

From the Board

ISSMGE HERITAGE TIME CAPSULE | PAN-AMERICAN CONFERENCE SESSION

Academia and industry collaboration to face the challenges of the next 100 years



Matías Silva



Tim Newson



Mónica Bedoya-Martínez



Lucky Nagarajan



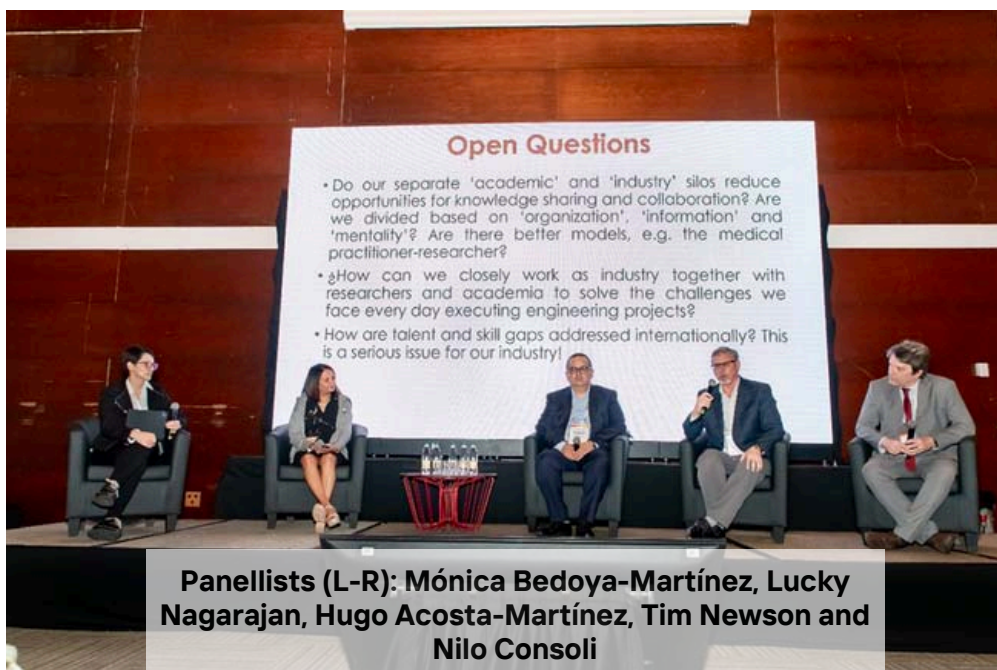
Nilo Consoli



Hugo Acosta-Martínez

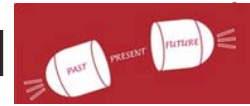
The HTC project team continues working on themes relevant to each of the ISSMGE regions. At the recent 17th Pan-American Conference on Soil Mechanics and Geotechnical Engineering, held at La Serena, Chile, a session on 'Academia and industry collaboration to face the challenges of the next 100 years' was held.

The session was moderated by Matias Silva (GHD, Chile) and included the following representatives from industry and academia from both the South America and North America regions: Mónica Fernanda Bedoya-Martínez (Colombian Geotechnical Society, Colombia), Lucky Nagarajan (Director, Business Development, Geocomp, USA), Prof Nilo Consoli (Universidade Federal do Rio Grande do Sul, Brazil) and Tim Newson (University of Western Ontario, Canada). Each of the four panellists presented a personal perspective on the topic, which was followed by an open discussion with the audience. Hugo Acosta-Martinez (BG&E Resources, Australia) represented the HTC team and opened the session with a brief presentation of the HTC project and future planned activities. The topic selected for the Pan-American region fits within the 'Emerging challenges' of the future focus of the HTC project (refer to ISSMGE Bulletin, Vol 18 No 3, Sep 2024, pp 20-22).



Panellists (L-R): Mónica Bedoya-Martínez, Lucky Nagarajan, Hugo Acosta-Martínez, Tim Newson and Nilo Consoli

ISSMGE HERITAGE TIME CAPSULE | PAN-AMERICAN CONFERENCE SESSION



Matias Silva presented a general discussion on university-industry collaboration, the different forms that such collaboration can take, the role of governments and why universities and industry should collaborate for the profession's regional (and global) benefit. Among those benefits, the following were mentioned: improve the quality of research, improve the training of graduates, improve the performance of businesses, a better potential for social impact and enhanced regional development.

