

From the Chair's Desk

Zhijian Cui

Greetings TIMES members and friends,

It is my pleasure to connect with you annually through our newsletter. Every year, we prepare this newsletter and make it available through our [INFORMS Connect website](#), to keep you updated on important events and developments.

In the past 2017 to 2018 academic year, TIMES board has re-started several initiatives and launched a new initiative, with an aim of increasing our impacts at INFORMS community as well as consolidating the connections with our members. First, with the financial supports from Nazarbayev University Graduate School of Business (NUGSB), TIMES launches a new competitive initiative targeting at the unpublished working paper and it is named as "INFORMS TIMES Best Working Paper Award Competition". Together with other competitive initiatives we already have, such as Best Dissertation Award and Best Paper Award, the Best Working Paper Award competition provides additional incentives to our community members to present their best unpublished research at INFORMS TIMES sponsored or NPD invited clusters.

NUGSB has a small, but growing research oriented faculty. The Graduate School of Business has a strategic collaboration with Duke University's Fuqua School of Business, which is ranked as one of the best business schools internationally. Duke's Fuqua School of Business is also actively involved in recruiting and mentoring/supporting NUGSB faculty in teaching and research activities. For more information about NUGSB please visit our [website](#).

In this year's competition, eighteen faculty members from different institutions all over the world voluntarily serve the role of reviewers for the first round selection. Based on their evaluations, we create a list of five finalist papers. Another three experts form a committee for the second round evaluation. One first-place and one second-place award winners have been identified and the final results will be announced at TIMES Business meeting scheduled on November 5th, 2018.

Second, we have the great honor to nominate Professor Karl Ulrich from Wharton School, the University of Pennsylvania as the winner of this year's Distinguished Speaker Award. Professor Ulrich will give

(Continued on page 2)

Published by TIMES for its fall 2018 academic meeting

TIMES BUSINESS MEETING

The TIMES business meeting will be held in **North 123** (100 Level) on **Monday, 5 November, 6—7:30pm**. Please join the TIMES officers and other distinguished colleagues for a wine and cheese reception after the meeting.

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a lecture about his visions of the future direction of innovation research at a special session on November 5th, 2018. Thanks to the financial sponsorship from the University of Science and Technology of China (USTC), School of Management, we are able to increase the cash prize of this renowned award from \$500 to \$1,100 this year.

University of Science and Technology of China (USTC) is one of flagship national research universities in China. Being a member of the C9 League, China's equivalent of the Ivy League, USTC is under the direct leadership of the Chinese Academy of Sciences (CAS). USTC has taken a leading position among Chinese universities on the number of research papers published internationally and in the citation rate of the papers. Several well-recognized university rankings such as the QS World University Rankings and the US News & World Report Best Global Universities have consistently put USTC as a top-four research university in China.

Third, with the great support and sponsorship from Lazaridis Institute, we continue to run the INFOMRS TIMES Best Dissertation Award this year. Five excellent emerging scholars in the field of innovation management and entrepreneurship have been identified as the finalists of this award. They will present their research at a special session scheduled on Monday, November 5th 2018.

Fourth, from this year, we have re-started to nominate the INFORMS TIMES Distinguished Service Award, which has not been presented to anyone for nearly ten years. Early this year, a nomination committee consisting of TIMES past chairs have discussed and nominated two recipients of this renowned award for 2018: Professor Juliana Hsuan

and Professor John Angelis. Here, on behalf of TIMES board, I want to express my sincerest congratulations to them and gratitude for their long-term commitment to TIMES community.

Fifth, I want to extend our special gratitude to several new board members of TIMES for their great supports and contributions to all initiatives that happened last year. In particular, as the Honorary Chairs of TIMES, Professor Ashish Arora and Professor Moren Levesque do not only provide very important advice and guidance on where TIMES could grow its impacts and how it can grow, but also give us a hand as judges of the newly launched Best Working Paper Award Competition initiative.

I also want to highlight that the newly appointed board member at large, Professor Jochen Schlapp, did a terrific job of organizing this year's Best Working Paper Award competition. The newly elected Vice Chair of Membership and Communication, Professor Philipp Cornelius, spent a lot of efforts on putting all pieces together and produced an excellent Newsletter for this year's INFORMS annual conference. From the end of last year, Professor Konstantinos Stouras became our new Chief Information Officer and will be responsible for the maintenance of TIMES connection webpage and the outlets at social media in the next three years.

Last but obviously not the least, thanks to the great work of Professor Pascale Crama, the Vice Chair of Programs, we have a wonderful and very high quality conference program at TIMES Sponsored Cluster this year. In this year's program, our community members can listen to the state-of-art research on many new phenomena, new subjects and new

(Continued on page 3)

methodologies in the field of innovation management and entrepreneurship. It is fantastic to see that a lot of emerging scholars and well-established academia will present their promising top-notch research at TIMES sponsored cluster for the first time. Please join the TIMES sessions and meet them.

As an ending note of this letter, I want to share a piece of good news with all TIMES members: in the past 2017 to 2018 academic year, the number of TIMES members increases by around 20%. It implies that the impact of our community is indeed growing. Clearly, without the generous helps and contributions by the sponsorship institutions, the judges and reviewers in all competitions, as well as the past TIMES officers, this encouraging progress simply cannot happen. On behalf of TIMES board, I want to thank again for all abovementioned institutions, all judges and reviewers, all session chairs at TIMES sponsored clusters, all participants of the year's different competitions and all scholars who are going to present their excellent research at this year's TIMES sponsored cluster. It is your participation that gives us the confidence to work harder on all initiative we had and will have, and it is your contributions that enable the sustainable growth of this great community.

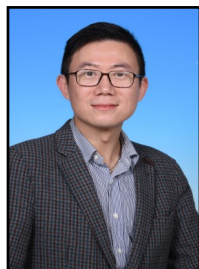
Best regards,

Zhijian Cui

Chair of the INFORMS Technology, Innovation Management and Entrepreneurship Section

2018 TIMES Officers

Chair



Zhijian Cui

Graduate School of Business,
Nazarbayev University
zhijian.cui@nu.edu.kz

Honorary Chairs



Ashish Arora

Fuqua School of Business,
Duke University
ashish.arora@duke.edu



Moren Levesque

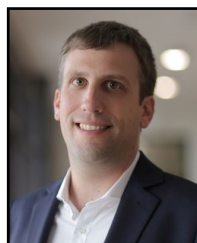
Schulich School of Business,
York University
mlevesque@schulich.yorku.ca



Chair Elect

Jeremy Hutchison-Krupat

Judge Business School, University of Cambridge,
j.hutchisonkrupat@jbs.cam.ac.uk



Board Member at Large

Jochen Schlapp

Frankfurt School of Finance and Management,
j.schlapp@fs.de



Vice Chair of Programmes

Pascale Crama

Lee Kong Chian School of Business, SMU,
pcrama@smu.edu.sg



Chief Information Officer

Konstantinos Stouras

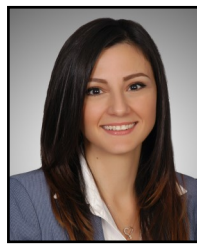
University College Dublin, konstantinos.stouras@ucd.ie



Vice Chair of Membership & Communication

Philip Cornelius

Rotterdam School of Management, Erasmus University Rotterdam,
cornelius@rsm.nl



Past Chair

Gülru Özkan-Seely

University of Washington, Bothell, gulru@wu.edu

2018 TIMES Distinguished Speaker



Karl T. Ulrich

Vice Dean of Entrepreneurship and Innovation
CIBC Professor of Entrepreneurship and e-Commerce
The Wharton School, University of Pennsylvania

Professor Karl T. Ulrich is currently the Vice Dean of Entrepreneurship & Innovation and CIBC Professor of Entrepreneurship and eCommerce at the Wharton School of the University of Pennsylvania. He also holds an appointment as a full Professor of Mechanical Engineering. He leads Wharton's San Francisco campus and the Penn Wharton Entrepreneurship programs. His research is focused on innovation, entrepreneurship, and product development. He is the co-author of *Product Design and Development* (6th Edition, McGraw-Hill, 2015), a textbook used by a quarter of a million students worldwide, and of *Innovation Tournaments* (Harvard Business Press, 2009). He is the winner of many teaching awards, including the Anvil Award, the Miller-Sherrerd Award, and the Excellence in Teaching Award at The Wharton School. At Penn, he co-

founded the Weiss Tech House and the Integrated Product Design Program, two institutions fostering innovation in the university community. He was the Department Editor at *Management Science* from 2001-2004 and Associate Editor from 1998 to 2001 and from 2009 to 2017. In addition to his academic work, Professor Ulrich has led dozens of innovation efforts for medical devices, tools, computer peripherals, food products, web-based services, and sporting goods. As a result of this work, he holds 24 patents. Professor Ulrich is a founder of Terrapass Inc. which the *New York Times* identified as one of the most noteworthy ideas of the year, and he is a designer of the Xootr scooter, which *Business Week* recognized as one of the 50 coolest products of the 21st Century. Professor Ulrich holds bachelor's, master's, and doctoral degrees in mechanical engineering from MIT.

