# 2019 ANNUAL CONFERENCE PITTSBURGH

## CONTENT MAP

### AI & DIGITAL TRANSFORMATIONS

EVANS STRATEGIC COMMUNICATIONS
KEYNOTE Can you move at the speed of your customers

RTI INTERNATIONAL
Future of Intelligent Systems

MICHELIN
Michelin's Digital Transformation

Entegris
Implementation of Intelligent Systems

RTI INTERNATIONAL
Thinking Shift Physical to Digital

kalypso
Linking Digital to Strategy

Outside Insight
Transformational Applications of AI

ISB
KEYNOTE Big Data Transformations Healthcare

### CORPORATE ENTREPRENEURSHIP

CORPORATE STARTUP LAB
A Swartz Center Initiative
Carnegie Mellon University

PHILIPS
TERRI LONIER
THE CRAFT OF INNOVATION
BOSCH
Corporate Startups

Lean Startups in Large Organizations
*Research-Technology Management*

### CULTURE & PEOPLE

BOSTON COLLEGE
KEYNOTE The Technology Fallacy

KATZ
UNIVERSITY OF PITTSBURGH
Corporate Culture Change & Language

SONOCO
PRAXAIR
Kimberly-Clark
Henkel
Brilliant Failures

Westinghouse
Digital Transformation Community

### R & D AND DIGITAL

BASF
Digitization of R&D

FM Global
Evolution of R&D in Digital Worlds

luxresearch
Data Science & Innovation Decisions

PPG
We protect and beautify the world™
The Speed of R&D

### MANUFACTURING & MOBILITY

Carnegie Mellon University
KEYNOTE Robotics & Collaborative Manufacturing

JOHN DEERE
Deere's Autonomous Vehicles

FedEx
Digital Movement Physical Products

BOEING
Additive Manufacturing Aerospace

kalypso
Industrial IoT Oil & Gas

ISS
U.S. NATIONAL LABORATORY
CASIS Space Station

Uber
Future of People Moving

### COLLABORATIONS & PARTNERSHIPS

Metro21
Smart Cities Public-Private Partnerships

KATZ
UNIVERSITY OF PITTSBURGH
Collaborate to Innovate

Carnegie Mellon University
University of Pittsburgh
Pittsburgh Regional Alliance
InnovatePGH
Next Generation Economic Development

covestro
Hockey Safety Through Collaboration

SHERWIN WILLIAMS.
USG
NewEdge
Funding Long Term R&D

### CONTENT WEAVERS

phorix
echo BUSINESS

### NEW PRODUCT DEVELOPMENT

LEGO
Stage-Gate International
KEYNOTE Agile Meets Stage Gate

CORPORATE STARTUP LAB
A Swartz Center Initiative
echo BUSINESS
Tools for Transformational Innovation

BOSTON COLLEGE
Succeeding at Breakthrough Innovation

Carnegie Mellon University
Integrated Product-Service Development

kalypso
IoT & Integrated Product Development

# IRI 2019 Annual Conference Presentation Overview

By Peiyuan Huang, University of Pittsburgh

**Presentation Title:**
*Additive Manufacturing: Helping Build Aerospace's Future*
Presentation

**Authors:**
Nyle Miyamoto

**Abstract**
Additive Manufacturing (AM), also known as 3D printing, is fueling a worldwide manufacturing revolution. AM comprises new production technologies that are radically, rapidly and pervasively changing a wide range of manufacturing industries and at the same time boosting innovation, creativity, and economic growth. Boeing has been a leader in industry, when it comes to AM. The company has been involved in AM since 1997. This presentation will talk about the Additive Manufacturing technology in building commercial airplanes as well as the benefits of using this new technology.

**Learning Objectives**

**Trends, Takeaways & Insights**
Three technologies for cost reduction using 3D printing: powder bed fusion&metals; Ti wire; material exfusion (FFF) and SLS
To Build the ecosystem, one needs: multiple sources of technology, equipment and materials; the robust and agile supply chain & internal capability
Supply chain opportunity: structure, system, interiors, services, common commodities, propulsion

**Resources**
Nyle Miyamoto's LinkedIn: https://www.linkedin.com/in/nyle-t-miyamoto/

**Great Questions & Answers**
Q: What are the most important challenges to the additive manufacturing? A: The quality and consistency of the printers today. Currently, even two identical printers can have different outcomes. Also, the industry hasn't had a widely acknowledged standard and one need to develop its own standard in doing AM.

NOTE: To data Capture Team Member. Please spell check and proof one more time. Thanks.

**End of Summary**

# IRI 2019 Annual Conference Presentation Overview

By Austin Nadin, Echo Strategies

**Presentation Title:**
*Applying Industrial IoT and advanced analytics to oil and gas*
*Presentation*

**Authors:**
John Woods, Kalypso
Sagar Asalapuram, Kalypso

**Abstract**
A large oil and gas producer used digital transformation to integrate real-time data from thousands of sensors that were installed in a highly distributed oil patch. Multiple sites are linked through a common, integrated compressor system that is used to recover oil and gas from up to 30 wells. The challenge that was encountered was not installing sensors. The challenge was to integrate the system and drive organizational change to utilize all the data that the IoT sensors were providing. The solution began with developing a digital agenda that worked with the company's needs. Next you must figure out what specifically to implement and how to pilot each stage. Start with the simple implementations and improve from those before building to complex solutions. You should not forget that humans are going to be using these solutions. Therefore, working with the end users is critical. Once you have piloted programs you identify the most valuable pilots and scale them. In this scenario the oil company wanted to use the IoT to improve response times and improve onstream time of their wells. The researchers began by using the data to find what can detect downtime for a well. They improved the reliability and therefore the capacity of the compressor system. Using this data, they were able to figure out when a downtime incident would occur and dispatch a team to deal with the problem before or as it occurs. Further data analysis provides the company the ability to predict the steps leading up to a downtime and prevent those before they occur, remotely and automatically. The results improved the capacity of the compressor system for 65% on-stream time to 85% and increased the daily output of all wells yielding a simple return greater than the targeted 5:1 target.

**Learning Objectives**

**Trends, Takeaways & Insights**
Align the digital agenda with the strategic direction of the organization
Start simple using what you have and build from there
Design with the human in mind
Identify points of value and follow the money, Drive change through a simple perspective of what the technology will do

**Resources**
John Woods: https://www.linkedin.com/in/john-woods-7734ab9/
Sagar Asalapuram: https://www.linkedin.com/in/sagar-asalapuram-p-e-93220b51/
Kotter's 8 step change model

**Great Questions & Answers**
How long does it take the model to start working effectively? Depends on the application. 2 weeks of testing in the case study

What is the difference between general operational excellence and the improvement from the IoT? Acknowledge that improvements came from improvements in general operational excellence but most of the improvements came from the IoT.
How to answer false positives for predictive tools? Must ensure quality for predictive algorithms. Cost-benefit analysis of false positive.

**End of Summary**

# IRI 2019 Annual Conference Presentation Overview

By Lou Musante, Echo Strategies

**Presentation Title:**
*Brilliant Failures*
Presentation

**Authors:**
Laura Buen Abad – Sonoco
Preeti Chandra – Praxair
Candee Krautkramer – Kimberly-Clark
Stewart Mehlman – IRI Emeritus
Joel Schall – Henkel
Marcie Zaharee – MITRE Corporation

**Abstract**
This PILOT research on research (ROR) project has taken a deep dive into how companies define, manage (or not), stigmatize (or not), and learn from (or not) failure. They will share the resources they have identified for spotting failing projects and for making the decision on whether or not to terminate or redirect those projects. They will also reveal the maturity model for dealing with failure that they have developed as well as best practices they have identified for capturing and communicating the learnings from failed projects. To get these results, this team of IRI members has undertaken an extensive literature review, interviewed over a dozen thought leaders, and conducted case studies from four different organizations. In addition to this report out, look for their findings in an upcoming issue of Research Technology Management.

