

# 2018 International Conference

## UNESCO Chair in Technologies for Development: Voices of the Global South

27-29 June 2018 | EPFL, Lausanne, Switzerland

### SECOND CALL FOR PAPERS (EXTENDED ABSTRACTS)

**Deadline for Submissions: January 5, 2018**

The UNESCO Chair in Technologies for Development hosted by the Cooperation & Development Center (CODEV) at the École Polytechnique Fédérale de Lausanne (EPFL) in Switzerland is pleased to announce the **SECOND CALL FOR PAPERS (EXTENDED ABSTRACTS)** for the **5<sup>th</sup> International Conference on Technologies for Development (Tech4Dev 2018)** taking place from 27-29 June 2018 at the SwissTech Convention Center in Lausanne, Switzerland.

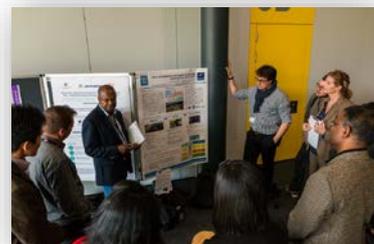
#### The Conference in a Nutshell: Voices of the Global South

**Tech4Dev 2018** puts the challenges and the potential of the Global South in the center of the discussion. Even though the Sustainable Development Goals apply globally, the needs in terms of access to health and financial services, functioning education systems and sustainable urban and natural ecosystems are undeniably more significant in the Global South. In this perspective, it is crucial to listen to and support stakeholders from the regions who are facing these challenges.

**Tech4Dev 2018** is particularly interested in bringing into focus the value of technological innovation, while also acknowledging the limits of technology in generating inclusive social and economic development in the Global South. Tech4Dev 2018 invites researchers, students, practitioners, industry and anyone interested in critical issues in Technologies for Development to submit their Papers (Extended Abstracts) and be part of this unique, high-visibility event.

Tech4Dev provides an opportunity to:

- Present your research at a unique multidisciplinary Conference focused on innovative technology for social impact in the Global South.
- Network across disciplines and fields of technology, to promote the development, deployment, adaptation, and scaling of new solutions for the Global South.
- Identify opportunities for collaboration with diverse stakeholders – academics, students, engineers, entrepreneurs, policymakers, practitioners, and social scientists- interested in technological innovation in the Global South.
- Participate in the fabulous social event of the conference that will take place in the Lavaux Vineyards, a UNESCO World Heritage Site.
- Build capacity among students and young professionals to engage in multidisciplinary problem solving for social impact. Network across disciplines and fields of technology, to promote the development, deployment, adaptation, and scaling of new solutions for the Global South.



TECH4DEV UNESCO Conference

## Papers (Extended Abstracts incl. Poster Presentations)

### Guidelines

- An extended abstract should include:
  - A focused description of research objectives and research methodology, or if appropriate, description of case study objectives and outcomes.
  - Potential development impact
  - Recommendations for future research and application in practice

Please adhere to the 1,000 word limit and prepare your extended abstract using the prescribed [template](#). Extended abstracts that do not adhere to these requirements will not be considered.

### General Information

- Authors and presenters are invited to submit extended abstracts for papers focusing on research results, case studies, or challenges relevant to the **Listed Session Topics (See page 6)**.
- Extended abstracts should be clear, concise, and written in English. The abstract must be well written and should be checked by someone well versed in English writing.
- Submissions for paper presentations might be invited to present a poster instead. Presenters of a poster will be expected to make a 3-minute presentation during the plenary Poster Presentation Session at the Conference.
- The conference attendees will evaluate and select the "Best Tech4Dev 2018 Poster."
- All presenting authors who are accepted for either a paper or poster presentation **MUST** be registered and the conference fees fully paid by March 16, 2018. Arrangements and payment of travel and accommodation costs are the responsibility of the participants.
- The selection of posters will be based on the submission of an extended abstract only.

## A. The Conference's Session Topics

### 1. Core Thematic Area: Technologies for Humanitarian Action

#### **SE04-HUM:** "Data science and machine learning for development and humanitarian action"

Session Leaders: Robert West, DLAB, EPFL.

Session Co-Leader (s): To be determined

It is widely anticipated that data science in general and machine learning in particular, will revolutionize our society as a whole. Due to ever larger and more fine-grained data sets, as well as advances in computing hardware and learning algorithms, we are bound to see a whole new world of opportunities to bring about ground-breaking changes, which could expedite the development of low- and middle-income countries. This session will look into promising applications of data science in development and humanitarian action.

### 2. Core Thematic Area: Medical Technologies

#### **SE07-MED:** "Technologies for Non-Communicable Diseases in Developing Countries"

Session Leader: Solomzi Makohliso, EssentialTech, CODEV, EPFL

Session Co-Leader (s): To be determined

Besides infectious diseases, an emerging and potentially greater health challenge is in the form of non-communicable diseases (NCDs). Non-communicable diseases (NCDs) have become a universal threat to health with disproportionately higher rates in low and middle-income countries (LMICs). According to WHO, over 80% of cardiovascular and diabetes deaths, 90% of COPD deaths and two thirds of all cancer deaths occur in LMICs. This session aims to focus on the main NCDs in LMICs, notably cardiovascular diseases (CVD), diabetes, chronic obstructive pulmonary diseases (COPD) and cancers. In particular, to explore technology-based developments and innovations aimed at combating the NCD challenges in LMICs.