Talk: Alpha Strategies: Sustained Advantage in Entrepreneurial and Established Firms

All innovation begins with some kind of disequilibrium, and may lead to supra-normal profits for the pioneering enterprise. However, all disequilibrium eventually fades. This talk links what we know about strategy, finance, and innovation into a framework for understanding sustained competitive advantage for innovating organizations, whether new entrants or incumbents. I also examine the evidence for the magnitude and duration of sustained profitability above the cost of capital in established public companies, and consider the extent to which such profits are the result of innovation.

*MD03 (5 November 2018, 4:30 PM - 6:00 PM)
121C, North Bldg*

2018 TIMES Doctoral Dissertation Award

Sponsored by Lazaridis Institute

As the 2018 INFORMS Annual Conference is approaching, I am very delighted to announce five finalists of the 2018 INFORMS TIMES Best Dissertation Award, sponsored by Lazaridis Institute. We will organize a special session on Monday morning (5 November, MB03, 11:00 AM - 12:30 PM 121C, North Bldg.) and invite all finalists to present their research. All finalists will receive a plaque/certificate and a cash prize. The award will be announced and granted at the TIMES business meeting the same day.

Five faculty members voluntarily serve the role of judges and provide their insightful evaluation comments. On behalf of TIMES board, I want to express our sincere gratitude to the judges for their excellent evaluations and hard work! We also want to acknowledge their great contributions to this year's competition and the TIMES community.

In alphabetical order of the last names, the five finalists are on the next page (the PhD institution and supervisors are acknowledged in the parentheses).

Judges



Tian Chan

Goizueta Business School, Emory University,
tian.chan@emory.edu



Ersin Korpeoglu

UCL School of Management, University College London,
e.korpeoglu@ucl.ac.uk



Haibo Liu

School of Business, University of California, Riverside,
haibo.liu@ucr.edu



Morvarid Rahmani

Scheller College of Business, Georgia Tech,
morvarid.rahmani@scheller.gatech.edu



Joel Wooten

Darla Moore School of Business, University of South Carolina,
joel.wooten@moore.sc.edu

2018 TIMES Doctoral Dissertation Award Finalists

Sponsored by Lazaridis Institute



Tristan Botelho

(Yale, Ezra Zuckerman)

Tristan Botelho is an assistant professor of organizational behavior and faculty affiliate of the Program on Entrepreneurship at the Yale School of Management. His research interests are careers, innovation, social evaluation, and strategy, primarily focusing on digital platforms and entrepreneurship. He received his PhD from the MIT Sloan School of Management in 2017.



Philipp Cornelius

(RSM, Bilal Gokpinar)

Philipp Cornelius is an Assistant Professor of Technology and Operations Management at the Rotterdam School of Management. He holds a PhD in Management Science & Innovation from the UCL School of Management, University College London, and a BSc in Information Systems from the University of Mannheim, Germany. Philipp's research interests are in new product development, innovation management, and crowd-driven innovation. He investigates related questions in large-sample econometric studies using original data from organisations and innovation platforms.

2018 TIMES Doctoral Dissertation Award Finalists

Sponsored by Lazaridis Institute



Cedric Gutierrez Moreno

(Bocconi, Tom Astebro & Mohammed Abdellaoui)

Cédric Gutierrez is an Assistant Professor in the Department of Management and Technology at Bocconi University. He holds a PhD in Strategy and Management from HEC Paris. His research interests are situated at the intersection of behavioral decision making, entrepreneurship and strategy. In particular, he examines how behavioral mechanisms (e.g. ambiguity aversion, perception of time) and cognitive biases (e.g. overconfidence) influence entrepreneurs and managers' willingness to take risk. Empirically, he uses methodologies and models from experimental economics and decision sciences. His research is forthcoming in the *Journal of Risk and Uncertainty* and *Strategic Organization*, and has been recognized by the 2016 Best Empirical Paper Award of the Entrepreneurship Division at the Academy of Management.



Lakshminarayana Nittala

(Dayton, Vish Krishnan)

Lakshmi Nittala is currently an Assistant Professor in Operations and Supply Management at the University of Dayton, USA. Prior to this he received his PhD in Innovation, Technology & Operations from the University of California, San Diego. Lakshmi has more than 5 years of work experience in the Semiconductor Capital Equipment industry where he led technology development and deployment as a New Product Development Engineer. He also has a PhD in Engineering from the University of Illinois at Urbana-Champaign and a bachelor's in engineering from the Indian Institute of Technology, Kanpur, India. Lakshmi's research interests are broadly in the area of Innovation and New Product Development. His doctoral dissertation is focused on the design of innovation contests.

2018 TIMES Doctoral Dissertation Award Finalists

Sponsored by Lazaridis Institute



Konstantinos Stouras

(Dublin, Serguei Netessine & Karan Girotra)

Konstantinos Stouras is Assistant Professor of Operations Management at UCD, Michael Smurfit Graduate Business School and a Batten Institute Research Fellow. Konstantinos specializes in technology management and innovation. His research examines crowd-based innovation models, and the impact of on-demand marketplaces and online communities in the digital transformation of the service industry. Konstantinos holds a Ph.D. in Operations Management from INSEAD and graduate degrees in Financial Engineering, and Applied Mathematics and Physics from the National Technical University of Athens (NTUA).

We look forward to seeing you at this session, which promises to be full of rich ideas and discussion.

See previous winners [here](#).

2018 TIMES Best Paper Award

After collecting and aggregating feedback from several distinguished academics in our field, we are delighted to announce the finalists of the 2018 INFORMS TIMES Best Paper Award. All candidate papers were published five years before the Annual Conference in an INFORMS journal. The candidate papers were first shortlisted according to the citations and then sent to all judges for evaluations. The award winning paper will be announced at the TIMES business meeting on Monday, 5 November.

The six finalists are (in alphabetical order of the last name of the first author):

Forming and Exploiting Opportunities: The Implications of Discovery and Creation Processes for Entrepreneurial and Organizational Research (*Organization Science*). By: Alvarez, Sharon A.; Barney, Jay B.; Anderson, Philip.

Crowdsourcing New Product Ideas over Time: An Analysis of the Dell IdeaStorm Community (*Management Science*). By: Bayus, Barry.

Is Pay for Performance Detrimental to Innovation? (*Management Science*). By: Ederer, Florian; Manso, Gustavo.

Business Model Innovation for Sustainability (*MSOM*). By: Girotra, Karan; Netessine, Serguei.

Vaporware, Suddenware, and Trueware: New Product Preannouncements Under Market Uncertainty (*Marketing Science*). By: Ofek, Elie; Turut, Ozge.

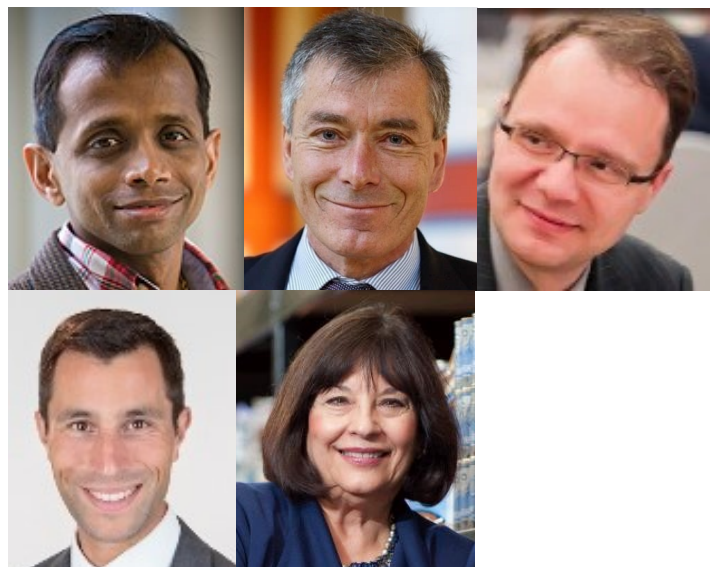
Strategic Ambidexterity in Small and Medium-Sized Enterprises: Implementing Exploration and

Exploitation in Product and Market Domains (*Organization Science*). By: Voss, Glenn B.; Voss, Zannie Giraud.

On behalf of the TIMES board, we want to thank the judges for their contribution to this competition and the TIMES community. Without their generous support and guidance this year and in the past years, this competition simply cannot happen.

