

R&D 100 CONFERENCE

CONFERENCE GUIDE

NOVEMBER 15-16, 2018

WALDORF ASTORIA ORLANDO
ORLANDO, FL

#RD100

Presented by:



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THE R&D PATH TO SUCCESS

The R&D journey is one that requires discipline, motivation and inspiration—and we aim to offer the insights and information our audience needs to forge their own personal path to success. Beyond our daily online presence, however, *R&D Magazine* is also home to the prestigious R&D 100 Awards program, which inspired the launch of our R&D 100 Conference four years ago. Since 2015, we have brought together the R&D leadership community to network, learn and be inspired by one another in this two-day event.

The culmination of the conference for many of our attendees is the R&D 100 Awards Gala, where the top 100 innovations of the year are unveiled. For 56 years, *R&D Magazine* has honored industry-wide breakthroughs in technology and science with this internationally recognized R&D 100 Awards program—and many of the themes of these awards are reflected in our conference agenda.

It is my honor to welcome you to the fourth annual R&D 100 Conference, sponsored by *R&D Magazine* and our parent company, Advantage Business Marketing. The tracks covered here in Orlando—**R&D Global Trends, R&D Innovations & Leadership** and **R&D Technology Transfer Strategies**—have been planned to inspire attendees to do a deep dive into new ways to forge ahead in R&D as a community.

We look forward to an interesting exchange of ideas and spirited conversations that can lead us on this journey. Our expert faculty represents major thought leaders across industries—and they will share their most

serious challenges and best solutions, personal experiences and inside knowledge about how the world of R&D has changed and continues to change at warp speed. Our R&D family is positioned to change with that world as we continue to find new ways to bring people together to talk, network, motivate and inspire each other.

In fact, our R&D brand is going through a metamorphosis, too, one that builds on our strong legacy including this leadership conference—and one that will open doors to more voices from the R&D community. We are focused on honoring the remarkable people I call “idea-makers”—those innovators who have a vision that cuts to the core of a specific situation that needs to be solved. Our conference speakers, as well as our R&D 100 Awards honorees, are those remarkable people who innovate and inspire the rest of the community by their activities and actions.

Innovation is at the heart of the R&D process, which is one of the reasons we have named our R&D brand the “Innovation Pillar.” We’re renewing our strong commitment to the R&D community by building up our publication, website and, most of all, our events in 2019. We are building on past achievements and creating new connections—and that starts with the conversations taking place here in Orlando.

Starting with our Opening Keynote, we will bring new tools and exclusive data to get these conversations going. “Making Innovation Drive the Bottom-line: Success Stories from the American Innovation Index™” presented by Gina D. Woodall,

"Our R&D family is positioned to change as we find new ways bring people together to motivate and inspire each other"

President of Rockbridge Associates, Inc., and Charles L. Colby, Chief Methodologist and Founder of Rockbridge Associates, will focus on the first comprehensive study to quantify and rank innovativeness, telling us much about succeeding through innovation. This new study shows that when consumers observe changes in how a company creates and delivers value, they reward it with loyalty.

On Friday, our Keynote will take a closer look at "Finding the Future: How the Best Organizations Scout Emerging Technology," presented by Innovation Leader co-founder Scott Kirsner. He will address how large companies scout the trends and technologies that will be most relevant to their future success. Kirsner will also probe how they introduce those concepts to their colleagues throughout their own organization and get initial experiments and pilot tests going. That path to success will be of keen interest.

The 2018 R&D 100 Conference focuses on themes that impact everyone in the R&D community at some level. For example, global trends are on the watch list for all R&D professionals and we take pride in adding to the discussion with the exclusive preview of *R&D Magazine's 2019 Global R&D Funding Forecast*. This presentation will alert attendees to relevant facts that undoubtedly will help their company's planning for future growth and investments.

We've also invited a special panel to take a deep dive in "Digging into the 2019 Global R&D Funding Forecast: Exploring Leading Strategies for Creating New R&D Budgets."

In today's challenging markets, this information will be precious to hold onto in the coming year.

Last year, the *R&D Technology Transfer Forum: Unlocking the Potential* took a look at the challenges of technology transfer from a variety of angles. This year, our focus on technology transfer expands with the *Tech Scout Relay Panel* and *Tech Match Sprint* in what are bound to be lively discussions.

Our goal for attendees is that everyone gains knowledge, new connections and quality time to contemplate their own R&D path to success. This precious time is so rare—and we want to thank all of our attendees for coming to meet us and our esteemed faculty. Take a look at the *Conference Guide* for information on the work of our speakers, their interests and careers. Our hope is that you go home with fresh inspiration and new friends.

We'd like to sincerely thank our sponsors for their generous support of this fourth R&D 100 Conference. To our expert family members, I can only say that they are a part of our R&D family and we hope to hear their voices heard throughout the next year in our R&D journey together. Thanks for coming to our conference, and keep a lookout for more to come!



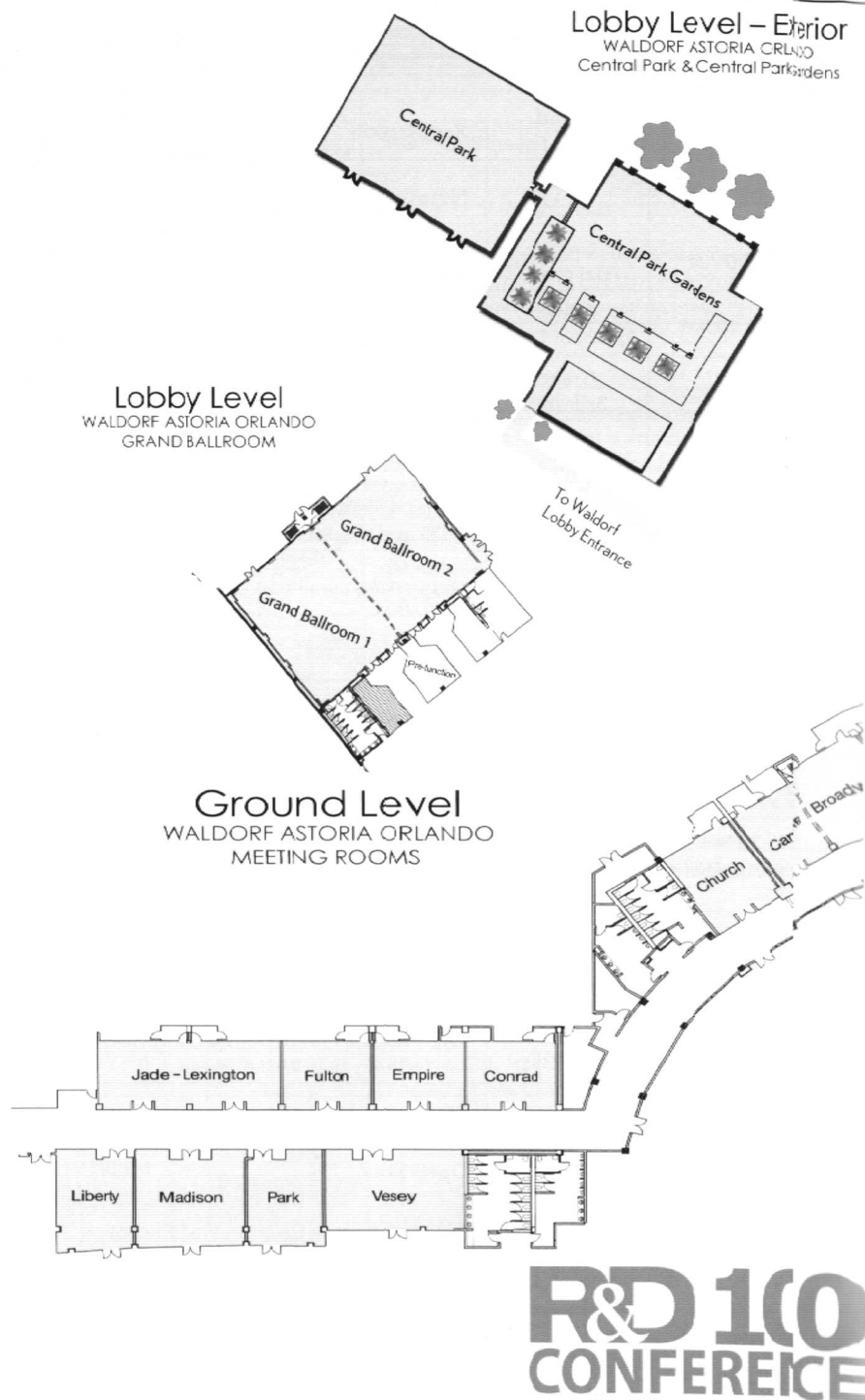
Bea Riemschneider
Editorial Director,
Advantage Business
Marketing
R&D 100 Awards and
R&D 100 Conference
#RD100

THURSDAY, NOVEMBER 15, 2018

7:00 AM - 5:00 PM	Grand Ballroom Foyer	Registration
8:00 AM - 9:00 AM	Grand Ballroom	Networking Breakfast
9:00 AM - 10:00 AM	Grand Ballroom	Welcome & Opening Keynote Address: Mark Innovation Drive the Bottom-line: Success Stories from the American Innovation Index™
10:00 AM - 10:10 AM	Grand Ballroom Foyer	Break
10:10 AM - 11:00 AM	Grand Ballroom	General Session #1: Measure Twice, Invest Once: Analytics Can Cost You a Bundle if You Don't
11:00 AM - 11:15 AM	Grand Ballroom Foyer	Networking Coffee Break
11:15 AM - 12:00 PM	Madison	1A: Emerging Trends in Life Science: Advances in 3D Cell Culture
	Vesey	2A: Exceptional R&D Presentations in Spite of PowerPoint: How to Communicate in the Digital Age
12:00 PM - 1:15 PM	Grand Ballroom Foyer	Networking Luncheon
1:15 PM - 2:30 PM	Grand Ballroom	Special Session #1: Tech Scout Relay Panel
2:30 PM - 2:50 PM	Grand Ballroom Foyer	Networking Coffee Break
2:50 PM - 3:40 PM	Grand Ballroom	General Session #2: Corporate R&D Spending: Art or Science?
3:40 PM - 3:50 PM	Grand Ballroom Foyer	Break
3:50 PM - 4:30 PM	Madison	1B: AI, Machine Learning and Big Data for Life Sciences: The Good, the Bad and the Ugly
	Vesey	2B: Lift-Off: How Fostering Industry Partnerships Fueled a New Cutting-Edge University Laboratory for Aerospace Advanced Manufacturing
4:30 PM - 4:40 PM	Grand Ballroom Foyer	Break
4:40 PM - 5:30 PM	Grand Ballroom	General Session #3: Exclusive Preview of the 2019 Global R&D Funding Forecast: Planning for Future Growth and Investments in R&D
5:30 PM - 7:00 PM	Central Park	Welcome Reception

FRIDAY, NOVEMBER 16, 2018

7:00 AM - 4:00 PM	Grand Ballroom Foyer	Registration
8:00 AM - 9:00 AM	Grand Ballroom	Networking Breakfast
9:00 AM - 10:00 AM	Grand Ballroom	Second Day Keynote: Finding the Future: How the Best Organizations Scout Emerging Technologies
10:00 AM - 10:10 AM	Grand Ballroom Foyer	Break
10:10 AM - 11:00 AM	Grand Ballroom	General Session #4: Innovate at Speed: Sustaining Innovation in a World of Rapid Change
11:00 AM - 11:15 AM	Grand Ballroom Foyer	Networking Coffee Break
11:15 AM - 12:00 PM	Grand Ballroom	General Session #5: New Ideas in Innovation: Pre- 2020 and the Jobsite of the Future
12:00 PM - 1:15 PM	Grand Ballroom Foyer	Networking Luncheon
1:15 PM - 2:30 PM	Grand Ballroom	Special Session #2: The Tech Transfer Match Special
2:30 PM - 2:40 PM	Grand Ballroom Foyer	Networking Coffee Break
2:40 PM - 3:30 PM	Madison	3A: Fostering the Next Generation of R&D Professionals: UC/Los Alamos Entrepreneurial Postdoctoral Fellowship Creates New Business Leaders
	Vesey	3B: R&D Evaluation Approaches for Efficiency and Effectiveness
3:30 PM - 3:40 PM	Grand Ballroom Foyer	Break
3:40 PM - 4:30 PM	Grand Ballroom	Special Session #3: Digging into the 2019 Global R&D Funding Forecast: Exploring Leading Strategies for Creating New R&D Budgets
4:00 PM - 6:00 PM		R&D 100 Awards Registration
4:30 PM - 6:00 PM		Open Time
6:00 PM - 7:00 PM	Grand Ballroom Foyer	R&D 100 Awards Gala Cocktail Reception
7:00 PM - 10:30 PM	Floridian Ballroom G-L	R&D 100 Awards Gala and Ceremony
10:30 PM - 12:00 AM	Floridian Prefunction Area	R&D 100 Awards Gala After Party



PATH TO SUCCESS: INNOVATION & TECHNOLOGY TRANSFER STRATEGIES IN R&D

R&D GLOBAL TRENDS

Breakout Session 1B:

AI, Machine Learning and Big Data for Life Sciences: The Good, the Bad and the Ugly
Thursday, November 15, 3:50 PM - 4:30 PM

General Session #3:

Exclusive Preview of the 2019 *Global R&D Funding Forecast*: Planning for Future Growth and Investments in R&D
Thursday, November 15, 4:40 PM - 5:30 PM

Special Session #3:

Digging into the 2019 *Global R&D Funding Forecast*: Exploring Leading Strategies for Creating New R&D Budgets
Friday, November 16, 3:40 PM - 4:30 PM

R&D INNOVATIONS & LEADERSHIP

Opening Keynote Address:

Making Innovation Drive the Bottom-line: Success Stories from the American Innovation Index™
Thursday, November 15, 9:00 AM - 10:00 AM

General Session #1:

Measure Twice, Invest Once: Analytics Can Cost You a Bundle if You Don't
Thursday, November 15, 10:10 AM - 11:00 AM

Breakout Session 1A:

Emerging Trends in Life Science: Advances in 3D Cell Culture
Thursday, November 15, 11:15 AM - 12:00 PM

Breakout Session 2A:

Exceptional R&D Presentations in Spite of PowerPoint: How to Communicate in the Digital Age
Thursday, November 15, 11:15 AM - 12:00 PM

General Session #2:

Corporate R&D Spending: Art or Science?
Thursday, November 15, 2:50 PM - 3:40 PM

Breakout Session 2B:

Lift-Off: How Fostering Industry Partnerships Fueled a New Cutting-Edge University Laboratory for Aerospace Advanced Manufacturing
Thursday, November 15, 3:50 PM - 4:30 PM

General Session #4:

Innovate at Speed: Sustaining Innovation in a World of Rapid Change
Friday, November 16, 10:10 AM - 11:00 AM

General Session #5:

New Ideas in Innovation: Project 2021: The Jobsite of the Future
Friday, November 16, 11:15 AM - 12:00 PM

Breakout Session 3A:

Fostering the Next Generation of R&D Professionals: UC/Los Alamos Entrepreneurial Postdoctoral Fellows Creates New Business Leaders
Friday, November 16, 2:40 PM - 3:30 PM

Breakout Session 3B:

R&D Evaluation Approaches for Efficacy and Effectiveness
Friday, November 16, 2:40 PM - 3:30 PM

R&D TECHNOLOGY TRANSFERS STRATEGIES

Special Session #1:

Tech Scout Relay Panel
Thursday, November 15, 1:15 PM - 2:30 PM

Second Day Keynote:

Finding the Future: How the Best Organizations Scout Emerging Technologies
Friday, November 16, 9:00 AM - 10:00 AM

Special Session #2:

The Tech Match Sprint
Friday, November 16, 1:15 PM - 2:30 PM

Thursday, November 15, 2018

REGISTRATION

7:00 AM - 5:00 PM

Grand Ballroom Foyer

NETWORKING BREAKFAST

7:30 AM - 9:00 AM

Grand Ballroom II

WELCOME & OPENING**KEYNOTE ADDRESS**

Making Innovation Drive the Bottom-line: Success Stories from the American Innovation Index™

9:00 AM - 10:00 AM

Grand Ballroom

Gina D. Woodall, President, Rockbridge Associates, Inc.

