

## From the Chair's Desk

- Sinan Erzurumlu

Greetings TIMES members!

It is my pleasure to connect with you annually through our newsletter. This newsletter is prepared by TIMES officers to provide you guidance prior to conference and give you better insights on tracks that would be of interest to you. This year we have also moved to our new online site, INFORMS Connect, which allows us to stay connected throughout the year. I encourage you to make sure that you are on our mailing list to receive news about TIMES as well as other professional postings.

The Technology, Innovation Management and Entrepreneurship Section of INFORMS has 182 members, of which 70% are based in the United States. 18% of our members are student members. TIMES supports a range of activities including the sponsored cluster at the INFORMS Annual Meeting, the Best Dissertation and Best Paper Awards, the Distinguished Speaker, the Business Meeting and the newsletter.

With this in mind, I would like to draw your attention to the TIMES sponsored cluster at the 2015 INFORMS Annual Meeting. Our sponsored program will feature a variety of state of the art talks in exciting sessions, November 1 to 4. Thanks to Gulru Ozkan-Seely for organizing it. She led the efforts to put together a full 4-day program.

In particular, I would like to highlight three sessions at the INFORMS Annual Meeting. First, this year's Distinguished Speaker is Steven Eppinger, Professor of Management Science and Innovation at the MIT Sloan School of Management, who will deliver a talk on Monday, November 2, from 4:30pm to 6:00pm on "The Structure and Management of Technical Projects". Second, the Best Dissertation Award Finalists will present their work reception prior to the meeting on Monday, November 2, from 11:00am to 12:30pm. Finally, in addition to our regular research presentations, we hold a panel on Sunday, November 1, from 11:00am to 12:30pm.

The panelists would debate on one of the emerging research trends, Operations Management/ Entrepreneurship interface.

I would like to express my gratitude to past and present TIMES officers. In particular, I would like to thank our past chair Leonardo Santiago for his incredible support. I am also very much in debt to Jianxi Luo, Chair-Elect, Gulru Ozkan-Seely, Vice Chair – Programs, Zhijian Cui, Vice Chair - Membership & Communication, and John Angelis, our Chief Information Officer. Their dedication and service to our community make our section thrive. If you have suggestions for TIMES or would like to become an officer, please contact us.

For those who are coming to the Annual Meeting in Philadelphia, I wish you a productive and fun conference. I would like to invite you to TIMES business meeting, which will be held on Monday, November 2, after Prof. Steven Eppinger's talk. After our meeting, we will have time to catch up and network.

I look forward to seeing everyone at the conference.

Best Regards,

Sinan Erzurumlu

## TIMES BUSINESS MEETING

The Technology, Innovation Management and Entrepreneurship Section business meeting will be held at Philadelphia Convention Center on **Monday, November 2, at 6:15 pm**. Please join the TIMES officers and other distinguished colleagues for a wine and cheese reception after the meeting.

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## Steven Eppinger

MIT Sloan School of Management

**2015 Distinguished Speaker  
INFORMS Technology, Innovation  
Management and Entrepreneur-  
ship Section**

- Leonardo Santiago

It is our great pleasure to announce the INFORMS TIMES 2015 Distinguished Speaker, Steven Eppinger. Steven Eppinger is Professor of Management Science and Innovation at the MIT Sloan School of Management. He also holds the General Motors Leaders for Global Operations Chair and has a joint appointment in MIT's Engineering Systems Division.

Prof. Eppinger received S.B., S.M., and Sc.D. degrees from MIT's Department of Mechanical Engineering before joining the MIT faculty in 1988. Prof. Eppinger served as Deputy Dean of the MIT Sloan School from 2004 to 2009 and as Interim Dean during 2007. From 2001 to 2003 was the faculty co-director of the Leaders for Manufacturing and the System Design and Management programs. From 1999 to 2001 he served as co-director of the Center for Innovation in Product Development. Since 2009, he has been the co-director of MIT's System Design and Management Program.

Prof Eppinger teaches courses in product design and innovation, engineering project management, and product management. Notably, he has created an interdisciplinary product development course in which graduate students from engineering, management, manufacturing, and industrial design programs collaborate to develop new products. He also teaches MIT's executive programs in the areas of innovation and complex project management. Prof. Eppinger has co-authored a leading textbook entitled *Product Design and Development* (McGraw-Hill 2016). Currently in its sixth edition, the text has been translated into several languages and is used to teach courses at hundreds of universities around the world.

Professor Eppinger is one of the most highly recognized scholars in the area of product development and technical project management. His research is applied to improving complex design processes in order to accelerate industrial practices. He is a pioneer in development of the widely used *Design Structure Matrix* (DSM) method for managing complex system projects. He has authored over seventy articles in refereed academic journals and conferences. He has co-authored a book based on DSM research entitled *Design Structure Matrix Methods and Applications* published by MIT Press.

In his current research, Professor Eppinger delves into complex engineering systems with particular emphasis on (i) integration of complex engineered systems in order to explore a new way to apply DSM to complex systems, (ii) technology readiness in which he and collaborators investigate the state of the art in use of technology readiness level (TRL) assessments methods in system development, and (iii) engineering communication networks, where Prof. Eppinger and collaborators investigate the patterns of technical process communications through engineering networks.

At the INFORMS Annual Meeting Prof. Eppinger will deliver a talk about “The Structure and Management of Technical Projects” in which he will review some key DSM research results and ways in which the method is used today to manage complex technical projects. He will also offer thoughts on frontiers in technology management that may be addressed using DSM modeling and some reflections on why it takes more than 20 years to bring a practical method into common practice.

Please join us on Monday, November 2<sup>nd</sup>, 2015, as we welcome Professor Steven Eppinger, enjoy and absorb his presentation on “The Structure and Management of Technical Projects”, and honor him as the 2015 Distinguished Speaker of the Technology, Innovation Management and Entrepreneurship Section at INFORMS. The presentation begins at 16:30 (please see the conference program for location).

- Leonardo Santiago

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## Doctoral Dissertation Award

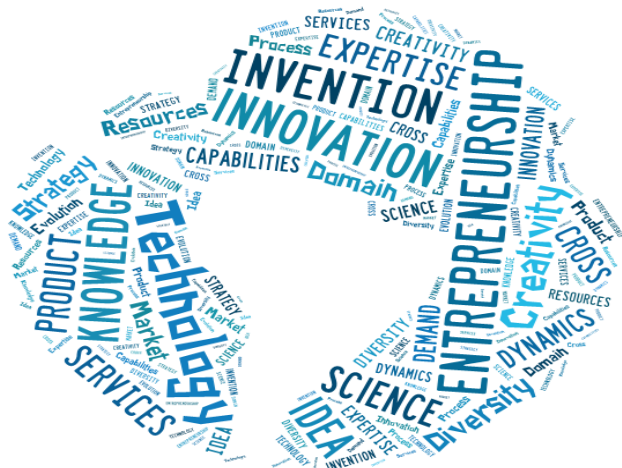
### Finalists are Announced

### Congratulations!

— Jianxi Luo

This year we have received many great dissertations for 2015 TIMES Doctoral Dissertation Award. We would like to thank all of the participants. Our judges have had a hard task to choose the finalists. We also would like to thank the panel of judges for their time and dedicated work (in alphabetical order): Margaret Dalziel (University of Waterloo), Yuya Kajikawa (Tokyo Institute of Technology), Matt Marx (MIT), Karthik Ramachandran (Georgia Tech), Fabian Sting (Erasmus University), Zoe Szajnfarter (George Washington University).

Four dissertations are selected for the final round of 2015 TIMES Doctoral Dissertation Award. In this issue we get to know our finalists better. We invite you to listen to the presentations for the 2015 TIMES Doctoral Dissertation Award on Monday, November 2nd, 11:00 am - 12:30 pm, at the session "TIMES Best Dissertation Award Finalists". The winner will be announced at TIMES Business Meeting at 6:15PM on Monday November 2<sup>nd</sup>. Next, we present our finalists in alphabetical order.



## Doctoral Dissertation Award Judge Panel



**Margaret Dalziel**  
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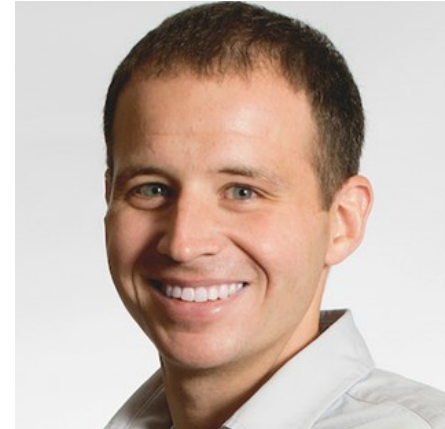
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**Alessio Cozzolino**

Alessio Cozzolino with his dissertation titled: "Three Essays on Technological Changes and Competitive Advantage: Evidence from the Newspaper Industry": Alessio Cozzolino completed his doctoral studies at Bocconi University in March 2015, under the supervision of Professors Gianmario Verona (main advisor), Marco Giarratana, and Frank T. Rothaermel. Alessio's dissertation examines the relationship between technological change and competitive advantage, using a phenomenon driven approach and studying the transformation of the Italian newspaper industry after the Internet. By combining qualitative and quantitative methods, he theorizes and tests the consequences of a new type of technological change, one that destroys incumbents' complementary assets while preserving their core know-how. In a first essay, a multiple-case study based on 94 in-depth interviews and archival data, he explores the implications of a 'complementary-asset destroying discontinuity' for incumbents and entrants, and highlights a process of industry evolution. In a second essay, Alessio builds on an unique hand-collected database of 56 Italian newspapers (1995-2013) to test part of his theoretical model, showing why and how technological changes affect the revenues of platform-based companies beyond the effect on network sizes. In a third essay, he uses a longitudinal single-case study to investigate when and how, after a technological change, incumbents open their boundaries to external knowledge while simultaneously deploying their internal core know-how, and illustrates the trade-offs of a similar adaptation strategy. Currently, Alessio is an assistant professor at the University College Dublin.



