

Case Study

The case study must illustrate Lean Six Sigma concepts that review current Covid-19 pandemic. The goal is to develop statistical analysis of conditions globally and determine if difference exists between countries. In additional model curve and determine time frame to "Flatten Curve" for particular country or region. The case study will allow the participant students to gain awareness, knowledge and critically demonstrate the application of DMAIC strategy to resolve complex processes. In particular, participant students will:

- Develop an understanding of utilizing a structured methodology to problem solve complex integrated processes
- Gain insight into driving critical decision points in problem-solving based on data instead of opinion(s) or emotion(s)
- Compare and contrast different solutions and make a suggestion on improvement action(s) with the maximum payoff.

Activity

You/your team are/is requested to focus on a specific country or region of your choice that has been significantly impacted by Covid-19 pandemic. Six Sigma encompasses tools to make statistical comparison between population samples. It contains has methodology to perform predictive analysis.

You/your team have/has been tasked to resolve a complex global concern. Applying the DAMIC process teams must provide statistical analysis of Covid-19 pandemic. Depending on the selected approach to address the concern different tools will be employed throughout DMAIC process to narrow Key Process Input Variables (KPIVs) that are driving unacceptable output(s). The report must also incorporate the following minimum requirements:

- **Define**
 - o Problem Statement
 - o Critical to Satisfaction (CTS)
 - o Process Map
- **Measure**
 - o MSA
 - o Baseline Performance Metric
- **Analysis**
 - o Key Source of Variations
- **Improve**
 - o Validation of Key Variation Source (Turn ON/OFF Concern)
- **Control**
 - o Actions to Sustain Improvement

The analysis of the concern utilizing DMAIC process must include only tools necessary to resolve the concern. The focus should concentrate on a clear and minimalistic path to resolving the concern.

You/your team are/is free to follow any research, data collection and or analysis methodology that you/your team consider the most appropriate to address the required task.

Submission Requirements

A report of no more than 3,000 words submitted to IEOM society. The deadline for the submission of the report is **April 30, 2020**. No submissions will be accepted beyond that date. You/your team are/is free to format and structure the report in any form you/your team consider it most appropriate. The only consideration that must be taken is to make sure that the case study is addressed in a thorough manner and clearly communicated through the report. Other requirements include:

- Submissions could be as individuals or a team of 2-3 members maximum.
- All participants should be current undergraduate, postgraduate or recent graduate students.
- The Lean Six Sigma case study must be solved completely by the team members.
- Submission must be within the deadlines and no late submissions will be accepted.

Finalist teams will be invited to participate in a live virtual competition. Further information will be provided to the finalist teams.

Assessment Criteria

- Good and effective report's presentation
- Clearly and effectively structured and communicated report
- Demonstration of a clear understanding of supply chain and logistics challenges within the context of humanitarian missions
- Clear demonstration of the application of supply chain and logistics theory, concepts, methods and/or tools to solve complex supply chain and logistics issues in humanitarian missions
- Clear demonstration of the use of effective analytical and technical skills to solve supply chain and logistics challenges
- Clear demonstration of knowledge and skills to formulate and develop an implementation plan for a supply chain and logistics strategy

References

Wortman, B. (2010). Quality Council of Indiana. *The Quality Engineer Primer*, 24.

Contributions to Support the COVID-19 Front-Line Workers

As a participant, the IEOM Society encourages you to support the front-line workers in our local hospitals who are engaged in fighting the COVID-19 pandemic. Unfortunately, the number of patients has continued to increase in our hospitals. Our doctors and nurses are endeavoring to meet the challenge that the coronavirus has presented to their patients. The IEOM Society would like to purchase pizza from local restaurants for our hospital workers. If our fund raising is significant, we could also purchase medical supplies as well. IEOM Society is also encouraging to support your local hospitals / medical centers for the front-line workers.

Competition Chairs/Coordinators

- **Dr. Saso Krstovski**, Adjunct Professor in Industrial Engineering Lawrence Technology University (skrstovsk@ltu.edu)
- **Dr. Hayder Zghair**, Adjunct Professor in Industrial Engineering Lawrence Technology University (hzhair@ieomsociety.org)
- **Dr. Ahad Ali**, Associate Professor in Industrial Engineering Lawrence Technology University (sali@ltu.edu)

Please send your submission to competition chair, Dr. Saso Krstovski at skrstovsk@ltu.edu.