Charles L. Colby, Chief Methodologist and Founder, Rockbridge Associates, Inc.

While innovation is fueled upstream by factors such as R&D, culture and human capital, it only matters when the benefits are recognized and rewarded downstream by the customer. The American Innovation Index™ (Aii) is the first comprehensive study to quantify and rank innovativeness as experienced by customers, telling us much about succeeding through innovation. This new study has shown that when customers observe changes in how a company creates and delivers value, they become excited, find the company attractive, and reward it with loyalty. The Aii specifically quantifies and ranks 163 companies in 20 sectors by their overall innovation level and social innovation. It is the first study of its kind reporting on U.S. companies.

With this information in hand, the Aii researchers can identify winners and losers—and provide valuable success stories. Why do Apple and Amazon tower above other companies in customer ratings? What can we learn from Ikea and

John Deere who beat most technology companies? Why are automotive companies seen as more innovative than technology firms? Why are the TV/Internet and utilities sectors viewed as the least innovative?

R&D 100 Conference attendees will get an exclusive look at this new study presented by its creators—and with this presentation gain access to the full report of valuable industry sector data that will inform and enlighten their own innovation strategies. The Aii is a collaboration of research firm Rockbridge Associates, the Fordham University's Gabelli School of Business and the Norwegian School of Economics (NHH). The study is based on a representative survey covering over 400 customer touchpoints.

See www.americaninnovationindex.com

GENERAL SESSION #1

MEASURE TWICE, INVEST ONCE: ANALYTICS CAN COST YOU A BUNDLE IF YOU DON'T

10:10 AM - 11:00 AM

Grand Ballroom I

Figen Ülgen, PhD, General Manager of the Rack Scale Design Group, Datacenter Group, Intel Corporation

In every industry analytics is making a mark—more than ever today with cheaper storage, faster processing and intense focus on a variety of analytics algorithms. Whether you are a healthcare CTO, a financial institution COO or the founder of a startup born in the Cloud, the opportunity cost of not investing in analytics at the heart of your business is too high.

The question then is what is the true cost of integrating analytics into the backbone of your business? How do you make sure the TCO equation tilts in your favor in the short and the long term? This presentation will focus on the ways to stack the deck in your organization for a positive ROI.

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Thursday, November 15, 2018

BREAKOUT SESSION 1A:**Emerging Trends in Life Science: Advances in 3D Cell Culture**

11:15 AM - 12:00 PM

Madison

Anthony Frutos, PhD, Business Technology Director, Corning Life Sciences

Two-dimensional or 2D cell culture models have been utilized for decades in the process of drug discovery and development due to their ease of use and established compatibility with high throughput screening techniques. In the last several years, however, three-dimensional or 3D cell culture models and tools have emerged that are increasingly being adopted by pharmaceutical and biotechnology companies because of the growing body of evidence showing better correlation of these systems to in vivo results.

These 3D models range from relatively simple 3D spheroids to more complex organoids and organ/body-on-a-chip technologies. They are impacting a variety of fields including oncology drug screening, early assessment of compound/drug safety testing as well as tissue engineering. This presentation will give an overview of some of the exciting advances in the field of 3D cell culture and—through a series of case studies—highlight several of the new, enabling tools facilitating the adoption of 3D cell techniques.

BREAKOUT SESSION 2A:**Exceptional R&D Presentations in Spite of PowerPoint: How to Communicate in the Digital Age**

11:15 AM - 12:00 PM

Vesey

Mark E. Jones, PhD, Executive External Strategy and Communications Fellow,

Dow Chemical

"Death by PowerPoint" is in the lexicon

for a very good reason. Presentations can be simply deadly. Giving a presentation is about engaging an audience, understanding who they are and what they hope to gain by listening to you.

Today, data presentation is especially important in scientific and technical presentations. Crafting graphics are "mind ready" and easily absorbed by your audience requires thought and effort.

The skills we developed when overhead projectors were the norm are still relevant and critically important for live audiences, yet they are rarely cultivated today. Whether the audience is virtual, effective presentations require knowing your audience, crafting your story and recognizing the limitations of the venue, and effectively working within those limitations.

Every R&D professional should develop his or her presentation skills in order to communicate effectively—internally and externally—in this digital age. This presentation will focus on the lessons learned in the industry and association worlds where science and technical communication skills form the cornerstone of engagement.

Attendees will learn:

- o How to effectively focus on your audience to deliver an impactful presentation.
- o Make yourself the focus, recognizing that you are there to influence, not simply inform.
- o How to craft effective presentations which requires planning, practice, and sustained effort.

NETWORKING LUNCHEON

12:00 PM - 1:15 PM

Grand Ballroom II

Thursday, November 15, 2018

SPECIAL SESSION #1**TECH SCOUT RELAY PANEL**

1:15 PM - 2:30 PM

Grand Ballroom I

Vicki A. Barbur, PhD, Senior Director, IP and Technology Commercialization, Commercial Business, BATTELLE (Moderator)**Jack G. Abid**, Patent Prosecution Group, Allen, Dyer, Doppelt, & Gilchrist, PA**George Gibson, MBA**, Director of Technology Scouting, Xerox Corporation**Terry Russell, PhD**, Managing Director of Interface Ventures**Laura A. Schoppe, MBA, MSE**, President, Fuentek, LLC

We have invited a group of individuals associated with Technology Scouting efforts, an increasingly popular element of modern technology management, to participate in our Tech Scout Relay Panel.

The participants represent four different entities and will provide snapshots of issues surrounding the identification, channeling, and leveraging of emerging technologies into business opportunities to deliver organic growth, initiate spin-off companies and support open innovation. They will highlight challenges associated with this tactic used routinely to capitalize successfully on technical concepts extracted from other organizations. Questions that will be addressed are:

- o What makes technologies attractive to Scouts/venture companies? What are they looking for? How do they evaluate new concepts?
- o What challenges do Scouts encounter? How do they source technologies? How do they "scout"? Are there challenges with international borders?
- o How can R&D institutions help and support scouting efforts? Are business cases/market intelligence essential to pitch? What makes for the best

pitch? What support is expected for leveraging entities to ensure success?

There will be a 30-minute Q&A opportunity when audience interaction will be encouraged—with the goal to learn about technology scouting and enable positioning the approach for success.

The Panelists include:**Jack G. Abid**, Registered Patent Attorney, Allen, Dyer, Doppelt, & Gilchrist, PA

Jack will discuss:

- The key issues to take note when transitioning Intellectual Property from non-profits to profit-based entities include:
 - o Ownership rights
 - o Permanent government rights
 - o Additional unknown licensees
 - o Monitoring federal notices for licensing agreements

George Gibson, MBA, Director of Technology Scouting, Xerox Corporation

George will discuss:

- The most important challenges facing both (or even all) sides in technology scouting are:
 - o The alignment of business models
 - o The handling of the potential for jurisdiction between parties.
 - o Some potential approaches that have delivered success for Xerox will be presented for discussion and debate to ensure all viewpoints in the landscape are being given adequate attention.

Terry Russell, PhD, Managing Director, Interface Ventures

Terry will discuss:

People tasked with scouting technologies will prioritize different technologies based on the mandates of their sponsoring organization. A business company might want a plug-in, ready use technology, in which case the priority will be: 1) product/market fit; 2) mature technology; and 3) soundness of IP.

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Some larger companies with incumbent products and service may want patent rights to a novel technology to delay or block anyone from competing with them. Their priorities might be: 1) threat of the emerging technology to their business; 2) expense of license and; 3) weak license diligence terms.

From an entrepreneur's perspective, there can be multiple requisites for a "Newco-enabling" technology. Some of the "biggies" are:

- o Enables a marketing claim of "first, best or only. Technology can be translated into a product or service with a compelling and unique value proposition that solves a valuable problem in an economically virtuous fashion.
- o Ensuring that necessary costs (including Technology Development, Product/Service Development, Financing, Licensing as well as Manufacturing, Marketing and Sales costs plus any Risk Premium) < Revenues sufficiently to generate a good return for investors and insulate Newco from early lethal competition, changing market conditions, or human failures.
- o Good technical team with solid IP protection and the potential to act as advisors or co-founders.

Laura A. Schoppe, MBA, MSE, President, Fuentek, LLC

Laura will discuss:

To increase their success in moving their innovations into the public realm, more and more universities and government labs are pursuing collaborative R&D with private companies. Finding a match and establishing the partnership can be challenging for various reasons. Some practical guidance will be provided to help attendees identify and develop successful and longstanding partnerships which have been shown to deliver successful returns.

To tap into university and government

technologies that have commercial potential, companies must find the institutions that are a source of relevant R&D and establish the engagement that matches up those technologies with their own needs.

GENERAL SESSION #2

CORPORATE R&D SPENDING: FOR SCIENCE?

2:50 PM - 3:40 PM

Grand Ballroom I

Bracford L. Goldense, NPDP, CMCPIM, CCP, MBA, CEO of Goldense Group.

The management science behind R&D spending decisions had been static for decades. With the advent of big data and associated analytical capabilities, a decade ago, progress is now being made.

There are high-level challenges. First, how does one overcome the long periods of time between initial investment and the realization of results? For fast-moving companies, the elapsed time is at best five years—and it can range to a dozen years or more for more advanced technologies. Second, how does one define success?

Revenues, profits, units sold, new share gain, customer satisfaction, technology leverage, return on investment or innovation, share price or market cap increase are all considerations.

There are also mid-level challenges. Can one underspend for a year or two without affecting the overall product portfolio? What are the effects of systematic underspending? Can one overspend to offset underspending periods, and catch up to a competitor? At what point does spending start to yield decreasing returns? Where is such a thing as a "right amount" to spend?

There are operational challenges that may also have strategic implications. What is the best allocation of funds for a company with certain core competencies and technologies in relation to its current business strategy? What amount

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funding should go to organic innovation, open innovation, joint ventures/alliances or the in-licensing of existing IP? If there are choices, what should our decision criteria be? How should we allocate our funds across basic research, applied research, advanced development, product development and product enhancement? What metrics should we use?

Inclusive of government, academia, non-profit and industry, almost 70% of all R&D funds are spent by for-profit corporations, the focus of this General Session.

Key takeaways include:

- Learn how big data and analytics will advance the management science of R&D spending.
- Understand the effects of downward and upward swings in R&D spending on business results.
- Critique the considerations of make vs. buy vs. ally innovation.
- Investigate the subtleties of pipeline decisions on spending effectiveness and efficiency.
- Explore the merits of the alternative parameters that constitute R&D success.
- Inventory the most-used metrics and KPIs for R&D spending and its results.
- Identify new-to-industry KPIs that companies are currently trying out.

BREAKOUT SESSION 1B:

AI, Machine Learning and Big Data for Life Sciences: The Good, the Bad and the Ugly

3:50 AM - 4:30 PM

Madison

Matthew Clark, PhD, Director, Scientific Services, Elsevier

Artificial Intelligence (AI) has the potential to revolutionize life sciences and healthcare. The movement started with Alan Turing in 1950, "Can a machine imitate human intelligence?" and progressed in the late 1970s to solving rudimentary problems. More recently there has been

a great increase in applying Machine Learning and Natural Language Processing techniques across the sciences—from preclinical drug discovery to selecting precision treatments for individual patients.

Recent reports of large life science initiatives failing to deliver on expectations demonstrate that there are significant pitfalls in the application of AI and Big Data—challenges that can be overcome with better normalizing of vocabularies, mining from multiple data sources. Are there have also been success stories in sciences, like those with Google and pathology.

This presentation will offer an insightful overview of best and worst practices in applying AI and Machine Learning to sciences to facilitate the successful use of these techniques in today's competitive drug discovery environment.

BREAKOUT SESSION 2B:

Lift-Off: How Fostering Industry Partnerships Fueled a New Cutting-Edge University Laboratory for Aerospace Advanced Manufacturing

3:50 AM - 4:30 PM

Vesey

The Panelists include:

Vicki L. Golich, PhD, Provost and Executive Vice President of Academic and Student Affairs, MSU Denver

Erin Hillhouse, AIA, Senior Associate, Anderson Mason Dale Architects

David C. Pfeifer, AIA, Partner, Anderson Mason Dale Architects

Tina Wells, Director of Facilities Planning and Space Management, MSU Denver

MSU Denver has been preparing students to become part of Colorado's urban workforce for over 50 years. The Aerospace Engineering Sciences Building is a true partnership with Colorado's industry leaders in advanced manufacturing and

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aerospace. Not only did MSU engage industry in the programming and design of the labs, but also in building the curriculum for its new Advanced Manufacturing Sciences Institute.