**Learning Objectives**
were accomplished through presentation and Q&A formats
Add from IRI content weaving site via Google drive link if presenter included them

**Trends, Takeaways & Insights**
From data capture if available

**Resources**
Laura Buen Abad: https://www.linkedin.com/in/laura-b-19847414/
Preeti Chandra: https://www.linkedin.com/in/preeti-chandra-8307685/
Candee Krautkramer: https://www.linkedin.com/in/candee-krautkramer-2805825/
Stewart Mehlman: https://www.linkedin.com/in/stewart-mehlman-1a34801/
Joel Schall: https://www.linkedin.com/in/joel-schall-4092a139/
Marcie Zaharee: https://www.linkedin.com/in/marcie-zaharee-phd-pmp-625b412/

**Great Questions & Answers**
From data capture if available

NOTE: To data Capture Team Member. Please spell check and proof one more time. Thanks.

**End of Summary**

# IRI 2019 Annual Conference Presentation Overview

By Sue Cohen, University of Pittsburgh

**Presentation Title:**
*Collaborate to innovate better? When partner diversity leads to breakthroughs*
*Presentation*

**Authors:**
Susan Cohen

**Abstract**
No company can maintain a leadership position in every knowledge domain that is potentially relevant to its businesses, making collaboration an essential innovation competency. Yet most partnerships fail to achieve their objectives. We identify when the partnership is most likely to produce valuable inventions and breakthrough products.

**Learning Objectives**

**Trends, Takeaways & Insights**
Innovation->execution, negotiation (IP, control issues of the legal team), a small-scale wicked problem, portfolio (balance and time), optimistic fields
Cognitive fixedness: risk averse, uncertainty, resource allocation
Partnership related to inertia, routinization of innovation, create surprises: approach in a way considering transactional, mutual benefit, collective interest leads repeat transactions
HBR: hard for established firms to innovate core, adjacent, transformational: short/long term

**Resources**
Susan Cohen: https://www.linkedin.com/in/sue-cohen-1b436b23/
Harvard Business Review: https://hbr.org/

**Great Questions & Answers**

**End of Summary**

# IRI 2019 Annual Conference Presentation Overview

By Hillary Marcott, University of Pittsburgh

**Presentation Title:**
*Creating a Project Course Where Sponsoring Companies & Students Both Win*

**Authors:**
Sean Ammirati, CSL Co-Founder and Director
Matt Crespi, CSL Co-Founder and Researcher
Matthew DeLorenzo, MSA, Safety io
Henry Yelin, Vista Consulting Group (Project Course Alumnus)

**Abstract**
Carnegie Mellon Corporate Startup Lab (CSL) pairs a team of interdisciplinary students at Carnegie Mellon University (CMU) with corporations with the aim of allowing for startup-like transformative innovation to happen within large corporations. The team at CSL believes in re-defining an entrepreneur as a person who "create(s) the world the way it ought to be." All projects taken on by CSL must, if successful, fulfill that criteria. Students in the program are assigned mentors from outside of the university with industry or other relevant experience. The program is creating wins for the companies by bringing in a diverse team of student who have a fresh perspective and are not limited by the biases the company may hold internally. This allows the team to work collaboratively on innovative solutions. Students are afforded the opportunity for real world experience on projects that may flourish even after their assignment ends. In some cases, students are offered full time positions with the corporations after graduation, both easing the hiring process for the company and job search process for the student. In addition to mentors and the staff at the CSL, there are toolkits developed by CSL that work particularly well for these types of projects within large organizations. These are publicly available at the CSL website, www.corporatestartuplab.com. Recent successful projects include the development of a safety platform for MSA, Safety io, now an MSA company that provides software solutions. Interested students and companies can inquire for more information on the website or reach out to Sean Ammirati directly.

**Learning Objectives**

**Trends, Takeaways & Insights**
Creating a startup within a large corporation is possible, however a distinct set of tools is needed to increase the odds of success.
Companies that come to the corporate startup lab are afraid of allowing their own biases to get in the way of innovating - so they bring in outsider through partnering with universities through their students.
Cross university teams from differing schools such as MIS, MBA, Robotics, Engineering, etc. allow a greater variety of skills to be leveraged to the benefit of each corporate partner.

**Resources**
Sean Ammirati: https://www.linkedin.com/in/seanammirati/
Matt Crespi: https://www.linkedin.com/in/mattcrespi/
Matthew DeLorenzo: https://www.linkedin.com/in/mattdelorenzo/
Henry Yelin: https://www.linkedin.com/in/henryyelin/
Website: https://www.corporatestartuplab.com/

**Great Questions & Answers**

Who are the mentors? Mentors from outside the university are engaged to work with the student teams. Each team member including the mentor brings distinct experience and skills to the project. Students are an untapped resource for business and at times better understand customer attitudes and needs

**End of Summary**

# IRI 2019 Annual Conference Presentation Overview

By Ben Hilldorfer, Echo Strategies

**Presentation Title:**
*Digital Transformation Community*

**Authors:**
Ken Canavan (CTO Westinghouse)

**Abstract**
Ken Canavan led a discussion of digital transformation in terms of presentation to the C-Suite. His key insights were to start with a small, targeted, high-impact campaign to demonstrate efficacy, then scale appropriately.

**Learning Objectives**

**Trends, Takeaways & Insights**
Digital transformation is not turning things into PDF.
Look at areas that provide the most value and try to make that digital.
Pick one thing, show its efficacy in digitalization, and convince the board that it's worthwhile.

**Resources**
Ken Canavan: https://www.linkedin.com/in/ken-canavan-90901536/

**Great Questions & Answers**
How long until the digital transformation occurs? The future already exists, it's just unequally distributed.

**End of Summary**

# IRI 2019 Annual Conference Presentation Overview

Jung Yoon Jang, University of Pittsburgh

**Presentation Title:**
*Digitally Integrated Product Development – IoT Enabled Generative Design, Automated PLM & Additive Manufacturing*

**Authors:**
John Woods (Partner, European Digital Practice Lead, Kalypso)

**Abstract**
Through advanced digital technologies, engineers have the opportunity to co-create forms with AI-enabled algorithms and platforms to generate countless design options and zero in on optimal solutions. This Express Learning session will demonstrate the automated update and additive manufacture of a real automotive component from BMW.

**Learning Objectives**
Understand the practicalities of establishing a truly integrated and automated IoT based product development process
Understand the role of software integration for achieving breakthrough capability in automated product design
Understand how generative design can be seamlessly integrated into the product development lifecycle to optimize engineering cycle time
Understand the key technical requirements required for autonomous design, product change management and manufacture

**Trends, Takeaways & Insights**

**Resources**
John Woods' LinkedIn: https://www.linkedin.com/in/john-woods-7734ab9/
Website: https://kalypso.com/

**Great Questions & Answers**

NOTE: To data Capture Team Member. Please spell check and proof one more time. Thanks.

**End of Summary**

## IRI 2019 Annual Conference Presentation Overview

**Presentation Title:**
*Entegris' Journey to Implement Intelligent Systems*
*Presentation*

**Authors:**
Steven Moskowitz (Entegris)

**Abstract**
Steve Moskowitz of Entegris shares the learnings from the first six months of his company's work toward implementing intelligent systems using the model developed through his work with the IRI/RTI SPRING Pioneer program. Learn how they are integrating AR, data analytics, and automation using the SPRING intelligent systems model.

