

**2015  
MANUFACTURING:  
A STRATEGIC ADVANTAGE  
FOR THE COMPANY**



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# Outline

- **1<sup>st</sup> challenge:**  
*Continuously optimize production costs*
- **2<sup>nd</sup> challenge:**  
*Activate new performance levers  
for global manufacturing*



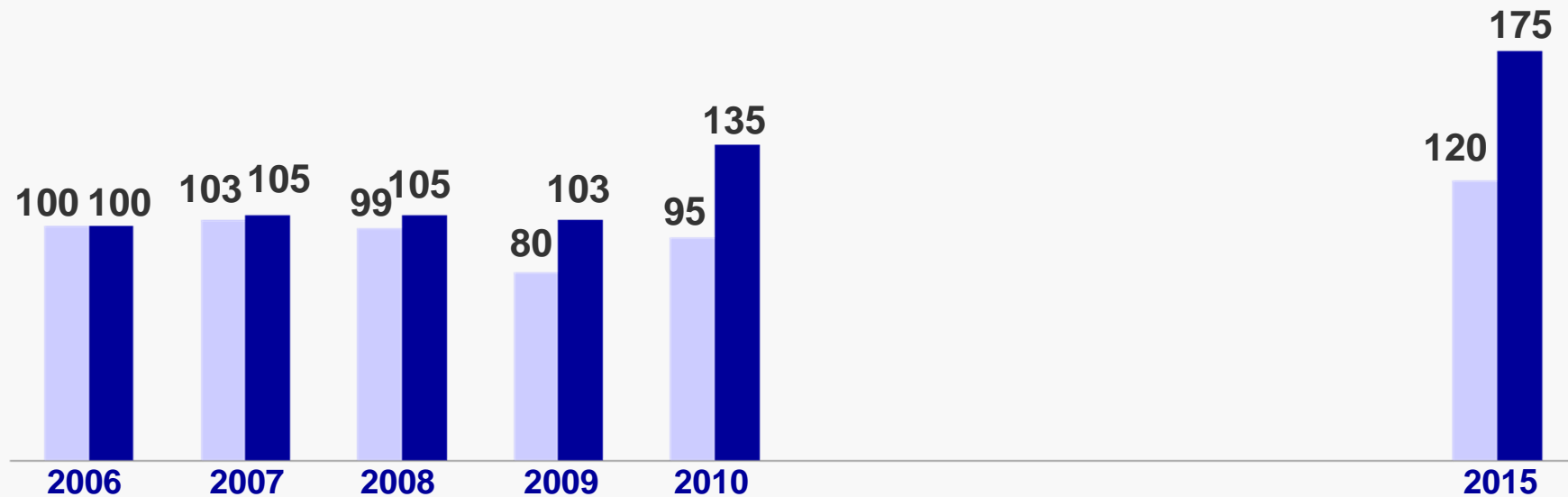
# *Continuously Optimize Production Costs*





# Optimizing Production Costs

*Focus maintained on productivity  
Productivity gains since 2006 (Base 100 in 2006)*



**2005 / 2010:** continuous progress + industrial footprint  
**2011 / 2015:** continuous progress + growth

■ Production ■ Tons per employee





# MMW: Lever for Continuous Improvement

- ▶ **Four fundamentals of the Michelin Manufacturing Way:**
  - The professionalism of our trained, skilled people, who embrace and rigorously apply tools and methods.
  - The leadership of our managers, who get involved on the shop floor, lead by example and coach their teams.
  - A commitment to leading by example. All tools and best practices come straight from the plants.
  - A focus on team spirit. The most advanced plants help the others improve by sharing their expertise.