**Russell Funk**

Russell J. Funk, with his dissertation titled, "Essays on Collaboration, Innovation, and Network Change in Organizations": Russell completed his doctoral studies at the University of Michigan in August 2014, where he worked under the guidance of Professor Jason Owen-Smith, chair of his dissertation committee, and Professors Gautam Ahuja, Mark Mizuruchi, and Maxim Sytch. Russell's dissertation examines how informal networks influence knowledge sharing and innovation inside organizations. A central observation of his dissertation is that the overall structure of informal communication ties among organization members differs dramatically across organizations, and these differences matter for organizational performance. For example, one study from the first part of his dissertation uses data on nanotechnology R&D to demonstrate how these informal network structures moderate some well-known relationships between geography and firm innovation. He finds that while firms in high-technology regions like Silicon Valley benefit from dense networks among their inventors that facilitate information processing, geographically isolated firms benefit when connections among their inventors are more sparse and therefore help retain diverse perspectives. Building on these findings about the contingent effects of different network configurations, the second part of Russell's dissertation examines how organizations might change and adapt informal networks as their environments evolve. Currently, Russell is an assistant professor in the Strategic Management and Entrepreneurship group at the University of Minnesota's Carlson School of Management.



**Hila Lifshitz-Assaf**



**Catherine Magelssen**

Hila Lifshitz-Assaf with her dissertation titled: "Shifting Loci of Innovation: A Study of Knowledge Boundaries, Identity and Innovation at NASA": Hila Lifshitz-Assaf completed her studies at Harvard Business School in June 2014. She worked under the supervision of Professors Michael Tushman, Karim Lakhani and Michel Anteby. Hila's dissertation explores how the ability to innovate is being transformed by the Web and the information age, as well as the challenges and opportunities the transformation entails. While most of the literature about Web-based innovation models investigates online communities, her focus is on their influence on organizations, on the intersection of these two seemingly contrasting worlds. This dissertation is based on an in-depth longitudinal field study of NASA's experimentation with opening knowledge boundaries through Web platforms and communities, resulting in a scientific breakthrough. She explores how using open innovation impacts the knowledge and innovation production process and how it entailed a significant shift in the professional identity of R&D professionals. She also theoretically models when technological and scientific problems can be solved successfully through open innovation, emphasizing hybrid innovation architectures. Hila Lifshitz-Assaf is currently an Assistant Professor of Information, Operations and Management Sciences at New York University Stern School of Business. She is also a faculty associate at the Berkman Center for Internet and Society at Harvard University.

Catherine Magelssen with her dissertation titled: "Property Rights Theory and Ownership of Firm-Specific Advantages: The Implications of Contracting and Licensing within the Multinational Firm": Catherine Magelssen completed her studies at Rutgers Business School in July 2014. She worked under the supervision of Professors Susan Feinberg, Fariborz Damanpour, Michelle Gittelman, and Tom Prusa. Catherine's dissertation examines how multinational firms allocate ownership and control rights to knowledge assets within the firm and the consequences of those choices on innovation. Using a unique panel dataset on 102 multinational firms and their 7,156 subsidiaries from 1997 to 2012, she identifies four ways in which firms structure internal ownership of their knowledge assets. The four modes have different implications for control, coordination, incentives, and knowledge sharing within the firm. Additionally, her research investigates the effects of internal ownership of knowledge assets on subsidiary innovation and whether multinational firms that transfer ownership rights away from R&D subsidiaries to tax haven subsidiaries create incentive problems with regard to future innovative activity. Catherine is currently an Assistant Professor of Strategy and Entrepreneurship at London Business School.

We look forward to seeing you at the session! See previous winners at <http://tms.section.informs.org/>.

—Jianxi Luo



We have the pleasure of announcing the Technology, Innovation Management and Entrepreneurship Best Paper Award for the year of 2015:

## Winner

**Daniel W. Elfenbein, Barton H. Hamilton, Todd R. Zenger (2010) "The small firm effect and the entrepreneurial spawning of scientists and engineers," Management Science, Vol. 56, No. 4, pp. 659-681.**

## Runner-up

**Jasjit Singh, Lee Fleming (2010) "Lone inventors as sources of breakthroughs: Myth or reality?" Management Science, Vol. 56, No. 1, pp. 41-56.**

During 2011 and 2012, we have had the pleasure of working with the department editors at Management Science and at Organization Science to create the parameters for an annual INFORMS Technology, Innovation Management and Entrepreneurship Section (TIMES) best paper competition.

Together with the Editors, the board members of the INFORMS TIMES chose a system in which the best papers for the annual competition would be narrowed down to the top-cited technology management papers in INFORMS journals from five years earlier (e.g., for the year 2015, we considered papers

published in 2010). Then, a panel of leading scholars in the field of technology, innovation management and entrepreneurship, would select the top paper and the runner-up. For this year, we have the following distinguished judges (in alphabetical order):



**Arnaud De Meyer**  
Singapore Management University



**Julian Hsuan**  
Copenhagen Business School



**Nitin Joglekar**  
Boston University



**Dundar F. Kocaoglu**  
Portland State University



**James Utterback**  
MIT Sloan School of Management

We would like to thank them for serving on the judge panel!

The winner and runner-up will be presented with a plaque at the INFORMS TIMES Business Meeting at 6:15PM, on Monday, November 2<sup>nd</sup> (room to be assigned). Please come and join us to congratulate them! Again, congratulations to the winner and runner-up of the Best Paper Award Competition for the year of 2015!

Jianxi Luo

# **INFORMS -Technology, Innovation Management and Entrepreneurship Section**

**Philadelphia, Pennsylvania 2015**

**Sponsored Program (November 01 - 04, Sun - Wed)**

- Gulru Ozkan-Seely

Dear TIMES Colleagues,

On behalf of the Technology, Innovation Management and Entrepreneurship Section, it is a pleasure to welcome you to the 2015 INFORMS Annual Meeting where we are excited to share two great clusters with you: Technology, Innovation Management & Entrepreneurship (TIME) and New Product Development (NPD). These two clusters offer an exciting combination of technology, innovation, product development and entrepreneurship sessions. We would like to take this opportunity to thank all of the session chairs and participants for their contribution to this year's terrific program.

As always, the talks for this year are quite diverse and appealing. We would like to invite you to review the session descriptions in the newsletter and online to make the most out of the conference. You will have the opportunity to enjoy the state of the art of our field from Sunday, November 1<sup>st</sup> to Wednesday, November 4<sup>th</sup> 2015. It will be hard to decide with so many great options. We would like to draw your attention to some of the special sessions.

Collaboration and crowdsourcing in innovation and R&D are some of the key themes in our program. There will be four sessions feature talks on collaboration, crowd innovation, crowdsourcing and multiple stakeholders: "Collaborative Innovation" on Monday November 2<sup>nd</sup>, 13:30-15:00, Multiple Stakeholders in NPD" on Tuesday, November 3<sup>rd</sup>, 11:00-12:30 and "Crowd Innovation" on Tuesday November 3<sup>rd</sup>, 13:30-15:00, and "Collaborative R&D" on Tuesday, November 3<sup>rd</sup>, 16:30-18:00. In addition, emerging topics in entrepreneurship and innovation will be discussed by a panel in "Panel Discussion: Research Opportunities in Entrepreneurship, Innovation and Operations Manage-

ment" on Sunday, November 1<sup>st</sup>, 11:00-12:30 and areas in innovation that are recently getting attention will be discussed in "New Research Topics on Innovation Session" on Monday, November 2<sup>nd</sup> at 8:00-9:30.

There are two sessions that you should consider "not to be missed." First is the "Meet the Editors" session, which will be on Sunday, November 1<sup>st</sup> at 16:30-18:00, is organized jointly by the Technology, Innovation Management and Entrepreneurship Section and New Product Development. We will be joined by the editors (journal, department and senior) of top journals. We thank them for their support of our two areas and are looking forward to hearing their viewpoints.

Second is the "Technology, Innovation Management and Entrepreneurship Section Distinguished Speaker" session, which will be on Monday, November 2<sup>nd</sup> at 16:30-18:00. In this session, Steven Eppinger, who is a Professor of Management Science and Innovation at Massachusetts Institute of Technology, will be speaking about "The Structure and Management of Technical Projects." We are looking forward to learning more on his thoughts on the frontiers of technology management. This session will be hosted by Leonardo Santiago, former TIMES chair and will be followed by the annual TIMES business meeting.

On Monday, November 2<sup>nd</sup>, 11:00 – 12:30, we will have a session where TIMES Best Dissertation Award Finalists will present their research. This session will be chaired by Jianxi Luo.

Thank you for all of your support for the TIMES sessions. We hope to see you in Philadelphia!

