LEAN & OPERATIONAL EXCELLENCE

Why Lean remains so important in the 4.0 Era?

Global Manufacturing:
- GMP Manufacturing
- High-precision injection molding
- High-speed assembly
- Stamping, anodizing
- Decoration
- Presence in 18 Countries

North America 29%
Europe 57%
Asia 6%
Latin America 8%
Why this speech?

My background, my lessons learned or how to look with humility to the past in order to prepare the future.
The 4.0 Era

• Internet driven markets
• Volatility of demand (Kim Kardashian “I like it effect”)
• Massive data availability
• …..
The 4.0 answer

- Massive data management & best usage
- Agile supply chain & production solutions
- Flexible automation, self learning machines
- .....
What makes an Industry successful?

My 5 cents contribution
What makes an Industry successful?

- PEOPLE
- DYNAMIC
- INNOVATION
- AGILITY
- FLEXIBILITY
- RELIABILITY
- BEST COST POSITIONING
- SUSTAINABILITY
What makes an Industry successful?

So what is new in the 4.0 Era at the end?
What makes an Industry successful?

Key success factors remain mostly the same:

- PEOPLE
- DYNAMIC
- INNOVATION
- AGILITY
- RELIABILITY
- BEST COST POSITIONING
- SUSTAINABILITY
Lean & Industry 4.0 – tentative definition

• 4.0 is the synthesis of all new technology enablers provided by our current and future environment, adapted to emerging challenges and contributing to sustain operational excellence through Lean approach
Lean & Industry 4.0 – how it works together

• industries Key Success Factors can be widely supported by 4.0 new approaches
• 4.0 new approaches should built on Lean approach which remains a leading approach towards operational excellence

Let’s walk through few illustrations
What makes an Industry successful?

People were, are and will stay our most important asset.

- Culture
- Mindset
- Innovation
- Reliability
- Agility
- Industry

Augmented reality facilitates human being interaction.

Lean concepts such as SMED are only possible thanks to human strong involvement.

Cobot are increasingly complementing human being.
What makes an Industry successful?

Innovation is critical to Continuous Improvement mindset.

- Automated Guided Vehicles (AGVs) are becoming more flexible and adapted to one box flow.
- Small trains are feeding lean production lines.
What makes an Industry successful?

Without Agility, no adaptability to versatile demand.

**PUSH / PULL**
- Supply chain is managed through forecast / MRPs

**PULL**
- Forecasts are managed through internet demand

**AGILITY**
- Forecasts are managed through internet demand
- Supply chain is managed through forecast / MRPs
What makes an Industry successful?

Reliability enhanced through new 4.0 tools (RFID, deep learning vision,...)

Controls are either manual or automated through vision

Self learning or Deep learning vision open new horizons
What makes an Industry successful?

Flexible automation contributes to Lean approach

Flexible automation cope with change in demand

High speed automations are limiting flexibility

Flexible Competence

- Machine Flexibility
- Labour Flexibility
- Lot Size Flexibility
- Make & Buy Flexibility
- Mix Flexibility
- Material Handling Flexibility
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Lean remains the industry foundation in the 4.0 Era

Your thoughts, reactions and questions are welcome