During the business meeting, we will invite the judges to announce to the award winner and grant the award plaque. The award winner will then be invited to give a short speech on how she/he developed this paper and her/his vision on emerging research topics in our field. Please join us to congratulate the award winners and socialize with the judges!

Judges



Vish Krishnan (UC San Diego), Christoph Loch (Cambridge Judge), Jürgen Mihm (INSEAD), Guillaume Roels (INSEAD), Aleda Roth (Clemson)

2018 TIMES Best Working Paper Award

Thanks to the excellent organization of TIMES officer Professor Jochen Schlapp, we have five finalists for the 2018 INFORMS TIMES Best Working Paper Award. All submissions were blindly reviewed by at least three referees and the five papers which received the highest evaluation scores went on to become our finalists.

In total, 18 faculty members from different schools voluntarily serve the role of reviewers for the first-round evaluation and contribute their excellent insights. On behalf of TIMES Board, I want to thank all reviewers who helped us identify the promising submissions for this year's best working paper competition.

The five finalist papers include:

- Chan, T., J. Mihm, M. Sosa. Revisiting the Role of Collaboration in Creating Breakthrough Inventions.
- Chod, J., N. Trichakis, G. Tsoukalas, H. Aspegren, M. Weber. Blockchain and The Value of Operational Transparency for Supply Chain Finance.
- Körpeoglu, E., G. Körpeoglu, I. Hafalir. Contest among Contest Organizers.
- Markou, P., S. Kavadias, N. Oraiopoulos. Project Selection and Success in the Drug Development Process.
- Rahmani, M., K. Ramachandran. The Effect of Flexibility in Delegating Innovation.

The five finalist papers were sent to a panel of experts for a second-round evaluation. The panel of judges includes (in alphabetical order): Ashish Arora

(Duke University), Moren Levesque (York University) and Thierry Post (Nazarbayev University Graduate School of Business).

The winner of the TIMES Best Working Paper Award and the second place will be announced at the TIMES business meeting during. The authors of the winner and second place papers will receive a plaque from INFORMS and the authors of the all finalist paper will receive a certificate.

Congratulations to all selected authors! We are looking forward to meeting you at INFORMS!

Judges



2018 TIMES Distinguished Service Award

The INFORMS TIMES Distinguished Service Award is set up to acknowledge the past TIMES officers or community members who contributed extraordinary services and long-term commitment to the INFORMS community of Technology, Innovation Management and Entrepreneurship area. The past winners of this award include Professor Cheryl Gaimon (2009) and Professor Jeffrey Liker (2004). Since 2009, TIMES has not granted this prestigious award for nearly ten years.

Early this year, a nomination committee composed of the past chairs of TIMES discussed and recommended two candidates for this year's INFORMS TIMES Distinguished Service Award. The members of the nomination committee include: Prof. Moren Levesque, Prof. Janice Carrillo, Prof. Cheryl Druehl, Prof. Leonardo Santiago, Prof. Sinan Erzurumlu, Prof. Jianxi Luo and Prof. Gulru Ozkan-Seely.

As the current Chair of TIMES, I am very honored to announce the results of the conclusions made by the nomination committee and present the 2018 INFORMS TIMES Distinguished Service Award to two nominees:

- Professor **Juliana Hsuan** from Copenhagen Business School
- Professor **John Angelis** from Elizabethtown College

Professor **Juliana Hsuan** is currently a full Professor of Operations and Innovation Management at Copenhagen Business School (CBS) and Guest Professor at Chalmers University of Technology. She worked as an automotive electrical design engineer

with Motorola in U.S. before joining academia. She is the CBS Concentration Coordinator of Master Science Program in Supply Chain Management. Her teaching and research interests include (service) operations management, servitization, supply chain management, innovation management, modularization strategies, mass customization, and portfolio management of R&D projects.



Her research has been published in *International Journal of Operations and Production Management*, *Decision Sciences*, *Journal of Product Innovation Management*, *IEEE Transactions on Engineering Management*, *Production Planning and Control*, *Technovation*, *R&D Management*, *Journal of Cleaner Production*, among other journals. She has co-authored two textbooks: *Managing the Global Supply Chain* published by CBS Press, and *Operations Management* published by McGraw-Hill.

Juliana served as an officer for INFORMS TIMES (Technology, Innovation Management and Entrepreneurship Section), former Technology Management Section (TMS) for 6 years (from 2007-2013), and as a board member of EUROMA (European Op-

2018 TIMES Distinguished Service Award

erations Management Association) for 6 years (from 2006-2011). She has served as a faculty member of CEMS (Community of European Management Schools and International Companies) Logistics Group since 2007. She currently serves as an associate editor for *International Journal of Operations & Production Management* and for *Decision Sciences*. She is also in the Editorial Review Board of *IEEE Transactions on Engineering Management* and in the Editorial Board of *European Management Journal*.

Professor **John Angelis** is currently an Assistant Professor of Management at Elizabethtown College. As the Chief Information Officer of TIMES (2012 - 2017), John has contributed vast amount of due efforts on promoting the brand of TIMES, building TIMES websites and increasing TIMES' visibility at different channels of social media. His long-term extraordinary service to TIMES community includes and is not limited to:

- Creating and updating the [TIMES Twitter page](#), which serves as a source of updates during the INFORMS conference and links to mainstream TIMES news of interest.
- Writing articles and blog posts as needed for the TIMES newsletter on education and teaching, including interviewing other TIMES members: (2014, 2017 newsletter articles are included on pages 2-4)
- Moderating the email list and then handling the transition to INFORMS Connect and continuing posts, discussions, and content there.

- Maintaining the [TIMES website](#).
- Creating a blog for INFORMS Annual Conference since 2011, during which he wrote articles on a variety of topics, including TIMES material. He has always been an active member of the Social Media meetups at INFORMS, and also created content for the conference on Twitter and elsewhere during that time. For example, [this](#) is a short video he created.



On behalf of TIMES board, I want to express our sincerest gratitude to Juliana and John for their excellent contributions of service in the past few years. Personally, Juliana and John are also excellent role models for me and other board members as officers of TIMES. Congratulations! Juliana and John!

Best regards,
Zhijian

2018 TIMES Sponsored Programme

4—6 November, INFORMS Annual Meeting, Phoenix, AZ

Dear TIMES members and colleagues,

On behalf of the Technology, Innovation Management and Entrepreneurship Section, it is a pleasure to welcome you to two exciting clusters at the 2018 INFORMS Annual Meeting in Phoenix: Technology, Innovation Management & Entrepreneurship and New Product Development. These two clusters offer a great mix of research and practice talks and awards on technology, innovation, product development, and entrepreneurship. We thank all the session chairs and authors for their contribution to this year's program.

As always, the talks in our field showcase a wide range of topics and methodologies. For your convenience, this newsletter reprises all the information of the TIMES and NPD sessions to help you better navigate your busy conference schedule. All information can also be found on the online schedule. The Technology, Innovation Management and Entrepreneurship Section of INFORMS has put together a full program of sessions over three days, beginning Sunday at 8am with a session exploring value creation in innovation. The rest of Sunday's program includes sessions on data-driven entrepreneurship and managing operations in novel settings, and closes with a session on new product development decisions.

Monday's schedule includes two research paper sessions as well as two special sessions: the TIMES Dissertation Award and the TIMES Distinguished speaker. The two research paper sessions on Monday are related to crowdfunding and innovation

contests respectively. The TIMES Dissertation Award session will offer the community the opportunity to hear from the finalists and congratulate them on their work. We close out Monday with a talk by Karl T. Ulrich, the 2018 TIMES Distinguished Speaker. He will present, "Alpha Strategies: Sustained Advantage in Entrepreneurial and Established Firms" at 4:30pm. Karl's talk promises to inspire us with his multi-disciplinary approach to research in innovation and entrepreneurship!

Tuesday is our last full day, and the TIMES agenda begins with a session that explore the human element of innovation, followed by a session on IT-based innovation and services. In the afternoon, the TIMES program offers a session on topics in healthcare and a session on incentives and delegation in innovation.

We are looking forward to seeing everyone in Phoenix!

Regards,

Pascale Crama

Vice Chair of Programmes

2018 TIMES Sponsored Programme (Sunday)

SUNDAY, 4 NOVEMBER

SA03

8:00 AM - 9:30 AM

Creating Value in Innovation

Tian Chan

121C, North Bldg.

1 - The Firm Productivity Implications of Technology Licensing: Evidence from Developing Asian Economy Manufacturing Firms

Xiaojin Liu¹, Anant Mishra².

¹Charlottesville, VA, USA, ²George Mason University, Fairfax, VA, USA.

This study focuses on the productivity implication of technology licensing in developing Asian economy manufacturing firms, and examines how it is affected by infrastructural factors in a firm's internal and external environment.

2 - Delegating Innovation

Morvarid Rahmani, Karthik Ramachandran.

Georgia Institute of Technology, Atlanta, GA, USA.

