



ORSP 13th National Conference Features the Services Sector

by Marino B. Castaño



Vin Perez



Benjamin Santiago, Jr.



Roberto de Vera

The ORSP 13th National Conference held on November 22, 2019 at the Eastwood Richmond Hotel was well attended with participants from the academe, practice as well as ORSP student chapters. With the service sector where retail and IT BP Outsourcing industries account for 55 % of employment, the conference theme *OR: Serving the Services Sector* looks into aspects of how OR can fuel this engine of economic growth. Plenary speakers ably highlighted the role of OR in their areas of the service industry.

Vin Perez, a very young COO of Ninja Van which is South East Asia's leading logistics provider discussed how OR can be used to improve productivity and efficiency for global e-commerce which is growing at a compounded rate of 30%. OR is used to deal with big data for challenges in logistics such as optimizing traffic and weather data, vehicle diagnostics, driving patterns as well as advertising responses particularly data from social media. In the local scene though, the challenge is still on the payment scheme as most of the buyers are still using COD versus the cashless ways.

Benjamin Santiago Jr., the Restaurant Systems Assistant Manager for Kitchen Industrial Design of Jollibee Foods Corporation and as Systems Support for Jollibee North America discussed how OR can optimize store network capacity planning; labor productivity thru process, workstation and tool improvement; as well as optimizing seat configuration in store with the end result of improving the bottom line of the business. He stressed correctly that a 0.1% improvement for a billion dollar industry has a considerable impact on the bottom line.

Prof. Roberto de Vera of the School of Economics of the University of Asia and Pacific imparted advise on how the OR practitioner should adopt strategies and attitude to spot opportunities for innovation as well as learn to tweak products and process to get the job done. Without this strategy of innovation, business can be left behind.

In the afternoon, parallel sessions were conducted, and I opted to attend *Perspectives on the Use of Quantitative*

Methods in Practice, which featured ten-minute talks (called “lightning talks”) of five OR practitioners.

Rozano L. Santos, the current Senior Manager for Business Development of Philippine Realty and Holding Corporation discussed the use of OR in optimizing Project Design, Scheduling and Project Management. He also touched on possible ways of using OR to improve aspects of building and construction and showed an example in the design of the drainage systems in condominiums that minimize disruptions during maintenance.

Brenda Rayco, associate professor of Industrial Engineering of De La Salle University, discussed her experience in the US for a mining entity where she worked at optimizing costs associated with tires, a major important input in the mining industry. She used OR quantitative tools and showed how OR could contribute to the optimal use of this critical resource.

JC Mercado discussed his journey with OR which started in school, accompanied him in big corporations like P&G, the Sky Internet as well as government entities like the Comelec and the Department of Justice. He shared interesting insights in this long journey which included frustrations in the course of implementation challenges.

As Dean and Academic Director of the Thames International Business School, **Leah Alvino Macatangay** discussed the need for OR in the education sector. Digital transformation of a progressive school means the use OR in student scheduling as well as classroom and facilities planning. In this educational setting, simulation is simultaneous with implementation as learning is a continuous process.

Rizaldy Capulong, EVP for Social Security System for treasury and investment operations discussed how quantitative analysis is used to how improvements in collection efficiency and return on investments extend the SSS Fund life.

The round table discussion on *Making OR Education Relevant to the Needs of Practice* discussion was presided by Dennis Beng Hui, who was joined by two other panelist **Marilyn Mabini**, UST professor of Industrial Engineering and **Flor Magalino**, Assistant Professor of Holy Angel University. The attendees were divided into groups to discuss the topic. The round table concluded that close coordination of the academe and industry is a must in promoting and enhancing OR education that is relevant to the needs of industry.



Participants of the lightning session on OR Practice (L to R): Dennis Beng Hui, Marie Shella Mariscal, Rizaldy Capulong, Rozano Santos, Brenda Rayco, Elise del Rosario, Leah Macatangay, and JC Mercado.



Participants packed the two ballrooms for the Conference.

The plenary session followed which featured speakers **Xiaoyun Xu** who is a professor at the Department of Operations & Information Technology at the ADMU Graduate School of Business. He discussed customer order scheduling in nutrition product manufacturing and the other one is the distributed inventory allocation is an auto-repair service chain.