#### **SE08-MED:** "Medical Devices: Technologies for mother and child health"

Session Leader: Klaus Schönenberger, EssentialTech, CODEV, EPFL.

Session Co-Leader (s): To be determined

Many important medical devices, which are essential to primary healthcare, are still not available in much of the developing world. Even those technologies, which are well proven in industrialized countries, often fail to deliver their essential function, when they are deployed in low and middle-income countries. The important difference between these contexts and needs calls for innovative approaches in both the technologies themselves and in the way they are deployed (business models). Many medical devices are important for healthcare; this session will focus especially on those technologies, which can have a major impact on mother and child health. Innovations that were (or are in process to be) successfully transferred, deployed and scaled-up are of particular interest.

### 3. Core Thematic Area: Science and Technology for Disaster Risk Reduction

#### **SE06-DRR:** "Disaster Risk Reduction: the Elusiveness of Resilience"

Session Leader: To be determined

Session Co-Leader (s): To be determined

Natural disasters such as drought, landslides and floods will increase in the future. At the same time, interventions aimed at increasing resilience remain complex. We do not yet have a clear picture of what

works where, under what conditions and how the best trade-offs can be determined. Resilience may increase due to concrete measures such as soil stabilization measures, but also due to more accurate vulnerability or impact assessments identifying the most effective interventions. Furthermore, social media (facebook, twitter) and crowdsourcing (data collection on hazard events through mobile phones) for gathering data on hazard events and building social networks are quickly becoming new interdisciplinary research tools worth further investigation. This session will focus on the following question: What are the positive and negative, intended and unintended, direct and indirect impacts that assessments and actual resilience measures can have on vulnerable communities?

**SE17-DRR: “People-centered Early Warning Systems for Natural Hazards”**

Session Leader: Michele Calvello, University of Salerno, ITALY

Session Co-Leader (s): To be determined

Many recent international initiatives have been highlighting the importance of early warning systems (EWS) for disaster risk reduction (DRR) and community resilience. To be effective, EWSs for natural hazards need to have not only a sound scientific and technical basis, but also a strong focus on the people exposed to risk (Basher 2006). The seventh global target of the Sendai Framework for Disaster Risk Reduction (2015-2030) is to “substantially increase the availability of and access to multi-hazard early warning systems and disaster risk information and assessments to the people by 2030”. Current shortcomings in the conception and applications of EWS often undermine risk reduction at the local level (Baudoin et al., 2016). This session focuses on people-centered warning systems for different natural hazards by using an interactive and interdisciplinary round-table format and by encouraging the participation of practitioners and researchers with experience in warning systems for e.g. floods, landslides, volcanic eruptions and tsunamis. The discussion will be stimulated by the presentation of strengths, weaknesses and lessons learned from a series of case studies in different geographical, geo-environmental and cultural settings. Particularly encouraged are case studies for EWSs deployed in areas of the Global South.

**SE20-DRR: “High-Tech and/or Low-Tech for DRR in the Global South. What works, what doesn’t?”**

Session Leader: Dr. Karen Sudmeier-Rieux / Prof. Michel Jaboyedoff, UNIL/ Faculty of Geosciences and Environment, Institute of Earth Sciences

Session Co-Leader (s): Sanjaya Devkota, FEED Ltd and Tribhuvan University, Institute of Engineering

When disaster strikes, communities are the first to respond and in many cases, the only responders in remote areas of the Global South, and even in the Global North. Communities are in most cases the best ‘local experts of DRR’ as they are often frequently monitoring local signs of pending hazard events and may evacuate spontaneously in absence of an official order. In parallel, development of high-tech solutions to DRR has considerably advanced early warning, evacuation and communications during hazard events, saving many lives and livelihoods. ‘Low-tech’ solutions are becoming more affordable, locally available and widespread, such as flood risk or landslide- early warning systems. However, oftentimes, such systems are put in place by foreign projects, NGOs, or Universities and may cease to function once the project has ended, with little transfer of technology to local communities or government. Whether ‘high-tech’ or ‘low-tech’ technologies (e.g. risk mapping, or community-based hazard monitoring) promote local empowerment, technology transfers and transmission of knowledge is another question. This session encourages presentations, which give good and bad examples of how ‘high-tech’ and ‘low-tech’ technologies and approaches to DRR have promoted more lasting outcomes and social inclusion, with special regards to women and minority groups for sustainable DRR.

