

# **Continuous Improvement (CIP)**

## **Module 3 – Process**

## **Constraint Management**

Amin Kaboli

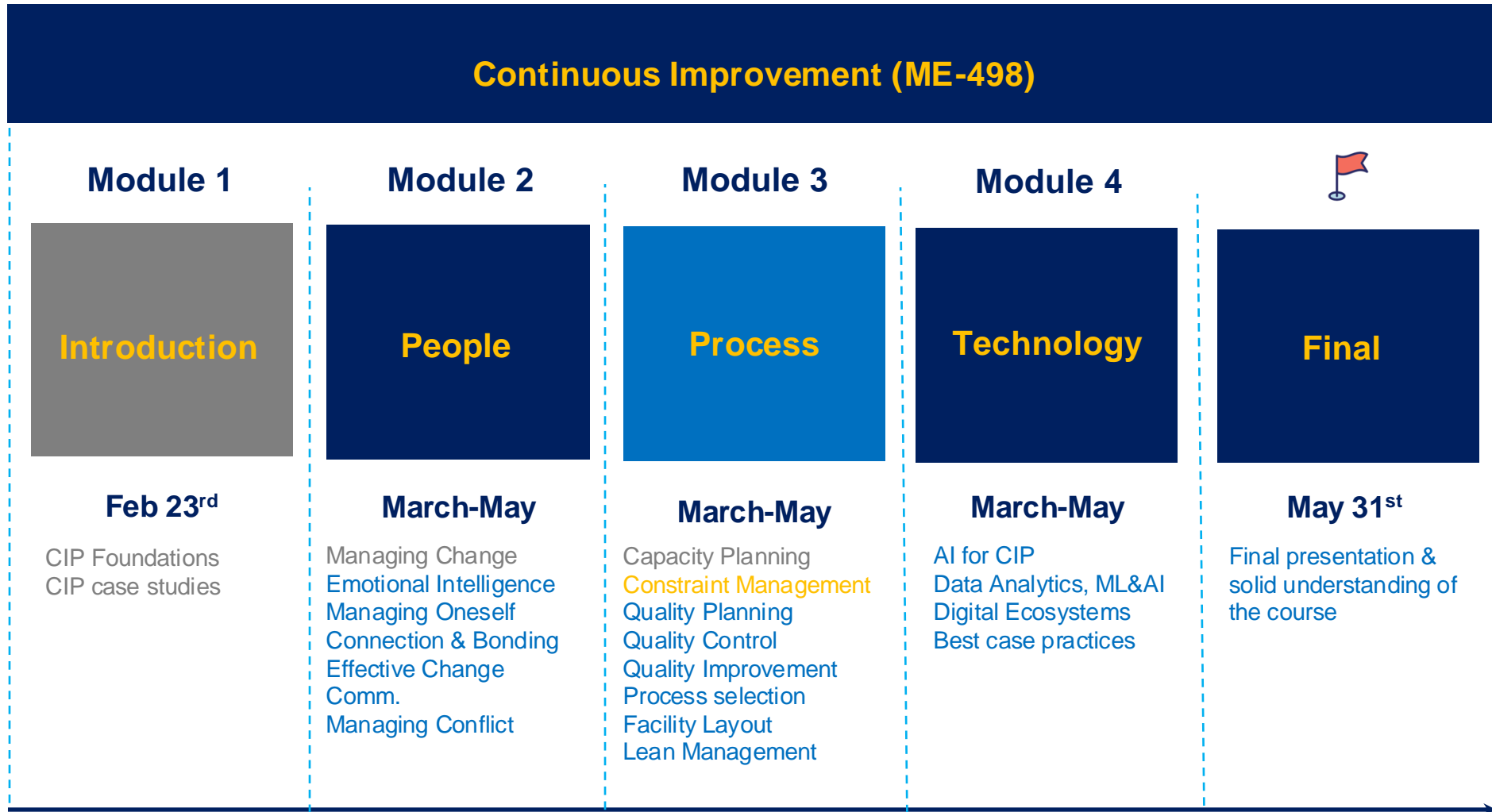
Week 3, Session 2, Mar 07<sup>th</sup>, 2025

A large, light blue circle is partially visible on the right side of the slide. A thin blue arc curves from the bottom left towards the bottom right, passing in front of the circle.

# Course Framework



Change Plan  
Strategic plan



# Agenda of the day

- **13:15 – 14:00** Quiz & Q&A
- **14:15 – 15:00** Module 3 – Process: Constraint Management
- **15:15 – 16:00** Assignment 2 - Growth Mindset
- **16:15 – 17:00** Guest Speaker; Head of AI Unit, EU Commission

**Question 1:**

**What is a Bottleneck?**

# What is a Bottleneck?



**Bottleneck:** The limiting factor or constraint in a system.

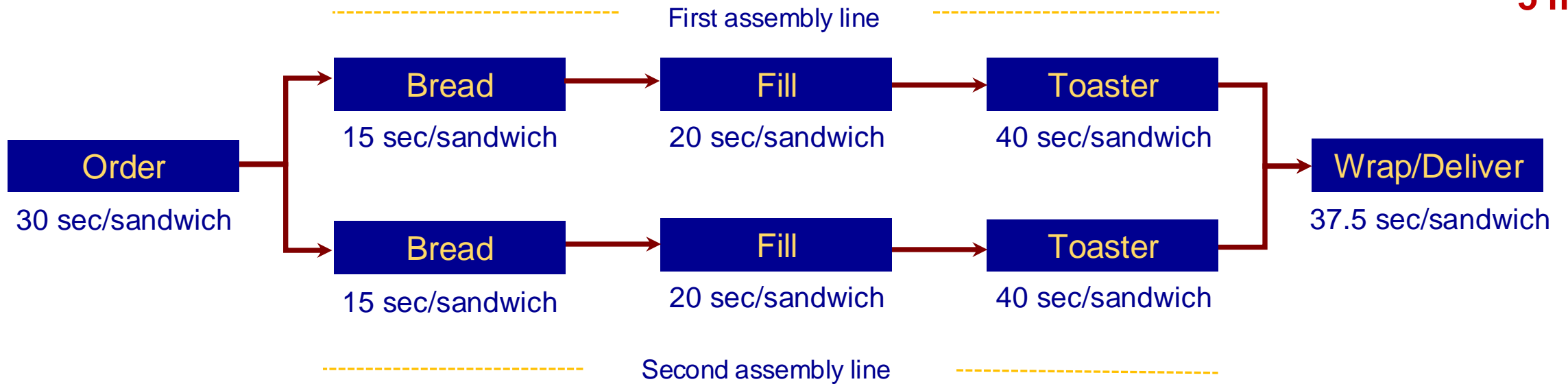
# What is a Throughput Time?