**Learning Objectives**

**Trends, Takeaways & Insights**

**Resources**
Steven Moskowitz's LinkedIn: https://www.linkedin.com/in/stevemosk/
Website: https://www.entegris.com/

**Great Questions & Answers**

NOTE: To data Capture Team Member. Please spell check and proof one more time. Thanks.

**End of Summary**

# IRI 2019 Annual Conference Presentation Overview

By Jeff Baker, University of Pittsburgh

**Presentation Title:**
*Envision the Future of Future Intelligent Systems*
*Presentation*

**Authors:**
Tom Culver, Innovation Advisors, RTI International
Jim Redden, Innovation Advisors, RTI International

**Abstract**
Making the case for "foresighting" is a strategic imperative for your organization. It will help build confidence and conviction among senior leaders and emphasize that the pace of technological change requires new ways of exploring the future. Foresighting and IRI allow leaders to share insights on example technologies and trends shaping the future. Foresighting interactively explores how your decision makers can use specific scenarios to formulate better strategies and roadmaps for your organization.

**Learning Objectives**

**Trends, Takeaways & Insights**
The change of pace is increasing, and we can't know what the future will hold. However, by using foresighting, we can develop strategic plans to cope with the future.

**Resources**
Tom Culver: https://www.linkedin.com/in/tom-culver-b1a08415/
Jim Redden: https://www.linkedin.com/in/jimredden/

**Great Questions & Answers**
We had two questions. The first was that the process of envisioning multiple futures and developing strategic plans from them would take more than a day, correct? The answer was yes. The other question was, What is the website? The answer was to email jredden@rti.org.

**End of Summary**

# IRI 2019 Annual Conference Presentation Overview

By Hillary Marcott, University of Pittsburgh

**Presentation Title:**
*Formulating and securing funding for a long-term R&D strategy*
*Presentation*

**Authors:**
Kent Young – Senior Director of Technology, Sherwin Williams
Terry Rosenstiel – Director, Partnerships & Innovation Pipeline, USG Corporation

**Abstract**
Formulating and securing funding for long-term strategy in R&D is one of the more difficult challenges facing a leader. Gaining insights into where to invest and then justifying those investments is challenging given that the market insights needed are often not available. The speakers discussed learnings from a study of how other organizations are formulating their strategies and the relationship with funding those strategies, showing that many organizations are struggling. There is an opportunity for a better planning and funding process – the study presented shows that only 13% surveyed were happy with the planning process whereas 23% where satisfied with the funding process. Using the "Maturity Model for Long-term R&D Strategy organizations were given the opportunity to rate themselves and found according to whether they met specific criteria how they ranked. The model allows business to use the specific criteria they are not currently meeting to be a source of improvement to be implemented into their strategies. This would not only allow the company to move up in the rankings but improve both their long-term planning and funding processes, increasing satisfaction. Areas such as Point of View, Funding % of Revenue and Sources, and Engagement and Communications were among categories. Key finding included greater success when a wider variety of funding sources were used and when communication about strategy touched all areas of the organization.

**Learning Objectives**

**Trends, Takeaways & Insights**
There is an opportunity for a better planning and funding process – research shows that only 13% surveyed were happy with the planning process whereas 23% where satisfied with the funding process.
R&D has no seat at the table i.e. representation in leadership meaning they must resell ideas as business leaders change.
Try focusing on broader goals – not just topline growth
Share R&D strategy across the organization – this helps avoid "throwing it over the wall"

**Resources**
Kent Young: https://www.linkedin.com/in/kent-young-80848/
Terry Rosenstiel: https://www.linkedin.com/in/terry-rosenstiel-71418a8/
New Edge – Opportunity ThinkingTM - new-edge.com (Pam Henderson)

**Great Questions & Answers**
Quarter-to-Quarter focus makes it very difficult to plan long-term, especially if you are a publicly traded company How do we provide metrics for longer term projects that leadership finds acceptable? Option Value Model – Corporate Startup Lab may be able to offer guidance on this.

**End of Summary**

# IRI 2019 Annual Conference Presentation Overview

By Data Capture Team Member Name, Organization Name

**Presentation Title:**
*From Biologically Inspired Robots to Collaborative Manufacturing Systems*

**Authors:**
Dr. Howie Choset (CMU)

**Abstract**
Industrial robots have been widely used for decades in the industrial setting. In the past 30 years, robots have found uses outside the factory, in the field and on the roads. These robots were essentially adaptations of factory robots, but for the outside. To enable these robots with better performance, researchers turned to biology for inspiration to make systems work in remote locations. But, still we programmed these biologically inspired robots as if they were factory systems. Therefore, this talk discusses the critical challenges in uncovering the important principles in biological systems for robots to negotiate rough terrains. In doing so, we have returned the favor to biology by providing analysis that models biology. This talk will also cover how these technologies were used to address strategically significant problems in diverse areas such as surgery, infrastructure inspection, and search and rescue. Most recently, these ideas have been translated into manufacturing applications including part and parcel delivery, painting, and assembly in confined spaces. As such, my students and I have founded three companies: Medrobotics, Hebi Robotics, and Bito Robotics. The goals of this company is democratize the use of robots both in the medical and manufacturing domains. The ideas of democratization, versatility, flexibility, and collaboration led to the technical vision of the Advanced Robotics for Manufacturing Institute, which will be described at the conclusion of the talk.

**Learning Objectives**

**Trends, Takeaways & Insights**
From data capture if available

**Resources**
Howie Choset's LinkedIn: https://www.linkedin.com/in/howie-choset-45b0b21/

**Great Questions & Answers**
From data capture if available

NOTE: To data Capture Team Member. Please spell check and proof one more time. Thanks.

**End of Summary**

## IRI 2019 Annual Conference Presentation Overview

**Presentation Title:**
*How Technology, Big Data, and Systems Approaches are Transforming 21st Century Healthcare*

**Authors:**
Dr. Leroy Hood (Institute for Systems Biology)

**Abstract**
Health and wellness can now be scientifically quantified, allowing us to view human biology through a very different lens in the 21st century than we did in previous ones. This keynote session will discuss the new insights into the practical application of this new paradigm and what it means for the future of wellness.

**Learning Objectives**

**Trends, Takeaways & Insights**

**Resources**
Leroy Hood's Bio: https://systemsbiology.org/bio/leroy-hood/
Website: https://systemsbiology.org/

**Great Questions & Answers**

NOTE: To data Capture Team Member. Please spell check and proof one more time. Thanks.

**End of Summary**

# IRI 2019 Annual Conference Presentation Overview

By Lou Musante, Echo Strategies

**Presentation Title:**
*IdeaStorm Interactive Card Game: Linking Digital Ideas to Strategic Value*
Presentation Link:

**Authors:**
Amy Kenly, VP of Marketing and Digital Innovation, Kalypso
Michael Glessner, Director, Kalypso

**Abstract**
Game theory has been used for centuries by government and military leaders to develop strategy on the world stage when time is limited and stakes are high. For those that work at the front lines of innovation and digital strategy, IdeaStorm is an efficient, practical and collaborative way in which ideas and theories can be tested and refined. Participants rapidly brainstorm and pitch ideas that apply digital enablers to achieve strategic imperatives and conquer key organizational challenges. This session is a departure from the typical PPT-based presentations at conferences. Attendees will break into tables of 6-8 to play IdeaStorm, a hands-on card game designed to help players apply digital enablers to achieve strategic imperatives.