Gulru Ozkan-Seely



**Sunday, November 01**

## **SA: 08:00 - 09:30 Global Value Chains and New Organizational Architecture**

CHAIR: **Saikat Chaudhuri**, The Wharton School, University of Pennsylvania, 2000 Steinberg Hall-Dietrich Hall, 3620 Locust Walk, Philadelphia PA 19104, United States of America, saikatc@wharton.upenn.edu

### *Collaboration Between Specialist Physicians in Multiple Countries Enabled by Information Technology*

PRESENTING AUTHOR: **Ravi Aron**, Johns Hopkins University, 100, International Drive, Room 1331, Baltimore MD 21202, United States of America, raviaron@jhu.edu

CO-AUTHOR: **Praveen Pathak**, Warrington College of Business, UFL, Gainesville FL 32608, United States of America, praveen.pathak@warrington.ufl.edu

ABSTRACT: Medical Tourism refers to patients that travel abroad for surgery. This involves collaboration between the doctor in the patient's home country that provides ongoing care and the specialist surgeon and hospital offshore that provides the surgical services. We look at how technology plays a role in enabling collaboration between physicians internationally. We disaggregate the different elements of IT and their impact on clinical outcomes and patient satisfaction levels.

### *Operationalizing Enterprise Architecture and Evaluating Enterprise Flexibility*

PRESENTING AUTHOR: **Alan MacCormack**, Harvard Business School, Soldiers Field, Boston 02163, United States of America, amaccormack@hbs.edu

ABSTRACT: We develop a network-based methodology for analyzing a firm's enterprise architecture. We demonstrate the application of this method to the analysis of enterprise IT flexibility, using data from a large pharmaceutical firm. We show that measures of architecture derived from our methodology predict the cost of change for software applications within the firm. In particular, applications that are tightly coupled to other system components cost significantly more to change.

### *The Voice of Ideas: Understanding Impact of Diverse Modes of Open Innovation*

PRESENTING AUTHOR: **Natalia Levina**, Stern School of Business, New York University, 44 W 4th Street, KMEC 8-78, New York, United States of America, nlevina@stern.nyu.edu

CO-AUTHOR: **Anne-laure Fayard**, New York University, 6 Metrotech Center, Brooklyn NY, United States of America, alfayard@nyu.edu **Emmanouil Gkeredakis**, Warwick Business School, ISM Group, Coventry, United Kingdom, Emmanouil.Gkeredakis@wbs.ac.uk

ABSTRACT: Organizations are increasingly engaging in open innovation by hiring consultants and using crowdsourcing platforms in the hopes of solving their long-standing R&D problems. Yet, the impact of these diverse modes of open

innovation on organizations is not well understood. The talk builds on an in-depth field study of such engagements and argues that diverse modes of sourcing ideas have very different potential for enabling organizations to learn new perspectives on their long-standing problems.

### *Global Sourcing of Key Resources: Emerging-market Firms' Acquisitions of Developed-Market Companies*

PRESENTING AUTHOR: **Saikat Chaudhuri**, The Wharton School, University of Pennsylvania, 2000 Steinberg Hall-Dietrich Hall, 3620 Locust Walk, Philadelphia PA 19104, United States of America, saikatc@wharton.upenn.edu

ABSTRACT: Emerging-market firms are increasingly acquiring developed-market companies to obtain high-value technology and market resources, challenging traditional paradigms. We offer a perspective that provides a more balanced focus on the role of both firm and location specific resources in the value creation of these acquisitions. Applying our conditional approach, we develop testable propositions on the distinct antecedents, processes, and outcomes of such acquisitions, as a basis for future work.

## **SB: 11:00 - 12:30 Research Opportunities in Entrepreneurship, Innovation and Operations Management**

CHAIR: **Sinan Erzurumlu**, Assoc. Prof., Babson College, 231 Forest St, Babson Park MA 02456, United States of America, serzurumlu@babson.edu

ABSTRACT: This session brings together top scholars who do research in the interface of entrepreneurship, innovation and operations management. Each speaker will present his/her perspective on emerging research themes that may be of interest to researchers in the fields of innovation, technology management, new product development, organization science, and operations management. A follow-up Q&A and discussion with audience participation will follow to uncover research and teaching topics on the field.

## **SC: 13:30 - 15:00 Managing Innovation: Products, Services, Employee Attributes and Organizational Performance**

CHAIR: **Juliana Hsuan**, Professor, Copenhagen Business School, Dept. of Operations Management, Solbjerg Plads 3, Frederiksberg DK-2000, Denmark, jh.om@cbs.dk

### *The Relationship Between Individual Employee Attributes and Radical Innovation*

PRESENTING AUTHOR: **Lee Davis**, Associate Professor, Copenhagen Business School, Department of Innov and Org Econ, Kilevej 14A, Frederiksberg 2000, Denmark, ld.ino@cbs.dk

CO-AUTHOR: **Jerome Davis**, Copenhagen Business School, Dept of Innovation and Org. Economics, Kilevej 14A, Frederiksberg 2000, Denmark, jd.ino@cbs.dk **Karin Hoisl**, Assistant Professor, Max Planck Institute for Innovation and

Competition, Marstallplatz 1, Munich 80539, Germany, karin.hoisl@ip.mpg.de

**ABSTRACT:** We investigate the impact of individual employee attributes like experience, ability or motivation on radical innovation and whether the organizational context moderates this relationship. We find that the importance of individual attributes varies with organizational context.

## *The Impact of Organizational Routines in Cumulative Innovation*

**PRESENTING AUTHOR:** **Leonardo Santiago**, Associate Professor, Copenhagen Business School, Department of Operations Management, Solbjerg Plads 3, Blok B 5. sal, Frederiksberg 2000, Denmark, ls.om@cbs.dk  
**CO-AUTHOR:** **Julia Couto**, Federal University of Minas Gerais, Escola de Engenharia da UFMG, Av Antonio Carlos 6627. Pampulha, Belo Horizonte MG, Brazil, juliacouto@ufmg.br

**ABSTRACT:** The capacity to continuously innovate is crucial for organizations to achieve or maintain their competitive advantage. A sequence of innovations can provide to a company not just a new product or technique but also a platform of knowledge that will support their future innovations. This work investigates the way knowledge is accumulated by a company over time, associating managerial decisions to the dynamics of innovation.

## *Product and Service Modularity Strategies Game for Mass Customization*

**PRESENTING AUTHOR:** **Anu Bask**, Assistant Professor, Aalto University School of Business, P.O. Box 21220, Helsinki 00076 Aalt, Finland, anu.bask@aalto.fi  
**CO-AUTHOR:** **Juliana Hsuan**, Professor, Copenhagen Business School, Dept. of Operations Management, Solbjerg Plads 3, Frederiksberg DK-2000, Denmark, jh.om@cbs.dk  
**Mervi Rajahonka**, Aalto University School of Business, P.O. Box 21220, Helsinki 00076 Aalt, Finland, mervi.rajahonka@aalto.fi  
**Markku Tinnilä**, Aalto University School of Business, P.O. Box 21220, 00076 Aalt, Finland, markku.tinnila@aalto.fi

**ABSTRACT:** Modularity has been recognized as a powerful concept for improving the efficiency and management of product design and manufacturing. However, the integrated view on product and service modularity approaches is under researched. We propose four strategies to match combinations of products and services through modularization strategies for mass customization.

## *The Impact of Product and Service Modularity on Business Performance – A Survey of Danish Manufacturers*

**PRESENTING AUTHOR:** **Thomas Frandsen**, Copenhagen Business School, Dept. of Operations Management, Solbjerg Plads 3, Frederiksberg DK-2000, Denmark, tfr.om@cbs.dk  
**CO-AUTHOR:** **Juliana Hsuan**, Professor, Copenhagen Business School, Dept. of Operations Management, Solbjerg Plads 3, Frederiksberg DK-2000, Denmark, jh.om@cbs.dk  
**Jawwad Z. Raja**, Copenhagen Business School, Solbjerg Plads 3, Frederiksberg, Denmark, jr.om@cbs.dk

**ABSTRACT:** Manufacturers are increasingly turning towards services and integrated solutions as a way of strengthening their competitiveness, a transition receiving growing attention in the literature. However, the relation between product and service architecture and its impact on service strategy and the performance of manufacturers is not well understood. Based on a survey of Danish manufacturers we explore the relationship between product and service modularity and their effects on business performance.

## **SD: 16:30 - 18:00 Joint Session TIMES/ NPD: Meet The Editors**

**CHAIR:** **Gulru Ozkan-Seely**, Georgia Institute of Technology, 800 W Peachtree St NW, Atlanta GA, United States of America, gulru.ozkan@scheller.gatech.edu  
**CHAIR:** **Sanjiv Erat**, UCSD, Gilman Drive, La Jolla CA, United States of America, serat@ucsd.edu  
**CO-CHAIR:** **Jurgen Mihm**, INSEAD, France, jurgen.mihm@insead.edu

### *Meet the Editors*

**PRESENTING AUTHOR:** **Sanjiv Erat**, UCSD, Gilman Drive, La Jolla CA, United States of America, serat@ucsd.edu

**ABSTRACT:** This interactive session aims at assisting readers and researchers in staying informed on the most important topics and the latest development in Technology, Innovation Management, Entrepreneurship and New Product Development.

## **Monday, November 02**

### **MA: 08:00 - 09:30 Understanding Knowledge Sources and Politics in Technology Management**

**CHAIR:** **Zhijian Cui**, IE Business School, Calle de Maria de Molina 12, Madrid 28006, Spain, Zhijian.cui@ie.edu

### *The Differential Effect of Knowledge Sources on Innovation Strategy: A Contingency Approach*

**PRESENTING AUTHOR:** **Beatriz Rodriguez-prado**, University of Valladolid, Avda. Valle del Esgueva, Valladolid 47011, Spain, bprado@eco.uva.es  
**CO-AUTHOR:** **Zhijian Cui**, Assistant Professor of Operations and Technology Management, IE Business School, Calle de Maria de Molina 12, Madrid 28006, Spain, Zhijian.cui@ie.edu, **Elena Revilla**, IE Business School, Maria de Molina 11, Madrid 28006, Spain, Elena.Revilla@ie.edu

**ABSTRACT:** We examine how innovation strategy determines the sources of knowledge (own-generated, bought-in and co-developed) and their impact on innovation performance. Data of 9054 firms belonging to fourteen European Countries constitute the empirical base of the study. Results derived from Cluster analysis, ANOVAs and Generalized Linear Models strongly indicate investments in innovation activities may generate differential value depending on key contextual factors.

