



**PXL – IT**

**42TIN1280 Software Analysis**

# **System and system context – Context diagram**

**Nathalie Fuchs**

**Luc Doumen**

**DE HOGESCHOOL  
MET HET NETWERK**

Hogeschool PXL – Elfde-Liniestraat 24 – B-3500 Hasselt  
[www.pxl.be](http://www.pxl.be) - [www.pxl.be/facebook](http://www.pxl.be/facebook)



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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 !!!

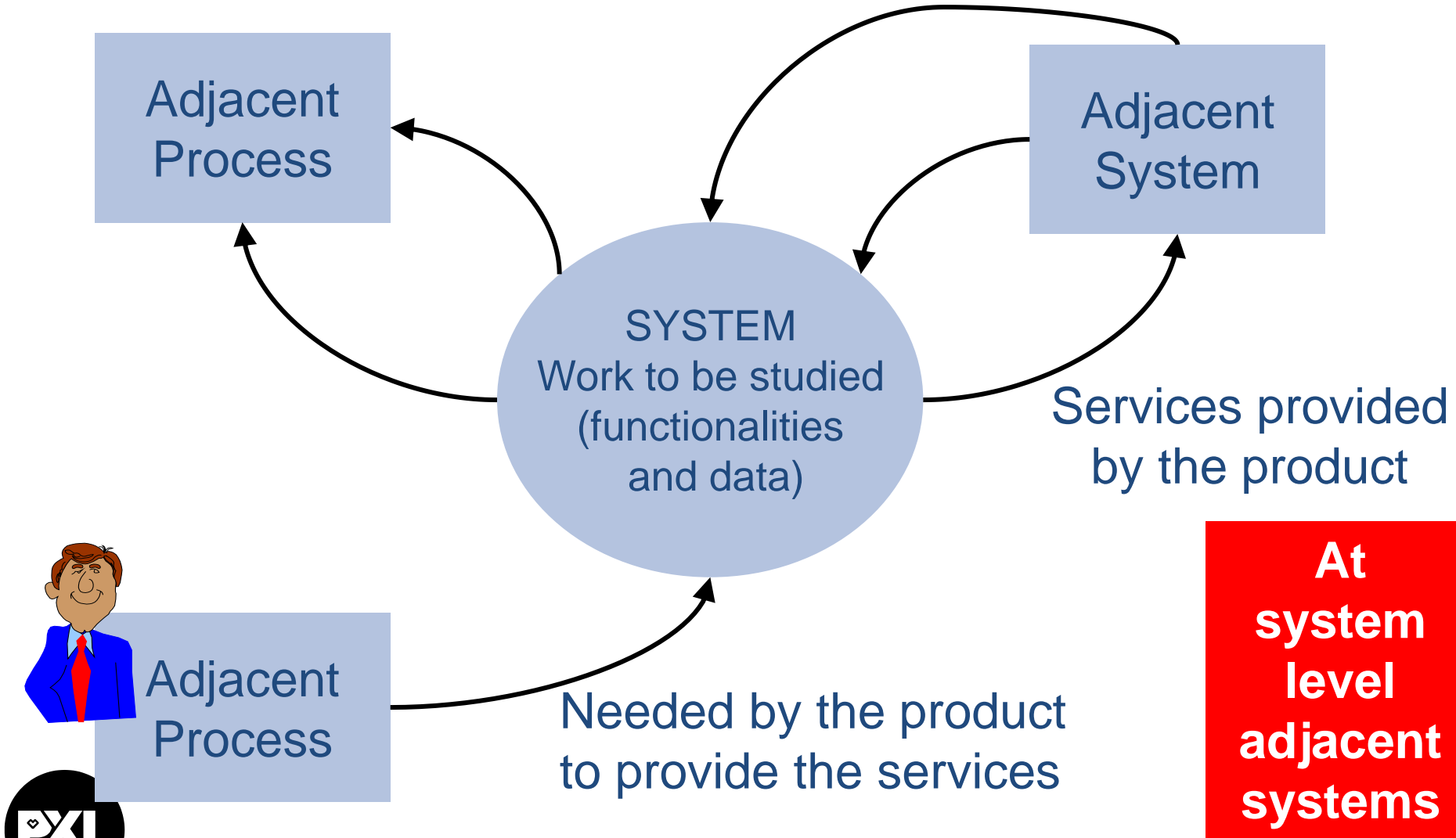


# Context diagram – types?

- 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

