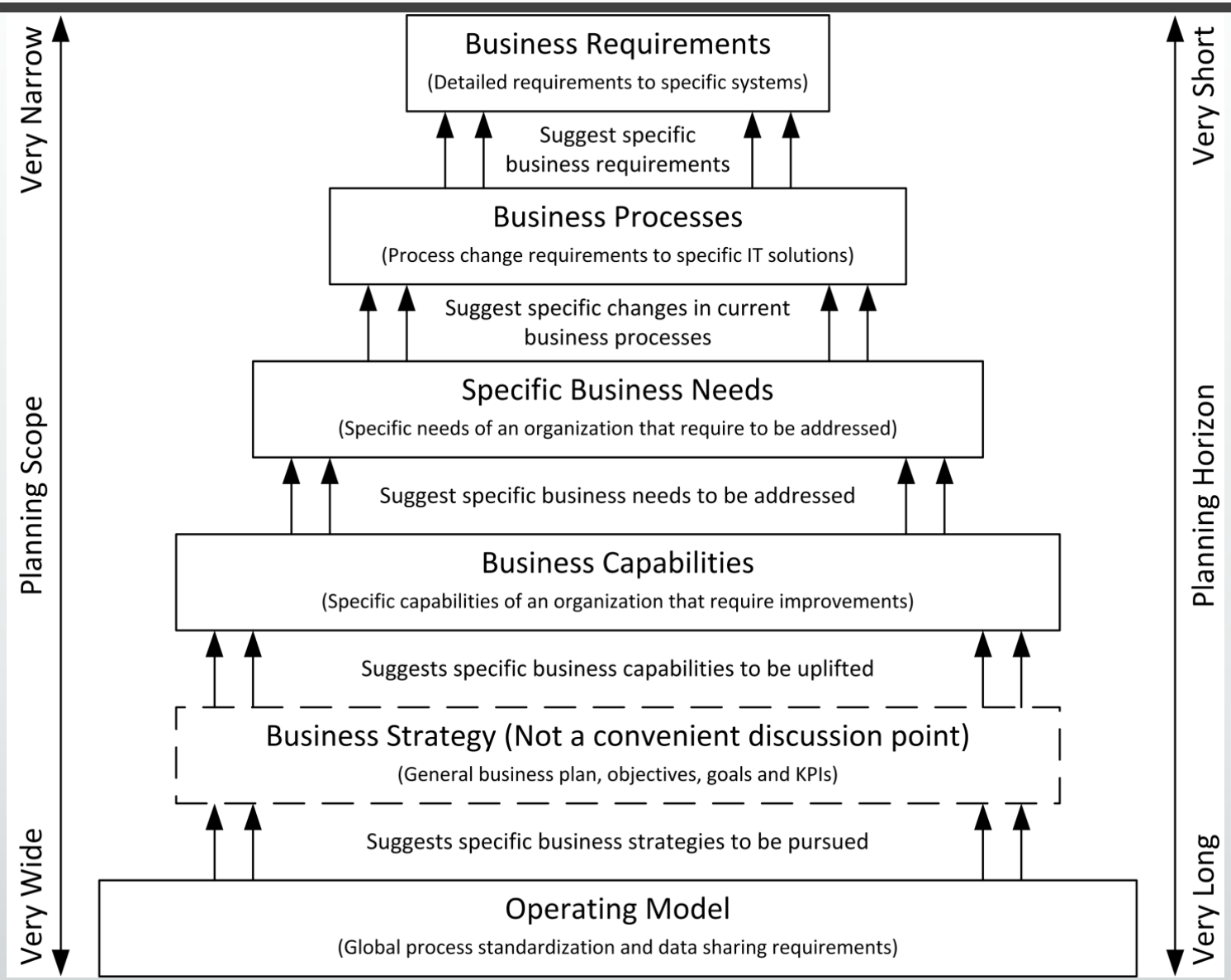


The Role of the Key Discussion Points

- An operating model, business capabilities, business needs, business processes and business requirements are the most common, but not the only possible discussion points.

