

Creating a Lean Typology for Prevention Purposes : Initial Observations

Evelyne Morvan et Bertrand Delecroix
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What is 'LEAN'? A model of work organization widely promoted as a means to increase productivity and performance

MASS PRODUCTION

USA Production systems (Ford, GM)



1945

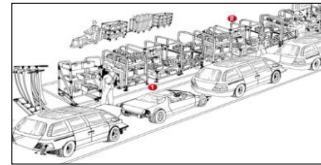
TPS

Japanese innovation
Toyota Production System



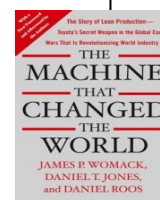
T. Ohno

1978



Modelized by
MIT researchers

1990

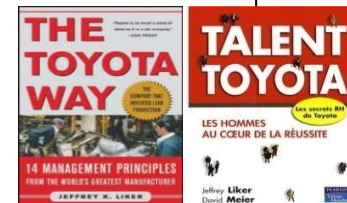


Toolbox Age



Management Age

2008



LEAN MANAGEMENT

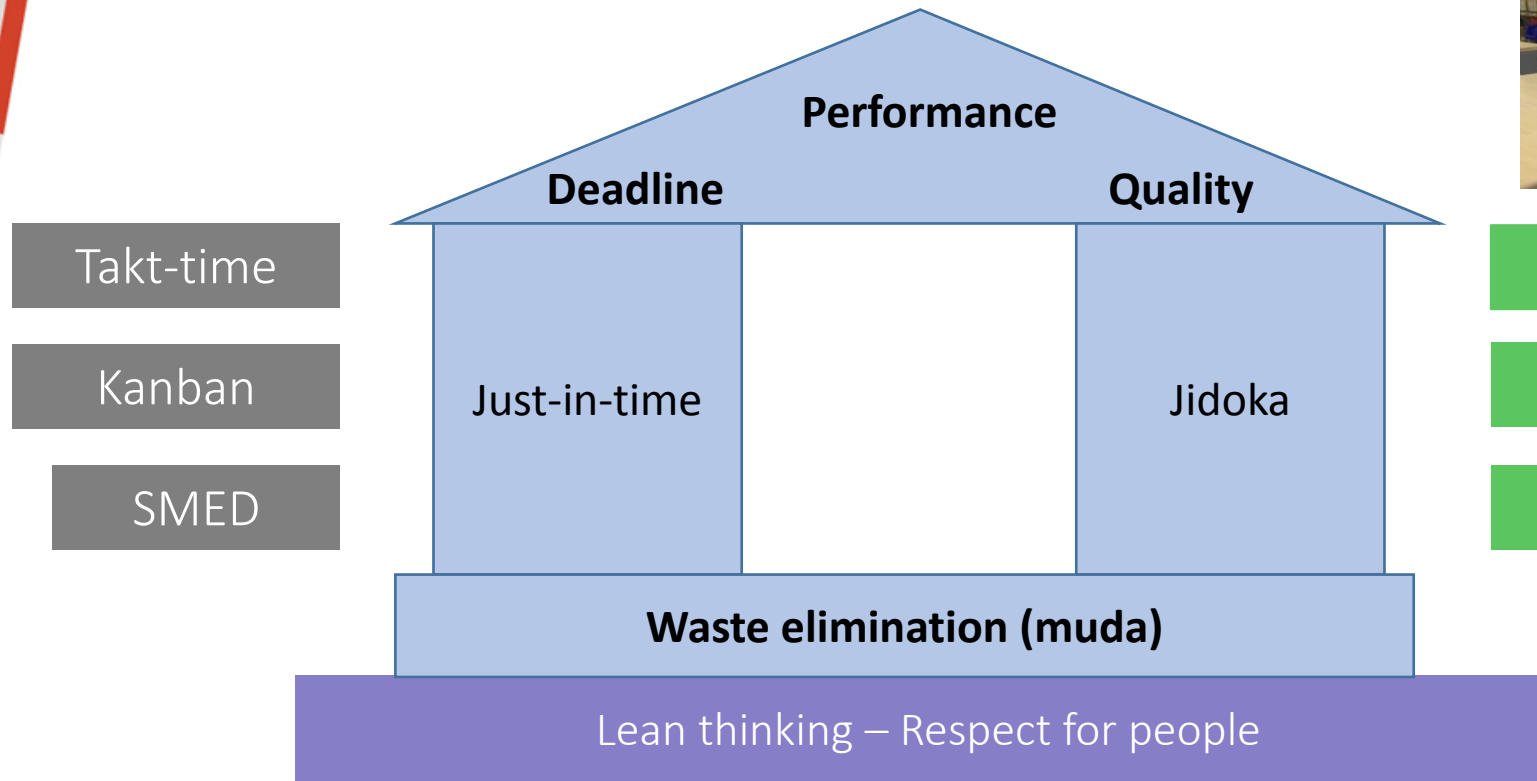
LEAN

SECTORAL LEAN

Dissemination



Lean manufacturing



Takt-time

Kanban

SMED

Automation

Visual management

Standardization

VSM

Kaizen

5 S



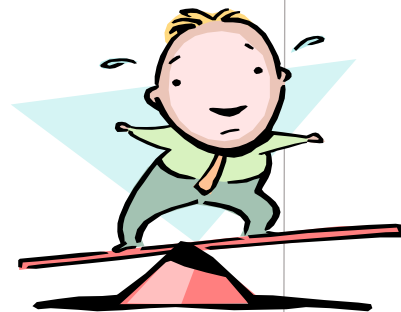
'Lean' or 'Mean' production ?

- Positive points

- Job enrichment
- Autonomy ↗
- Social job support (team work) ↗
- Empowerment, participation in decision-making ↗
- Job satisfaction and commitment ↗
- ...

- Negative points

- Intensification of work
 - pressure ↗
 - workload ↗
 - work control ↗
 - recovery time ↘
- Lack of true participation
- Feeling blame of defects
- Worker job stress
- Musculoskeletal disorders
- Injuries...



Conflicting evidence on outcomes, with quantitative and qualitative studies often contradicting each other
20 years of methodological difficulties to evaluate the impacts on working conditions and H & S

Methodological problems in Lean production research

- Lack of knowledge about:
 - What constitute actual Lean practices
 - How Lean is implemented
- **New school of thought** (Parker, 2003; Hines et al, 2004; Conti et al, 2006; Pettersen, 2009; Westgaard and Winkel, 2011; Langstrand, 2012; Koukoulaki, 2013; Ughetto, 2015...)
 - Lean is constantly evolving – ever changing nature of the concept
 - Large variations in the operationalization of Lean