**Learning Objectives**

- Tactics to move beyond Proof of Concept Purgatory and commit to a digital transformation that is both real and possible.
- Hands-on experience rapidly ideating and crash-testing new applications of digital enablers to address strategic business objectives.
- Basic strategies to understand, predict and plan the best course of action for your digital journey.

**Trends, Takeaways & Insights**
From data capture if available

**Resources**
Amy Kenly's LinkedIn: https://www.linkedin.com/in/amykenly/
Michael Glessner's LinkedIn: https://www.linkedin.com/in/mrglessner/
Kalypso's website: https://kalypso.com/

**Great Questions & Answers**
From data capture if available

NOTE: To data Capture Team Member. Please spell check and proof one more time. Thanks.

**End of Summary**

# IRI 2019 Annual Conference Presentation Overview

By Data Capture Team Member Name, Organization Name

**Presentation Title:**

*Industry + Universities + Cities: Next Generation Economic Development in Action*

**Authors:**

Sean Luther - Executive Director, InnovatePGH
Cecelia Cagni - Senior Vice President, Communications at Allegheny Conference on Community Development
Cynthia Sweet - Associate Vice Chancellor - Economic Partnerships at University of Pittsburgh
Mark Nolan - Associate Vice President for Institutional Partnerships, Carnegie Mellon University

**Abstract**

The relationship between industry and cities has changed dramatically over the past decade. Corporate innovators increasingly locating major business units in Downtowns and de-centralized R&D operations to innovation districts with direct proximity to the nation's top research institutions and universities. Pittsburgh and InnovatePGH are an example of the new economic development paradigm and trends in corporate research and development. Companies such as Apple and Google had their first offices in Pittsburgh at Carnegie Mellon University (CMU). As they grew, they moved off CMU's campus but did not move far from the talent which graduates from the universities each year. This model is becoming more common and relationship between business and academic institutions are becoming stronger. We are seeing more instances of business and university working more closely together and in a variety of ways. For instance, jointly pursuing public contracts and leveraging university resources to de-risk venture opportunities bringing in more venture capital investments. As we approach the generational cliff that sees large numbers of baby boomers leaving the workforce, recruiting young talent will become even more important for many industries and businesses. Additionally, as cities seek to entice large corporations to move in offices, availability of talent is a top criterion.

**Learning Objectives**

**Trends, Takeaways & Insights**

Decentralized R&D model is becoming more popular, particularly when business co-locate R&D near universities. This paves the way for strong partnerships for faculty projects and a pipeline for future hires (students).
Companies are offering more open innovation challenges which work well when collocated with universities and provide for more engagement with a wide variety of faculty and students.
Companies that are had more suburban campuses are beginning to move into cities to better attract talent (in Pittsburgh, examples of this trend include Bombardier and Philips).

**Resources**

Sean Luther: https://www.linkedin.com/in/seancluther/
Cecelia Cagni: https://www.linkedin.com/in/cecelia-cagni-4414761/
Cynthia Sweet: https://www.linkedin.com/in/cynthia-sweet-6b38a71/
Mark Nolan: https://www.linkedin.com/in/jmarknolan/
Pittsburgh Innovation District
Allegheny Conference on Community Development

**Great Questions & Answers**

Business formation support in the city of Pittsburgh developed organically out of need as there were more startups spinning out of universities more accelerators developed and more share working spaces popped up. This makes it easier for the next generation of entrepreneurs.

University of Auckland – We are actually giving away IP in some cases instead of licensing it to form stronger partnerships with industry. These partnerships are more beneficial for the university and its students.

**End of Summary**

# IRI 2019 Annual Conference Presentation Overview

By Lou Musante, Echo Strategies

**Presentation Title:**
*Lean Startup in Large Organizations*
Presentation

**Authors:**
James Euchner, Editor in Chief of *Research Technology Management*

**Abstract**
The presentation discussed how to make new business happen in established corporations. The talk reviewed the principles of lean startup; identify the reasons that lean startup methods are difficult to implement in large companies; and review seven practices that can be used in combination with lean startup methods to drive success. The talk included examples of each of the practices and a high-level review of the tools to address them.

**Learning Objectives** were accomplished through presentation and Q&A formats
The principles of the lean startup movement work but attempts to transfer them into large organizations have had limited success. This talk discussed the seven practices that are necessary – in addition to lean startup methods – in order for them to have traction in large organizations.

The learning objectives were 1. Understand the power of lean startup methods for new business innovation 2. Review the seven key principles of the lean startup methodology 3. Understand the impediments to the use of lean startup methods in large organizations 4. Understand the core practices that must accompany lean startup methods to make them effective in practice

**Trends, Takeaways & Insights**
Resistance to lean startup in large organizations is driven by three major perceptions 1) threats to the core business 2) conflicts with the performance engine and 3) risk to careers.

Initially, in large organizations focus lean startups in aligned opportunity spaces.

Big companies have an advantage with lean startups as they already have customers, brands, channels, legal resources, etc.

Consider an innovate stage gate model: Focus > Discover > Experiment > Incubate > Grow

Explore the concept of innovation accounting.

**Resources**
http://tinyurl.com/google-scholar-Jim-Euchner
http://www.iriweb.org/rtm

**Great Questions & Answers**
Limited time was available for questions and answers.

**End of Summary**

# IRI 2019 Annual Conference Presentation Overview

By Lou Musante, Echo Strategies

**Presentation Title:**
*Panel: Switching from Physical to Digital*

**Authors:**
Sean Ammirati, Panel Moderator, Carnegie Mellon University, Corporate Startup Lab
Tim Murphy, Business Leader, Philips, New Business Solutions
Dennis Boecker, Global IT Innovation Lead, Bosch
Terri Lonier, The Craft of Innovation

**Abstract**
This panel featured two, major global corporations, Philips and Bosch, that have shifted from physical products and built several digital products into their business models, as well as their tech startup partners. The session explored their digital transformation journey and partnerships.

**Learning Objectives** were accomplished through presentation and Q&A formats

**Trends, Takeaways & Insights**
One challenge in moving from physical to digital within large manufacturing organizations is the constant competition between funding for software innovation and funding for product innovation. The need to educate executives is paramount.

Students (new hires) and executives are always used to being right.

Most companies hold ideas to long. Pivoting helps move the learning process along.

Corporate co-creation spaces catalyze connections between suppliers and partners to build communities focused on innovation.

Philips Care Orchestrator platform provides human capital services to help combat the war for healthcare talent that helps drive patient adherence and compliance to therapy.

The Bosch Connectory network increases the speed of new product development and how fast Bosch learns. Corporate projects can be showcased to the communities within the Connectory for open and candid, unfiltered feedback.

Co-creation and first-in for API's into key customer's systems is a critical success factor for interoperability and driving share of wallet.

**Resources**
https://www.corporatestartuplab.com/
https://chicagoconnectory.com/
https://www.usa.philips.com/healthcare/product/HC1126366/care-orchestrator

**End of Summary**

# IRI 2019 Annual Conference Presentation Overview

By Ben Hilldorfer, Echo Strategies

**Presentation Title:**
*Michelin Digital Evolution*
*Presentation*

**Authors:**
Eric Chaniot, Sr VP & Chief Digital Officer, Michelin

**Abstract**
Five years ago, Michelin's Global CEO understood that if Michelin would like to fulfill its purpose (A better way forward in a sustainable way) and continue to be a leader in global mobility, then Michelin would need to embark into a global Digital Transformation. Eric Chanoit, the Chief Digital Officer of Michelin, is driving this massive transformation. The session explains Michelin's evolution and lessons learned in 5 key areas: Digital customers, Digital employees, Digital process, Connected, Data/Analytics/AI.