### **SE25-DRR: “Low-cost ICTs for flood and drought risk management and development?”**

Session Leader: Dr. Feng Mao, University of Birmingham

Session Co-Leader (s): To be determined

The emerging open and low-cost ICTs such as environmental sensing, wireless communications, visualisations and data processing tools play an increasingly important role in supporting hydrological monitoring and data collection. It raises a question about how the implementation of these technologies can be transformed into applications that meet the social needs, such as disaster management and sustainable development. For these purposes, successful ICT applications rely on not only good technical design, but also well considerations of non-technical factors, such as partnership and stakeholder collaboration, pathways to achieve social impact, institutional arrangement, operational mechanism, and physical and social contexts. This session calls for papers that provide examples, demonstrations, reviews or insights in how open and low-cost ICT applications support human well-being and sustainable development goals through monitoring and managing water-related disasters (e.g. flooding and drought). The following topics will be focused: (1) Challenges, opportunities and pathways of environmental ICTs in creating social impacts for disaster early warning and reduction, and sustainable development. (2) Innovations of low-cost and open ICT applications to create resilience to flood and drought, and to reduce their damages to basic and critical services. (3) Best practices, strategies and methods that are transferrable and applicable across regions and contexts.

### **SE28-DRR: “Adapted Technologies for Early Warning Systems: Playing with Uncertainty”**

Session Leader: Carolina Garcia Londoño, Independent Consultant & Coordinator of the Risk Management and Climate Change Group of the Geological Society of Colombia

Session Co-Leader (s): To be determined

Early Warning Systems - EWS for disasters risk management are fundamental tools to reduce the loss of life when a disasters strikes. That was evident during the 2017 hurricane season that left great amount of damages but few deaths in the Caribbean and North America, greatly due to the implementation of high tech EWS.

However, during the same season, similar phenomenon caused thousands of deaths in several countries of South Asia. This happened despite the early warning.

EWS are more than a timely warning; they are composed of four integrated components: risk knowledge, monitoring & warning, communication & dissemination and response capacity. If any of the components fails, the system is meant to fail, even when some of the components are strong.

During this session, participants will be part of a role-playing game on EWS, with different scenarios of economic development, stakeholders' participation, technology and uncertainty.

The game pretend to illustrate the complexity of decision making on EWS and the need of integrating all its components, while assuring the constant participation of all the stakeholders.

## **4. Core Thematic Area: Technologies for Sustainable Access to Energy**

### **SE33-ENE: “Access to energy for All: measuring impact beyond kWh”**

Session leader: UNESCO CHAIR in Energy for Sustainable Development, Politecnico di Milano

Session Co-Leader (s): To be determined

In the Agenda 2030 energy is considered an instrumental right for unleashing development, supporting local enterprises and new jobs, improving health and education, in addition to ensuring access to other basic needs. Despite this relevance, the huge numbers of those living without modern energy services are not likely to change in the near future. Therefore, it is of paramount importance to assess performance and long-term impact of energy project, not only in terms of energy services provided, but also in terms of contribution to local development and improvement in the community livelihoods. These metrics may highlight directions for the formulation of new projects and future strategies for both donors and policy makers. The session will

deepen the discussion on 1) What are the standards used by the scientific community? 2) If and how can we compare them? 3) How to develop effective model-based and evidence-based methodologies?

**SE22-ENE: “Collaborating for Cleaner Technologies and Transitioning to Sustainable Energy Access”**

Session leader: Falendra Kumar Sudan, University of Jammu, India

Session Co-Leader (s): Jennifer McKay, University of South Australia, Australia

Sustainable Energy Access (SEA) is a daunting challenge for 1.3 billion people mainly in Sub-Saharan Africa (SSA) and developing Asia, which paradoxically hold nearly 20% of global oil and gas reserves. Currently, 2.8 billion people have no access to modern cooking facilities, which generate negative impacts on health of women and children. Without new policies and efforts, 800 million rural people are likely to be unlit in 2030 and an additional 200 million will rely on solid fuel. Achieving universal energy access by 2030 would require an increase in funding of more than 400% over current annual investment, of which an estimated 40% is expected to be in distributed off-grid solutions. This huge investment is unlikely from additional public sector and donors. Therefore, public-private collaboration will be required for investment in cleaner technologies for transitioning to SEA in SSA and developing Asia. These countries will play a key role in the future of energy access markets calling for reliable, clear and consistent policy support from governments to attract private investors. In this context, technological development and new innovative business and financial models are essential to offer affordable clean energy solutions and to scale up distributed renewable energy solutions.