Paolo Balinas, Education Channel Manager of Microsoft, discussed the impact and opportunities of the 4th industrial revolution. He discussed jobs that would disappear and mentioned that because of the rapid change of technology, 65% of jobs in the future are still to be created. The challenge is how one can be prepared and future-ready.

At the end of the day, I was happy to have received and accepted the invitation from Elise del Rosario inviting me to the conference. The horrendous traffic of Metro Manila to and from my place in the South and on a

Friday at that, was intimidating. I did, however, got the opportunity to link up with old friends and colleagues in OR and also got updated on the continuing relevance of OR. ♦

APORS Holds First Virtual Conference

by Elise del Rosario

Hundreds of conferences have been cancelled and postponed because of the COVID-19 pandemic. This included the IFORS2020 in Seoul which was postponed to 2021. APORS thought that its scheduled meeting must give way to the postponed IFORS 2020 and therefore moved its Triennial meeting to 2022. But to keep connections active, APORS hosted its first Virtual Conference from September 23 to 25 with the theme *OR: Continuing Relevance in Challenging Times*, hosted by the Operations Research Society of the Philippines (ORSP).

The first day featured speakers from the four regions of IFORS, which posed a challenge, given the time zones from where they were giving their talks. North America (NORAM) was represented by Karla Hoffmann, Latin America (ALIO) by Andres Weintraub, Europe (EURO) by Grazia Speranza and Asia-Pacific (APORS) by Simon Dunstall.

Organizers were elated that their first choices for the regional talks readily agreed to serve as keynote speakers and share their expertise on the theme. IFORS VP representing NORAM and past President of INFORMS Karla Hoffmann dealt with an optimization project that translated into USD 20 billion revenues for the US Federal Communications Commission through the reassignment of over 1000 broadcast TV stations to new channels for over-the-air broadcasting in the US and Canada in order to free up spectrum for mobile use and 5G.

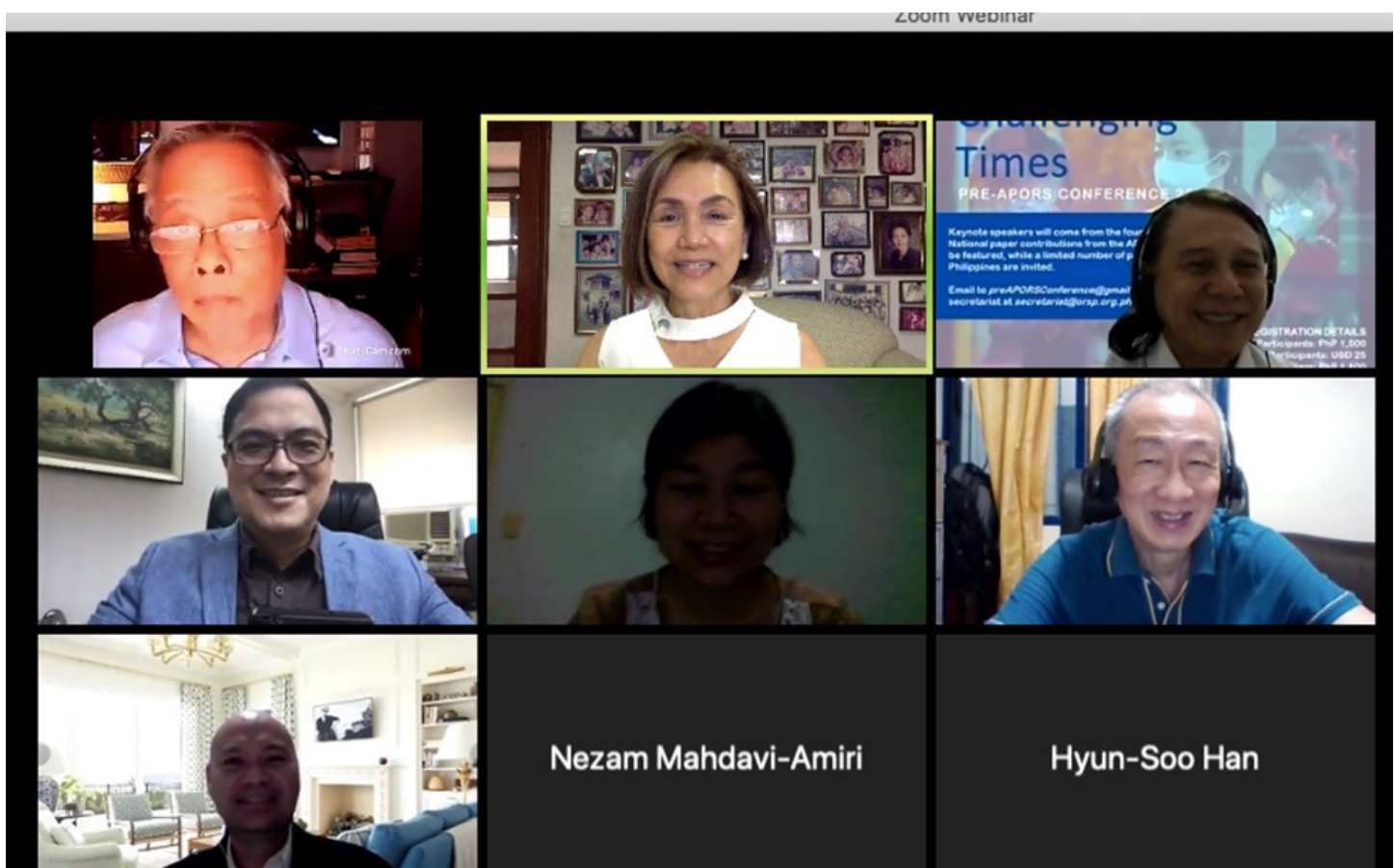
For his part, past IFORS President Andres Weintraub gave the wide range of applications that his group in the Universidad de Chile has worked on forest and mine planning, containers scheduling for a large shipping company, and scheduling matches for the football season. He had a lot more projects to share but was limited by the time available. Nevertheless, while saying that the OR-based implementation for these institutions and industries had been in place for decades with impacts in the hundreds of millions of dollars, he concluded by sharing the lessons he learned from his consulting experience.

