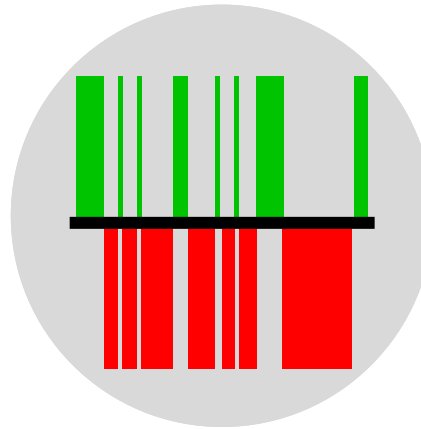


# Continuous Improvement Toolkit

## Time Value Map

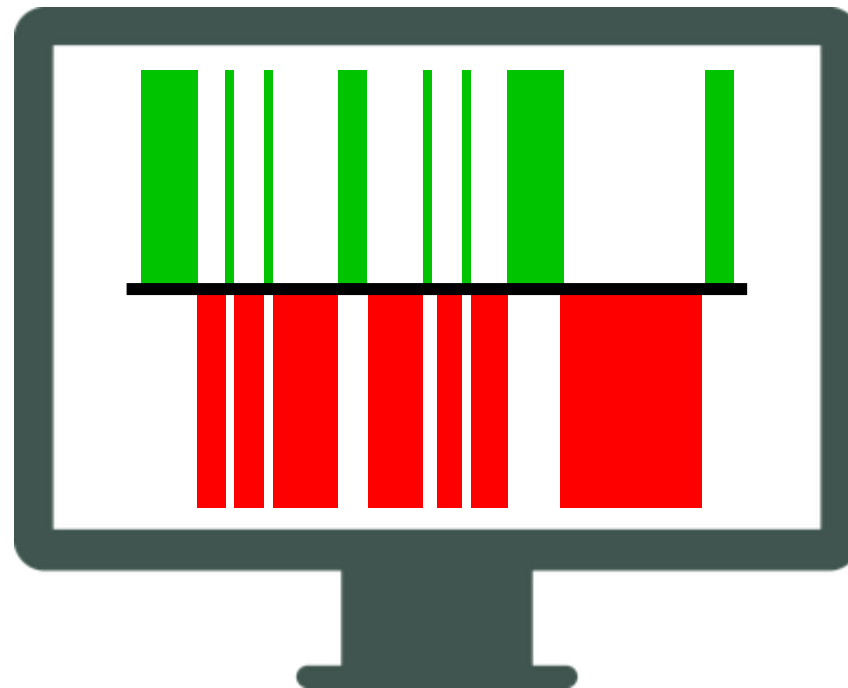


# The Continuous Improvement Map



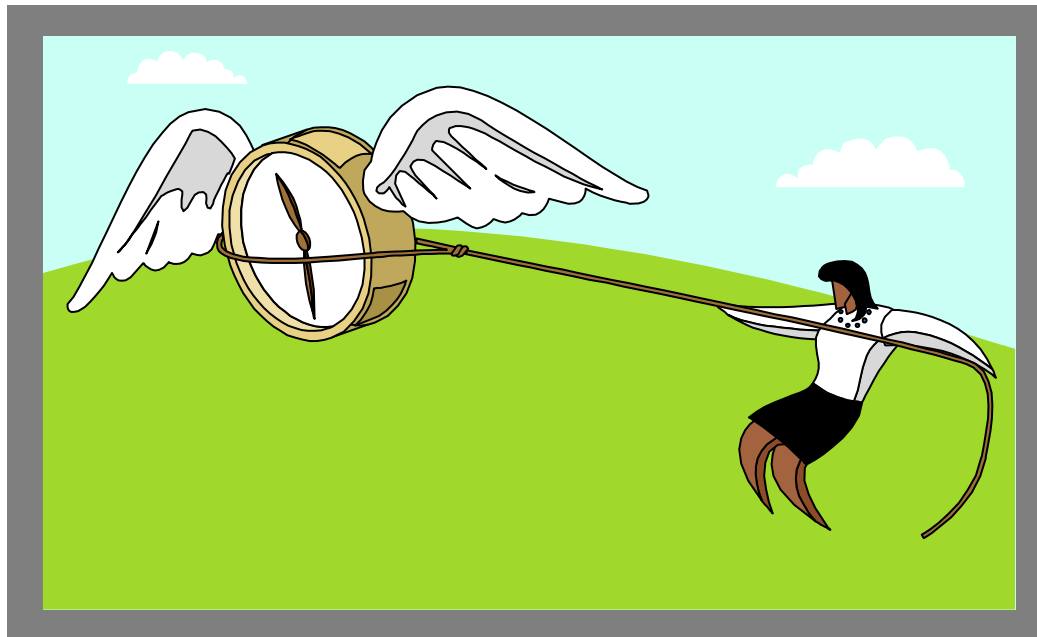
# Time Value Map

A graphical representation of the value-added and non-value-added **time** in a process



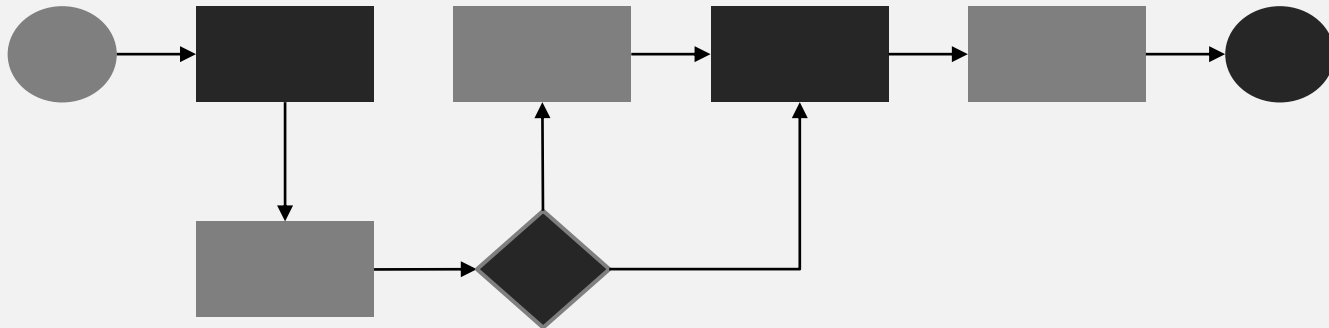
# Time Value Map

It demonstrates the **proportion of time** that is spent on a given process



# Time Value Map

Used to **monitor** how a specific process operates and how much time is wasted in the process