## *The Effects of Outsourcing Knowledge on the Dynamics of Outsourcing Modes*

PRESENTING AUTHOR: **Qiong Chen**, University of Science and Technology of China, School of Management, 96 Jin Zhai Road, Bao He District, Hefei 230026, China, qiongch@g.clemson.edu

CO-AUTHOR: **Gulru Ozkan-Seely**, Georgia Institute of Technology, 800 W Peachtree St NW, Atlanta GA, United States of America, gulru.ozkan@scheller.gatech.edu

**Aleda Roth**, Professor, Clemson University, 100 Sirrine Hall, Clemson 29634, United States of America, aroth@clemson.edu  
**Shouqiang Wang**, Assistant Professor, Clemson University, 131D Sirrine Hall, Clemson SC 29672, United States of America, shouqiw@clemson.edu

ABSTRACT: We evaluate buyer's dynamic choice of outsourcing channels: directly through in-house procurement department or indirectly through an intermediary. Using a two-period game theoretic model, we demonstrate the critical yet interesting role of outsourcing knowledge and highlight effects of direct and indirect learning on the change of buyer's strategies over time.

## *Politics as an Impediment to Technology Strategy Implementation*

PRESENTING AUTHOR: **Marc Finkelstein**, IE Business School, 52 Lawrence Ave West, Toronto ON M5M1A4, Canada, marc.finkelstein@gmail.com

ABSTRACT: Organizations expend significant resources to develop a technology strategy, yet too often fail to accomplish it. They commonly perceive the failure to stem from a lack of resources and capabilities, yet exploratory research suggests that organizational politics are significantly more impactful. Research will outline the types of political maneuvering exhibited and how it is impactful to the achievement of the technology strategy.

## **MB: 11:00 - 12:30 Best Dissertation Award Finalists - Technology, Innovation Management and Entrepreneurship Section**

CHAIR: **Jianxi Luo**, Assistant Professor, Singapore University of Technology and Design, 8 Somapah Rd, Singapore 487372, Singapore, luos@sutd.edu.sg

## *Managing Informal Networks for Innovation*

PRESENTING AUTHOR: **Russell Funk**, Assistant Professor, University of Minnesota, 321 19th Avenue South, #3-354, Minneapolis MN 55455, United States of America, rfunk@umn.edu

ABSTRACT: This dissertation examines how informal networks affect innovation in organizations. Using data on nanotechnology and pharmaceutical firms, the first two studies show that the overall structure of collaboration among inventors differs dramatically across organizations and these differences matter for innovation performance. Motivated by these findings about the contingent benefits of network configurations, study three examines strategies for changing networks using data from online communities.

## *Property Rights Theory and Ownership of Firm-specific Advantages within the Multinational Firm*

PRESENTING AUTHOR: **Catherine Magelssen**, Assistant Professor, London Business School, Sussex Place, Regent's Park S342, London Business School, London NW1 4SA, United Kingdom, cmagelssen@london.edu

ABSTRACT: This dissertation extends property rights theory to inside the firm. I examine how multinational firms allocate ownership rights to knowledge assets to subsidiaries within the firm. The ownership of knowledge assets has implications on the internal distribution of risk, incentives, resources, and power. Using a unique dataset, I examine the determinants of the internal structure of ownership of knowledge assets and the impact of ownership on innovation within the multinational firm.

## *Three Essays on Technological Changes and Competitive Advantage: Evidence from the Newspaper Industry*

PRESENTING AUTHOR: **Alessio Cozzolino**, Assistant Professor in Strategy, University College Dublin, UCD Quinn School of Business, Dublin, Ireland, alessio.cozzolino@ucd.ie

ABSTRACT: The dissertation explores the relationship between technological change and competitive advantage, studying the transformation of the Italian newspaper industry after the Internet (1995-2014). Using quantitative and qualitative methods, and building on a hand-collected longitudinal database and on a large set of interviews, Alessio theorizes and tests the consequences of a new type of technological change, one that destroys incumbents' complementary assets while preserving their core know-how.

## *Shifting LOCI of Innovation: A Study of Knowledge Boundaries, Identity and Innovation at NASA*

PRESENTING AUTHOR: **Hila Lifshitz-assaf**, NYU, 100 Bleecker street, 13B, New York NY 10012, United States of America, h@nyu.edu

ABSTRACT: This dissertation explores how the ability to innovate is being transformed by the Web and the information age, as well as the challenges and opportunities it entails. It is based on an in-depth longitudinal field study at NASA, exploring their experiment with online open innovation platforms and communities. I investigate the impact of using open innovation on the process of knowledge and innovation production, on R&D professionals, and its boundary conditions for successful problem solving.

## **MC: 13:30 - 15:00 Collaborative Innovation**

CHAIR: **Fabian Sting**, Erasmus University Rotterdam, Rotterdam School of Management, Rotterdam 300DR, Netherlands, fsting@rsm.nl

## *The Effect of Environmental Changes on Employ-*



## *ee Idea Value*

PRESENTING AUTHOR: **Philipp Cornelius**, University College London, UCL School of Management, Gower Street, London WC1E 6BT, United Kingdom, philipp.cornelius.12@ucl.ac.uk

CO-AUTHOR: **Bilal Gokpinar**, Assistant Professor, UCL School of Management, UCL, Gower Street, London WC1E 6BT, United Kingdom, b.gokpinar@ucl.ac.uk

**Fabian Sting**, Erasmus University Rotterdam, Rotterdam School of Management, Rotterdam 300DR, Netherlands, fsting@rsm.nl

ABSTRACT: Employee ideas are a valuable starting point to improve operational efficiency. Manufacturing organizations therefore systematically tap into employee knowledge and creativity. In this paper we empirically investigate how changes in task nature and manufacturing environment affect the value created by employee ideas for the organization.

## *Managing New Product Development Knowledge Between Competing Firms*

PRESENTING AUTHOR: **Gulru Ozkan-Seely**, Georgia Institute of Technology, 800 W Peachtree St NW, Atlanta GA, United States of America, gulru.ozkan@scheller.gatech.edu

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**Sriram Venkataraman**, University of South Carolina, Department of Management Science, Moore, Columbia SC, United States of America, Sri-ram.Venkataraman@moore.sc.edu

ABSTRACT: We introduce a two period stochastic game on KM for NPD of two competing firms. First, leader sets price for knowledge transfer (patents); follower decides how much knowledge to acquire. Next, firms pursue knowledge development (problem solving). Finally, both firms release new products. Insights include impact of uncertain market forces.

## *The Impact of Hospital Information Technology Adoption Process on Quality of Care*

PRESENTING AUTHOR: **Luv Sharma**, PhD Student, The Ohio State University, 650 Fisher, Columbus OH 43210, United States of America, sharma.154@osu.edu

CO-AUTHOR: **Aravind Chandrasekaran**, Associate Professor, The Ohio State University, 2100 Neil Avenue, Columbus OH 43210, United States of America, chandrasekaran.24@osu.edu

ABSTRACT: This paper looks at the process of adoption of Health Information Technologies (HIT) for 979 hospitals to identify an ideal implementation strategy. We define process of adoption in terms of the sequence and intensity of adoption of HITs. Results demonstrate an ideal sequence whose benefits depend on the intensity of adoption.

## *How Communication and Incentives Transform a Strategic Plan into Action*

PRESENTING AUTHOR: **Jeremy Hutchison-Krupat**, Darden UVA, KrupatJ@darden.virginia.edu

ABSTRACT: A senior manager primarily uses two levers to

influence a direct report's actions: financial incentives and communication. Financial incentives are explicit and unambiguous but lack flexibility; communication is flexible but may be ambiguous. We study a principal who decides whether to add a new initiative with an uncertain value to the organization's portfolio. We compare results between settings of incentives alone, non-strategic communication, and strategic communication.

## **MD: 16:30 - 18:00 TIMES Distinguished Speaker - Steven Eppinger**

Chair: **Leonardo Santiago**, Associate Professor, Copenhagen Business School, Department of Operations Management, Solbjerg Plads 3, Blok B 5. sal, Frederiksberg 2000, Denmark, ls.om@cbs.dk

## *The Structure and Management of Technical Projects*

PRESENTING AUTHOR: **Steven Eppinger**, Professor Of Management Science And Innovation, Massachusetts Institute of Technology, Sloan School of Management, Cambridge MA 02421, United States of America, eppinger@mit.edu

ABSTRACT: Design structure matrix (DSM) has been used both as a research method and as a management tool to improve performance of engineering projects. This presentation reviews some key DSM research results and ways in which the method is used today to manage complex technical projects. I will also offer thoughts on frontiers in technology management that may be addressed using DSM modeling and some reflections on why it takes more than 20 years to bring a practical method into common practice.

