PXL – IT
42TIN280 Software Analysis - System & System Context – Context Diagram

Week 03 – semester 01

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Context diagram – what?

- The context diagram shows **which data flows between the outside world and the information system** exist.
- This context diagram also **describes** the system **boundaries**:
  - what the system does need to be and what should not have the system
- **Context diagram = zero level data flow diagram**
- It is **NOT** the same as a flowchart !!!

Context diagram – What?

- Youtube - Depicting Project Scope and the Context Diagram

- Watch this video … ± 8 minutes

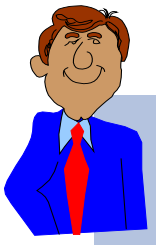
Context diagram – types?

- Types of data flow diagrams: for later … DFDs

- Physical DFD
  - Data flow diagrams which represent the model of the current system (manual or computerized)
  - These diagrams are drawn, when the analyst studies the current working system in detail

- Logical DFD
  - Data flow diagrams which represent the model of the proposed system
  - These diagrams are drawn from the physical DFD

Context diagram – example zero level 0



Adjacent Process

Adjacent System

SYSTEM
Work to be studied
(functionalities and data)

Adjacent Process

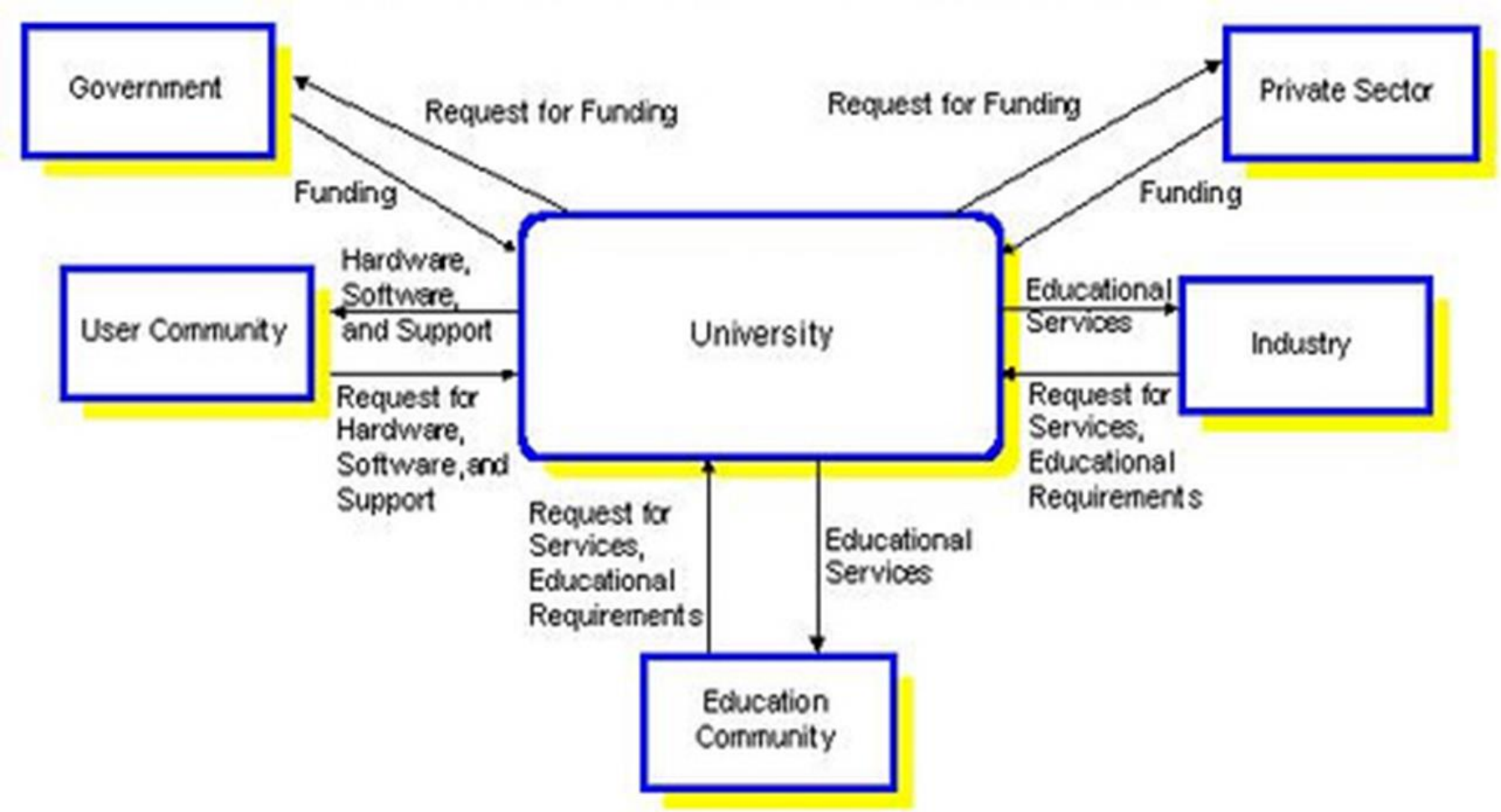
Services provided by the product

Needed by the product to provide the services

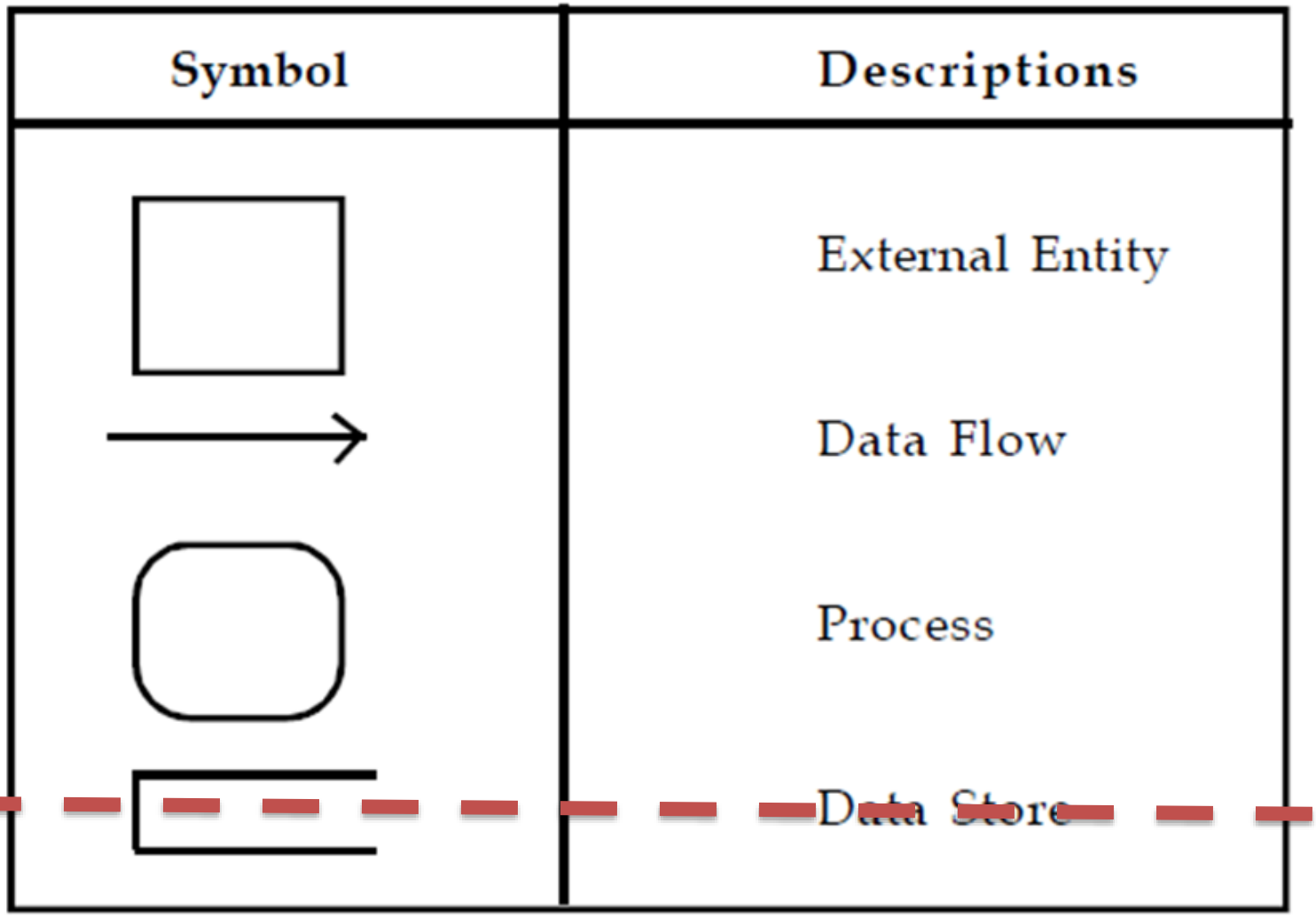
At system level adjacent systems

Context diagram – example zero level 0

- Describe, read what you see ….



Context diagram – notation (1)



Context diagram – notation (2)

- External Entity
  - Represents any entity that supplies data or receives information from the system
  - E.g.: customer, sales department, employee, etc., are external entities.
- Data Flow
  - Indicates the movement of data either from input to process or from process to output. Data flow is labeled to show what data is flowing.
  - E.g.: customer details, sale reports, etc., are data flows..

Context diagram – notation (3)

- Process
  - actions performed on input data to produce the output data. They are given some meaningful names.
  - E.g.: Prepare Bill, Calculate Sales, Compute Pay, etc., are the processes.

- Data Store
  - indicates the data file or register where data is accumulated.
  - E.g. : Customer Master File, Employee Register, Sales Transaction File, etc.. are data stores.

Context diagram – rules (1)

The following seven rules govern construction of data flow diagrams (DFD):

1. Arrows should not cross each other
2. Squares, circles, and files must bear names
3. Decomposed data flows must be balanced (all data flows on the decomposed diagram must reflect flows in the original diagram)
4. No two data flows, squares, or circles can have the same name.
5. Draw all data flows around the outside of the diagram.

