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Visual Management in Brazilian Construction Companies: Taxonomy and Guidelines for Implementation

Original Citation

Tezel, Algan, Koskela, Lauri, Tzortzopoulos, Patricia, Formoso, Carlos and Alves, Thais (2015) Visual Management in Brazilian Construction Companies: Taxonomy and Guidelines for Implementation. *Journal of Management in Engineering*, 31 (6). ISSN 0742-597X

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Table 5 – Cross-Case Comparison of the Implementation Process

Case Study No	Purpose of VM	VM tools features	Capturing VM practices for Future Use	Suggestions for VM implementation	VM implementation issues	Measuring VM performance?
1	<ul style="list-style-type: none"> • Transparency • Simplification • Better communications between management and (poorly educated) workforce • Efficiency and discipline on sites • Positive impact on the company's image • Easier site control • Increase productivity 	Direct, simple, low-cost and colorful (attractive)	Informally, keeping VM records	<ul style="list-style-type: none"> • Awareness about production management and lean construction is essential • Concentrating not only in production 	<ul style="list-style-type: none"> • Training workforce can be time consuming • Trained worker turnover • Some lack of consistency in using the tools • Some visual tools are costly 	No
2	<ul style="list-style-type: none"> • Giving timely information • Raising consciousness about the construction environment • Demonstrating good practices • Enabling easier to control and more standardized construction sites • Reducing waste 	-	Formally capturing and documenting different VM implementations (on CDs, catalogues etc). Share practices over the company intranet.	<ul style="list-style-type: none"> • A comprehensive training plan • Close supervision of new workers • Regularly updating and sustaining different visual tools 	<ul style="list-style-type: none"> • Training workforce can be time consuming 	No
4	<ul style="list-style-type: none"> • Simplification; reducing complexity on sites • Bonding management and workforce through visual communication • Giving information about the site to the (poorly educated) workforce • answering workforce questions; guiding the workforce • Coordination of the workforce • Enabling interaction between the management and the workforce. • Enabling orderly and more standardized construction sites. • Contributing to the positive image of the company. 	Simple, concise, direct and low-cost	Formally capturing and documenting different VM implementations (on CDs, catalogues etc)	<ul style="list-style-type: none"> • Understanding the concept of transparency before application • Top managements' support of VM • Patience and persistence in training • Close supervision of the workforce • Demonstrating the practical benefits of different visual tools to the workforce • Paying close attention to the suggestions of the workforce • Maintaining the key personnel • Standardizing the production system • Experimentation with different tools 	<ul style="list-style-type: none"> • Training workforce can be time consuming • Trained worker turnover 	
5	<ul style="list-style-type: none"> • Better site organization • Cleanness • Reducing waste • Fewer mistakes • Maintaining discipline on site • Easier, simplified and attractive communication for the workforce • Easier control of the site by the management • Stabilizing worker performance by displaying the information the worker needs. • Creating a better image of the company in clients' and visitors' perception 	-	Formally capturing and documenting different VM implementations (on CDs, catalogues etc)	<ul style="list-style-type: none"> • Patience and persistence in training. • Demonstrating practical benefits of different visual tools to the workforce. • Receiving feedback from the workforce • Getting the foreman's consent 	<ul style="list-style-type: none"> • Training workforce can be time consuming • Resistance to change 	No

Table 5 – Cross-Case Comparison of the Implementation Process (continued)

Case Study No	Purpose of VM	VM tools features	Capturing VM practices for Future Use	Suggestions for VM implementation	VM implementation issues	Measuring VM performance?
6	<ul style="list-style-type: none"> • A tool for people to see the if the construction site works as intended and the deviations from the expected. • Worker empowerment • Answering workforce questions; guiding the workforce • Creating a better image of the company in clients' and visitors' perception • Reducing waste 	Simple concise, direct, do not need to be low-cost	Formally capturing and documenting different VM implementations (on CDs, catalogues etc)	<ul style="list-style-type: none"> • Provide suitable channels for the workforce to suggest new ideas and to express themselves (experimentation) • Top managements' support of VM • Importance of communicating the vision of the company • Training by showing • Understating the theory behind VM 	<ul style="list-style-type: none"> • Training workforce can be time consuming • Resistance to change at initial implementation • Creating the ownership of the workforce for VM 	No
7	<ul style="list-style-type: none"> • Facilitating construction tasks for workers and site control for management • Answering workforce questions; guiding the workforce • Creating a better image of the company in clients' and visitors' perception 	Direct, simple, low-cost and colorful (attractive) durable	Formally capturing and documenting different VM implementations (on CDs, catalogues etc.)	<ul style="list-style-type: none"> • Training by showing (using videos) is important 	<ul style="list-style-type: none"> • Training workforce can be time consuming • Resistance to change at initial implementation • Workers may be afraid of making mistakes 	No
8	<ul style="list-style-type: none"> • Giving timely information • Facilitating construction tasks for workers and site control for management • Increasing the types of work the workers can do on their own • Creating a better image of the company in clients' and visitors' perception 	Direct, simple, low-cost and colorful (attractive)	Formally capturing and documenting different VM implementations (on CDs, catalogues etc.)	<ul style="list-style-type: none"> • Comprehensive training plan • Persistence and regularity in training • Care is needed not to create visual pollution (excess information) 	<ul style="list-style-type: none"> • Training workforce can be time consuming • Defining responsibilities for managing different VM tools / systems 	No

