

Reducing Mobile Phone Repair Cycle Time at A Telecommunications Company Using Lean Six Sigma

Catarina Carvalho

Master's Student in Management of Services and Technology
Iscte – Instituto Universitário de Lisboa
Lisbon, Portugal
cccoe@iscte-iul.pt

Jamison V. Kovach

PMI Houston Endowed Professor in Project Management
University of Houston
Houston, TX, USA
jvkovach@uh.edu

Sofia Kalakou

Business Research Unit (BRU-ISCTE)
Iscte – Instituto Universitário de Lisboa
Lisbon, Portugal
Sofia.Kalakou@iscte-iul.pt

Abstract

Developing process efficiencies resulting in shorter cycle times (i.e., the elapsed time between starting and completing a job) is one mechanism organizations often use to achieve a competitive advantage, higher profits, and/or better customer satisfaction. This research examines how a telecommunications company is working to reduce their repair process cycle time through an action research project in which researchers work side-by-side with company employees to develop and implement practical solutions. Given the specific goal to reduce the cycle time of their existing repair processes across multiple locations, the company selected the Lean Six Sigma methodology to guide their process improvement efforts. This began with mapping the processes, analyzing measurement systems, and collecting cycle time data. In addition to establishing a baseline measurement, these data will be analyzed to identify the sub-process steps, product types, repairers, etc. with the longest cycle times. These aspects will then be analyzed further to determine the causes of waste in the process. Next, ideas will be developed regarding how to reduce/eliminate the causes of waste, these ideas will be evaluated using group decision-making tools, and the most appropriate solutions will be implemented. Finally, a control plan will be established to facilitate behavior change of employees working in the process and monitor the improved process performance to ensure long-term sustainment of the reduced cycle time.

Keywords

After-sales service, Action Research, Cycle Time, Lean Six Sigma

Biographies

Catarina Clemente Carvalho is a second year Master's student in Management of Services and Technology at Iscte – Instituto Universitário de Lisboa. She earned a Bachelor's degree in Management from the same institution in 2018. Ms. Carvalho is currently the on-site leader of an action research project implementing the Lean Six Sigma methodology in a telecommunications company.

Jamison V. Kovach is the PMI Houston Endowed Professor in Project Management at the University of Houston. She received her Ph.D. in Industrial Engineering from Clemson University. Her industrial experience includes more than five years as a product and process improvement engineer in the U.S. textile industry. Her current research investigates the use of methods for product and process innovation, expanding the use of these methods, and developing new improvement approaches. For her work, Dr. Kovach was recognized as the 2010 ASQ Feigenbaum Medalist, and she received the ASQ Six Sigma Forum Award for the Advancement of Six Sigma in 2019. Dr. Kovach is an Academician in the International Academy for Quality, an ASQ Fellow, and the Editor for *Lean & Six Sigma Review*. In addition, Dr. Kovach is a Fulbright Scholar who completed her project in 2022 at ISCTE – Instituto Universitário de Lisboa, Business Research Unit, Lisbon, Portugal. Dr. Kovach is also the Director of the UH- College of Technology's Lean Six Sigma Professional Training Program. She was trained in Lean Six Sigma by the former CEO of the Juran Institute, and has experience applying this valuable methodology through her own work experience as well as in conjunction with industry partnerships for over 20 years. She has published more than 65 articles on the subject of Lean Six Sigma and related topics, and she regularly presents her work at conferences and professional meetings around the world.

Sofia Kalakou is an Assistant Professor at the Department of Marketing, Operations and General Management of ISCTE and the Director of the BSc in Industrial Management and Logistics. She teaches operations management and quantitative methods in undergraduate, graduate and post-graduate programs. Her research focuses on urban and air transport planning and management, technology adoption and integration in operations, implementation of sustainable practices and operations performance assessment. She has been involved in industrial/consultancy projects related to highway demand forecast and management, survey design and passenger mode choice modeling, and transport network design. She has participated to 5 projects funded by the European Commission related to operations management in the urban and air mobility sector. She holds a PhD and MSc in Transportation Systems (Lisbon, IST-IUL), a Diploma in Civil Engineering (Athens, NTUA) and has previously worked as a transport and mobility consultant.