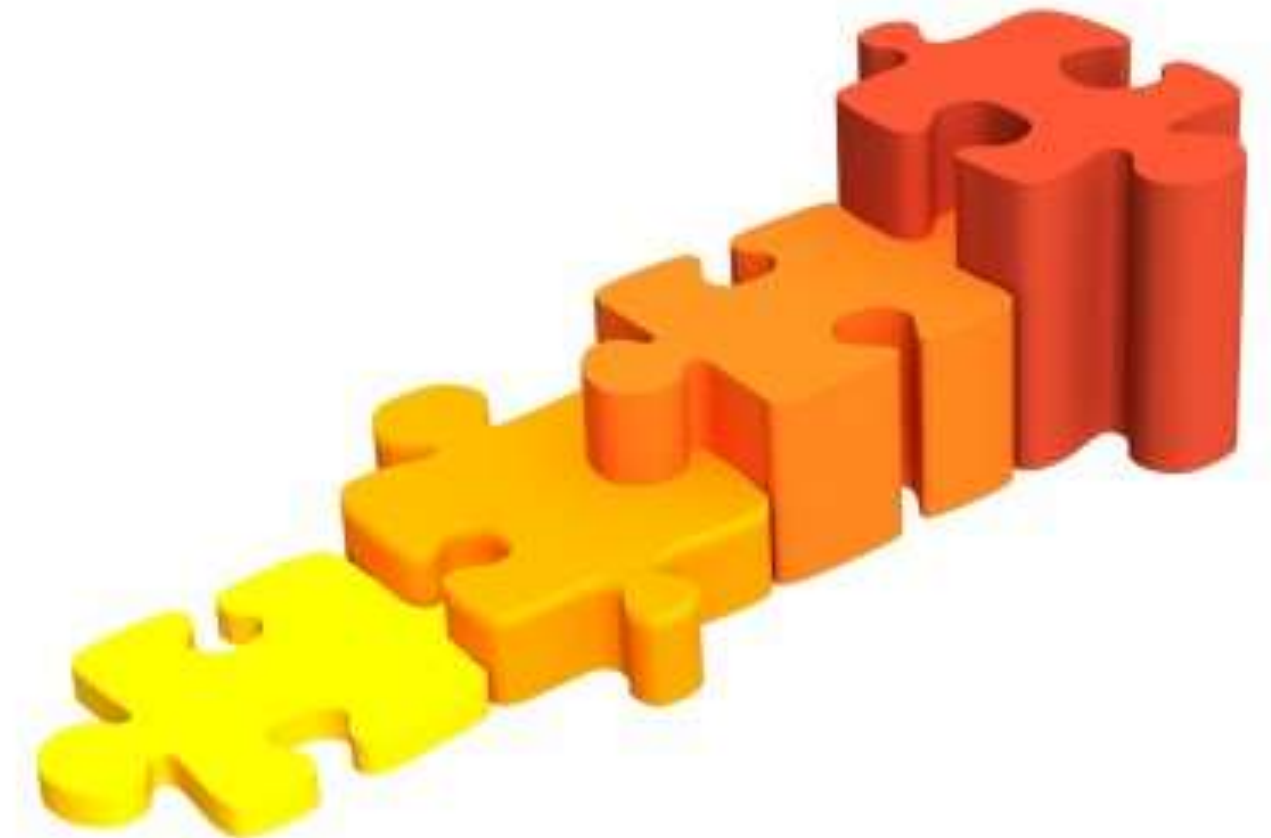# Lecture: JIT and Kanban concepts

Learning Objectives

➢ To understand what we mean by the terms just-in time

➢ To understand what we mean by the term Kanban

JIT Concept

Definition of JIT

"...**Just-in-time (JIT)** operations organise materials to **arrive just as they are needed**... By coordinating supply and demand, they eliminate stocks of raw materials and work in progress"

