

# **Studying The Application of VSM as a Lean Tool in a Healthcare Facility**

**Engr Mohammed Abdul Karim**

Department of Industrial and Production Engineering  
Shahjalal University of Science and Technology  
Sylhet, Bangladesh  
farhad.karim@gmail.com

**Tarequl Islam**

Supply Chain Management  
Avery Dennison Bangladesh  
Savar, Dhaka  
tareq.ipe.sust@gmail.com

## **Abstract**

For providing quality to patients, optimizing workflow, and eliminating wastes, the majority of healthcare industries are trying to adopt lean management principles. Value stream mapping is a key component of lean methodology, and it uses a flowchart to depict, analyze, and improve the actions involved in system. The aim of the study is to analyze the impact of VSM as a lean tool in the improvement of an existing healthcare facility. The main objective of the study is modeling the system through value stream map to identify wastes and non-value adding activities in the processes so that the system can get rid of bottlenecks, constraints and wastes. Sylhet women's medical college hospital is chosen for conducting the study. The necessary data are collected by interviewing staffs and employees at outdoor and indoor departments and also by direct observations and going through previous records. eVSM software is used for creating current and future state value stream map. The total waiting time, processing time and lead time of the processes of outdoor departments and diagnostic center of the hospital is measured and improved over existing system in the proposed model of the value stream map. From this study it is evident that VSM can ensure smooth healthcare service and improve healthcare performance.

## **Keywords**

Healthcare, Value Stream Mapping and Lean Manufacturing.

## **Acknowledgements**

We would like express our deepest gratitude to all the relevant doctors, staffs & officers of Sylhet women's medical college hospital for supporting us throughout the research.

## **Biographies**

**Engr Mohammed Abdul Karim** is an assistant professor in the Department of Industrial and Production engineering, Shahjalal University of Science and Technology (SUST), Sylhet, Bangladesh. He received his masters of engineering from Germany & bachelor of engineering from Bangladesh University of Engineering and Technology (BUET). His research interests include Diesel engine, Gasoline engine & renewable energy. He delivered several research projects related to renewable energy & occupational health & safety. He has publications in several journals.

**Tarequl Islam** is an Industrial Engineer having working experience at Supply Chain & Production in RMG, FMCG & Packaging industries. Currently he is working as a Capacity Planner under the Supply Chain department of Avery Dennison RBIS Bangladesh which is a Fortune 500 USA based multinational company & a market leader in Material Science. He holds a bachelor degree with a focus on Industrial & Production Engineering from School of Applied Sciences & Technology, Shahjalal University of Science and Technology or SUST in short, Bangladesh. His research

interests include operations research, human factors, healthcare systems engineering, simulation & advanced manufacturing.