IFORS President Grazia Speranza took into account developments in ICT, IoT, advanced analytics, sustainability issues, including the current pandemic as she dwelt on research directions and results in the field of transportation and supply chain management. Likewise, citing their work in CSIRO, Australia, Simon Dunstall pointed out that current pressing challenges particularly in environmental, agricultural, natural hazards and transportation issues increasingly require integration of computational and automation technologies including physics-based modelling, spatio-temporal analytics, cloud computing, IoT and edge computing. He pointed out the need for OR professionals to understand, integrate and capitalize on what other sciences and technologies bring to the table.

With the four keynote speakers concluding their talks with key take-aways and lessons learned from their experiences, participants were all set for what was to come for the second day, the presentation of the national paper contributions of the countries making up the APORS. On September 24, papers that involved Covid 19 was expectedly a popular topic. New Zealand's (ORNZ) Michael O'Sullivan discussed deterministic and stochastic models of patient flows in the wards and ICU of hospitals while Australia's (ASOR) Hannah Johns tackled surge modelling for the Royal Flying Doctor Service, both projects done in preparation for the ensuing demand brought on by the pandemic. From India (ORSI), Nita Shah discussed a scheduling model that maximizes manufacturing of PPE kits with minimum labor and production capacity while Vijay Chandru presented a decision support framework that uses approved diagnostic tests and screening methods.

Philippine's (ORSP) Shella Mariscal discussed findings in their use of analytics for the company COVID 19 testing program as well as in their use of simulation to address traffic congestion. Congestion in the emergency department of a hospital was addressed by Yong-Hong Kuo of HongKong (ORSHK) through a simulation optimization approach that guide resource allocation decisions.

Dongdong Ge of China (ORSC) offered a smart supply chain network management solution which integrate machine learning, robust optimization, and operations management that is well-equipped to face of challenges brought about by Covid-19. Citing actual experience in the areas of supply chain and health care, Sim Cheng Hwee



ORSP Organizers doing a debrief after the last session. Shown above are (l to r, top to bottom): Vic Reventar, Elise del Rosario, Edwin Loma, Rizaldy Capulong, Ma. Shella Tan-Mariscal, Juanito Chan, and Francis Miranda.

from Singapore (ORSS) explained how federated learning has emerged as a new approach for organizations to learn collaboratively in a secure manner without having to part with their data.

