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## Integrating DMAIC Approach and Lean Six Sigma Concept to Improve Quality and Reducing Waste

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## IEOM Haiti Conference Paper/Abstract Received - Co-Author

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IEOM Haiti Conference <noreply@xcdsystem.com>

2 May 2021 at 01:54

Reply-To: info@ieomsociety.org

To: hayati.asih@ie.uad.ac.id

Dear Hayati,

You have been added as a co-author for the following paper/abstract at the First Central American and Caribbean International Conference on Industrial Engineering and Operations Management, Port-au-Prince, Haiti, June 15-16, 2021. Due to the global pandemic, it will be virtual.

Paper ID Number: 214

Title: Integrating DMAIC Approach and Lean Six Sigma Concept to Improve Quality and Reducing Waste

Primary Author Name: Muhammad Faishal

Primary Author Email: [muhammad.faishal@ie.uad.ac.id](mailto:muhammad.faishal@ie.uad.ac.id)

As a co-author, you may view this paper at <https://www.xcdsystem.com/IEOM/abstract/index.cfm?ID=JLjk7G1>.

Your login information is:

Email: [hayati.asih@ie.uad.ac.id](mailto:hayati.asih@ie.uad.ac.id)

Your password by default is your Email address unless you changed it or created it when adding your profile.

Regards,

The Organizing Team  
[info@ieomsociety.org](mailto:info@ieomsociety.org)

**First Central American and Caribbean International Conference on Industrial Engineering and Operations Management**

**Port-au-Prince, Haiti, June 15-16, 2021 - Virtual**

Website: <http://ieomsociety.org/ieom/haiti2021/>

Submission Link: <https://www.xcdsystem.com/IEOM/abstract/index.cfm?ID=JLjk7G1>

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## Abstract Acceptance - 2021 IEOM Haiti Conference

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IEOM Haiti Conference June 15-16 2021 <noreply@xcdsystem.com>

8 June 2021 at 03:01

Reply-To: info@ieomsociety.org

To: hayati.asih@ie.uad.ac.id, faishal.muhammad8@gmail.com

Dear Hayati:

Congratulations! The IEOM program and publication team has recommended that your abstract

### **Abstract Acceptance - 1st Central American and Caribbean International Conference on Industrial Engineering and Operations Management 2021**

Dear Hayati:

Congratulations! The conference organizing committee is pleased to announce that your abstract (ID 214: Integrating DMAIC Approach and Lean Six Sigma Concept to Improve Quality and Reducing Waste) has been *accepted for presentation and publication* in the 1st Central American and Caribbean International Conference on Industrial Engineering and Operations Management, June 15-16, 2021. Due to the global pandemic, the event will be virtual via zoom. Your presentation will be for 15 min via zoom. You can prepare a power point presentation. Your presentation schedule will be sent soon.

IEOM Society International (a nonprofit professional organization) has become a premier international platform and forum for academics, researchers, scientists and practitioners to exchange ideas and provide insights into the latest developments and advancements in the fields of Industrial Engineering and

Operations Management. IEOM has more than 140 student chapters and 40 professional chapters around the world. IEOM has successfully organized international conferences in Dhaka (2010), Kuala Lumpur (2011), Istanbul (2012), Bali (2014), Dubai (2015), Orlando (2015), Kuala Lumpur (2016), Detroit (2016), Rabat (2017), Bristol, UK (2017), Bogota (2017), Bandung (2018), Bangkok (2019), Pilsen (2019), Toronto (2019), Riyadh (2019), Bristol, UK (2017), Bandung (2018), Paris (2018), Washington DC (2018), Pretoria (2018), Bangkok (2019), Pilsen (2019), Toronto (2019), Riyadh (2019), Dubai (2020), Detroit (2020), Harare (2020), Singapore (2021) and Sao Paulo (2021).

Please note the following points for the final version preparation:

1. Authors MUST follow the 2021 IEOM Haiti Abstract Template - <http://ieomsociety.org/abstract-haiti2021.docx>.
2. The abstract is limited to 500 words.
3. Pages should NOT be numbered.
4. Final version should be in MS Word with conference header, footer and IEOM guidelines.
5. For each author, a short bio around 250 words needs to be included at the end of the abstract.
6. The final version submission deadline is June 10, 2021.
7. At least one author needs to present the abstract.
8. Authors must register for the conference. Please complete your **registration payment by June 10, 2021** - <https://ahadali.wufoo.com/forms/z1k0hh5i0cfwv9t/>. You can also pay using this link - <http://ieomsociety.org/ieom/payment/>.

