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Abstract

Vulnerable, Uncertain, Complex and Ambiguous environment surrounding companies, makes difficult to ensure business continuity and growth. Many companies had decided to deal with such complexity by pursuing a Lean Culture to drive organization competitiveness and efficiency to fulfil their Vision and Mission Statements. They leverage Company's Values as foundation to execute their strategic plan dominate their markets. Many had taken the decision, however not all are successful on sustaining a lean culture. Why is that possible, if most of the companies are following Lean Methodologies and broad or extensive use Six Sigma Tools?

Introduction

There is not a magic formula for a company to create that lean culture; however, the ones that had achieve it, highlight the role of leadership and the deployment plan. This research was intended to evaluate how visual management could take a key role on helping management on creating the desired culture.

Background

Visuals play a vital role creating flexibility and integration within the whole operation system [5], creates transparency and commonality between different areas within the organization.[3]. Communication is not simply showing results, there is something else needed, human beings are move from the heart and there is a big difference of being driven by obligation that being emotionally attached to the cause. Reference [4] shows there is a strong correlation between employee engagement and Lean sustainability. This connection with the cause, is relevant to the concept of cognitive psychology or the human beings mental process. [1]. Human beings mind works in the following sequence, got attention or get connected, then perceive or understand, activate their creative thinking and proceed to problem solving. Is fundamental that management and staff have the same understanding [2] therefore the accuracy of operating guidelines is critical. Perhaps the intention of clarity on the instructions and information has been always a priority for management however, by the time they hit the floor they could create doubts or unclerness on floor staff. Well design and structured visual management play a key role here closing that gap creating a common language and understanding. In addition to clear understanding is critical to have the right support from management, since this is key to sustain the tool and provide the right coaching and support.

Problem

The hypothesis is that a well design visual management, that includes the right elements to communicate the information to all levels of the organization will drive a common language and understanding across the manufacturing facility complementing leaders role during the implementation, and could serve as a way to address the cognitive behavior [15] of the site population to support the organization and transcends the leadership changes, resulting on lean culture creation

Methodology

The design experiment was determined to be an exploratory research [6] of a lean transformation deployed on multiple sites around the world of the Global Manufacturing Company to identify the actual state of visual management implementation. Three Sites on scope where from US, Europe and the Caribbean. The three sites received general guidance for implementation from their corporate centralized Operational Excellence support group. During this study we evaluated the impact or relationship of the visual management approach implemented on each Site and the resulted Site Cultural Index.

The research was conducted during 2019 as part of Sites visits accompanying the Corporate Lean Assessors Team during their Lean Peer Review Process.

Data Collection driven by :

- Site Leadership Interviews
- Strategy Deployment discussion
- Work Center Team (WCT) meetings observations
- Manufacturing, warehouse and back office areas visited
- Visual management boards observation
- Focal Groups with Staff members

Attributes evaluated:

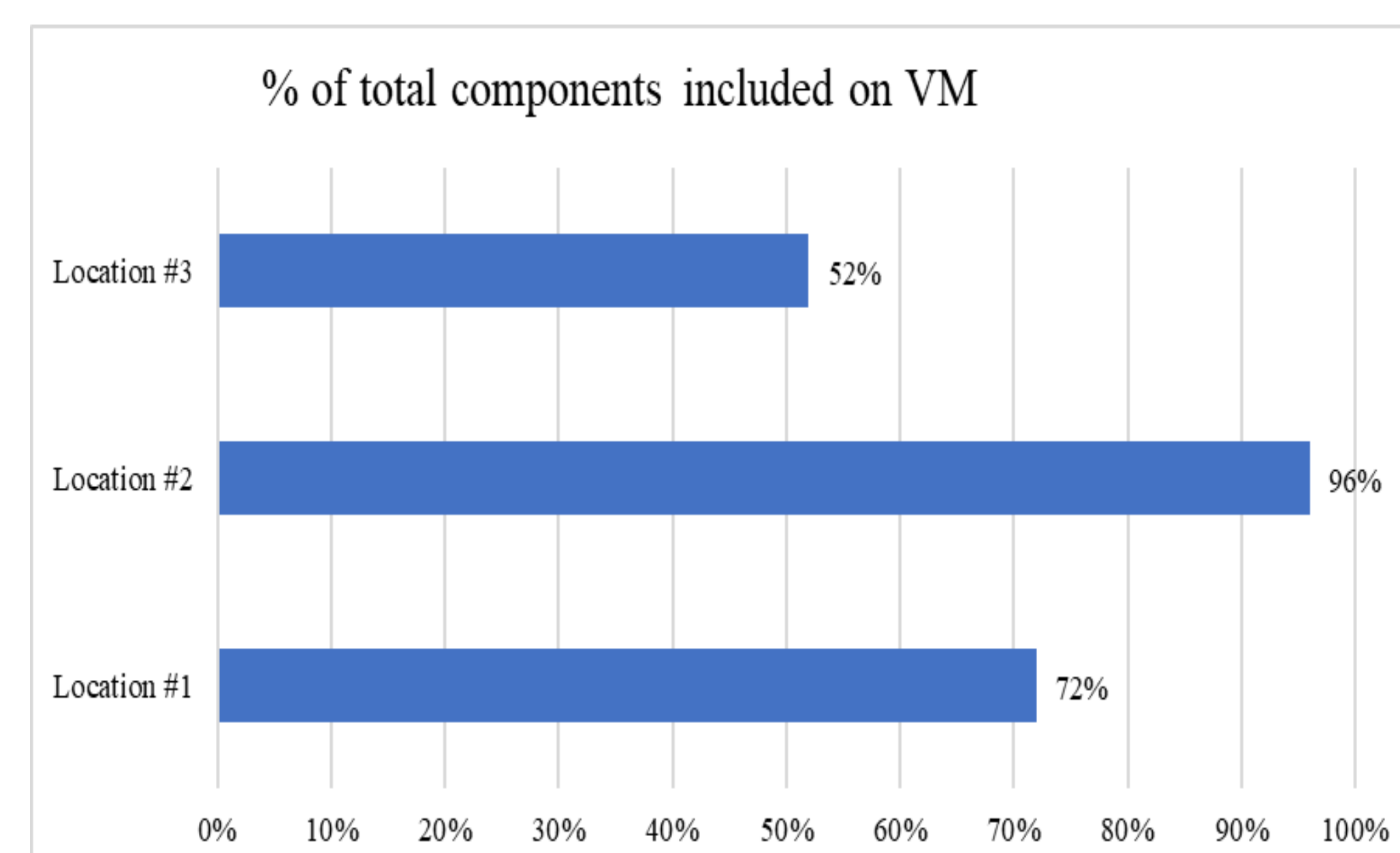
- Visual Management Format
- Visual management Components
- Staff Feelings and sense of belonging

Data collected including meeting notes, focal groups minutes and visual management boards photos was then analyzed, and data is presented as the base for our conclusions leveraging Lean Culture Maturity Index.