Prof Tim Newson discussed the framework of the 'research business' model and current challenges. He said that over the last 40 years, universities have increasingly adopted more realistic business models to navigate the evolving landscape of higher education. They play a pivotal role in scientific and engineering discovery, accounting for >80 % of discoveries. He noted that total worldwide output of science and engineering publications reached more than 3 million articles in 2022 and this figure is expected to continue doubling every decade. He stressed that external research funding has become essential for acquiring specialized equipment, supplies, and support for graduate students, as well as providing additional time for research. Consequently, researchers are increasingly being encouraged by governments and other grant-funders to establish partnerships with industry, which can help support their work.

Professor Newson described today's information-rich research landscape and suggested that identifying what constitutes 'state-of-the-art' or 'best practice' has become increasingly challenging. He emphasized that declining volumes of basic research as the focus shifts to applied research could be problematic in the future. He also noted that this shift to applied research has highlighted the disparity in temporal expectations between academia and industry regarding output. As funding models evolve, various options are being exploited, including one-to-one projects between companies and faculty, industry-driven bid-based projects, and large-scale industry consortium mega-projects. Additionally, government priority areas and untethered funding to university faculty present both opportunities and challenges. He suggested that critical issue arises around intellectual property rights and the limits of altruism in research, particularly under academic pressures to publish. To address some of these issues, it is essential to identify worthy problems and engage with willing partners, which could be facilitated through personal relationships, brainstorming forums, dedicated workshops, and the insights of visionaries in the field.

Mónica Bedoya-Martinez referred to the industry perspective from the South American region. She described the importance of geotechnical engineering in the development of infrastructure to fill basic societal needs, in particular in developing countries, and stressed the importance of innovation and facilitating the adoption of modern technologies and materials to comply with performance and safety requirements while achieving a more sustainable outcome to reduced impact on natural resources and the environment. She emphasised that civil engineering and geotechnical engineering are social services to society.

ISSMGE HERITAGE TIME CAPSULE | PAN-AMERICAN CONFERENCE SESSION



Mónica presented a fantastic example from Colombia where a joint effort from government, academia and industry has led to updated standards for design, testing and construction. This initiative aligns the interests and needs of various stakeholders (e.g., government policies) while working toward a common objective using state-of-the-art materials, processes, and technology. It is supported by research, practical applications, lessons learned from past experiences, and it is adapted to local conditions.



Matias Silva, session moderator, presenting an introduction to the topic of collaboration



Mónica Bedoya-Martinez and Lucky Nagarajan during the panel discussion



Prof Tim Newson during open floor discussion



Prof Nilo Consoli addressing comments from the audience

Prof Nilo Consoli highlighted the need to open the minds of Industry CEOs to the importance of links with universities worldwide. He presented the interesting case of accelerated research efforts in Brazil following the tragic tailings dam collapse at Brumadinho (Brazil) in January 2019. He motivated the audience to start joint efforts promoting research and collaboration with industry in South America without the need for tragic events and deaths to trigger those efforts.

ISSMGE HERITAGE TIME CAPSULE | PAN-AMERICAN CONFERENCE SESSION



Lucky Nagarajan presented multiple examples of collaboration through her involvement in different boards and learned groups in recent years. She highlighted the important outcome of such activities in developing a more competent industry workforce. Among the examples she presented are initiatives involving committee project fund program, faculty-industry workshop, research projects in conjunction with university faculty, state and federal agencies and more. To advocate for the geo-profession among younger minds, there is also initiatives such as university ambassador program and travelling lecture among many others. The technical associations such as Deep Foundations Institute (DFI), ASCE Geo-Institute and The International Association of Foundation Drilling (ADSC) run those efforts to bring together industry experts and instrument activities for students and developing professionals. She also highlighted the efforts from DFI in promoting diversity in the profession. She presented some outstanding statistics of the impact of the Women in Deep Foundations initiatives over the last ten years. International collaborations are a vital part of growing the industry that can be sustainable and fostering a community for the future. She shared examples of unique, innovative project solutions in Brazil and India where international collaborations and knowledge sharing was key to the success of safeguarding the communities.

The session was closed with an open discussion about views from the region, including challenges and proposed actions. Examples from other geographies (e.g. Australia) were highlighted, and overall, the need to foster increased academia and industry collaboration in the Pan-American region, with particular emphasis in South America where similitudes of ground conditions and industry challenges (e.g. mining) can be addressed more effectively by joint efforts.



Participants of the session included representatives of the local organising committee, ISSMGE Board members and young professionals, among others

The HTC team would like to incorporate additional representatives from Member Societies in the North and South America regions. For those interested, please contact Dr Hugo Acosta-Martinez (HTC Lead for South and North America, 2022-2026) at h.e.acosta@outlook.com.

The HTC team thanks the local organising committee for hosting the HTC session at the PANAMGEO 2024 conference. Support from employers of the presenters is also acknowledged.