



5/28/2014

LEARN AND EXPERIENCE VPS IN THE BMW LEARNING FACTORY.

4TH CONFERENCE ON LEARNING FACTORIES AT IVA, STOCKHOLM.

**BMW
GROUP**

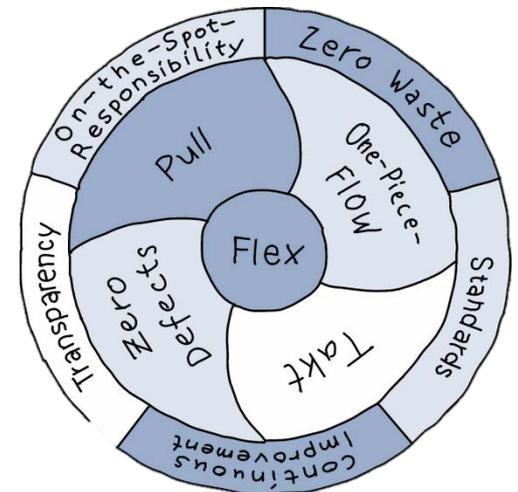


Rolls-Royce
Motor Cars Limited

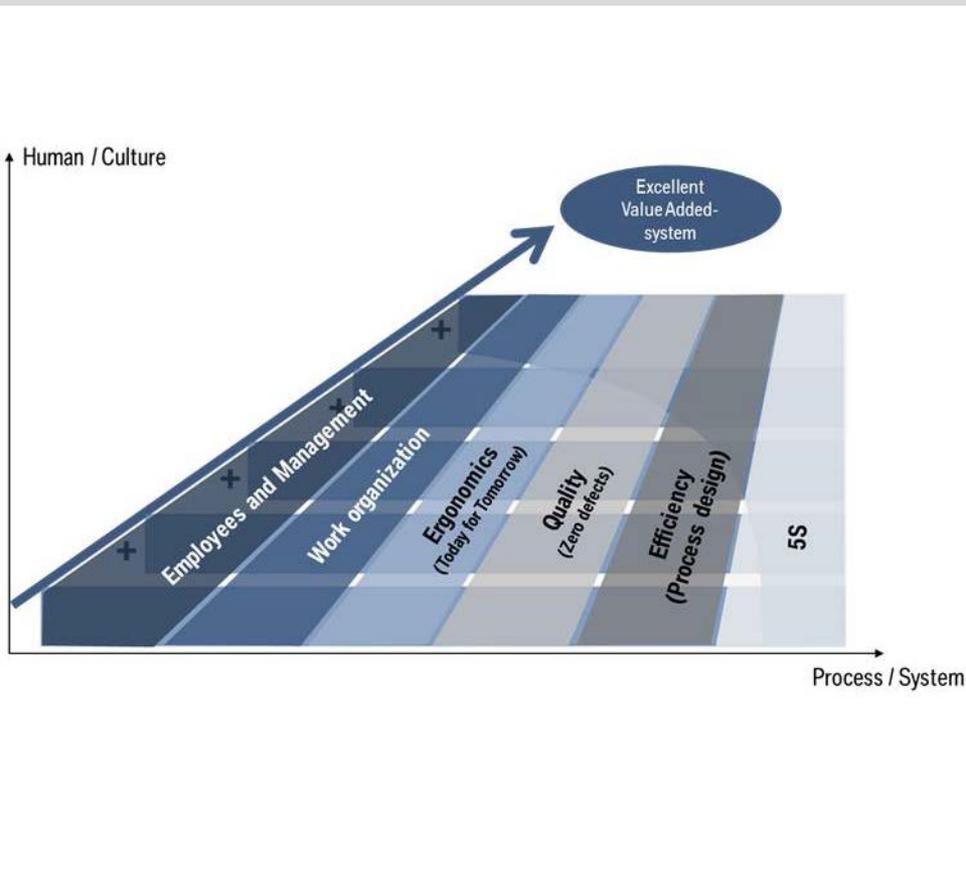
VPS – VALUE ORIENTED PRODUCTION SYSTEM. BASICS & HISTORY.

