

A complex network diagram with various sized nodes (circles) in dark blue, light blue, and grey, connected by thin grey lines. Some nodes are highlighted with larger white circles. The background is white with faint grey circles.

# 7.1 CHARACTERISTICS OF A TECHNOLOGICAL SYSTEM

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Chapter 7

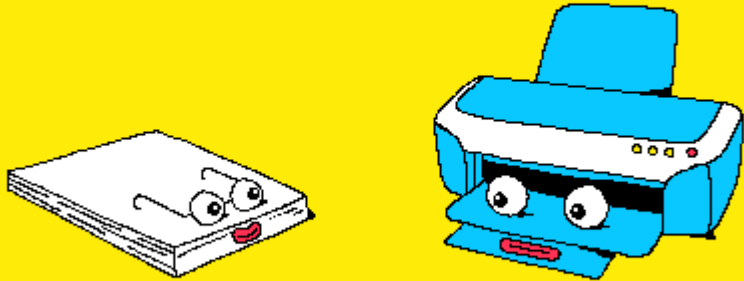
# TECHNOLOGICAL SYSTEM

Many of our technological tools and machines involve technological systems



# TECHNOLOGICAL SYSTEM

**WE MAKE A GREAT TEAM!**



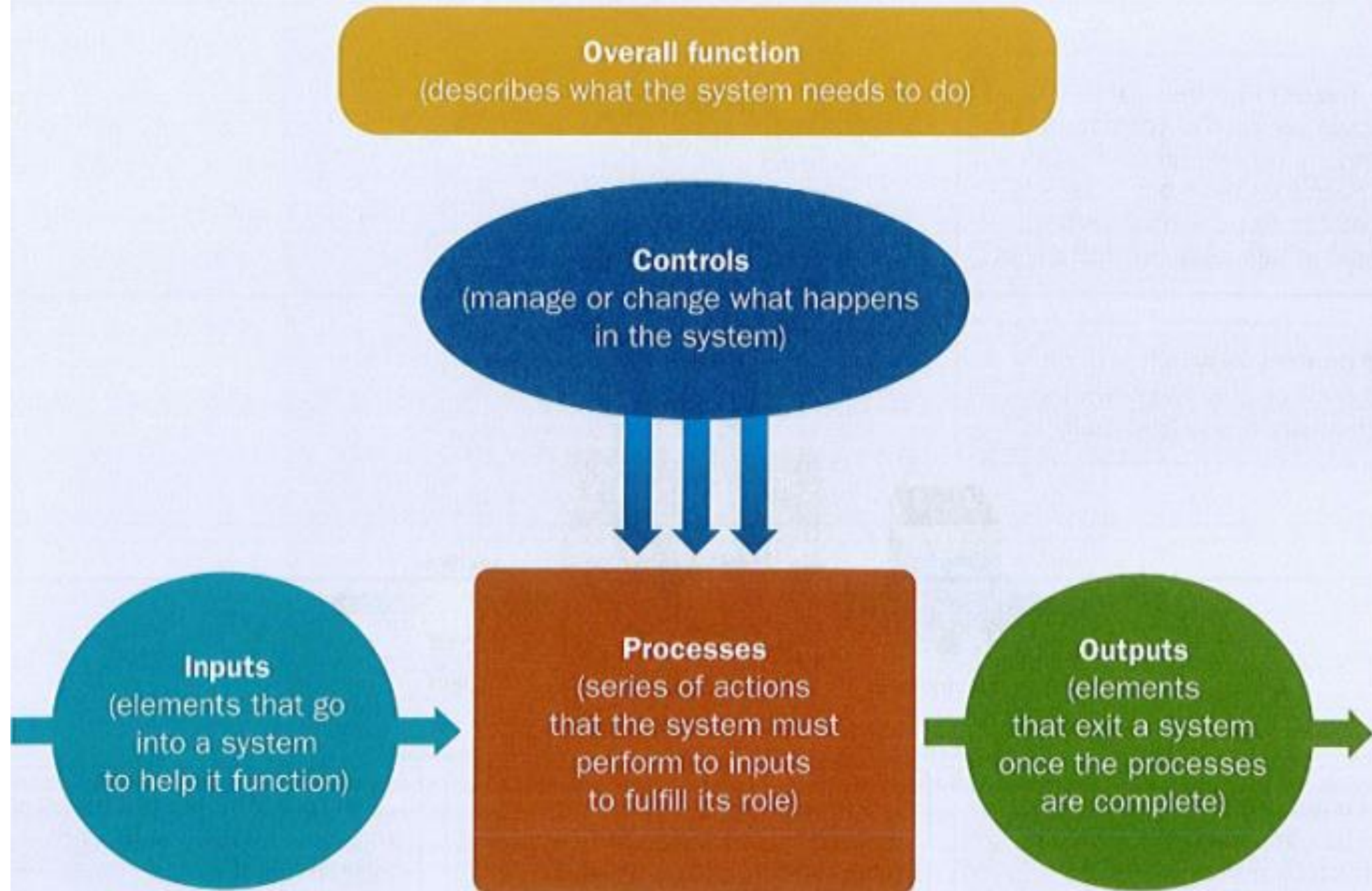
A group of parts, mechanics, devices or machines that all work together to perform a particular function or task

# TECHNOLOGICAL SYSTEM

No matter how simple or complex the system is, it is always going to have certain elements or components