**Learning Objectives**

**Trends, Takeaways & Insights**
Michelin is in mobility business, not tires. They realized that they could not rely forever on a business model producing a physical product but needed to transform for the future.
Micheline realized that if they wanted to be the leader in the mobility industry, they needed to be a leader in the digital industry.
To be successful in digital transformation requires these 5 factors: (1) Vision and Execution (they spend 5% of the time on vision and 95% on execution); (2) Executive support; (3) Set up of organization (Chief digital officer needs to report to CEO); (4) Focus on talent acquisition (Michelin hires people with digital experience, not people who will learn on the job); (5) Governance model -a lignment with business lines with simple KPIs

**Resources**
Eric Chaniot: https://www.linkedin.com/in/ericchaniot/
Website: https://www.michelinman.com/

**Great Questions & Answers**
Q1: How do you get middle management onboard? A1: First got executive team engaged and then work with the "regions." Provided specific training to each "population" in the organization. Realize a third of the workforce will resist and try to spend your time on them.
Q2. How to do deal with quick obsolescence in technology? A2. Michelin digital transformation uses 70% outside resources and 30% inside. They leverage expertise and competence in tech firms. Also be guardians of simplicity. Don't spend lots of time and resources on "special" cases.
Q3. How to share the language of digital transformation? A3. Digital officers mentor other managers and use online training.

**End of Summary**

# IRI 2019 Annual Conference Presentation Overview

By Austin Nadin, Echo Strategies

**Presentation Title:**
*Physical Meets Digital, Automation and Data Journey in Agriculture*
*Presentation*

**Authors:**
Alex Foessel, Architect, Automation to Autonomy, John Deere

**Abstract**
Agriculture has shifted a lot in the last hundred years. It has shifted from manual plows moved by humans or animals to large machines that can do 10 times the work in a fraction of the time. The new shift in agriculture is towards digital. The approach that is currently underway is threefold: IoT sensors on machines to improve farming, AI and autonomous vehicles to reduce the workload of the farmer, and a digital ecosystem of ideas and data. IoT sensors are built in to new agriculture equipment that allows farmers to better track their productivity and find ways to improve it. The strategy that John Deere has learned to approach IoT with was described as 'digital first, not iron first.' The idea behind this was to first look at the processes that farmers and others in the agriculture business go through. Learn how to improve those processes through digital solutions, rather than just put sensors on equipment and hope that the data is useful. John Deere is currently working to bring the combination of AI and autonomous vehicles to the agriculture business. They have a vision of fully autonomous vehicles that can work without any humans, but they are not there yet. They did show a few solutions that are currently being deployed, both involved in protecting farmer's crops from weeds. The first solution used sensors that could, using AI, detect weeds in the path of equipment and move to remove them as the equipment passes by. The other solution uses AI to detect weeds and dispense a small amount of weed killer to get rid of the weeds while using much less weed killer which is good for the environment. With all the data that John Deere has collected they have a problem analyzing it all. What they see as the next battlefield of agriculture and technology is the analysis of this data. John Deere has created a digital ecosystem of ideas and data. When a farmer uses John Deere equipment that uses IoT sensors the data is uploaded to John Deere's ecosystem. The data can then be accessed, with the farmer's permission (it is the farmer's data), by other companies with access to this ecosystem. The data can then be analyzed to provide insights and improve best practices by farmers using John Deere equipment going forward.

**Learning Objectives**

**Trends, Takeaways & Insights**
John Deere is trying to capitalize on autonomous vehicles, improved processing power, IoT and AI
Develop a digital ecosystem for all partners to work together to improve decision making. The partners benefit and John Deere benefit in a symbiotic relationship.
Digital first not iron first. Start with a view of the operations not a view of the machines.

**Resources**
Alex Foessel: https://www.linkedin.com/in/afoessel/
Website: https://www.deere.com/en/index.html

**Great Questions & Answers**

How do you balance the fear of change vs the need for change? You have to illustrate the risk and how to manage the risk. They are B to B to C to they need to work with the middle man. Use data to help manage risk better.
How did you get to the digital rather than physical? Started with executives wanting to focus on the future, and have snowballed into customer acceptance
Who owns the data? The farmer, the farmer authorizes John Deere to use the data for improvements
How do you balance your R&D between physical and digital? It isn't balanced, the digital R&D is the focus now because it is so much more scalable.
How do you make sure that your solutions are included all around the world? Need to improve the production capabilities to reach Africa and Asia. Offer digital solutions that everyone can use even at the smallest levels.

**End of Summary**

# IRI 2019 Annual Conference Presentation Overview

By Hillary Marcott, University of Pittsburgh

**Presentation Title:**
*Public-Private Partnerships are the Potluck Dinners of Smart City Development*
*Presentation*

**Authors:**
Karen Lightman, Metro 21, Smart Cities Institute, Carnegie Mellon University
Katharine Kelleman, Chief Executive Officer at Port Authority of Allegheny County
Jim Morozzi, President & CEO at DQE Communications, LLC.
Kristen Kurland, Teaching Professor of Architecture, Information Systems and Public Policy and Management
Mark DeSantis, CEO RoadBotics

**Abstract**
Introducing new technologies that aid the day-to-day operation and maintenance of cities can be made easier through public-private partnerships. Smart Cities make tasks and services that government entities are responsible for digital or in some way enhanced through technology. Examples of these tasks include road maintenance, garbage collection and disposal, monitoring parking spaces and much more. The role of private companies in this move towards cities leveraging new technology many times is to development and make available these new technologies to be utilized in the operation and upkeep of our cities. Many times, public entities do not have the means or expertise to develop or assess the potential impact of implementing new technologies. To overcome the assessment hurdle a third neutral partner can be brought to the table to help. University can greater assist in the process by being an impartial source of knowledge and resources that assess projects. University can develop fellowships where that leverage the untapped power of student work, create projects where faculty members get involved, or a hybrid approach where faculty and students work collaboratively with private companies and governments. Public, private and university entities each bring a differing competency to the table allowing for better outcomes. An example of a public-private partnership is RoadBotics, a company that makes technology for road assessment. The technology changes the road assessment process making it both more cost effective, more objective, and dramatically faster. Data from the assessment is made digitally available. More information at www.roadbotics.com. The technology is currently being used in over 100 communities internationally.

**Learning Objectives**

**Trends, Takeaways & Insights**
Second tier cities (Savannah, GA; South Bend, IN; etc.) are great candidate for innovation. Larger cities will look at programs that have had success in these smaller cities. Trend towards more private companies doing public work.

**Resources**
Karen Lightman: https://www.linkedin.com/in/karenlightman/
Katharine Kelleman: https://www.linkedin.com/in/katharine-eagan-kelleman-aicp-a1685223/

Jim Morozzi: https://www.linkedin.com/in/jamesmorozzi/
Kristen Kurland: https://www.linkedin.com/in/kristen-kurland-0531b91/

Mark DeSantis: https://www.linkedin.com/in/mark-desantis-21480/
Smart Cities Institute, Carnegie Mellon University

**Great Questions & Answers**

Auckland, New Zealand - government business models are holding us back. Advice from Kristen: to conquer the hurdle of governments not having the means to assess new technology projects forge relationships with academia to assess through fellowships or otherwise. Jim: universities can act as an impartial third party in public/private partnerships.