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!

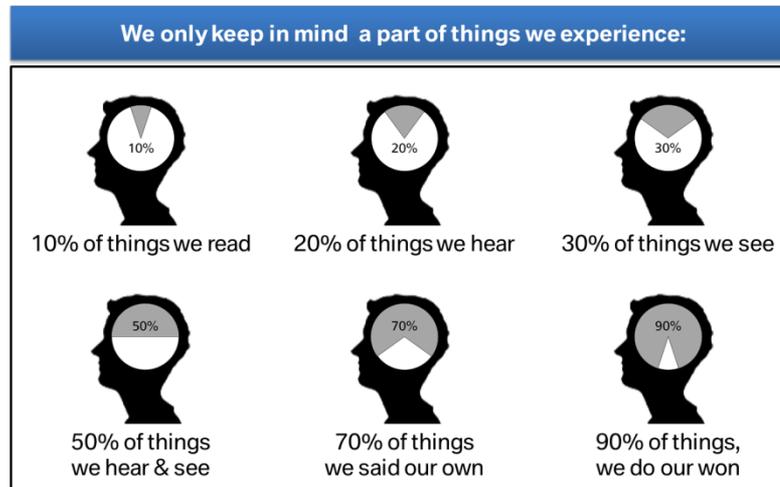
BMW VPS CENTER. DIDACTIC CONCEPT.

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.**



**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 implementation 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 2040m²
- Employees 10
- Trainees / Day ~ 45

VPS CENTER. TRAINING CLASSROOMS & OFFICE.

Area 1st Floor: 400 m²



Training classrooms 2 and 3
68 Participants
(for auditions)



Training classroom 3
15 Participants



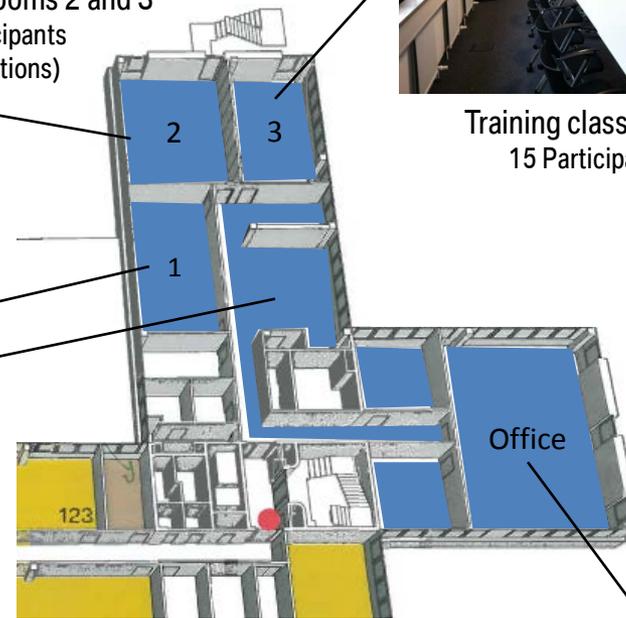
Training classroom 2
15 Participants



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   Public-Private Partnership

WPS LERNFABRIK. ANFANGSZUSTAND LFO.

VPS LEARNING FACTORY.

Einfacher Aufbau einer Produktionsumgebung ohne WPS Maßnahmen.

Bildet keine typische BMW-Arbeitsumgebung ab!

