DIGITALIZATION IN PUBLIC TRANSPORT SECTOR IN SRI LANKA: CASE STUDY OF A DIGITAL PLATFORM PROVIDER

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Degree of Master of Business Administration in Information Technology

Department of Computer Science and Engineering

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DECLARATION

I declare that this is my own work and this thesis does not incorporate without acknowledgement any material previously submitted for a Degree or Diploma in any other University or institute of higher learning and to the best of my knowledge and belief it does not contain any material previously published or written by another person except where the acknowledgement is made in the text.

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…… 19th July 2023 ……

Bavathuja V — Date

(Candidate)

The above candidate has carried out research for the Masters thesis under my supervision.

…… 19th July 2023 ……

Dr. Kutila Gunasekara — Date

(Supervisor)

ABSTRACT

Sri Lanka's underdeveloped public transportation sector has made limited use of digitalization technologies despite various attempts. QBUS, operating in the northern province for over 4 years using digital technologies, faces challenges in capturing the market and achieving customer adoption. This study investigates factors influencing passenger adoption and implementation problems of QBUS and similar services in Sri Lanka's public transport sector.

This applied correlational study collected survey responses from 411 participants in areas serviced by QBUS in Sri Lanka's public transport sector using convenient sampling. Data was gathered through a self-administered online survey and analyzed using quantitative techniques, including factor analysis and PLS-SEM. IBM SPSS 25 and SmartPLS software were utilized for data analysis, identifying deterministic factors, and testing 7 hypotheses.

The survey results indicate that 39% of participants showed high interest, and 31% expressed willingness to use digital technology in Sri Lanka's public transportation sector. If there is proper access, digital options are popular among 70% of respondents. Participants' intention to use digital services is primarily determined by their attitude towards it. The attitude is influenced more by the perception of usefulness than ease of use. Furthermore, passengers' intention to use digital payments is explained by their attitude has 54% of variance. However, the study only accounted for 36% of the variability in intention to use digital services, highlighting the need for further research and broader participant inclusion to enhance understanding.

Perception on how easy it is to use digital services can have an indirect effect on passenger's attitude, while empirical evidence suggests that subjective norms do not play a role in shaping passengers' attitudes towards using digital services. Perceptions on comfort of travel and likelihood to choose public transportation options available within Sri Lanka is influenced by subjective norms.

Keywords: PLS-SEM, Digitalization technologies, QBUS, Digital payments, Mobile application, Smart Transport.

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ADB	-	Asian Development Bank
AFCS	-	Automated Fare Collection System
AI	-	Artificial Intelligence
ANN	-	Artificial Neural Networks
A/L	-	Advanced Level
AU	-	Attitude towards the Use
AVE	-	Average Variance Extracted
CFA	-	Confirmatory Factory Analysis
CR	-	Composite Reliability
CEO	-	Chief Executive Officer
ETA	-	Estimated Time of Arrival
GCE	-	General Certificate of Education
GDP	-	Gross Domestic Product
GPS	-	Global Positioning Systems
GTFS	-	General Transit Feed Specification
HTMT	-	HeteroTrait-MonoTrait
IT	-	Information Technology
IOT	-	Internet of Things
IU	-	Intention to Use
KMO	-	Kaiser Mayer Olkin
LED	-	Light Emitting Diode
LRT	-	Light rail transit
NEC	-	National Electrical Code
NTC	-	National Transport Commission
O/L	-	Ordinary Level
PE	-	Perceived Ease of Use
PLS	-	Partial Least Square
POS	-	Point of Sale

PPPs	-	Public-Private Partnerships
PU	-	Perceived Usefulness
RFID	-	Radio Frequency Identification
SBFMS	-	Smart Bus Fleet Management System
SEM	-	Structural Equation Modeling
SN	-	Subjective Norms
SLTB	-	Sri Lanka Transport Board
SPSS	-	Statistical Package for Social Sciences
TAM	-	Technology Acceptance Model
TPB	-	Theory of Planned Behaviour
TRA	-	Theory of Reasoned Action
UTAUT	-	Unified Theory of Acceptance and Use of Technology