



5/28/2014

# LEARN AND EXPERIENCE VPS IN THE BMW LEARNING FACTORY.

**4<sup>TH</sup> CONFERENCE ON LEARNING FACTORIES AT IVA, STOCKHOLM.**

**BMW  
GROUP**

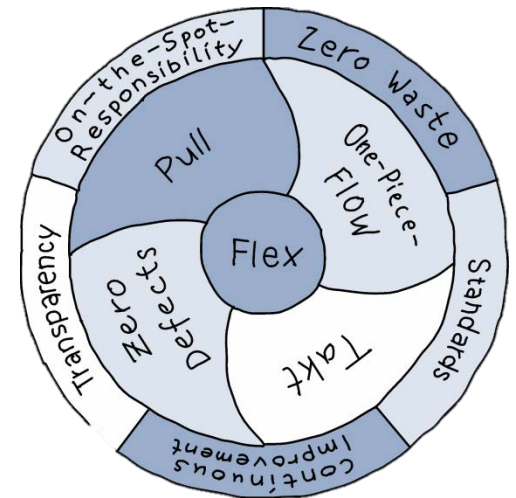


Rolls-Royce  
Motor Cars Limited

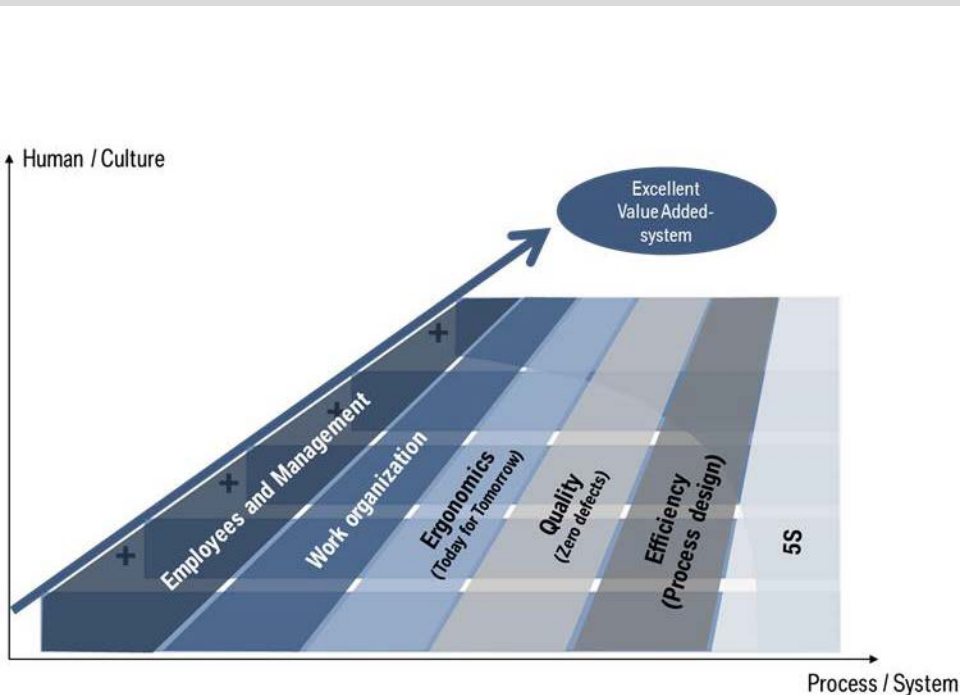
# VPS – VALUE ORIENTED PRODUCTION SYSTEM. BASICS & HISTORY.

## Lean @ BMW = VPS

- Program was implemented in Production Ressort in 2005.
- Today set as an standard in Production, HR and Production Units @ Purchasing & Supplier.
- The Key Visual shows the ten principals of VPS:
  - outer ring is built of the codes of conduct
  - inner circle represents the process premises
  - Flex as the center of the system and key-target



# THE VPS STEPMODELL – AN INTEGRATED APPROACH.



Takes account of the development of processes using known VPS methods and the change in culture and mindset of the people.

Describes a standard procedure for the implementation of the VPS methods

Specific versions for all areas of the company

- Personal intensive areas
- Asset intensive areas
- Logistics
- indirect areas

# THE BMW VPS CENTER. AIM.

- Contact point to experience and understand the philosophy, the basic adjustment and the expert knowledge of VPS.
- An environment for VPS Basis-Trainings and in-depth study for experts with defined practice-oriented training examples.
- Not a museum – by temporary displays and project weeks, integrating the whole network, topics will be kept actual.
- Following the topic „continuous improvement“ also the center will develop with time.

→ VPS to touch and experience!

# BMW VPS CENTER. DIDACTIC CONCEPT.

I hear and forget.  
I see and remember.  
I experience and understand.