**Throughput time:** The time it takes for a product to go through the production process with no waiting. It is the time of the longest path through the system.

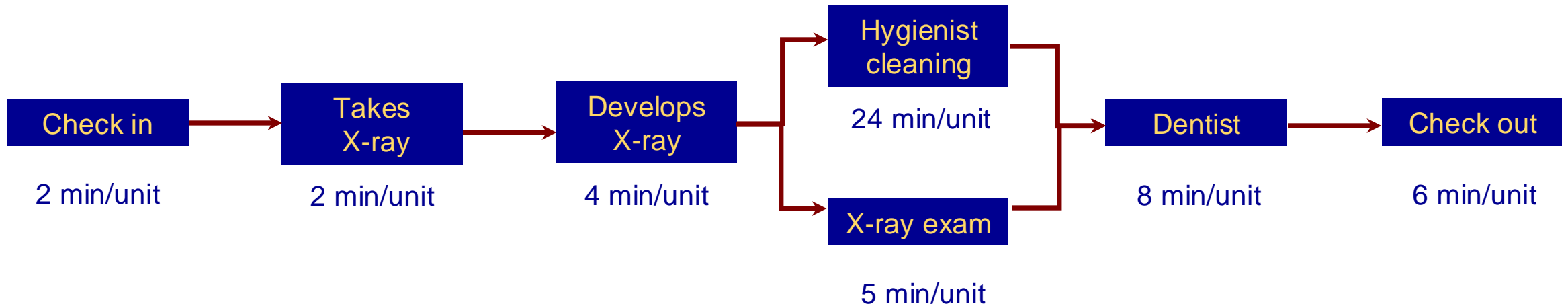
Throughput time: 2 min + 4 min + 3 min = 9 Min

## Exercise 5 – Capacity Analysis with Parallel Processes



- 1) What is the bottleneck?
- 2) What is the capacity/hour?
- 3) What is the throughput time?

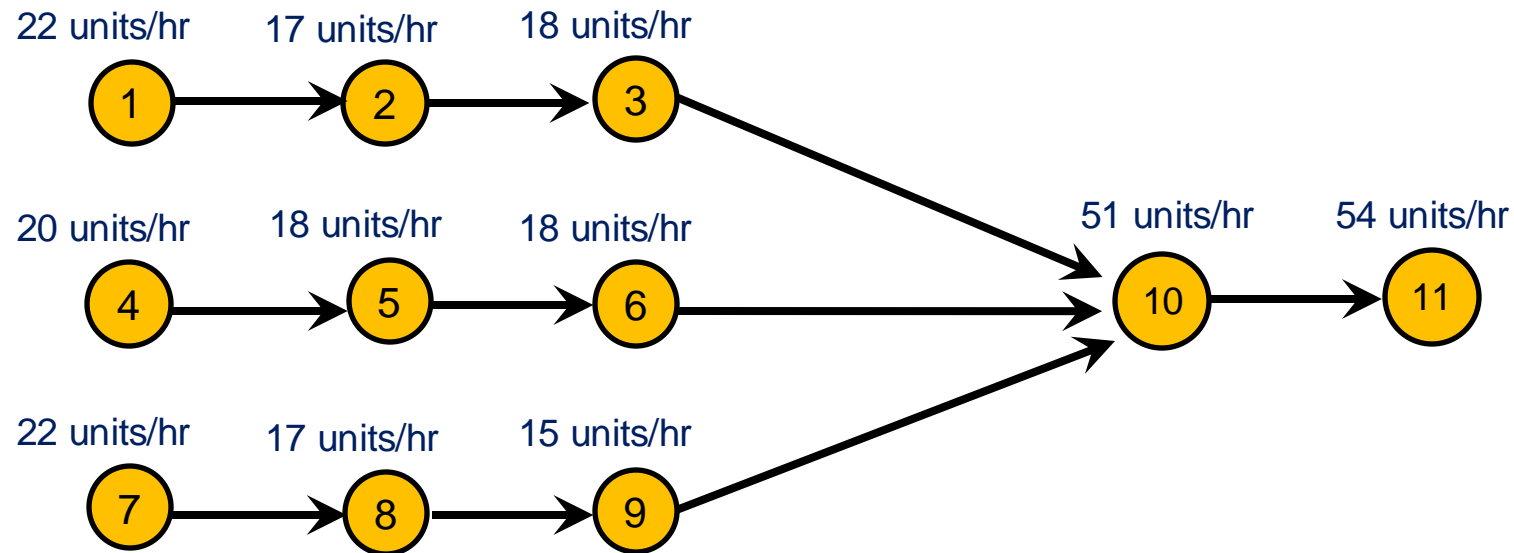
## Exercise 6 – Capacity Analysis with Parallel Processes



- 1) What is the bottleneck?
- 2) What is the throughput time?
- 3) How to improve the processes?



## Exercise 7 – Capacity Analysis with Parallel Processes



- 1) What is the bottleneck?
- 2) What is the capacity of the current system?
- 3) If you could increase the capacity of only one operation which operation would you select?