## **Tuesday, November 03**

## **TA: 08:00 - 09:30 Using Big Data Analytics for Technology Intelligence: Methods and Cases to Gather Intelligence on Technological Innovations**

Chair: **Tugrul Daim**, Professor, Portland State University, PO Box 751, Portland OR 97201, United States of America, ji2td@pdx.edu

## *Business Partner Recommendation Based on Machine Learning of Customer-Supplier Relationships*

PRESENTING AUTHOR: **Yuya Kajikawa**, Tokyo Institute of Technology, 3-3-6 Shibaura, Minato-ku, Tokyo, Japan, kajikawa@mot.titech.ac.jp

CO-AUTHOR: **Naoko Matsuda**, The University of Tokyo, 7-3-1 Hongo, Bunkyo-ku, Tokyo, Japan, matsuda-naoko@pari.u-tokyo.ac.jp  
**Yi Zuo**, Zuo, Nagoya University, Furou-cho, Chikusa-ku, Nagoya City, Aichi, Japan, zuoyisa-ki@yahoo.co.jp

ABSTRACT: Business partnership is vital not only for business development but also information sharing and collaboration for innovation. In this work, we modeled customer-supplier relationships among firms using statistical learning



model by support vector machine to support firms to find plausible business partners. The result showed prediction accuracy over 80% in average, but a variance was found between different sizes of firms. We discuss the mechanism determining the relationships.

## *The Circle of Innovation*

PRESENTING AUTHOR: **Fred Phillips**, Distinguished Professor, Yuan Ze University, R60401, Building 6, No.135, Yuan-Tung Rd, Taoyuan, Taiwan - ROC, fred.phillips@stonybrook.edu

ABSTRACT: There is a high-level feedback between technological innovation and social change. Innovation brings about new products and services, and new ways of using them. These in turn lead to new ways to interact and organize. The new structures generate new unfilled needs, which are opportunities for still more innovation. This changes how we classify innovations, how we should analyze statistics, and our views of technology assessment, market segmentation, and product development for sustainability.

## *Technology Assessment: Case of Robotics for Power Applications*

PRESENTING AUTHOR: **Tugrul Daim**, Professor, Portland State University, PO Box 751, Portland OR 97201, United States of America, ji2td@pdx.edu  
CO-AUTHOR: **Judith Estep**, jaestep@bpa.gov

ABSTRACT: This paper presents an integration of data analytics methods and expert judgment quantification to evaluate multiple robotics technologies for the power utilities.

## *Evaluating Technology Adoption in Emerging Regions: Case of Smart Phone in Saudi Arabia*

PRESENTING AUTHOR: **Fahad Aldhaban**, Portland State University, PO Box 751, Portland, United States of America, aldhaban@gmail.com  
CO-AUTHOR: **Tugrul Daim**, Professor, Portland State University, PO Box 751, Portland OR 97201, United States of America, ji2td@pdx.edu

ABSTRACT: This paper reviews the adoption factors of smart phones in emerging regions. Saudi Arabia is studied as a case study. This presentation will cover the qualitative part of the work. This part helped filter factors and finalize the survey instrument.

## **TB: 11:00 - 12:30 Ecosystem Analytics & Visualization**

CHAIR: **Rahul Basole**, Associate Professor, Georgia Institute of Technology, 85 Fifth Street NW, Atlanta GA 30332, United States of America, basole@gatech.edu

## *Integrated Analytics Framework for Business Ecosystem Dynamics*

PRESENTING AUTHOR: **Hyunwoo Park**, Georgia Institute of Technology, 85 5th St NW RM 339, Atlanta GA 30309, United States of America, hwpark@gatech.edu  
CO-AUTHOR: **Rahul Basole**, Associate Professor, Georgia Institute of Technology, 85 Fifth Street NW, Atlanta GA 30332, United States of America, basole@gatech.edu

ABSTRACT: We propose a computational framework and interactive prototype for specifying and analyzing business ecosystem dynamics. Our research fuses simulation with data/process mining and information visualization techniques, enabling decision makers to specify micro-behavior of firms, generate and test hypotheses, gain insights, and communicate results effectively. We illustrate our approach using real-world examples based on a unique curated dataset from multiple sources.

## *Network Visualization Analysis of Main Paths and Directions of Firm Innovation*

PRESENTING AUTHOR: **Jianxi Luo**, Assistant Professor, Singapore University of Technology and Design, 8 Somapah Rd, Singapore 487372, Singapore, luo@sutd.edu.sg  
CO-AUTHOR: **Bowen Yan**, Singapore University of Technology and Design, 8 Somapah Rd, Singapore 487372, Singapore, bowen\_yan@sutd.edu.sg

ABSTRACT: We present a method to represent the technology space as a network of patent technology classes, and then overlay the network map to visualise firms' technology capability positions and main paths of diversification over time. Based on a few case studies, we show this method can reveal the differences in innovation behaviours and strategies of different firms and aid in the assessment of the firm's past and existing capability positions and the exploration of future innovation directions.

## *Quantifying the Ecosystem of Digital Platform Companies*

PRESENTING AUTHOR: **Rahul Basole**, Associate Professor, Georgia Institute of Technology, 85 Fifth Street NW, Atlanta GA 30332, United States of America, basole@gatech.edu  
CO-AUTHOR: **Peter Evans**, pevans@thecge.net

ABSTRACT: The rise of digital platforms is transforming industries and economies. Using an integrated dataset (Crunchbase and Capital IQ), we quantify, compare, and visualize the structure of 1,000+ platform companies. We discuss theoretical and managerial implications.

## *Visualizing the Start-Up Genome*

PRESENTING AUTHOR: **Raul Chao**, ChaoR@darden.virginia.edu  
CO-AUTHOR: **Rahul Basole**, Associate Professor, Georgia Institute of Technology, 85 Fifth Street NW, Atlanta GA 30332, United States of America, basole@gatech.edu

ABSTRACT: Our study uses novel visual analytic techniques to analyze start-up activities. Specifically, drawing on an analogy from genetics, we aim to visualize what we refer to as the "Start-Up Genome" – a unique sequence of activities that defines and differentiates one start-up from another.

## *Data-driven Visualizations of Market Differentiation in Emerging Sectors*

PRESENTING AUTHOR: **Martha Russell**, Executive Director, mediaX at Stanford University, 210 Panama Street, Cordura Hall, Stanford CA 94305-4115, United States of America, martha.russell@stanford.edu  
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Technology, Department of Mathematics, Korkeakoulunkatu 3, FI-33720 Tampere, Finland, [jukka.huhtamaki@tut.fi](mailto:jukka.huhtamaki@tut.fi) **Neil Rubens**, Graduate School of Information Systems, University of Electro-Communications, Tokyo 182-8585, Japan, [rubens@ai.is.uec.ac.jp](mailto:rubens@ai.is.uec.ac.jp) **Kaisa Still**, VTT Technical Research Centre of Finland Ltd, Kaitoväylä 1, FI-90571 Oulu, Finland, [Kaisa.Still@vtt.fi](mailto:Kaisa.Still@vtt.fi)

**ABSTRACT:** Using keywords from a dataset built from online promotional information, we visualize the character and strength of startups' market objectives in emerging sectors.

## TC: 13:30 - 15:00 Crowd Innovation

**CHAIR: Mohamed Mostagir**, Assistant Professor, University of Michigan Ross School of Business, 701 Tappan Ave, R5316, Ann Arbor MI 48109, United States of America, [mosta@umich.edu](mailto:mosta@umich.edu)

### *Time-Based Crowdsourcing Contests*

**PRESENTING AUTHOR: Ersin Korpeoglu**, Carnegie Mellon University, 5000 Forbes Avenue, Pittsburgh, United States of America, [ekorpeog@andrew.cmu.edu](mailto:ekorpeog@andrew.cmu.edu)

**CO-AUTHOR: Laurence Ales**, Carnegie Mellon University, 5000 Forbes Avenue, Pittsburgh, United States of America, [ales@cmu.edu](mailto:ales@cmu.edu)

**Soo-Haeng Cho**, Associate Professor, Carnegie Mellon University, 5000 Forbes Ave, Pittsburgh PA 15213, United States of America, [soohaeng@andrew.cmu.edu](mailto:soohaeng@andrew.cmu.edu)

**ABSTRACT:** We study a crowdsourcing contest wherein a seeker solicits a population of agents to solve a problem. Each agent's stochastic solution time depends on her effort and expertise. We show that it is optimal for the seeker to screen and compensate only the highest-expertise agents when their solution times are less uncertain, but a larger group of agents when they are highly uncertain. An agent's optimal compensation is based on her solution time and whether the seeker can observe agents' efforts.

### *Payoffs in Contests*

**PRESENTING AUTHOR: Kevin Boudreau**, Harvard University and London Business School, Harvard Business School, Cambridge MA, United States of America, [kboudreau@hbs.edu](mailto:kboudreau@hbs.edu)

**CO-AUTHOR: Karim Lakhani**, Harvard Business School, Technology and Operations, Cambridge, United States of America, [k@hbs.edu](mailto:k@hbs.edu)

**Michael Menietti**, Harvard University, Crowd Innovation Laboratory, Cambridge, United States of America, [mmenietti@fas.harvard.edu](mailto:mmenietti@fas.harvard.edu)

**ABSTRACT:** Many tournament outcomes possess signaling value. In this article, the results of a field experiment on signaling incentives are presented. Using a structural model, we obtain estimates of the value of nominal prizes, as well as extra value associated with the contest. Signaling and cash values exhibit large interaction effects. In all conditions, the perceived value of the prizes differs from the nominal value. Competitors tend to undervalue small prizes and overvalue large prizes.

### *Achieving Efficiency in Dynamic Contribution Games*

**PRESENTING AUTHOR: George Georgiadis**, Assistant Professor, Northwestern University, 2001 Sheridan Rd, Evanston IL 60208, United States of America, [g-georgiadis@kellogg.northwestern.edu](mailto:g-georgiadis@kellogg.northwestern.edu)

**CO-AUTHOR: Jaksa Cvitanic**, Professor, California Institute of Technology, 1200 E. California Blvd, Pasadena CA 91125, United States of America, [cvitanic@hss.caltech.edu](mailto:cvitanic@hss.caltech.edu)

**ABSTRACT:** We analyze a dynamic contribution game, in which a group of agents exert costly effort over time to make progress on a project that generates a lump-sum payoff once the cumulative effort reaches a pre-specified threshold. We characterize a budget balanced mechanism which overcomes the free-rider problem, and at every moment, induces each agent to exert the first-best effort level in a Markov Perfect Equilibrium. Applications include early-stage entrepreneurial ventures and joint R&D ventures.