Context diagram – rules (2)

6. Choose meaningful names for data flows, processes, and data stores. Use strong verbs followed by nouns
7. Control information such as record counts, passwords, and validations requirements are not pertinent to a data-flow diagram

Context diagram – steps to draw (1)

1. Identify external entities and data flows of the current system and draw physical context diagram.
2. Identify data stores and processes of the system and draw first level physical DFD ➔ **LATER DFD !!!**
3. Explore the processes of first level and draw second level DFD ➔ **LATER DFD !!!**
4. Explore the processes of second level and draw third level DFD ➔ **LATER DFD !!!**

Context diagram – steps to draw (2)

5. Derive the logical view of each physical DFD by the following ways:
   a) Remove documents and show actual data in data flow
   b) Remove registers and use files as data stores
   c) Remove unnecessary processes
   d) Remove data flow between external entities (if any) and show data flow through processes

Context diagram – 01 Precision Tools

- Precision Tools sells a line of high-quality woodworking tools.
- When customers place orders on the company's Web site, the system checks to see if the items are in stock, issues a status message to the customer, and generates a shipping order to the warehouse, which fills the order.
- When the order is shipped, the customer is billed. The system also produces various reports.

- Draw a context diagram for Precision Tools

Context diagram – 02 Perfect Pizza

- Perfect Pizza wants to install a system to record orders for pizza and chicken wings.
- When regular customers call Perfect Pizza on the phone, their phone number goes automatically into the Pizza system.
- The phone number invokes the name, address, and last order date comes automatically up on the screen.
- Once the order is taken, the total, including tax and delivery, is calculated.

Context diagram – 02 Perfect Pizza (continued)

- Then the order is given to the cook. A receipt is printed.
- Occasionally, special offer (coupons) is printed so the customer can get a discount. Drivers who make deliveries give customers a copy of the receipt and coupon (if any).
- Weekly totals are kept for comparison with last year's performance.

- Draw a context diagram for Perfect Pizza

Context diagram – 03 Kellogg State Bank

- Kellogg State Bank provides car and home loans to its banking customers.
- Initially, a potential loan customer meets with a Kellogg loan officer, requests a loan for a certain amount and time frame, and completes a loan application.
- Next, the loan officer determines the customer's credit standing, the type of the loan required, and available, interest rates.
- While the loan officer can authorize car loans for credit worthy customers, a loan committee must approve all home loans.

- Draw a context diagram for Kellogg State Bank

Context diagram – 04 Meat Export Syst.

- When an Australian meat exporter wishes to send product overseas, they must utilize the AQIS (Australian Quarantine Inspection Service) meat export certification system.
- The exporter applies for a Health Certificate from AQIS, providing the product details including the slaughter date, abattoir, destination country and product description. This “Request for Permit” (RFP) is stored.
- The health inspector is notified of lodgment of the RFP and inspects the meat and the documentation, providing an endorsement or a rejection.

Context diagram – 04 Meat Export Syst. (cont.)

- If the RFP is endorsed, a Health Certificate is issued with the details provided in the RFP and the expiry date for the Health Certificate.
- The HC is then printed (for attachment to the container for shipping) and forwarded electronically (as an EDI message) to the quarantine authority in the destination country.
- Health Certificates once issued are stored. If the RFP is rejected, the applicant is advised the reasons for the rejection. Often this is the result of administrative errors, and the applicant corrects these and reapplies. RFPs expire after 7 days, and are then deleted from the RFP file.

Context diagram – 04 Meat Export Syst. (cont.)

- When the goods arrive at the dock of the airport at the destination country, they are inspected by the local quarantine authority using the electronic HC. Once this inspection is completed AQIS is notified of the status of the goods and if they are rejected, the reasons for the rejection are passed back to AQIS. The Health Certificate for this shipment is then cancelled in the Health Certificates file.

- Draw a context diagram the Meat Export System

Context diagram – 05 Student Registration (1)

Starting from the registration process, a student may come to the college for the admission in a particular faculty and for a particular course and subject matter. He/She submits the registration form and student registration form processing is handled by the College Administration Information Process.

- College administration: College administration stores the student information in student information record. It too collects information from the account database to know about the student's payments records and from the faculty process about the faculty information. It sends the course information to the course information process for further processing.

Context diagram – 05 Student Registration (2)

- Student Details: In Student Details the whole personal details of any student is stored. Which can be edited only by authorized administrator. And can be used to viewed through anyone for any particular details.
- Faculties: Faculty information which will be useful for the instructors and separating the sections of the students.
- Attendance: College Attendance keep track of the total attendance of any particular student. It stores the attendance data of the students into the database. It too may access the student database for updating the student attendance details and to categorize the students relating to various sections and semesters.

Context diagram – 05 Student Registration (3)

- Course: Course Information accepts the course information from the College administration. It sends the course completed information to the course completed database. And offer schedules to the students, assignments to the faculty.
- Examination: Examination takes the course details and course completed details from the Course examination database and prepares the examination schedules and offers it to the students. It is responsible for processing all the information's related to the examination.

- Draw a context diagram the Meat Export System

Questions & answers