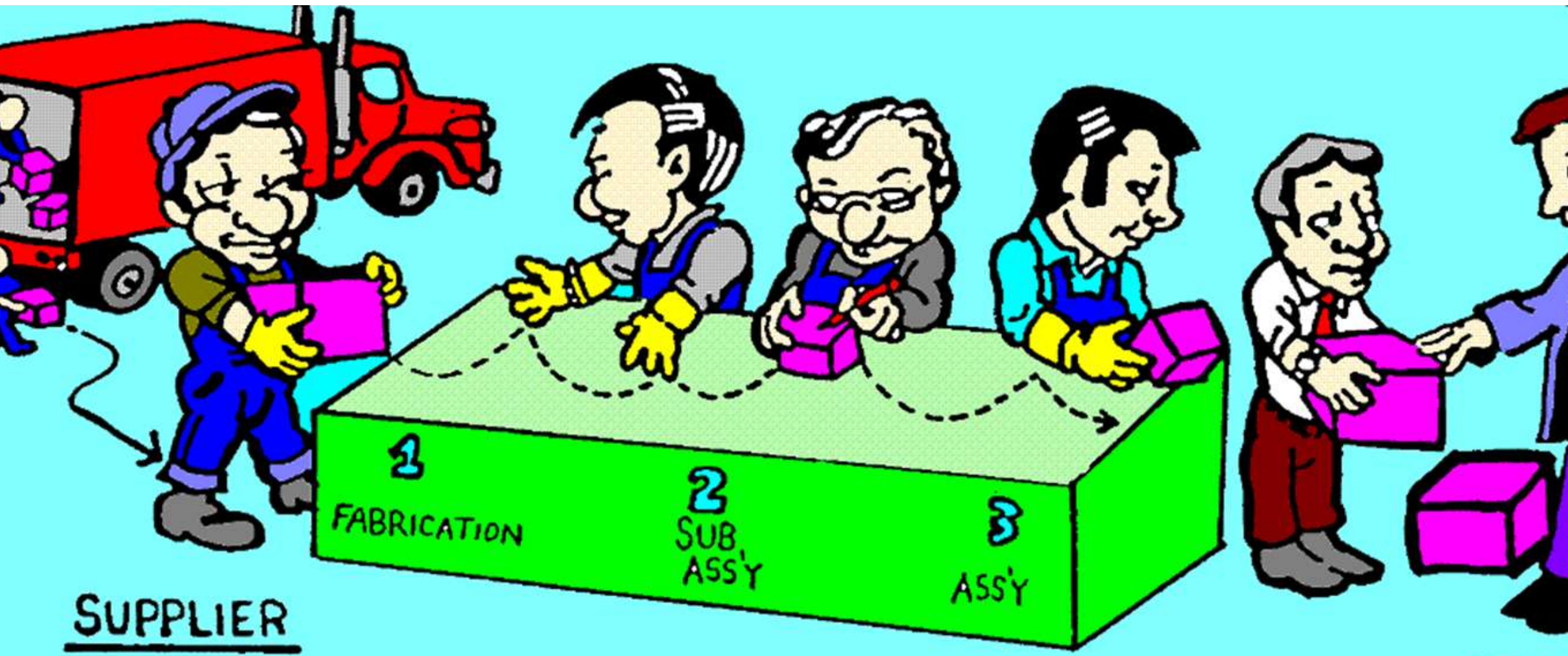(Waters, 2009:286)

Точно-в-срок (Just-in-time)

