



# How to Understand and Manage Load and Capacity

Value Chain Competitiveness (VCC)

Version: 2

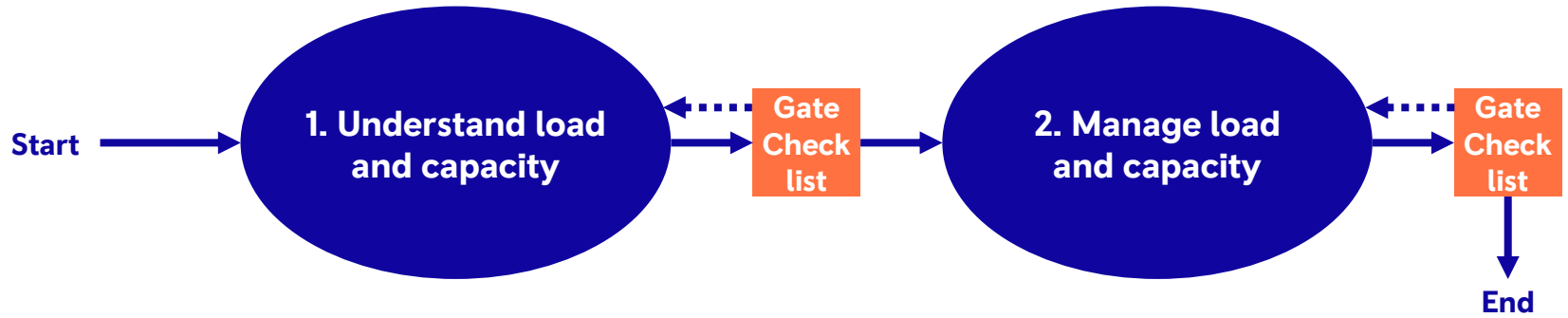
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Scope

Objectives & Principles





# Scope

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## **This 'How To' will enable you to:**

- Give a simple overview of load & capacity
- Identify key process steps
- Have a base level understanding to be able to determine load from a customer and to determine capacity in operations



# Objective and Principles

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- Give a simple overview of load & capacity
- Identify key process steps
- Have a base level understanding to be able to determine load from a customer and to determine capacity in operations

# 1. Understand load and capacity



## What is Load?

- Load is the overall requirement of the customer on the business

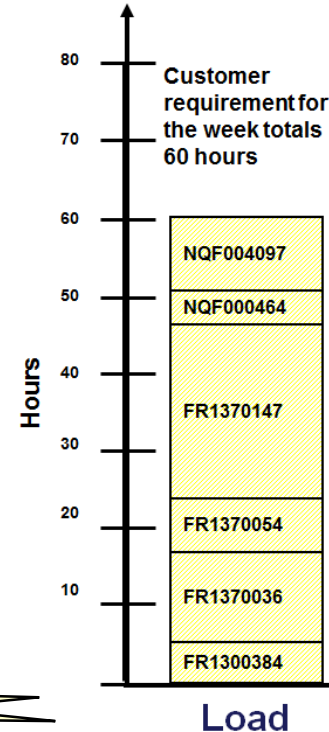
## Load is also commonly referred to as

- Demand
- Customer Requirement

Week 20 Load Work Centre 1

Part Number	Load (Parts)	Cycle time/part (Minutes)	Totals
FR1300384	10	30	300
FR1370036	12	55	660
FR1370054	6	80	480
FR1370147	30	45	1350
NQF000464	5	50	250
NQF004097	28	20	560
<b>Totals</b>	<b>87</b>	<b>n/a</b>	<b>3600</b>