## **Question 2:**

# **How to Manage Bottlenecks?**

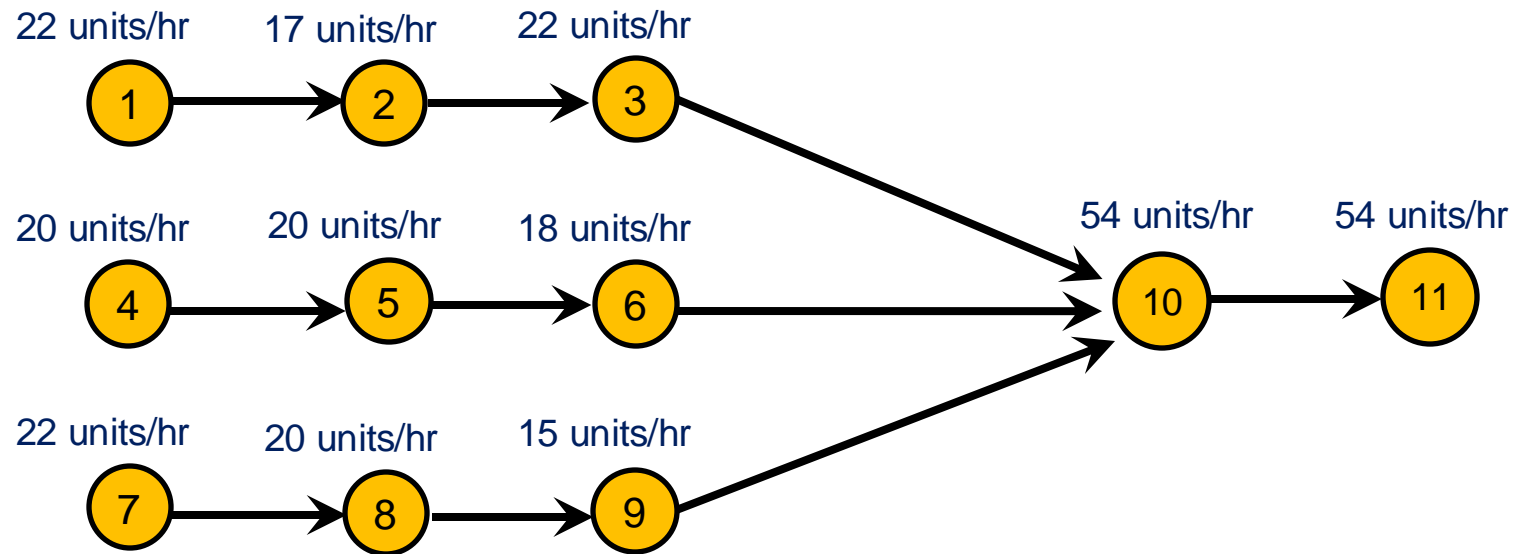
# How to Manage Bottlenecks - Theory of Constraints (TOC)

- **Step 1:** Identify the constraints.
- **Step 2:** Develop a plan for overcoming the identified constraints.
- **Step 3:** Focus resources on accomplishing step 2.
- **Step 4:** Reduce the effects of the constraints by offloading work or expanding capacity.
- **Step 5:** When one set of constraints is overcome, go back to step 1 for new constraints.

## Exercise 9 – Implement Theory of Constraints

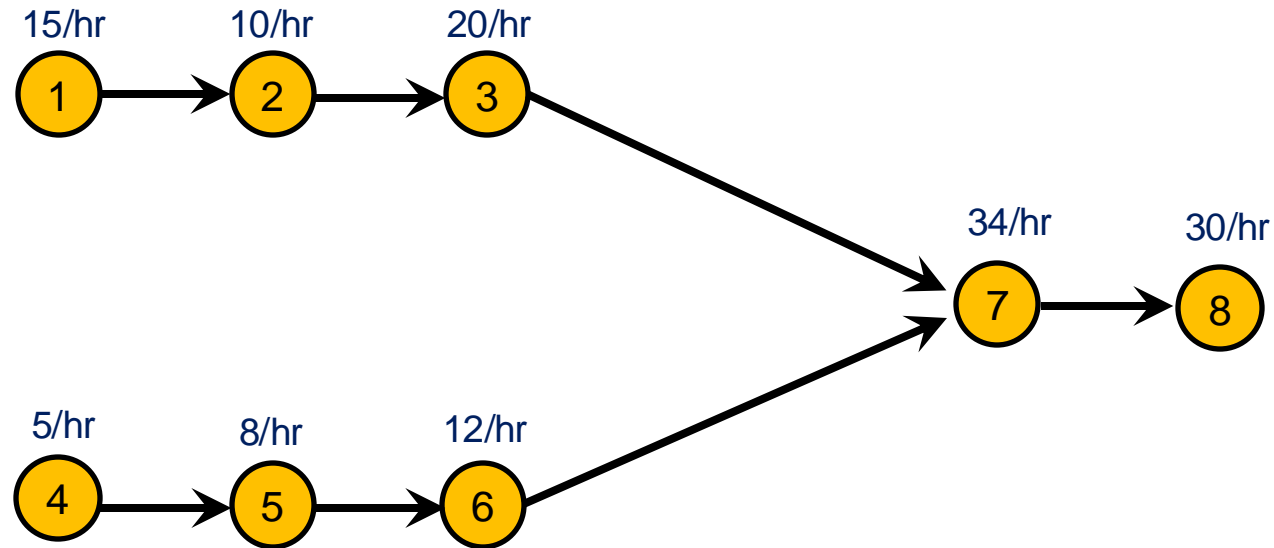


3 min



- 1) What is the constraint (bottleneck)?
- 2) What is the capacity of the current system?
- 3) What is your plan for overcoming the constraint?
- 4) How do you allocate your resources?
- 5) How do you reduce the effects of constraints?

## Exercise 10 – Implement Theory of Constraints



- 1) What is the constraint (bottleneck)?
- 2) What is the capacity of the current system?
- 3) What is your plan for overcoming the constraint?
- 4) How do you allocate your resources?
- 5) How do you reduce the effects of constraints?

