Proposal Defense

Doctor of Philosophy in IS (With TELE Concentration)

“Textual and Data Driven Analysis of United Nations Sustainable Development Goals in Smart Cities” by Alekhya Velagapudi

Date: November 17, 2023
Time: 1:30 p.m. – 3:00 p.m.
Place: https://pitt.co1.qualtrics.com/jfe/form/SV_54KC61tK1LrDoO2

Committee:
- Dr. Martin BH. Weiss, Professor, Department of Informatics & Networked Systems, School of Computing & Information
- Dr. Angela Stewart, Assistant Professor, Department of Informatics & Networked Systems, School of Computing & Information
- Dr. Sera Linardi, Associate Professor, Department of Economics, Graduate School of Public and International Affairs
- Thesis Advisor/Dissertation Director: Dr. David W. Tipper, Professor, Department of Informatics & Networked Systems, School of Computing & Information

Abstract:
Over the past decade, a lot of attention has been given to leveraging technologies towards making cities smarter for improving the quality of services being provided to its citizens. However, a disconnect between addressing immediate citizen needs and sustainable urban development is evident from the literature. Sustainable development of a city is a critical aspect for maintaining efficient distribution of resources to the citizens while considering future generation needs. This proposal looks into the challenge of incorporating United Nations Sustainable Development Goals (UN SDGs) into smart city projects. This study understands the barriers to incorporating Sustainable Development Goal 11 (SDG11), which deals with "Making cities and human settlements inclusive, safe, resilient, and sustainable". A preliminary analysis was conducted to understand the gaps related to the seven UN SDG 11 targets. It was discovered that the projects being developed are not targeted or assessed in relation to UN SDGs. Interviews with city officials concluded that "How to incorporate the SDGs into local development initiatives?" is a challenge for local governments. SDG targets interrelationships are nowhere in the picture during progress assessment.

This study identifies the relationships between UN SDG 11 targets and the other UN SDG targets an analysis using network analysis and Natural Language Processing (NLP) of UN SDG targets. This shows the strength of interconnections between SDG targets. Further, as a bottom-up data driven approach toward UN SDGs a case study of local Citizen Relationship Management (CRM) based 311 data for the city of Pittsburgh was conducted. Because 311 is a service that involves citizens in resolving immediate issues, connecting these issues with SDG targets is a step towards incorporating UN SDGs into local processes. The 311 services data was analyzed over time and over multiple geographical/political boundaries with the intention of using the 311 data as a metric for assessing and incorporating SDG 11 targets into local development. By investigating the possible connection between 311 requests and SDG 11 targets this research constructs a roadmap for local agencies who are willing to incorporate SDGs into their policies and budget decision. The main contribution of this research is the process and the methods used to construct the roadmap, which can be applied to other cities with their own variables.