

# EXPLORING VISUAL MANAGEMENT PURPOSES IN CONSTRUCTION PROJECTS

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# AGENDA

- INTRODUCTION
- PURPOSES OF VISUAL MANAGEMENT
- RESEARCH METHOD
- RESULTS | PIPE TEMPLATE, EXPOSED WORK EXECUTION PROCEDURE IN IMAGES AND VIDEO, AND COLLABORATIVE PLANNING BOARD
- DISCUSSION
- CONCLUSIONS

# INTRODUCTION

- Visual Management (VM) is a strategy for making **information clear and accessible** (Tezel et al. 2016).
- Many **VM purposes (functions or objectives)** are mentioned in the literature, and they are related not only to the observable portion of VM practices, but especially to the "non-visual work" involved in it (Nicolini 2007).
- There is a **mismatch** between the proposed benefits of VM in the **literature** and those achieved in **practice** (Tezel et al. 2016).

# INTRODUCTION

- The aim of this paper is to propose a **conceptual map of VM purposes**, based on the analysis of three VM practices.
- This investigation is **part of a wider research project under development** which objective is learning and teaching about VM through a **serious game**.

# INTRODUCTION

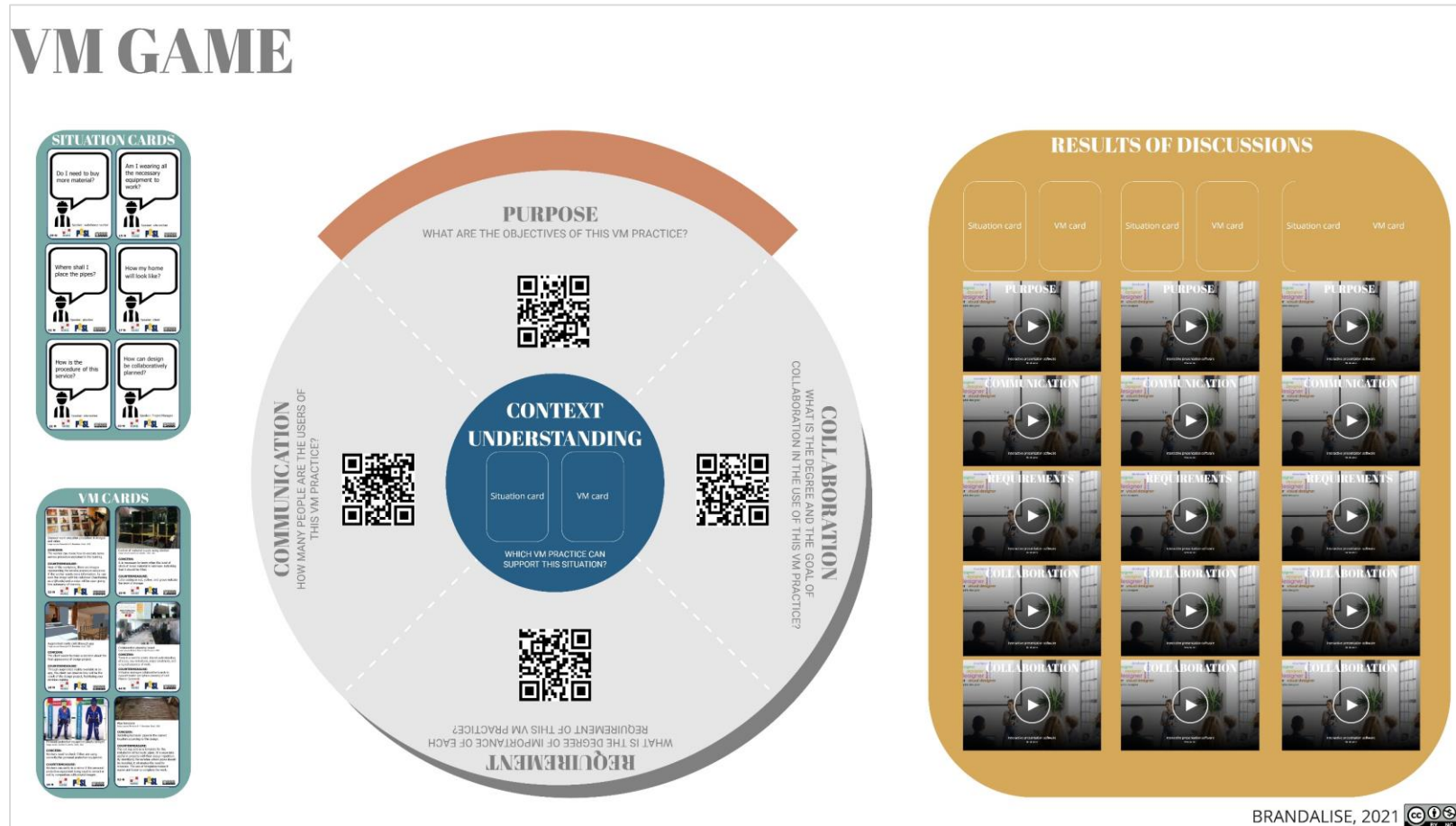


