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BERKELEY, CA 6-12 JULY 2020

28th ANNUAL CONFERENCE OF THE
INTERNATIONAL GROUP FOR LEAN CONSTRUCTION

THE ROLE OF DIGITALIZED VISUAL MANAGEMENT TO EMPOWER SELF- MANAGED CREWS IN CONSTRUCTION PROJECTS

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Research Purpose



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- Investigate the current level of adoption of VM and how the digitalization of VM can empower self managed crews during the production phase in construction projects

Research Method



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- Literature review about VM, Situational Awareness (SA), self-managed crews and the level of digitalization in construction projects
- Construction site visits in Finland, unstructured interviews with site and project managers



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Main Findings

- Vision sense mediates 80%–85% of human perception, learning, cognition and activities (Ripley et al. 2010)
- VM to provide information in a visual manner that it can be retrieved at a glance(Greif 1991)
- SA is “the perception of elements in the environment within time and space, comprehending their meaning and the projection of their status in the near future” (Endsley 1995)

Main Findings



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- Data collection about construction projects during the production phase is now more automated, with drones, positioning sensors, cameras and environment sensors

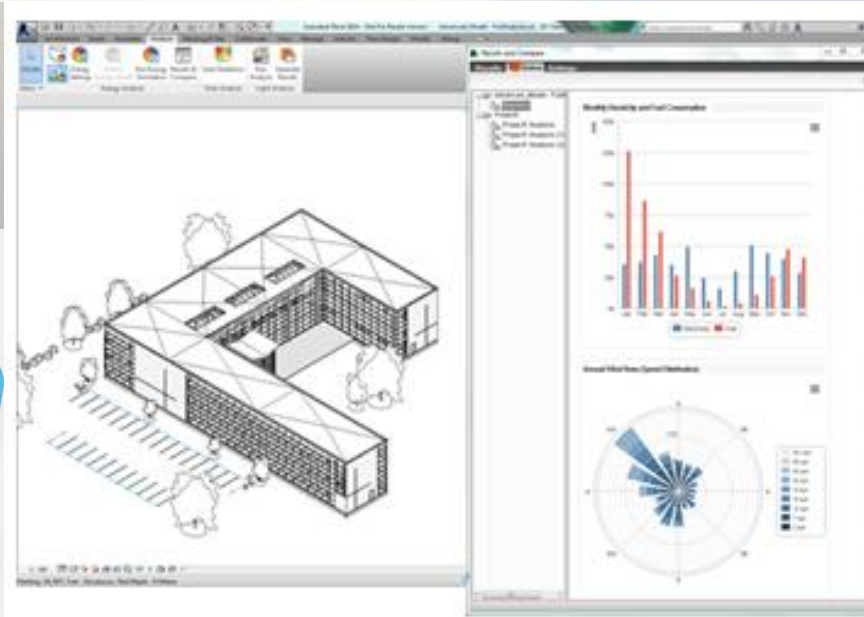
Management Information



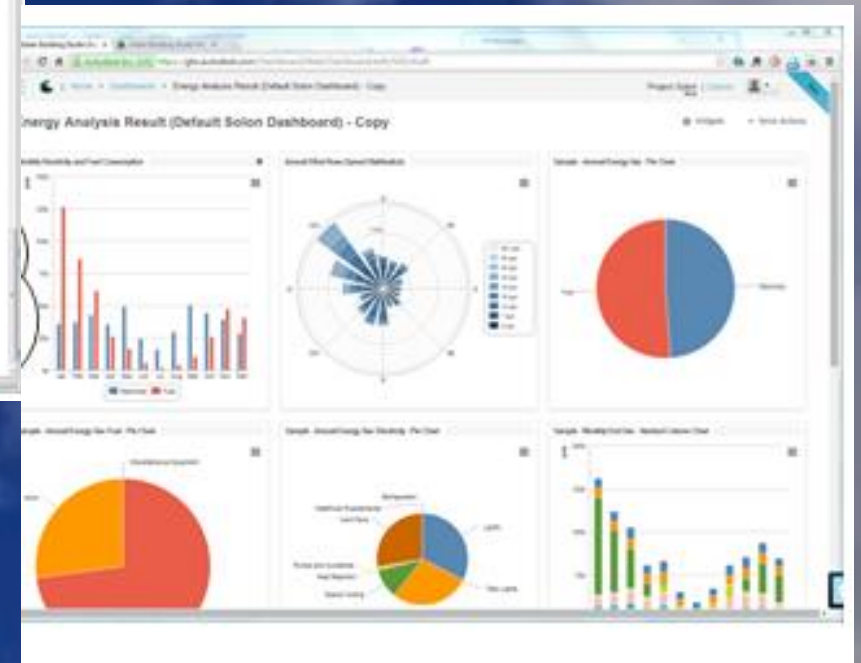
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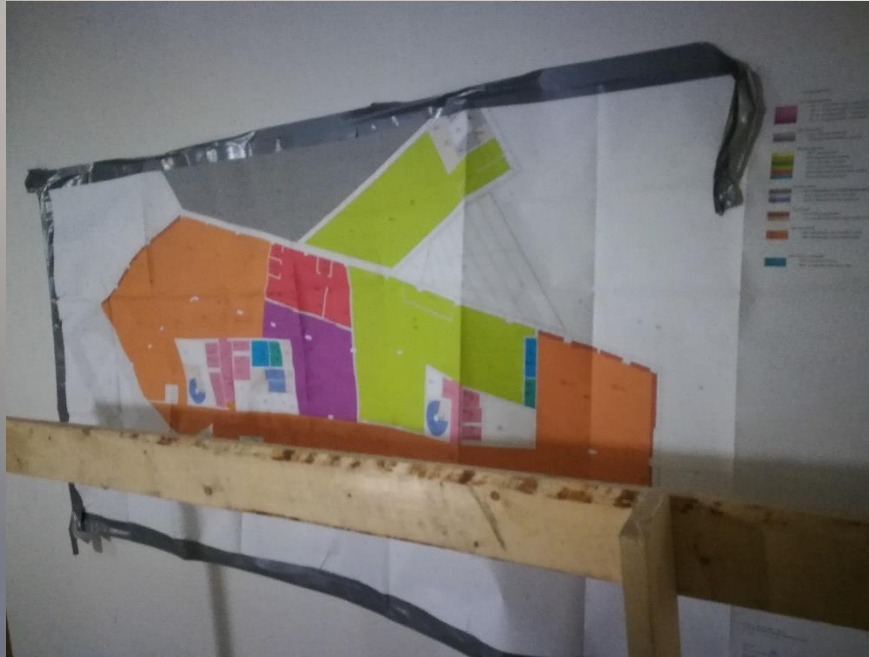
Production Workers Information



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Conclusions



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- Digitalization have not reached construction crews
- The adoption of digitalized VM can enable decision-making based on updated information by construction workers
- It is necessary to shift from improvisation teams to self-managed teams
- Smart phone applications are an important tool to increase the information flow, nevertheless they require active information search and cannot be considered as VM devices

Possibilities for digitalization of VM



- the use of local digital screens closer to the production areas of construction projects
- use of augmented reality glasses, enabling the visualization of design details and plan status
- adoption of laser and virtual image projections, to compare progress and forecast interferences from different disciplines

Future Research

- Information requirements from construction workers
- Efficient and useable display of production phase information
- Comparison of results from the adoption of analogic VM tools against the adoption of digitalized VM
- Comparison of different digital VM tools, measuring the impact of their adoption

THANK YOU!

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