 - Lean : not an inherently harmful management system but can have mixed effects depending on management style and the way it is implemented
- Shift from cause-effect focus to consider Lean implementation and contextual factors :
 - Lean implementation as a change initiative
 - How can it be coupled with H&S initiatives

Exploratory multiple case-studies in different sectors

Exploring 'Lean trajectories' in different contexts :

- How an organization becomes Lean?
- What Lean becomes within a certain organization?
- What about non-industrial sectors such as construction sites and hospitals?

Multiple case-studies (in industry, construction and hospitals)

Interviews, observations, documents analysis, field studies

		Interviews	Observations	Field study
Industry	AUTO 1	X	X	X
	AUTO 2	X	X	X
	METAL	X	-	-
Construction	BATI 1	X	X	X
	BATI 2	X	X	-
	BATI 3	X	X	-
	BATI 4	X	X	-
	BATI 5	X	X	-
	BATI 6	X	-	-
Hospital	HOPI 1	X	X	-
	HOPI 2	X	-	-
	HOPI 3	X	-	-
	HOPI 4	X	-	-
	HOPI 5	X	-	-
	HOPI 6	X	-	-
	HOPI 7	X	-	-
	HOPI 8	X	X	-
	HOPI 9	X	-	-

A Lean trajectory in the auto-industry from a 'group rigid Lean' to a 'relatively flexible homemade Lean'



Creation
Auto 1

Take over
by G1

**Initiative G1
First type Lean**

Bankruptcy
G1

Creation
Auto 2

Integration
Auto 2 in G2

Historical, cultural
contextual factors of the
company strategy

1960

1998

2004

2006

2008

2009

2010

2012

2014

Rigid
cost-killing
top-down
external
consultants
short-term
Excessive

Initiative Auto 2- Second type Lean

Homemade
Relatively flexible
« Built to last »
Participative
Achievable goals

Implementation design
Operationalization
Lean functional structure

Ergonomics analysis

Safety
initiative

MST
prevention
initiative

Psycho-social
prevention
initiative

Chemical risks
initiative

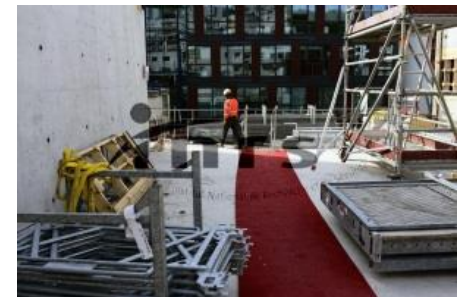
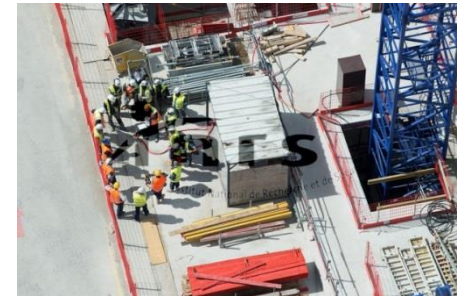
Quality of
working life
initiative