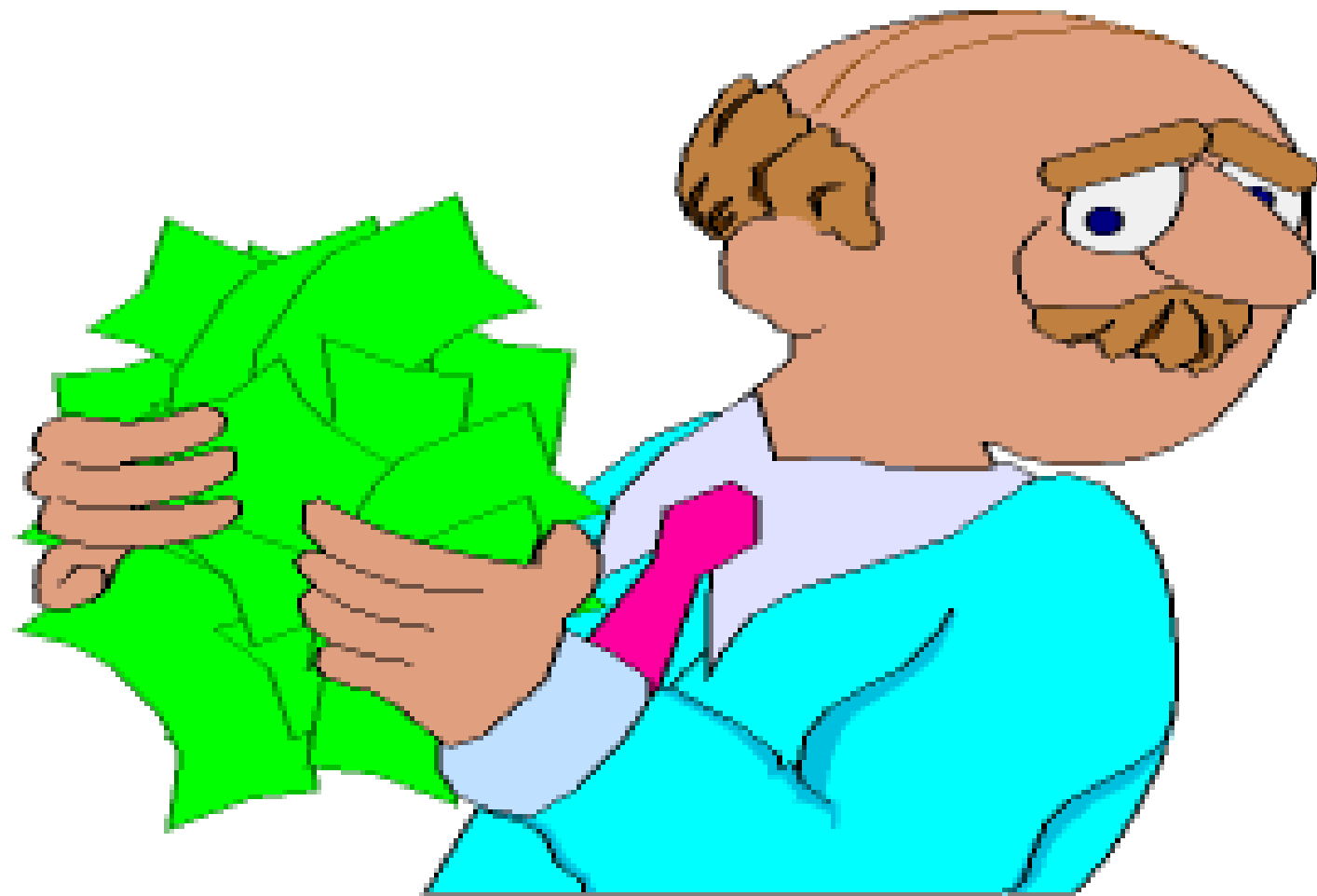**Метод «точно-в-срок» изобретен в 1954 г. в корпорации Тойота**

Main Elements of JIT

- Elimination of waste
- Quality at the source
- Balanced and flexible work flow
- Respect for people
- Continuous improvement (Kaizen)
- Simplification and visual control
- Focus on customer needs
- Partnerships with key suppliers

What Could Be the Expected Benefits of JIT?

