Learning through augmented- and virtual reality

Background
Thanks to rapid technology achievements and driven by competition the industrial companies continue to develop new digital manufacturing concepts aiming to stay competitive in the future of digitalization. A lot of effort must be put on demonstrating how these concepts can be applied and to prove the business benefits. But to implement the concepts and harvest from such investments a mindset change is needed among a large proportion of the workforce. So, effective training and internal knowledge transfer will become crucial for companies’ ability to achieve necessary speed of implementation of these concepts. The thesis should take a closer look at how computer technology and computer-mediated reality may facilitate the learning and enhance the learning experience. It should also explore the key success factors for how to apply such techniques in the company’s learning development process.

About the main stakeholders
Project Smarta Fabriker: Digitalization and its connection to sustainable production is identified as a key enabler for increasing the number of jobs in Swedish industry. The purpose of Project Smarta Fabriker is to increase the attractiveness of technology and careers in industrial companies, and to spread knowledge about industrial digitalization. Volvo Group is one of several partners to the project.

Volvo Group Trucks Operations: Manufacture state-of-the-art products for the brands of the Volvo Group. In 2016, GTO delivered 190,000 trucks from over 40 plants. A global industrial footprint offers an opportunity to an international world class industrial environment, where continuous improvement and productivity improvement is driven through Volvo Production System (VPS).

Volvo Group University: A supplier of leading edge learning solutions to enhance employee performance. VGU actively contributes to increase the organizational knowledge, individual competence and team performance by offering state-of-the-art training to Volvo Group employees, importers and Volvo Truck dealers.

Tasks
Augmented- and virtual reality are technologies that develop fast. Hardware gets smaller, lighter and software becomes incredibly more advanced from one release to another. Often we see these techniques being used to boost marketing and launch events or to make production processes more efficient. However, in this case the subject of study is on-the-job training.

- Study what opportunities it will generate for a large global company to integrate AR/VR in the design and delivery of on the job learning solutions
- Evaluate how using AR/VR in learning solutions may impact business results contrary to using more traditional training types such as instructor lead, E-learning, Webcast
• Study how to increase employees end to end understanding of complex business processes by using AR/VR to share knowledge across organizations
• Investigate how instructional design and learning theories may be impacted by using AR/VR in learning solutions
• Propose strategies for how different functions within a company should implement AR/VR in the design and delivery of learning solutions
• Analyze and consider how training needs and conditions varies between different parts of the organization

Means and location
This thesis is performed in collaboration with Volvo Group Trucks Operations and Volvo Group University which will provide industrial support and supervision. The thesis students will cooperate with teams that are dealing with different kinds of AR/VR applications within Volvo. They will use the collective knowledge of these teams in their study and, if practically possible, also to demonstrate their findings using AR/VR hard- and software. Thesis students will have access workplaces at Volvo Group University.

Conduction and requirements
This thesis work needs to be conducted by two students where at least one should be fluent in Swedish. Preferably, we are looking for students with background in "Learning and leadership", "Management and Economics of Innovation" or "Production Engineering". The time period is January to May 2018

Contact
For questions concerning Project Smarta Fabriker contact Project Manager Johan Bengtsson. For specific questions concerning the topic of the thesis contact Sven Ljungren or Mattias Andersson at Volvo Group University or Thomas Lezama at Group Truck Operations.

Interviews are held continuously. To apply, send your CV and a cover letter to Sven Ljungren as soon as possible, but no later than November 30th, 2017.

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