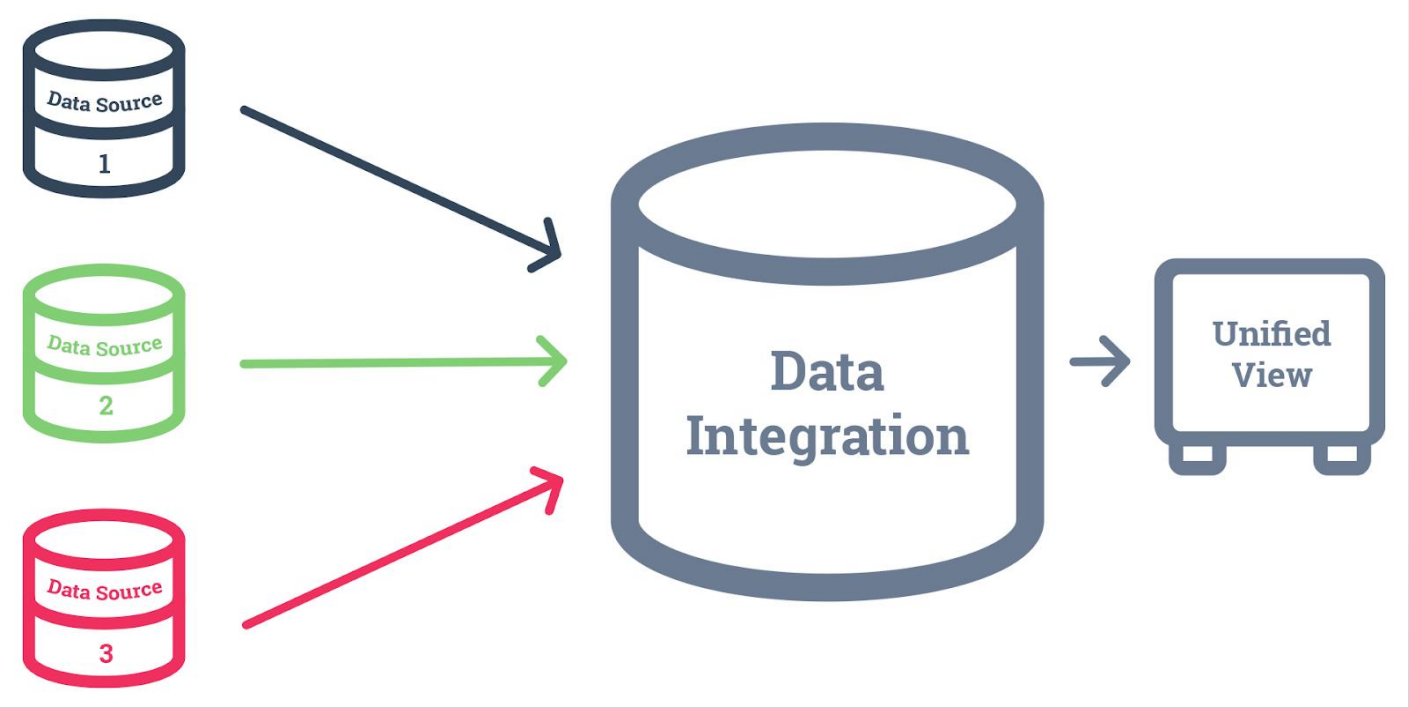


The Pyramid of Key Discussion Points

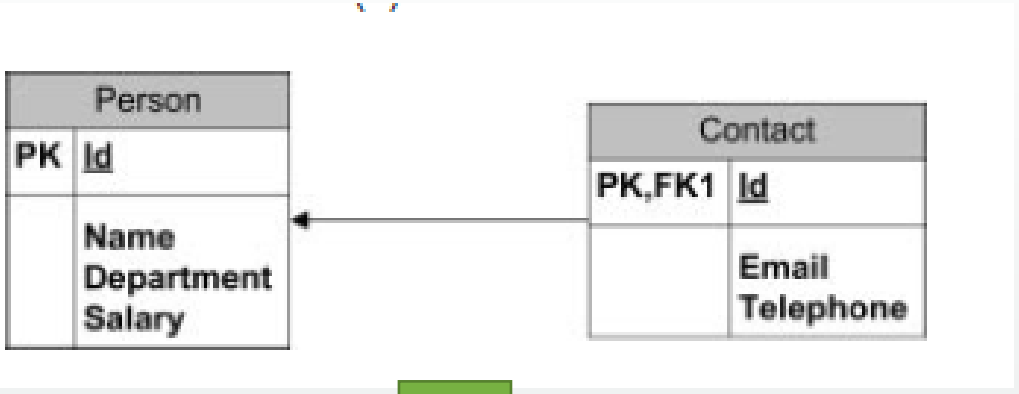


Data Integration

- The required level of data integration indicates the degree to which business units should share business data between each other.
- Data integration allows presenting a "single face" to customers, enables end-to-end transaction processing, increases transparency, coordination and agility.