**SE23-ENE: “How can clean energy-based innovations boost incomes in Global South?”**

Session leader: Abhishek Jain, Council on Energy, Environment and Water (CEEW)

Session Co-Leader (s): To be determined

Over the last decade, clean energy innovations have significantly transformed the access to electricity and lighting for millions of households in Global South. However, we witness little impact of clean energy innovations on productive activities supporting income for the deprived communities. Severe lack of products and consequently customers, not merely indicate a major challenge, but also highlight a significant untapped opportunity. Solar-powered sewing machines, milk-chillers, milking machines, pottery wheels, weaving machines, solar pesticide sprayers, biomass-based co-generation for energizing enterprises in rural areas, are some of the many possibilities, which have started transforming lives in rural areas deprived of energy access – by either improving productivity, product value, reducing inputs costs, or reducing drudgery. However, mapping the ecosystem for product and customer development highlights various gaps across the value chain of energy innovations for productive use. These range from lack of risk-free capital for prototyping, to challenges of technology transfer, to inadequate market research capacity, to poor support for pilot and post-pilot stages, to gaps in end-consumer financing, among many others. The biggest challenge among all is the sheer apathy of innovators, impact investors and policymakers to look at this potential opportunity of uplifting deprived communities across the world by boosting local economies. Despite such challenges, there are a few examples to learn from and reflect on – one such is the deployment of more than 100,000 solar pumps for irrigation in India. The session aims to bring forward and weave-in views from each of the key stakeholders, policymaker, entrepreneur, innovator, investor and channel partner, to find-out potential pathways to unlock the potential of this sector through south-south and south-north collaborations.

**SE32-ENE: “Gender and Renewable Energy Rural Electrification Programs”**

Session leader: Maja Gajic, Royal Melbourne Institute of Technology University

Session Co-Leader (s): To be determined

Some recently emerged research from India has shown that despite significant expenditure on implementing a solar home system program there was no systematic evidence for broader indicators of socioeconomic development. Does looking at this study through a gendered lens reveal insights as to why no benefits were found? Gender is an important and often underacknowledged aspect of energy programs. There is a real need to consciously address the participation, access and impact on women in such programs. In rural areas

of low energy access and low socio-economic development, the burden of unpaid work for gathering fuel for cooking and lighting falls disproportionately on women. In addition, as quoted by Ban Ki-moon, “Women spend hours each day on routine daily subsistence activities—pounding grain, hauling water and gathering firewood. They have little or no time for earning income”. Of course, access to energy at all levels is recognized as critical for development but improving energy access for women in particular has unique benefits to the women themselves, to their families and their communities and these first need to be recognized before they can be quantified and measured as impact.

## 5. Core Thematic Area: Information and Communication Technologies for Development

**SE05-ICT:** “ICTs for Environment: Challenges and opportunities of transdisciplinary research for development”

Session Leader: Clémence Bouleau, Cooperation and Development Center, EPFL

Session Co-Leader (s): Amer Kanan, Department of Environment and Earth Sciences, Alquds University

ICTs have a great potential to tackle and improve environmental issues worldwide, and they have been used for this purpose for a number of years. This session gives the floor to successful, but also to failed projects related to environmental issues in which ICTs were used as part of the solution: what were the key factors for success or the limitations and challenges that could not be overcome? We will look at how to avoid the “rich towards poor country” approach in the field of ICTs, and how the “voices of the South” are creating an innovative cooperation approach. Inclusive projects that deal with the following issues are welcome in this session: sustainable environment and ecosystems, ICTs in agriculture, pollution and waste management, control of pesticides, resource preservation, re-greening deserts and landscape restoration, ecosystems preservation as a means to preserve fishing/hunting/gathering resources for people across the globe. All projects presented in this session should have a collaborative “North/South” approach aiming at global sustainability. This session will also put forward inputs and lessons learned from documented failures.

**SE12-ICT:** “Can MOOCs and OER transform Higher Education in the developing world?”

Session leader: Dr. Dimitris Noukakis, Cooperation and Development Center, EPFL

Session Co-Leader (s): To be determined

The advent of a connected society with the ubiquitous use of smartphones, tablets and mobile computing, is about to profoundly transform tertiary education in the developed countries. Whether available as MOOCs, YouTube videos, online webinars or all kind of digital documents, educational material is readily accessible in most developed countries. University students as well as seasoned professionals may educate themselves by simply accessing the resources available online, for free or at a fraction of traditional education offers. In the global South, students, professionals and education providers take little advantage of these opportunities. On top of limited broadband connectivity, lack of information and well-entrenched behaviors at the higher education ecosystems prevent the leverage of digital education. This session will bring together specialists of higher education to present relevant initiatives in developing countries and discuss the challenges and opportunities for the governments, academic institutions, university faculty members, as well as the students.

**SE14-ICT:** “Connecting Research to Practice: ICT4D Project Results Follow-Up”

Session leader: Caroline W. Larsson, SPIDER – The Swedish Program for ICT in Developing Regions – Stockholm University, Department of Computer and Systems Sciences

Session Co-leader(s): Edgar Napoleon Asiimwe, SPIDER – The Swedish Program for ICT in Developing Regions – Stockholm University, Department of Computer and Systems Sciences

The aim of the proposed session is to demonstrate how integrating research into ICT4D projects can contribute to more sustainable outcomes. We will illustrate SPIDER’s research approach showing how

research feeds formative feedback into practice during project implementation. SPIDER's integrated research approach contributes to measuring and managing results – where researchers from the contexts work closely with project implementers. Three researchers who are conducting research (also referred to as results follow-up) on SPIDER projects in Bangladesh, Uganda, Kenya and Tanzania will be invited to share the results from the projects and show how they have incorporated SPIDER's real-time research approach in project results follow-up. The three projects which will be represented fall under the themes of eHealth (Bangladesh), transparency and accountability (Uganda), and eLearning (East Africa; Tanzania, Kenya, Uganda). Each presenter will be given 20 minutes to present results and the remaining 30 minutes will be used for discussions. The objective with this session is to establish through interaction and lessons learned if real time research with on-going projects is how to do sustainable ICT for Development.