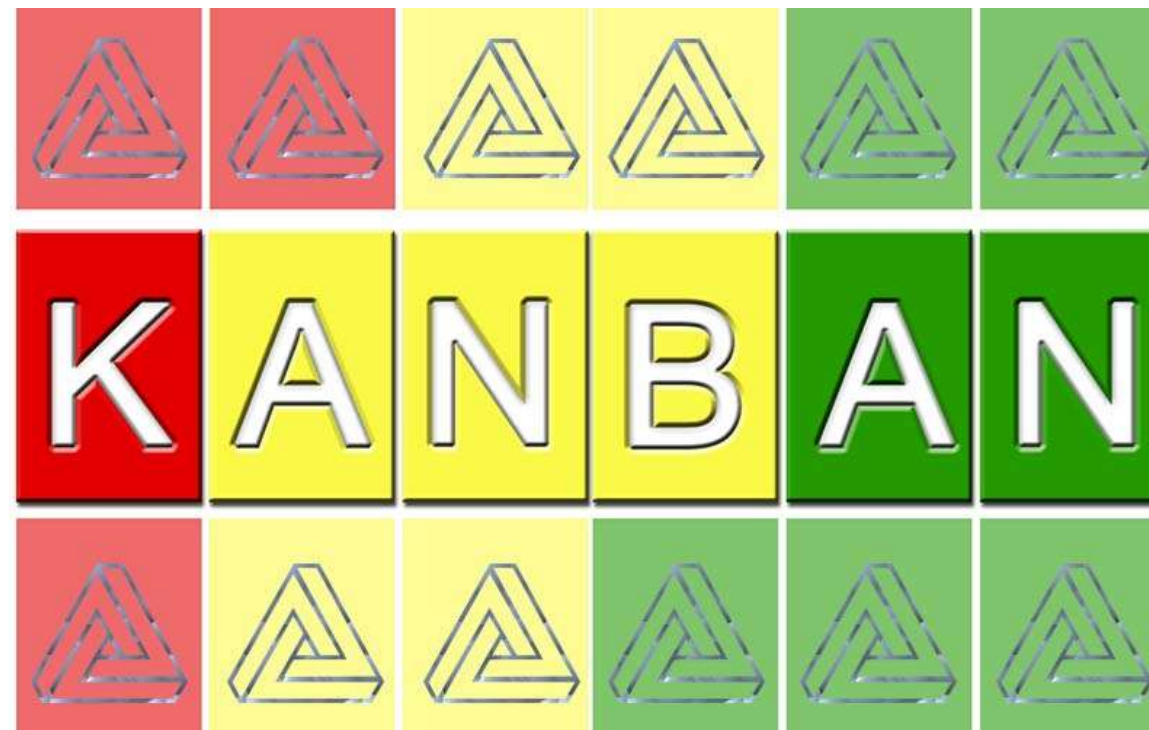## What is A "Waste?"

Why is Inventory Reduction Important?

How Can JIT Be Applied to Non-Manufacturing Operations?

KANBAN

production and inventory management
method without using a computer system

My Personal Kanban Board

TO DO	IN PROGRESS	WAITING FOR	DELEGATED / FOLLOW-UP

Low Med High

ORGANIZE BY PRIORITY!

COLOR CODE OF PROJECTS HERE

DONE

Types of cards

Order cards (production)

Order cards carry information about how many and what items need to make the production work center and deliver to the warehouse.

Selection cards (transport)

Selection cards carry information about how many and what items you need to pick up from the warehouse and deliver to the place of consumption.

The rules of movement of Kanban cards

1. Any movement of products without cards is prohibited.

2. Only standard fixed-capacity containers are used for handling.

3. Defective products should not be received for the next operation (located in a container).

4. For each container there is only one order card and one selection card.

5. Any selection exceeding the number indicated on the card is prohibited.

6. Production in large quantities than indicated on the card is prohibited.

7. The number of cards in circulation should be minimal.

How does Kanban work?

There are many flavors, but the core of Kanban means:

- **Visualize the workflow**
  - Split the work into pieces, write each item on a card and put on the wall.
  - Use named columns to illustrate where each item is in the workflow.

- **Limit WIP** (work in progress) – assign explicit limits to how many items may be in progress at each workflow state.

- **Measure the lead time** (average time to complete one item, sometimes called "cycle time"), optimize the process to make lead time as small and predictable as possible.

This is a direct implementation of a lean pull scheduling system.

What are the benefits of Kanban?

Some commonly observed benefits are:

- Bottlenecks become clearly visible in real-time. This leads people to collaborate to optimize the whole value chain rather than just their part.
- Useful for situations where operations and support teams have a high rate of uncertainty and variability.
- Tends to naturally spread throughout the organization to other departments such as HR and sales, thereby increasing visibility of everything that is going on at the company.

Benefits of Kanban

Reduce Inventory

- Kanban will reduce inventory, on average, by 25 to 75%. This saves any company significantly in terms of rent, electricity, and storage space.
- In addition, all of the space freed by the implementation of a kanban system can be used for future expansions or new opportunities