German Center for Research and Innovation – New York



Germany Land of Ideas



ANNUAL REPORT 2014



Preface

ver the past five years, the GCRI has become a prominent facilitator of German-North American scientific and technological exchange. Increasingly it is becoming a key resource for representatives from science, industry, and government interested in developing sustainable collaborations among corporations, educational institutions, and other centers of innovation in the U.S., Canada, and Germany. The number of requests for information about contacts, funding opportunities, collaborations, and scientific placements in German research institutions has grown substantially since the GCRI's founding in 2010.

GCRI panel discussions, symposia, and conferences have been instrumental in initiating multiple partnerships between academia and industry. These events have attracted a diverse, knowledgeable, and sophisticated audience that has developed a sustained interest in the current state of science and technology in Germany.

Some of the areas of focus over the past year have included entrepreneurship, higher education, manufacturing, and workforce development. Event highlights have included "Bridging the Innovation Gap Between Academia and Industry," "The Global Energy Challenge: Germany's Energiewende and Beyond," and "Smart Cities." This annual report addresses these areas in more detail.

In 2015-16, our areas of focus will include ethics in science, e-health, aging, and robotics/artificial intelligence. We will also offer panel discussions and symposia outside of these priority areas when current events mandate attention to other issues.

GCRI's monthly newsletter, website, and strong social media presence provide unfettered access to ongoing developments in German science and innovation.

We would like to acknowledge with gratitude the unremitting and generous support of Germany's Federal Foreign Office, the Federal Ministry of Education and Research, the German Academic Exchange Service, and the German Research Foundation. I, personally, would also like to thank my colleagues at the GCRI for their diligence and hard work in making our programs the success that they have become, the GCRI Advisory Board for its guidance, the GCRI Foundation, Inc., and our partners in North America and Germany for their dedication and thoughtful input.



Joann Halper

Dr. Joann Halpern Director, German Center for Research and Innovation

Cince its opening in February 2010, the German Center for Research and Innovation (GCRI) New York has become a showcase of our foreign science policy. It is the result of a joint initiative of the German Foreign Office under Foreign Minister Steinmeier and the Ministry of Education and Research, and was inspired by the vision that scientific cooperation helps to pursue three foreign policy objectives at the same time:

- Strengthen transatlantic collaboration in science and technoloav
- Enhance the visibility of German innovation in North America
- Provide information and support for the realization of collaborative projects between North America and Germany

During its first five years of operation, the GCRI has become one of our country's success stories by initiating collaborations between North America and Germany, organizing high-level symposia, panel discussions, and conferences, and providing an ideal platform for the exchange of cutting-edge research and technology. Within a very short period of time, the GCRI has become a networking hub for individuals interested in the latest scientific developments in Germany, North America, and beyond.

The Consulate General of the Federal Republic of Germany in New York and the consortium leaders, DAAD and DFG, have worked closely with the GCRI from the outset. It has been very a fruitful collaboration. Joint events, mutual introductions to diverse stakeholders, and the sharing of strategic approaches are just a few examples of the successful cooperation activities that have been beneficial to all of our organizations. I look forward to continuing this productive relationship for many years to come. As you read through this report, I hope you will be encouraged to play an active role in helping to shape the future of the GCRI.



hits Walner Brita Wagener

Consul General. Consulate General of the Federal Republic of Germany in New York



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First Point of Contact for German Science and Technology in North America

The German Center for Research and Innovation (GCRI) is a joint initiative of Germany's Federal Foreign Office and its Federal Ministry of Education and Research. Established as an information and networking platform, GCRI provides information and support for the realization of cooperative and collaborative projects between North America and Germany.

Since its opening in February 2010, GCRI has organized more than 125 events in the U.S. and Canada with leading experts from science and industry, including three Nobel Prize laureates, 13 Gottfried Wilhelm Leibniz Prize recipients, and two Kavli Prize laureates.

To date, GCRI has participated in 103 conferences, published 62 editions of its newsletter E-NNOVATION GERMANY, significantly enhanced its website reach and social media presence, and appeared over 925 times in the media.

GCRI's areas of focus mirror those of Germany's High-Tech Strategy and include climate and energy, health and nutrition, mobility, security, and communication. GCRI has also led the transatlantic dialogue in emerging and evolving areas, such as e-health smart cities, artificial intelligence, and medical technologies.