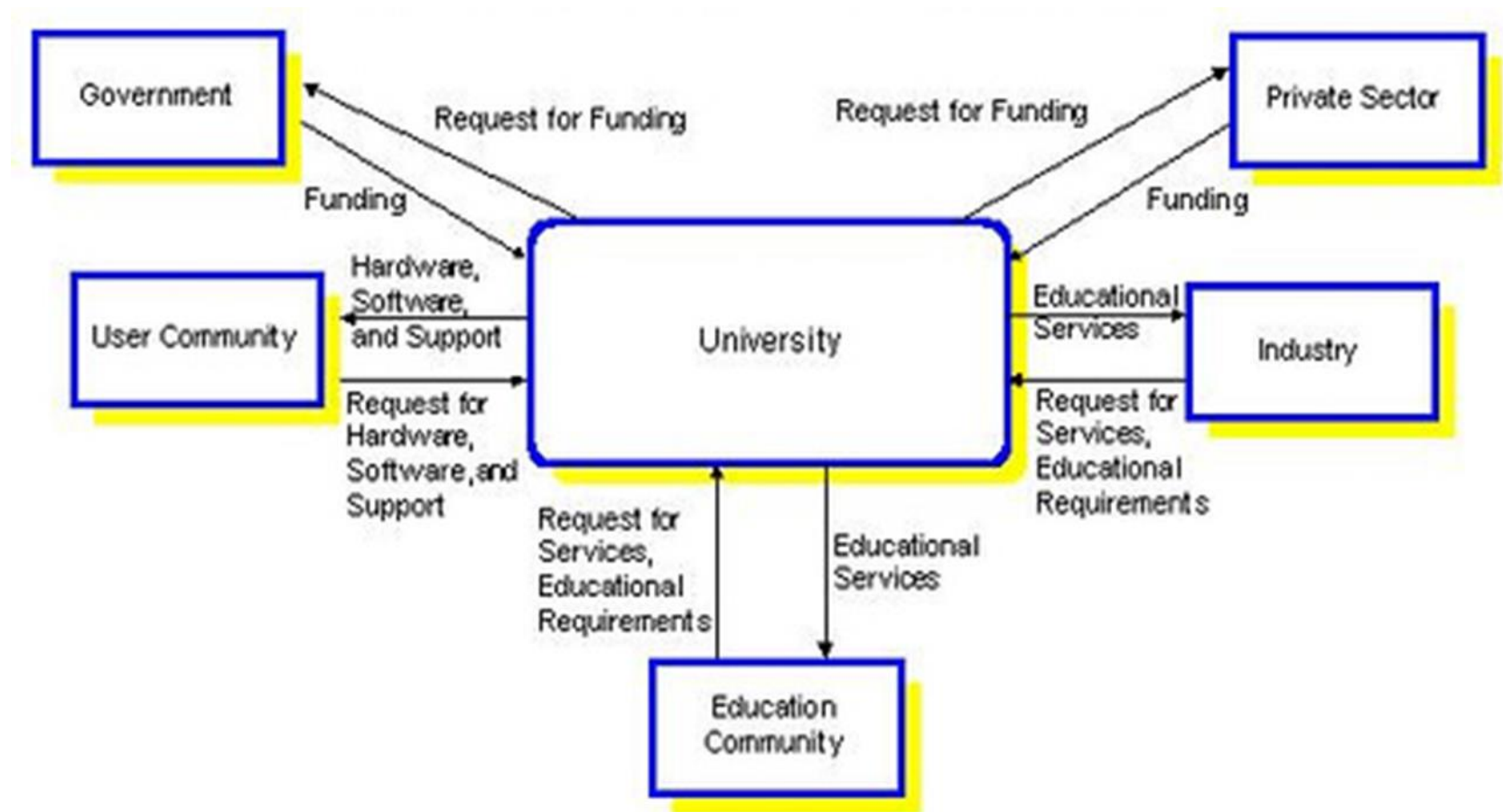


# Context diagram – example zero level 01



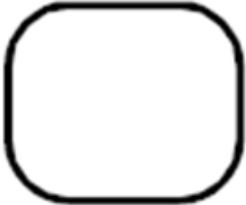



# Context diagram – example zero level 01

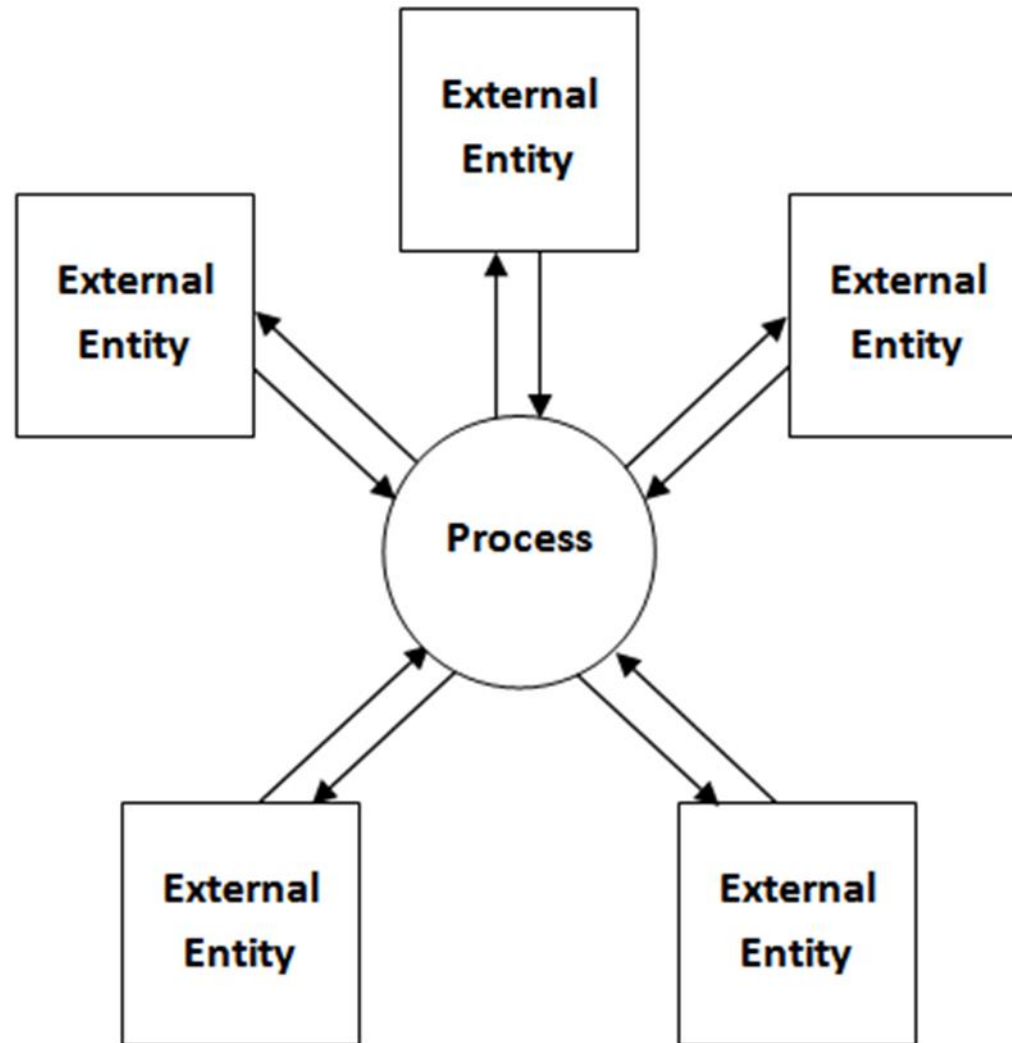
- Describe what you see ....



