



Notice for the PhD Viva Voce Examination

Ms S Gracia (Registration Number: 2071903), PhD scholar at the School of Sciences, CHRIST (Deemed to be University), Bangalore will defend her PhD thesis at the public viva-voce examination on Friday, 7 June 2024 at 10.00 am in Room No. 044, Ground Floor, R & D Block, CHRIST (Deemed to be University), Bengaluru - 560029.

- Title of the Thesis** : **Optimal Benchmarking of Quality of Service and Quality of Experience Metrics for Telecom Service Providers Using a Slack Based Measure in Data Envelopment Analysis**
- Discipline** : **Computer Science**
- External Examiner (Outside Karnataka)** : **Dr Cyril Raj V**
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- External Examiner (Within Karnataka)** : **Dr Shaila K**
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The members of the Research Advisory Committee of the Scholar, the faculty members of the Department and the School, interested experts and research scholars of all the branches of research are cordially invited to attend this open viva-voce examination.

Place: Bengaluru
Date: 3 June 2024


Registrar

ABSTRACT

QoE and QoS of organizations, especially in the telecommunications service arena are very important indicators of performance. Hence their evaluation is an important aspect of organizational management. This research takes us through how this can be done using the DEA technique and its advancements in an optimal way. DEA utilizes linear programming that makes it the right technique to use when there are multiple inputs/outputs involved.

The research shows us how this technique can be utilized effectively for end-to-end performance evaluation, effective QoE/QoS management and Internet Service Provider enhancements. The advantage of this technique is that it helps set achievable goals for QoE/QoS metrics for the DMUs needing improvement and has enhancement plans for both the DMUs that do not perform in par with their peers and for those that excel in their performance.

Keywords: Data Envelopment Analysis, Slack Based Measure, Super efficiency, Telecom providers, Quality of Service, Quality of Experience, Benchmarking, Telecom Toolkit

Publications:

1. Gracia, S., P. Beulah Soundarabai, and Pethuru Raj. "Towards a Smarter Connected Society By Enhancing Internet Service Providers' QoS Metrics Using Data Envelopment Analysis." *ECS Transactions* 107, no. 1 (2022): 225.
2. Gracia, S., Soundarabai, P. Beulah, and Pethuru Raj. "An Optimal Benchmarking Technique to Improve Quality of Experience in 4G Indian Public Telecom Sector for Better Network Penetration and Fair Service Pricing." *Telematique* 22, no. 01 (2023): 465-476.

Book Chapters

1. Gracia, S., P. Beulah Soundarabai, and Pethuru Raj. "On Improving Quality of Experience of 4G Mobile Networks—A Slack Based Approach" *Data Science and Computational Intelligence*, Springer publishing

India Patent published

1. Gracia, S., P. Beulah Soundarabai, Pethuru Raj and Ramesh Chandra Poonia, "5G Telecom Toolkit", *Patent Office Journal*, November 2023