From Class to XML Data Modelling



Person:

Id	Name	Department	Salary
123456	John Smith	Finance	50
654321	Jane Doe	Marketing	39

Contact:

Id	Email	Telephone
123456	js@email.com	555-6789
654321	jd@email.com	555-1234

(b) Representation in relational model

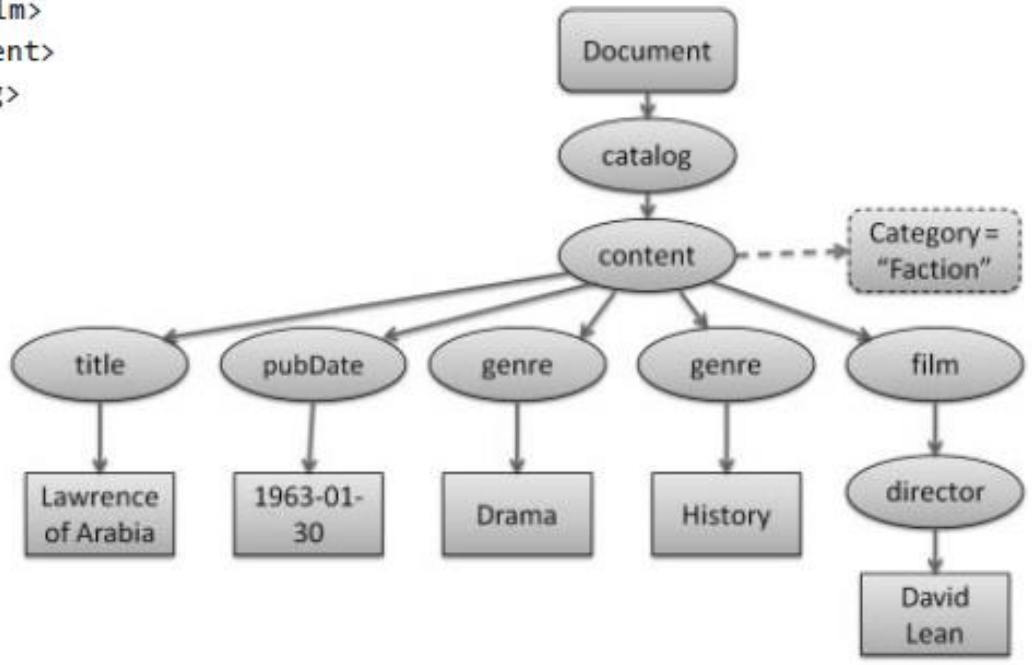
XML is a general format for storing and transmitting data

```
<Person>
   <Id>123456</Id>
   <Name>John Smith</Name>
   <Department>Finance</Department>
   <Salary>50</Salary>
   <Contact>
      <Email>js@email.com</Email>
      <Telephone>555-6789</Telephone>
   </Contact>
</Person>
<Person>
   <Id>654321</Id>
   <Name>Jane Doe</Name>
   <Department>Marketing</Department>
   <Salary>39</Salary>
   <Contact>
      <Email>jd@email.com</Email>
      <Telephone>555-1234</Telephone>
   </Contact>
</Person>
```

(a) XML data

Document Object Model

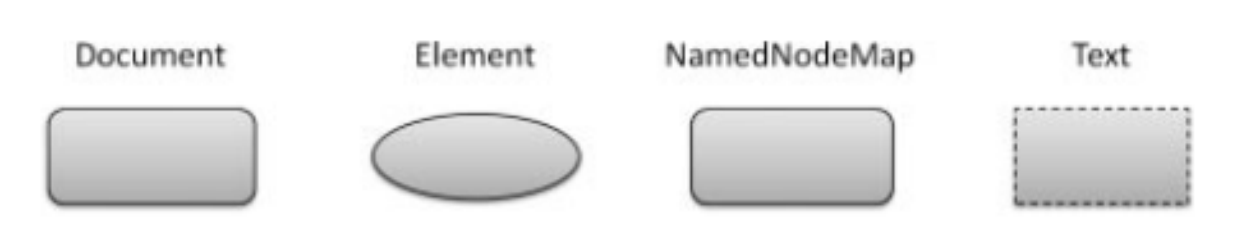
```
<?xml version="1.0"encoding="UTF-8"?>
<c:catalog xmlns:c="http://www.example.org/catalog"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:schemaLocation="http://www.example.org/catalog Catalog.xsd">
  <c:content category="Faction">
    <c:title>Lawrence of Arabia</c:title>
    <c:pubDate>1963-01-30</c:pubDate>
    <c:genre>Drama</c:genre>
    <c:genre>History</c:genre>
    <c:film>
      <c:director>David Lean</c:director>
    </c:film>
  </c:content>
</c:catalog>
```