This facility and the curriculum being taught through the institute will be a "game changer" for manufacturing in Colorado because it provides flexible maker-spaces that encourage iterative, changing interaction between students, faculty and industry essential in an evolving economy. Nurturing such places for collaboration fosters self-sustaining curriculum enrichment.

In this session, the panel presents a tangible case study of partnership between higher education, local civic leadership and industry that demonstrate the inherent project opportunities from strategic visioning, conceptualization and financing through design and construction.

GENERAL SESSION #3

**EXCLUSIVE PREVIEW OF THE 2019
GLOBAL R&D FUNDING FORECAST:
PLANNING FOR FUTURE GROWTH
AND INVESTMENTS IN R&D**

4:40 PM - 5:30 PM

Grand Ballroom I

Tim Studt, MBA, Global R&D Funding
Forecast

The executive leadership in R&D industries across the spectrum know that R&D investments are the key to innovation. For 2019, the long-term and short-term investments made by industry, government and academia for the coming year are what everyone is watching closely to help plan R&D budgets and growth strategies. These investments are often crucial for ensuring the long-term economic growth and even the very survival of many organizations.

Every organization has been confronted with a host of challenges—tightening budgets, federal regulations, data security, limited resources, rapidly changing

technologies, expanding competition, environmental constraints and even increasing costs.

The attendees of the R&D 100 Conference will get a first-hand look at the future of R&D spending as well as the highlights of the much-anticipated 19 *Global R&D Funding Forecast*. This annual in-depth report is created by the editors of *R&D Magazine* and is published annually at the beginning of each new year as a public service for R&D executives: scientists, engineers and research managers for the preparation of their annual R&D budgets and the evaluation of the current R&D environment.

R&D Magazine's Global R&D Funding Forecast, published since 1959, is a significant indicator of future trends and provides key insights and unduplicated information that examines the specific challenges for 2019—including potential winners and losers in R&D and their potential short- and long-term consequences of these investments. This exclusive report provides reliable data on more than 100 countries, along with summary of industrial sector trends, academic research and technology regions around the globe as well as detailed spending plans of U.S. government agencies.

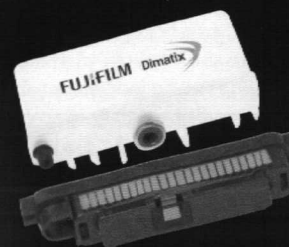
The 2019 *Global R&D Funding Forecast* will arm attendees with critical trends and analyses of data in multiple technology areas. Based on proprietary research and responses from members of the global R&D community as well as current technology and economic reports, this presentation will provide attendees with a valuable tool to bring back to their organizations for actionable goals and strategies. The full report will be available in January 19 through *R&D Magazine*.

WELCOME RECEPTION

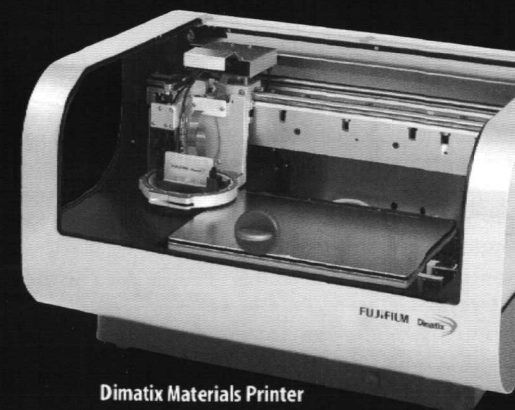
5:30 PM - 7:00 PM

Central Park Gardens

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Dimatix Materials Printer

Inkjet printing, based on FUJIFILM Dimatix's MEMS technology, allows creation of products like DNA arrays, electronic displays, RFID antennas, smart tags, smart packaging, solar cells and wearable electronics.

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Friday, November 16, 2018

REGISTRATION

7:00 AM - 4:00 PM

Grand Ballroom Foyer

SECOND DAY KEYNOTE

FINDING THE FUTURE: HOW THE BEST ORGANIZATIONS SCOUT EMERGING TECHNOLOGY

9:00 AM - 10:00 AM

Grand Ballroom I

Scott Kirsner, Co-Founder of Innovation Leader

How do large companies scout the trends and technologies that will be most relevant to their future success? And even more importantly, how do they introduce those concepts to their colleagues throughout the organization, and get initial experiments and pilot tests going?

In this interactive presentation, we'll discuss some of the challenges of both "operating the radar" that seeks out emerging technologies, trends and business models—and communicating what that radar sees to the rest of the company. We'll discuss the pros and cons of scouting in academic, startup and customer environments.

We'll also touch on some of the ways that companies like Kellogg Co., BASF, Nokia, Hospital Corp. of America, IBM, Goodyear, Autodesk and Sherwin-Williams set up scouting activity, and collect some tips and advice from everyone in the audience.

Key takeaways include:

- o Better "signal acquisition" with the team you have today.
- o Better "signal communication" to the rest of the organization.

GENERAL SESSION #4

INNOVATE AT SPEED: SUSTAINING INNOVATION IN A WORLD OF RAPID CHANGE

10:10 AM - 11:00 AM

Grand Ballroom I

Christie McCarthy, MSA, Director of Product Realization, Corning Life Sciences

We all feel it—the pace of technological change and industry disruption is aying and only seems to be accelerating. ch start-ups are being born worldwide a rate of nearly 200 per hour. While a mber will not make it to their fourth birth, their inherent nimbleness challenges established industry players to be not only innovative, but also able to innovate at speed.

Corning Incorporated has a long history of innovation. Founded in 18, the company has applied unparalleled expertise in specialty glass, ceramic and optical physics to deliver groundbreaking inventions that solve tough customer problems—from bulb-shaped glass to Thomas Edison's incandescent lamp to tough transparent Gorilla® Glass for Steve Jobs.

This presentation will focus on how Corning leverages old school R&D principles with evolving innovation methodologies to innovate at speed.

Key takeaways include:

- o The value of a focused and cohesive portfolio.
- o How sustained investment in R&D allows innovation for today's business while creating tomorrow's growth drivers.
- o Why close collaboration with customers is critical for root problem discovery and understanding.
- o Innovation processes and systems also benefit from applied innovation.

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GENERAL SESSION #5

NEW IDEAS IN INNOVATION: PROJECT 2020 AND THE JOBSITE OF THE FUTURE
11:15 AM - 12:00 PM

Grand Ballroom I

David J. Wilson, MS, Chief Innovation Officer, Bechtel

A global engineering, construction and project management company, Bechtel delivers landmark projects that create long-term progress and economic growth. The company believes that the key to innovation is to learn safe, learn fast and learn forward. Its core innovation strategy involves a six-step internal process to test assumptions, integrate solutions in the business, and ensure a steady stream of diverse ideas.

Bechtel employees around the world have submitted more than 2,600 ideas to Project 2020—with over 500 ideas in the prototype stage. Of these, 35 have been implemented on 42 projects for a total of 125 deployments.

These ideas range from wearable devices for employees to improve efficiency, using drones to increase accuracy and safety, creating automated mooring systems, delivering high-risk training via virtual reality, drill head collision detection, 4-D technology and virtual reality to improve cargo logistics, virtual project delivery, autonomous equipment, and inflatable scaffolding inspired by children's bounce houses. Currently, more than \$53 million has been committed to prototyping and testing these new innovations.

Project 2020 to date has begun deploying the following:

- Big Data and Analytics—A center of excellence has been created to leverage big data and data science.
- Virtual, Digital Production Systems—A suite of tools was designed to remove restraints from foremen, procurement professionals, and engineering group supervisors to

ensure quick access to needed materials, reducing schedule time and costs.

- Drones—Drones are being used to help progress reporting, precision survey, Environmental, Safety and Health (EHS) compliance, material laydown tracking and 4D/5D integration, which increase safety, precision and reduces costs.
- Exoskeletons and Autonomous Vehicle Partnerships with a variety of equipment suppliers is piloting exoskeletons and prototyping of remote delivery of materials using autonomous vehicles is underway.
- Augmented and Virtual Reality—This technology is being used for everything from immersive bid support visualization and ES&H training to remote expert task workflow support with smart glasses, all of which are precursors for more advanced use cases being piloted.

This presentation will discuss the company's corporate innovation process along with the vision behind Project 2020—the jobsite of the future. The fluid and dynamic intersection of technology, data-centric workflows, integrated supply chains, and a production manager focus will result in improved performance for the company's customers and a more rewarding work experience for the team. The cornerstones of future jobsite delivery include smart jobsites, data-centric execution, augmented and virtual reality, machine learning and AI, and the reimagining of manufacturing principles for construction.

While the end-state vision is appreciated by many, the challenges to achieve it remain ever present as many participants along the value chain are at different stages in their digitization journey.

These challenges keep the engineering, procurement, construction (EPC) industry stuck between a truly digital workflow and a document-centric work process. This has created divides between areas like design and construction that sometimes

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mean work is duplicated, and it has an effect that negatively impacts productivity and continues to fuel headlines focused on inefficiencies in the industry. This presentation will address these challenges and provide solutions for the practical application of technology to achieve the jobsite of the future.

NETWORKING LUNCHEON

12:00 PM - 1:15 PM

Grand Ballroom II

SPECIAL SESSION #2

THE TECH MATCH SPRINT

1:15 PM - 2:30 PM

Grand Ballroom I

Vicki A. Barbur, PhD, Senior Director, IP and Technology Commercialization, Commercial Business, BATTELLE (Moderator)

Andrea Adkins, Assistant Director, Office of Technology Transfer, University of Central Florida

Peter Christensen, PhD, Deputy Director for Licensing, Pacific Northwest National Laboratory

Matthew Simon, Licensing Manager for Engineering & Physical Sciences, University of New Hampshire

Following Thursday's in-depth Tech Scout Relay Panel, this special session will provide hands-on examples of typical emerging technologies that form an important part of the R&D landscape and technology transfer process at many R&D institutions. These technologies are readily available for Technology Scouts to investigate and assess alignment with respect to their company or business strategy needs.

Each of our invited technology transfer professionals will present "real" technologies that are readily available today in this unique exercise, which will

demonstrate how these new technologies can be and are presented to interested parties for subsequent transfer and licensing.

This session will be a customized early seen inside look—from the point of view of a variety of types of organizations on the inner workings of technology transfer. Each professional will present up to four minutes, and each sprint will last approximately 5 minutes.

The Panelists include:

Vicki A. Barbur, PhD (Moderator)
Senior Director, IP and Technology Commercialization, Commercial Business, BATTELLE

Technologies to be presented include:

- o Enhancing efficacy for Genomic Profiling as a precursor to Precision Medicine
- o CASAE – Computational Analysis: Sharing Architecture & Ecosystems delivering predictive analytics sensitive fields like health
- o Social Radar and Support for Intelligent Cities

Andrea Adkins, Assistant Director
Technology Transfer University of Central Florida

Technologies to be presented include:

- o Connected vehicles
- o Engineered materials
- o Additive Manufacturing, 3-D printing
- o Agricultural bactericides
- o Robotics

Peter Christensen, PhD, Deputy Director for Licensing, Pacific Northwest National Laboratory

Technologies to be presented include:

- o Electricity infrastructure analysis
- o Bio-based chemicals
- o Solid phase processing
- o Fish and small animal tracking
- o Nano-materials for life science

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Matthew Simon, Licensing Manager, Engineering & Physical Sciences, UNH Innovation, University of New Hampshire

Technologies to be presented include:

- o Versatile Spectrum Sensing Method for Cognitive Radio
- o Improved Opto-Coupler Design with Enhanced Performance
- o Novel Chiral Cellular Structures with Tailorable Auxetic Effects Under Large Deformation

BREAKOUT SESSION 3A:

Fostering the Next Generation of R&D

Professionals: UC/Los Alamos

Entrepreneurial Postdoctoral Fellowship

Creates New Business Leaders

2:40 PM - 3:30 PM

Madison

Antonio Redondo, PhD, Director, Richard P. Feynman Center for Innovation, Los Alamos National Laboratory

The UC/Los Alamos Entrepreneurial Postdoctoral Fellowship is a unique program to mentor new entrepreneurs while at the same time creating new companies from exciting R&D advancements. It is targeted at existing postdoctoral researchers at Los Alamos National Laboratory to gain skills in entrepreneurship and commercializing technology. This program incorporates training and mentoring during the first six-month period, culminating in a focused six-month full-time Fellowship aimed at creating a new business in Northern New Mexico.

This presentation will highlight this entrepreneurial program and demonstrates how it provides a different dimension and new experience for the next generation of scientists and engineers—not only to strengthen national scientific and

technical capabilities, but also to add entrepreneurial aspect to their experience. It also is an excellent way to jumpstart commercialization of new technologies of the R&D lab and into the real world.

The Fellowship addresses the Laboratory's need to foster more frequent and better quality transitions from science and technology research into businesses and technology products, particularly within the Northern New Mexico region. It prepares young scientific leaders in the skills necessary to excel in high-commercialization and entrepreneurship. Through a two-phased approach, Phase 1 offers education and training to develop business knowledge to better steer research directions along a path that increases the possibility of adoption. Phase 2 is the focused six-month Fellowship for selected postdocs with the goal of creating or participating in a new entrepreneurial venture or joint collaboration with industry partners.

Phase 1: DisruptTECH is a series of coaching activities by experienced innovators and entrepreneurs to provide targeted guidance for R&D scientists to polish their research for presentation to functional partners, learning to refine their story, hone their pitch and sharpen presentation skills. National Laboratory Entrepreneurial Academy (NLEA) offers intensive business concepts training for lab technical staff how to develop, analyze and validate commercial potential of their research technology, and offers advising by business experts and experienced entrepreneurs to further develop their business concept.

Phase 2: The second phase is designed to facilitate the exploration/evaluation of a Los Alamos technology commercialization. It is an introductory transformation of new knowledge and inventions into viable commercial products and services utilizing the Lean Startup Method.