Results and Discussion

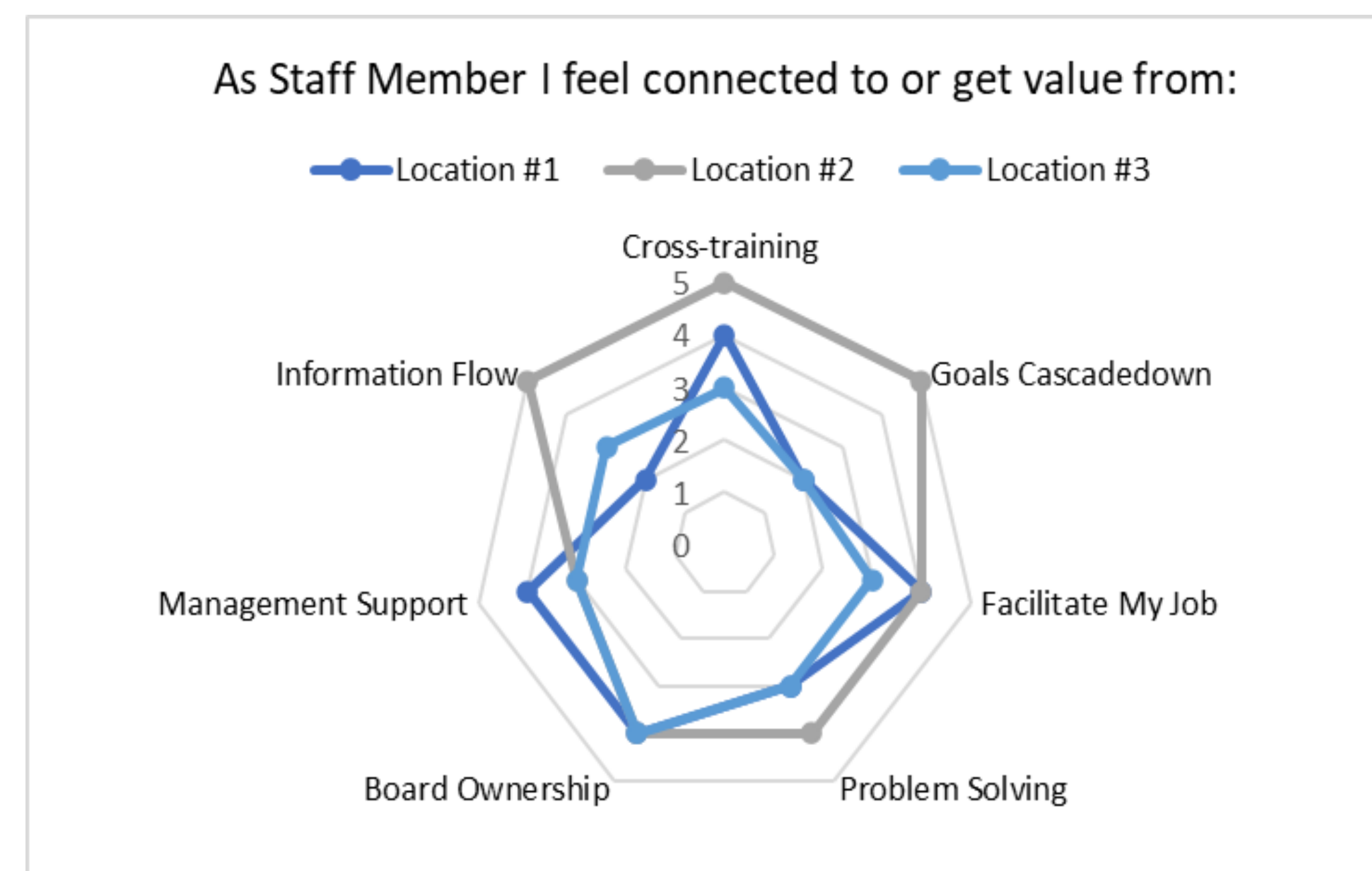
A total of 25 different components were identified and then quantified to determine how many of them on were existent each location. Location # 1 uses 18 of the 25 components while Location # 2 had evidence of 24 out of the 25 and Location # 3 13 out of the 25 components. Location #2 was the most comprehensive facility with 96% of components in place.