**Question 3:**

**How to Improve Capacity Utilization?**

# Improving Capacity Utilization

- **Main assumption:** There is a demand for the output of the system
- Effective training of employees
- Improving quality
- Bottleneck equipment utilization
- Maintaining equipment in a proper condition

# Assignment 4 – Constraints Management & Managing Waiting Lines

- How do you develop capacity strategies for your case? what is/are your recommendations?
  - How do you measure the capacity (design, effective, actual) of this process/system?
  - What are utilization and efficiency of this process/system?  
*Hint: you may review the book chapter (page 11-17) and select some of the proposed strategies and expand them on your case*
- Is there any constraint/bottleneck or anything that limits the performance of a process/system in your case?
  - How do you categorize this constraint/bottleneck?
  - How do you suggest to implement the theory of constraints (TOC) to manage bottlenecks?  
*Note: at least two iterations*
- How do you measure the impact of your proposed improvement?
- Waiting lines management
- Deadline: [March 21<sup>st</sup>](#)



# **Continuous Improvement (CIP)**

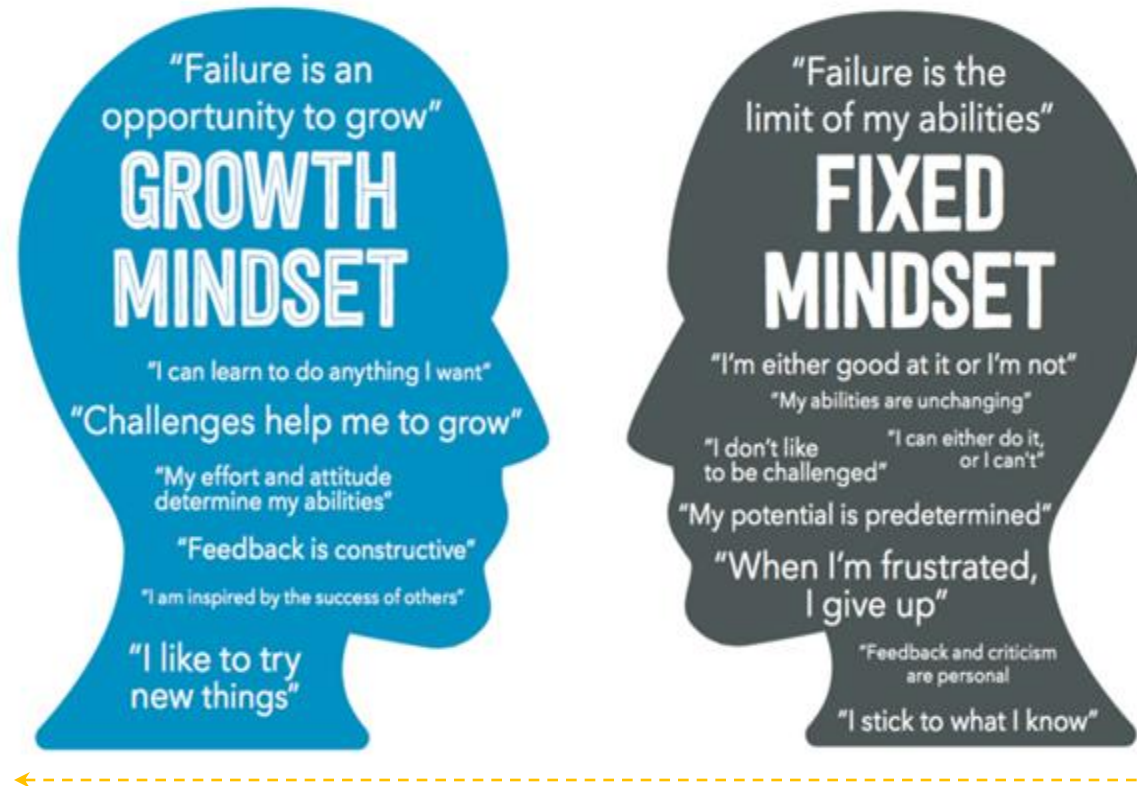
## **Module 2 – People**

### **Growth Mindset**

Amin Kaboli

Week 3, Session 3, Mar 07<sup>th</sup>, 2025

# Two Mindsets: Growth vs Fixed



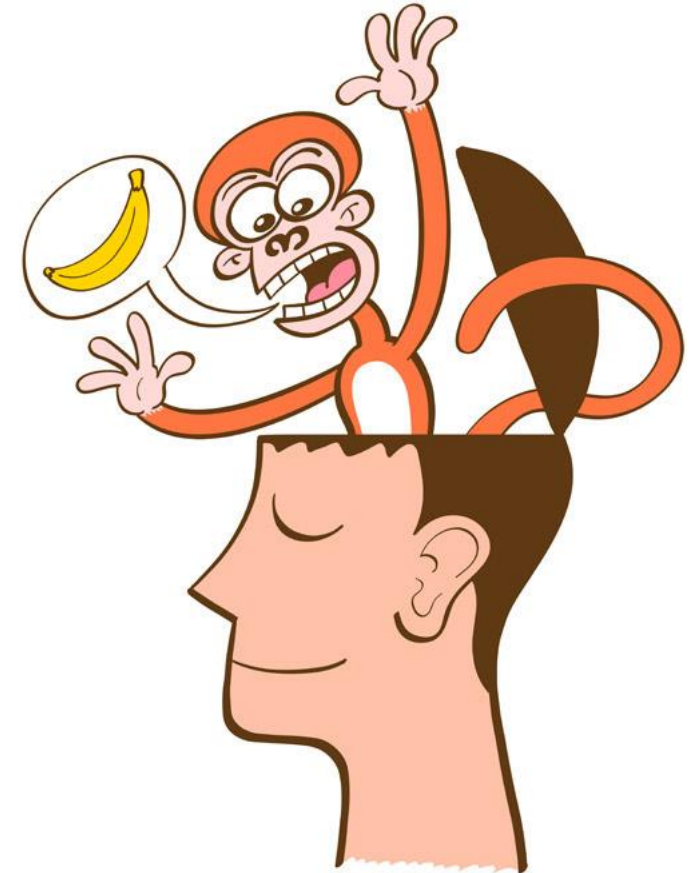
Source: Carol Dweck, The Growth Mindset, Random House, 2016.