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BREAKOUT SESSION 3B:**R&D Evaluation Approaches for Efficiency and Effectiveness**

2:40 PM - 3:30 PM

Vesey

Bruce Chehroudi, PhD, Vice President of Advanced Technology Consultant

R&D managers in the U.S. Federal Government are responsible for the performance of their divisions. They not only need to be aware of current evaluation methods, they also should be able to choose the most appropriate ones for strategic planning and continuous improvement. Considering that in 2018 nearly \$553 Billion, or 2.8% of the GDP, is spent on R&D in USA, the selection and use of—not just one—but a portfolio of evaluation methods is of paramount importance.

Considering the U.S. Federal Government R&D expenditure of about \$117.7 Billion in FY18, and the highly competitive nature of global R&D, it is imperative that R&D program managers involved in the federal government be fully aware and understand the strengths and short-comings of these evaluations tools and choose the best ones for performance assessment of their R&D activities. Evidence generated by using a variety of R&D evaluation methods would improve program planning and implementation and strengthen the defense of programs with the OMB and Congress.

R&D program managers need to know if their R&D activities are done right, are focused on the right research areas and create knowledge that generated additional benefits to the nation and stimulated collaborations that affected our R&D capabilities. The more R&D managers can show that they offer value for the money, the more credible the case for increased resources become.

In this presentation, R&D productivity, efficiency and effectiveness are defined.

A concise overview of a number of evaluation methods found to be useful to program managers in Federal agencies will be discussed. Examples of successful applications by R&D managers in the Department of Energy (DOE), National Science Foundation (NSF) and National Institute of Standards and Technology (NIST) will be offered as case studies.

SPECIAL SESSION #3**DIGGING INTO THE 2019 GLOBAL R&D FUNDING FORECAST: EXPLORING LEADING STRATEGIES FOR CREATING NEW R&D BUDGETS**

3:40 PM - 4:30 PM

Grand Ballroom I

The Panelists include:

Tim Studt, MBA (Moderator)

Bradford L. Goldense, NPDP, CMF, PIM, CCP, MBA, CEO, Goldense Group,

Clifford L. Renschler, PhD, Director of Component Science, Engineering and Production Center (CSEP), Sandia National Laboratories

James Wang, MS, General Director of Strategy and R&D Planning Office, Industrial Technology Research Institute (ITRI)

The 2019 Global Funding Forecast (FF) offers rich ground for a deeper discussion within the R&D community and top leadership as it reveals trends, challenges and challenges in the landscape world.

For the first time, the R&D 100 Conference is bringing together a group of experts who will share how R&D budgeting trends impact their own organizations and work in the field. Looking at the executive highlights of R&D Magazine's GFF, as well as their own experiences, they will dig deeper into the trends to watch.

This panel will provide insights experienced domestic and offshore industrial and government R&D managers.

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for creating new R&D budgets for 2019 and 2020. All aspects of R&D will be discussed—and will include the recruitment and retention of skilled R&D personnel; the estimating, generation and justification of R&D operating costs; the calculation and required documentation for R&D-based capital expenditures; and the current status of R&D grants and proposals.

Information will be provided on the status of R&D-based taxes, deductions, credits, incentives and the short-term outlook for R&D budget growth. A discussion of how new technologies are impacting R&D budgeting plans will also be a highlight of this presentation. Each panel member will provide a short talk on R&D budgeting trends in their own immediate work organizations. This will be followed by a series of key questions posed to the panel by the moderator and concluding with a Q&A session with the audience.

R&D 100 AWARDS GALA REGISTRATION

4:00 PM - 6:00 PM

Floridian Ballroom Foyer South

R&D 100 AWARDS GALA COCKTAIL RECEPTION

6:00 PM - 7:00 PM

Floridian Ballroom Foyer South

R&D 100 AWARDS GALA AND CEREMONY

7:00 PM - 10:30 PM

Floridian Ballroom G-L

R&D 100 AWARDS GALA AFTER PARTY

10:30 PM - 12:00 PM

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R&D 100 CONFERENCE SPEAKERS

OPENING KEYNOTE

MAKING INNOVATION DRIVE THE BOTTOM-LINE: SUCCESS STORIES FROM THE AMERICAN INNOVATION INDEX™
GRAND BALLROOM I

Charles L. Colby

Chief Methodologist and Founder of Rockbridge Associates



Charles L. Colby, Chief Methodologist and Founder of Rockbridge Associates, is a noted innovation scholar who has written and presented extensively on technology adoption, including co-authoring a book,

Techno-Ready Marketing: How and Why Your Customers Adopt Technology.

In his 30+ year career, he has consulted for leading services firms, technology manufacturers, on-demand economy providers and tech start-ups. Aside from his responsibilities as a principal at Rockbridge, he works with researchers around the world who study technology behaviors, and oversees the National Technology Readiness Survey, which has tracked consumer tech trends since 1999.

Gina D. Woodall

President of Rockbridge Associates, Inc



Gina D. Woodall, President of Rockbridge Associates, Inc., has over two decades of experience guiding services and technology firms in areas including product development, branding, loyalty, segmentation and digital strategy. Her clients

include Fortune 500 firms in the travel, telecommunications, financial services and IT sectors, as well as numerous start-ups.

Gina has authored several articles and made presentations at venues such as the

CES, American Marketing Association, Innovation Exchange, Frontiers in Service and the Market Research Association.

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FRIDAY KEYNOTE

FINDING THE FUTURE: HOW THE BEST ORGANIZATIONS SCOUT EMERGING TECHNOLOGY
GRAND BALLROOM I

Scott Kirsner

Co-Founder of Innovation Leader



Scott Kirsner is Co-Founder of Innovation Leader, a Cambridge based information science focused on helping innovators in large companies. Scott has spent two decades as a business journalist and contributing editor at the Boston

Wired Magazine, Fast Company, Variety, New York Times, BusinessWeek and other publications. His focus on how innovative that matter get introduced has taken him to the White House, Sundance Film Festival, United Nations, and the innovation labs at Google, Disney, General Motors, Delta Lines, iRobot and many other companies.

He has presented leadership strategies to corporate leaders, technologists and entrepreneurs at Harvard Business School, MIT R&D Conference, South by Southwest, the Sundance Film Festival, Mass Tech Leadership Council, SMPTE Annual Technology Conference, HubSpot Inbound, Internet Week, Churchill Club and NAB Futures Summit. Scott has also appeared on NBC's Today Show, NPR's Science Friday, the Discovery Channel and WBUR's Radio Boston.

Thursday Speakers

**MEASURE TWICE, INVEST ONCE:
ANALYTICS CAN COST YOU A BUNDLE IF
YOU DON'T**

GRAND BALLROOM I

Figen Ülgen, PhD

General Manager, Datacenter Group, Intel Corporation



Figen Ülgen, PhD, is General Manager of the Rack Scale Design Group within the Datacenter Group at the Intel Corporation. Ülgen oversees product and solutions roadmap as well as the total cost of ownership (TCO)

strategy for Rack Scale Design, which is an innovative way of building data centers of the future. Ülgen joined Intel in 2014, where she led as General Manager for HPC Software and Cloud developing and promoting HPC Platform Software technologies for the HPC ecosystem.

Her 25-year global industry experience includes technology innovation, competitive strategy, software product planning and management, as well as driving change across large organizations worldwide. She founded the award-winning OpenHPC Community under Linux Foundation with a group of ecosystem partners to democratize HPC.

During her time with the HPC Software and Cloud, the team shipped Intel® HPC Orchestrator, a fully supported production quality software product in less than 18 months—concept to general availability.

Prior to that, she was a Senior Director with Microsoft for over a decade in various leadership roles in Data Science, Azure Public Cloud and HPC teams. Before Microsoft, Ülgen worked at McKinsey & Co., Motorola and Justsystem Corporation in Japan.

With a passion for serving underprivileged youth and women in technology field, Ülgen sits on the

Saturday Academy Board of Directors and is regularly invited to speak on behalf of women in technology. She earned a Bachelor's degree in Computer Engineering, a Master's degree in Expert Systems under a Fulbright Scholarship and a PhD in Machine Learning under the Japanese Government Ministry of Education Scholarship.

**EMERGING TRENDS IN LIFE SCIENCE:
ADVANCES IN 3D CELL CULTURE**
MADISON

Anthony Frutos, PhD

Business Technology Director, Corning Life Science



Anthony Frutos, PhD, is the Business Technology Director for Corning Life Sciences, responsible for product and process development and delivery for the Life Sciences division. He and his team have been responsible for the development and

commercialization of several innovative platforms in the Life Sciences market, including the Corning® Epic® System, the world's first high-throughput, label-free detection system for drug discovery, the Corning® HYPERFlask® and HYPESack® platforms for high density cell culture, and the Corning® Spheroid Microplate platform for 3D cell culture.

Tony has over 19 years of experience in industrial research and development. He holds 16 U.S. patents and is an author for more than 39 technical publications. Tony received a Bachelor's degree in Chemistry from Brigham Young University and a PhD in Analytical Chemistry from the University of Wisconsin, Madison.

**EXCEPTIONAL R&D PRESENTATIONS
IN SPITE OF POWERPOINT: HOW TO
COMMUNICATE IN THE DIGITAL AGE**
VESEY

Mark E. Jones, PhD

Executive External Strategy and Communications Fellow, Dow Chemical



Mark E. Jones, PhD, currently Executive External Strategy and Communications Fellow for Dow Chemical, is a frequent speaker on a variety of industry and chemistry related topics. He is on the staff of the Dow CTO, the focal

point for next generation sustainability goals associated with innovation, and he continues to provide technical support for Dow's Renewable Chemistries Expertise Center.

Mark is a Fellow of the American Chemical Society and works frequently with the ACS, hosting webinars and blogging in Industry Voices. Mark represents Dow Chemical on the American Chemical Society's Corporation Associates and is a member of the Chemical Heritage Landmark Committee. He is a member of the Board of Directors of the Biotechnology Innovation Organization Industrial and Environmental Section. He is co-chair of the National Academy's Chemical Sciences Roundtable and co-author of the recently released National Research Council reports, "Sustainable Development of Algal Biofuels in the United States" and "An Assessment of ARPA-E." Mark is a frequent contributor to both American Chemistry Council and World Economic Forum teams focused on renewable and sustainable chemistry.

**SPECIAL SESSION #1: TECH SCOUT
RELAY PANEL**
GRAND BALLROOM I

Jack G. Abid

Patent Prosecution Group, Allen, Dy Doppelt, & Gilchrist, PA



Jack G. Abid is a shareholder and president in the Patent Prosecution Group at Allen, Dy Doppelt, & Gilchrist. Jack received a Bachelor of Science in Physics from Jacksonville University and a Bachelor of Science in Electrical Engineering

from Georgia Tech. Jack received his degree from the University of Florida's patent prosecution experience includes electrical and electronic equipment, telecommunications equipment and services, laser and optical devices, semiconductor devices, semiconductor processing, mechanical devices, medical devices and software.

While attending the University of Florida, Jack served as President of the Levin College of Law, Jack served as President-in-Chief, Research Editor and Web Editor of the Florida Journal of International Law. He was also a member of the Journal of Technology Law and Policy and was elected as a class representative of the John Marshall Bar Association for two years. During his service as a class representative, Jack received the President's Award for outstanding service. He has secured hundreds of patents for his clients over 20 years of experience, and has advised clients of all sizes on intellectual property.

Vicki A. Barbur, PhD

Senior Director, IP and Technology
Commercialization, Commercial Business,
BATTELLE



Vicki A. Barbur, PhD, is Senior Director, IP and Technology Commercialization, Commercial Business at BATTELLE, and she brings dual expertise in science and business as well as broad experience in several technical

disciplines to her overarching role as an innovative growth leader associated with technology commercialization and IP management. She strategizes to make government investment in R&D accessible to sponsor organizations and the private sector with the overall goal of advancing economic development and contributing value to the nation.

Her primary areas of focus are Health IT, Social Analytics, Cyber, Aviation and Transportation. Vicki's work also includes streamlining the process for securing Intellectual Property and Licensing to allow external organizations and companies to put innovation to use quickly as well as developing collaborative and strategic partnerships through University/Academic Institutions, Innovation Bridges, Tech Hubs, Accelerators and Incubators. Previously, Vicki was Senior Vice President and Chief Technical Officer for Concurrent Technologies Corporation and Vice President, Research & Development for Cardinal Health. In October 2016, she joined The MITRE Corporation supporting the Technology Transfer Office at The MITRE Corporation.

Vicki earned a PhD in physics from Imperial College, University of London, and a MSc in Applied Statistics from the University of Oxford, both in the UK. She also holds an Executive MBA in global executive leadership from Amos Tuck Business School, Dartmouth College in Hanover, New Hampshire as well as a BSc in Physics from Imperial College, University of London. Vicki previously was

employed by the Eastman Kodak Company as a Technology Director and by Cardinal Health as their VP R&D for the medical segment.

George Gibson, MBA

Director of Technology Scouting,
Xerox Corporation



George Gibson, MBA, is the Director of Technology Scouting for Xerox Corporation. In this role, George is responsible for identifying and sourcing new technologies that accelerate Xerox's product and service

development cadence and allows the company to expand into new and desirable markets. He completed his undergraduate and graduate training in chemistry at Binghamton University and holds an MBA from the University of Rochester's Simon Business School.

George holds 67 US patents, has published more than 20 papers, contributed to and authored several books, and is a frequent lecturer in imaging science, decision theory and R&D management.

Terry Russell, PhD

Managing Director of Interface Ventures



Terry Russell, PhD, is the Managing Director of Interface Ventures, a new venture development company specializing in the high technology, advanced manufacturing and healthcare industries. Previously, Terry was the CEO of Makoto Life

Sciences, Inc., a biotechnology discovery and services company that he co-founded with scientists from Harvard University and the Harvard Medical School.

Terry is an active contributor to the Boston/Cambridge startup community

where he speaks on entrepreneurship, acts as a judge for business plan competitions, and is a mentor to entrepreneurs. Prior to his entrepreneurial efforts, he conducted research at Harvard University and Boston University on a range of topics, from detectors for biological warfare agents to genetically engineered proteins used in anti-counterfeiting applications. He holds Bachelor's degrees in Mathematics and Physics, as well as an MA and a PhD in Physics, all from Boston University.

