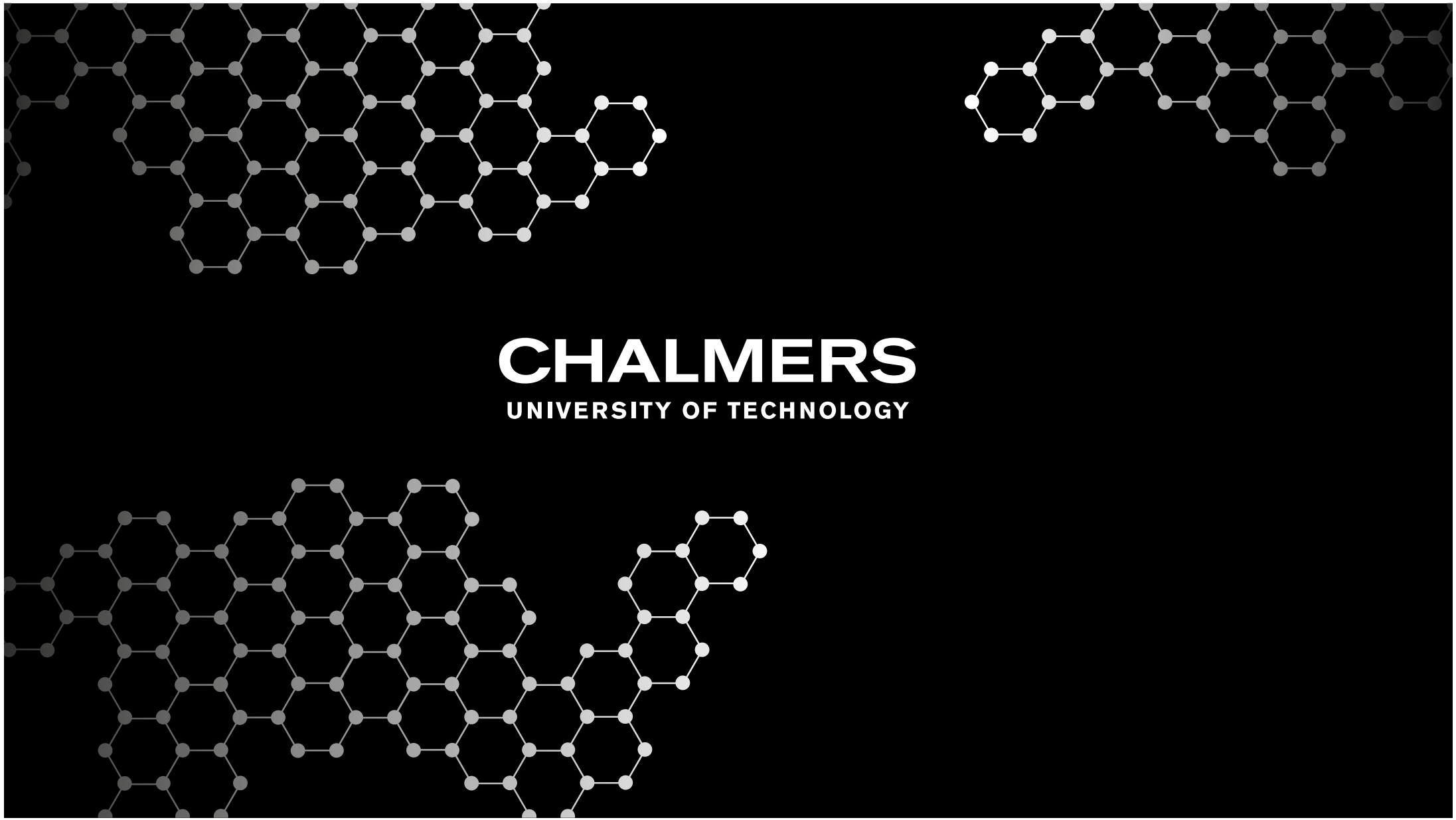
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TECHNOLOGY-ASSISTED SHARING OF PRODUCTION KNOWLEDGE IN INDUSTRIALIZATION PROCESSES

- DAN PAULIN, PHD
- CHALMERS UNIVERSITY OF TECHNOLOGY
- GOTHENBURG, SWEDEN

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STRUCTURE

- BACKGROUND AND PURPOSE
- EMPIRICAL RESEARCH AREA
- LEARNING CURVE PHASES
- KNOWLEDGE SHARING – INFLUENCING FACTORS
- EXAMPLES OF TECH SUPPORT IN KNOWLEDGE SHARING

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BACKGROUND AND PURPOSE

Industry reasons

Higher complexity in products + Low volume production lead to challenges in training.