**End of Summary**

# IRI 2019 Annual Conference Presentation Overview

By Jimmy Dongwook Kim, University of Pittsburgh

**Presentation Title:**
*Rethink the Rink: A Collaboration to Improve Hockey Safety*
*Presentation Link*

**Authors:**
Sandra DeVincent Wolf (Carnegie Mellon University)
Bob Walker (Head, Covestro LLC)
Mark Bondi (Application Development Engineer, Covestro LLC)

**Abstract**
In collaboration with the Pittsburgh Penguins and Carnegie Mellon University, Covestro engineers were tasked to "Rethink the Rink." The goal of this collaboration is to improve the safety of hockey by innovating the structure that defines the boundary of hockey (dasher boards) without changing the dynamics of the game.

**Learning Objectives**
Showcase a framework for a partnership between industry (Covestro), academia (CMU), and a "customer" (Penguins).
Demonstrate how to leverage the strength of an academic partner (CMU) and student resources through the 'Make-a-Thon' process (an organic starting point).
Illustrate the strength of innovative materials and technology (Covestro) to push new ideas in problem solving.

**Trends, Takeaways & Insights**

**Resources**
Sandra DeVincent Wolf's LinkedIn: https://www.linkedin.com/in/sandradevincentwolf/
Bob Walker's LinkedIn: https://www.linkedin.com/in/bob-walker-4568825/
Mark Bondi's LinkedIn: https://www.linkedin.com/in/mark-bondi-86b2bb81/
Website: https://www.covestro.com/en

**Great Questions & Answers**

NOTE: To data Capture Team Member. Please spell check and proof one more time. Thanks.

**End of Summary**

# IRI 2019 Annual Conference Presentation Overview

By Hillary Marcott, University of Pittsburgh

**Presentation Title:**
*Self-Driving Cars and the future of People Moving (Uber ATG)*
*Presentation*

**Authors:**
Patrick Mondi

**Abstract**

**Learning Objectives**

**Trends, Takeaways & Insights**
Why? Autonomous Vehicles can provide a Safe Driving Future (94% of accidents are caused by humans) - safety (distracted driving), reduce congestion, reduce emissions, improve user of urban areas to improve livability
There were many questions from the audience about how autonomous vehicles handle a variety of difficult situations (e.g. poor visibility with snow/fog/rain, knowing if the car has the correct rider)

**Resources**
Patrick Mondi: https://www.linkedin.com/in/patrickmondi/
PDF: https://www.uber.com/elevate.pdf/

**Great Questions & Answers**

**End of Summary**

# IRI 2019 Annual Conference Presentation Overview

By Mark Lightowler, Phorix Group

**Presentation Title:**
*Shifting your thinking from Physical to Digital ideas*

**Authors:**
Jeffrey Phillips (Director, Strategy and Innovation, RTI International – Innovation Advisors)

**Abstract**
As big data, the Internet of Things, blockchain, and increased integration create a digital transformation in many businesses, this transition will impact the strategy, development and launch of ideas, and even the nature of innovation. Learn how to innovate in parallel and in reaction to the emerging digital transformation.

**Learning Objectives**
As Digital Transformation takes place, what will it mean to shift innovation strategy, thinking, research and idea development from mostly physical products to a mixture of digital solutions, business models and intangible outcomes?
Participants will learn techniques to identify digital innovation opportunities.
Participants will gain deeper knowledge about digital transformation and the interaction of digital solutions and innovation methods and outcomes.
Participants also learn to implement new tools to identify digital opportunities and how to rethink their innovation processes.

**Trends, Takeaways & Insights**

**Resources**
Jeffrey Phillips' LinkedIn: https://www.linkedin.com/in/jeffrey-phillips-947157/
Website: https://www.rti.org/

**Great Questions & Answers**

NOTE: To data Capture Team Member. Please spell check and proof one more time. Thanks.

**End of Summary**

# IRI 2019 Annual Conference Presentation Overview

By Data Capture Team Member Name, Organization Name

**Presentation Title:**
*Succeeding at Breakthrough Innovation*
*Presentation*

**Authors:**
Gina O'Connor

**Abstract**
Together, the IRI and a group of faculty from Rensselaer Polytechnic Institute's business school and Babson college have examined how large mature companies manage for Breakthrough Innovation. The study has taken place in three main phases over twenty+ years. In this session Professor Gina O'Connor will provide the highlights of what we've learned through that research, showcase several exemplar companies, describe how the results are being used in companies today, and, if there is time, offer short exercise for participants to assess the extent to which they have the necessary capabilities in place. She'll then describe activities at IRI and Babson College designed to help companies implement these findings, and will invite discussion and comment about plans for extending this research.

**Learning Objectives**

**Trends, Takeaways & Insights**
Outlined a framework for defining and assessing people and organizational innovation competencies (vs. processes)
Separated innovation into three typical phases - Discovery, Incubation, Acceleration
Showed data on where firms are in the framework
Outlined a 9-box organization model for innovation roles by "Discovery", "Incubation" and "Acceleration" as columns, then three levels of focus (Portfolio, Domain, Opportunity).
Challenges were also separated into (1) definition, (2) development (3) selection (4) institutionalization

**Resources**
Gina O'Connor: https://www.linkedin.com/in/gina-o-connor-047b862/
Multiple Babson and MIT Sloan Books and Research cited in the presentation. This book is the latest in a three-part series over 1995 until now with IRI:
https://www.sup.org/books/title/?id=26674

**Great Questions & Answers**

**End of Summary**

# IRI 2019 Annual Conference Presentation Overview

By John Schnaterly, Echo Strategies

**Presentation Title:**
*The Digital Movement of Physical Products*
*Presentation*

**Authors:**
Ted Dengel, Managing Director, Operations Technology and Innovation

**Abstract**

**Learning Objectives**

**Trends, Takeaways & Insights**
E-commerce is driving many changes in the shipping and logistics industry. The volume is good for FedEx business, but it has increased logistics challenges and distances of delivery.
Automation inside the facility provides efficient, high throughput processing. E-commerce is driving increased volume of both smallest and largest packages.
Automated vehicle technology is evolving at a rapid pace. FedEx ground sees the progress along these lines: In-building autonomous vehicles; in-yard autonomous vehicles; on highway platooning; on highway point to point; on and off highway; in city/neighborhood.
Last mile delivery challenges for automation: variability, security, efficiency, weather.

**Resources**
Ted Dengel: https://www.linkedin.com/in/ted-dengel-87580725/

**Great Questions & Answers**
Q1: When will we see drones delivering packages? A1: Not in our lifetimes. Too many challenges exist at this time.
Q2: Is there a place for drones and sensors for security? A2: Yes, all kinds of sensors are used, and AI and IoT they are helping to provide predictive analytics.
Q3: Are there people who want to monetize the FedEx delivery info? A3: Yes, but they have resisted using customer data. Even resisted outside companies that wanted to use it in collaboration.
Q4: What about sustainability applications in digital transformation? A4: All the many efficiency efforts they they are doing are good for business and good for the environment. The more efficient they are the less fuel they use and less trucks used on the road.
Q5: Is there any dysfunction with 3 separate operating companies? A5: There is some friction from time to time. They emphasize communication and it is top-down driven to cooperate. They all realize that people and processes are more important than technology.