Starting from the beginning of the process until product or service delivery

# Time Value Map

The **ultimate goal** is to eliminate or reduce waste, or any activity in the process that does not add value

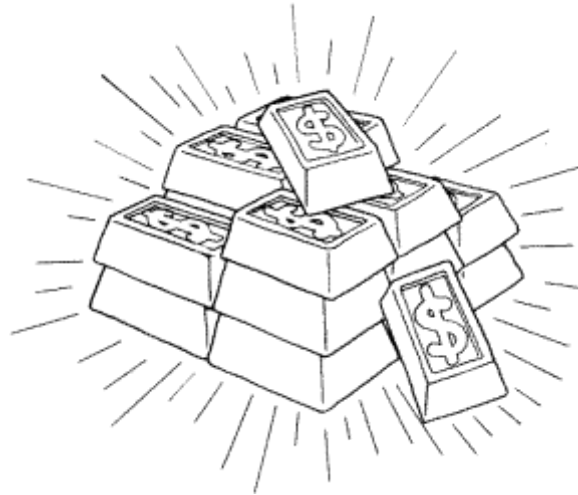


Allows the identification of waste **related to time**, especially waiting and unnecessary delays

# Time Value Map

---

The analysis focuses on what adds value to the business process as perceived by the **customer**



Aims to make the process more efficient while maximizing the value delivered to the customer

# Time Value Map

One of the many **Lean tools** that will help to identify and analyze waste and non-value-added activities

Waste walks



Waste logs



Opportunity process maps



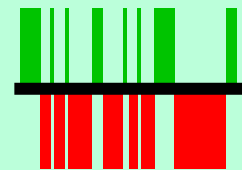
Value matrices



VA/NVA metrics



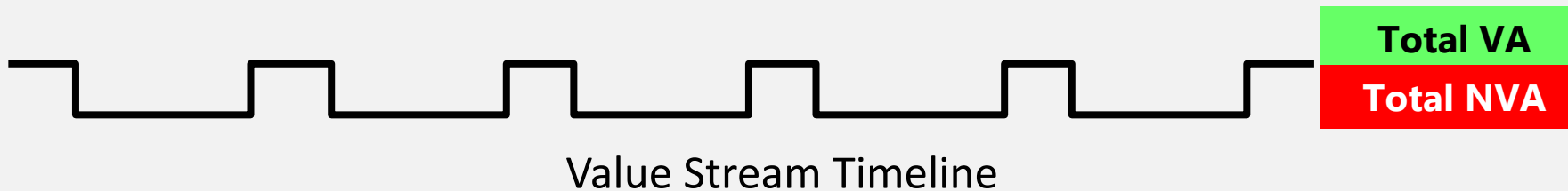
Time value maps





# Time Value Map

Constructed using the **process** and **queue** times



Such information can be obtained from the timeline of the value stream map or after conducting a process chart exercise

# Time Value Map

Each step within a process can be classified into one of **3 categories**

Value added activities

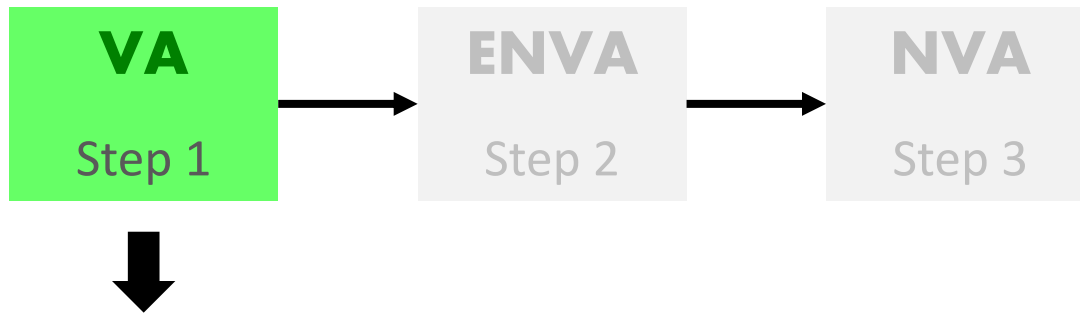
Essential non-value-added activities (or unavoidable wastes)

