

Visiting Scholar Report

Sustainable SMART Cities Coping with Crisis, Lessons from a Global Pandemic

**Visiting Scholar:
Professor Lingaraja Gandhi,
Vice-chancellor,
Bengaluru City University, Bengaluru, India**

**Hosted by:
Dr Suresh Renukappa and Dr Subashini Suresh
Faculty of Science and Engineering, University of
Wolverhampton, United Kingdom**

15 July 2023 – 23 July 2023

Prof Gandhi purpose of the visit was in two folds. Firstly, Prof Gandhi shared his expertise to a project currently being undertaken by Dr Suresh Renukappa that is investigating Sustainable SMART Cities Coping with Crisis, Lessons from a Global Pandemic as a Visiting Research Scholar. Secondly, the possible collaboration with University of Wolverhampton for teaching and research activities were discussed. Thereafter, a Memorandum of Understanding (MOU) between the Bengaluru City University and University of Wolverhampton was signed. Prof Gandhi will be working with Dr Suresh Renukappa and Dr Subashini Suresh to take this collaboration forward as activities were identified for short-medium-long term basis.

During his visit, Prof Gandhi visit various University of Wolverhampton Campus and had meeting with Pro-Vice-Chancellor of Research and Knowledge Exchange – Professor Prasanth Pillai; Vice-Chancellor – Professor John Raftery; Associate Dean Research and Knowledge Exchange - Professor Tracy Warr, Faculty of Science and Engineering exploring potential research collaboration. During his visit Prof Gandhi was briefed and shared research and teaching expertise with many colleagues at FSE. Deeper discussions were held on the following themes:

- Overview of research and Postgraduate research programmes at FSE – Dr Subashini Suresh
- From trash to treasure – role of microbes in circular economy, Professor Iza Radecka
- Future mobility - Professor Panagiotis Georgakis (Panos), Dr Suresh Renukappa and Dr Subashini Suresh
- Research Institute for Health Sciences - Prof Tracy Warr
- Construction Futures Research Centre - Dr Suresh Renukappa

- Centre for Engineering Innovation and Research – Prof Tracy Warr
- Centre for Materials Science Research - Prof Iza Radecka
- Digital Innovation and Solution Centre – Prof Mohammad Patwary

Other discussions were held with Dr Paul Hampton, Prof Chaminda Pathirage, Prof Michael Fullen, and Dr Arun Arjunan.

Prof Gandhi attended the Innovate UK-WM Action Plan Launch Event. In this event New action plan to boost innovation in West Midlands was discussed. The West Midlands Combined Authority (WMCA) and Innovate UK announced a new strategic partnership to strengthen innovation in the region. The West Midlands Local Action Plan sets a framework to more closely align the innovation support Innovate UK and the WMCA provide to the region's businesses, entrepreneurs, and researchers with the eight primary growth clusters identified in the WMCA's Plan for Growth.

Innovate UK is the UK's national innovation agency that supports and funds businesses, entrepreneurs, and researchers who have creative and cutting-edge ideas to make a positive impact on society and the economy. Innovate UK supports businesses to grow through the development and commercialisation of new products, processes, and services, supported by an innovation ecosystem that is agile and inclusive.

The West Midlands Action Plan commits the WMCA and Innovate UK to working together in three core areas:

- Strategic Partnerships with open and transparent discussions, based on mutual trust and co-creating and delivering this plan.

- Innovation Support that meets the needs of local businesses and entrepreneurs, is targeted at identified priority clusters, and is informed by the expertise and data shared between the organisations.
- Communications and engagement to ensure Innovate UK is reaching, engaging, and inspiring more entrepreneurs and business leaders to innovate.

During his stay at UoW, Prof Gandhi worked with Dr Suresh Renukappa and Dr Subashini Suresh on

1. A conference paper,
2. A British Council grant and
3. Hosting an international workshop on Delivering Digital Healthcare Strategies in August 2023.

1. **A conference paper:** the title of the paper is “Analysis of Business Model Innovation for Smart Cities Development” submitted for The British Academy of Management. The abstract is as follows: Cities are the social, cultural, economic, technologic, and political hubs of the world, providing a wealth of goods and services to anyone who passes through them, Cities are the birthplace of innovation and play the role of a major catalyst in the advancements of the modern world. Currently over half the worlds population call a city home, and this is only expected to increase as we look into the future, Due to this, our cities must become ‘smarter’ to handle an ever-increasing demand, whilst continuing to develop and provide more and more benefits to the people who rely on cities. In order for this to happen, development must take place, however, this development must be carried out in a strategic manner, or it risks being unsuccessful and being a negative change that not only reduces the quality of lives for citizens but also has a heavy financial impact that causes loss for any stakeholders in a development scheme. To overcome this, business

model canvas (BMC) can be used to weigh up potential benefits, or drawbacks and provide an insight into the way that the proposed business plan will perform, meaning when used properly there is less risk to stakeholders due to a greater degree of likelihood over performance. This added clarity is an essential part of what makes BMC's so popular and accelerates the processes of bringing about smart city development as any stakeholder will have a better idea of how their investment will pan out, whether this be financial, emotional, ambassadorial, or otherwise. This paper explores how a type of business model, the City Model Canvas (CMC) can be used to determine the impacts of smart city development in UK cities. This analysis is conducted through four case studies which review different aspects of a smart function to provide stakeholders with a picture of the smart functions' real-life application. Smart cities are the future of our world, and ensuring we develop them in the right ways will be vital to them serving their purpose, both for this generation and future generations.