# The Mind



The mind is the set of **cognitive faculties including consciousness, imagination, perception, thinking, judgement, language and memory**, which is housed in the brain.

# The Mind and the Monkey

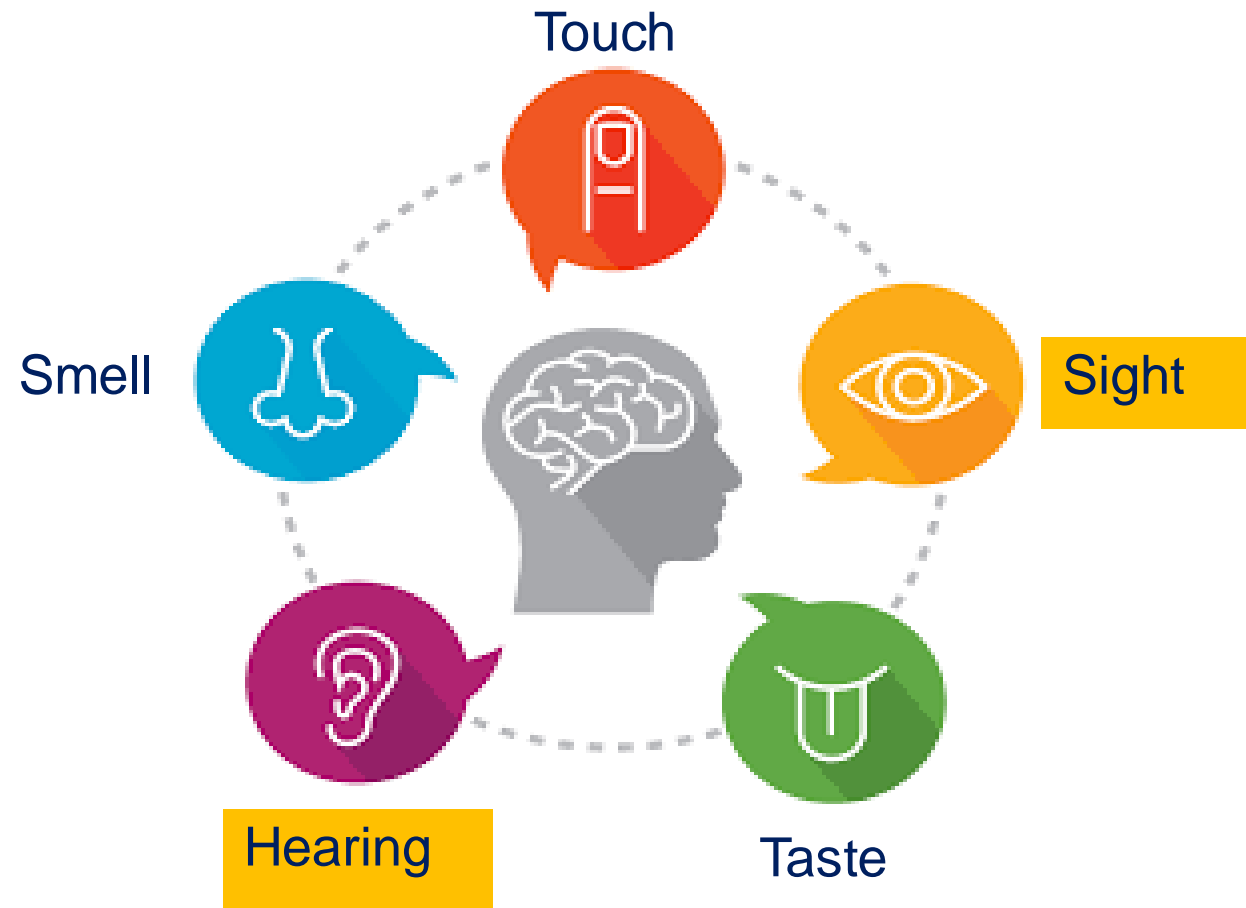


The monkey, the voice in the head, rumination, ...