**Each team is accountable for its KPI performance**



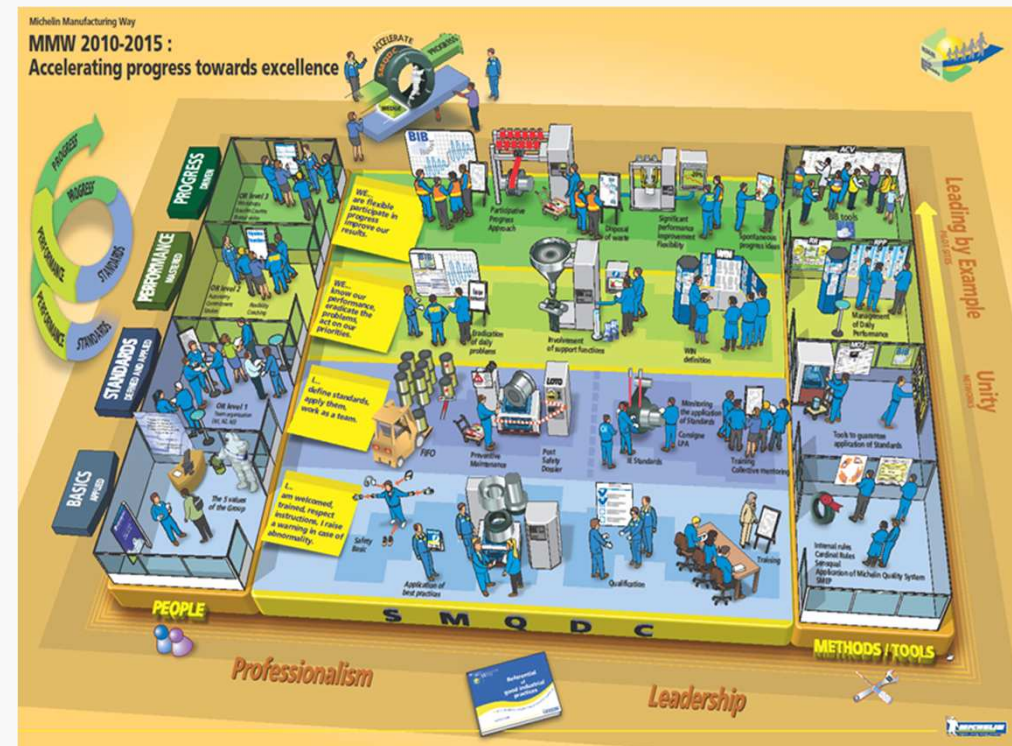


# MMW: Lever for Continuous Improvement

2005 / 2010 examples of savings through continuous improvement

Savings on lost days following accidents: equivalent to annual wage + salary costs of one plant.

Savings on scrapping: equivalent to the operating costs of a second plant.





# MMW: Lever for Continuous Improvement

## ► The next step:

Accelerate team empowerment at all levels:

- Business Unit
- Shop
- Activity and Industrial Teams

People become multi-functional and autonomous in managing their daily work.

This contributes to individual well-being and development, as well as enhanced flexibility and responsiveness.

**Key lever to meet plant economic target**





# New Objectives for Optimizing Production Costs

## ▶ Energy:

- In 2015 (price + volume effect):
  - Cost of energy = 1.6 x 2010 cost of energy
  - In low-wage countries, cost of energy = manufacturing labor costs

➔ Objective: reduce consumption by 20% by 2015

## ▶ Tire mass:

- 2011: raw material cost = 1.5 x production cost
- The right mass at the right place!

