



Land Governance in an Interconnected World

ANNUAL WORLD BANK CONFERENCE ON LAND AND POVERTY
WASHINGTON DC, MARCH 19-23, 2018



Land and Poverty Conference 2018 Masterclass on

SESSION 14-05 | How Worldwide Cadastral Updates Can Launch a (Global, Distributed) Marshall Plan for Digital Skills

Friday, March 23, 2018 | 1:30pm - 3:00pm | Room MC 2-800, World Bank

INSTRUCTORS

Philip Auerswald, Associate Professor – George Mason University; Cofounder and CEO – Zilla Global LLC

Sanjay Sarma, Fred Fort Flowers and Daniel Fort Flowers Professor of Mechanical Engineering, VP of Digital Learning, founder of the Auto-ID Center – MIT

Gitanjali Swamy, Managing Director – IoTask; Cofounder – Zilla Global LLC

Masterclass summary

The masterclass will focus on how the process of creating spatial data infrastructure (SDI) can unleash opportunities for a broad cross-cut of populations in countries around the world. We will also cover approaches practically solving this problem of the underlying data integration through a combination of low-cost connected sensors (the Internet of Things, or “IoT”); artificial intelligence (AI); and rapid-validation systems, potentially using the Blockchain. Finally, we will describe the deployment of an end-to-end, sensor-enhanced, human-centered system of land management involves the development of distinct operational capabilities. The focus of the masterclass will be on proven models for leveraging public sector investment to create digital opportunity. We will illustrate all these methods through the floods of 2017 in Peru and explore as a potential use case an approach to addressing the related vulnerability through the aforementioned methods..

Targeted audienceThe masterclass is intended for land management professionals and policy makers who are interested in understanding how the deployment of frontier technologies, (e.g. IoT, AI, and Blockchain) in the process of cadastral updates may potentially increase economy-wide opportunities for meaningful work and training at the same time that it lowers the cost of data acquisition, improves data quality, and enables land-related transactions.

Actions required: Selected readings available on conference website.

WORLD BANK LAND AND POVERTY CONFERENCE 2018

MASTERCLASS

TITLE: How Worldwide Cadastral Updates Can Launch a (Global, Distributed) Marshall Plan for Digital Skills

FORMAT

The masterclass will be conducted as a roundtable, moderated by Professor Auerswald. The masterclass will be divided into four parts:

- **Welcome and Introduction (5 minutes):** Professor Auerswald will outline the topic and the format for the panel, and will introduce the participants.
- **Presentations (30 minutes):** In no more than ten minutes per presentation, the three instructors will outline a total of six inter-related cases of broad-based opportunity creation through technology, the context-specific solution(s) implemented in each case, and key learning(s) for the future. Each speaker will focus on how the use of the approaches described either could have avoided the problem described or could have provided a simpler and/or more effective resolution. The topics proposed for discussion are:
 - **Water and Land (Abad):** Prof. Abad will focus on the problems of water and land data through the example of floods of 2017 in Peru. He will show how these brought to the fore country's vulnerabilities to disaster from the improper understanding and management of water resources in all regions (coast, highlands and jungle). Finally, he will explore as a potential use case an approach to addressing this vulnerability through the technological methods that we cover.
 - **Internet of Things (IoT), "Inversion", and the Acquisition of Digital Skills (Sarma):** Prof. Sarma will focus on IoT, where real and digital coexist, is powering new ways to meet human needs. Inversion refocuses from "products to meet customer needs" to "technology re-imagining to fill customer needs". Prof. Sarma will highlight the IoT Inversion phenomenon with case studies from companies like Amazon, Airbnb, Uber, Google, Tesla, and Apple, as well as less famous companies like Zipcar, Tile, Visenti, and Augury.
 - **Blockchain and Land (Swamy):** Dr. Swamy will first cover the building of Blockchain technology with the basics of Byzantine fault tolerance, distributed databases, distributed ledgers, mining, intermediary-less verification. These basics will be used to construct applications like smart contracts and cryptocurrencies. The next step is linking the applications like smart contracts in the area of land data registries and more broadly land engendered digital opportunity.
- **Summary of the Presentations of Broadening of the Discussion (10 minutes):** Professor Auerswald will summarize the discussion, placing it in context, and linking it with larger issues of entrepreneurship and new business models being generated by IoT, AI, and . Next, Mr. Vega will open up the floor to the audience, asking them to deliberate on the discussions, and bring in their own particular world view to the table.