In many contexts such as product design and advertising, clients seek the expertise of external providers to generate innovative solutions for their business problems. In this paper, we explore how the client's flexibility in terminating the project can influence the progress and efficiency of the delegated innovation.

3 - Search and Sequential Innovation in Mobile App Development

Nilam Kaushik, Bilal Gokpinar.

University College London, London, United Kingdom.

The process of search, identification, and acquisition of knowledge is essential for the success of products. This paper empirically characterizes the sequential innovation process in the setting of mobile app development using novel text-mining techniques.

4 - Designing Internal Innovation Contests

Lakshminarayana Nittala, Sanjiv Erat, Vish Krishnan.

University of California-San Diego, La Jolla, CA, USA.

Firms can use internal contests to source solutions to problems associated with innovation. However, designing such contests involves nuanced understanding of the impact of such contests on the on-going projects within the firm. Optimal contest design is discussed along with managerial implications.

SB03

11:00 AM - 12:30 PM

Entrepreneurship and Innovation

Sinan Erzurumlu

121C, North Bldg.

1 - Lean Startup Goal Conflict: Can Startups Manage Survival and Revenue Growth Simultaneously?

Emre Guzelsu¹, Nitin Joglekar¹, Moren Levesque².

¹Boston University Questrom School of Business, Boston, MA, USA, ²York University, Toronto, ON, Canada.

We examine if survival and revenue growth are separately or jointly determined at different stages of a business startup's life. By examining a startup from the Lean Startup perspective and incorporating dynamic capabilities, and in particular a micro strategy framework, we hypothesize that startups act differently in the early stages versus late stages of development. We test our hypothesis by applying a Hausman simultaneity test to data from the Kauffman Foundation Survey. We find that survival and revenue growth are separately determined in the early stages of a startup's life, but become more jointly determined in later stages.

2 - Evaluating Telemedicine Adoption in Clinics: Accounting for Socioeconomic, Geographical, Organizational and Technological Antecedents

Xiaojin (Jim) Liu¹, Susan Goldstein², Kingshuk K. Sinha³.

¹University of Virginia, Darden, Charlottesville, VA, USA,

²University of Minnesota, Minneapolis, MN, USA, ³University of Minnesota SCO, Minneapolis, MN, USA.

This study involves a theoretically grounded empirical analysis on how socioeconomic, geographical, organizational and technological antecedents impact the adoption and use of telemedicine in health care delivery.

3 - Shortages of Resources, Routines, Reputation or

2018 TIMES Sponsored Programme (Sunday)

Regulations: Can Data and Analytics-driven Capabilities Assist Technology Entrepreneurs' Decisions?

Moren Levesque¹, Nitin Joglekar².

¹York University, Toronto, ON, Canada, ²Boston University Questrom School of Business, Boston, MA, USA.

We describe emerging studies that contribute to theory and create practical insights for managers in the technology arena, noting the dominance of either time or timing as crucial concepts in technology entrepreneurship. We also highlight the importance of information availability, which directs our attention to the timely availability and usage of data, along with computational technologies. We then argue that data-driven and analytics-driven capabilities can shape every aspect of the tradeoffs associated with the shortages of resources, routines, reputation or regulations and call for novel modes of decision-making for technology entrepreneurs.

4 - Managing the Sources of Uncertainty in Entrepreneurial Decision Making: A Data Analysis Approach to Entrepreneurship and Innovation

Sinan Erzurumlu.

Babson College, Babson Park, MA, USA.

No abstract provided.

SC03

1:30 PM - 3:00 PM

Managing Innovation

Morvarid Rahmani

121C, North Bldg.

1 - Delegated Search Impact on Startup Supply Chain Contracting and Order Allocations

Berke Emre Guzelsu¹, Nitin Joglekar², Pnina Feldman¹.

¹Boston University, Boston, MA, USA, ²Boston University Questrom School of Business, Boston, MA, USA.

We examine the effects of a delegated search on startup supply chain contracting. An entrepreneurial startup partners with a collaborative supplier where the supplier needs to iterate on the product to improve the potential size of the market. At the same time, a large potential supplier may poach business from the collaborative supplier by offering a cheaper product if the order allocation

it receives from the entrepreneurial startup is sufficiently large. Given these tradeoffs, we evaluate the order allocation decision an entrepreneurial firm can make to influence the collaborative supplier to invest in experimentation and examine alternative contracts to align incentives.

2 - Dynamic Innovation Contests and Information Design

Sina Moghadas Khorasani¹, Luis Rayo², George Georgiadis².

¹University of Utah, Salt Lake City, UT, USA, ²Northwestern University, Evanston, IL, USA.

We solve for the optimal design of innovation contests with multiple stages of success and an exogenous deadline. The principal selects both the award structure of the contest and its information design.

3 - Connecting Restaurants: An Exploratory Study of Customer-based Restaurant Networks

Manuel Emilio Sosa¹, Victor Martinez-Albeniz, Professor², Clara Carrera, Research Assistant².

¹INSEAD, Singapore, Singapore, ²IESE, Barcelona, Spain.

Online customer reviews play an increasingly important role in service industries. In restaurants, links created by reviewers who visit several restaurants form a network of unobserved connections which may determine restaurants' fate. We empirically investigate the factors that lead to the choice of visiting a restaurant, the mark given to it, and how the position of a given restaurant in the customer-based restaurant networks influences its survival.

4 - Operations in Space: Exploring a New Industry

Joel Wooten¹, Christopher S. Tang².

¹University of South Carolina, Columbia, SC, USA, ²University of California-Los Angeles, Los Angeles, CA, USA.

Private, commercial spaceflight is changing the course of space exploration. We often think of innovation in terms of products, services, and (more recently) business models. The new space market presents innovation challenges in all of these areas; our paper analyzes the opportunities for novel contributions from the operations man-

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agement community.

5 - A Model of Learning and Doing in Innovation Contests

Sanjiv Erat, Lakshminarayana Nittala.
University of California-San Diego, La Jolla, CA, USA.

In the setting of an innovation contest, we conceptualize solvers who exert effort on two orthogonal dimension - (i) effort geared toward “exploration” and learning more about the solution space, and (ii) effort geared toward “exploitation” of the newly created knowledge and delivering a tangible and usable solution. Using this richer multidimensional conceptualization of “learning and doing” in innovation contests, this talk shall discuss the levers available at the contest organizer firm to influence outcomes, and how the focal firm can optimally manage contests.

SD03 4:30 PM - 6:00 PM **Incentive Conflicts in New Product Development: Theory and Data**

Jochen Schlapp 121C, North Bldg.

1 - Turning the Tables: Licensing Contracts with Reciprocal Options

Niyazi Taneri¹, **Pascale Crama**².

¹National University of Singapore, Singapore, Singapore,

²Singapore Management University, Singapore, Singapore.

R&D collaborations between an innovator and a partner are often undertaken when neither can bring the product to market individually—making joint effort necessary. Either party can avoid moral hazard by acquiring their missing capability and taking sole ownership of the project. The extent of two risks—about whether the other party’s capability will be acquired and about how well it will be implemented—determine the optimality of not signing an up-front contract, signing buyout contracts, buyback contracts, dual buyout-buyback contracts, and an underutilized novel reciprocal option contract.

2 - Project Selection and Success in Pharmaceutical R&D

Nektarios Oraopoulos¹, **Panos Markou**², Stylianos Kavadias³.

¹Cambridge University, Cambridge, United Kingdom,

²Cambridge Judge Business School, Cambridge, United Kingdom,

³University of Cambridge, Cambridge, United Kingdom.

We analyze the R&D pipelines of the fifteen largest pharmaceutical companies and examine how firms select which projects to pursue, and which ones eventually succeed, i.e., receive FDA approval. We find that firms select projects where they have prior experience, but that selection also depends on technological signals from rivals. Additionally, we find that in-licensed projects are less likely to be selected for development than in-house projects; but, conditional on selection, they have higher likelihood of success.

3 - The Role of Participation in Innovation Contests

Konstantinos Stouras¹, **Jeremy Hutchison-Krupat**², Raul Chao³.

¹University of Virginia, The Darden School, Charlottesville, VA, USA,

²University of Cambridge, Cambridge, United Kingdom,

³University of Virginia, Charlottesville, VA, USA.

We study a firm that chooses to employ an innovation contest only when the contest is expected to generate more value than alternative options. The population of solvers differ in their ability to generate value and they incur an opportunity cost to participate. Thus, some solvers may not find it beneficial to participate. Critically, when the firm designs the contest, and when the solvers choose to enter, the number of participants remains uncertain. Within this setting, we find that firms with sufficiently high opportunity cost maximize expected profit through the provision of multiple awards; otherwise, firms maximize their profit through a winner-take-all award structure.