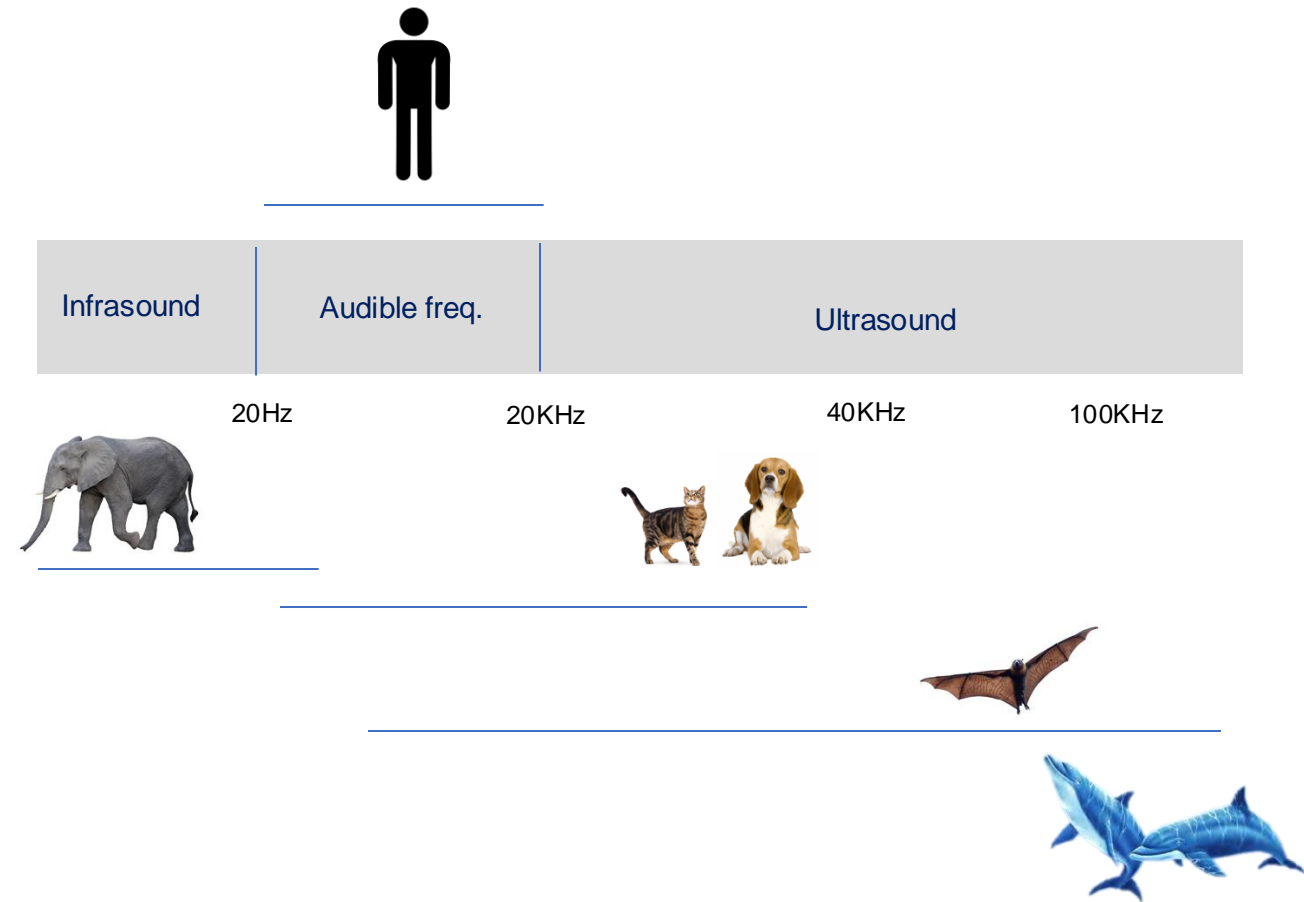
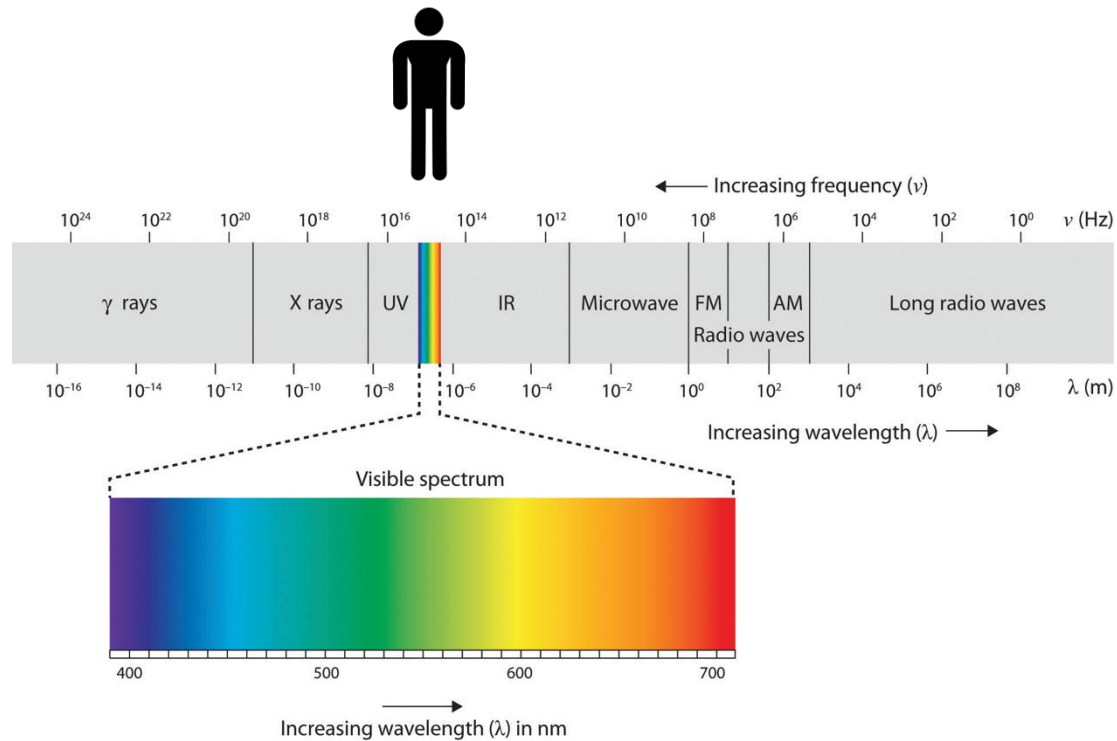
# Perception – Our Five Senses