### *Creativity Under Fire: The Effects of Competition on Creative Production*

**PRESENTING AUTHOR: Daniel P. Gross**, Post-doctoral Fellow, NBER/Harvard Business School, Soldiers Field Road, Boston MA 02163, United States of America, [dgross@hbs.edu](mailto:dgross@hbs.edu)

**ABSTRACT:** This paper studies the incentive effects of competition on individuals' creative production. Using a sample of commercial logo design competitions, and a novel, content-based measure of originality, I find that competition has an inverted-U effect on creativity. The results reconcile conflicting evidence from an extensive literature on the effects of competition on innovation, with implications for R&D policy, competition policy, and organizations in creative or research industries.

## TD: 16:30 - 18:00 Collaborative R&D

**CHAIR: Niyazi Taneri**, SUTD, 8 Somapah Rd, Singapore, Singapore, [niyazitaneri@sutd.edu.sg](mailto:niyazitaneri@sutd.edu.sg)

### *Incentivizing External Experts in New Product Development*

**PRESENTING AUTHOR: Shantanu Bhattacharya**, Singapore Management University, Lee Kong Chian School of Business, Grange Heights, Singapore 238145, Singapore, [shantanub@smu.edu.sg](mailto:shantanub@smu.edu.sg)

**CO-AUTHOR: Sameer Hasija**, Assistant Professor, INSEAD, 1 Ayer Rajah Avenue, Grange Heights, Singapore, Singapore, [Sameer.Hasija@insead.edu](mailto:Sameer.Hasija@insead.edu)

**ABSTRACT:** We create a model of new product development where information on external factors like market potential and technology feasibility is sought from external experts. The firm has to adequately incentivize these experts to truthfully reveal their judgment. Contracts are presented to alleviate the resulting adverse selection problem.

### *Supplier Incentives in Collaborative Product Development with Internal Competition*

**PRESENTING AUTHOR: Timofey Shalpegin**, Lecturer, University of Auckland, 12 Grafton Road, Auckland 1010, New Zealand, [t.shalpegin@auckland.ac.nz](mailto:t.shalpegin@auckland.ac.nz)

**ABSTRACT:** Internal competition in new product development

has a profound, yet unexplored effect on the incentives of the suppliers involved in a development project through collaboration with the manufacturer's competing development teams. We study the optimal assignment of development teams to different suppliers. We find that due to the effect of competition on supplier incentives, the manufacturer may find it optimal to allocate more development teams to a supplier with lower capabilities.

## *Dynamic Delegated Search*

PRESENTING AUTHOR: **Morvarid Rahmani**, Assistant Professor, Georgia Tech, morvarid.rahmani@eller.gatech.edu  
CO-AUTHOR: **Karthik Ramachandran**, Georgia Institute of Technology, 800 West Peachtree NW, Atlanta GA 30308, United States of America, Karthik.Ramachandran@scheller.gatech.edu

ABSTRACT: Firms often delegate the search for solution of their innovative problems to third parties (e.g., search for designs, advertisements, executive leaders, etc.) In this paper we study how the client's choice of search process (i.e., defined or open-ended) depends on the strategic behavior of the provider. Taking the client's and provider's perspective, we identify conditions for which a defined search is preferred to an open-ended search.

## *The Impact of Health Information Technology Bundles on Hospital Performance: An Econometric Study*

PRESENTING AUTHOR: **Aravind Chandrasekaran**, Associate Professor, The Ohio State University, 2100 Neil Avenue, Columbus OH 43210, United States of America, chandrasekaran.24@osu.edu  
CO-AUTHOR: **Luv Sharma**, PhD Student, The Ohio State University, 650 Fisher, Columbus OH 43210, United States of America, sharma.154@osu.edu

ABSTRACT: We examine how two HIT bundles: Clinical (used for patient data collection, diagnosis and treatment) and Augmented Clinical (used for integrating patient information and decision making) jointly impact operating cost and process quality. Results suggest complementarities between these bundles with respect to process quality but not cost. A post-hoc analyses offers additional explanation on the lack of association with cost.

## Wednesday, November 04

### **WB: 11:00 - 12:30 Venture Capital Funding, Crowd Sourcing, New Product Development, and Supply Chain Transparency**

CHAIR: **Zhili Tian**, assistant professor, Florida International University, 11200 S.W. 8th Street, miami, United States of America, ztian@fiu.edu

## *Too Successful to Innovate? Dynamic Entrepreneurial Reputation and Venture Capital*

PRESENTING AUTHOR: **Noam Shamir**, Assistant Professor, Tel-Aviv University, Haim Levanon, Tel-Aviv, Israel, nshamir@post.tau.ac.il  
CO-AUTHOR: **David Zvilichovsky**, Tel-Aviv University, Haim

Levanon, Tel-Aviv, Israel, davidz@post.tau.ac.il

ABSTRACT: This research integrates entrepreneurial experience, success, reputation and venture financing into a dynamic model which explores the execution of innovative projects under asymmetric information. We are interested in exploring the tension between the desire of the entrepreneur to exploit the current project opportunity and her understanding that the success or failure in this current project also impacts her future reputation.

## *Hunters and Gatherers: Strategy Identification of the Leading Open Firms*

PRESENTING AUTHOR: **John Angelis**, Elizabethtown College, 1 Alpha Drive, Elizabethtown PA, United States of America, angelisj@etown.edu  
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ABSTRACT: We analyzed 73 (of 100 original) firm open innovation efforts via their press releases. Using path and cluster analysis to analyze the coded data, we obtained statistically significant results. Our data shows at least two types of crowdsourcing: 1) Hunters, incumbent firms, learning open methodologies, that accelerate a single (often one time) experiment to implement crowd sourcing; or 2) Gatherers, often newcomers, born open, with less urgency that continuously interact with the crowd.

## *Product Development by a Firm and its Supplier: Insights from a Problem-solving Approach*

PRESENTING AUTHOR: **Mohsen Jafari Songhori**, Jsp Research Fellow, Tokyo Institute of Technology, J2 Bldg., Room 1704, 4259 Nagatsuta-cho., Tokyo 226-8502, Japan, mj2417@gmail.com  
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ABSTRACT: This study conceptualizes Product Development (PD) by a firm and a supplier as a problem solving process. The firms decompose the PD problem into sub-problems, and use different solution strategies (e.g. different design approaches with costs, quality). We investigate the firms' problems (e.g. optimal design strategy) and their interactions (e.g. contract setting).

## *An Empirically Grounded Model of Supply Chain Transparency*

PRESENTING AUTHOR: **Anton Shevchenko**, York University, 4700 Keele St, Toronto, Canada, absh1986@gmail.com  
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**ABSTRACT:** Using multiple case studies our study explores how firms achieve the requisite transparency to manage their supply chains. We explore the barriers and enablers of transparency inherent in complex networks of buyer-supplier relationships and external stakeholder involvement before discussing firm strategies for managing escalating requirements for transparency.

## *Advantages of Dual Sourcing in the Presence of a Demand-exploiting Supplier*

**PRESENTING AUTHOR:** **Sunny S. Yang**, Southampton Business School, University of Southampton, Southampton, United Kingdom, s.s.yang@soton.ac.uk  
**CO-AUTHOR:** **Li-ming Chen**, Department of Business Administration, National Chengchi University, Taipei, Taiwan - ROC, lmchen@nccu.edu.tw **Moren Lévesque**, York University, 4700 Keele St, Toronto, Canada, mlevesque@schulich.yorku.ca

**ABSTRACT:** Dual sourcing has become a widespread supply-chain structure in today's rapidly changing, competitive global markets. We analyze a supply chain model involving a new unproven supplier that is potentially unreliable but has the capability of increasing the end-product demand. We show that a business start-up can leverage its growth through an experienced supplier in the supply chain competing for the buyer's order.

## New Product Development Philadelphia, PA, 2015 Sponsored Program (November 01 - 04, Sun - Wed)

### Monday, November 02

#### **MA: 08:00 - 09:30: New Research Topics on Innovation**

**CHAIR:** **Manuel Sosa**, Associate Professor Of Technology And Operations Management, INSEAD, 1 Ayer Rajah Ave., Singapore, Singapore, manuel.sosa@insead.edu

#### *Technology Readiness Levels at 40: A Study of State-of-the-art Use, Challenges, and Opportunities*

**PRESENTING AUTHOR:** **Alison Olechowski**, MIT, School of Engineering, Cambridge, United States of America, alisono@mit.edu  
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**Nitin Joglekar**, Boston University, Questrom School of Business, Boston, joglekar@bu.edu

**ABSTRACT:** Since their introduction by NASA in the 1970s, the Technology Readiness Levels (TRLs) have become a widely used scale for assessing technology maturity during new product and system development. We empirically investigate current TRL usage in a cross-industry study, identifying challenges related to TRL implementation and use in technology-related decision-making. Some challenges are already addressed by uncommon best practices however others are opportunities for new methods and models.

