

# TCS' Research Collaboration with Singapore Management University for Intelligent Cities

The urban population today requires far more than basic health, education, and security amenities. Digitally-aware citizens are demanding more inclusion in civic affairs, with greater personalization of services, even as natural resources shrink. To develop cities of the future, governments should consider enabling technology-driven service delivery.

Tata Consultancy Services' (TCS') Intelligent Cities Project is a collaborative effort with Singapore Management University (SMU), which aims to develop intelligent cities, with Singapore as the project pilot. The TCS-SMU lab infuses a citizen-centric approach to the project, by taking into consideration their needs and response protocols. We also work on a crowd-sourcing model, inviting inputs from the community to better understand care delivery models for the elderly. The use of analytics on aggregated data is complemented with multi-sensor information to enhance care for the elderly without being obtrusive.

## A Partnership of Choice

The TCS-SMU collaboration has led to the establishment of the TCS-SMU iCity Lab in SMU's campus. The lab is involved in research in several aspects of 'intelligent cities' and will be using Singapore as a test area to pilot the concepts. The lab has also been engaging other agencies in Singapore for various projects. Aside from hands-on projects, the iCity Lab is also deeply involved in the TCS research ecosystem with lab visits by TCS' research scientists, lectures, panel discussions, and co-hosting of academic conferences.

### A Head Start

Some of the pilot projects of the TCS-SMU Lab, include:

- A dialysis monitoring unit that can be set up at home, to measure parameters of peritoneal dialysis patients
- A structured information system for advance care planning and management of patient-physician interactions
- A sensor-enabled process of care delivery for the elderly, combining Internet of Things (IoT) components and social behavioral studies – SHINESeniors

## Providing a Helping Hand to the Elderly

The lab has received a grant from the Government of Singapore to create technology to monitor the well-being of the elderly. Sensors installed at the homes of senior citizens, collect and transmit vital information regarding their well-being and can trigger timely alerts in case of an emergency. This allows quick first-response, and can be particularly life-saving for elderly citizens living alone. The project aims to deliver 100 sensor-enabled homes by 2017.

Additionally, activities for daily living are closely mapped, so that any deviations from the normal pattern, such as extended periods of non-movement and missing a dose of medication can be quickly captured in an unobtrusive manner so as to ensure privacy. This helps proactively deliver care and is eventually expected to promote preventive measures.

The project requires volunteers to work together with senior citizens. Regular feedback sessions are conducted to understand how caregivers and the elderly are responding to the monitoring mechanisms. The end-to-end sense and response project, which aims to improve and personalize care further is the basis for building a TCS home care platform that will offer services to specific segments of the population.

## Key Researchers

- Prof. Tan Hwee Pink, Academic Director, TCS-SMU Lab, and Principal Investigator for care delivery for the elderly project
- Srinivasa Raghavan Venkatachari, Head, TCS-SMU Lab R&D Initiative

## Governance Council

- Prof. Steven Miller, Vice Provost (Research), Dean, School of Information Systems, SMU, and Member of the TCS-SMU Lab Steering Committee
- K Ananth Krishnan, VP and CTO TCS
- Girish P Ramachandran, President - APAC

## Advantages of the Partnership

By partnering with us, you can gain from the following advantages:

- **Expertise and experience:** SMU is an internationally renowned university and has technological and business expertise on smart city solutions and a thrust on multi-disciplinary research. The university's state-of-the-art campus, within the smart nation of Singapore, has been an ideal pilot for developing the solution. TCS, on the other hand, has been successfully executing large transformation projects for governments for several years. Together, TCS and SMU make ideal partners to implement these solutions.
- **Digital technology levers:** TCS offers Digital Reimagination™ with social media, mobile, Big Data, analytics, and cloud offerings. Capabilities in the IoT, responsive web technology, and design thinking guide our operations.
- **IoT platform:** TCS' Connected Universe Platform is a platform-as-a-service (PaaS) offering that accelerates the development and deployment of IoT applications for organizations across industries. This helps companies develop innovative products and intelligent infrastructure, enhance operational efficiencies, and constantly improve customer experiences. The solution also facilitates sensor device management, data acquisition and storage, and analytics.
- **Innovation-backed solutions:** TCS Co-Innovation Network (COIN™) promotes research in cross-domain technologies across the globe. We invest heavily in systems, software, and applications research in our innovation labs.

### Contact

For more information about Unit,

Email: [innovation.info@tcs.com](mailto:innovation.info@tcs.com)

Blog: [Research and Innovation](#)

### About Tata Consultancy Services Ltd (TCS)

Tata Consultancy Services is an IT services, consulting and business solutions organization that delivers real results to global business, ensuring a level of certainty no other firm can match. TCS offers a consulting-led, integrated portfolio of IT and IT-enabled infrastructure, engineering and assurance services. This is delivered through its unique Global Network Delivery Model™, recognized as the benchmark of excellence in software development. A part of the Tata Group, India's largest industrial conglomerate, TCS has a global footprint and is listed on the National Stock Exchange and Bombay Stock Exchange in India.

For more information, visit us at [www.tcs.com](http://www.tcs.com)

[IT Services](#)  
[Business Solutions](#)  
[Consulting](#)