

The Evaluation of the National Operational Excellence Index impact over the Private Sector Sustainability in Puerto Rico.

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ABSTRACT

During the past decade, the World Forum Competitive Index (WFCI) from the Island has dropped from 36 (2008) to 32 (2015). This drop is being aligned with the loss of resources from federal tax laws and high utilities/transportation cost. Since 2015, Puerto Rico has not participated in the evaluation. Competitiveness has not been measured using a public indicator. The Puerto Rico Manufacturing Association (PRMA) has developed a National Operational Excellence Index (OEI) to measure the effectiveness of a continuous improvement project implementation. The OEI is developed using two implementation levels; Project or Company Level: The Project Level is focused on project structure and results and The Company Level is focused on the cultural change of the organization based on The Shingo Model. Due the time limitation this study will evaluate the impact of the OEI on a Project Level.

INTRODUCTION

The Data will be collected from the PRMA Quest 2017 and Quest 2018 contests. During this contest, companies from different types of industries will present their productivity projects using a diverse range of continues improvement models; Kaizen, Lean Six Sigma, Shingo Model and others. For each of the presented project, cetiedil judges will score the effectiveness and an index will be published. As part of the study, the researcher will measure the Index delta from 2017 to 2018. Statistical Analyses will be done to determine if this competitiveness is significant or not. A survey will be done to determine the reasons of the changes performed by the companies.

OBJECTIVES

- Define the Operational Excellence Index for PRMA.
- Analyze the data recollected from the rubric (2017).
- Measure the index (2018)
- Analyze the data recollected from the rubric (2018).
- Measure the index from both populations (2017 vs. 2018)
- Analyze statically using Hypnotizing Testing (How significance was the changes?)
- Conclusion and Recommendations