4 - Search Under Constraints

Sezer Ulku.

Georgetown University, Washington, DC, USA.

In innovation contexts, slack resources are required to allow experimentation in the face of uncertainty. At the

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same time, it is also suggested that “necessity is the mother of invention”, and that constraints result in superior innovation performance. We conduct several experiments to investigate how constraints influence search behavior and the performance achieved in problem solving tasks. We find that solution quality attained under a moderate constraint is superior to that attained when no such constraint is present. As expected, when the resource constraint becomes very tight, performance suffers.

MONDAY, 5 NOVEMBER

MA03 **8:00 AM - 9:30 AM**
Advances in Crowdfunding Research
Philipp Cornelius 121C, North Bldg.

1 - Designing Crowdfunding Platform Rules to Deter Misconduct

Elena Belavina¹, **Simone Marinesi, Assistant Professor of Operations Management**², Gerry Tsoukalas³.

¹University of Chicago Booth School of Business, Chicago, IL, USA, ²The Wharton School, University of Pennsylvania, Philadelphia, PA, USA, ³Wharton School of Business, Philadelphia, PA, USA.

Lacking credible rule enforcement mechanisms to punish entrepreneurial misconduct, existing reward-based crowdfunding platforms can leave campaign backers exposed to two sources of risk: the risk that entrepreneurs run away with backers' money (funds misappropriation) and the risk of product misrepresentation (performance opacity). We examine the adverse consequences of both misconduct risks and propose practically implementable platform designs aimed at curbing their harmful effects.

2 - Interventions in crowdfunding

Philipp Cornelius¹, Bilal Gokpinar², Sergei Savin³.

¹Rotterdam School of Management, Rotterdam, Netherlands, ²UCL School of Management, University College London, ³The Wharton School, University of Pennsylvania.

nia.

No abstract provided.

3 - Revenue Management in Crowdfunding

Jiding Zhang¹, Sergei Savin¹, Senthil Veeraraghavan².

¹The Wharton School, Philadelphia, PA, USA, ²University of Pennsylvania, Philadelphia, PA, USA.

Crowdfunding, a mechanism in which funds are raised online using small donations from a large number of individual donors, has recently emerged as a popular approach to funding new ideas. In our paper, we model a setting where a creator of a crowdfunding project selects the amount of contribution it requests from donors and the duration of crowdfunding campaign with the goal of maximizing the raised amount. Our analysis provides project creators with detailed, practical, and intuitive guidelines on how to successfully manage the revenue generation process in a crowdfunding campaign.

4 - Learning as a Signal in Online Debt Market

Qiang Gao.

Baruch College, City University of New York, New York, NY, USA.

No abstract provided.

MB03 **11:00 AM - 12:30 PM**
TIMES Doctoral Dissertation Award

Jeremy Hutchison-Krupat 121C, North Bldg.

Essays on Knowledge Sharing and an Opt-in Evaluation Process among Investment Professionals

Tristan Botelho.

Yale School of Management.

This dissertation contributes to our understanding of recently popularized opt-in evaluation processes. These processes have been democratized such that ratings are provided no longer solely by experts, but commonly by any audience member who has experienced an offering (i.e., good, candidate, or service) and chooses to rate its quality. The goal of these democratic evaluation processes is to collect independent ratings from evaluators in

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order to triangulate on a representative and unbiased signal of quality. Across the three chapters of this dissertation, I study various aspects of an opt-in evaluation process to uncover the mechanisms that affect evaluative outcomes. To do so, I use data from an online knowledge-sharing platform and its opt-in evaluation process in the investment management industry where investment professionals share investment recommendations. In Chapter 1, to gain a better understanding of the platform under study, I focus on the conditions that bring these professionals together to engage in knowledge sharing, despite the associated risk of losing competitive advantage. In Chapters 2 and 3, I turn my focus to the evaluation process, in particular, examining who opts to evaluate and how factors unrelated to an offering's quality affect the evaluative outcomes. Chapter 2 examines how social influence, measured as exposure to the ratings from past evaluators, affects the likelihood that subsequent ratings occur and the types of ratings an offering receives. Chapter 3 examines how search costs and uncertainty facing an evaluator affects the likelihood of gender bias in the amount of attention and types of ratings an offering receives.

How to Improve Innovation Success: Customers, Employees, and the Search Process

Philipp Cornelius.

Rotterdam School of Management

Innovation is at the heart of many firms' operations and it is a key determinant of firm performance. Understanding how to improve innovation success is critical for organisations to survive in fast moving modern markets. To contribute to our understanding of successful innovation, I present three original research projects on stakeholder involvement and the search process. Specifically, I study customer involvement in crowdfunded innovation projects, involvement of non-R&D employees in corporate innovation, and component recombination during the search process.

Three essays on the behavioral foundations of entrepreneurial entry

Cédric Gutierrez Moreno.

Bocconi

Given that entrepreneurs pay a financial penalty for their choice, why do people still choose to become entrepreneurs? My thesis seeks to answer this question by investigating the role of two behavioral mechanisms that may drive the choice for entrepreneurship: attitudes toward ambiguity and temporal preferences. The first essay disentangles the effects of overconfidence and attitude toward ambiguity on market entry. Using a lab experiment, I find that independent of confidence levels, individuals seek ambiguity in the presence of a skills-based competition, which leads to higher levels of entry into entrepreneurship. The second and third essays investigate individuals' temporal preferences for money and time and how they are related to entrepreneurial intention. Indeed, any entrepreneurial venture involves temporal delays between the decision to invest capital and time in the venture and the realization of potential benefits. I find that temporal preferences, particularly for time, can provide new insights in the determinants of entrepreneurship.

Designing Innovation Contests

Lakshmi Nittala.

Dayton

Firms are increasingly organizing contests for crowdsourcing solutions to problems associated with sustainable growth. The effectiveness and efficiency of these contests rely on the design decisions taken at the operational level by the firm. My dissertation includes three research projects that address questions related to this theme. The focal research contexts include (i) Optimal design decisions when contests are held within firms (ii) Optimal design decisions when innovation originates through a sequential process of exploration and execution and (iii) Analysis of contestant search process.

Incentive Design of On-Demand Marketplaces for Service and Innovation

Konstantinos Stouras.

Dublin

This thesis focuses on designing incentives for on-demand marketplaces. Specifically, we examine contest-

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like payment structures for aligning the incentives of self-interested agents with the objectives of a marketplace. We study three crowd-based business models to generate innovation or provide service on-demand—innovation contests, work-from-home call centers, and Question-and-Answer forums. Agent participation across these systems cannot be enforced or guaranteed, which calls for incorporating participation, in addition to effort incentives, as part of crowdsourcing design. The result is a theory of contests with endogenous entry and participation uncertainty, which is applied to the management of on-demand innovation and service systems.

MC03 Innovation Contests

Ersin Korpeoglu

1:30 PM - 3:00 PM

121C, North Bldg.

1 - Parallel Innovation Contests

Ersin Korpeoglu¹, **C Gizem Korpeoglu**¹, Isa Emin Hafalir².

¹University College London, London, United Kingdom,

²Carnegie Mellon University, Pittsburgh, PA, USA.

We study innovation contests where multiple organizers seek solutions from agents, and the quality of an agent's solution depends on her effort and uncertainty. We find that when uncertainty is sufficiently large, organizers benefit from agents' entry to multiple contests. An organizer's profit is unimodal in the number of contests, and the optimal number of contests increases with uncertainty. Thus, practitioners who seek innovative (resp., low-novelty) solutions may benefit from running multiple parallel contests and from encouraging (resp., discouraging) agents' entry to multiple contests.

2 - Dueling Crowdsourcing Contests

Konstantinos Stouras¹, Sanjiv Erat², Kenneth Lichten-dahl, Jr, Professor of Business Administration¹.

¹University of Virginia, The Darden School, Charlottesville, VA, USA, ²University of California-San Diego, La Jolla, CA, USA.

Solvers' participation and effort decisions in a contest are not only affected by its design, but they also depend on the design of any competing contests that run in par-

allel. We provide a theoretical analysis of the equilibrium budget allocation in a game played among competing innovation contests.

3 - When to Involve Inhouse Suppliers in Procurement Contests

Jochen Schlapp¹, **Zhi Chen**², Jurgen Mihm³.

¹University of Mannheim, Griesheim, Germany, ²INSEAD, Singapore, Singapore, ³Insead, Boulevard de Constance, France.

In many purchasing projects, suppliers compete by performing some custom product or technology development regardless of whether they win the project or not. In practice, two competition structures are observed in such procurement contests: (i) all participants are external suppliers; or (ii) one of the suppliers is (partially) owned by the buyer (e.g., through a joint venture). In this study, we analyze when either of these structures is optimal for a buyer seeking a custom innovation.