Laura A. Schoppe, MBA, MSE

President, Fuentek, LLC



Laura A. Schoppe, MBA, MSE, is president of Fuentek, LLC, a consulting firm that provides intellectual property management (IP) and technology transfer services. Laura has an extensive background in all aspects of IP

management and has been a lead negotiator for major licensing agreements, strategic relationships and collaboration agreements at top universities, government agencies and Fortune 500 companies around the world.

Her expertise includes building efficient and effective technology management organizations; intellectual property portfolio management; open innovation; technology marketing and strategic communications; negotiating licenses, collaborative R&D partnerships, sponsored research agreements (SRAs) and other deals; and entrepreneurship training for innovators/researchers.

Prior to founding Fuentek in 2001, Laura worked as an engineer and manager for several defense contractors, leading multi-million-dollar projects. She earned an MBA at UNC-Chapel Hill; her MSE in Mechanical and Aerospace Engineering at Princeton University; and her BSE in Mechanical Engineering at Carnegie-Mellon University. She currently serves on the board of the Association of University Technology Managers Foundation.

GENERAL SESSION #2: CORPORATE R&D SPENDING: ART OR SCIENCE?

GRAND BALLROOM I

Bradford L. Goldense, NPDP, CMfgE, CPIM, CCP, MBA

CEO of Goldense Group, Inc.



Bradford L. Goldense, NPDP, CMfgE, CPIM, CCP, MBA, is CEO of Goldense Group, Inc. (GGL), a consulting, education and research firm that has been providing advanced business and technology management services to

companies that create and commercialize products since 1986. Brad is Subject Matter Expert in the management and process of product development, innovation and performance measurement.

Brad was a faculty member of the Graduate Engineering School Executive Program at The Gordon Institute of Technology University for 19 years. He consults with more than 200 of the Fortune 1000 in over 500 manufacturing locations around the world. He previously held positions at Texas Instruments, Price Waterhouse, Knig & Associates, Index Group and a fan engineering business before founding GGL.

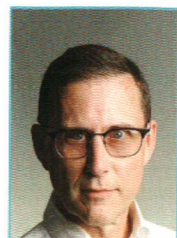
Brad has a BSCE from Brown University and an MBA from Cornell's Johnson School. He holds four professional certifications: New Product Development Professional by the Product Development and Management Association, Certified Manufacturing Engineer by the Society of Manufacturing Engineers, Certified Computer Professional by the Institution of Computer Professionals, and Certified in Production and Inventory Management by the American Production and Inventory Control Society. He has authored or been cited in more than 100 articles and books, and holds nearly 100 registered copyrights.

AI, MACHINE LEARNING AND BIG DATA FOR LIFE SCIENCES: THE GOOD, THE BAD AND THE UGLY

MADISON

Matthew Clark, PhD

Director, Scientific Services, Elsevier



Matthew Clark, PhD, received his degree in Chemistry from the University of Alabama and is the Director of Scientific Services at Elsevier. He has broad experience in pharmaceutical research and development and has led teams in discovery

research for large and small pharmaceutical companies as well as in the scientific software and data industries.

Matt is highly published in preclinical and clinical informatics for pharmaceutical development and is currently leading efforts to apply AI/Machine Learning to synthetic chemistry, predictive modeling and safety pharmacology with his team at Elsevier.

LIFT-OFF: HOW FOSTERING INDUSTRY PARTNERSHIPS FUELED A NEW CUTTING-EDGE UNIVERSITY LABORATORY FOR AEROSPACE ADVANCED MANUFACTURING

VASEY

Vicki L. Golich, PhD

Provost and Executive Vice President of Academic and Student Affairs, MSU Denver



Vicki L. Golich, PhD, is Provost and Executive Vice President of Academic and Student Affairs at Metropolitan State University (MSU) Denver. She oversees curriculum development and delivery, as well as all wrap-around student support services

and information technology services. She is actively involved in space planning across MSU.

Erin Hillhouse, AIA

Senior Associate, Anderson Mason Dale Architects



Erin Hillhouse, AIA, is a Senior Associate at Anderson Mason Dale Architects (AMD). He joined AMD in 2006 and has 20 years of experience with an extensive background in large and complex projects for higher

education. Since joining AMD, Erin has developed a focus on facilities for engineering education. He has led significant projects of this type at several universities. Erin's design work has been recognized by several publications, including *Metropolis* and *Architectural Review*.

David C. Pfeifer, AIA

Partner, Anderson Mason Dale Architects



David C. Pfeifer, AIA, has been a Partner at Anderson Mason Dale Architects (AMD) for 15 years. He has worked extensively on higher education campuses throughout Colorado and the Rocky Mountain West. On the Auraria campus

in downtown Denver, home to MSU Denver, David served as the Design Principal for AMD on the MSU Denver's AES Building, the Auraria Higher Education Center Science Building Addition and Renovation. He is the Principal in Charge on the University of Colorado Denver Student Commons Building (completed) and Student Wellness Center (under construction) on the Auraria campus.

Tina Wells

Director of Facilities Planning and Space Management, MSU Denver



Tina Wells has been part of MSU Denver for four years and currently acting as Director of Facilities Planning and Space Management. She has worked in higher education for nearly 10 years and came to MSU Denver from

the University of Colorado Boulder as a Construction Project Manager. Tina served as the Construction Project Manager for MSU Denver for the Aerospace and Engineering Sciences Building.

GENERAL SESSION #3: EXCLUSIVE PREVIEW OF THE 2019 GLOBAL R&D FUNDING FORECAST: PLANNING FOR FUTURE GROWTH AND INVESTMENTS IN R&D

GRAND BALLROOM I

Tim Studt, MBA

Global R&D Funding Forecast



Tim Studt, MBA, served as an editor for *Advantage Business Marketing* (ABM) Science Group for more than 30 years in positions ranging from Publisher/Editor-in-Chief, Editorial Director and Senior Editor. He is currently the Content

Editor for R&D Magazine and its website, rdmag.com. Tim has authored R&D Magazine's *Global R&D Funding Forecast* for more than 25 years. This annual report offers exclusive insights and forecasts into the global R&D landscape. He writes a weekly online column, *R&D Market Edge*, which include an exclusive R&D Index of the 25 companies that invest top dollars in R&D annually.

Tim also serves on the judging panel for the R&D 100 Awards and was involved in the launch of multiple ABM publications and their electronic media counterparts, including *Laboratory Design*. He has a BS in Mechanical and Aerospace Engineering from Illinois Institute of Technology and an MBA from Lewis University. Tim is currently writing a book on the subject of Scientific Community, which he hopes to publish in 2020.



INNOVATING
A BETTER FUTURE

Industrial Technology Research Institute (ITRI) is one of the world's leading technology R&D institutions aiming to innovate a better future for society. Founded in 1973, ITRI has played a vital role in transforming Taiwan's industries from labor-intensive into innovation-driven. It focuses on the fields of Smart Living, Quality Health, and Sustainable Environment.

Over the years, ITRI has incubated over 270 innovative companies, including well-known names such as UMC and TSMC. In addition to its headquarters in Taiwan, ITRI has branch offices in the U.S., Europe, and Japan in an effort to extend its R&D scope and promote opportunities for international cooperation around the world.



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Friday Speakers

GENERAL SESSION #4: INNOVATE AT SPEED: SUSTAINING INNOVATION IN A WORLD OF RAPID CHANGE

GRAND BALLROOM I

Christie McCarthy, MSA

Director of New Product Realization,
Corning Life Sciences



Christie McCarthy, MSA, is the Director of New Product Realization for Corning Life Sciences. In this role, she is responsible for the division innovation strategy and new product delivery from ideation to commercialization.

Christie has 18 years of commercial and business development experience across a range of Corning divisions, including Corning Display Technologies, Corning Environmental Technologies and Corning's Emerging Innovations Group.

Prior to Corning, she served as an Intelligence Officer in the United States Navy. Christie received a Bachelor's degree in Finance from the University of Illinois in Champaign, Ill, and an MSA in Financial Management from the Naval Postgraduate School in Monterey, Calif.

NEW IDEAS IN INNOVATION: PROJECT 2020 AND THE JOBSITE OF THE FUTURE

GRAND BALLROOM I

David J. Wilson, MS

Chief Innovation Officer, Bechtel



David J. Wilson, MS, is Chief Innovation officer for Bechtel and works in the Houston office. He was elected Principal Vice President in 2016. David manages Bechtel's Future Fund, a program designed to

encourage colleagues across the company to create, share, explore and develop new ideas to enhance performance and competitiveness.

David joined Bechtel in 2001 as a mechanical systems engineer at the Vte Treatment and Immobilization Plant in Richland, WA. Since then he has held positions of increasing responsibility with leadership roles as a Lean Six Sigma black belt and as manager of a telecommunications mobility project. His most recent role was as manager of innovation and virtual project delivery for the infrastructure global business unit. He is a graduate of the University of Utah and received a Master's degree in Engineering and Technology Management. He is a certified professional engineer and Six Sigma Master Black Belt.

SPECIAL SESSION #2: THE TECH MATH SPRINT

GRAND BALLROOM

Andrea Adkins

Assistant Director, Office of Technology Transfer, University of Central Florida



Andrea Adkins is an Assistant Director in the Office of Technology Transfer at the University of Central Florida, which placed 22nd in the Ken Institute's 2017 report on The Best Universities for Technology Transfer. Andrea works

with scientists and students as well as legal and industry representatives to protect and commercialize intellectual property originating from research and educational activities conducted at UCF. A UCF graduate with a Master of Science in Research Administration, Andrea joined UCF's Office of Research & Commercialization in 1999.

Prior to joining UCF, she worked in business development for the engineering and construction industries. She also

founded and operated a small business providing manufacturers' representative services. Andrea holds a Master of Science degree in Research Administration and is a Registered Technology Transfer Professional.

Matthew Simon

Licensing Manager for Engineering & Physical Sciences, University of New Hampshire



Matthew Simon, Licensing Manager for Engineering & Physical Sciences, manages the University of New Hampshire's intellectual property assets with the goal of protecting, promoting, and commercializing UNH's

innovations. He is responsible for the intellectual property originating from The College of Engineering and Physical Sciences; The School of Marine Science and Ocean Engineering; The Institute for Earth, Oceans, and Space; The Research Computing Center; and The Interoperability Laboratory.

Matt's work is informed by his experience and interest in leveraging LEAN Launchpad methodologies. He teaches undergraduate and graduate students in intellectual asset management and business model creation and has participated in numerous NSF I-Corps site cohorts. Matt also serves on UNH's Export Controls Committee and is a member of AUTM.

Prior to joining the UNH Innovation office, Matt was a Machine Vision Engineer with OSRAM. Most recently, he worked in OSRAM's Specialty Products business group and was responsible for the design and development of automotive SSL manufacturing equipment and PCB inspection systems. He is a certified LEAN Manufacturing Leader and has led numerous inter-disciplinary teams. Matt also worked as an Engineer for Deep Information

Sciences, where he developed mesh-network sensor arrays, and as a Counselor for at-risk and underprivileged boys in the Mayhew Program.

Matt earned his BS in Electrical Engineering from the University of New Hampshire and his BA in the Administration of Justice from the University of Pittsburgh. He is currently an MBA-candidate at the University of New Hampshire.

Peter Christensen, PhD

Deputy Director for Licensing, Pacific Northwest National Laboratory



Peter Christensen, PhD, is the deputy director for licensing in the Pacific Northwest National Laboratory's technology commercialization group, which is part of PNNL's Technology Deployment and Outreach department. This group is

responsible for the identification, protection and management of intellectual property created at PNNL, and it is responsible for the licensing and deployment of these technologies.

Prior to joining PNNL, Peter worked as a patent attorney and as the vice president of engineering and intellectual property for a leading PEM fuel cell developer. He has also worked for an energy consulting company where he helped large industrial users prepare for and take advantage of the increasingly complex and changing electrical power markets.

Peter holds a Bachelor of Science degree in Electrical Engineering from the University of Minnesota and a juris doctor from the University of New Hampshire, School of Law (formerly Franklin Pierce Law Center) in Concord, New Hampshire.

Vicki A. Barbur, PhD

Senior Director, IP and Technology Commercialization, Commercial Business, BATTELLE

Vicki A. Barbur, PhD, is Senior Director, IP and Technology Commercialization,



Commercial Business at BATTELLE, and she brings dual expertise in science and business as well as broad experience in several technical disciplines to her overarching role as an innovative growth leader associated with

technology commercialization and IP management. She strategizes to make government investment in R&D accessible to sponsor organizations and the private sector with the overall goal of advancing economic development and contributing value to the nation.

Her primary areas of focus are Health IT, Social Analytics, Cyber, Aviation and Transportation. Vicki's work also includes streamlining the process for securing Intellectual Property and Licensing to allow external organizations and companies to put innovation to use quickly as well as developing collaborative and strategic partnerships through University/Academic Institutions, Innovation Bridges, Tech Hubs, Accelerators and Incubators. Previously, Vicki was Senior Vice President and Chief Technical Officer for Concurrent Technologies Corporation and Vice President, Research & Development for Cardinal Health. In October 2016, she joined The MITRE Corporation supporting the Technology Transfer Office at The MITRE Corporation.

Vicki earned a PhD in physics from Imperial College, University of London, and a MSc in Applied Statistics from the University of Oxford, both in the UK. She also holds an Executive MBA in global executive leadership from Amos Tuck Business School, Dartmouth College in Hanover, New Hampshire as well as a BSc in Physics from Imperial College,

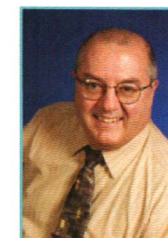
University of London. Vicki previously employed by the Eastman Kodak Company as a Technology Director and by Cardinal Health as their VP R&D for the medical segment.

FOSTERING THE NEXT GENERATION OF R&D PROFESSIONALS: UC/LOS ALAMOS ENTREPRENEURIAL POSTDOCTORAL FELLOWSHIP CREATES NEW BUSINESS LEADERS

MADISON

Antonio Redondo, PhD

Director, Richard P. Feynman Center for Innovation, Los Alamos National Laboratory



Antonio Redondo, PhD, received a BS in Physics from Utah State University in 1971 and a MS and PhD in Applied Physics from the California Institute of Technology in 1972 and 1977. He taught physics at the University of Tennessee in Knoxville and the University of Andes in Venezuela.