➔ Objective: remain leader in raw material use through our process control





# *New Performance Levers for Global Manufacturing*



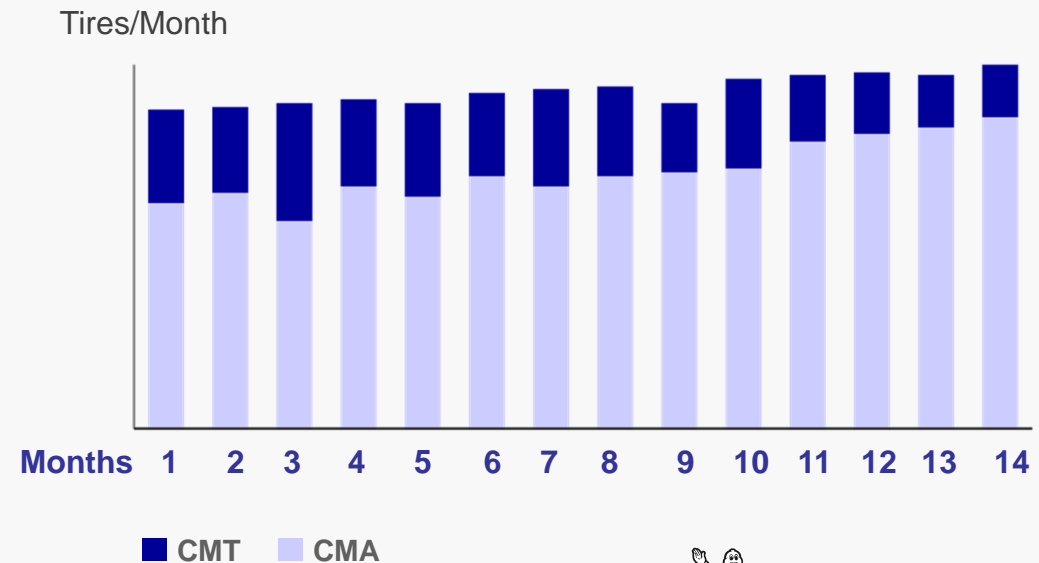


# New Improvement Levers: 1- Maximized Use of Existing Assets

- ▶ **Maximum theoretical capacity (CMT):** No shutdowns, no scrapping, no breakdowns during the year.
- ▶ **Maximum available capacity (CMA):** Actual annual capacity.
- ▶ **Objective for 2015:** increase by 10% CMA/CMT ratio for existing assets. This means more than 300 KT of new production capacity with existing assets.