3600 mins or 60 hrs of load



## What is Capacity?

- Capacity is the availability of the resource

### People

**Working days / shifts**

*less*

**Holidays**

*less*

**Absence**

*less*

**Other losses** (training etc.)

*equals*

**Available Capacity**

### Machines

**Working days / availability**

*less*

**Planned stoppages** (not working)

*less*

**Planned maintenance**

*less*

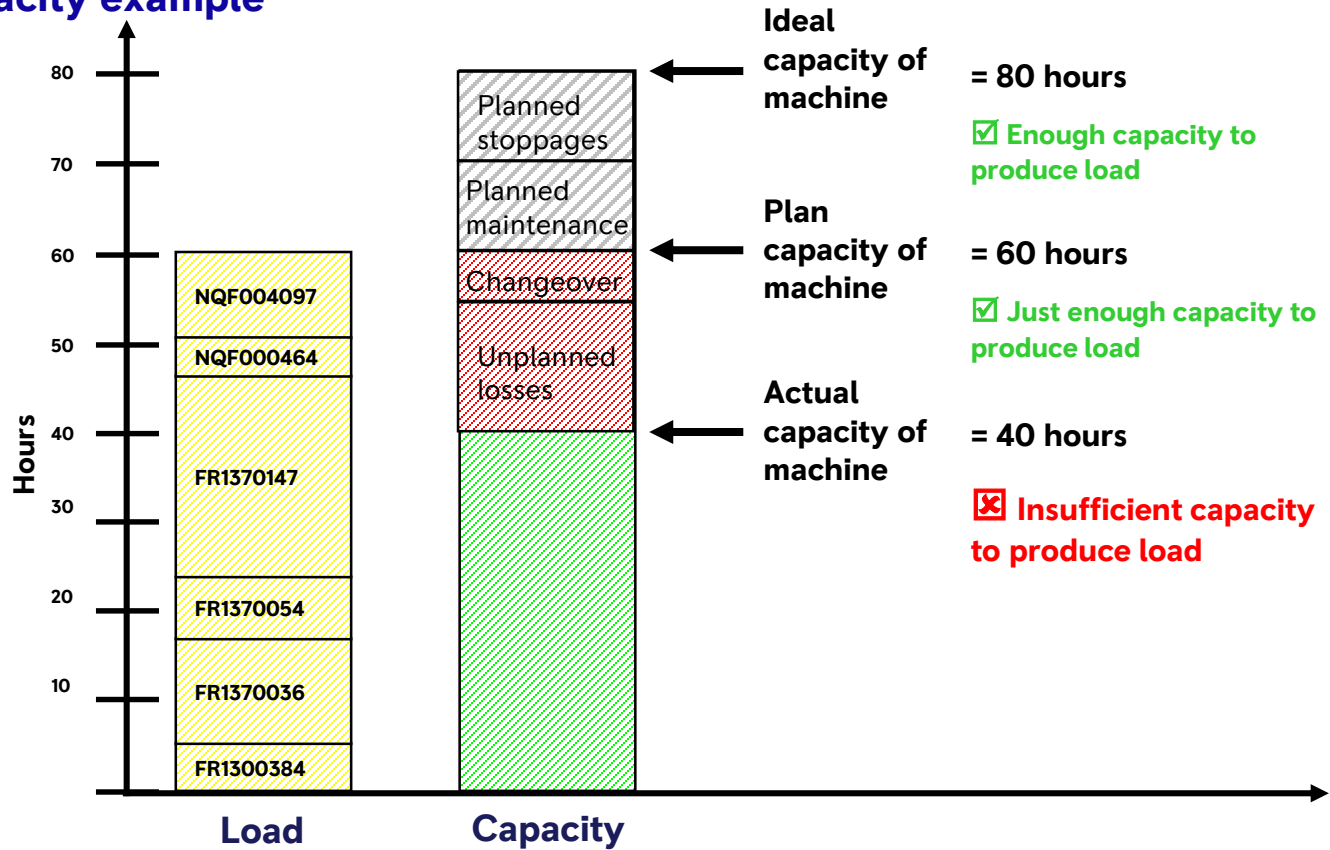
**OEE losses** (unplanned stoppages)

*equals*

**Available Capacity**

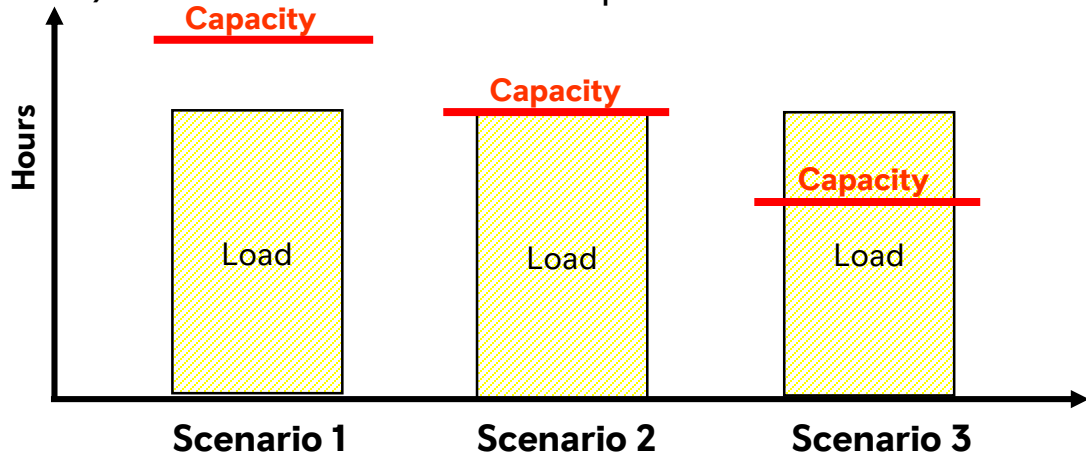
# 1. Understand load and capacity

## Load verses capacity example



# 1. Understand load and capacity

The capacity of the resource must equal or exceed the load on the resource (taking into account any losses) to meet the customer requirements