4 - Optimal Duration of Innovation Contests

C Gizem Korpeoglu, **Ersin Korpeoglu**, Sidika Tunc.

University College London, London, United Kingdom.

We study optimal duration and award scheme of an innovation contest where an organizer elicits innovative solutions from agents. Each agent exerts costly effort to improve her solution and faces an output uncertainty. We find that optimal contest duration may increase with novelty and sophistication of solutions that organizer seeks. We show that an organizer with moderate or high urgency in obtaining solutions may adopt winner-take-all award scheme, while an organizer with low urgency may give multiple awards. This may explain why many contests on platforms give multiple awards. Consistent with empirical evidence, we show that optimal duration and optimal total award are positively correlated.

MD03 TIMES Distinguished Speaker

Gulru F. Ozkan-Seely

4:30 PM - 6:00 PM

121C, North Bldg.

1 - Alpha Strategies: Sustained Advantage in Entrepre-

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neurial and Established Firms

Karl Ulrich.

University of Pennsylvania, Philadelphia, PA, USA.

All innovation begins with some kind of disequilibrium, and may lead to supra-normal profits for the pioneering enterprise. However, all disequilibrium eventually fades. This talk links what we know about strategy, finance, and innovation into a framework for understanding sustained competitive advantage for innovating organizations, whether new entrants or incumbents. I also examine the evidence for the magnitude and duration of sustained profitability above the cost of capital in established public companies, and consider the extent to which such profits are the result of innovation.

TUESDAY, 6 NOVEMBER

TA03

7:30 AM - 9:00 AM

Managing Innovation I

Wenli Xiao

121C, North Bldg.

1 - The Impact of Social Orientation on Firm Innovation

Xiaojin Liu¹, Raul Chao².

¹University of Virginia, Darden, Charlottesville, VA, USA,

²University of Virginia, Charlottesville, VA, USA.

This study addresses the questions of whether and how firm social orientation influences firm innovation. In so doing, we propose mechanisms geared toward either proactive or reactive social orientation in project funding. Integrating large scale archival datasets, we empirically investigate the long term impact of social orientation on firm innovation.

2 - The Impact of Knowledge Transfer on Knowledge Development Strategies

Wenli Xiao¹, Cheryl Gaimon².

¹University of San Diego, San Diego, CA, USA, ²Georgia Institute of Technology, Atlanta, GA, USA.

We introduce a dynamic model to explore a manager's

pursuit of a new product development project and an existing product improvement project. Two key features of our model are the characterization of the knowledge transfer process from the new product development project to the existing product improvement project, and the absorptive capacity for both knowledge development and knowledge transfer. We provide the optimal strategies for knowledge development and knowledge transfer for the two projects.

3 - Search for the Best Alternative: An Experimental Approach

Gulru Ozkan-Seely¹, David C. Hall², Jeremy Hutchison-Krupat³.

¹University of Washington, Seattle, WA, USA, ²Wright State University, Dayton, OH, USA, ³University of Cambridge, Cambridge, United Kingdom.

We use a controlled experiment to study how this behavior is impacted by two factors: the difficulty associated with an initiative, and the degree to which its value is sensitive to time.

Our results indicate that, individuals who face a more difficult initiative under-invest to a greater extent than those who face a simpler initiative.

4 - Blockchain and the Value of Operational Transparency for Supply-Chain Finance

Jiri Chod¹, Nikolaos Trichakis², Gerry Tsoukalas³, Henry Aspegren², Mark Weber².

¹Boston College, Chestnut Hill, MA, USA, ²MIT, Cambridge, MA, USA, ³Wharton School of Business, Philadelphia, PA, USA.

We examine how blockchains, which were originally designed to provide verifiability of digital goods transactions, can provide verifiability of physical goods transactions. We identify some of the unique implementation challenges and propose ways to mitigate them. To exemplify, we describe an open-source blockchain platform we developed and one of its use cases in agricultural supply chains. We then develop a theory showing how the proposed blockchain-enabled verifiability of physical goods transactions can be leveraged by high-quality firms to signal their operational capabilities through their

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upstream inventory orders, and thereby finance their operations more efficiently.

TB03 **10:30 AM - 12:00 PM** **Managing IT-based Technology and Services**

Juliana Hsuan 121C, North Bldg.

1 - Soft Data Analytics With Fuzzy Cognitive Maps: Modeling Health Technology Adoption By Elderly Women

Charles M. Weber, Noshad Rahimi, Doctoral Candidate. Portland State University, Portland, OR, USA.

Modeling how patients adopt personal health technology is a challenging problem: Decision-making processes are largely unknown, occur in complex, multi-stakeholder settings, and may play out differently for different products and users. This paper develops a soft analytics approach, based on Fuzzy Cognitive Maps, which is empirically grounded in a case study of how a group of elderly women adopts wearable devices. The approach leads to an adoption model that simulates different product configurations and scenarios that will most likely lead to successful adoption. The model can be used by product developers and rollout managers to support technology planning decisions.

2 - Knowledge Modularity In Social Networks

Nitin Mayande, PhD¹, Charles Weber, PhD².
¹Tellagence, Hillsboro, OR, USA, ²Portland State University, Portland, OR, USA.

Network Modularity has been used in many previous studies for community detection. The focus of these studies has mostly been on how people connect with each other to form communities. This exploratory study, instead of people, focuses on contextualized communication (knowledge) and explores to see if Network Modularity measure can be used to quantify Knowledge Modularity thereby identifying knowledge structures within a social network.

3 - Uno Or Duo? On Creation And Discovery Entrepreneurship Opportunities And Their Interactions

Moren Levesque¹, John N. Angelis², Richard Arend³.

¹York University, Toronto, ON, Canada, ²Elizabethtown College, Elizabethtown, PA, USA, ³Independent, Kansas City, MO, USA.

While the interaction process between opportunity and the entrepreneur who exploits it has been well researched, research on outcomes has been limited. We provide a formalized explanation of how the two main types of entrepreneurial opportunity (i.e., discovery and creation) interrelate across six specific cases. We provide analysis of a modified model of an established partial-equilibrium production chain. Via theory and simulation, we explain how exploitation of creation opportunities can lead to discovery opportunities; how creation (discovery) opportunities are less (more) likely to be profitable when paired with other opportunity type; and spillover and transfer payment scenarios.

4 - Pricing And Service Bundling At A Smartphone Provider

Eric Bentzen, Juliana Hsuan, PhD.
Copenhagen Business School, Frederiksberg, Denmark.

Many of the attributes with respect to pricing services are implied by economic theory, could be modeled, and investigated using relevant data from a company. In this paper, we will study relationship that a large smartphone service provider should be aware of and use in the pricing of bundling services. From a smartphone company we have access to customers and their use of cell phone services, Internet access and other services provided by the company. The dataset has been collected during a period and includes the amount that a large number of customers are willing to pay for each service.

TC03 **12:05 PM - 1:35 PM** **Product and Process Innovation in Healthcare and Energy Industries**

Zhili Tian 121C, North Bldg.

1 - Capacity Planning With Probabilistic Outcome Ambiguity

Philip Kaminsky¹, Heejung Kim².
¹University of California-Berkeley, Berkeley, CA, USA,

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²University of California, Berkeley, Albany, CA, USA.

We consider a capacity planning model where demand in each period is determined by the outcome of series of binary events, such as clinical trials in pharmaceutical industries. The outcome of these events is often uncertain, and estimating exact probability of outcome is difficult. We develop approaches to solve capacity expansion planning models that are robust to ambiguities in probability of success for different objectives - minimizing expected cost, value at risk and conditional value at risk. We formulate these models as (stochastic) robust integer programs with scenario trees. We develop and test a variety of heuristics for this setting.

2 - Operating Room Scheduling with Sequential Tasks and Defined Wait Intervals

James W. Hamister¹, Michael Magazine², George Polak¹.
¹Wright State University, Dayton, OH, USA, ²University of Cincinnati, Cincinnati, OH, USA.

We develop an optimization model for scheduling paired tasks subject to intervening procedures in an operating room environment. The durations of the intervening procedures are bounded from below and above. The objective is to minimize overall makespan. The model is tested with empirical data from a tissue bank service.

3 - Optimal investment in product development and marketing communication in pharmaceuticals

Zhili Tian.

Coastal Carolina University, Myrtle Beach, CA, USA.

Marketing spending on drugs is often close to that for developing a new drug. Only around 20 new drugs are approved every year for the pharmaceutical industry. The low rate of new drug development stems from the financing constraints at many firms because such high investments from both marketing and new drug development. Because of high risk in new drug development, firms have to use internal funding to support their drug development. We develop models to address the investment in the current drugs and development of new drugs where the funding comes from the internal source. Our methods optimally allocate the fund between mar-

keting and new drug development while considering financing constraints.

4 - Evaluating emerging energy technology lifecycles using mixed integer programming

Joshua Pearson.