Non-value-added activities



# Time Value Map

## Value-Added Activities

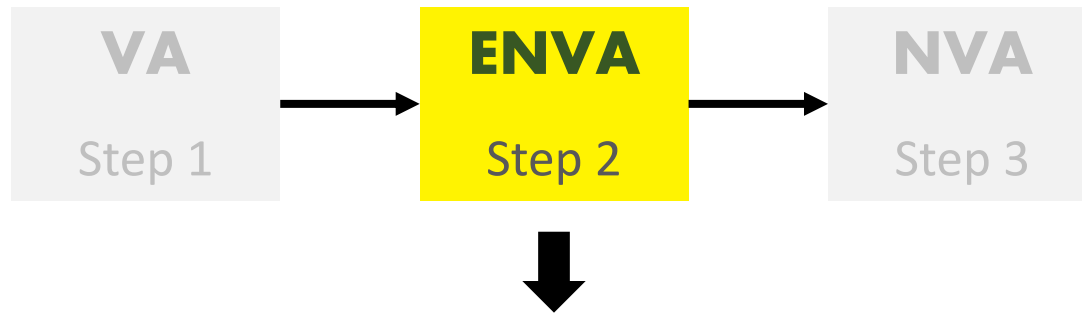


Increase the worth of a product or services from the customer's perspective

**Examples** – Machining a part and serving a customer

# Time Value Map

## Essential Non-Value-Added Activities (Unavoidable)

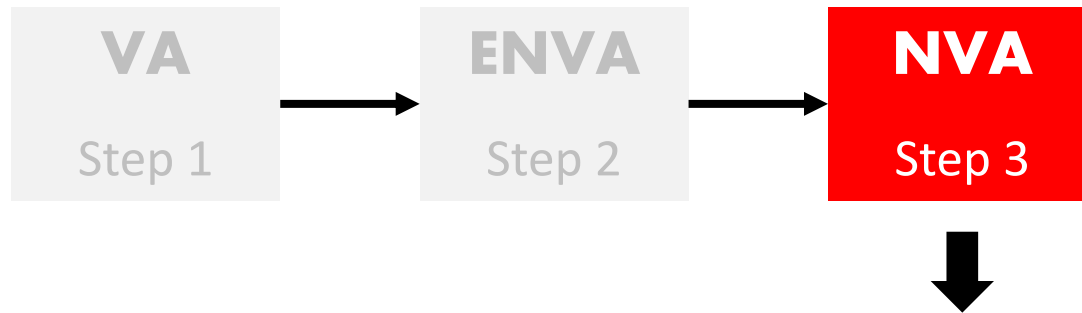


Add no value and the customer is not willing to pay for them, however, they are necessary for the business due to the current process settings

**Examples** – Purchasing materials and inspecting parts

# Time Value Map

## Non-Value-Added Activities (Avoidable)

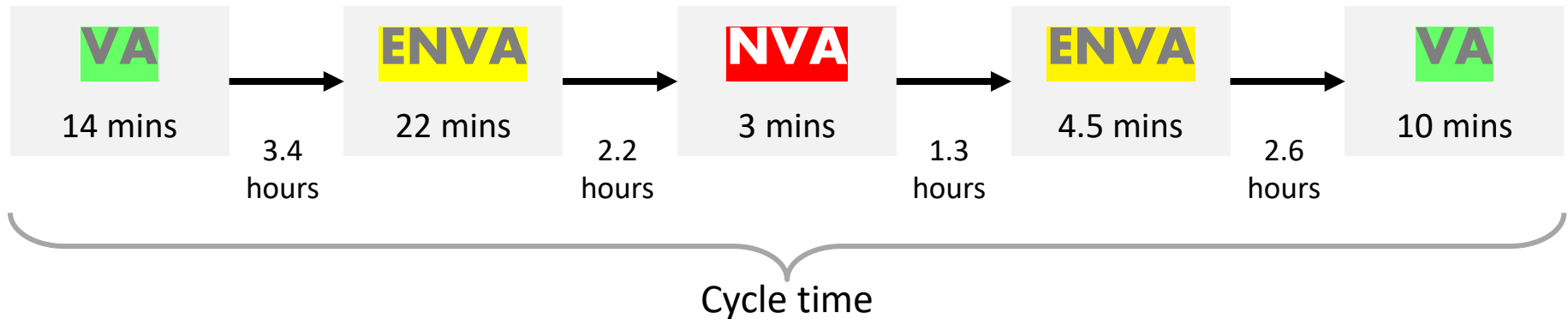


Add no value to the product or service, and not required for business operational reasons. They must be eliminated immediately

**Examples** – Reworking an application form and waiting time

# Time Value Map

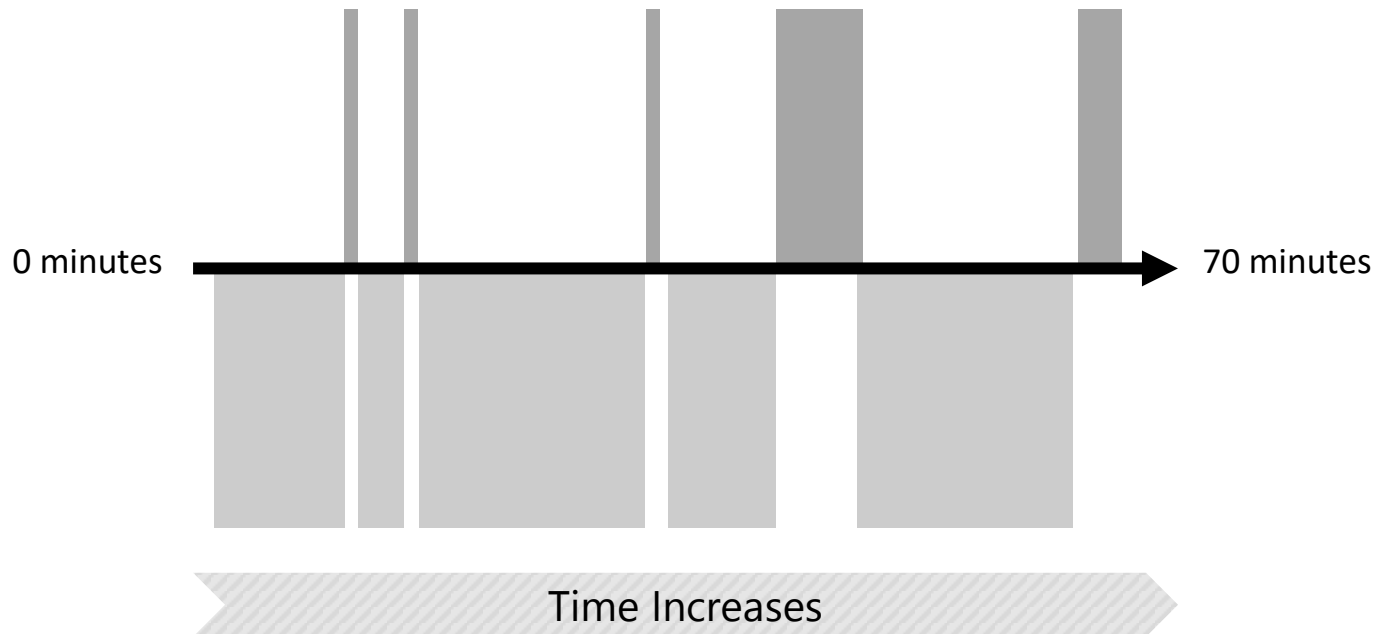
You need to examine **how long** it takes to complete each activity within a process