**Capacity > Load**  
 ➤ OK to meet customer requirements

**Capacity = Load**  
 ➤ Potential risk of failure to meet customer requirements  
 ➤ Considered actions to increase capacity through minimising losses (OEE improvement / process waste reduction)

**Capacity < Load**  
 ➤ NOT OK, will fail to meet customer requirements  
 ➤ Containment actions to add resources or re-plan load/offload work  
 ➤ Increase capacity through loss reduction and resource flexibility





# Gate checklist 1: Understand load and capacity

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- Understand the definition of load and how it is calculated
- Understand the definition of capacity and how it is calculated
- Understand load vs capacity under different scenarios

## 2. Manage load and capacity



### What is Capacity Planning?

- Capacity planning is the process of matching the resource availability to the customer demand, with the aim of meeting the customer requirements.

### Why do Capacity Planning?

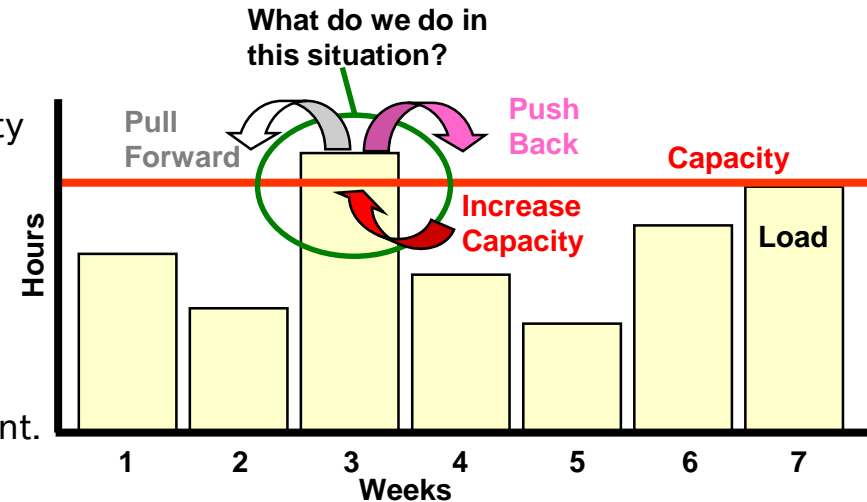
- Capacity planning allows a business to forward plan their resources in order to gain an understanding of future utilisation, and highlight any possible availability clashes.

### Implications

- If load & capacity are out of balance then delivery, quality and/or cost will be jeopardised.

### Requirements

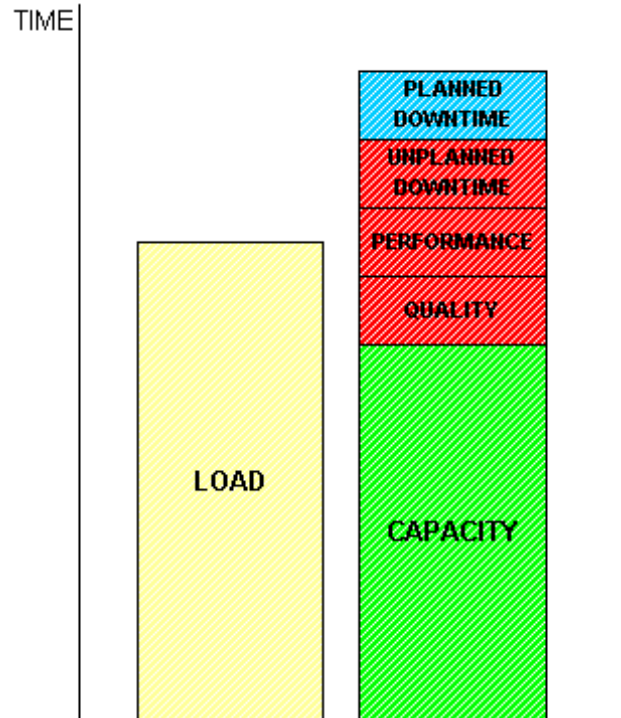
- Load must represent the current customer requirement.
- Any other scenarios must be “What ifs” in a planning model.
- Capacity must be realistic with acceptable level of risk.
- Resources can only be grouped if they have a common capability.



## 2. Manage load and capacity



### Typical load and capacity questions



#### Load

- What work is planned for a given week, on a particular resource?
- What are the standard cycle times for the parts through a defined resource?
- What are the batch sizes of the parts at the resource?

#### Planned downtime

- What are the planned holidays for each operator?
- What is the planned maintenance downtime?

#### Unplanned downtime

- What is the OEE (target and actual)?
- What is the average annual absence?

#### Capacity

- What is the standard working week?
- What are the shift patterns?
- How many operators are there?
- What is the average weekly overtime?



## Gate checklist 2: Manage load and capacity

[BACK](#)[Map](#)

- Principles of load and capacity planning understood
- Load and capacity management in place to meet customer requirements