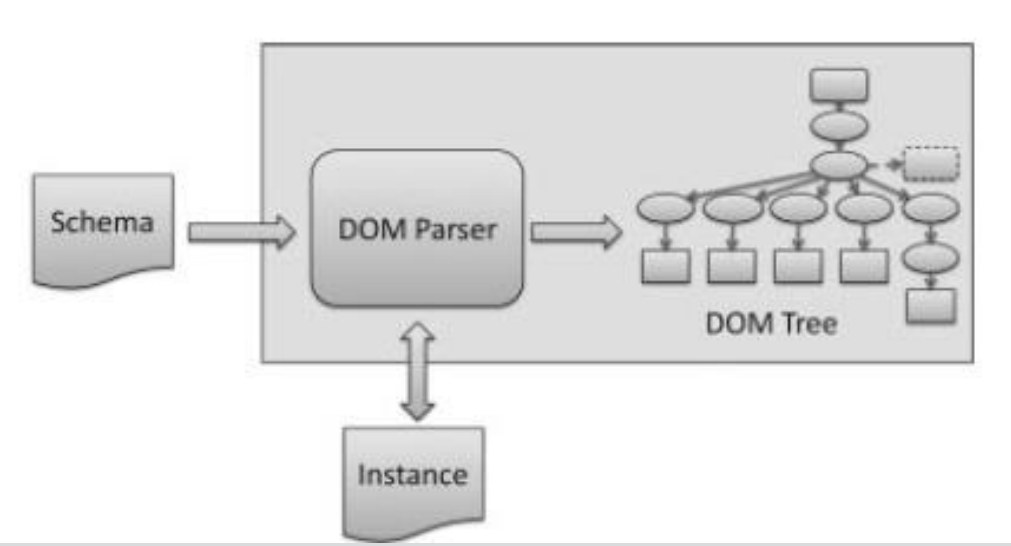
Processing XML Data: Tree processing

In processing XML data, applications have several choices for how to represent the data.

- **Tree processing**: XML data are loaded and parsed into a tree data structure in computer memory. Application programs can navigate this tree by following links and can modify nodes in the tree.