Figure 1
Visual Management Components



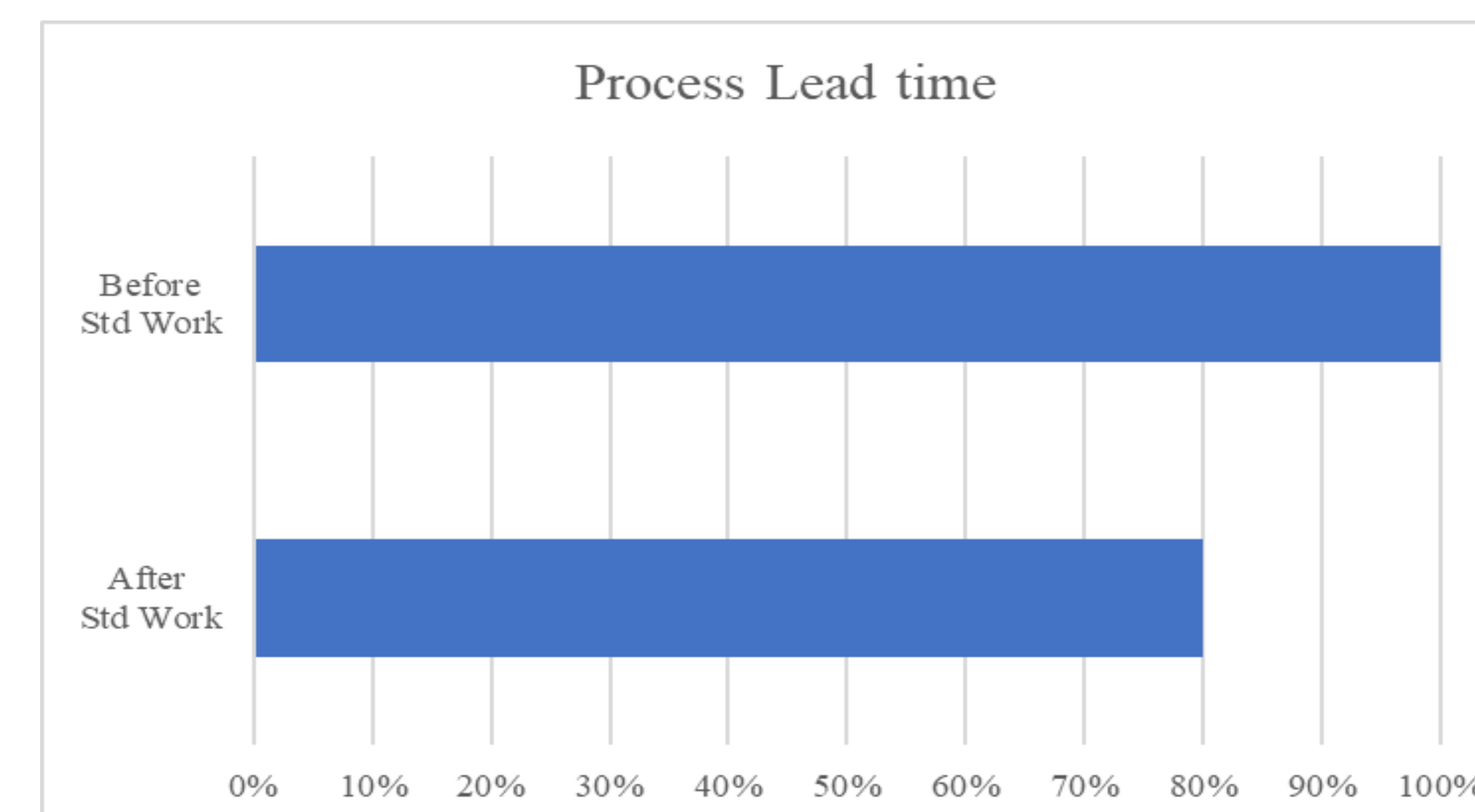
Focal groups questions were designed to access Lean Cultural Maturity at each Site (See Figure 2) getting an understanding of the feelings of floor staff about Site and Company Mission and Vision, current business challenges, goals and how they connect to them.