In 1980 returned to Caltech, where he was a research associate investigating semiconductor surfaces and interfaces. He came to Los Alamos National Laboratory as a Technical Staff Member in the Electronics and Electrochemical Materials and Devices Group in 1983, where he researched electrochemical fuel cells and semiconductor devices.

Antonio led a team of scientists at Los Alamos to design a catalytic converter for a new generation of green automobiles; this project involved collaborations with the other national laboratories and research organizations at General Motors, Ford and Chrysler. In March 1997, Antonio received a Medal for Technical Achievement from then Vice President Al Gore for his contributions to this project.

He joined the Theoretical Division in 1994 as Group Leader of the Theoretical Chemistry and Molecular Physics Group. After 2000, he started to work on theoretical biology problems, particularly

cell signaling and immunology. During 2005 and 2006, he was Group Leader of the Theoretical Biology and Biophysics Group and became Division Leader in June 2006. In 2015, he went into full-time research and was appointed Senior Scientist in the Theory, Simulation and Computation Directorate. He has been an Adjunct Professor in the Computational Science Research Center at San Diego State University and the Chemical Engineering Department at the University of California at Santa Barbara.

Antonio is a Fellow of the American Association for the Advancement of Science and the World Technology Network. His recent interests in research have focused on modeling soft matter and fluid systems. In February 2018, he was appointed head of the Richard P. Feynman Center for Innovation, the organization at Los Alamos National Laboratory in charge of technology transfer.

R&D EVALUATION APPROACHES FOR EFFICIENCY AND EFFECTIVENESS VESEY

Bruce Chehroudi, PhD Vice President of Advanced Technology Consultant



Bruce Chehroudi, PhD, Vice President of Advanced Technology Consultants, has accumulated years of technical and leadership experiences in different capacities and organizations, which include Principal Scientist

and Group Leader at the Engineering Research Consultants Inc. (appointed at Air Force Research Laboratory), Chief Scientist at Raytheon STX, Visiting Technologist at Ford's Advanced Manufacturing Technology Development Center, tenured Professor of Mechanical Engineering at Kettering

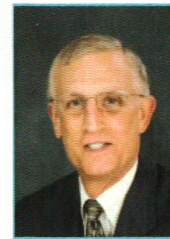
University and the University of Illinois, and Senior Research Staff/Research Fellowship at Princeton University.

Bruce has directed numerous multi-million dollar interdisciplinary projects in areas involving chemically reacting flows, combustion and emission of pollutants, sustainable and alternative energy sources, distributed ignition, material/fuel injection, advanced pollution reduction technologies, propulsion concepts, gas turbine and liquid rocket engines, combustion instability, laser optical diagnostics, spectroscopy, supercritical fluids and applications in environmental and propulsion systems, advanced composites, MEMS, nanotechnology and micro fluidics.

He has a PhD in Mechanical & Aerospace Engineering and Post-Doctoral Fellow (Princeton University), MS in Mechanical Engineering (Southern Methodist University, Summa Cum Laude), MS in Economics (Swiss Finance Institute, Magna Cum Laude), and BS in Mechanical Engineering (Sharif University). He is a senior member of the American Institute of Aeronautics and Astronautics Propellant & Combustion Committee (2008-present) and an Associate Fellow of American Institute of Aeronautics and Astronautics. He has more than 150 publications with extensive experience in both scientific and management areas and intensive trainings in finance and financial engineering.

SPECIAL SESSION #3: DIGGING INTO THE 2019 GLOBAL R&D FUNDING FORECAST: EXPLORING LEADING STRATEGIES FOR CREATING NEW R&D BUDGETS GRAND BALLROOM I

Bradford L. Goldense, NPDP, CMfgE, CPIM, CCP, MBA CEO of Goldense Group, Inc.



Bradford L. Goldense, NPDP, CMfgE, CPIM, CCP, MBA, is CEO of Goldense Group, Inc. (GGI), a Needham, Massachusetts consulting, education and research firm that has been providing advanced business and technology management services to

companies that create and commercialize products since 1986. Brad is Subject Matter Expert in the management and processes of product development, innovation and performance measurement.

Brad was a faculty member of the Graduate Engineering School Executive Program at The Gordon Institute of Tufts University for 19 years. He consulted with more than 200 of the Fortune 1000 in over 500 manufacturing locations around the world. He previously held positions at Texas Instruments, Price Waterhouse, Knight & Associates, Index Group and a family engineering business before founding GGI.

Brad has a BSCE from Brown University and an MBA from Cornell's Johnson School. He holds four professional certifications: New Product Development Professional by the Product Development and Management Association, Certified Manufacturing Engineer by the Society of Manufacturing Engineers, Certified Computer Professional by the Institute for Certification of Computer Professionals, and Certified in Production and Inventory Management by the American Production and Inventory Control Society. He has authored or been cited in more than 300

articles and books, and holds nearly 70 registered copyrights.

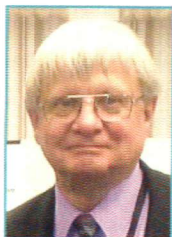
He was a founding member of the Society of Concurrent Engineering and founder of the Society of Concurrent Product Development which he ran until 2006. He retired from the board in 2010. His non-profit corporation lives on, with appreciated support and funding from

Clifford L. Renschler, PhD Director of the Component Science, Engineering and Production Center (CSEP), Sandia National Laboratories

Clifford L. Renschler, PhD, is Director of the Component Science, Engineering and Production Center (CSEP) at Sandia National Laboratories. He oversees the design and much of the production of all power sources, explosive components and neutron generators

in the U.S. nuclear stockpile. CSEP also has programmatic oversight of all Sandia nuclear weapons production. Cliff's organization is considered to be a model of Lean practice, winning the Shingo Award, to date the only publicly funded entity ever to have done so.

Cliff served in the Sandia Nuclear Weapons Program Office and also spent a number of years in Sandia's materials science organization, contributing to Sandia's microelectronic and photovoltaic programs among others. He holds a Bachelor's in Chemistry from the University of Evansville and a PhD in Chemistry from the University of Illinois. He is the author of nearly 50 peer-reviewed technical papers and holds five patents.

Tim Studdt, MBA**Global R&D Funding Forecast**

Tim Studdt, MBA, served as an editor for Advantage Business Marketing's (ABM) Science Group for more than 30 years in positions ranging from Publisher/Editor-in-Chief, Editorial Director and Senior Editor. He is currently the Contributing

Editor for *R&D Magazine* and its website, rdmag.com. Tim has authored *R&D Magazine's Global R&D Funding Forecast* for more than 25 years. This annual report offers exclusive insights and forecasts into the global R&D landscape. He writes the weekly online column, *R&D Market Pulse*, which include an exclusive R&D Index of the 25 companies that invest top dollars in R&D annually.

Tim also serves on the judging panel of the R&D 100 Awards and was involved in the launch of multiple ABM publications and their electronic media counterparts, including *Laboratory Design*. He has a BS in Mechanical and Aerospace Engineering from Illinois Institute of Technology and an MBA from Lewis University. Tim is currently writing a book on the subject of Scientific Complexity, which he hopes to publish in 2020.

James Wang, MS**General Director of Strategy and R&D Planning Office for Industrial Technology Research Institute (ITRI)**

James Wang, MS, is the General Director of Strategy and R&D Planning Office for Industrial Technology Research Institute (ITRI) in Taiwan. James' background is a mechanical engineer and he joined ITRI in 1982. In

1992, he became the Deputy General Director of Mechanical & System Research

Laboratories (MSL) in charge of advanced technology and product R&D for motor vehicles. During his time in MSL, he led many R&D projects to design and develop powertrain systems for internal combustion engine, hybrid electric and battery electric vehicles. In 2015 he was transferred to the ITRI headquarters' Strategy and Planning Office to supervise overall R&D programs.

James' current responsibilities include ITRI strategic planning, management of Advanced Technology Research and Infrastructural Capability Boosting programs. He also serves as the main correspondent to government R&D funding agents. He oversees the ITRI R&D technology domains with an annual R&D budget size of \$370 million, and a recent key effort has been to enhance cross-disciplinary collaboration and innovation among RTO, academia and industry.

James received a Master's degree in Science in Mechanical Engineering from the University of Wisconsin. He also serves as the President of SAE International Taipei Section, Research Institute Program Chairman of Energy Conservation Research Center in National Energy Program-Phase II, Director of Taiwan Automotive Research Consortium. He is actively engaged in the academia, industry and government sectors to share his R&D management experiences and advice.

James has received various awards from ITRI and Ministry of Economy Affairs for outstanding technology research and development achievements. He is honored as the Outstanding Engineer by the Chinese Society of Mechanical Engineers in 2011, the Technology Development Contribution Award from the Ministry of Economy Affairs in 2012, and the National Management Excellence Award of R&D in 2015.



Changing the World's Energy Future

Idaho National Laboratory stands out as a distinctly capable science and technology resource. The lab and its roughly 4,200 scientists, engineers and support staff build on the potential and promise of ideas that can benefit the real world.



TITLE SPONSOR:



MEMORY PROTECTION DEVICES, INC.

Memory Protection Devices, Inc. (MPD) is an ISO 9001 certified global manufacturer of battery holders, battery contacts, auto plugs, auto sockets, fuse holders, DC jacks, DC plugs and other electronic components and devices. Our parts are manufactured to rigorous standards in factories located around the world, which meet not only our quality requirements, but our social ones as well. We believe that many components have not been given as much thought as they deserve, and every day we work to find the next innovative design. After all, a defective component can cause complete failure in most devices, and a poorly designed one can cause many inconveniences to end users. It is due to this core value that MPD is viewed as the industry's leading innovator.

MPD was originally founded in 1980 by three executives with a wealth of experience in the electronics industry. Today, the company is being led into an era of fresh growth under a new president with over 30 years of experience. The company's name, Memory Protection Devices, refers to the initial usage of our battery holders, which was to power CMOS RAM, a special type of computer memory that is used to store system settings. Although we are still protecting memory with our battery holders, MPD has since branched out and we now have a diverse line of products.

MemoryProtectionDevices.com

FUJIFILM **Dimatix**
Value from Innovation

FUJIFILM DIMATIX

FUJIFILM Dimatix, the world's leading provider of inkjet printheads for commercial and industrial printing, is evolving inkjet into a micro-production process that will revolutionize the manufacture of electronic and bioscience applications companies' technology innovations and world-class fabrication processes enable high-performance, micro-precision print and deposition of traditional inks and nano-particle fluids on all types of surfaces, including flexible substrates.

Founded as Spectra in 1984 with an exclusive license relationship with Xerox, FUJIFILM Dimatix has developed significant intellectual property and multiple generations of proprietary drop-on-demand inkjet printheads capable of producing high performance digital images in a wide variety of printing and fluid jetting applications. The company invests heavily in research and development, maintaining one of the most capable inkjet R&D groups in the world. Over one-third of its staff actively engage in product engineering.

FujiFilmUSA.com



Idaho National Laboratory

IDAHO NATIONAL LABORATORY

Idaho National Laboratory (INL) is the nation's leading center for nuclear energy research and development. INL works in each of the strategic goal areas of DOE: energy, national security, science and environment. The full complement of capabilities enables INL to respond to today's nuclear energy challenges, serve as a multi-program lab with broad competencies in the energy and security sectors, and address the challenges ahead.

The Center for Advanced Energy Studies (CAES) is a research and education partnership between Boise State University, Idaho National Laboratory, Idaho State University, University of Idaho and University of Wyoming. INL demonstrates world-leading safety behavior, safety performance and environmental stewardship. The health and safety of every employee, both on- and off-the-job, is critical to our mission.

INL.gov

**ITRI**Industrial Technology
Research InstituteINDUSTRIAL TECHNOLOGY
RESEARCH INSTITUTE

Industrial Technology Research Institute (ITRI) is one of the world's leading technology R&D institutions aiming to innovate a better future for society. Founded in 1973, ITRI has played a vital role in transforming Taiwan's industries from labor-intensive into innovation-driven. It focuses on the fields of Smart Living, Quality Health and Sustainable Environment.

Over the years, ITRI has incubated over 270 innovative companies, including well-known names such as UMC and TSMC. In addition to its headquarters in Taiwan, ITRI has branch offices in the U.S., Europe and Japan in an effort to extend its R&D scope and promote opportunities for international cooperation around the world.

ITRI.org.tw

LEGIT

We founded the company in late 2016 because we saw huge inefficiencies in the way that engineers, researchers and scientists determined whether or not their ideas were novel or applicable in other technology areas.

Companies, both large and small, need to know what's special about their technical work that goes on within their organization. But engineers, researchers and scientists are too busy solving problems to track down all similar ideas within their technology area and justify why their solution is different. This drastically slows down the speed at which innovation can occur by creating a huge disconnect between those who understand the technology and those who understand the market.

Our top priority is making tools that engineers, researchers and scientists will get use out of. By making a tool that technical people want to use and running our advanced AI understanding over it, we realized that we could connect entire companies with a shared understanding, rapidly speeding up the pace of innovation.

Legit.ai

Announcing the 2018 R&D 100

For 56 years, the annual R&D 100 Award program has honored the past year's top 100 innovative technologies, products and advances in R&D. The 2018 R&D 100 Awards Finalists were announced in August 2018 and are presented here. An independent panel of more than 50 judges representing leaders in a variety of fields judged these 100 Awards Finalists as being exceptional in their industries. The R&D 100 Awards

Awards Finalists

are considered to be the most globally prestigious recognition of invention and innovation. These prestigious awards recognize top innovations across five categories: Analytical/Test; IT/Electrical; Mechanical Devices/Materials; Process/Prototyping; and Software/Services. For more information go to rd100conference.com/awards/.