If you need a formal acceptance letter, please contact [info@ieomsociety.org](mailto:info@ieomsociety.org) with your abstract id & title, name, affiliation and address.

## Keynote Speakers

- Professor Vladimyr Léveill e, Coordination, Industrial Engineering Department, Universit e Quisqueya, Ha ti
- Julius "Chip" Ritter, VP of Sales, Industrial Machinery & Heavy Equipment, Siemens Digital Industries Software, Indianapolis, Indiana, USA
- Dr. Osvaldo Aquines-Guti rrez, Research Professor, Chair at the Department of Physics and Mathematics, School of Engineering and Technologies, Universidad de Monterrey, San Pedro

Garza García, NL 66238, Mexico

- Dr. Arturo Del Villar, Dean of the School of Engineering, Professor Operations Research, INTEC: Instituto Tecnológico de Santo Domingo, Santo Domingo, Dominican Republic
- Dr. Eldon Caldwell, Director, Industrial Engineering Department, Engineering School, University of Costa Rica, San Jose, Costa Rica
- Edmundo GIL-TAVAREZ, Managing Director, LATAM en Titanium Capital LLC, Dominican Republic
- Professor Nilza Aples, Dean, Faculty of Engineering and Computing, University of Technology, Jamaica, Kingston, Jamaica
- Dr. Shannon Dare, Global Technology Planning & Strategy, Body & Chassis, Ford Motor Company, Dearborn, Michigan
- Prof. Vitor Mendes Caldana, Federal Institute of Sao Paulo (IFSP) – Sorocaba Campus, Sorocaba, Sao Paulo, Brazil

The IEOM Society is expecting another exciting event in Port-au-Prince, Haiti. Some events and activities planned include: outstanding keynote speakers, global engineering education, global supply chain and logistics, Industry 4.0, industry solutions, student competitions and awards.

We look forward to seeing you at the IEOM Haiti Conference.

Regards,

The Organizing Committee

IEOM Haiti Conference, Port-au-Prince, Haiti, June 15-16, 2021

Website: <http://ieomsociety.org/ieom/haiti2021/>

Full Program: <http://ieomsociety.org/program-haiti2021.pdf>

Speakers: <http://ieomsociety.org/ieom/program-haiti2021/>

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San Jose, Costa Rica  
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Associate Professor and Director of Industrial Engineering Program  
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Port-au-Prince, Haiti, June 15-16, 2021 - Virtual

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- Speakers: <http://ieomsociety.org/ieom/program-haiti2021/>
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## **IEOM Haiti Conference Proceedings Papers Added**

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**Rocksana Ahmed** <rahmed1@ltu.edu>  
To: Rocksana Ahmed <rahmed1@ltu.edu>

25 October 2021 at 09:28

Most of the proceeding papers are added - <http://ieomsociety.org/ieom/haiti-proceedings-2021/>

**Ms. Rocksana Ahmed**

Assistant Program Director

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[www.ieomsociety.org](http://www.ieomsociety.org)

**12th Annual International Conference on Industrial Engineering and Operations Management  
Istanbul, Turkey, March 8-10, 2022**

Host and Venue: Kadir Has University, in collaboration with Sabancı University

Website: <https://ieomsociety.org/istanbul2022/>

Submission: <https://www.xcdsystem.com/IEOM/abstract/index.cfm?ID=YGN5iSP>

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## IEOM Haiti 2021 Proceedings Complete

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**Rocksana Ahmed** <rahmed1@ltu.edu>

26 November 2021 at 02:32

To: rahmed1@ltu.edu

Cc: bashar@ieomsociety.org

Hi,

We have completed the proceedings of the First Central American and Caribbean International Conference on Industrial Engineering and Operations Management, Port-au-Prince, Haiti, June 15-16, 2021

<http://ieomsociety.org/ieom/haiti-proceedings-2021/>

Now we will be adding page numbers.