This involves recording the processing (or touch) time as well as the queue (or waiting) time, idle time, inspection time, etc.

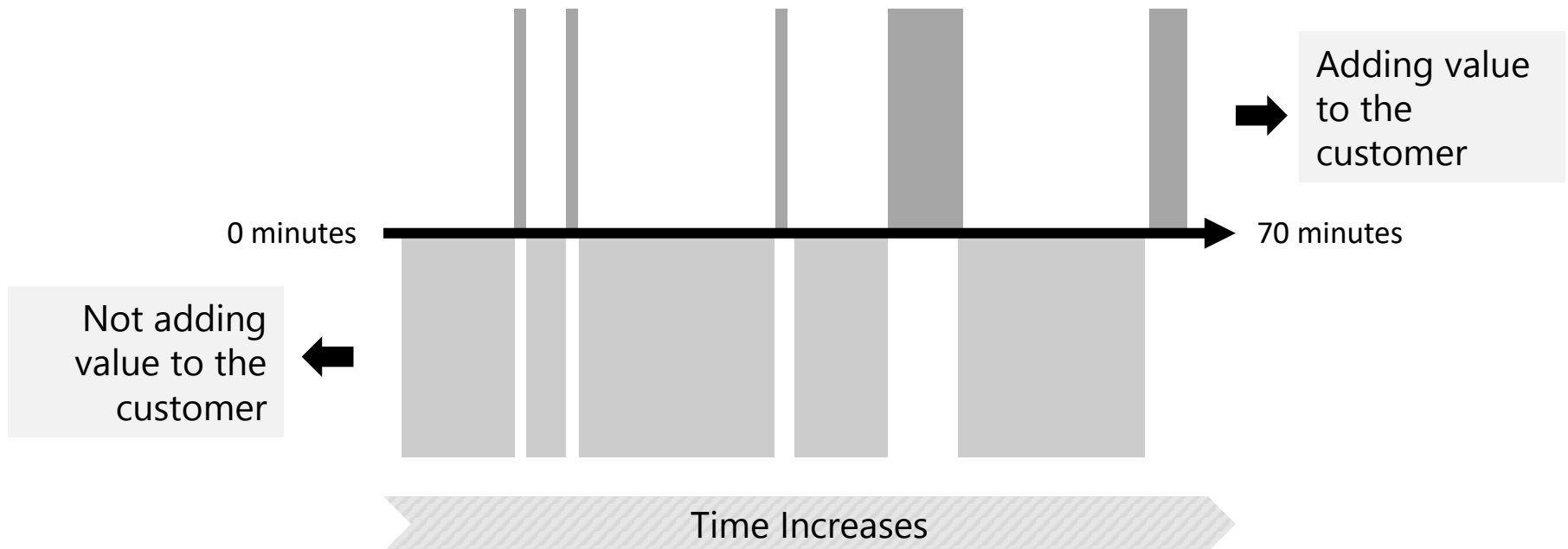
# Time Value Map

All activities are plotted as **bars** proportional to their time values along a horizontal timeline



# Time Value Map

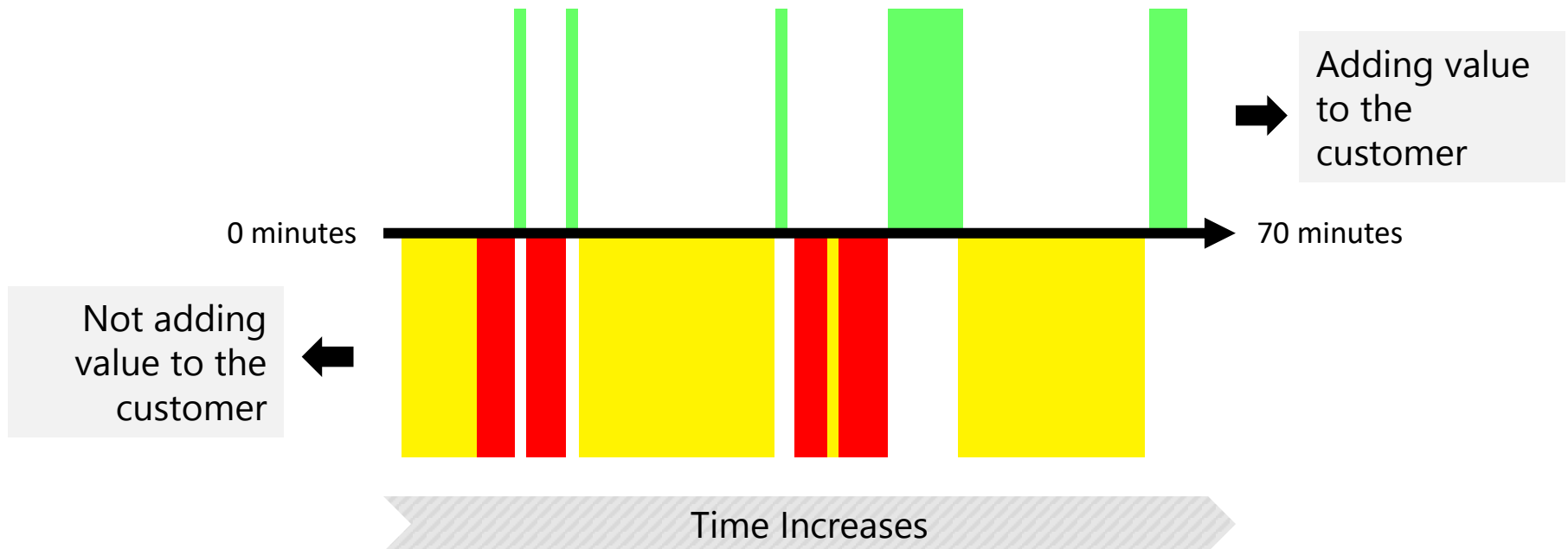
Activities that add value to the customer are plotted **above** the timeline whereas activities that do not add value to the customer are plotted **below** the timeline