# Perception – Two Main Senses

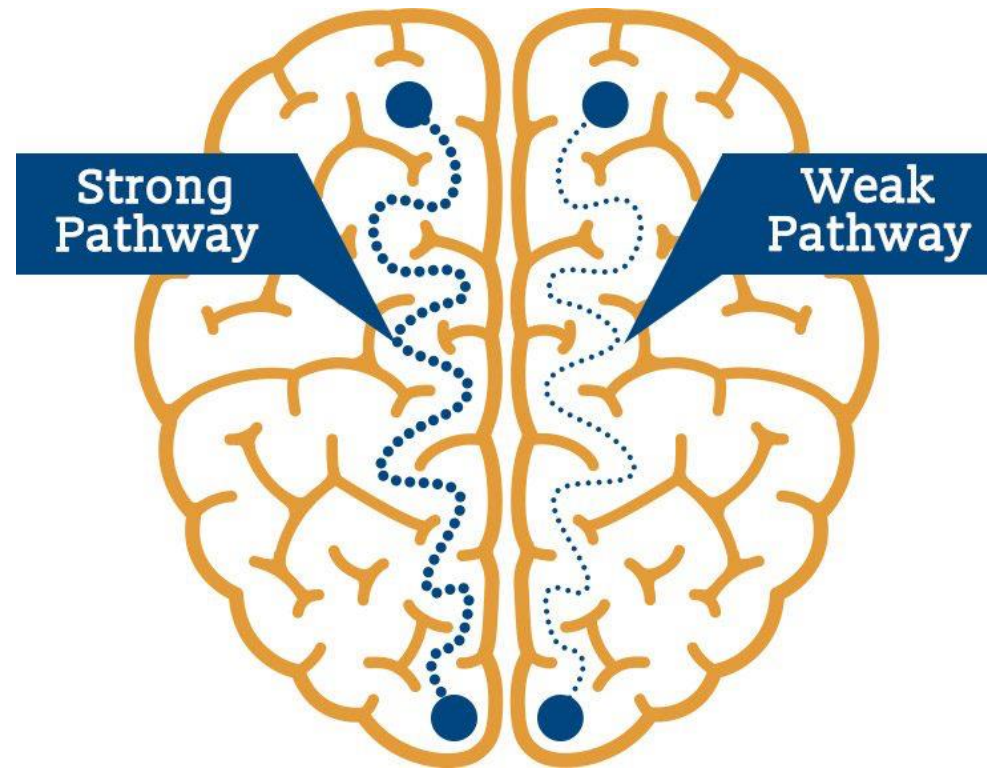


# Perception Limitations – Sight and Hearing





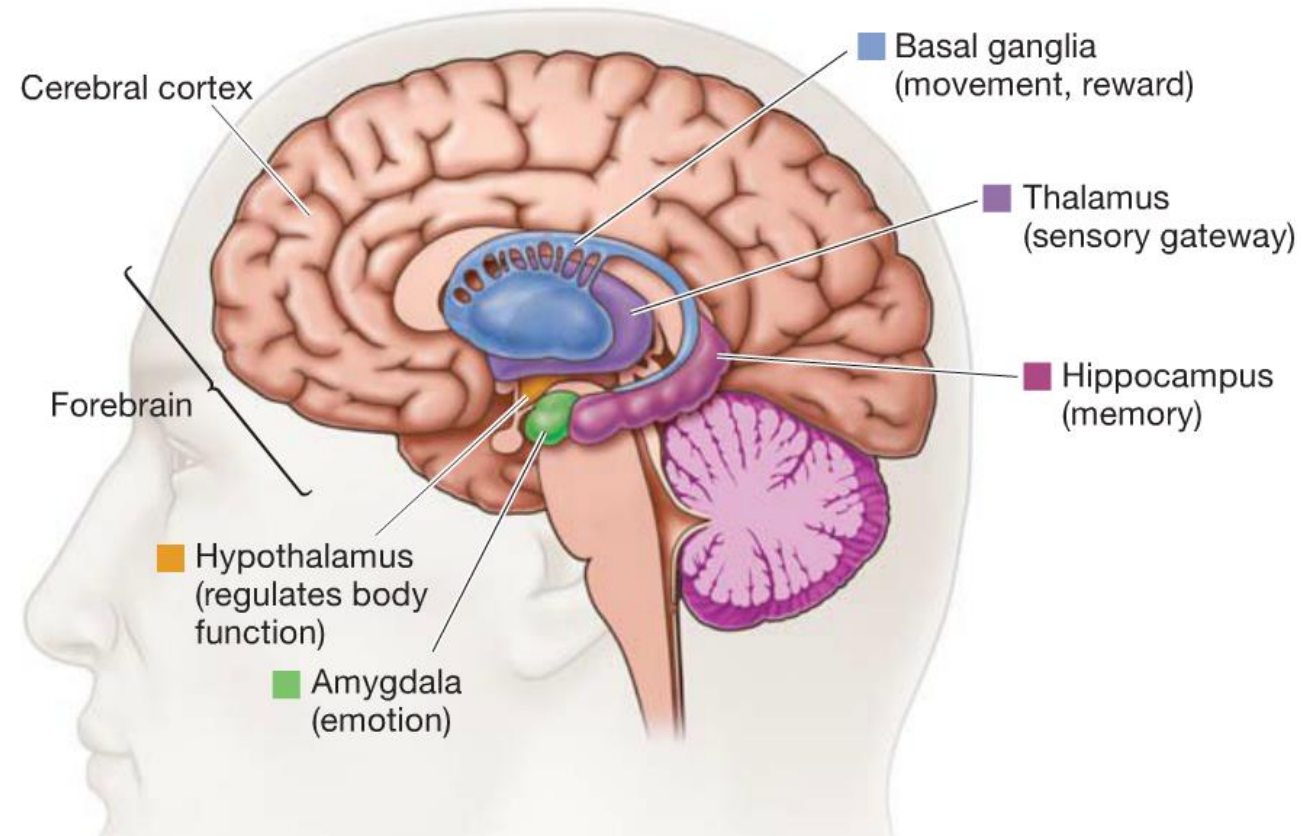
# Change – Brain's Neuroplasticity



The ability of the brain to change throughout an individual's life

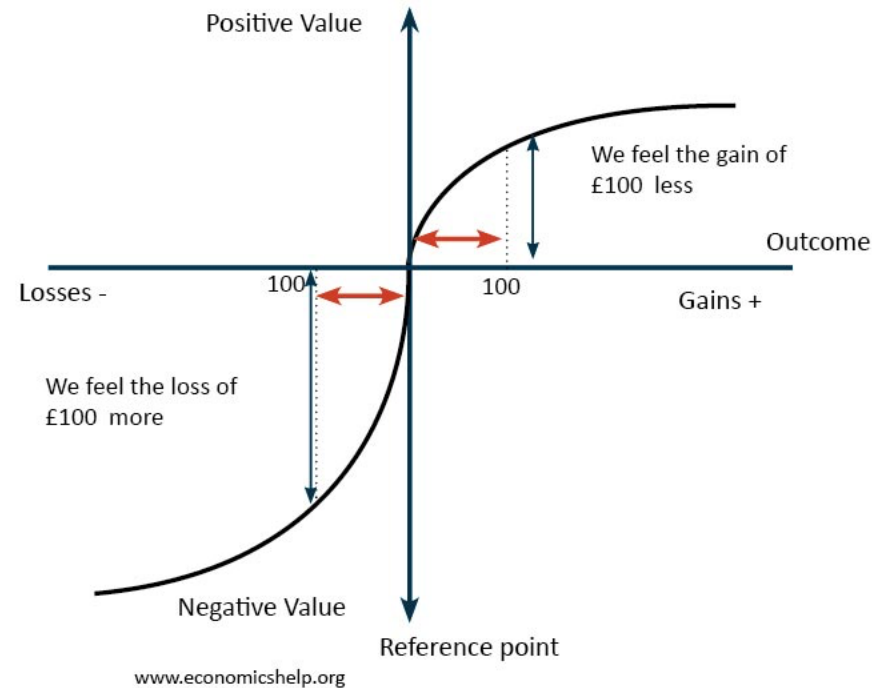


# Change – Amygdala Hijack



**Amygdala Hijack:** Fight, Flight, or Freeze

# Change – Do You Like Change?



Research shows we are fundamentally negative.

Survival – we are basically driven by fear, loss, ...

# Leading Change – Self Awareness

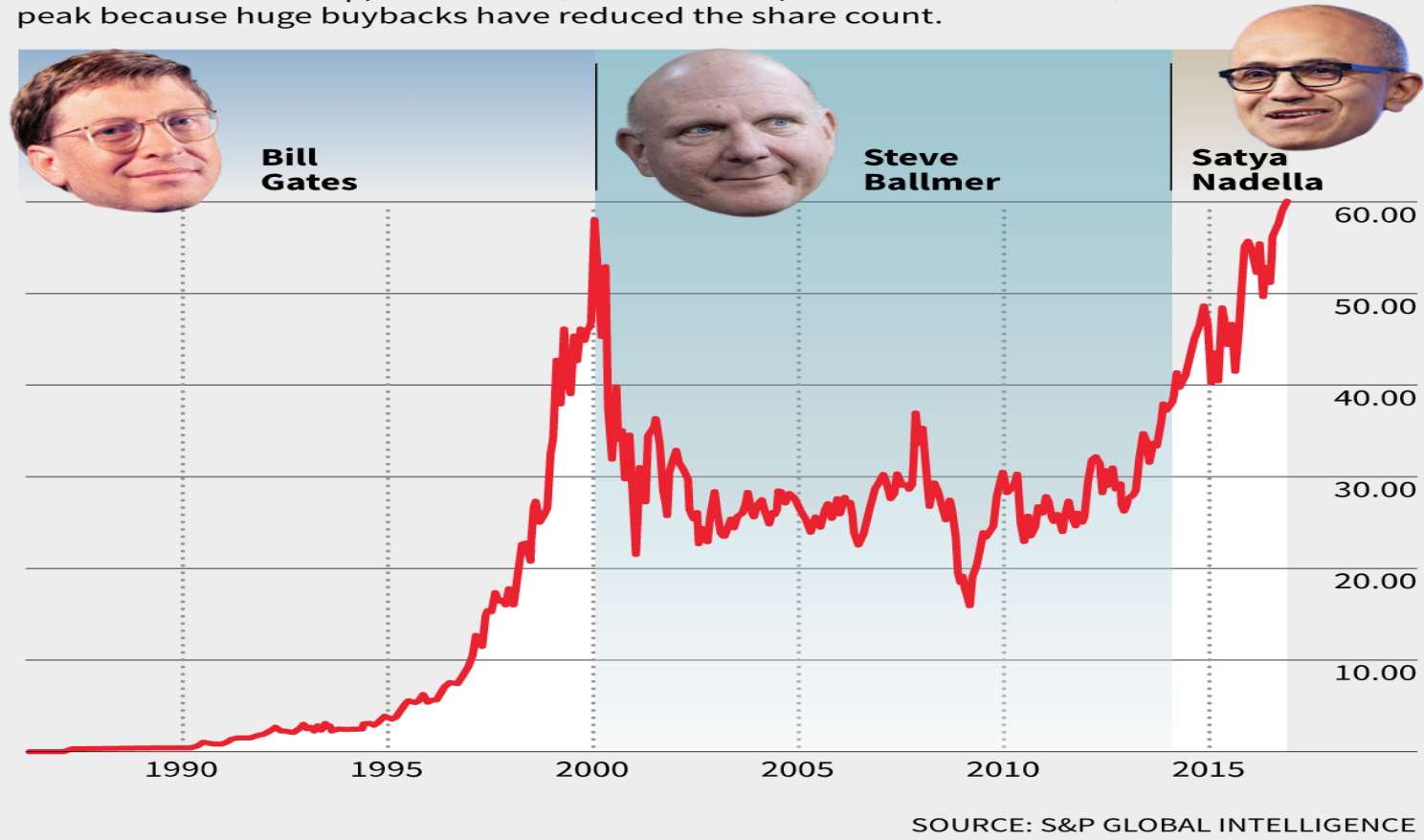


The ability to see yourself clearly and objectively through reflection and introspection.

## The CEO effect

### Microsoft stock price by CEO tenure (\$US)

In October 2016 the company's stock price reached a level unseen since 1999. However, Microsoft's market cap, now about \$US460 billion, remains well off the \$US600 billion peak because huge buybacks have reduced the share count.



# **Continuous Improvement (CIP)**

## **Guest Speaker**

### **AI in Research & Science**

Liviu STIRBAT

Week 3, Session 3, Mar 07<sup>th</sup>, 2025