Figure 1. VM Game template

# PURPOSES OF VISUAL MANAGEMENT

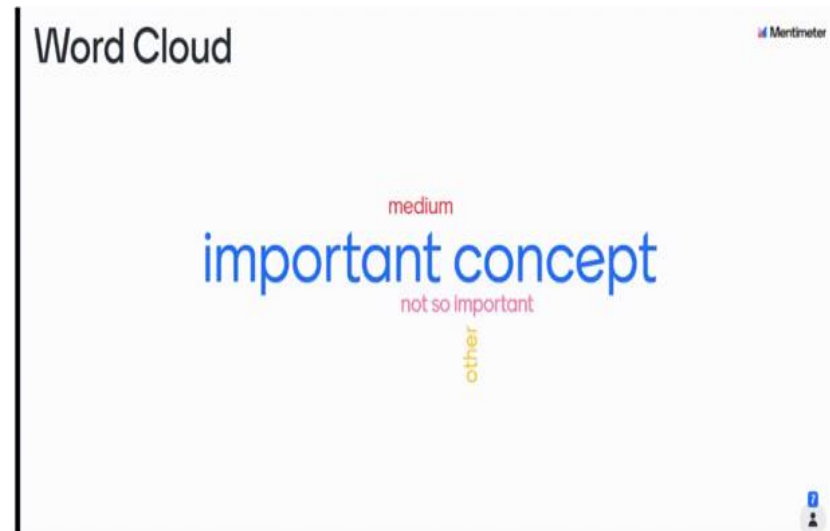
Increase process transparency	(Tezel et al. 2016)
Reduce variability and eliminate of non-value-adding activities	(Formoso et al. 2002; Koskela et al. 2018)
Promote continuous improvement	(Bernstein 2012; Brady et al. 2018)
Mitigate problems related to system complexity	(Valente et al. 2019)
Support collaboration in planning and control meetings	(Viana et al. 2014)
Support other management efforts	(Tezel 2011)

# RESEARCH METHOD

- **Design Science Research + Evaluation Research**
- Sources of evidence: **participant observation** and **perceptions of participants** (45 professionals and academics with background in architecture or civil engineering)

## RESEARCH METHOD

- **Three** online applications of the VM Game supported by **word clouds** diagrams to show and discuss results regarding to VM purposes.





# RESEARCH METHOD

- Three VM practices:



pipe template



exposed work  
execution procedure



collaborative  
planning board

## RESULTS | PIPE TEMPLATE

- Cut rug as a template for installing hydraulic pipes in the correct location according to the design.