Colorado School of Mines, Golden, CO, USA.

We develop methodologies to evaluate the feasibility of market penetration for new technologies based economic viability. We use as a case study a concentrated solar power device. With an existing piece of engineering software, the System Advisory Model, we examine the financial implications of various industry-standard designs. For each design, we employ a mixed-integer program to determine a cost-minimizing operational strategy for the device under certain market conditions. Finally, we assess long-term economic viability of the device, and draw conclusions about the types of methodologies that can predict the success of investment strategies for emerging technologies.

TD03

2:00 PM - 3:30 PM

Sara Rezaee Vessal

121C, North Bldg.

2 - The Carrot Or The Stick: Quality In Engineering Contracts

Zhenzhen Chen¹, **Pascale Crama²**, Wanshan Zhu³.

¹Beijing, China, ²Singapore Management University, Singapore, Singapore, ³Tsinghua University, Beijing, China.

In large engineering procurement contracts, the main contractor is responsible for the quality of the end product to the consumer. The main contractor uses subcontractors and the final quality is influenced by the efforts of all the contracting parties. Outcomes that do not meet the minimum required standard require rework, the cost of which is shared between the main contractor and the subcontractor. We find that the first-best may not be attained even for a risk-neutral subcontractor because of the shared rework cost; yet for a risk-averse subcontractor, the main contractor may choose to increase its share of the rework cost.

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3 - Personal Fabrication As An Operational Strategy: Value Of Delegating Production To Customer

Nagarajan Sethuraman¹, Ali Kemal Parlakturk², Jayashankar M. Swaminathan³.

¹Kenan Flagler Business School, UNC Chapel Hill, Chapel Hill, NC, USA, ²University of North Carolina Kenan-Flagler, Chapel Hill, NC, USA, ³University of North Carolina Chapel Hill, Chapel Hill, NC, USA.

In this paper, we study an operational strategy enabled by 3D printing--- Personal Fabrication (PF) ---in which a firm focuses on product's design and delegates its production to customers. We characterize the conditions under which, such a strategy benefits the firm. We study the implications of various roadblocks for such a strategy: high production costs of 3D printing, intellectual property concerns and product liability issues.

4 - Technology Adoption In Organisations: An Evolutionary Model

Antoine Feylessoufi.

University of Cambridge, Cambridge, United Kingdom.

Through social interactions, the behaviour of an individual is affected by the population but also influences the other members within that population. In a new approach to capture this effect on technology and innovative practices adoption in organisations, we incorporate social comparison into an evolutionary model widely used in biological ecosystems. We find that unexpected and extreme levels of innovative behaviour (or lack thereof) can emerge in organisations through this mechanism. We also find that for a same technology and firm reward mechanism, the culture of the organisation can lead to different adoption patterns.

5 - Effect Of Incentive Design On Of Location Decision Of Product Development Of Teams

Sara Rezaee Vessal¹, Svenja C. Sommer².

¹ESSEC Business School, Cergy-Pontoise, France, ²HEC Paris, Jouy-en-Josas Cedex, France.

To successfully compete on an international scale, multinationals increasingly turn towards globally dispersed product development teams, both to draw on a diverse

set of expertise and to access more accurate local knowledge. However, dispersion also creates additional challenges for collaboration, which can have negative effects on project performance. In this study, we compare dispersed and co-located teams and address the question how to incentivise them. We show that despite the current trend among firms, geographically dispersed teams are not always the optimal structure, especially when collaboration is in the form of information sharing.

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SUNDAY, 4 NOVEMBER

SA55

8:00 AM - 9:30 AM

Topics in New Product Development

Evgeny Kagan

232C, North Bldg.

1 - Smart Manufacturing via Crowd Sourcing

Onesun Steve Yoo¹, Kevin F. McCardle², Christopher S. Tang³.

¹University College London, London, United Kingdom,

²UCLA, Los Angeles, CA, USA, ³University of California-Los Angeles, Los Angeles, CA, USA.

We examine a smart crowd-sourcing model of manufacturing practiced widely by leading manufacturers in China. A key feature is the use of virtual images of their products to learn whether there is sufficient demand for them before engaging in costly physical production. Using virtual images are less attractive for consumers (uncertainty of getting the item, delays), so the firms must charge a lower price. We analyze the optimal hybrid approach that combines both use of virtual images (made-to-order) and more traditional production (made-to-stock). We compare it with the current practice of some of the leading Chinese manufacturing firms (e.g., Alibaba, Gaofan), and discuss its efficacy.

2 - Truth or Funds for Your Project

Jochen Schlapp¹, Nektarios Oraopoulos², Niyazi Taneri³, Ozge Tuncel⁴.

¹University of Mannheim, Griesheim, Germany, ²Cambridge University, Cambridge, United Kingdom, ³National University of Singapore, Singapore, Singapore, ⁴Singapore, Singapore.

We examine the effectiveness of monetary incentives in eliminating managerial misconduct in competitive resource allocation processes. Whereas economic theory predicts that formal incentives should be sufficient to align managers with the organization's best interests, our laboratory experiments reveal that current theory falls short of acknowledging the importance of the level of trust and trustworthiness between managers com-

peting for resources. We show how an organization can induce higher levels of mutual trust, thus improving the overall effectiveness of the resource allocation process.

3 - Revisiting the Role of Collaboration in Creating Breakthrough Inventions

Tian Chan¹, Jurgen Mihm², **Manuel Emilio Sosa**³.

¹Emory University's Goizueta Business School, Atlanta, GA, USA, ²Insead, Boulevard de Constance, France,

³INSEAD, Singapore, Singapore.

We use utility and design patent data for 1985-2009 to compare the probability of creating a breakthrough of working alone versus working in a team. Consistent with literature, for *utility* patents we find that working alone reduces the probability of achieving a breakthrough. Yet this disadvantage of lone inventors disappears for *design* patents. We theorize and show empirically that the holistic (i.e., nearly non-decomposable) nature of design is a major factor contributing to the relative efficacy of lone designers at achieving breakthroughs. Finally, we show that lone inventors with a large number of past collaborators has improved likelihood of creating breakthroughs and can outperform teams.

4 - Gender Preference for Tech & Competition: Very-Large-Scale Field Experimental Evidence from an Internet-of-Things Platform

Kevin Boudreau¹, **Nilam Kaushik**².

¹Northeastern University, Boston, MA, USA, ²University College London, Boston, MA, USA.

This paper presents results from a field experiment on 112,000 students and alumni of an American university to understand willingness to participate in working on innovation problems related to a new area of technological innovation and commercialization, the Internet-of-Things.

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TUESDAY, 6 NOVEMBER

TC55 12:05 PM - 1:35 PM

Managing Uncertainties in New Product Development and Business Process Innovations

Janne Kettunen 232C, North Bldg.

1 - Impact Of Queue Removing Technology On Competitive Retail

Onesun Steve Yoo, Adam Smith.
University College London, London, United Kingdom.

We analyze the impact of physical retailers removing the consumer's need for queuing during checkout via new technologies such as Amazon Go or Mishipay. We examine value added for the retailers in a competitive retail environment and consumers, and provide strategic implications for startups such as Mishipay.

2 - Multi-period New Product Development And Risk Aversion Paradox

Janne Kettunen¹, Shivraj Kanungo².

¹The George Washington University, Washington, DC, USA, ²George Washington University, Washington, DC, USA.

We investigate how the conventional periodic risk-averse project selection approaches perform in multi-period new product development problems, in terms of satisfying the decision makers' risk preferences. Our results show that the conventional project selection approaches can result in that the risk in attainable profit is systematically higher under the risk-averse selection approach than even under the risk-neutral selection approach. We call this phenomenon as the *risk aversion paradox*. We show how projects' profits can be revised to overcome this paradox.

3 - Incentives For Managing Emissions In The Maritime Industry

Leonardo P. Santiago, Arundhati Srinivasan, Franz Buchmann.
Copenhagen Business School, Frederiksberg, Denmark.

This paper explores incentives for managing emissions in the maritime industry. We develop a market-based mechanism for smart carbon reporting. One of the key features of our model is to relax the assumption of information asymmetry by taking into account blockchain technology. We explore our model to discuss current challenges for policy makers and for potential opportunities for principals (ship owners).

4 - Familiar Or Fresh. The Effect Of Typicality On The Value Of Product Design

Tian Chan.
Emory University's Goizueta Business School, Atlanta, GA, USA.

We examine how typicality—the degree to which a design is similar to other designs of the same category—affect the market value of designs. We compiled a dataset combining US design patent data and stock market reactions in the days subsequent to the design patent grant. We show that a focal design's value rises when it is typical with respect to category-members released in the near past, and falls when it is typical with respect to category-members that are concurrently on the market. Finally, we show that designs in high clockspeed industries exhibit no positive effect of typicality on value. Our results show how firms can rethink the 'familiar or fresh' conundrum to develop valuable designs.