In the area of methodology and research, ORSC's Ziyang Luo offered a superior algorithm to address the computational challenge posed by the octagonal shrinkage and clustering algorithm for regression for high dimensional and/or large sample size data. Iran's (IORS) Nezam Mahdavi-Amiri put forth an algorithm based on an adaptive projected structured exact penalty scheme to solve constrained nonlinear least squares problems. From Nepal (ORSN), Urmila Pyakurel presented a solution to the maximum evacuation planning problem and showed its effectiveness using the empty lanes of the network.

Aldy Gunawan from ORSS discussed several variants of routing problems with profits, focusing on the orienteering problem (OP) and ended with OP applications in tourism and logistics. A research on how systems dynamics has been applied in the solid waste management was the topic of Malaysia's (MSORSM) Zulkifli Mohd Nopiah presentation. Govinda Tamang from ORSN presented the trend of fertility rate, mortality rate, life expectancy at birth, age dependency ratios and economic growth of the south Asian countries with a discussion on insights provided by DEA frontier analysis.

From ASOR, Semini Wijekoon showed how power system planning involving a large-scale mixed-integer programming (MIP) problem that determines the most cost-effective mix of generation and transmission for the future electrical grid could be made tractable through decomposition and illustrated how visualisation helped in understanding the solution space. In the public sector, Japan's (ORSJ) Tatsuo Oyama pointed out the three major roles for OR in solving societal problems and gave examples and challenges for each of these three roles of: quantitative data analysis mathematical modeling analysis, and theory building analysis.

Hyun-Soo Han of Korea (KORMS) took participants through a tour of various OR/MS applications in Korean companies that include Samsung Electronics, Pohang Iron and Steel Company (POSCO), Daewoong Pharmaceutical Co. Ltd, and Incheon International Airport Co. (IIAC). He cited lessons learned, among which is that OR adoption of senior management is a big factor in successful implementations.

The third day papers from ORSP covered tools such as networks, simulation, mathematical programming, and analytics to address problems of water losses, production capacity optimization, logistics, evacuation planning in both the public and private sectors. The plenary talk was given by Xiaoyun (Jack) Xu who shared his early assessment of the implications of the COVID-19 pandemic for food supply chains in the Philippines, as he reviewed the coping strategies and effectiveness at both central and local government levels. The final slot was a Tutorial given by Vicente Reventar who provided an overview of open-sourced solvers from COIN and Google's OR-Tools with a demonstration of how to use these tools via a cloud-based optimization server like NEOS.

The 360 registered participants appreciated the opportunity to listen to all the well-credentialled and highly experienced Operations Researchers who discussed applications, shared lessons learned, and expounded on research directions on methodologies. In general, the topics were found very timely and indeed posed challenges to OR professionals.

The organizers had their own share of challenges! As in any first-time experience, the technical difficulties as live feeds going dead, speakers unable to connect, panelists who could not be heard, bad internet connection, were eventually ironed out by the second day. Despite the first day teething troubles, the pre-APORS virtual conference was able to feature diverse mix of speakers sharing with an equally diverse set of participants. APORS President Francis Miranda, ORSP President Marie Shella Mariscal, and APORS pre-Conference Chair Rex Robielos, with the rest of the ORSP Board, were very relieved that everything turned out well. Nevertheless, everyone was still looking forward to a face-to-face event when APORS 2022 in Cebu, Philippines happens. ♦



NORAM
Karla Hoffman



EURO
Grazia Speranza



ALIO
Andres Weintraub



APORS
Simon Dunstall

excerpt from



EWG-ORD 2020 WORKSHOP



Data Technologies and Analytics for Sustainable Development

EURO Working Group on OR for Development Goes Virtual

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The European Working Group - Operations Research for Development (EWG-ORD) 2020 Workshop with the theme - "*Data Technologies and Analytics for Sustainable Development*" held its first ever virtual meeting last August 29, 2020, the organizing committee of which included two participants from the Philippines.

Initially scheduled to convene in Magaliesburg, South Africa as a satellite event of the 2020 meeting of the Operations Research Society of South Africa (ORSSA), the workshop, like other events during the COVID-19 pandemic, was held online.

Unlike the previous three-day workshops, the number of presentations was restricted to a day, but nonetheless with a wide range of topics that represent and expand on the EWG-ORD mission, namely that of the use of new OR-based data analytics in the exploration of the United Nation's 17 Sustainable Development Goals aiming to end poverty, protect the planet, and ensure prosperity for all.