**End of Summary**

# IRI 2019 Annual Conference Presentation Overview

By Jung Yoon Jang, University of Pittsburgh

**Presentation Title:**
*The evolution of R&D in the Digital World*

**Authors:**
James Golinveaux
Hahna Alexander
Xinming Huang

**Abstract**
Historically, Research and Development (R&D) organizations have been primary value-creators for innovative new products and services. As products, processes, and business practices and functions (including market research, marketing, and sales) become increasingly digital and connected, R&D and innovation management needs to broaden and evolve to keep pace. In this session, the evolution of R&D in the digital world will be explored with a panel of experts that will discuss how this transition changes their management of talent, portfolios, and partners. Attendees from all business functions and types of organizations should expect to gain unique insights they can put to practice in order to succeed in an increasingly digital world.

**Learning Objectives**

**Trends, Takeaways & Insights**
Fire protection: developing app using augmented reality and virtual reality: identifying and troubleshooting key system components, creating a customized service
IoT product: location, motion, battery life, and form factors in shoes for workers who work at dangerous places: e.g., industrial workers: self-sustaining power, sensor platform to have robust data, by using DB many users can have access in various places: 2 contracts with US army, start-up company constraints, manufacturing in science
Microchip designer previously in the R&D department, three keywords: data, autonomy, and AI: 3G, 4G, and 5G: data-> info-> knowledge-> wisdom: data science: 1 computer science 2 stat (1,2 for data science) 3 domain knowledge (business): Autonomy with robotics, automated Amazon ware houses (trucks move fast): AI, inside of AI there are machine learning and deep learning inside of machine learning: NLP (Alexa): has to know the meaning in the context: application in data mining

**Resources**
James Golinveaux: https://www.linkedin.com/in/james-golinveaux-678a2910/
Hahna Alexander: https://www.linkedin.com/in/hahna-alexander-b5756b50/

**Great Questions & Answers**
Q: better R&D? A (James) it is critical to know how important end users are. A (Hahna): end user's importance, commercialization: interactions with customers is critical A (Xinming): open source, interactions with academia and industry Other questions and answers are listed in the next part.

**End of Summary**

## IRI 2019 Annual Conference Presentation Overview

**Presentation Title:**
*The International Space Station and Technology Innovation When Your Life Depends Upon It*
*Presentation Link*

**Authors:**
Dr. Kenneth A. Savin (Director Scientific Partnering, International Space Station US National Lab)

**Abstract**
One of the most complex and expensive objects ever made is a Lab that fewer than 300 people have ever seen. The US National Laboratory on the International Space Station is just that, a Laboratory. It provides us access to a unique platform to observe the earth, expose materials to and gather samples from space and a place to explore the properties of materials in a micro-gravity environment. In addition to science performed on station, we will focus on the Life Support systems that are incorporated into the Space Station Lab. The hope is that individuals will come away with a new appreciation for the on-station environment and consider developing their own technology and research to be run on the International Space Station.

**Learning Objectives**

**Trends, Takeaways & Insights**

**Resources**
Kenneth Savin's LinkedIn: https://www.linkedin.com/in/kensavin/
Website: https://www.issnationallab.org/

**Great Questions & Answers**

NOTE: To data Capture Team Member. Please spell check and proof one more time. Thanks.

**End of Summary**

# IRI 2019 Annual Conference Presentation Overview

By Hillary Marcott, University of Pittsburgh

**Presentation Title:**
*The Technology Fallacy*
*Presentation*

**Authors:**
Gerald Kane

**Abstract**

**Learning Objectives**

**Trends, Takeaways & Insights**
87% know that their companies are being disrupted, Only 44% are doing something about it.
Transformation is more about will than skill
From research where these is success, the first challenge to solve is Culture.

**Resources**
Gerald Kate: https://www.linkedin.com/in/geraldckane/
Book: The Technology Fallacy
Carol Dweck - Fixed Mindset vs. Growth Mindset

**Great Questions & Answers**

**End of Summary**

# IRI 2019 Annual Conference Presentation Overview

By Jimmy Dongwook Kim, University of Pittsburgh

**Presentation Title:**
*Transformative application of AI*
*Presentation*

**Authors:**
Andrea Kates
Jim Euchner

**Abstract**
A.I. can be used to dramatically improve the efficiency and impact of decision processes. The latest generation of AI tools can also be used to transform key aspects of a business model, creating durable competitive advantage. This session will focus on the steps toward a transformative model for A.I. as well as participant exercises.

**Learning Objectives**

**Trends, Takeaways & Insights**
Why AI is a strategic technology: change industry boundaries, big data: potential of AI: Mobility (autonomous vehicles), medicine, agriculture (precision), retail (prediction of demand, inventory: e.g., Zara, H&M)
5 drivers: technology only solve 50% of whole problems: need to have right applications & frames, how to integrate with works, policy issues
tactical issues: knowledge/data-based, often data is not associated with outcome->work redesign
transformative AI (not transactional): buz model design, suggestive analytics, person-in-the-loop automation, automate a task: can disrupt insurance firms so that they can have partnerships with start-ups to get AI related technology

**Resources**
Jim Euchner: https://www.linkedin.com/in/jimeuchner/

**Great Questions & Answers**

**End of Summary**

# IRI 2019 Annual Conference Presentation Overview

By Lou Musante Echo Strategies

**Presentation Title**

*Implementing Integrated Innovation into Your Product Development*

**Authors**

Peter Boatwright, Carnegie Mellon University, Integrated Innovation Institute
Roger Elmer Vice President, Research & Engineering, Truck-Lite

**Abstract**

Innovation in today's digital-physical world means that our business, design, and engineering spheres need to be able to communicate seamlessly and effectively throughout the product development cycle. This session discussed how this "integrated innovation" is being implemented through Carnegie Mellon University and its industry partners via capstone student projects. A case study, Truck-Lite, from the transportation sector was detailed.

**Learning Objectives** were accomplished through presentation and Q&A formats

- The audience learned what Integrated Innovation is and saw examples of its outcomes and results.
- The audience learned how Integrated Innovation can be implemented regardless of type of technology (digital, physical)
- The audience learned from industrial partners about the results of implementing Integrated Innovation in their companies as well as and how these companies have implemented the principles into practices in their own organizations

**Trends, Takeaways & Insights**

- Of the nine most recent student projects, more than the majority were focused on new service development versus new product development.
- Integrated innovation these days requires cross training in three competency sets – engineering, business and design. Individuals have their core competency but must know the language of the other two. Integrated product developer is a new job title showing-up on Liked-In.
- Design thinking methods are human centered and help us understand what's the best problem to solve. It uses the must have, should have and could have prioritization process.

**Resources**

www.truck-lite.com
www.cmu.edu/iii
*Creating Breakthrough Products: Innovation from Product Planning to Program Approval* https://www.amazon.com/Creating-Breakthrough-Products-Innovation-Planning/dp/0139696946

**Great Questions & Answers**

- How is IP (Intellectual Property) ownership managed for corporate sponsored (paid) research? The corporation has six months to do something with the IP. If they don't, then it reverts back to the student team.

**End of Summary**

## IRI 2019 Annual Conference Presentation Overview

**Presentation Title:**
*AS BILLIONS OF CONSUMERS GO DIGITAL, IS YOUR COMPANY FALLING BEHIND?*
Presentation

**Authors:**
Bob Evans, Evans Strategic Communications LLC

**Abstract**
a) The global embrace of digital lifestyles
b) Where consumers go, businesses follow
c) The levers of change: cloud computing, AI, IoT, machine learning, mixed reality, advanced analytics
d) Examples of far-reaching and high-impact digital transformations from multiple industries
e) The challenges within that adventure
f) New ways of thinking (built around real-world examples)
g) New ways of organizing the company (built around real-world examples)
h) New workflows (built around real-world examples)
i) New types of essential talent (built around real-world examples)
j) New types of opportunities (built around real-world examples)

**Learning Objectives**
were accomplished through presentation and Q&A formats

**Trends, Takeaways & Insights**

**Resources**
Bob Evans LinkedIn: https://www.linkedin.com/in/bobevansit/
Website: https://evansstrategiccommunications.com/

**Great Questions & Answers**

NOTE: To data Capture Team Member. Please spell check and proof one more time. Thanks.