TD55 2:00 PM - 3:30 PM

Decentralized Innovation

Sreekumar Bhaskaran 232C, North Bldg.

1 - Strategic Investment in a Budget Constrained Firm's R&D

Junghee Lee, Assistant Professor.
Tulane University, New Orleans, LA, USA.

We model a bilateral monopolistic supply chain in which a supplier's sales are linked with a manufacturer's costly R&D. The manufacturer has a limited budget for R&D. The supplier can influence the manufacturer's R&D spending by setting the wholesale price and/or investing in R&D. We find that if the budget is common infor-

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mation, the manufacturer's profit can decrease in its budget, leading the manufacturer to hide the R&D budget. To overcome this information distortion, we develop a simple and implementable threshold policy based on mechanism design. The separating equilibrium can be obtained with fewer structural assumptions about the suppliers prior belief about the budget.

2 - Outsourcing And Offshoring In Complex Product Development Projects

Ole Frauen¹, Arnd H. Huchzermeier², Jurgen Mihm³.

¹Volkswagen AG, Wolfsburg, Germany, ²WHU-Otto Beisheim School of Management, Vallendar, Germany, ³Insead, Boulevard de Constance, France.

Large organizations that develop complex products are faced with the question of how to decompose and allocate product development work across geographic, or organizational boundaries. Distributing work may offer immense time and cost savings. However, finding a good allocation of work packages to development entities continues to be a challenge for many companies in practice. Based on an extensive data set involving all development projects of one of the largest car manufacturers worldwide, we provide insight into how to best offshore and outsource product development.

3 - Firm Clockspeed: Toward A Theory Of Relativity

Sina Moghadas Khorasani, Student, Glen M. Schmidt. University of Utah, Salt Lake City, UT, USA.

Intel runs perceptively fast compared to Pfizer (its revenues stem from new products, product lifespans are short, and cost reduction is rapid), yet profit growth is no higher. In this paper, we explore how perceived clockspeed contributes to profit growth (we call this relative clockspeed) and economic progress (we call this absolute clockspeed).

4 - Innovation Positioning Under Disruptive Threats

Xiaochen Gao¹, Viswanathan Krishnan², Sreekumar R. Bhaskaran³.

¹University of California-San Diego, La Jolla, CA, USA,

²University of California, San Diego, La Jolla, CA, USA,

³Southern Methodist University, Dallas, TX, USA.

Typically, while developing a new technology or product, a firm would also have a set of products which it currently makes available to consumers. As a result, one of the key decisions of a firm after developing a new product is its product positioning strategy. After having invested in and developed a new product, a firm has to decide whether this product should replace the existing line of products or whether both the new and old products be sold simultaneously to consumers. In this paper, we develop a framework for studying such an integrated product development and portfolio design problem. Specifically, we examine the value of retaining an existing lower quality product after developing a new higher quality version of the same product family. The economic and game-theoretic analysis used to model this problem brings forth several interesting insights. One of the key results of this research is that a product-line based approach to NPD can provide significant strategic advantages to a firm. In contrast to existing literature on development intensive products, we show that this strategy allows a firm to cover multiple market segments and price discriminate between consumers. Interestingly, the value of pursuing a product line based approach assumes greater significance under competition. Having multiple products in its product-portfolio enables a firm to extract higher margins from its high-end markets without forgoing its presence in low-end markets. Moreover, when the level of competition is high, cannibalization tensions in maintaining a larger portfolio could also serve to deter mutually destructive price competition.

TE55

4:35 PM - 6:05 PM

Managing Innovation in Novel Contexts

Xiaoyang Long

232C, North Bldg.

1 - Optimal Incentive Contracts In Project Management

Milind Dawande¹, Ganesh Janakiraman¹, Anyan Qi¹, Qi Wu².

¹The University of Texas at Dallas, Richardson, TX, USA,

²Case Western Reserve University, Cleveland, OH, USA.

We study the contract-design problem faced by a firm for executing a project consisting of multiple tasks, each

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of which is performed by an individual contractor whose efforts (work-rates) are not observable. We study the case when these tasks can be performed in parallel as well as the case when they have to be performed sequentially.

2 - Do Business Method Innovations Create Value. A Study Of Public U. S. Firms In Manufacturing And Distribution

Tian Chan¹, Anandhi S. Bharadwaj², Deepa Varadarajan, Assistant Professor³.

¹Emory University's Goizueta Business School, Atlanta, GA, USA, ²Emory University, Atlanta, GA, USA, ³Georgia State University, Atlanta, GA, USA.

Ever since Amazon patented their "1-click" ordering method, there has been significant interest in understanding the value potential of business method patents. In this study, we examine the impact of business method patents on the financial performance of public US manufacturers and distributors, and find that firms investing in high-quality business method patents generate higher market value.

3 - Patent Grant Delays And Inventors' Future Patenting

PARAM PAL SINGH Chhabra, Student, Manpreet Singh Hora, Karthik Ramachandran.
Georgia Institute of Technology, Atlanta, GA, USA.

Patent grant delays have the potential of negatively affecting future patenting activities of inventors. Utilizing patents application data, spanning more than three decades, published by the USPTO, we verify this negative relationship. Our results also confirm that the negative relationship is more pronounced in lone-inventors (as compared to teams), and co-inventors (as compared to a prime inventor) in a team.

4 - Employee Mobility And Process Innovation In Manufacturing

Fabian J. Sting¹, Philipp Benjamin Cornelius², Bilal Gokpinar³.

¹University of Cologne, Cologne, Germany, ²London, United Kingdom, ³UCL School of Management, London, United Kingdom.

Production employees can be a valuable source of innovative ideas to improve operational efficiency. We empirically investigate how mobility affects the innovation value created by those employees. We examine the immediate and long term (static and dynamic) implications as well as the role of direction of employee moves on innovation outcomes.

WA55

8:00 AM - 9:30 AM

The Roles of Supply Chain Knowledge on New Product Introduction

Junghee Lee

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1 - Knowledge-based View Of Outsourcing Strategies For New Product: A Game Theory Model

Qiong Chen¹, Gulru F. Ozkan-Seely², Shouqiang Wang³, Aleda Roth⁴.

¹University of Science and Technology of China, Hefei, China, ²University of Washington Bothell, bothell, WA, USA, ³The University of Texas at Dallas, Richardson, TX, USA, ⁴Clemson University, Seneca, SC, USA.

We introduce a signaling game to examine the outsourcing strategies of a buying firm that faces two options in determining a manufacturer to produce its new product: outsource directly or indirectly (through an intermediary). We demonstrate the critical yet interesting role of outsourcing knowledge on the buying firm's outsourcing strategies.

2 - Knowledge Outsourcing For Competing Buyers

Jaeseok Lee, Cheryl Gaimon, Karthik Ramachandran.
Georgia Institute of Technology, Atlanta, GA, USA.

We study the knowledge development and outsourcing decisions of competing firms (buyers), who can obtain knowledge from a common supplier. We identify a condition whereby buyers benefit from knowledge outsourcing. We also discuss how the supplier is better off if he serves only one buyer.

3 - Market Entry And Location Choice Under Market Uncertainty

Wenxin Xu.

2018 NPD Sponsored Programme (Wednesday)

The Hong Kong Polytechnic University, Hong Kong, Hong Kong.

When a new bicycle-sharing company considers pursuing the growth opportunities in emerging markets, e.g., the second or third-tier cities, it often grapples with those questions such as: When should I enter this new market? Where should I locate the docks to serve the customers while avoiding the fierce competitions? This paper provides some managerial insights into the entry timing and location choice under market uncertainty for those companies with a dynamic game-theoretical model.

4 - Initial Stage Success Strategies for Mobile Applications

Moonwon Chung¹, Luv Sharma², Manoj Malhotra³.

¹University of South Carolina, Cayce, SC, USA, ²Columbia, SC, USA, ³Case Western Reserve, Cleveland, OH, USA.

This study examines the implications of operations decisions in the hypercompetitive context of software development, dissemination, and sustained service delivery. Specifically, we estimate performance impact of user engagement impacted by the choice of mobile app feature decisions, product launch timing decisions, decentralized value chains, and organizational focus. A panel data of Top 500 ranked mobile game apps in the US was extracted from app market APIs in daily observations over 3 years. We perform econometric analyses to reveal software development and value chain configuration implications for managers.

TIMES/TMS Past Chairs

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University of Washington, Bothell
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2016 - Sinan Erzurumlu
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2015 - Leonardo Santiago
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2014 – Cheryl Druehl
George Mason University
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2012 & 2013 - Juliana Hsuan
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2011 - Janice Carrillo
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2010 - David Moore
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2008 - Sebastian Fixson
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