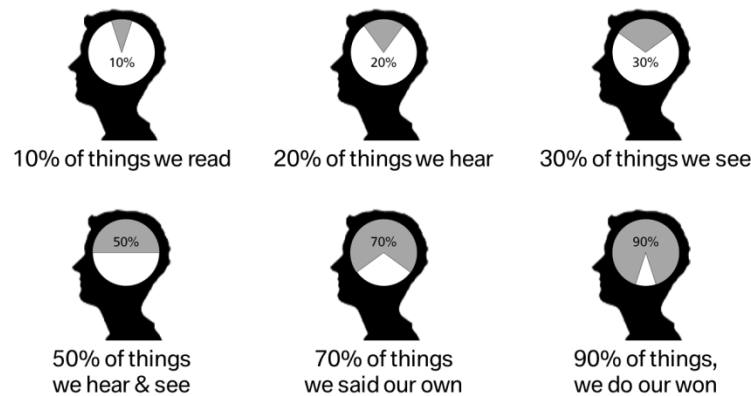
-Konfuzius



- **Realistic learning environment**  
For managers and experts.
- **Direct practice** of learned Methods.
- Specific orientation on the **principals and methods of VPS.**



We only keep in mind a part of things we experience:



**Understand VPS through watching, feeling, touching and experiencing.  
Conceive the context of the lean productions system.**

# THE BMW VPS CENTER. HISTORY & DATA.

– June 2011	Start of concept
– November 2011	First test setup and trial runs
– July 2012	Start of implemenatation at final building (central training center)
– 14.09.2012	Official opening
– 01.10.2012	Start of first trainings
– February 2013	1000th visitor @ VPS Center
– April 2013	Initiation of car assembly (bails)
– Space	2040m <sup>2</sup>
– Employees	10
– Trainees / Day	~ 45



# VPS CENTER. TRAINING AREA.



# VPS CENTER. TRAINING CLASSROOMS & OFFICE.

Area 1st Floor: 400 m<sup>2</sup>



Training classroom 2  
15 Participants



Training classrooms 2 and 3  
68 Participants  
(for auditions)



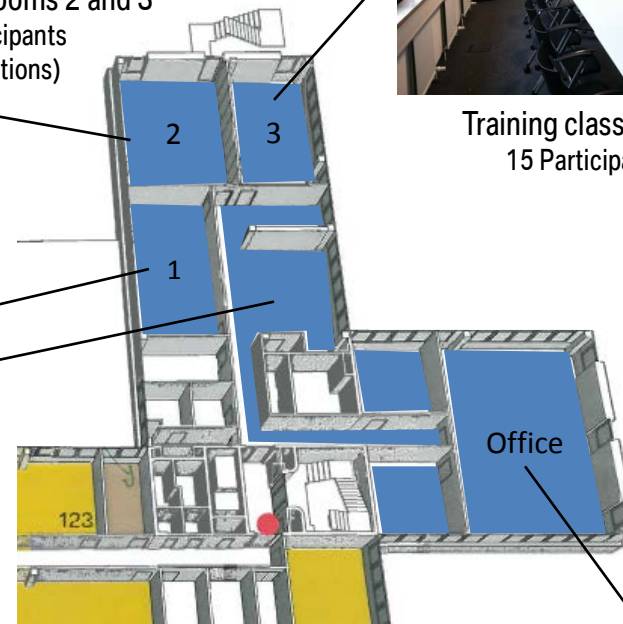
Training classroom 3  
15 Participants



Training classroom 1  
15 Participants



Lobby



12 Workspaces



# THE BMW VPS CENTER. PERSONAL INTENSIVE AREA.

## Aim

Sustainable placement of teaching and learning content as defined by the vps stepmodell in a realistic and flexibel production enviroment.

## Information on process

6 stations (4 assembly, 2 demounting)

15 – 45 min. operation time

1-2 coaches

Engines are transported by AGV

Different conditions equal to stepmodell



# THE BMW VPS CENTER. PERSONAL INTENSIVE AREA.

Conditions equal to stepmodell

**BMW GROUP**

**WPS LERNFABRIK.  
ANFANGSZUSTAND LF0.**

**VPS LEARNING FACTORY.**

Einfacher Aufbau einer Produktionsumgebung ohne WPS Maßnahmen.

Bildet keine typische BMW-Arbeitsumgebung ab!

**Layout Montage:**



**Bereitstellung:**

- ungeordnet,
- ergonomisch ungünstig,
- nicht gedeckelt,
- Versorgung unklar
- Großladungsträger an der Linie.

**Allgemein:**

- Kein 5A – Es befinden sich nicht benötigte und schlecht angeordnete Werkzeuge und Materialien im Arbeitsumfeld.
- Arbeitsinhalte sind nicht nivelliert.
- Kein visuelles Management.

**Boden- und Taktmarkierungen werden nicht eingehalten.**



# THE BMW VPS CENTER. PERSONAL INTENSIVE AREA.

Conditions equal to stepmodell

**BMW GROUP**

**WPS LERNFABRIK.  
AUFBAUZUSTAND LF1.**

Die Produktionsumgebung ist aufbauend auf Stufe 1 des WPS Stufenmodells analysiert worden.  
Erste Optimierungen sind umgesetzt.