- ▶ **Levers:**

- Open days
- Scrapping
- Breakdowns
- Bottleneck management
- Debottlenecking

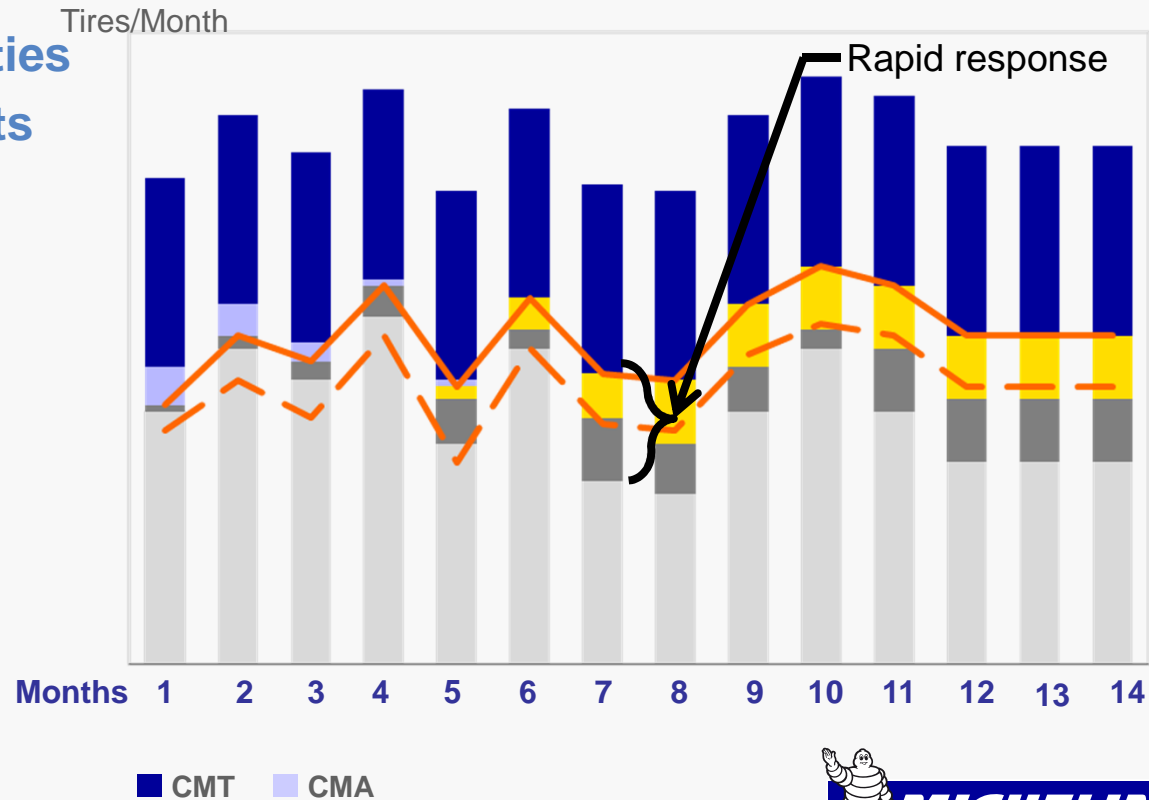




# New Improvement Levers: 2 – Rapid Response

## ► Levers:

- Calendar adjustments
- Overtime
- Polyvalent capabilities
- Temporary contracts
- Inter-plant bridges
- Other





## **New Improvement Levers: 2 – Rapid Response**

### ▶ **Objectives for 2015:**

- **Maintain demonstrated ability for respect of semi-proportionality of costs versus production, on an increased range of variation.**
- **Respond more rapidly in each market segment.**

**Passenger Car Winter, SUV, Light Truck, High Performance, etc.**



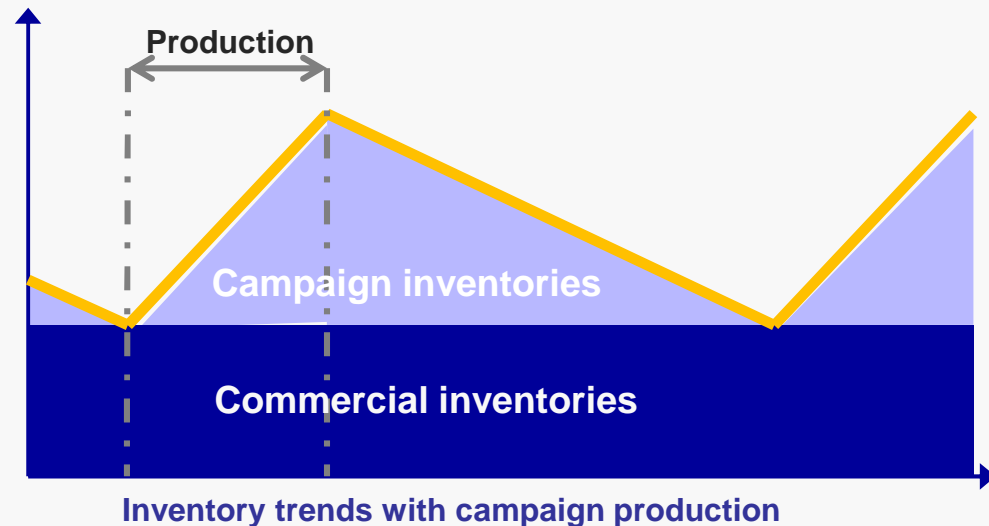


## New Improvement Levers: 3 - Flexibility

- ▶ Ability to produce exactly what's needed.
- ▶ Some tires are produced continuously.
- ▶ Others are produced in “campaigns” (e.g.: twice a year), due to a lack of manufacturing flexibility. This results in a need for “campaign inventories”.

**Objective for 2015:**

**Reduce the need for  
“campaign inventories”  
by 50%  
(i.e ~€300M W.C.)  
iso portfolio**





## New Improvement Levers: 3 - Flexibility

- ▶ **IFP = Scheduling Flexibility Index** (Directly correlated to campaign inventories):
- Number of SKUs in the portfolio **N**
  - Proportion of the portfolio that is produced every day **C**
  - Number of SKUs produced simultaneously **S**
  - Number of production changes per week **CD**