#### *Idea Generation And The Role Of Feedback*

**PRESENTING AUTHOR:** **Joel Wooten**, University of South Carolina, Columbia SC, United States of America, joel.wooten@moore.sc.edu  
**CO-AUTHOR:** **Karl Ulrich**, Wharton, Philadelphia, United States of America, ulrich@wharton.upenn.edu

**ABSTRACT:** In many innovation settings, ideas are generated over time and managers face a decision about if and how to provide in-process feedback about the quality of submissions. We use innovation tournament field experiments to examine the effect of feedback on idea generation and show individual-level differences between no feedback, random feedback, and directed feedback.

#### *Sole Inventor Vs Team Of Inventors: What's Best?*

**PRESENTING AUTHOR:** **Tian Chan**, INSEAD, Singapore, Singapore, TianHeong.CHAN@insead.edu  
**CO-AUTHOR:** **Jurgen Mihm**, INSEAD, France, jurgen.mihm@insead.edu **Manuel Sosa**, Associate Professor Of Technology And Operations Management, INSEAD, 1 Ayer Rajah Ave., Singapore, Singapore, manuel.sosa@insead.edu

**ABSTRACT:** History has often attributed sole individuals as the source of innovative breakthroughs. However, recent research has shown that teams of individuals are the ones that tend to produce breakthroughs. In this work we use patent data covering both function and form to systematically analyze the source of successful innovations. Our work moves towards reconciling the sole versus team conundrum by finding evidence of situations where the sole individual shine, and of situations where they do not.

#### **MB: 11:00 - 12:30: Managing Search and Problem Solving in Innovation Settings**

**CHAIR:** **Sezer Ülkü**, Associate Professor, Georgetown University McDonough School of Business, 545 Hariri Building, 37 & O Streets, Washington DC 20057, United States of America, su8@georgetown.edu

#### *When to Leave the Building? Search and Pivoting in a Lean Startup*

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**CO-AUTHOR:** **Kenan Arifoglu**, University College London, Gower Street, London WC1E 6BT, United Kingdom, k.arifoglu@ucl.ac.uk **Tingliang Huang**, Assistant Professor, Boston College, Carroll School of Management, 140 Commonwealth Avenue, Chestnut Hill MA 02467, United States of America, tliang@bc.edu



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**ABSTRACT:** An early stage entrepreneurial firm with a new product concept must maximize the chance of successful product launch. To avoid developing an unwanted product, practitioners suggest a lean approach to development, i.e., a firm should iteratively launch an unfinished product to learn what the consumers want and to alter the final product goal whenever necessary. We formalize this approach via the Bayesian learning framework, and investigate the optimal development strategy.

### *How (and When) To Encourage Cooperation Across Projects*

**PRESENTING AUTHOR:** **Fabian Sting**, Erasmus University Rotterdam, Rotterdam School of Management, Rotterdam 300DR, Netherlands, fsting@rsm.nl  
**Co-AUTHOR:** **Pascale Crama**, Singapore Management University, 50 Stamford Road, Singapore 178899, Singapore, pcrama@smu.edu.sg **Yaozhong Wu**, National University of Singapore, NUS Business School, Singapore, Singapore, yaozhong.wu@nus.edu.sg

**ABSTRACT:** Inspired by an innovative practice, we model a Project Management system that incorporates and shapes cooperative problem solving. Help is at the core of this system, in which project managers may ask for and provide help. We find that companies should take a nuanced approach when designing help exchange and time-based incentives.

### *Search Under Constraints - An Experimental Study*

**PRESENTING AUTHOR:** **Sezer Ülkü**, Associate Professor, Georgetown University McDonough School of Business, 545 Hariri Building, 37 & O Streets, Washington DC 20057, United States of America, su8@georgetown.edu

**ABSTRACT:** In contexts of innovation, slack resources are required due to the many unknowns. At the same time, according to some, "necessity is the mother of invention", and resource constraints might improve innovative performance. Through a series of experiments, we examine how constraints influence search strategies, and the ultimate performance.

### **MC: 13:30 - 15:00 Innovations in Healthcare Products and Services**

**CHAIR:** **Nitin Joglekar**, Boston University, Questrom School of Business, Boston, joglekar@bu.edu

#### *Healthtech Platforms: Barriers To Innovation*

**PRESENTING AUTHOR:** **Edward Anderson**, Professor, McCombs School of Business, The University of Texas at Austin, 1 University Station B6500, Austin TX 78712-1277, United States of America, Edward.Anderson@mcombs.utexas.edu  
**Co-AUTHOR:** **Shi Ying Lim**, University of Texas, McCombs School of Business, 1 University Station B6500, Austin TX 78733, United States of America, shiying.lim@utexas.edu

**ABSTRACT:** The state of mobile and digital health is far behind that of other platform industries, such as travel, retail,

and even banking. Using qualitative analysis, we present some of the more important barriers to healthtech startup success (and, but extension, health tech in general) and outline some initial suggestions to create an ecosystem to counter them.

#### *Platform Innovations In Healthcare Delivery*

**PRESENTING AUTHOR:** **Geoffrey Parker**, Professor, Tulane University, 7 McAlister Drive, New Orleans LA 70118, United States of America, ggparker@tulane.edu

**ABSTRACT:** Network platform systems have reshaped the computer and telecommunications industries and are now transforming other industries such as transportation, lodging, and contract labor. The shift to platforms is slower in highly regulated industries, but changes are coming quickly. We survey likely mechanisms and entry points for a platform shift in healthcare.

#### *Patient, Heal Thyself! A Learning Algorithm To Predict How Telemedicine Affects Patient Activation*

**PRESENTING AUTHOR:** **Kellas Cameron**, Phd Student, Boston University, Questrom School of Business, Boston MA 02215, United States of America, kellas@bu.edu  
**Co-AUTHOR:** **Carrie Queenan**, University of South Carolina, Moore School of Business, Columbia SC, United States of America, Carrie.Queenan@moore.sc.edu

**ABSTRACT:** The Patient Activation Measure (PAM) assesses an individual's knowledge and confidence for managing one's health. This paper proposes a learning algorithm to predict a patient's PAM with data from a controlled telemedicine study, accounting for social and technology effects. The algorithm allows for the analysis of Type I and II errors and learning versus testing tradeoffs. Implications of this study create opportunities for operational improvements to reduce patient readmission rates.

### **MD: 16:30 - 18:00 Deep Dive on Open Innovation - Papers and Discussants**

**CHAIR:** **Jeremy Hutchison-Krupat**, Darden UVA, KrupatJ@darden.virginia.edu

#### *Optimal Shapes Of Innovation Pipelines*

**PRESENTING AUTHOR:** **Joel Wooten**, University of South Carolina, Columbia SC, United States of America, joel.wooten@moore.sc.edu  
**Co-AUTHOR:** **Sriram Venkataraman**, University of South Carolina, Department of Management Science, Moore, Columbia SC, United States of America, Sri-ram.Venkataraman@moore.sc.edu

**ABSTRACT:** New product introductions often occur via R&D pipelines. We explore the optimal number of innovation options to pursue in this complex managerial process. A stylized game simulation of the pharma industry provides additional evidence for our problem.

#### *Discussant*

**PRESENTING AUTHOR:** **Sanjiv Erat**, UCSD, Gilman Drive, La Jolla CA, United States of America, serat@ucsd.edu

ABSTRACT: This talk will offer a discussion/critique of the paper titled "Optimal Shapes Of Innovation Pipelines."

## *How Much Better Is Open Innovation?*

PRESENTING AUTHOR: **Sebastian Fixson**, Babson College, Tomasso Hall 226, Babson Park MA 02457, United States of America, sfixson@babson.edu  
CO-AUTHOR: **Tucker Marion**, Northeastern University, 218 A Hayden Hall, Boston, United States of America, t.marion@neu.edu

ABSTRACT: Over the past 15 years research has emerged that describes many advantages of open innovation, such as unearthing ideas that better match customer needs and/or problem specifications. In this paper, we study in detail the new product development process of a single organization that makes extensive use of external actors throughout its process, and explore the corresponding performance implications.

## *Discussant*

PRESENTING AUTHOR: **Yi Xu**, Associate Professor, Smith School of Business, University of Maryland, College Park MD 20742, United States of America, yxu@rhsmith.umd.edu

ABSTRACT: This talk will offer a discussion/critique of the paper titled "How Much Better Is Open Innovation?."

## Tuesday, November 03

### TA: 08:00 - 09:30 Execution Mode Choices for NPD

CHAIR: **Pascale Crama**, Singapore Management University, 50 Stamford Road, Singapore 178899, Singapore, pcrama@smu.edu.sg

### *Managing Exploration And Execution*

PRESENTING AUTHOR: **Nittala Lakshminarayana**, University of California San Diego, 9256 Regents Road Apt G, La Jolla CA 92037, United States of America, Lakshminarayana.Nittala@rady.ucsd.edu  
CO-AUTHOR: **Sanjiv Erat**, UCSD, Gilman Drive, La Jolla CA, United States of America, serat@ucsd.edu **Vish Krishnan**, UCSD, LA JOLLA CA 92037, United States of America, vkrishnan@ucsd.edu

ABSTRACT: We model Innovation as a multi-stage activity consisting of Exploration and Execution. Within this parsimonious model that mimics many contexts in Innovation, we consider the effect of incentives and several institutional features on the optimal idea generation and development strategy.

### *Customer Co-design: The Role of Product Lines*

PRESENTING AUTHOR: **Sree Kumar Bhaskaran**, sbhaskar@mail.cox.smu.edu  
CO-AUTHOR: **Amit Basu**, Professor, Cox School of Business, Southern Methodist University, PO Box 750333, Dallas TX 75275, United States of America, abasu@mail.cox.smu.edu  
ABSTRACT: Involving customers in the new product design

can be a powerful means to achieve high levels of customer satisfaction and market success. However, the "co-design" process may require participating customers to commit significant time and effort, while facing the uncertainty that the firm may overprice the custom product. Since this reduces a customers incentive to commit effort up-front, co-design can be difficult to motivate. We develop analytical models that capture these various effects.