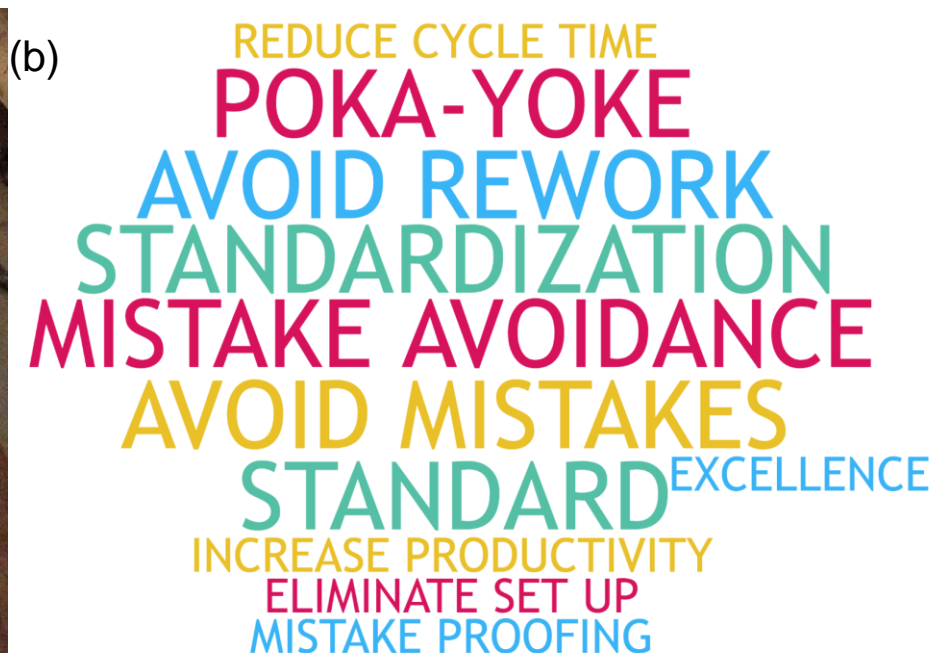


Figure 1. VM practice “pipe template” (a), and its purposes (b)

# RESULTS | EXPOSED WORK EXECUTION PROCEDURE IN IMAGES AND VIDEO

- Board close to the workplace where images illustrate the procedure sequence.



Figure 2. VM practice “exposed work execution procedure in images and video” (a), and its purposes (b)

# RESULTS | COLLABORATIVE PLANNING BOARD

- Analogue or virtual collaborative boards supporting master and phase planning of Last Planner System.