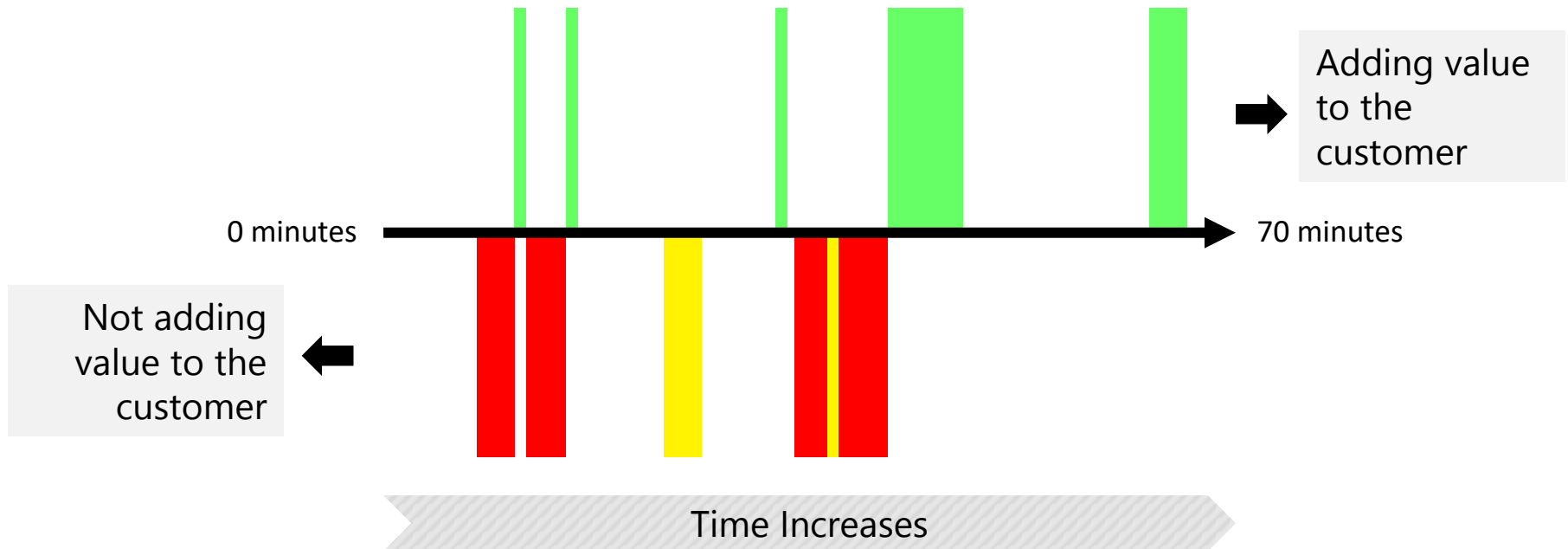
# Time Value Map

You may use **different colors** to differentiate between value-added and non-value-added activities