METHODOLOGY

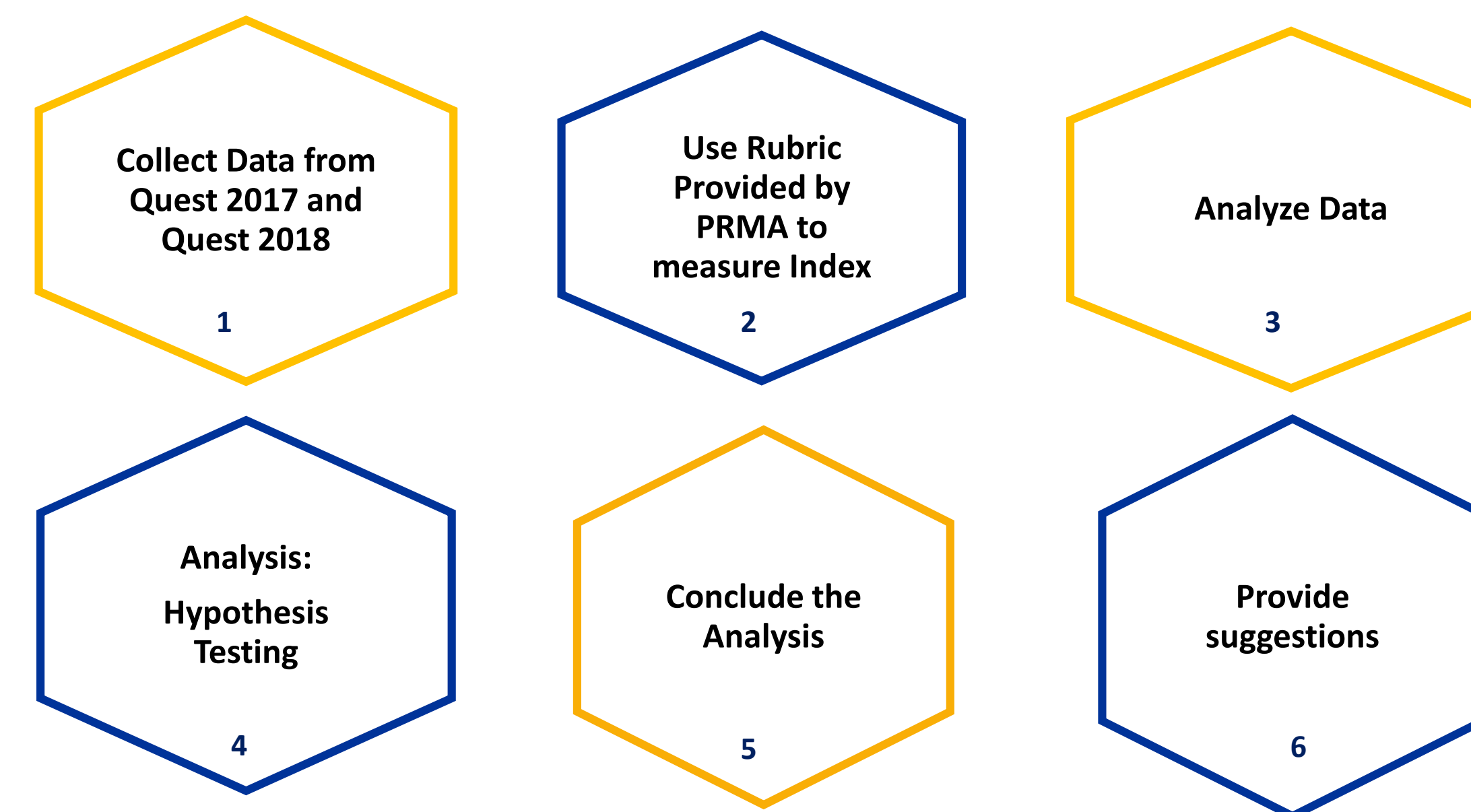


FIG. 1: METHODOLOY METHOD

ANALYSIS & RESULTS

Puerto Rico has participated in WEFCI for almost a decade (2008-2015) The lowest rank Puerto Rico had was 30 in 2014 and the highest 42 in 2010. The last year Puerto Rico competed in the WEFCI was in the year 2015 with a 32 as ranking, after that year the Island has not participated because is productivity has not maintained the rigorous criteria the organization needs to evaluated us.



FIG 2: WORLD ECONOMIC FORUM COMPETITIVENESS REPORT, (2008-2015)

DATA

QUEST 2017				
TYPE	QUANTITY	INDEX (MEAN)	INDEX (STAND. DEV)	COEFFICIENT OF VARIATION
MEDICAL DEVICE	13	5.17	1.21	23%
PHARMACEUTICAL	10	5.84	1.04	18%
BIOTECHNOLOGY	6	8.63	0.78	9%
AEROSPACE	6	7.29	1.14	16%
CONFECTIONARY	3	4.95	0.92	19%
SERVICE	2	6.01	0.11	2%
AGRICULTURE	1	7.10	0.00	N/A

TABLE 1: OPERATIONAL EXCELLENCE INDEX FROM QUEST2017 (TYPE OF INDUSTRY)

QUEST 2017				
TYPE	WEST	NORTH	SOUTH	EAST
MEDICAL DEVICE	5.89, 6.45	3.70, 4.12, 6.32, 6.45	4.24, 4.29, 4.61	3.08, 5.41, 6.05, 6.64
PHARMACEUTICAL	4.33	4.48, 5.58, 5.72, 5.81, 5.95, 5.99	7.11	5.62, 7.84
BIOTECHNOLOGY	0.00	7.14, 8.68, 9.29	0.00	8.64, 8.76, 9.28
AEROSPACE	5.89, 6.33, 7.14, 7.47, 7.83, 9.10	0.00	0.00	0.00
CONFECTIONARY	0.00	4.65	4.22, 5.99	0.00
SERVICE	5.93	0.00	0.00	6.09
AGRICULTURE	7.10	0.00	0.00	0.00
INDEX (MEAN)	6.67	5.99	5.07	6.74

TABLE 2: OPERATIONAL EXCELLENCE INDEX FROM QUEST2017 (TYPE OF ZONE)

CONCLUSION

- Puerto Rico is classified as an innovation-driven economy.
- Government and Private Sector need to improve performance in areas of Health, Primary Education, Infrastructure and Macroeconomic Stability as a key for a World Class Competitiveness development.
- PRMA Operational Excellence Index should contribute to Innovation, Technology Readiness and Labor Market Efficiency.
- Operational Excellence Index variability among industry types should be addressed to support those with a lower performance.
- Benchmarking is supporting the reduction of competitiveness performance variability between Manufacturing and Services organizations

FUTURE WORK

The next step will be using the data collected from Quest 2018 for more accurate and comparative results. The same methodology will be used to determine it there has been any growth in the recent year to acknowledge those areas of opportunities mention in the World Economic Forum (WEF), such as; Innovation, Technology Readiness and Labor Market Efficiency. In the end, the purpose of the research is to provide an index where it can be measure at a project level and be implemented towards an effective achievement in Operational Excellence.

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