More than 20 attendees - scholars, researchers and professionals from 15 countries around the world gave their feedback on the featured thirteen papers. The invited talk of Cathal MacSwiney Brugha of University College Dublin - the president of the Analytics Society of Ireland entitled *Analytics for Development and Maintenance of Communities in an Environmentally Stressed World* set the tone for the twelve contributed papers.



The success of the event was a product of the hard work, coordination of the three Chairs of EWG-ORD 2020 - Nina Kajiji, Gordon Dash, and Milagros Baldemor who worked on the concept, program and other conference details, helped along the way by Gerhard-Wilhelm Weber (EURO Representative), Elise del Rosario, Begoña Victoriano and others from EURO and ORSSA, the scientific committee, advisory and managing board and all paper reviewers. ◆

▲ EWG-ORD 2020: Valuable lectures and discussions in one "room" and with the world.

Capulong and Xu join the ORSP Board as Directors; Change in Appointments for Directors Mariscal and Robielos



Rizaldy Capulong

Newly inducted into the 2020 ORSP Board, Rizaldy Capulong was previously an ORSP Board Director from 2000-2004. He is Executive Vice President and Head of the Investments Sector of the Social Security System (SSS) and an Associate of the Actuarial Society of the Philippines as well as the Society of Actuaries of North America. Meanwhile, Professor at the Department of Operations & Information Technology of the Ateneo Graduate School of Business Xiaoyun (Jack) Xu was previously an Associate Professor at the Department of Industrial Engineering and Management at Peking University. Dr. Xu



Xiaoyun Xu

has published extensively in top tier journals and presented in conferences in the fields of Industrial Engineering and Operations Research.

Congratulations are in order for ORSP President Shella Mariscal who was promoted to the position of Operations Research Manager of the San Miguel Corporation effective January, 2020. Moving on to practice from the academe, Rex Robielos has assumed the position of Department Manager, Operations Research Group of Analog Devices effective February 1, 2021. He was previously Dean of the School of Industrial Engineering and Engineering Management of the Mapua University. ♦

Welcome New Members!

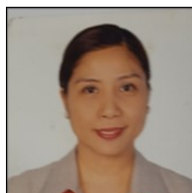
This newsletter issue welcomes new members who have joined the ORSP Family.

From the **Academe** are: Balik-ORSP member **Dioscoro Baylon**, Vice Chair, Financial Management Department at De la Salle University; **Carolina Intal**, Instructor at Holy Angel University; **Therese Anne M. Rollan**, PhD Student, Data61 at CSIRO Australia; **Leorey M. Marquez**, Research Scientist, Data61 at CSIRO Australia; **Angelita M. Pagcaliwagan**, Faculty at De La Salle Lipa and **Angelo Paulo D. Atienza**, Lecturer at Batangas State University – Main II.

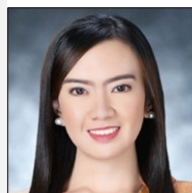
From the **Industry** sector are **Judd Daniel Ang**, Strategy and Planning Analyst at Philippine Batteries Incorporated, **Catherine Chiu**, Senior Manager, Industrial Engineering Department at Quantus Business Services, Inc., **Tim Justin Cruz**, Senior Manager, Business Process Engineering Knoxport Inc., **Warren Justin Ng**, Analyst, Strategic Planning & Development at Philippine Batteries Incorporated, **Paolo Raphael A. Piedad**, Operations Research Analyst at San Miguel Corporation, and **Froilan Tejada**, Vice President, Strategic Planning and Development at Ramcar Batteries International, Ltd. ♦



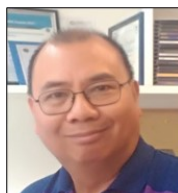
Dioscoro Baylon



Carolina Intal



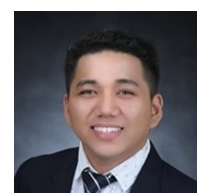
Therese Anne Rollan



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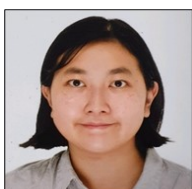
Angelita Pagcaliwagan



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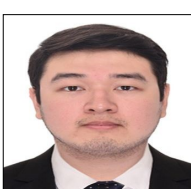
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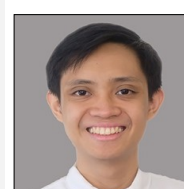
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Froilan Tejada