R&D 100

56 YEARS OF INVENTION

ANALYTICAL/TEST

ACCObeam: Acoustic Collimated Beam

Organization:
Los Alamos National Laboratory

For more info:
www.lanl.gov

All-Hazards Analysis (AHA)

Organization:
Idaho National Laboratory

For more info:
www.inl.gov

Axalta Color Retrieval System featuring Acquire Quantum EFX

Organization:
Axalta Coating Systems

Co-Developer:
BYK-Gardner GmbH

For more info:
www.axaltacs.com

BioReliance Viral and Gene Therapy Assay Portfolio

Organization:
MilliporeSigma

For more info:
www.emdmillipore.com

Contura S400 Leak Detector

Organization:
INFICON

For more info:
www.inficon.com

CRISPR Integration Patents

Organization:
MilliporeSigma

For more info:
www.emdmillipore.com

Direct Electronic Vehicle Controller (DEVCon) with Auto-Shifter

Organization:
Southwest Research Institute

For more info:
www.swri.org

EDGE: Energized Dispersive Guided Extraction System

Organization:
CEM Corporation

For more info:
www.cem.com

FlexDex Needle-Drive

Organization:
FlexDex Surgical
Co-Developer:
University of Michigan

For more info:
www.flexdex.com

FLIR Griffin G510

Organization:
FLIR Systems, Inc.

Co-Developer:
MNML Design

For more info:
www.flir.com

gammaCore

Organization:
electroCore LLC

For more info:
www.electrocore.com

Helios G4 PFIB DualBeam

Organization:
Thermo Fisher Scientific

For more info:
www.thermofisher.com

HSQ-OCT, Handheld Skin Quality Optical Coherence Tomography

Organization:
Industrial Technology Research Institute (ITRI)

For more info:
www.itri.org.tw/eng

Immersive Imaging System

Organization:
MIT Lincoln Laboratory

Co-Developer:
The Department of Homeland Security Science and Technology Directorate

For more info:
www.ll.mit.edu

InfinityLab Poroshell 120 HILIC-Z Columns

Organization:
Agilent Technologies

For more info:
www.agilent.com

Insight

Organization:
Los Alamos National Laboratory

Co-Developer:
Viome, Inc.

For more info:
www.lanl.gov

Invitrogen LentiArray CRISPR Libraries

Organization:
Thermo Fisher Scientific
For more info:
www.thermofisher.com

Lambda OBC Optical Beam Combiner

Organization:
Sutter Instrument
For more info:
www.sutter.com

Large Field-of-View Bench-Top 3D X-Ray Phase Contrast Imaging System

Organization:
Sandia National Laboratories
For more info:
www.sandia.gov

Lighthouse Detectors

Organization:
Los Alamos National Laboratory
Co-Developer:
Quaesta Instruments, LLC; Phoenix International Holdings, Inc.; Sexton Corporation
For more info:
www.lanl.gov

MeasureReady 155 Precision Current and Voltage Source

Organization:
Lake Shore Cryotronics, Inc.
For more info:
www.lakeshore.com

Mirage IR Microscope

Organization:
Photothermal Spectroscopy Corp.
Co-Developer:
Light Light Solutions; Boston University; U.S. Naval Research Laboratory; Notre Dame University
For more info:
www.photothermal.com

NanoPOTS

Organization:
Pacific Northwest National Laboratory
For more info:
www.pnnl.gov

NeXT

Organization:
National Institute of Standards and Technology
For more info:
www.nist.gov

Novogro Bone Graft Substitute Putty

Organization:
Osteonovus, Inc.
For more info:
www.osteonovus.com

OARtrac

Organization:
RadiaDyne
Co-Developer:
Thomas Jefferson National Accelerator Facility
For more info:
www.radiadyne.com

OCA 200

Organization:
DataPhysics Instruments GmbH
For more info:
www.dataphysics.de

OptiCool

Organization:
Quantum Design Inc.
For more info:
www.qdusa.com

ORISE Tissue Retractor System

Organization:
Boston Scientific Corporation
For more info:
www.bostonscientific.com

Osiris

Organization:
Idaho National Laboratory
Co-Developer:
ORTEC Division of Advanced Measurement Technology, Inc.

Prime BSI Scientific CMOS Camera

Organization:
Photometrics
For more info:
www.photometrics.com

Proxy-CRISPR

Organization:
MilliporeSigma/Merck KGaA
For more info:
www.emdmillipore.com

Q Exactive HF-X Hybrid Quadrupole Orbitrap Spectrometer

Organization:
Thermo Fisher Scientific
For more info:
www.thermofisher.com

QTRam Quantitative for Content and Blend Uniformity

Organization:
B&W Tek
For more info:
www.bwtek.com

SP8 FALCON

Organization:
Leica Microsystems GmbH
For more info:
www.leica-microsystems.com

Spheryx xSight

Organization:
Spheryx, Inc.
For more info:
<https://spheryx.solutions>

Strideway

Organization:
Tekscan, Inc.
For more info:
www.tekscan.com

SWICK Zoom

Organization:
Sandia National Laboratories
Co-Developer:
Naval Research Laboratory
For more info:
www.sandia.gov

Therm-E-Log

Organization:
InnoSense, LLC
For more info:
www.innosensellc.com

TNT Cloning System

Organization:
Oak Ridge National Laboratory
For more info:
www.ornl.gov

Universal Bacterial Sensor

Organization:
Los Alamos National Laboratory
For more info:
www.lanl.gov

VDMA: Video-based Dynamic Measurement & Analysis

Organization:
Los Alamos National Laboratory
For more info:
www.lanl.gov

VivAlarm Mobile

Organization:
Turner Scientific LLC
Co-Developer:
Pioneer Hill Software LLC
For more info:
www.turnerscientific.com

VK-X1000 3D Laser Scanning Confocal Microscope

Organization:
KEYENCE Corporation
For more info:
www.keyence.com

IT/ELECTRICAL**3DS MEMS Sensor System Platform**

Organization:
MEI Micro, Inc.
For more info:
www.mei-micro.com

Antenna Coupled THz (ACT) Film

Organization:
RedWave Energy, Inc.
Co-Developer:
Idaho National Laboratory
For more info:
www.redwaveenergy.com

AR View See-Through

Organization:
Hua-chuang Automobile Information Technical Center Co., Ltd.
Co-Developer:
oToBrite Electronics, Inc.
For more info:
www.haitec.com.tw

Battery Health Sentry

Organization:
Idaho National Laboratory
For more info:
www.inl.gov

BenjiLock Mini

Organization:
enjiLock, LLC
Co-Developer:
Hampton Products
For more info:
<https://benjilock.com>

Collaborative Optimization via Apprenticeship Scheduling (COVAS)

Organization:
MIT Lincoln Laboratory
Co-Developer:
Scott Orosz, Deputy Program Manager for Electronic Warfare Programs, Office of Naval Research
For more info:
www.ll.mit.edu

Durable Integrated Circuit (IC) Chips for Extreme Environments

Organization:
NASA Glenn Research Center
For more info:
www.nasa.gov/centers/glenn

Dynamic Flow Isolation

Organization:
MIT Lincoln Laboratory
For more info:
www.ll.mit.edu

Energy-Saving Laser Descaling Agent Technology

Organization:
Industrial Technology Research Institute (ITRI)
For more info:
www.itri.org.tw/eng

EOS-Energy Operating System

Organization:
Institute of Nuclear Energy Research, Atomic Energy Council, Executive Yuan
For more info:
<https://www.iner.gov.tw/en/>

EVERESTpico 1 µm Picosecond Fiber Laser

Organization:
AdValue Photonics Inc.
For more info:
www.advaluephotonics.com

Evolv Edge

Organization:
Evolv Technology
For more info:
<https://evolvtechnology.com>

FastForward MX
goniometer for raster
scanning serial micro-
crystallography

Organization:
Brookhaven National
Laboratory
Co-Developer:
Physik Instrumente (PI)
GmbH & Co. KG
For more info:
www.bnl.gov

Field-Deployable Imaging
Neutron Detector (FIND)

Organization:
University of New Hampshire
Co-Developer:
University of New Hampshire
Institute for the Study of
Earth, Oceans, and Space;
SwRI-EOS; Defense Threat
Reduction Agency
For more info:
www.unh.edu

foresee

Organization:
National Renewable Energy
Laboratory
Co-Developer:
Robert Bosch, LLC; ETAS/
ESCRYPT; Colorado State
University
For more info:
www.nrel.gov

General Line Ampacity
State Solver (GLASS)
with WindSim Power Line
Optimization Solution

Organization:
Idaho National Laboratory
Co-Developer:
WindSim AS; Idaho Power
Company
For more info:
www.inl.gov

GLART (Gas Leakage
Automatic Recognition
Technology)

Organization:
Industrial Technology
Research Institute (ITRI)
For more info:
www.itri.org.tw/eng

Grand Unified File Index
(GUFI)

Organization:
Los Alamos National
Laboratory
For more info:
www.lanl.gov

High repetition rate
Advanced Petawatt Laser
System (HAPLS)

Organization:
Lawrence Livermore National
Laboratory
For more info:
www.llnl.gov

Hybrid MassLINK Bus Stop

Organization:
Institute for Information
Industry
Co-Developer:
3Egreen Technology; K-Best
Technology Inc.
For more info:
<http://webiii.org.tw>

Intelligent Power
Distribution (IPD)

Organization:
MIT Lincoln Laboratory
Co-Developer:
U.S. Army Communications-
Electronics Research,
Development and
Engineering Center
(CERDEC); Wyle
Laboratories, Inc.
For more info:
www.ll.mit.edu

Long-range Wireles:
Sensor Network

Organization:
Los Alamos National
Laboratory
Co-Developer:
West Virginia Univers
For more info:
www.lanl.gov/

mmWave radar sens

Organization:
Texas Instruments
For more info:
www.ti.com

Mobile Universal Gri
Analyzer (m-UGA)

Organization:
University of Tennessee
Co-Developer:
Oak Ridge National
Laboratory
For more info:
www.utk.edu

Monitoring Noise On
Body and In-ear for
Serviceperson Expo
(MNOISE)

Organization:
MIT Lincoln Laborato
For more info:
www.ll.mit.edu

Multi-rate Differential
Phase Shift Keying (C
Communications

Organization:
MIT Lincoln Laborato
For more info:
www.ll.mit.edu

Peregrine: Network
Navigation

Organization:
MIT Lincoln Laborato
For more info:
www.ll.mit.edu

PerkinElmer Signals
Notebook

Organization:
PerkinElmer
For more info:
www.perkinelmer.com

Photonic Lantern Adaptive
Spatial Mode Control

Organization:
MIT Lincoln Laboratory
For more info:
www.ll.mit.edu

Portable Radiation Imaging,
Spectroscopy and Mapping
(PRISM)

Organization:
Lawrence Berkeley National
Laboratory
Co-Developer:
Defense Threat Reduction
Agency
For more info:
www.lbl.gov

Portable UVC LED Water
Sterilizer System

Organization:
Industrial Technology
Research Institute (ITRI)
For more info:
www.itri.org.tw/eng

Power API

Organization:
Sandia National Laboratories
For more info:
www.sandia.gov

Q-Link Variable Frequency
Drive

Organization:
Franklin Control Systems
Co-Developer:
Franklin Electric
For more info:
www.franklin-controls.com

Rad-Hard SBC: Radiation-
Hardened Single-Board
Computer

Organization:
Los Alamos National
Laboratory
For more info:
www.lanl.gov

SecBuzzer: Intelligence-
Driven Cybersecurity
Analytic Engine

Organization:
Institute for Information
Industry
For more info:
<http://webiii.org.tw/>

Silicon Strip Cosmic Muon
Detectors for Homeland
Security

Organization:
NNSS Mission Support and
Test Services, LLC
Co-Developer:
Fermi National Accelerator
Laboratory; Los Alamos
National Laboratory
For more info:
www.nnss.gov

Smart Surgical Glasses
System

Organization:
Taiwan Main Orthopaedics
Biotechnology Co., Ltd
Co-Developer:
Medical of Science and
Technology
For more info:
www.surglasses.com

The Frequency-scaled,
Ultra-wide, Spectrum
Element (FUSE) Phased
Array

Organization:
The MITRE Corporation
Co-Developer:
Navy Research Lab
For more info:
www.mitre.org

udoq

Organization:
udoq America Inc.
For more info:
www.udoq.com

Very Large Scale
Integration Process
for Superconducting
Electronics

Organization:
MIT Lincoln Laboratory
For more info:
www.ll.mit.edu

Video-rate standoff
microwave imaging system
for concealed threat
detection

Organization:
MIT Lincoln Laboratory
Co-Developer:
Department of Homeland
Security
For more info:
www.ll.mit.edu

XTPL ultraprecise printing
of nanomaterials

Organization:
XTPL
For more info:
<http://xt-pl.com>

**MECHANICAL/
MATERIALS****Acid-free Dissolution**
Recycling of Rare Earth
Elements and Cobalt

Organization:
Critical Materials Institute,
Ames Laboratory
For more info:
<http://cmi.ameslab.gov>

AERO Light and Easy

Organization:
PPG
For more info:
www.ppg.com

AQUACHILL

Organization:
Dow Polyurethanes
Co-Developer:
Comfort Revolution
For more info:
www.dow.com/en-us/polyurethanes

BETASEAL 7160 Fast-cure Glass Bonding System for Heavy Truck Windshields

Organization:
The Transportation & Advanced Polymers business of DowDuPont
For more info:
www.dupont.com

Biaxially orientable polyethylene resin XUS 59910.08 (TF-BOPE)

Organization:
Dow Packaging and Specialty Plastics, a business unit of The Dow Chemical Company
For more info:
www.dow.com/en-us/packaging

Breathe by Milliken

Organization:
Milliken & Company
For more info:
www.milliken.com

Corrosion-Resistant, Cast Alumina-Forming Alloys for Operation in Industrial Gaseous Environments

Organization:
Oak Ridge National Laboratory
Co-Developer:
Duralox Technologies; ArcelorMittal USA; MetalTek International; University of Wisconsin, Milwaukee
For more info:
www.dow.com/en-us/www.ornl.gov

Cuttable, Flexible, Submersible and Ballistic-Tested Lithium-Ion Battery

Organization:
The Johns Hopkins Applied Physics Laboratory
Co-Developer:
University of Maryland (UMD); Army Research Laboratory (ARL)
For more info:
www.jhuapl.edu

Dow BETAFORCE 9050M composite bonding adhesives for automotive mass production

Organization:
The Transportation & Advanced Polymers business of DowDuPont
For more info:
www.dow-dupont.com