Increased level of digitalization in production systems changes the prerequisites for man-machine interaction

Academic reasons

Digitalization influences learning curve behaviour

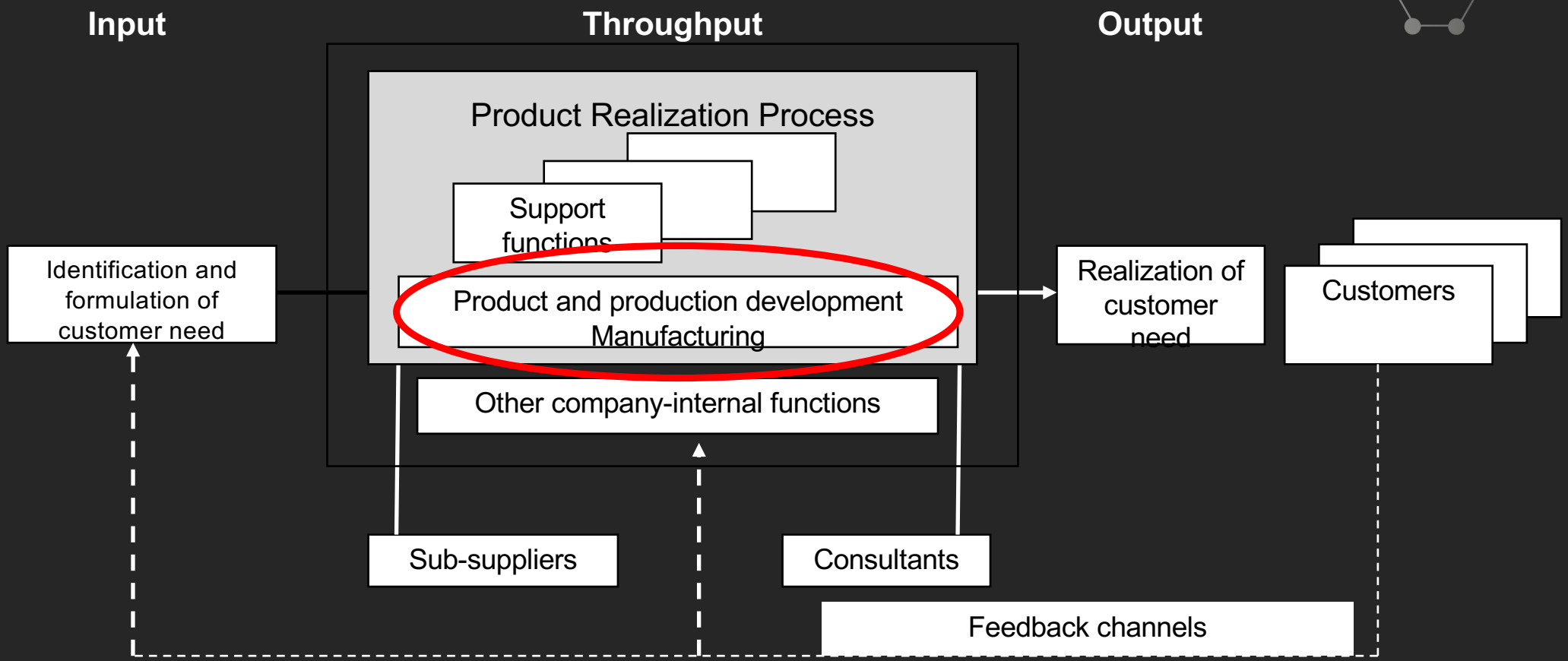
Different phases of the learning curve, creates different demands on tech support