**SE15-ICT: “Data-Driven Farming For everyone”**

Session leader: Daniel Jiménez R., International Center for Tropical Agriculture (CIAT)

Session Co-leader(s): To be determined

A wide range of services, mostly in developed countries; offer farmers the possibility of make better data-driven decisions including what to plant the next season, most profitable crop, right amount of fertilizers, etc., These services are currently used by farmers that are early adopters of technologies and that can afford such services, what about the other farmers? Developing countries? How can we contribute to reduce such inequity? How should the academy, for-profit and non-profit organizations work together?

**SE19-ICT: “Designing for Inclusion: Why Adaptive and participatory methods are necessary”**

Session leader: Alan Jackson, Director at Aptivate

Session Co-leader(s): To be determined

Software resembles the structures of the organizations that create it. It has the potential to lock in structural inequalities. Participatory user centred design and iterative practices are essential for positive developmental outcomes. We will draw from our 14 years of experience of successes and failures to describe the challenges in making this happen in the development sector.

**SE21-ICT: “From data buckets to living platforms: Pitfalls and opportunities in designing spatial tools and data platforms for sustainable development”**

Session leader: Albrecht Ehrensperger, Centre for Development and Environment (CDE), University of Bern, Switzerland

Session Co-leader(s): To be determined

With the fast development of digital mapping technology, development practitioners increasingly use tools such as Geographical Information Systems (GIS), Global Positioning Systems (GPS), and various online mapping applications and interactive platforms, to support decision-making, monitoring, and local empowerment. In the past few decades, many such initiatives have appeared and disappeared again after a short while. Various explanations have been formulated pertaining to the lack of sustainability of IT based mapping and knowledge-sharing approaches. Mostly, critics pointed to the lack of user friendliness and of accurate data, as well as the continued existence of a digital divide that hinders those, who would potentially benefit from such tools and technologies, to access them. We put forward two additional hypotheses: (1) The demand for IT based mapping and knowledge sharing tools is very often formulated by intermediaries (NGOs, donors, scientists) rather than by beneficiaries or target processes, leading to flaws in the design of approaches and tools. (2) Not all initiatives face sustainability challenges to the same extent; the type of processes that they intend to support is key in influencing sustainability. Accordingly, we identify five potentially archetypal categories of processes supported by IT based tools and approaches: governance (planning, priority setting), transparency (awareness creation, lobbying), monitoring (impact assessments),

forecasting (scenario formulation, outcomes of decisions), and advocacy (empowerment, support of litigation processes).

**SE29-ICT: “GovTech in the Global South: Harnessing ICT to transform governments and markets”**

Session leader: To be determined

Session Co-leader(s): To be determined

Technologies that enhance government oversight and regulatory functions (e.g. GovTech and RegTech) can rapidly accelerate global development by improving public sector performance, accountability, and the functioning of markets. This has particular promise in the developing country context, given high levels of corruption, fraud, and informality. GovTech automates the capture, processing, and analysis of large administrative data sets by integrating sensing, machine learning (ML), and other computational tools into complex government workflows. RegTech uses ML, blockchain, and related technologies to enhance regulatory compliance, especially in the financial sector. The resulting innovations can enhance the efficiency of public sector agents, reduce the costs of legal compliance, and level the playing field by automating government functions (thereby disrupting networks of patronage and corruption). Recent examples include biometric authentication systems to target and deliver public services (Aadhaar in India) and ML algorithms to detect corporate tax evasion (India) and bid-rigging in public sector procurements (Brazil). This session will invite examples of govtech and regtech research deployments in the global South, exploring the impacts of these technologies on government performance and communities. The panel will also discuss how academics can maneuver the complex partnerships required to carry out research at such large scale.

## **6. Core Thematic Area: Technologies for Sustainable Development of Habitat and Cities**

**SE01-HAB: “Sustainable habitat and cities: data management and appropriate geospatial technologies for cities of the Global South”**

Session leader: Eléonore Labattut, Cooperation and Development Center, EPFL

Session Co-leader(s): Patricia Urquieta, CIDES-UMSA, Bolivia.

The contribution of geographic information technology (GIT), information and communication technologies (ICTs) and the growing use of data by cities have led to a major renewal of urban planning, urban management and urban governance. However, what is the actual dissemination of these tools and technologies in the world? Are GIT, ITC, Big Data Analysis accessible to cities in the South, especially small and medium-sized cities? Indeed, the latter are facing major challenges of population growth and spatial extension, and they too often face a scarcity in human and material resources, including technological infrastructure, qualified human resources and a significant lack of data. This session proposes to discuss the issues of access, appropriation and the need to develop adapted and cost-effective technologies to improve decision making and urban planning. It will also question the information and digital divide between major and small or medium sized-cities of the South.