DOWSIL SE9160

Organization:
Dow Chemical Silicone Korea
For more info:
www.dow.com

DuPont Zytel HTNFR42G30NH; High Performance Bio-Based Nylon Resin for Surface Mount Connector Housing

Organization:
Transportation and Advanced Polymers business of the DowDuPont Specialty Products Division
For more info:
www.dow-dupont.com

ECOFAST Pure

Organization:
The Dow Chemical Company
For more info:
www.dow.com

Electrochemically Recycling Electronic Constituents of Value (eRECOV)

Organization:
Idaho National Laboratory
For more info:
www.inl.gov

ENGAGE PV Polyole Resins

Organization:
The Dow Chemical Company
For more info:
www.dow.com

EVOLV3D Universal Support Material

Organization:
The Dow Chemical Company
For more info:
www.dow.com

FogGo- Permanent Fog Coatings

Organization:
InnoSense LLC
For more info:
www.innosensellc.com

GCA-II-N (Graphene Composite Anode)

Organization:
Global Graphene Group
Co-Developer:
Angstrom Energy Co
Angstrom Materials
For more info:
www.theglobalgraphenec.com

H1500 Series Thermal Management Materials

Organization:
Nano and Advanced Materials Institute Limited
Co-Developer:
HFC Industry Limited
For more info:
www.nami.org.hk

High Voltage Electrolytes for Ultracapacitors

Organization:
Oak Ridge National Laboratory
For more info:
www.ornl.gov

High-Moisture Pelletizing Process

Organization:
Idaho National Laboratory
For more info:
www.inl.gov

HyMag Magnets

Organization:
Argonne National Laboratory
For more info:
www.anl.gov

Indego

Organization:
Vanderbilt University
Co-Developer:
Parker Hannifin Corporation
For more info:
www.vanderbilt.edu

Lexus Structural Blue

Organization:
Toyota Research Institute of North America (TRINA)
Co-Developer:
Toyota Motor Corporation, Japan; Viavi Solutions, USA; Toyota Central R&D Laboratories, Japan
For more info:
www.tri.global

Light Curable Coatings

Organization:
Ohio Soybean Council
Co-Developer:
Light Curable Coatings (LCC); Quick Cure Protective Coatings; Redwood Innovations
For more info:
www.soyohio.org

Liquitint V42

Organization:
Milliken & Company
Co-Developer:
Procter & Gamble
For more info:
www.milliken.com

Low Temperature Cure (LTC) Coating System for Ferrari

Organization:
PPG
For more info:
www.ppg.com

Loyant herbicide with Rinskor active

Organization:
Corteva Agriscience Agriculture Division of DowDuPont
For more info:
www.corteva.com

MULTIHEPA

Organization:
Nano and Advanced Materials Institute Limited
Co-Developer:
Focus Industries Limited
For more info:
www.nami.org.hk

NASK

Organization:
Nano and Advanced Materials Institute Limited
Co-Developer:
Profit Royal Pharmaceutical Limited
For more info:
www.nami.org.hk

New Superhard Q-carbon and High-Temperature Superconductor

Organization:
Q-Carbon, LLC
Co-Developer:
North Carolina State University
For more info:
www.q-carboninc.com

NPMC-Based FCgen 1040

Organization:
Ballard Power Systems
Co-Developer:
Nissinbo Holdings
For more info:
www.ballard.com

Olympic SmartGuard

Organization:
PPG
For more info:
www.ppg.com

Omniphobic Easy Clean Coating

Organization:
Industrial Technology Research Institute (ITRI)
Co-Developer:
Behr Process Corporation
For more info:
www.itri.org.tw/eng

OP1

Organization:
Opus 12
Co-Developer:
Lawrence Berkeley National Laboratory
For more info:
www.opus-12.com

Oscillating Heat Pipes for High-Power Electronics Thermal Management

Organization:
ThermAvant Technologies
Co-Developer:
United States Air Force Research Laboratory, Space Vehicles Directorate (AFRL/RV)
For more info:
www.thermavant.com

Phosphate Sponge

Organization:
Global Phosphate Solutions (GPS)
Co-Developer:
Idaho National Laboratory
For more info:
www.inl.gov

Phosphor Film Binder LF-1112

Organization:
Dow Chemical
For more info:
www.dow.com

PKS - Pfannenberg Kinetic System

Organization:
Pfannenberg USA
For more info:
www.pfannenbergusa.com

Quasi zero stiffness disk spring isolator (QZS-DSI) to improve comfort in automobiles

Organization:
NVH & Gear Education, LLC
Co-Developer:
Toyota Motor Engineering & Manufacturing North America, Inc.
For more info:
www.nvhgear.org

RollnCoat

Organization:
Institute of Nuclear Energy Research, Atomic Energy Council, Taiwan
For more info:
www.iner.gov.tw/en

Sandia Organic Glass Scintillator

Organization:
Sandia National Laboratories
For more info:
www.sandia.gov

Smart photovoltaic window

Organization:
Lawrence Berkeley National Laboratory (LBNL)
For more info:
www.lbl.gov

Super Wood

Organization:
University of Maryland
For more info:
www.umd.edu

Functional Dyeing Synchronized with CO₂ Supercritical Technology

Organization:
Industrial Technology Research Institute (ITRI)
Co-Developer:
Eclat Textile Co., Ltd.
For more info:
www.itri.org.tw/eng

Thermolyzer

Organization:
CHZ Technologies, LL
Co-Developer:
Kunststoff und Umwelttechnik GmbH
For more info:
www.chztechnologie

Zytel HTNLTFR52G3 BL662

Organization:
Transportation and Advanced Polymers of the DowDuPont Sp Products Division
For more info:
www.dow-dupont.com/about-dow-dupont/specialty-products

PROCESS/PROTOTYPING

3D Printed Patient-Specific Tissue-Mimic Phantoms

Organization:
Georgia Tech Manuf. Institute, Georgia Inst Technology
Co-Developer:
Piedmont Heart Inst
For more info:
www.gtmi.gatech.ec

Ambient Reactive E_n Additive Manufactu

Organization:
PPG
Co-Developer:
Oak Ridge National Laboratory
For more info:
www.ppg.com

Bio-based and Degradable Textiles with Multi-Functions and Added Values

Organization:
The Hong Kong Research Institute of Textiles and Apparel
Co-Developer:
The Hong Kong Polytechnic University
For more info:
www.hkita.com

Detergent-Assisted Fabrication

Organization:
Sandia National Laboratories
For more info:
www.sandia.gov

Digital Holography-based 3D Nano-Builder

Organization:
Chinese University of Hong Kong
Co-Developer:
Precision Instrument and Optics Limited
For more info:
www.cuhk.edu.hk

Dual-function Current Collectors

Organization:
Oak Ridge National Laboratory
Co-Developer:
Farasis Energy
For more info:
www.ornl.gov

K-SMB for krill oil polar phospholipids and astaxanthin purification

Organization:
Orochem Technologies Inc.
For more info:
www.orochem.com

MELD

Organization:
MELD Manufacturing Corporation
Co-Developer:
Aeroprobe Corporation
For more info:
www.meldmanufacturing.com

MICRO Sensor for 3D Printing

Organization:
Lawrence Livermore National Laboratory
For more info:
www.llnl.gov

Nitrilation to Acrylonitrile Process

Organization:
National Renewable Energy Laboratory
Co-Developer:
Johnson Matthey; MATRIC; University of Colorado Boulder
For more info:
www.nrel.gov

PERFECT-3D On Demand Ceramic Tools

Organization:
Renaissance Services, Inc., PERFECT-3D Division
Co-Developer:
US Air Force Life Cycle Management Center; Lawrence Livermore National Laboratory (LLNL); BASF Corporation; Precision Castparts Corporation (PCC) Structural; Aspen Technology
For more info:
www.ren-services.com/3d-printing-division

Shear Assisted Processing and Extrusion—ShAPE

Organization:
Pacific Northwest National Laboratory
For more info:
www.pnnl.gov

SOMS

Organization:
SenSigma LLC
Co-Developer:
University of Michigan
For more info:
www.sensigmalc.com

The Atomic Forge

Organization:
Oak Ridge National Laboratory
For more info:
www.ornl.gov

SOFTWARE/SERVICES

AAPM, Agentless-based Application Performance Management Software Technology

Organization:
Industrial Technology Research Institute (ITRI)
For more info:
www.itri.org.tw/eng

ANSYS Discovery Live

Organization:
ANSYS, Inc.
For more info:
www.ansys.com

APUPs, Automatic Police UAV Patrol System

Organization:
Industrial Technology Research Institute (ITRI)
For more info:
www.itri.org.tw/eng

ATHERMIS

Organization:
Acciona Energia
For more info:
www.acciona-energia.com

Autonomic Intelligent Cyber Sensor (AICS)

Organization:
Idaho National Laboratory
For more info:
www.inl.gov

BISON modeling code

Organization:
Idaho National Laboratory
For more info:
www.inl.gov

Charliecloud

Organization:
Los Alamos National Laboratory
For more info:
www.lanl.gov

Climate FieldView Digital Ag Platform

Organization:
The Climate Corporation
For more info:
<https://climate.com>

Darshan 3.1.5

Organization:
Argonne National Laboratory
For more info:
www.anl.gov

DCAT (Dynamic Contingency Analysis Tool)

Organization:
Pacific Northwest National Laboratory
For more info:
www.pnnl.gov

eProject Builder

Organization:
Lawrence Berkeley National Lab
For more info:
www.lbl.gov

FastID and TachysSTR

Organization:
MIT Lincoln Laboratory
For more info:
www.ll.mit.edu

GRID-M: Grassroots Infrastructure Dependency Model

Organization:
Argonne National Laboratory
For more info:
www.anl.gov

Industrial Cyber Threat Detector (ICTD)

Organization:
Institute for Information Industry
Co-Developer:
ICP DAS CO., LTD.
For more info:
<https://web.iii.org.tw>

LAMMPS

Organization:
Sandia National Laboratories
Co-Developer:
Temple University; Intel Corporation; Northwestern University; Materials Design, Inc.
For more info:
www.sandia.gov

LEWICE3D

Organization:
NASA Glenn Research Center
For more info:
www.nasa.gov/centers/glenn

MAISART

Organization:
Mitsubishi Electric Engineering
Co-Developer:
Mitsubishi Electric Research Laboratories, Mitsubishi Electric
For more info:
www.mitsubishi.com

MASTODON (Multi-hazard Analysis for STOchastic time-DOMaiN phenomena)

Organization:
Idaho National Laboratory
For more info:
www.inl.gov

Monitor and Diagnose Framework for Manufacturing Processes (MDFMP)

Organization:
Institute for Information Industry
For more info:
<https://web.iii.org.tw>

Multinode Evolutionary Neural Networks for Deep Learning (MENNDL)

Organization:
Oak Ridge National Laboratory
For more info:
www.ornl.gov

Online Statistical Analysis of Neutron Time Intervals (OSANTI)

Organization:
Lawrence Livermore National Laboratory
Co-Developer:
Defense Threat Reduction Agency (DTRA)
For more info:
www.llnl.gov

PRIME-One

Organization:
Bechtel
For more info:
www.bechtel.com

RAINet

Organization:
Argonne National Laboratory
For more info:
www.anl.gov

Shifter

Organization:
Lawrence Berkeley National Laboratory
For more info:
www.lbl.gov

Situ

Organization:
Oak Ridge National Laboratory
For more info:
www.ornl.gov

StreamWorks

Organization:
Pacific Northwest National Laboratory
For more info:
www.pnnl.gov

Swift/T: Dataflow Programming for Scientific Supercomputing Workflows

Organization:
Argonne National Laboratory
Co-Developer:
University of Chicago
For more info:
www.anl.gov

ThreatSEQ

Organization:
Battelle
For more info:
www.battelle.org

VMware AppDefense

Organization:
VMware
For more info:
www.vmware.com

Web-based HURREVAC (HVX)

Organization:
MIT Lincoln Laboratory
For more info:
www.ll.mit.edu

WISDEM: The Wind-Plant Integrated System Design and Engineering Model

Organization:
National Renewable Energy Laboratory
Co-Developer:
Brigham Young University, Department of Mechanical Engineering; Technical University of Denmark, Department of Wind Energy
For more info:
www.nrel.gov

OTHER**Delta ShieldSpray Technology**

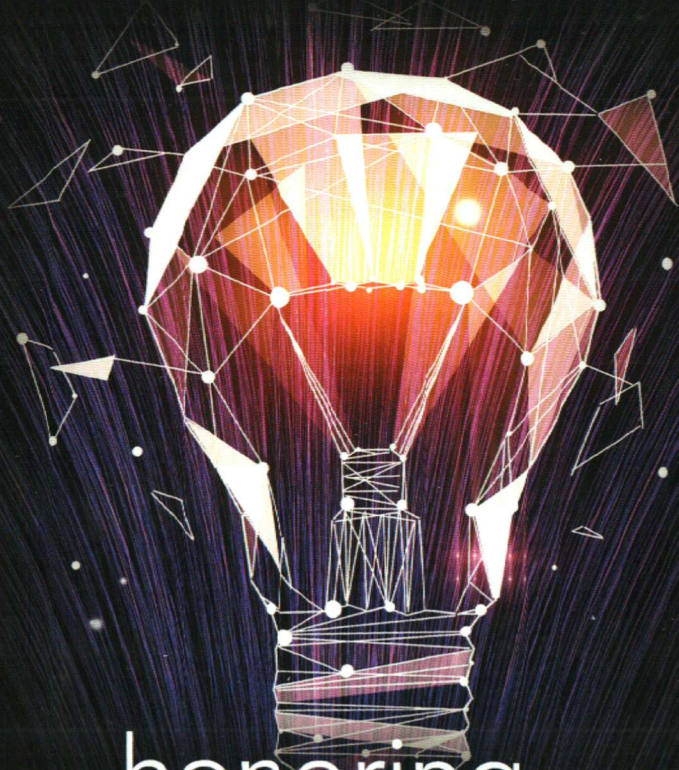
Organization:
Delta Faucet Company
For more info:
www.deltafaucet.com

Halcyon Radiotherapy System

Organization:
Varian Medical Systems
For more info:
www.varian.com

SURGICEL Powder Absorbable Hemostat

Organization:
ETHICON, Inc.
For more info:
www.ethicon.com



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