# Context diagram – notation (1)

Symbol	Descriptions
	External Entity
	Data Flow
	Process
	Data Store

# Context diagram – notation (2)





# 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.

**Not for zero level !!!!**



# 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 – 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 - Precision Tools 01

- 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.



# Context diagram – Perfect Pizza 02

- 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.





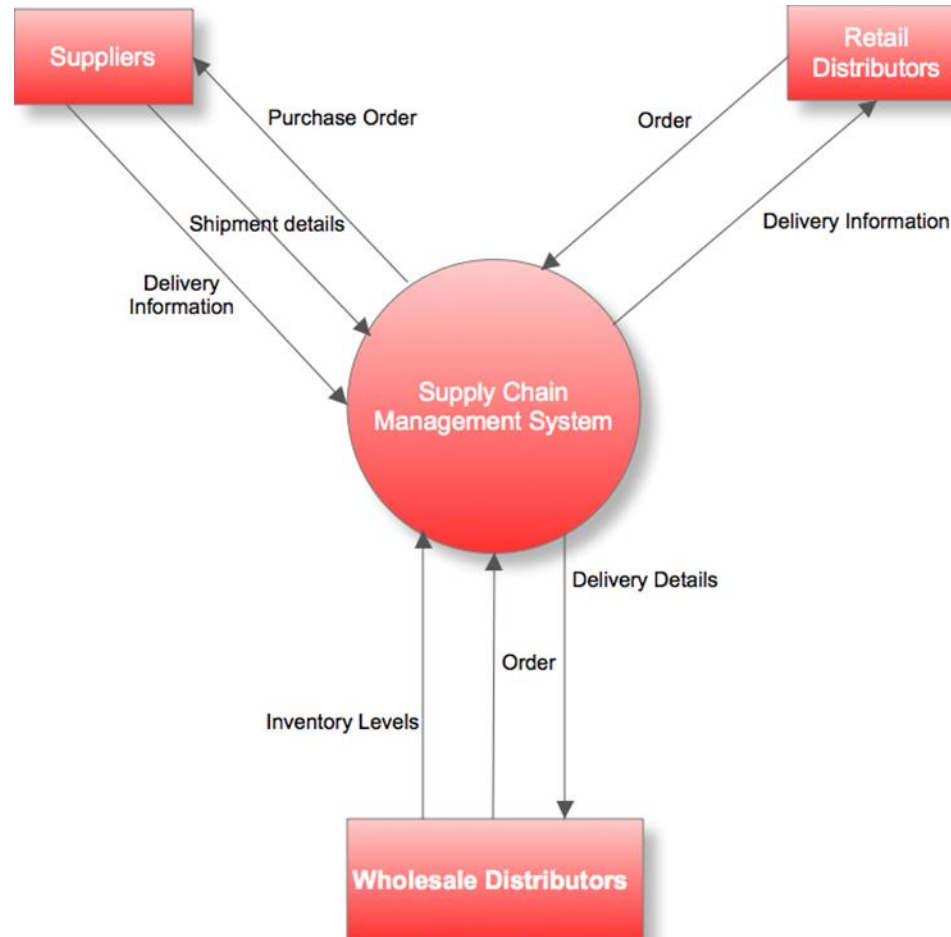
# Context diagram – Perfect Pizza 02

- 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
- Explode the context-level diagram showing all the major processes



# Context diagram – Supply chain – 03

- Describe what you see



# Context diagram – document

Cf. file “WK03 - 10 - System and System Context SW-Analysis-1516 – Exercises”

- Waardentransport
- Kunst in huis
- Tankstation
- Verkoop
- Mercure
- Bibliotheek
- Terroristische aanslagen op VS
- Car rental company



# Questions & answers