Health and safety culture
Initiatives
H &S resources

A Lean trajectory in the construction sector

Flexible management support – Lean-inspired methods

- Recent change initiative (2 years) → employee development
- On a regional scale - construction sites managers and craftsmen
- Internal Lean implementor : production manager
(with a Lean industry background)
- Experimental and soft approach
- On a volunteer basis – no top-down communication campaign
- Adaptational approach of several Lean-inspired tools - (designed by and for users - no audit, no standard, no waste elimination discourse...)
 - Visual management
 - Team-based task preparation
 - 5S
- Based on dialogue and operational support from production managers



Lean implementation strategies : a typology

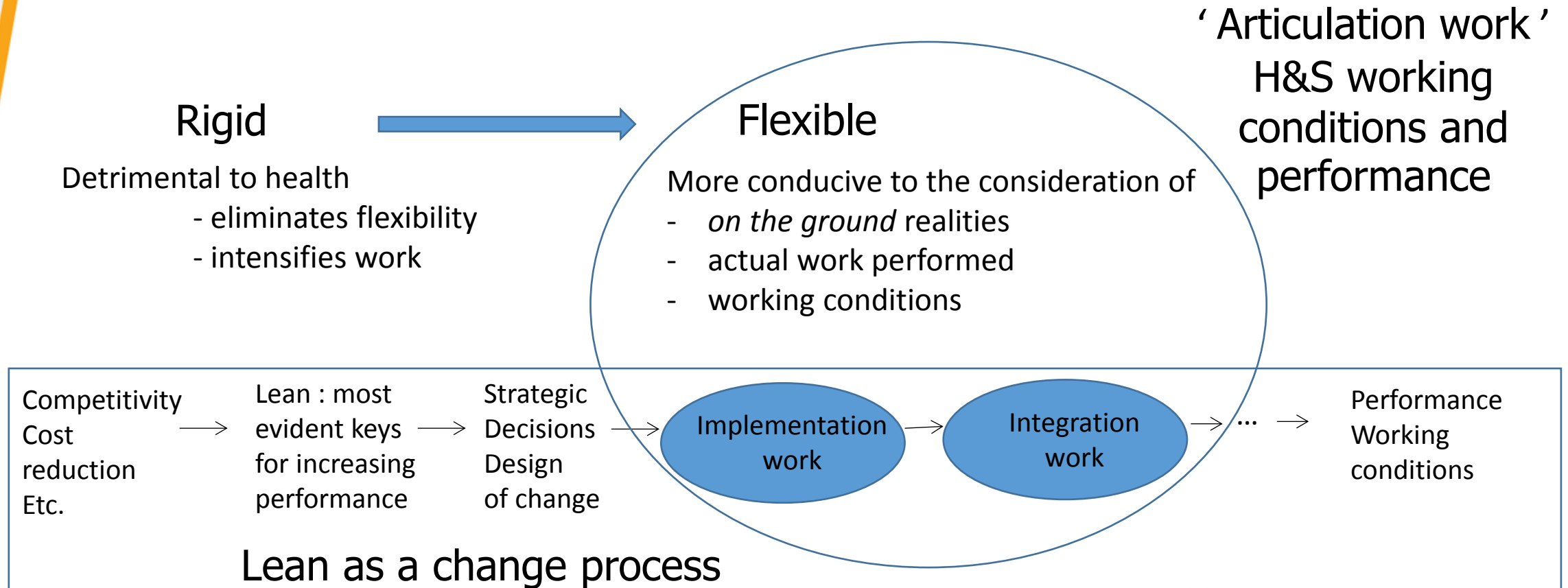
- Prescriptive process
- Copy-and-paste methods (auto-industry)
- Substitutive approach
- Top down
- Implementation design (Lean experts) : strict deployment plan
- Relatively short-term strategy
- Normative (control, audit, detailed SOP)
- ...

- Interpretative approach
- Lean inspired methods, transfer makes translation work necessary
- Attention given to local, cultural, historical, social, contextual factors
- Soft and slow - « Little step by little step » strategy
- Change is a matter of experimentation
- Bottom-up -Adaptation to workplace problems (perceived by workers) -
- ...




Possible implication for H&S purposes

A better understanding of Lean as an evolutive concept and a change process brings about new perspectives for prevention research and action



Thank you for your attention

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