**Layout Montage:**



**Allgemein:**

- Prozesstafel ist vorhanden
- 5A – Aussortieren: Nicht benötigte Materialien und Werkzeuge sind aus der Produktionsumgebung entfernt.
- Arbeitsplätze sind ergonomisch bewertet.
- Fertigungs- und Verschwendungs-Analysen sind durchgeführt.

**VPS LEARNING FACTORY.**



**Bereitstellung:**

- geordnet,
- ergonomisch besser,
- teilweise gedeckelt,
- Großladungsträger teilweise durch Durchlaufregale ersetzt.

**Prozesstafel**







# THE BMW VPS CENTER. PERSONAL INTENSIVE AREA.

Conditions equal to stepmodell

**BMW GROUP**

**WPS LERNFABRIK.  
AUFBAUZUSTAND LF2.**




Rolls-Royce  
Power Solutions

**VPS LEARNING FACTORY.**

Die Produktionsumgebung ist aufbauend auf **Stufe 2** des **WPS Stufenmodells** optimiert worden.

**Layout Montage:**



**Allgemein:**

- Der Arbeitsplatz des Vorarbeiters ist vollständig, inkl. Prozessstafel.
- Vorarbeiterrufsystem und Andonboard sind vorhanden.
- 5A – Aufräumen und Arbeitsplatz sauberhalten: Werkzeuge und Material sind derart angeordnet, dass sie für den Mitarbeiter günstig positioniert sind.
- Die Arbeitsakte sind stabil. Die Arbeitsinhalte sind nivelliert.
- Pull-Steuerung mit Kanban ist umgesetzt.

**Arbeitsplatz Vorarbeiter**

**Haltestelle Routenzug**

**Bereitstellung:**

- keine Großladungsträger an der Linie,
- Min-/Max-Bestände visualisiert,
- Versorgung durch getakteten Routenzug.

**Prozessleiste**

**Abgehängtes Werkzeug**




# THE BMW VPS CENTER. ASSET INTENSIVE AREA.

Conditions equal to stepmodell

## **Pressshop**

Focus: TPM, SMED

Production of needed parts for assembly

## **Welding cells**

Focus: Chaku-Chaku, Low Cost Automation

Production of needed parts for assembly

## **Aim**

Complete value stream through all areas

Production is only simulated → Focus on processes around the core process

Learn and experience VPS in the BMW learning factory, 28.05.2014





# THE BMW VPS CENTER. LOGISTICS.

Conditions equal to stepmodell

## Aim

Connecting of different areas (operational)

Training logistics experts (stand-a-lone)

## Focus

LCA, Milk-Run (logistics as part of production)



# THE BMW VPS CENTER. EXPERIENCE VPS.

3D version of the key visual

Built upon Trilogiq (BMW Standard for production)

Hands on station for every premise

## Functions

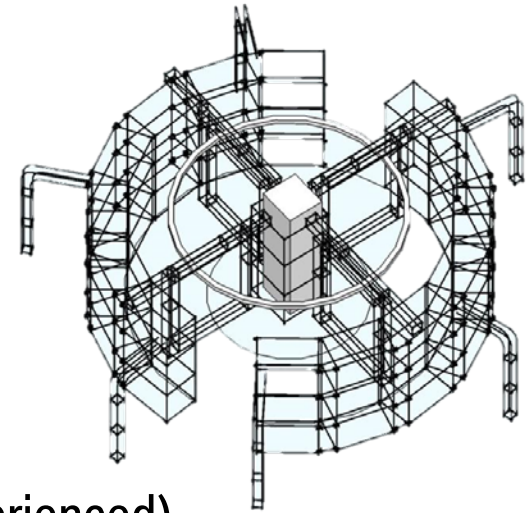
Getting in touch with the premises (1<sup>st</sup> time visitors / unexperienced)

Fresh up (experienced visitors)

## Process

Up to 12 participants

2 hours



# THE BMW VPS CENTER. LEARN- AND EXPERIENCE-CELLS

## Aim

Focusing on specific situations of the different departments

VPS Center only offers surroundings - know how from the department

## Themes so far

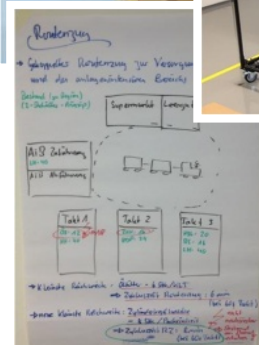
Ergonomics / Energy Efficiency / Training (TWI) / TPM / Human sensorics



# THE BMW VPS CENTER. PROJECT AREA.

Used for different cases

Cart-Sim, Events → Management Attention,  
Lean Games, Testing



# LEARN AND EXPERIENCE VPS IN THE BMW LEARNING FACTORY.

**THANK YOU FOR YOUR KIND ATTENTION.**

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