**SE03-HAB: “Sustainable habitat and cities: Learning from the slum”**

Session Leader: Prof. Jean-Claude Bolay, Director, Cooperation and Development Center, EPFL.

Dr. Yves Pedrazzini, Senior Scientist, École Polytechnique Fédérale de Lausanne (EPFL).

Session Co-leader(s): Anie Bras Joseph, Université Quisqueya, Haiti

Slums are present in all cities of the world, with a massive presence in the Global South. They are not at the margin of the contemporary process of urbanization; but are now fully part of the urban landscape, contributing to the identity and the urbanism of cities. Regarding the slums as symptomatic of the ongoing transformations of the cities, the session will focus on the very heart of the urban fabric. We invite communications having a critical look on this complex reality, open to social, environmental and economic dimensions as well as at the constructive and spatial aspects of slums. It will allow to recognize the key actors of this central process of urbanization, among them slum's dwellers, and highlight their innovations, to define from the South priority actions in urban development. What can we learn from the slums, and how to improve the cities for all their dwellers?

**SE16-HAB: "Planning Smart City Technology in the Global South"**

Session Leader: Nahid Mohajeri, Solar Energy and Building Physics Lab, currently at University of Oxford, Sustainable Urban Development programme

Session Co-leader(s): To be determined

Do smart city technologies make it possible to move cities of the Global South in the direction of sustainable development? More specifically, do information and communications technologies improve the functioning of these cities, increase their efficiency, promote their competitiveness, and provide new ways in which problems of poverty, social deprivation, and poor environment might be addressed? Traditional approaches to city planning and urban design are rapidly becoming obsolete particularly for fast growing cities in developing countries such as the Global South. The reasons include the need for resilience, sustainability, and adaptability as well as equity and social justice. This session provides a platform to discuss not only the impacts of digital technology on urban development in the cities of the Global South but considers also the implementation of smart cities, their associated technological infrastructures, and urban policies in these cities. More specifically, the following aspects of smart cities will be considered in the session: (i) smart economy (competitiveness), smart people (social and human capital), smart governance (participation), smart mobility (transport), smart environment (natural resources), and smart living (quality of life).

**SE26-HAB: "International Cooperation and Construction: The Relationship Between Bureaucracy And Innovation."**

Session leader: Paolo Tombesi, School for Architecture, Civil, and Environmental Engineering (ENAC), École Polytechnique Fédérale de Lausanne (EPFL)

Session Co-leader(s): To be determined

The activity of institutions involved in international cooperation (UN agencies, major financial institutions, other entities) is associated with substantial amounts of construction, from large infrastructure to small-scale building, and subsequent relevant economic investment.

The work is generally subject to stringent bureaucratic protocols whilst often betraying a tendency for real-politik. Since construction is regarded as a sector potentially prone to conflict with local interests, it tends to be threaded on conservatively and by many agencies as an administrative by-product of core business.

Does this tendency assure an optimal return on the resources invested? Does construction fulfil its economic multiplier and development potential when tackled as a corollary to other programs rather than an autonomous engine of social and industrial growth?

### **SE27-HAB: “Co-producing basic services: alternative socio-technological arrangements towards urban sustainability”**

Session leader: Giuseppe Faldi, Université Libre de Bruxelles - Faculté d'Architecture La Cambre Horta, Centre de recherche HABITER

Session Co-leader(s): To be determined

In recent years, with the “collapse” of the modern ideal of the “networked city” and the rise of emerging fragmented urban landscapes and socio-technical configurations, basic service coproduction has fully entered into the international discussion on sustainable service delivery models in the Global South, as highlighted for example in the United Nations Policy Papers on Urban Services and Technology.

Coproduction is here intended as the regular long-term collaboration between state actors and lay actors during some or all the phases of the service delivery cycle (planning, design, delivery and assessment). It represents a specific social practices that change the relations between users and providers by modifying the socio-technical and environmental dynamics of the services. In a coproduced service, technology, which can assume different physical (e.g., type and connection of devices, simple or complex) and social (e.g., actors involved and expertise) structures, is thus the backbone that connects different institutional forms of users/providers and of resources mobilized in service development.

Therefore, the session aims at making a substantial contribution to the debate on sustainable urban service provision in the Global South by exploring whether and under which circumstances coproduced socio-technological arrangements foster fair and affordable access to service, social inclusion and sustainable settlements. In other words, it aims at understanding the way in which institutional forms of service providers/user co-evolve with technological configurations and practices to bring about alternative and more sustainable service provision systems.