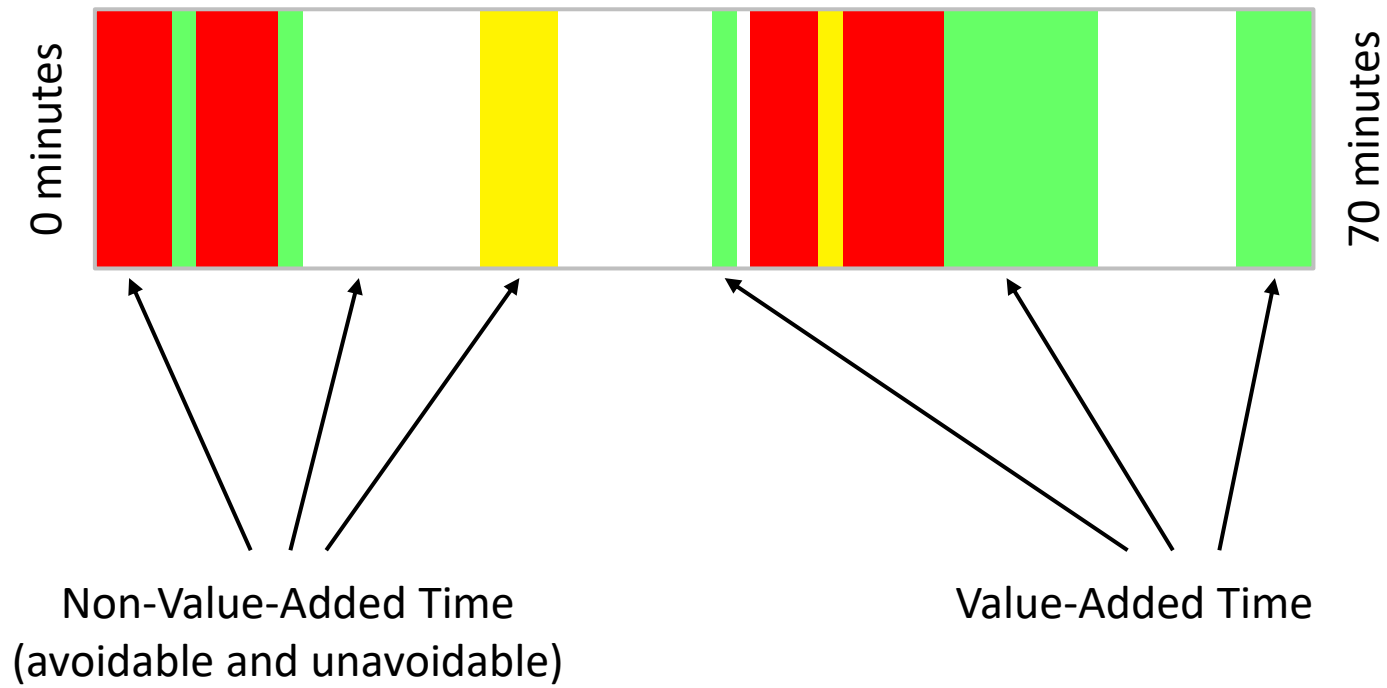
# Time Value Map

Delays, waiting and idle time could be represented as a **blank space (gaps)**



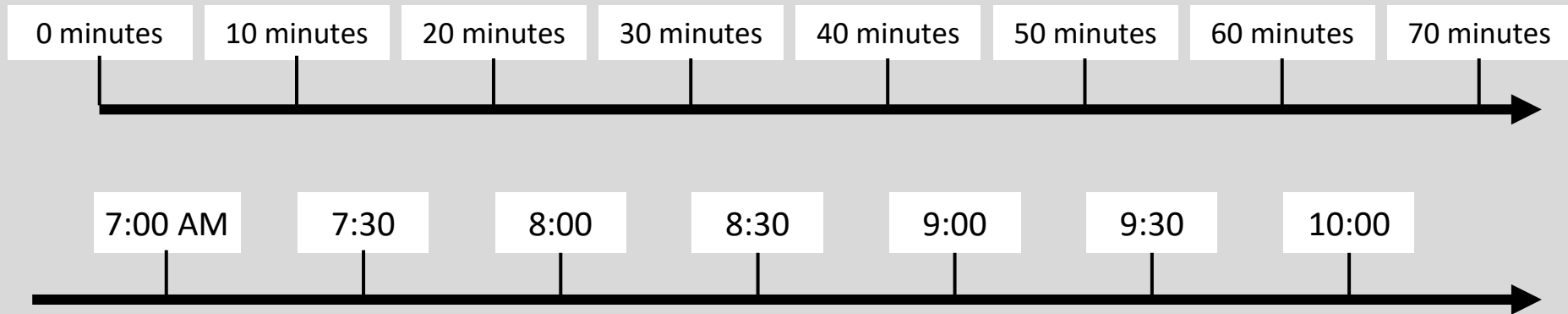
# Time Value Map

Can be represented in this format, where all bars are **parallel**



# Time Value Map

The **scale** of the timeline can either be intervals of the cycle time (in seconds, minutes, hours, etc.) or the actual time of a day



# Time Value Map

## How to Create a Time Value Map

Make sure everyone is **clear** on what process to analyze

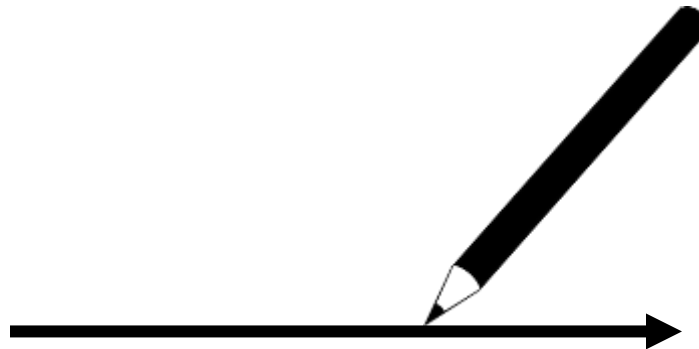


# Time Value Map

## How to Create a Time Value Map

Draw the **process timeline** at the center of a whiteboard or flipchart  
(could be a horizontal or vertical line)

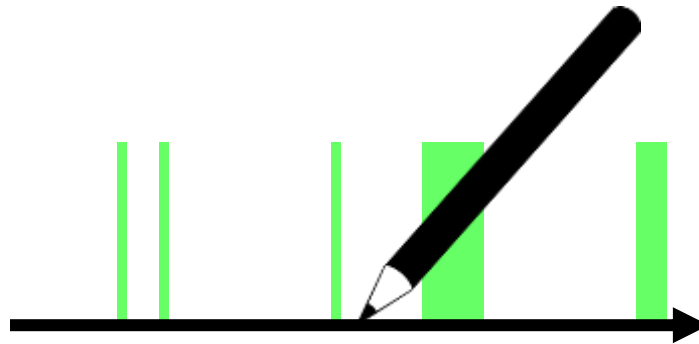
Specify the start and end times, total cycle time, cycle time intervals, and the queue times  
between activities