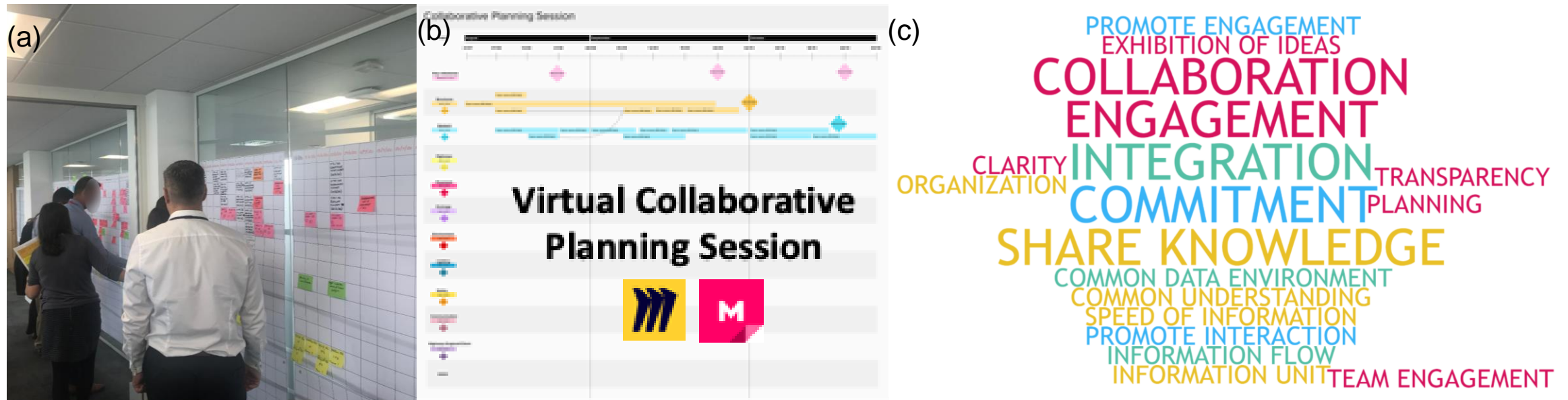
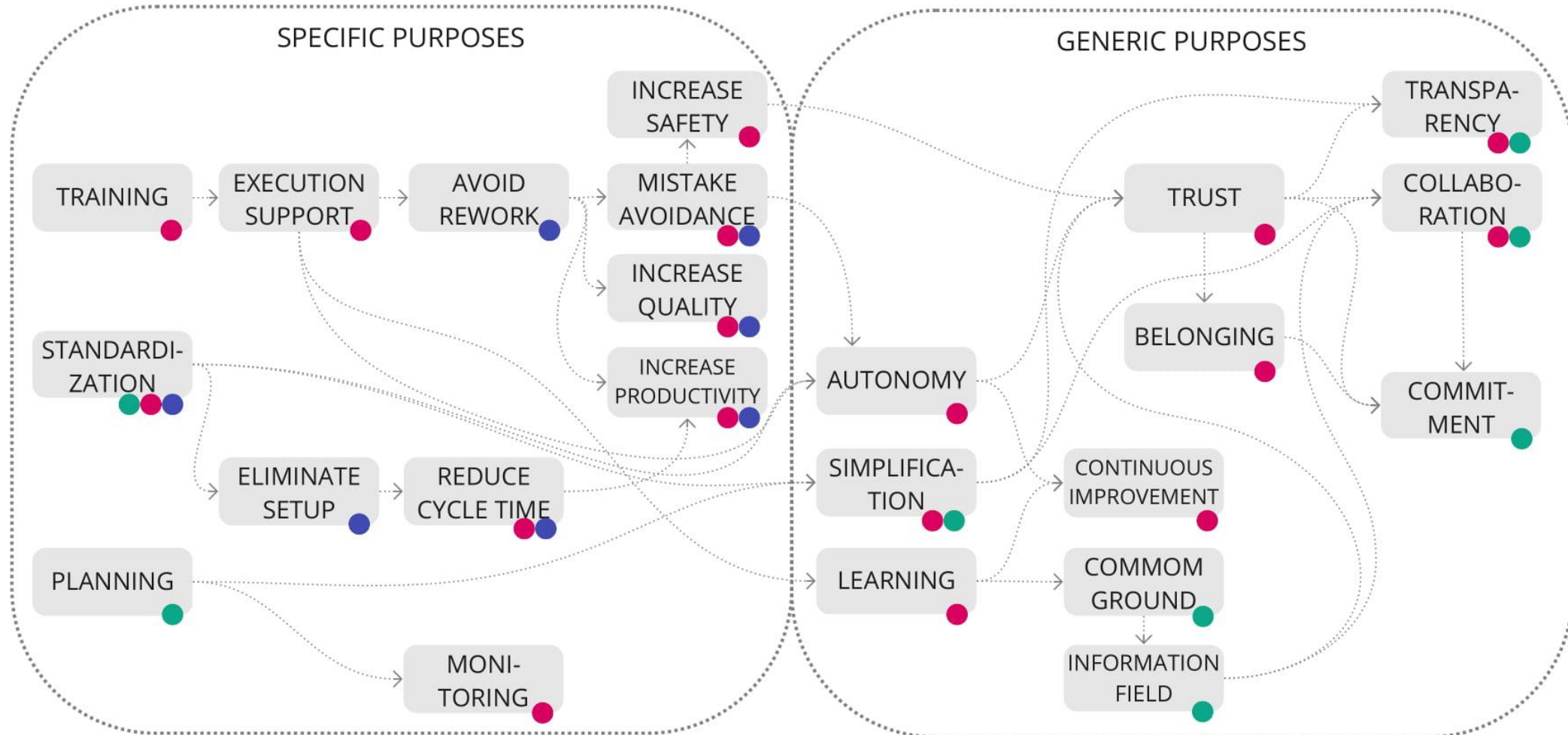