Thanks

Rocksana

**Ms. Rocksana Ahmed**

Assistant Program Director

IEOM Executive Team

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Southfield, Michigan, USA

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**12th Annual International Conference on Industrial Engineering and Operations Management  
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# **Integrating DMAIC Approach and Lean Six Sigma Concept to Improve Quality and Reducing Waste**

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**Muhammad Faishal, Effendi Mohamad, Azrul Azwan Abdul Rahman and Okka Adiyanto**

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## **Abstract**

Lean Six Sigma is a systematic and scientific operations management methodology aimed to improve the performance of their manufacturing processes through the elimination of waste. The objective of this paper is to analyse the problem of increasing demand of briquettes in BriqCo (Briquettes Coconutshell Charcoal) company. In this case, the company has a waste problem due to defective products amounting to 10.2% of the total production of 169.298 kg. The high defects cause the company to suffer losses profits due to the re-production process of defects and a decrease in selling because of the unsuitable quality. This study uses the Lean Six Sigma (DMAIC) method. The define stages use the SIPOC diagram to determine the elements involved in the production process and Value Stream Mapping to determine the flow map of the briquette production process. Measure stages to determine the level of sigma based on production results. The Analyze uses a fishbone diagram to determine the root cause problems. In improve, the application of the 5S Method and Standard Operating Procedures proposed for a work improvement process that aims to improve the production process. In Control stage, the application of new Standard Operating Procedures (SOP) conducted to improve the production process in order to reduce defects. Based on the results, the initial sigma level reached 3.19. The causes of defects in briquette products consist of human, material, machine, method and environmental factors. With the application of 5S through SOP, it is expected that the level of disability will decrease by 50%

## **Keywords**

Lean six sigma, Value stream mapping, 5S, Standard Operation Procedure

## **Acknowledgements**

The authors would like to thank Teknik Industri, Universitas Ahmad Dahlan, Yogyakarta, Indonesia for support this research and also would like to thank the Faculty of Manufacturing Engineering, Universiti Teknikal Malaysia Melaka (UTeM) and Malaysian Government for their support and cooperation

## **Biographies**

**Muhammad Faishal** is a lecturer in the Industrial Engineering Department Universitas Ahmad Dahlan, Indonesia since 2016. He started working since 2009 at PT Summit Auto Group in Training Division as Class Coordinator and worked in PT Garudafood as Improvement Management Officer and Project Coordinator. He received his Bachelor's degree in Industrial Engineering from Universitas Islam Indonesia Yogyakarta and Master's degree in Manufacturing

Engineering from Universiti Teknikal Malaysia Melaka (UTeM). Currently he registered as Ph.D Student in Faculty of Manufacturing Engineering, Universiti Universiti Teknikal Malaysia Melaka (UTeM).

**Effendi Mohamad** has been serving Faculty of Manufacturing Engineering in Universiti Teknikal Malaysia Melaka as a lecturer since 2005. Prior to his involvement as an academician, he worked in NEC Semiconductors Sdn Bhd, Perodua Sales Sdn Bhd and ST Microelectronics Sdn Bhd in various engineering capacities such as industrial engineer and process engineer. He received his Bachelor's degree in Manufacturing Engineering from University Malaya Kuala Lumpur and Master's degree in Manufacturing Management from Coventry University United Kingdom. He completed his Doctoral course in Intelligent Structures and Mechanics Systems Engineering in University of Tokushima, Japan. He has also served as a visiting professor/scholar at various institutes including, Tokushima University, Japan and University Brawijaya, Indonesia. Currently, he is Associate Profesor in Faculty of Manufacturing Engineering, Universiti Teknikal Malaysia Melaka and is actively involved in consultation and research work with various manufacturing organizations.

**Hayati Mukti Asih** has been serving Faculty of Industrial Technology in Universitas Ahmad Dahlan as a lecturer since 2017. She received his Bachelor's degree in Industrial Engineering from Universitas Islam Indonesia and Master's degree in Manufacturing Engineering from Universiti Teknikal Malaysia Melaka. He completed his Doctoral course in Manufacturing Engineering in Universiti Teknikal Malaysia Melaka. She has also served as a Jurnal editor in chief in International Journal of Industrial Optimization..