Document Object Model

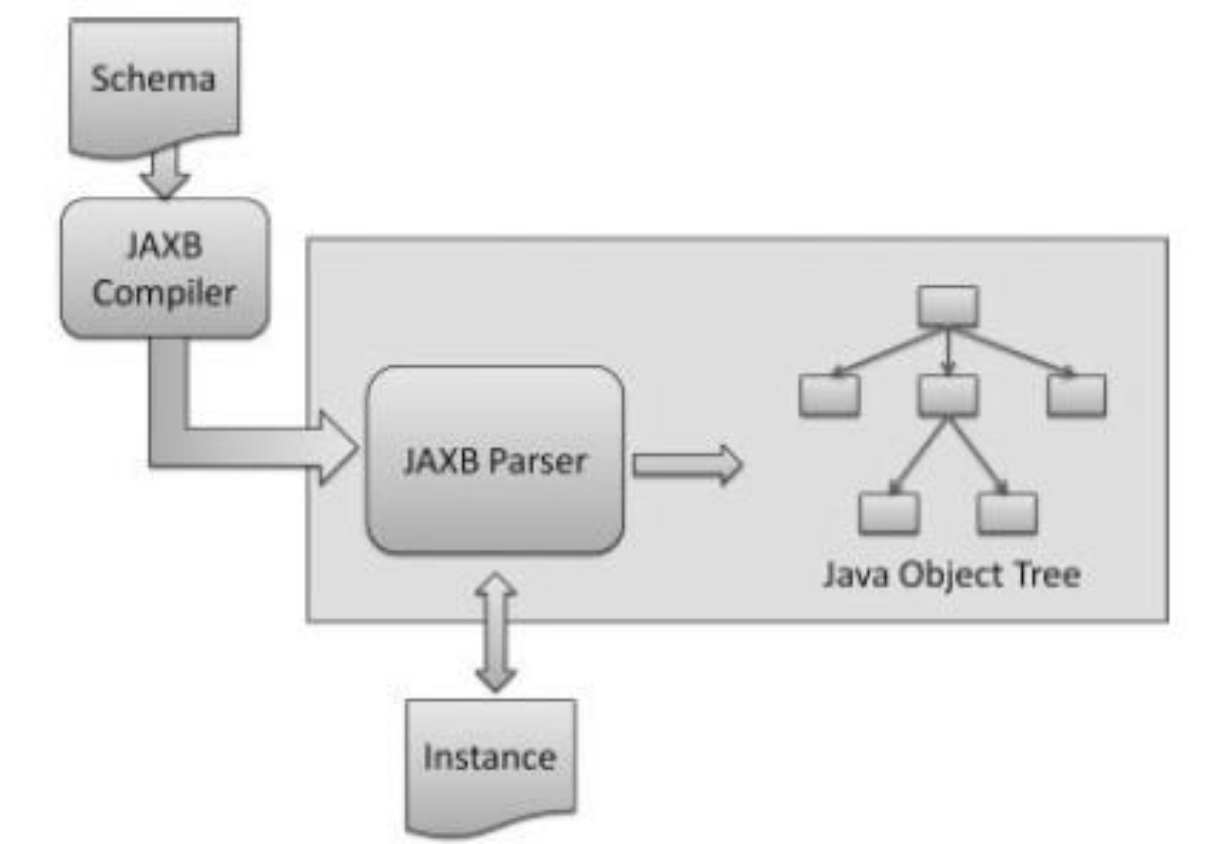


DOM Schema Processing

Processing XML Data: Schema binding

- **Schema binding:** a variant on the tree processing approach is to compile an XML schema to a collection of classes (one class per XML element) and then build an XML document as a tree structure constructed of objects.

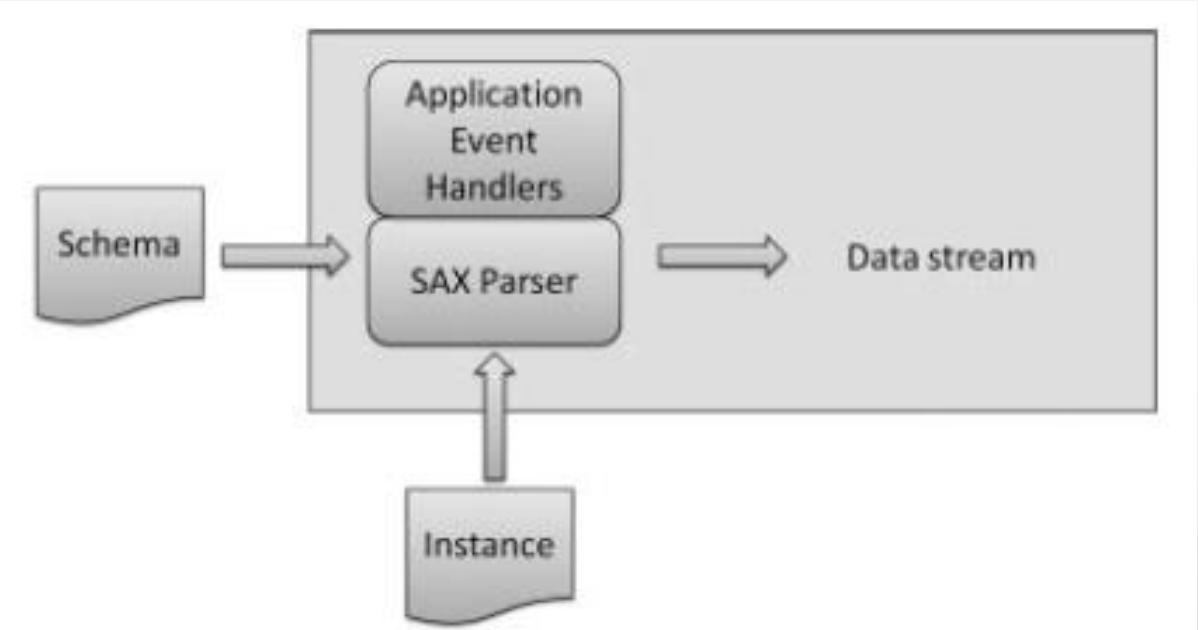
Java Architecture for XML Binding (JAXB)