**End of Summary**

# IRI 2019 Annual Conference Presentation Overview

**Presentation Title:**
*Digitalization of Research and Development at BASF*
*Presentation*

**Authors:**
Brian Standen (Head of Tech Scouting and Partnerships/Digitialization in R&D, BASF Corporation)

**Abstract**

**Learning Objectives**

**Trends, Takeaways & Insights**

**Resources**
Brian Standen: https://www.linkedin.com/in/brianstanden/

**Great Questions & Answers**

**End of Summary**

# IRI 2019 Annual Conference Presentation Overview

**Presentation Title:**
*Agile-Stage-Gate for Manufacturers*
*Presentation*

**Authors:**
Dr. Robert G. Cooper, ISBM Distinguished Research Fellow, Penn State University
Dr. Anita Friis Sommer, Senior Innovation Manager at LEGO Group

**Abstract**
Agile development methods borrowed from the software industry are now being used by a handful of manufacturing firms for the development of physical products. Agile methods, which include time-boxed sprints, daily stand-up meetings, and early demos and retrospectives, are typically embedded within some or all of the stages of an existing Stage-Gate system. This session presents six case studies from major firms experimenting with Agile–Stage-Gate hybrids. These results show that early outcomes of these efforts are quite positive; some firms report significant improvements in both time to market and development productivity, as well as faster responses to changing market conditions and customer needs and higher project team morale. However, they also identified many challenges in implementing Agile–Stage-Gate hybrids, including addressing management skepticism, finding the needed resources to field dedicated teams, and dealing with fluid product definitions and development plans. Based on case firms' experiences, we provide recommendations for implementing a hybrid product development system

**Learning Objectives**

**Trends, Takeaways & Insights**

**Resources**
Anita Sommer: https://www.linkedin.com/in/anita-friis-sommer-169665a/

**Great Questions & Answers**

**End of Summary**

# IRI 2019 Annual Conference Presentation Overview

**Presentation Title:**
*Bringing Data Science into the Innovation Decision Journey*

**Authors:**
Michael Holman (VP of Research, Lux Research); Matthew Wagner (Senior Analyst, Lux Research)

**Abstract**
Many executives want to adopt a more data-driven approach to innovation decision making, to avoid the biases and blind-spots of traditional experts. However, data without context can be overwhelming and confusing. This session discusses how to combine the latest in data science with critical insight to make better decisions faster.

**Learning Objectives**
The audience will learn & gain knowledge, via presentation and guided discussion with fellow members, about:

- How their peers at large companies are using the latest in data science, machine learning, & "big data" techniques to help identify & assess innovation opportunities
- Best practices from firms that are most successful at modernizing their innovation decision-making using data
- Techniques for implementing data science, artificial intelligence (AI) and machine learning, and novel innovation data sources to make better decisions faster about innovation.

**Trends, Takeaways & Insights**

**Resources**
Michael Holman: https://www.linkedin.com/in/michael-holman-7910491/

**Great Questions & Answers**

**End of Summary**

# IRI 2019 Annual Conference Presentation Overview

**Presentation Title:**
*Roundtable: Best Practices for Capturing and Utilizing Research and Product Development Data to Accelerate New Product Introductions*

**Authors:**
Denise Callihan (PPG)
Kevin Gallagher (PPG)
Daniel Moyano (PPG)
Phillip Yu (PPG)
Clara Nelson (PPG)

**Abstract**
Automated manufacturing facilities are well suited for the collection and utilization of digital data. However, the nature of R&D data is such that the systematic collection of data in a format suitable for data mining and analytics can be challenging. In this roundtable we can share our perspective on the unique challenges associated with "digitizing" R&D data then facilitate an interactive discussion regarding: 1) the challenges associated with collecting experimental data from research projects; 2) Proven and proposed solutions (e.g. Databases, LIMS systems); 3) Realized and desired benefits from the data to fuel the product development process (e.g. data sharing, mining and modeling).

**Learning Objectives**

**Trends, Takeaways & Insights**

**Resources**
Denise Callihan: https://www.linkedin.com/in/denise-callihan-2440512/
Kevin Gallagher: https://www.linkedin.com/in/kevin-gallagher-196b9118/
Daniel Moyano: https://www.linkedin.com/in/dfmoyanom/
Phillip Yu: https://www.linkedin.com/in/phillip-yu-b0a9572a/
Clara Nelson: https://www.linkedin.com/in/clara-nelson-07979213/

**Great Questions & Answers**

**End of Summary**

# IRI 2019 Annual Conference Presentation Overview

**Presentation Title:**
*Business Model Innovation Requires A New Code: The Transformative Capacity of Firm-Specific Language*
*Presentation*

**Authors:**
Susan K. Cohen (Katz Graduate School of Pittsburgh, University of Pittsburgh)

**Abstract**
Companies must simultaneously sustain core businesses and develop new high growth businesses. Few manage this tension effectively. We present a case study and process model describing the transformative capacity of 'organizational code' – firm-specific language that catalyzes new thinking about value creation and bridges historical ways of working with future potentiality.

**Learning Objectives**
Participants will learn the importance of firm-specific language for enabling organizational transformation, particularly through business model innovation (BMI). BMI requires that members of a firm think about value creation in new ways, and new thinking starts with new language to foster novel connections between what the firm knows how to do and what it needs to be able to do. The presenter will discuss a case study and a general model describing the processes through which new language emerges, diffuses, and evolves in organizations and the transformative consequences for the way a firm creates value.
If desired, the presenter can also engage the audience in an interactive discussion in which participants develop a narrative and a lexicon that captures how the process model manifests in their own organization.

**Trends, Takeaways & Insights**

**Resources**
Susan Cohen: https://www.linkedin.com/in/sue-cohen-1b436b23/

**Great Questions & Answers**

**End of Summary**

# IRI 2019 Annual Conference Presentation Overview

**Presentation Title:**
*Tools for Transformational Corporate Innovation*
Presentation

**Authors:**
Sean Ammirati (Adjunct Professor of Entrepreneurship, Carnegie Mellon University)
Lou Musante (Founder, Echo Strategies)

**Abstract**
In this interactive learning workshop, the presenters will walk through three tools developed at the Carnegie Mellon Corporate Startup Lab. For each tool, an overview will be provided to the entire group, and then small subgroups can try them out.

**Learning Objectives**
Understand how to apply tools and frameworks specifically developed for entrepreneurship within established companies. At the end of the training session, participants will exhibit ability to:
• Clearly communicate their innovation concept across the organization (marketing, finance, legal, operations, technology, etc.) regardless of their role within the company.
• Think through and articulate relevant issues that should be considered for every corporate sponsored innovation concept.
• Communicate potential risks as well as upside to corporate finance using well understood finance concepts and supporting Excel models.
• Differentiate between different digital business models which are increasingly impacting industrial companies as "physical meets digital."

**Trends, Takeaways & Insights**

**Resources**
Lou Musante: https://www.linkedin.com/in/lou-musante-633a75/
Sean Ammirati: https://www.linkedin.com/in/seanammirati/

**Great Questions & Answers**

**End of Summary**