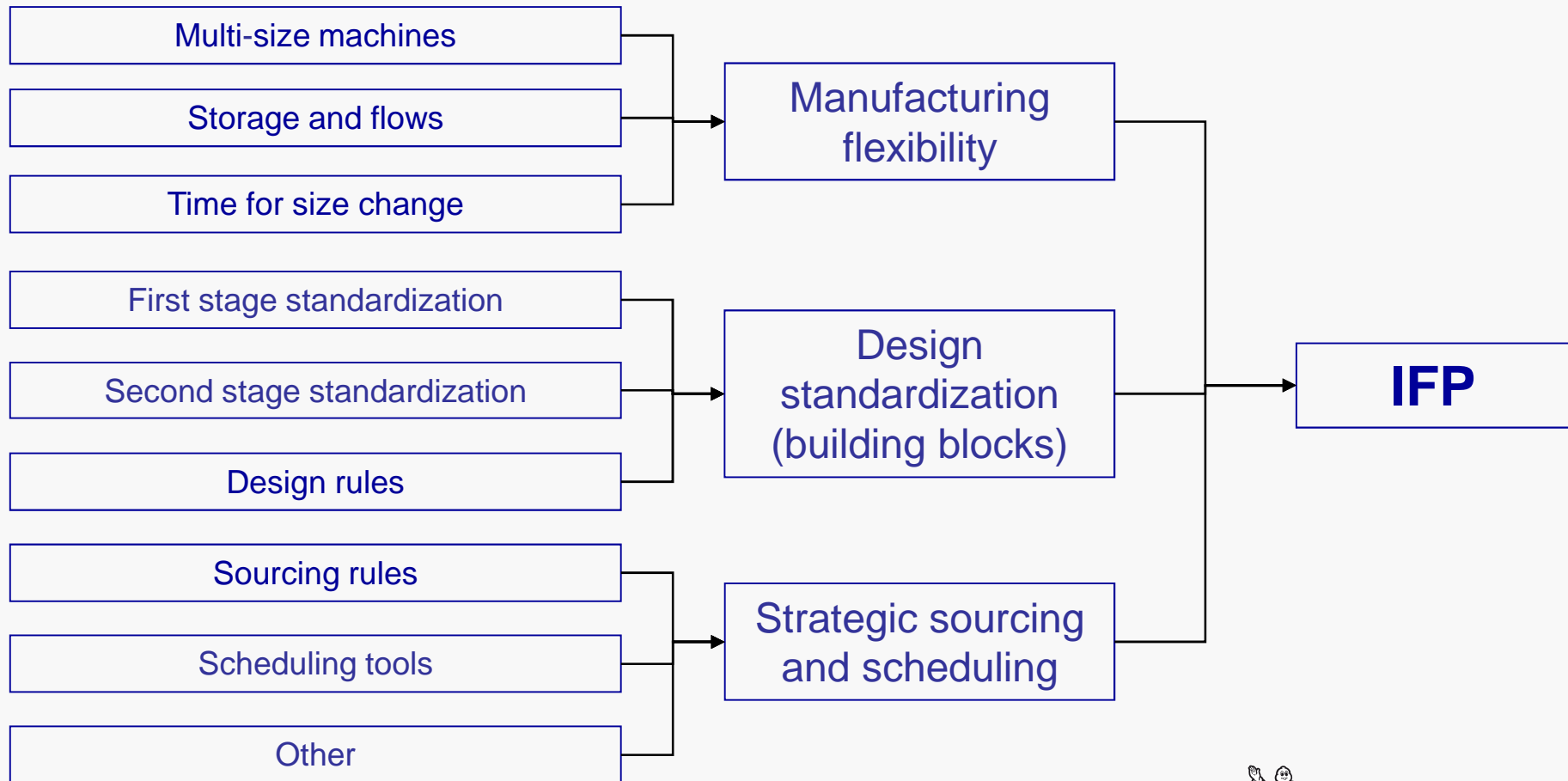
$$\text{IFP} = (1 - C) \times (N - S) / CD$$





# New Improvement Levers: 3 - Flexibility

## Levers of manufacturing flexibility





# New Improvement Levers: 3 - Flexibility

*The overall stakes of manufacturing flexibility*