Processing XML Data: Stream processing

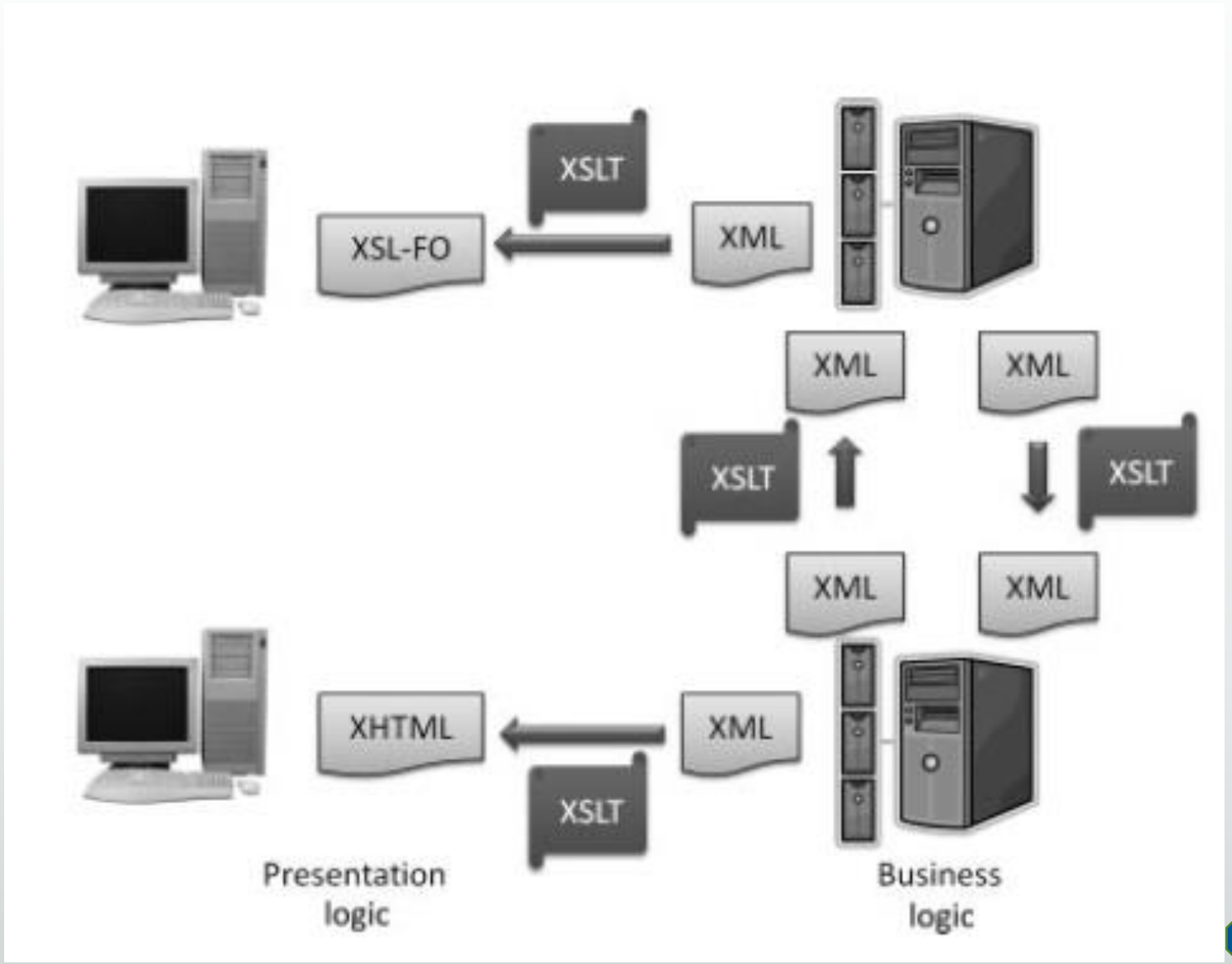
- **Stream processing**: if the XML data are too large to fit in memory, an alternative model is to never try to build a tree representation of it but, instead, to process the XML data as they are being read from a file.

SAX (Simple API for XML) is an event-based parser for XML documents



XSLT in Enterprise Architecture

Extensible Stylesheet Language Transformations (XSLT) : XSLT is a language for transforming XML documents into other XML documents, or other formats such as HTML for web pages, plain text



References

- As specified in the syllabus