- 2. A British Council grant:** Going Global Partnerships Industry Academia Collaborative Grant 2023-24 was submitted entitled "Create Zeal: A co-explored and co-created resilient net zero ecosystem solution for smart healthcare agenda". Summary of the proposal is that, the World Bank estimates approximately USD 4.9 billion is urgently needed for electrification of healthcare facilities in low-and middle-income countries including India. To address this gap, Create Zeal brings together different stakeholders (tribal community, health sector, energy, education and digital sector) to develop smart, reliable, affordable and sustainable energy solutions for Primary Health Centres (PHCs) in Chamarajanagara district, Karnataka, India. Literature review followed by a pulse survey of Ayushman Digital Health Mission awareness will be conducted. DHE nexus, energy needs assessments and evaluation of energy supply through co-exploration and co-creation activities will be conducted. Digiflic will install solar energy systems. This will result in the development of a toolkit for DHE nexus by UOW, BCU, Digiflic and consultant. Students will be engaged

via workshops from UoW and BCU along pilot network organisations. Contents and assessments will be based on QAA standards of an interdisciplinary module titled DHE nexus. This module will be hybrid delivery. Create Zeal will enable convergence between curricula and industry requirements by creating content, and assessment at global standards. Beneficiaries will be short term for tribal community by improved PHC facilities; medium and long term for academia (development of new module), industries (new business opportunities) and Ministry of Health and welfare in Karnataka (better delivery of health service).

- 3. An international workshop on Delivering Digital Healthcare Strategies:** The workshop explores the digital healthcare system with a focus on identifying challenges the Government & healthcare providers are facing. Digital or Smart healthcare policies and strategies are being employed globally in order to effectively and efficiently deliver healthcare to their people. India is running the world's largest government-funded healthcare programme -AYUSHMAN BHARATH DIGITAL MISSION (ABDM) aimed at providing affordable and accessible healthcare to all. Through this workshop, we aim to bring together experts from Academia, the corporate sector and the Government in order to discuss the many facets of implementing digital health and ABDM in particular.

Smart healthcare strategies have shown great promise in delivering the best quality healthcare to all and is the best possible solution to address the challenges in meeting the goal of quality healthcare to all. Smart healthcare strategies have the potential for massive scalability and therefore helps in improved access to quality healthcare.

Healthcare in India too is poised to make an unprecedented transformation with the Indian Government's ambitious Ayushman Bharath Digital Mission (ABDM), which aims to develop the backbone necessary to support the integrated digital health infrastructure of

the country. ABDM has already generated over 400 million ABHA accounts, linked over 270 million health records, enrolled and verified over 0.2 million health facilities and close to 0.2 million healthcare professionals. It is setting up over 0.15 million new health and wellness centres and is the world's largest health insurance programme. The complex ecosystem of the ABDM poses many challenges (e.g. policy related challenges, infrastructural challenges, implementation challenges and cost-related challenges). This workshop explores the digital healthcare system with a focus on identifying key challenges the Government and the healthcare facilities are facing in adopting ABDM to the fullest.

The challenges are inherently complex, yet posit a great opportunity for all. The aim of this workshop is to explore these challenges and the contemporary cutting-edge developments in this area as adopted by the UK. The workshop brings together experts from Academia, the Government and the healthcare facility providers. (<https://www.eventbrite.com/e/international-workshop-on-delivering-digital-healthcare-strategies-tickets-677425687467?aff=oddtcreator>).

Appendix consists of schedule of Prof Gandhi visit and pictures taken during this visit.

Report Prepared by:

Dr Suresh Renukappa, Dr Subashini Suresh and Prof Lingaraja Gandhi on 22/7/2023

Appendix

1. Schedule

Saturday 15 July 2023 – Arrival to Birmingham 19:40hrs

Sunday 16 July 2023 – Settling down.

Day 1 – Monday 17 July 2023

Welcome - Dr Suresh Renukappa and Dr Subashini Suresh

12:00 – 12:30 Room MA220: Pro-Vice Chancellor of Research and Knowledge Exchange

– Professor Prasanth Pillai

To explore collaboration on research activities with Bengaluru City University and University of Wolverhampton

12:30pm onwards: Discussion on the research collaborations with Prof Gandhi, Dr Suresh Renukappa and Dr Subashini Suresh

Day 2 – Tuesday 18 July 2023

13:30 – 14:30 Room MA220: Vice Chancellor – Professor John Raftery

To explore possible collaborations, both teaching and research related

14:30 onwards: Discussion with Prof Gandhi, Dr Suresh Renukappa and Dr Subashini Suresh on teaching and research (Undergraduate, Postgraduate and PhD programmes)

Day 3 – Wednesday 19 July 2023

10:00 – 12:00 Deanery meeting room MI 307: Associate Dean Research and Knowledge Exchange - Professor Tracy Warr, Faculty of Science and Engineering exploring potential research collaboration.

Tour of the Labs at City Campus

Day 4 – Thursday 20 July 2023

Springfield Campus

13:30 – 16:30 Innovate UK-WM Action Plan Launch Event

Day 5 – Friday 21 July 2023

Meeting with Prof Prashant Pillai after 4:30 pm for high tea/Dinner

Research Discussion with Dr Suresh Renukappa and Dr Subashini Suresh and closing remarks.

Saturday 22 July 2023– City of Wolverhampton

Sunday 23 July – Departs from Birmingham – 14:40hrs

2. Photos



Prof Gandhi and Prof Pillai























Indro Mukerjee, CEO Innovate UK (left) and Andy Street, Mayor of the West Midlands and WMCA Chair launch the Local Action Plan in Wolverhampton

End of the Report

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Dr Suresh Renukappa, Dr Subashini Suresh and Prof Lingaraja Gandhi on 22/7/2023