Knowledge sharing is influenced by numerous factors

The purpose

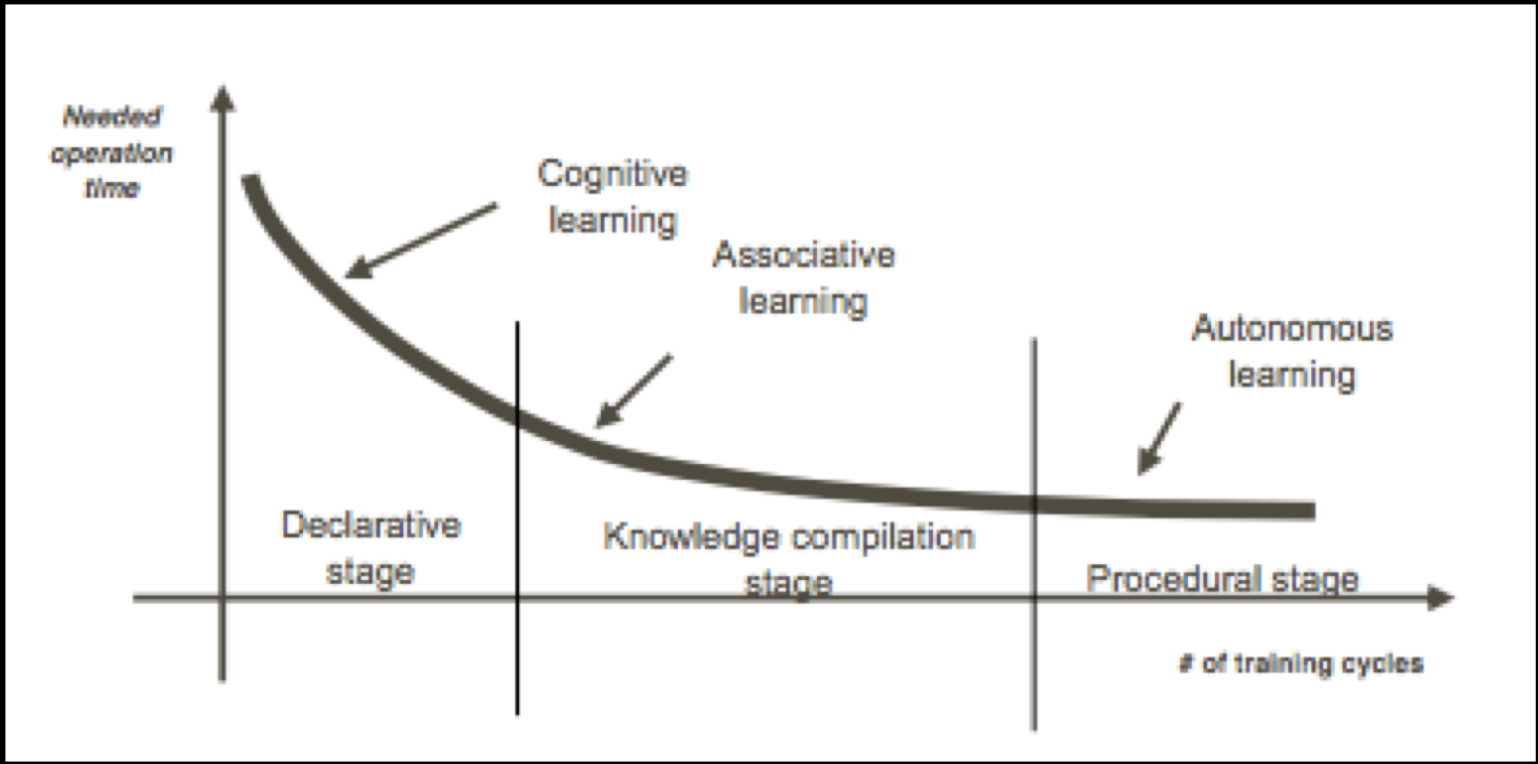
The purpose is to improve knowledge sharing in order to decrease learning time for operators

INDUSTRIALIZATION PROCESS



(modified from Gabrielsson, 2002)

TIME PHASED LEARNING TYPES



(Malmsköld, 2012)

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KNOWLEDGE SHARING – EFFECT CATEGORIZATION

+ Facilitators – Factors with a positive impact on knowledge sharing
– Inhibitors – Factors with a negative impact on knowledge sharing
| Obstacles – Factors that hinders knowledge sharing until certain prerequisites are fulfilled

(Paulin and Winroth, 2013)

	Actors	Content	Media	Context	Activity
Facilitators	Motivation Leadership Learning culture Priority Openness		IT systems	Available time Learning / sharing culture Available / suitable space	Frequence / intensity in transfer activities
Inhibitors	Absorptive capacity Embeddedness Protectionism / Knowledge hoarding Ability to share Knowledge distance Articulability Age distance Gender distance	Causal ambiguity	Linguistic distance	Organizational distance Physical distance Distance between norms Cultural distance Environmental uncertainty	
Obstacles	Knowledge level / technical know-how Trust				

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TECH-ASSISTED SHARING OF KNOWLEDGE MODEL (TASK-MODEL)

	Declarative Stage	Knowledge Compilation Stage	Procedural Stage
Facilitators	Motivation Available time Available space Frequency in activities Learning culture	Available time Available space Frequency in activities Motivation Learning culture	Available time Available space Frequency in activities Motivation Learning culture
Inhibitors	Knowledge distance Articulability Causal ambiguity Embeddedness Knowledge hoarding Ability to share Linguistic distance	Knowledge distance Embeddedness Knowledge hoarding Ability to share Articulability Causal ambiguity Linguistic distance	Ability to share Knowledge hoarding Embeddedness Knowledge distance Articulability Causal ambiguity Linguistic distance
Obstacles	Knowledge level Technical know-how Trust	Knowledge level Technical know-how Trust	Knowledge level Technical know-how Trust