Layout Montage:



Bereitstellung:

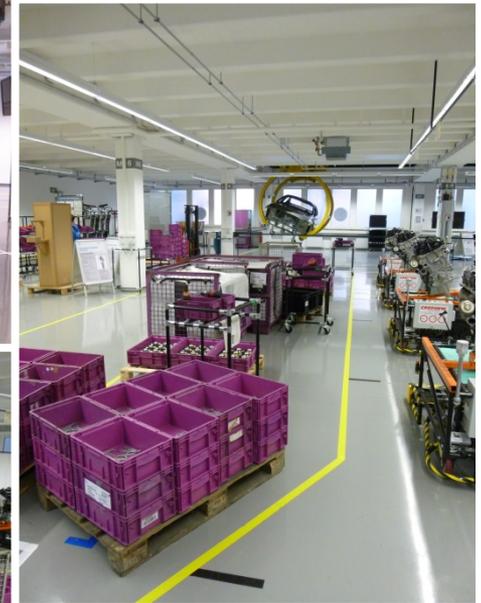
- ungeordnet,
- ergonomisch ungünstig,
- nicht gedeckelt,
- Versorgung unklar
- Großladungsträger an der Linie.

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   Public-Response
New-Service

WPS LERNFABRIK. AUFBAUZUSTAND LF1.

VPS LEARNING FACTORY.

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

Layout Montage:



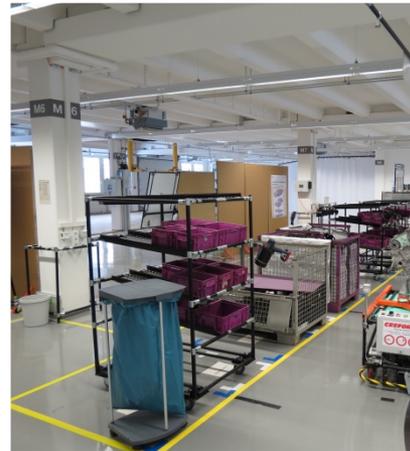
Prozesstafel → 

Bereitstellung:
 – geordnet,
 – ergonomisch besser,
 – teilweise gedeckelt,
 – Großladungsträger teilweise durch Durchlaufregale ersetzt.

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.



THE BMW VPS CENTER. PERSONAL INTENSIVE AREA.

Conditions equal to stepmodell

BMW GROUP

WPS LERNFABRIK. AUFBAUZUSTAND LF2.

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.
- Vorarbeitersystem und Andonboard sind vorhanden.
- 5A – Aufräumen und Arbeitsplatz sauberhalten: Werkzeuge und Material sind derart angeordnet, dass sie für den Mitarbeiter günstig positioniert sind.
- Die Arbeitstakte 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



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

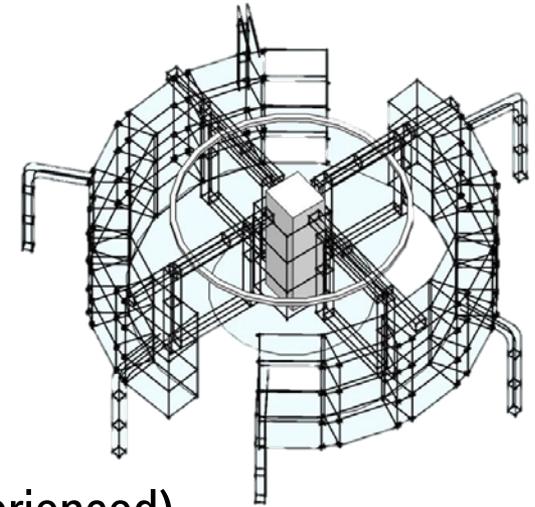
Getting in touch with the premises (1st time visitors / unexperienced)

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

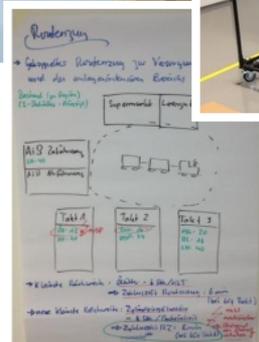
Ergonomics / Energy Efficiency / Training (TWI) / TPM / Human sensorics



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.

Sven Herrmann, Tobias Stäudel
Technical Planning
Value Oriented Production System
BMW AG
Knorrstraße 147
80788 München

Sven.SH.Herrmann@bmw.de

Tobias.Staedel@bmw.de

**BMW
GROUP**



Rolls-Royce
Motor Cars Limited