## **7. Crosscutting Themes:**

### **SE09-CCT: “Strengthening the research-policy nexus in the implementation of the SDGs”**

Session leader: Dr. Gabriela Tejada, Cooperation and Development Center, EPFL

Session Co-leader(s): To be determined

The 2030 Agenda enhances the role that science plays in sustainable development. However, there is a need for new models of science-policy interface that can shape national agendas more strongly and help evidence-based policy advance the SDGs. This session brings together several stakeholders who will present programmes and practices that have reinforced science and policy interconnections and research focused on the SDGs. By identifying main obstacles and enablers in the production and implementation of policy-oriented research towards the 2030 Agenda, we will see how different actors are addressing this challenge. We welcome contributions based on experiences from researchers, policy makers, funding agencies, international organizations and civil society. There will be a particular focus on successful multi-stakeholder partnerships that have effectively worked towards the 2030 Agenda and on the role that research-funding agencies have played in backstopping science connected to the SDGs and the integration of the findings into policy action.

### **SE02-CCT: “Opportunities and Challenges in Quality (Rigorous) Impact Evaluations: Lessons from the academia and the field”**

Session Leaders: Marina Cracco, Cooperation and Development Center, EPFL

Session Co-leader(s): Neeta Goel, International Initiative for Impact Evaluation (3ie)

Description: Quality (Rigorous) impact evaluations are increasingly gaining prominence in development evaluation. These evaluations focus on clear causation or causal attribution by establishing the counterfactual. "Assessing the effects produced by an intervention, the net impact, requires a comparison of what has occurred with the intervention implemented – i.e. the factual – with the situation without the

intervention – i.e. the counterfactual” – Silvestrini et al. 2015. However, establishing a counterfactual, overcoming selection bias, and contamination problems in the context of technology for development interventions come with its challenges. The aim of this session is to present examples of quality (rigorous) impact evaluations and to provide a valuable opportunity to discuss the challenges and opportunities when developing evaluations establishing counterfactuals for development interventions (Technology for Disaster Risk Reduction, ICT, Sustainable and Renewable Energy, Sustainable Habitats and Cities, etc.). The session also hopes to bring together participants interested in this topic.

**SE11-CCT: “Development Engineering: Training Global Engineers”**

Session Leader: Dr. Silvia Hostettler, Cooperation and Development Center, EPFL

Session Co-leader(s): To be determined

The complexity of the challenges humanity is facing calls for a vital revision of the way academia educates future professionals. Engineers not only need to excel in their discipline; they also need to be able to work efficiently in any context. We need to innovate the education of future engineers who are capable to design technologies that are appropriate, affordable and robust to genuinely foster local development and reach the SDGs. This session will discuss emerging multidisciplinary pedagogical approaches that are human-centered, combining engineering and social disciplines to address development challenges. We will discuss the potential and the challenges linked to integrating new courses such as Development Engineering / Global Engineering / Sustainable Engineering in traditional curricula. Our questions will be: 1) What are the main expected learning outcomes for a global engineer? 2) What are the key elements for effectively designing such educational courses? 2) How can we build institutional support for such courses/degrees?

**SE13-CCT: “Open science: an opportunity for the global south?”**

Session leader: Dr. Luc Henry, Scientific Advisor, EPFL

Session Co-Leader (s): To be determined

Open science could be considered a two way process. How can we put mechanisms in place to allow scientific discoveries to travel from high-income countries to low-income countries, but also vice-versa, in an open and fair way? What can be learned from technologies developed in the Global South, that could often be relevant to other places? What are promising initiatives enabling access to global knowledge through open science? What are the main obstacles? How do language barriers hinder the benefits of open science?

**SE18-CCT: “Heart Money - the role of venture capitalism in enabling social outcomes”**

Session Leader: Nettra Pan (Doctoral Research, College du Management, EPFL) and Beatrice Scarioni (Social Entrepreneurship & Innovation Coordinator, Vice-Presidency for Innovation, EPFL)

Session Co-leader(s): To be determined

This session draws from Nettra Pan’s doctoral research that explores role of venture capitalism in enabling social outcomes and investment in for-profit ventures that address critical social or environmental problems. Access to financing for social enterprises is a complex and multifaceted issue and frequently mentioned as one of their biggest challenges. This session draws on new funding models for social enterprises and explores how traditional venture capital firms are now increasingly investing in ventures that have a distinctive social or environmental mission.

**SE24-CCT: “Blockchain and the BoP: a disruptive technology for economic inclusion?”**

Session Leader: Megan Leahy-Wright

Session Co-Leader (s): To be determined

Blockchain technology offers an enormous opportunity for the 2.7 billion people at the bottom of the global income pyramid (BoP) to attain more prosperity. Its decentralized, secure and transparent system of storing

and making transactions supports a range of services for the BoP. It can provide the “unbanked” with access to financial services through cryptocurrencies (e.g. Bitcoin); it can be used to execute record and verify contracts (e.g. land registry) without the need for a third-party; and it can reduce transaction fees and improve supply chain management for entrepreneurs.

There are many unanswered questions when it comes to the future of blockchain technology in developing markets, but one thing is clear: blockchain is here to stay. So, it’s time for us to co-create a way forward with blockchain technology where no one is left behind. In this session, participants will work together in a structured design thinking process to collectively understand the needs of the BoP and build a roadmap to ensure everyone is part of the blockchain revolution.