Figure 3. VM practice “collaborative planning board” analogue (a) and virtual (b), and its purposes (c)

# DISCUSSION

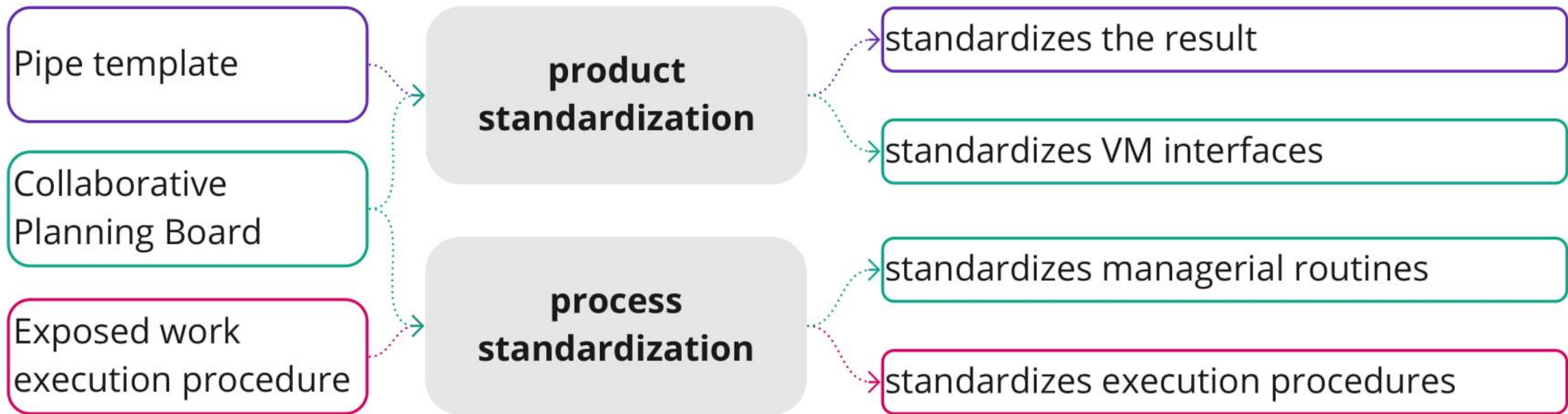
Figure 4. Conceptual map of VM purposes



**LEGEND:**

- PURPOSES OF PIPE TEMPLATE
- PURPOSES OF EXPOSED WORK EXECUTION PROCEDURE IN IMAGES AND VIDEO
- PURPOSES OF COLLABORATIVE PLANNING BOARD

# DISCUSSION



**Figure 5.** Different meanings of “standardization” according to the VM practice

# CONCLUSIONS

- This investigation presents the results of an **ongoing research project** which aims to develop a serious game to teach VM as well as to improve the understanding of this topic.
- The proposed **conceptual map** of the relationships between VM purposes is one of the analyses that was undertaken.
- Perceptions of different stakeholders were used to define **a set of purposes** for selected practices.
- Through a group discussion, the purposes were organized according to their **connections**, which was not explored in the existing literature yet.

# CONCLUSIONS

- The analyses presented in this paper were **limited to three VM practices**.
- Future work should **explore many other practices**, encouraging a further reflection about the theoretical and practical understanding of **other VM aspects**.
- The **VM Game** is being refined and will support the discussions.
- It is expected that this body of knowledge will contribute for understanding the **VM in a broader way in construction projects**.



**THANK YOU!**

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