- We call these the **characteristics of a system**

## General diagram of a system





# OVERALL FUNCTION

The task that is being completed by the system



# CONTROL

The thing(s) that manages, changes or regulates what is happening in the system. Can be:

- **Mechanical**: like gear shifters on a bike
- **Electronic/electrical**: like a switch or keys on a keyboard
- **Optical**: like a motion-activated system

# PROCESSES



The series of actions that need to be completed for the system to accomplish its task (fulfill the function)



# INPUTS

All of the elements that must go **INTO** the system for the different processes to work. These can be:

- the people
- equipment
- energy
- materials
- information
- capital (money, etc)
- time

**We'll talk about these ones mostly**

# OUTPUTS

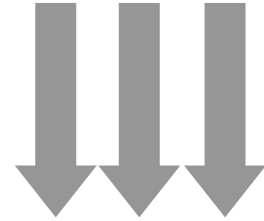
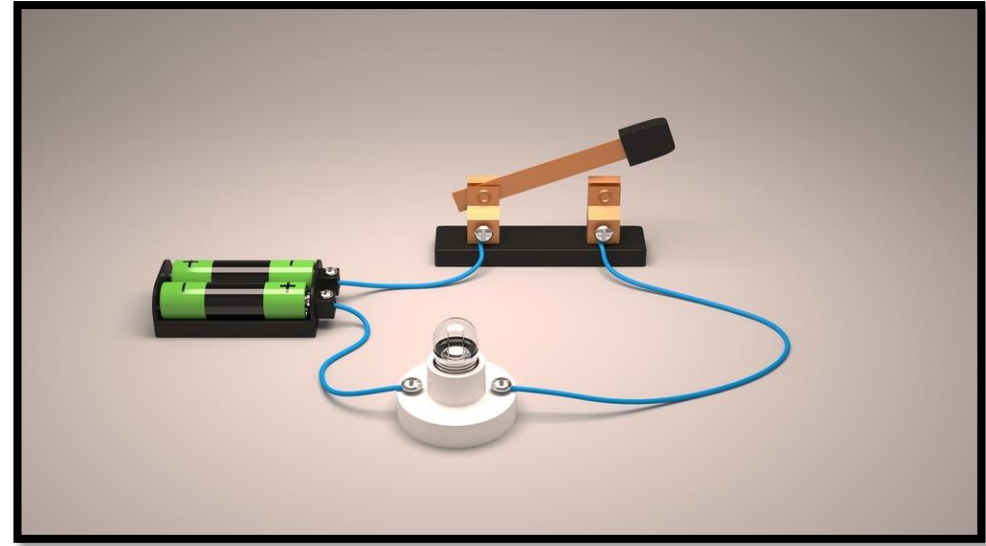
All of the elements that **EXIT** the system once all the processes are completed

- these include all the desired results and any waste or by-products created during the different processes
- Ex: a car engine will burn fuel to produce kinetic energy or motion that will **turn the wheels** (**desirable result**) BUT it will also produce (**waste**) **exhaust fumes**

# EXAMPLE: SIMPLE LIGHT CIRCUIT

**Overall Function**  
- Provide light

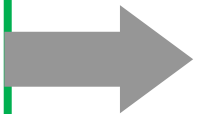
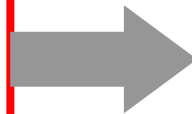
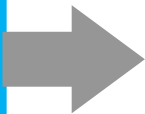
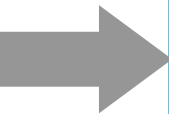
**Controls**  
- Switch



**Processes**  
- Incandescence  
(heating a wire  
until it glows)

**Outputs**  
- Light  
- Heat

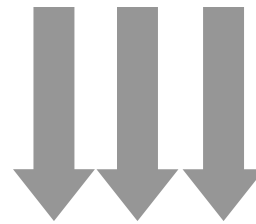
**Inputs**  
- Electricity



# EXAMPLE: LAWN MOWER

**Overall Function**  
- Cut the grass

**Controls**  
- Starter  
- Handle



**Processes**  
- Combustion of gasoline

**Inputs**  
- Oil  
- Gasoline  
- Oxygen

**Outputs**  
- Rotation of blades  
- Water vapour  
- CO<sub>2</sub>  
- Heat

A complex network diagram with various nodes and connecting lines. Nodes are represented by circles of different sizes and colors, including dark blue, light blue, and grey. Lines connect these nodes, creating a web-like structure. Some nodes are highlighted with larger, concentric circles.

# 7.2 COMPONENTS OF A SYSTEM

Chapter 7



# TECHNOLOGICAL SYSTEM COMPONENTS

There can be many elements that allow a technological system to complete its overall function

These different elements are what we call these **components** and each will have its **own function within the system**

# EXAMPLE

What is the function of the handlebar?



The steer the bicycle

**EXAMPLE**

What is the function of the seat?



**The provide a comfortable spot to sit**



# EXAMPLE

What is the function of the brakes?



To control the stop or slow the bike

**EXAMPLE**

What is the function of the brake lever?



**To control the brakes**



**EXAMPLE**

What is the function of the pedals?



**The crank that is used to turn the wheels**

# EXAMPLE

What is the function of the chain?



To transfer the motion of the pedals to the back wheel

# EXAMPLE

What is the function of the basket?



The hold objects while you ride your bike



# WORKBOOK

p.201-203

P. 205-206