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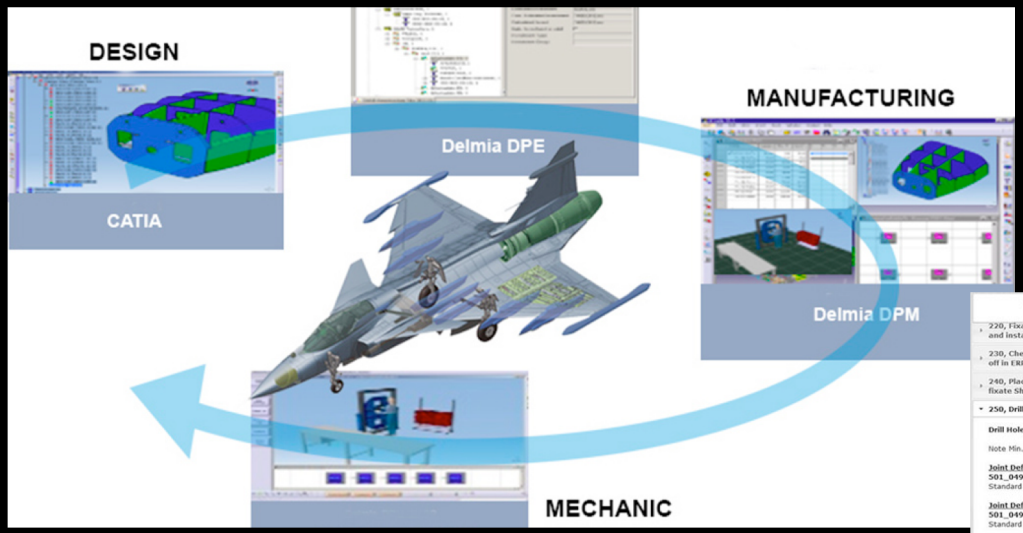
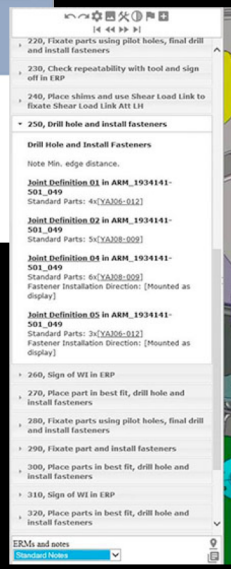
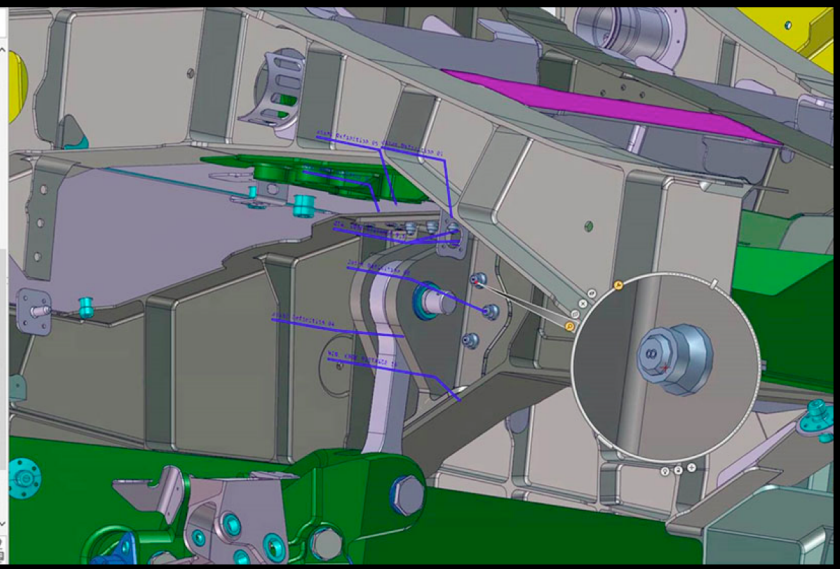
DECLARATIVE STAGE







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KNOWLEDGE COMPILATION STAGE

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PROCEDURAL STAGE

(https://www.nyteknik.se/automation/hemligheterna-gor-volvo-penta-till-mastare-i-montering-6843455)

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REFERENCES

- Bellgran, M., Säfsten, K., 2010, *Production development: design and operation of production systems,* Springer, London.
- Gabrielsson, Å., 2002, *Cross-functional co-operation and networking in industrial settings*. Royal Institute of Technology, Stockholm.
- Malmsköld, L. 2012, *Virtual Training - Preparatory Training in Automotive Assembly*, Chalmers University of Technology, Göteborg.
- Paulin, D. 2013, *Knowledge Dissemination in Multinational Corporations*, Chalmers University of Technology, Göteborg.
- Paulin, D. & Winroth, M. 2013, "Facilitators, Inhibitors, and Obstacles - a Refined Categorization Regarding Barriers for Knowledge Transfer, Sharing, and Flow", *International Conference on Intellectual Capital and Knowledge Management and Organisational Learning, Washington D.C., Oct 2013*, pp. 320.

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