- **Table Discussion (25 minutes):** The table discussions will place the attendees in center stage. We will divide the audience into 2 to 3 groups of 3 to 5 persons each. We will ask each group to reflect upon the points raised by the speakers and to identify similar challenges they have faced that hinder the development of an end-to-end thinking on land records development.
- **Report Back (15 minutes):** Participants will report back on their deliberations and discuss their thoughts with the presenters and the larger group.
- **Wrap Up and Conclusion (5 minutes):** Professor Auerswald will conclude the discussion by highlighting the key actionable ideas that came out from the masterclass and will assist the group in developing a roadmap for the future.

MATERIALS

Selected readings will be provided: *The Code Economy: A Forty-Thousand Year History* (chapter 13), *The Inversion Factor* (Chapters 2 and 3), *The Business Blockchain: Promise, Practice, and Application of the Next Internet Technology*

INSTRUCTORS

Professor Philip Auerswald is an Associate Professor of Public Policy at George Mason University's Schar School of Policy and Government; cofounder of Zilla Global LLC (<http://Zilla.Land>); cofounder and coeditor of Innovations: Technology, Governance, and Globalization, a quarterly journal about entrepreneurial solutions to global challenges published by MIT Press (<http://mitpress.mit.edu/innovations>); and Executive Director of the Global Entrepreneurship Research Network (<http://gern.co>). **[CONFIRMED]**

Professor Sanjay Sarma is the Fred Fort Flowers and Daniel Fort Flowers Professor of Mechanical Engineering, the Director of Digital Learning, and the founder of the Auto-ID Center at MIT. The Auto-ID Center, commonly referred to as the EPC, is utilized by over a thousand companies on five continents. Professor Sarma developed the Universal ID (UID) strategy for India's national government that became Project Aadhaar (<http://portal.uidai.gov.in>); so far, more than 1 billion Indian citizens have been issued Aadhaar IDs. Professor Sarma also developed core technologies underlying Radio-Frequency Identification (RFID) tagging. **[CONFIRMED]**

Dr. Gitanjali Swamy is the Managing Director at IoTask LLC and a cofounder of Zilla Global LLC (<http://Zilla.Land>). Dr. Swamy has worked on the sourcing, structuring and transaction of many investments ranging in size from seed to over a Billion USD as well as founded, built and served as a board director in many entrepreneurial and intrapreneurial enterprises. She has also held investment and consultant professional roles at The Carlyle Group and Booz Allen & Hamilton, among other organizations. She is currently Founder/Advisor to the Berkeley Witi@UC Women in Technology (<http://wit.berkeley.edu>), Representative to the UN Equals Leadership Coalition (<https://sustainabledevelopment.un.org/partnership/?p=22186>), Research Fellow, Director of Special Projects at Harvard's Private Capital Research Institute (<http://www.privatecapitalresearchinstitute.org/>) and on the board of National Center for Innovation and Entrepreneurship **[CONFIRMED]**

Additional Speaker

Professor Jorge Abad Cueva received a B.S. in Civil Engineering from the National University of Engineering, Lima, Peru, the M.Sc. and PhD in Civil and Environmental Engineering from the University of Illinois at Urbana-Champaign, USA. Dr. Abad was also a postdoctoral researcher at the University of Illinois. Dr. Abad was an assistant professor of the Department of Civil and Environmental Engineering and Department of Geology and Planetary Sciences at the University of Pittsburgh. Dr. Abad is a recipient of the Lorenz Straub Award, St. Anthony Falls Laboratory, this Award is given for the most meritorious PhD dissertation in hydraulic engineering, ecohydraulics, or related field for the year in which the recipient's dissertation was completed (2008). Dr. Abad is the Academic Director of CREAR (Center for Research and Education of the Amazonian Rainforest, www.creamazonia.org). **[INVITED]**