Figure 2
Staff Feelings



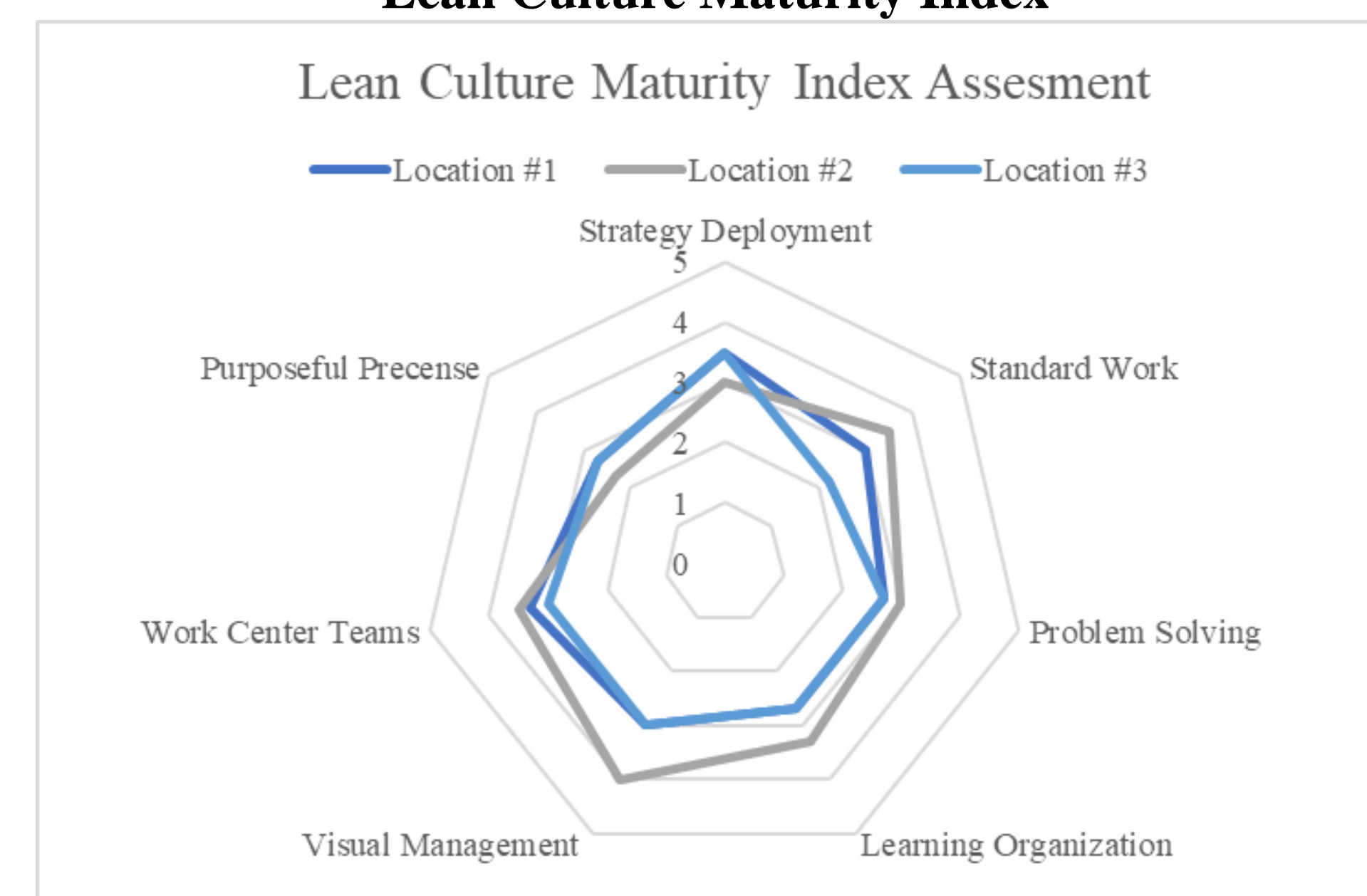
According to one of the leaders (See Figure 3) the implementation of standard work and the PDCA cycle on the facility had been key, after two years of implementation process lead time had been reduced 20% by waste elimination.

Figure 3
Standard Work Contributions



Formal Lean Maturity Index assessment was performed with the help of the Corporate group (See Figure 4) which shows Location #2 with a higher level of maturity that the other two locations driven essentially by visual management (4/5) and standard work (3.5/5).

Figure 4
Lean Culture Maturity Index



Conclusions

The hypothesis has been proven., the results supports that different approaches utilized on the implementation of visual management will impact the culture maturity. It was demonstrated by the research that even that similar guidance was provided to each site, all of them had implemented performance tracking, problem solving and monitoring of standards , however the location that had chosen to go an extra step adding cognitive psychology elements on its visual management to engage, motivate, and educate their employees had advance further on a Lean Culture Maturity, creating an environment of pride and belonging among its employees. There is not a magic pill or magic formula to implement the Lean principles and sustain successfully the culture.

Future Work

Future research should happen on the evolution of the visual management to support the quickly changing environment leveraging technology to ensure an environment of collaboration, engagement and performance is not affected by the current challenges the world is facing including natural disasters and pandemics that had change the way we do business yesterday and had forced us to be creative to work from the distance with the challenge to continue being and effective team working from home.

Acknowledgements

I dedicate this Design Project to God, for giving me the energy to continue fighting to become a better professional, father, husband and human being in general. Second to my loved wife Thania for her unconditional support, to my kids Christian, Vianca, Christopher and Denise for their patience over this journey and for all the hours I had not dedicated to them pursuing this dream. I hope this serves as proof that everything in life is possible, it all depends on your hard work and your dedication to make it happen. Thanks to all... LOVE YOU!

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