### *Flexibility And Knowledge Development In Product Development: Insights From A Landscape Search Model*

PRESENTING AUTHOR: **Mohsen Jafari Songhori**, Jsp Research Fellow, Tokyo Institute of Technology, J2 Bldg., Room 1704, 4259 Nagatsuta-cho., Tokyo 226-8502, Japan, mj2417@gmail.com  
CO-AUTHOR: **Majid Abdi**, Lecturer, University of Melbourne, Department of Management & Marketing, Level 10, 198 Berkeley St., Melbourne Vi 3010, Australia, majid.abdi@gmail.com **Takao Terano**, Professor, Tokyo Institute of Technology, J2 Bldg., Room 1704, 4259 Nagatsuta-cho., Tokyo, Japan, terano@dis.titech.ac.jp

ABSTRACT: This study introduces a landscape model of Product Development (PD). The model captures different PD performance aspects (e.g. development time, quality and cost) and their trade-offs. Moreover, knowledge development dynamics and flexibility are incorporated in the model to investigate how strategies toward these, in PD process, are associated with the performance measures.

### TB: 11:00 - 12:30 Multiple Stakeholders in NPD

CHAIR: **Niyazi Taneri**, SUTD, 8 Somapah Rd, Singapore, Singapore, niyazitaneri@sutd.edu.sg

### *The Role of Decision Rights in Collaborative Development Initiatives*

PRESENTING AUTHOR: **Nektarios Oraopoulos**, Cambridge Judge Business School, University of Cambridge, Trumpington St., Cambridge, United Kingdom, n.oraopoulos@jbs.cam.ac.uk  
CO-AUTHOR: **Vishal Agrawal**, Assistant Professor, Georgetown University, United States of America, va64@georgetown.edu

ABSTRACT: In this paper, we study initiatives for co-development of new products and technologies. In such settings, it may be difficult a priori to specify contracts contingent on the outcome. Therefore, we investigate the efficacy of different contractual structures, which instead specify the decision-making process.

### *Structuring New Product Development Partnerships*

PRESENTING AUTHOR: **Niyazi Taneri**, SUTD, 8 Somapah Rd, Singapore, Singapore, niyazitaneri@sutd.edu.sg  
CO-AUTHOR: **Arnoud De Meyer**, SMU, 82 Victoria St, Singapore, Singapore, arnoudmeyer@smu.edu.sg

ABSTRACT: New product development partnerships involve a high degree or risk, information and incentive problems

across various stakeholders. Partners structure their alliances to address such concerns. We identify factors that affect the structure of the partnership and the performance of the partnership.

## *The Impact of Continuous Product Development and Customer Feedback on Mobile App Performance*

PRESENTING AUTHOR: **Nilam Kaushik**, University College London, University College London, London, United Kingdom, nilam.kaushik.13@ucl.ac.uk  
CO-AUTHOR: **Bilal Gokpinar**, Assistant Professor, UCL School of Management, UCL, Gower Street, London WC1E 6BT, United Kingdom, b.gokpinar@ucl.ac.uk

ABSTRACT: Mobile application development differs from traditional product development owing to low barriers of entry, the ability to provide continuous software updates, and ease of access to customer feedback. Using a dataset from the App Store, and drawing from a combination of text mining techniques and econometric methods, we investigate the impact of incorporating customer feedback on mobile app performance.

## **TC: 13:30 - 15:00 Commercialization of New Technologies**

CHAIR: **Karthik Ramachandran**, Georgia Institute of Technology, 800 West Peachtree NW, Atlanta GA 30308, United States of America, Karthik.Ramachandran@scheller.gatech.edu  
CO-CHAIR: **Sreekumar Bhaskaran**, SMU, Dallas, Dallas, United States of America, sbhaskar@cox.smu.edu

### *Product Line Design For Strategic Customers*

PRESENTING AUTHOR: **Saurabh Bansal**, Assistant Professor, Penn State University, 405 Business Building, University Park PA 16802, United States of America, sub32@psu.edu  
CO-AUTHOR: **Karthik Ramachandran**, Georgia Institute of Technology, 800 West Peachtree NW, Atlanta GA 30308, United States of America, Karthik.Ramachandran@scheller.gatech.edu

ABSTRACT: We report results for optimal product line design when customers are strategic about uncertain quality of products. Our analysis explains evolution of product lines observed in practice.

### *Licensing Contracts: Control Rights And Options*

PRESENTING AUTHOR: **Niyazi Taneri**, SUTD, 8 Somapah Rd, Singapore, Singapore, niyazitani@sutd.edu.sg  
CO-AUTHOR: **Pascale Crama**, Singapore Management University, 50 Stamford Road, Singapore 178899, Singapore, pcrama@smu.edu.sg **Bert De Reyck**, UCL, Engineering Front Building, London, United Kingdom, bdereyck@ucl.ac.uk

ABSTRACT: Research and development (R&D) collaborations, though common in high-tech industries, are challenging to manage due to technical and market risks as well as incentive problems. We investigate the impact of control rights, options, payment terms and timing decisions on R&D

collaborations between an innovator and a marketer. We provide recommendations on the optimal contract structure and timing based on the R&D project characteristics.

## *Does Equity Crowdfunding Improve Entrepreneurial Firm Performance?*

PRESENTING AUTHOR: **Susanna Khavul**, UTA/London School of Economics, London, London, United Kingdom, s.khavul@lse.ac.uk  
CO-AUTHOR: **Saul Estrin**, London School of Economics, London, London, United Kingdom, s.estrin@lse.ac.uk

ABSTRACT: As a fast moving financial innovation, equity crowdfunding may relax resource constraints for new ventures. Using four years of proprietary data, we model how information provision, generation, and exchange affects the supply of funds and likelihood of pitch funding. We evaluate this against the survival and performance of the firms that sought funding.

## **TD: 16:30 - 18:00 Project Selection, Evaluation and Collaboration**

CHAIR: **Yaozhong Wu**, National University of Singapore, NUS Business School, Singapore, Singapore, yaozhong.wu@nus.edu.sg

### *An Experimental Study of Idea Selection Process*

PRESENTING AUTHOR: **Zhijian Cui**, Assistant Professor of Operations and Technology Management, IE Business School, Calle de Maria de Molina 12, Madrid 28006, Spain, Zhijian.Cui@ie.edu  
CO-AUTHOR: **Dilney Gonçalves**, Assistant Professor Of Marketing, IE Business School, Calle de Maria de Molina 12, Madrid, Spain, Dilney.Goncalves@ie.edu **Shijith Payadakk**, Ph.D Student, IE Business School, Calle de Maria de Molina 12, Madrid, Spain, shijith.pm@student.ie.edu

ABSTRACT: In this study, we design several online experiments to compare the efficacy of two commonly observed processes of idea selection: scoring vs. ranking. In scoring process, subjects are asked to evaluate the quality of each idea and give a score while in ranking process, subjects are asked to only rank the ideas according to their preferences. We find that the choice of idea selection process depends on some contextual factors.

### *Overvaluation Of Process Innovation Ideas*

PRESENTING AUTHOR: **Fabian Sting**, Erasmus University Rotterdam, Rotterdam School of Management, Rotterdam 300DR, Netherlands, fsting@rsm.nl  
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ABSTRACT: Ideas by employees are a vital source for innovation. But are such ideas overvalued by their creators? If so, which ideas in particular? Drawing on a unique data set that comprises the generation, election, and implementation of process improvement ideas of an automotive supplier, we identify antecedents of overvalued ideas. Overvaluation is greater for ideas generated by higher-level employees,



collaboratively versus individually, and by employees with previously lower ideation success.

## *Project Evaluation And Selection Via Risk-adjusted Net Present Value*

PRESENTING AUTHOR: **Nicholas G. Hall**, The Ohio State University, Fisher College of Business, Columbus OH, United States of America, hall.33@osu.edu  
Co-AUTHOR: **Zhixin Liu**, University of Michigan-Dearborn, 19000 Hubbard Drive, Dearborn MI, United States of America, zhixin@umich.edu **Wenhui Zhao**, Associate Professor, Antai College of Business and Economics, Shanghai Jiao Tong University, Shanghai, China, zhaowenhui@sjtu.edu.cn

ABSTRACT: We consider a project with risk that declines over time as its tasks are completed, as reflected in a declining discount rate. The objective is to maximize the NPV of the project. This problem is highly nonlinear, since the discount rate at any point in time is a function of previous scheduling decisions. We solve this model and show that risk-adjusted NPV varies significantly from traditional NPV, and that the use of the risk-adjusted measure significantly improves project selection decisions.

## *Resource Competitions For Research Projects*

PRESENTING AUTHOR: **Pascale Crama**, Singapore Management University, 50 Stamford Road, Singapore 178899, Singapore, pcrama@smu.edu.sg  
Co-AUTHOR: **Reddi Kotha**, Singapore Management University, 50 Stamford Rd, Singapore, Singapore, red-dikotha@smu.edu.sg **Anand Nandkumar**, Indian School of Business, Gachibowli, Hyderabad, India, anand\_nandkumar@isb.edu

ABSTRACT: Academic research is funded by governments, but is often seeded through grants from university administered research funds (UARF) and other charitable institutions. We compare the effectiveness of UARF and other sources of funds in obtaining subsequent federal funding and value creation. We build a parsimonious model that can explain the superior productivity of UARF funding and make recommendations on the ideal way to organize UARF funding.

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