**SE30-CCT: “Development Engineering in the Private Sector”**

Session leader: Temina Madon, Center for Effective Global Action, UC Berkeley

Session Co-Leader (s): To be determined

Development Engineering is an emerging discipline that address human development challenges by merging advances in engineering with insights from the social sciences. It is not solely an academic endeavor: cutting edge technology firms like Facebook, Google, IBM, Cisco, Microsoft, Telenor, and Orange have made serious investments in R&D in developing countries -- often with the primary objectives of reducing poverty and driving equitable economic growth. These efforts -- which embody the interdisciplinary methods and approaches of Development Engineering -- are not always visible within the academic research community, although they represent important opportunities to learn about technology as a lever for sustainable development. This session will capture candid lessons (including successes and failures) from private sector technology companies that are innovating in the field of Development Engineering. Each presenter will offer a specific technical case study -- for example, IBM’s effort to provide electricity grid monitoring to consumers in Kenya, or Orange’s design of mobile money products that promote financial inclusion. The session will include contributions from African and South Asian research labs, discussing not only technical innovations, but also the workforce and infrastructure investments required to achieve scale.

**SE31-CCT: “Building bridges among global high-tech hubs in the African context”**

Session Leader: Reymound Yaw Buckman, Airbus BizLab, a Global Aerospace Accelerator

Session Co-Leader (s): To be determined

The population of Sub-Saharan Africa is estimated to be 1.4 billion by 2030. The choice to develop applications of new aerospace technologies, such as unmanned aerial vehicles (UAV) for transport and mobility, satellite operations for smart sensor telecommunications, and satellite imagery for earth observation will decide, if these societies will succeed or fail. Currently, these technologies are mainly proprietary to a few multinationals or government agencies in the Global North. However, several African countries have renewed interest in launching projects to drive technological and economic development. In parallel, the World’s Bank mapping of tech hubs showed that these spaces have soared from 117 in 2015 to 173 in 2016. In 2016 Airbus BizLab, a Global Aerospace Accelerator launched the #africa4future initiative inviting aerospace entrepreneurs to participate in a challenge. The proposals revealed strong talent and promising ideas in Southern and Eastern Africa. Yet, the aerospace tech ecosystem has the opportunity to improve its readiness to support the next generation of aerospace initiatives by combining digital development with high-tech hardware capabilities. This breakout session will critically discuss opportunities and challenges to build bridges among high-tech hubs in the African context that enable solutions for humanitarian action, medical technologies, disaster risk reduction, and sustainable cities.

## B. Review and Selection Criteria

- All Paper (Extended Abstract) need to be submitted via the online submission platform no later than January 5, 2018.
- The Scientific Committee will review all abstract submissions. Abstracts will be evaluated according to a review criteria based on quality, potential impact, innovation, relevance, and presentation.
- The submitting author will be considered as the corresponding author of the abstract. The corresponding author will receive all correspondence concerning the abstract and is responsible for informing the other authors on its status.
- Notification of acceptance will be sent to authors **on February 8, 2018**.
- Poster presenters will be notified **by February 8, 2018** and given the technical specifications.
- Authors will have additional time to integrate any reviewer feedback before submitting the final version of the extended abstract **by February 12, 2018**.

### Financial Support

Some level of financial support may be available for [authors of high quality papers from developing or emerging countries](#) who are not able to cover attendance costs. Financial support may be granted partially or in its entirety. The following expenses may be covered:

- Waiver of the conference registration fee.
- Shared accommodation on campus **from Tuesday 26 to Saturday 30 June 2018** (max. 4 nights booked and paid directly by the Conference Organizers).
- A maximum contribution of 900 Swiss Francs upon receipt for an economy class, round-trip air ticket to Geneva plus train travel Geneva Airport-Swiss Tech Hotel-Geneva Airport. As per EPFL rules, reimbursement for travelling expenses will only be effected after attendance at the conference, by bank transfer and upon presentation of receipts.

Financial support will **NOT** cover visa, insurance, meals outside of those included under the conference registration fee, local travel, or any other costs incurred by the authors for their private needs.

The decision to award a grant (either full or partial) will be made by the Conference Organizers based on the quality, originality, and relevance of the [submitted Paper \(Extended Abstract\)](#). The decision is final and no further correspondence will be entered into.

Authors are advised that there are no guarantees that any financial support will be awarded as funding available to the Conference Organizers is very limited.

Authors are strongly encouraged to identify alternative sources of funding to attend the conference.

### Key Dates for Papers (Extended Abstracts)

<b>First open call for papers (extended abstracts) launched</b>	<b>18 July 2017</b>
<b>Second open call for papers (extended abstracts) launched</b>	11 Nov 2017
<b>Extended abstract submission closes</b>	5 Jan 2018
<b>REVIEW BY SCIENTIFIC COMMITTEE OF EXTENDED ABSTRACTS</b>	5 Jan-31 Jan 2018
<b>Author notification for Papers (Extended Abstracts) and poster presentations</b>	8 Feb 2018