# Time Value Map

## How to Create a Time Value Map

Draw bars to represent the **value-added activities** time above the timeline

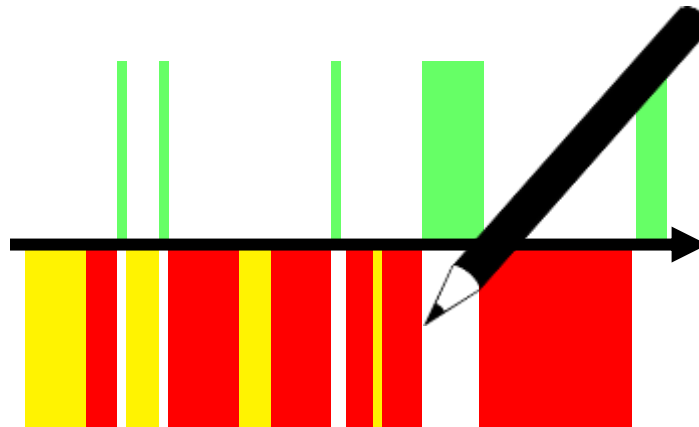


# Time Value Map

## How to Create a Time Value Map

Draw bars to represent the **non-value-added activities** time below the timeline

Place queue times between activities in the order that they occur



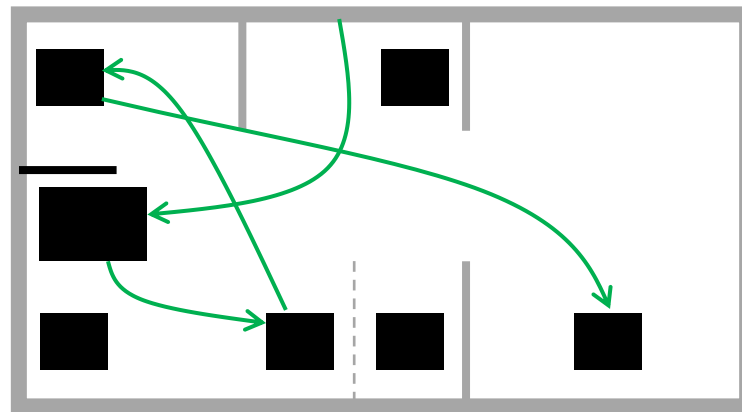


# Time Value Map

## How to Create a Time Value Map






Implement **projects** and **systems** to eliminate or reduce the non-value-added activities and decrease the overall waiting time

Value stream maps and spaghetti diagrams are good starting points



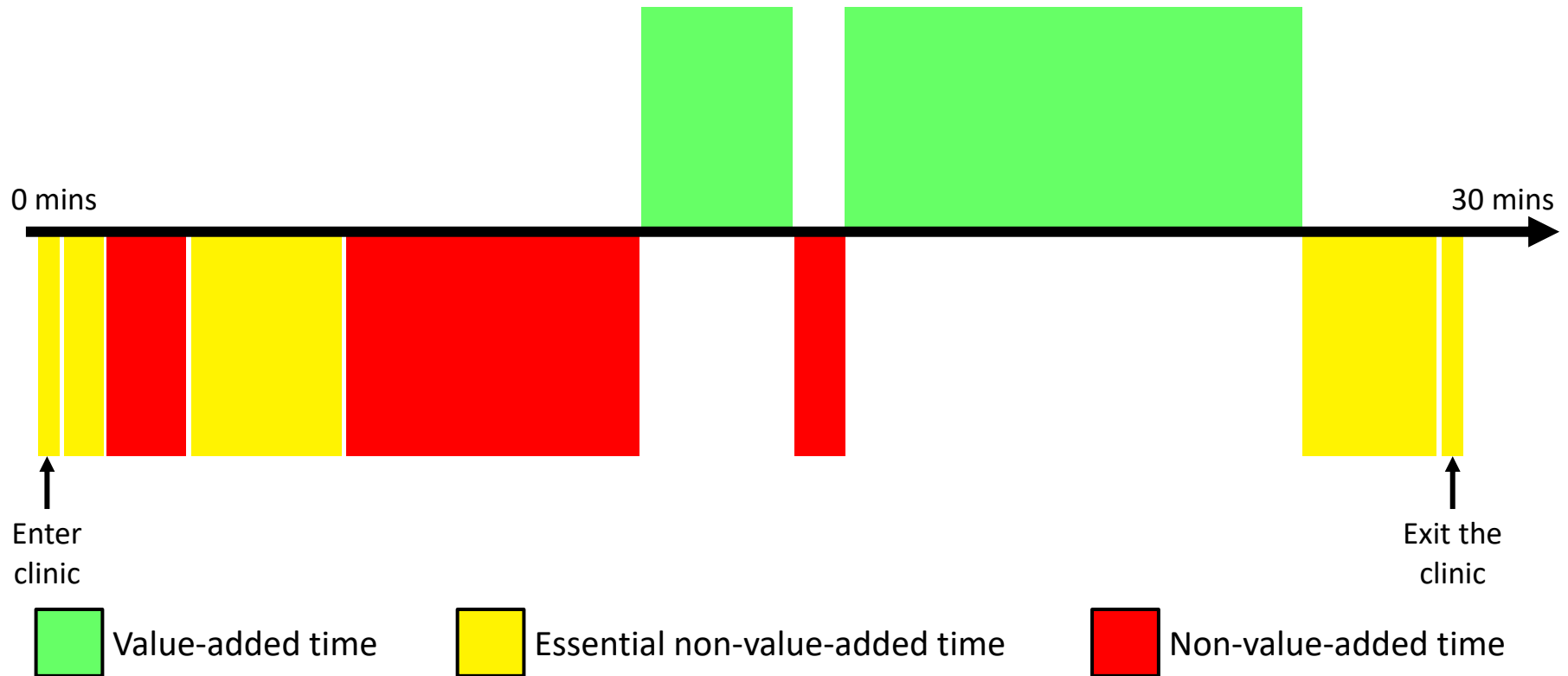
# Time Value Map

## Example - Patients Flow in a Clinic

Step #	Time IN MINS	VA/NVA						Process description
1	0.5	ENVA		X				Enter clinic & approach patient window
2	1.0	ENVA	X					Inform reception of arrival
3	1.5	NVA				X		Wait for the patient file to be loaded
4	3.0	ENVA	X					Register patient into the system
5	6.0	NVA				X		Wait in the waiting room
6	3.0	VA			X			Measure and record patient vitals
7	1.0	NVA				X		Wait in the doctor's office
8	9.0	VA			X			Get examined by the doctor
9	2.5	ENVA	X					Book for the next visit
10	0.5	ENVA		X				Exit the clinic

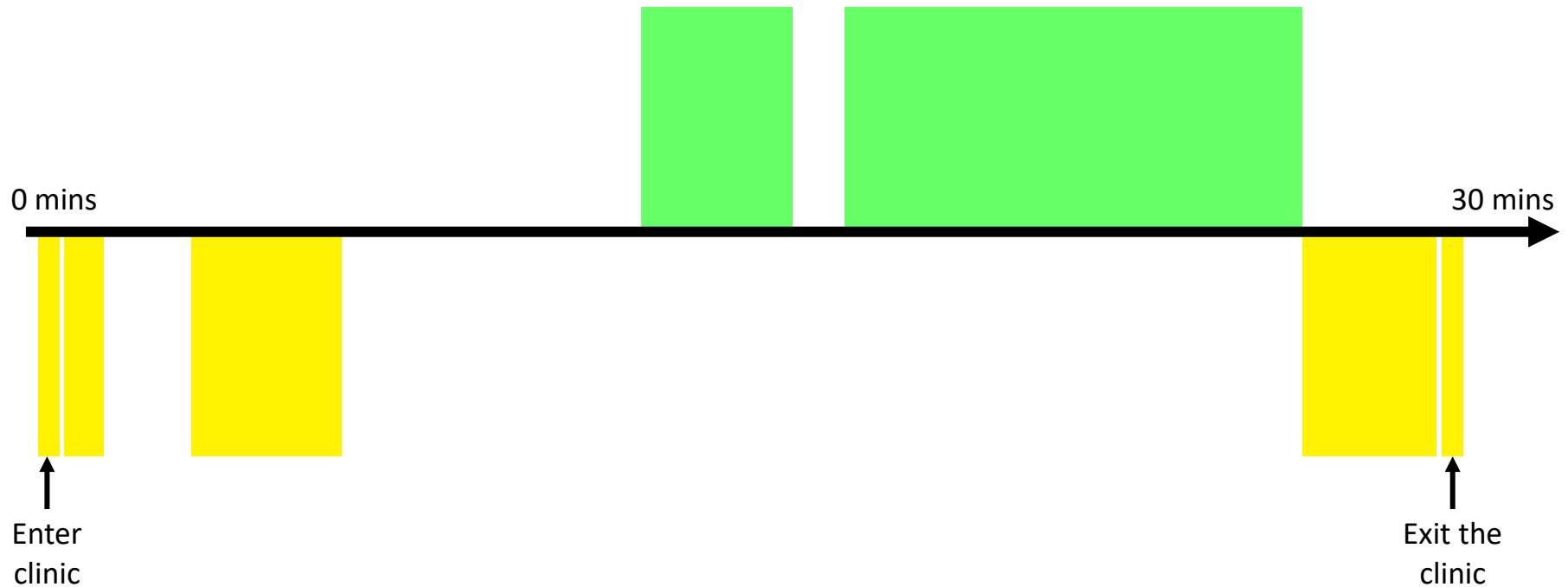
# Time Value Map

## Example - Patients Flow in a Clinic



# Time Value Map

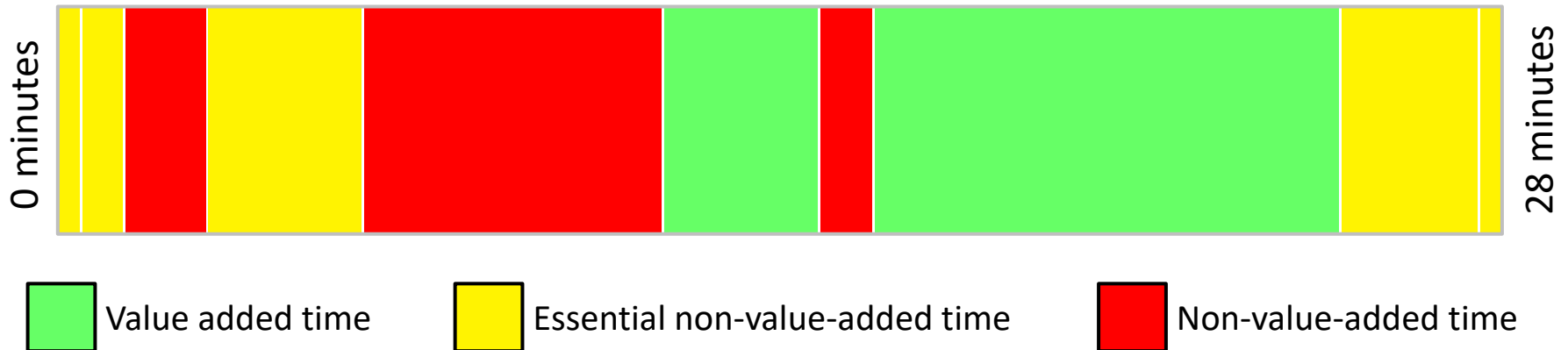
Example - Patients Flow in a Clinic



Waiting is represented as a blank space

# Time Value Map

Example - Patients Flow in a Clinic



Another format where all bars are parallel

# Time Value Map

## Further Information

You can **calculate** the total value-added time, total non-value-added time, and value stream ratio

**Value Stream Ratio** (or Process Cycle Efficiency) is a Lean metric that measures the proportion of value-added time spent in a process

$$\text{Value Stream Ratio (\%)} = \frac{\text{Total Value Add Time}}{\text{Total Lead Time}}$$