The center was created as a cornerstone of the German aovernment's initiative to internationalize science and research and is one of six German Houses of Research and Innovation worldwide (Deutsche Wissenschafts- und Innovationshäuser, DWIHs). It is under the joint leadership of the German Academic Exchange Service (DAAD) and the German Research Foundation (DFG) and receives its funding from the German Federal Foreign Office.



With the goal of strengthening transatlantic communication on the critical challenges of the 21st century, GCRI:

industry

Acts as an information platform for the German research landscape

Presents Germany to the North American market as a land of ideas and innovation

Enhances the dialogue between academia and

Creates a forum for the initiation and enhancement of transatlantic projects



The Common Language of Science

Barely 20 years ago, research breakthroughs in science and technology trickled into the public consciousness, winding their way from esteemed but distant trade journals to the print edition of the newspaper and perhaps the evening news. Today, anyone with Internet access can literally peer down the microscope at some of the world's most innovative labs and witness miracles: images of pluripotent stem cells differentiating, nanofibers assembling into novel materials, and deadly viruses giving up their secrets. Hundreds of websites are dedicated to turning the steady rush of science and technology news into engaging, highly readable stories that reach billions of computers and smartphones around the world each day.



The importance of such access goes well beyond novelty. At a time when no aspect of modern life is left untouched by new technologies, a science-literate public is a crucial ally in ensuring continuing investment and progress in the sciences. Advances in communications technologies-the Internet and social media not least among them-have changed the way the public views science and fundamentally altered the relationship between research institutions and lay audiences. They have stretched the science dialogue from the ivory towers of the laboratory all the way to the clacking trains of the urban subway. The work of innovation is still done by a relative few, but thanks to an exponential increase in communications channels, it is appreciated by many.

Such ease of dissemination brings with it the responsibility to spread facts rather than speculation, to instill trust rather than doubt, and to provide a balanced perspective on some of the most challenging issues facing humanity, from disease and climate change to digital privacy and national security.

The stakes are high and rising, as science is increasingly pervading the national conversation. The public's perceptions about science and understanding of key issues directly impacts policy and legislative decisions, educational standards, and even individual behavior. A 2014 study by the Pew Research Center in collaboration with the American Academy for the Advancement of Science (AAAS) shows overwhelming public support for government funding for science and research-nearly three-quarters of adults say that investments in basic research and engineering pay off in the long run. Sustaining those beliefs is just one task facing today's scientists when it comes to ensuring that their work remains visible and relevant.

Opportunities for the public to interface with science, and with scientists themselves, drive healthy debate and discussion, and shape the collective conversation about science. The success of events like the World Science Festival and the brisk sales of science books aimed at mainstream audiences are evidence of a strong public appetite for such information. These intersections of science, society, and popular culture also showcase scientists and the work of research as inspiring, impactful career choices for the next generation. Leading science advocacy and funding organizations, the AAAS and National Science Foundation among them, place heavy emphasis on outreach among school-age children with the hopes of fostering science literacy, and, most importantly, expanding the pipeline of future scientists.

Since 2010, the German Center for Research and Innovation in New York has hosted numerous panel discussions, symposia, and conferences that draw a wide range of science and technoloay stakeholders from around the alobe. These interdisciplinary events are open to the public and bring scientists together with policy makers, educators, and industry representatives. In 2014 alone, esteemed speakers tackled issues including technology transfer, cyber security, energy policy, entrepreneurship, green logistics, and many others, giving live audiences a chance to join the conversation.

Science and technology don't just diagnose the challenges society faces today—they are helping us solve them. There has never been so much to talk about.

By Hallie Kapner

GCRI Events

Ernst Rank Technische Universität München

"Through events highlighting cutting-edge science and technology, the GCRI attracts a diverse audience interested in developing transatlantic relations and interacting with the wider New York community."

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Florence Chaverneff,
Ph.D., Associate Research
Scientist, Department
of Neuroscience and
Physiology, NYU Langone
Medical Center





2014 Calendar of Events

2014 GCRI Event Series Key:

0	Innovation/Entrepreneurship
Ð	Health
6	Energy
(Globalization of Research
	Education

January 28

German Center for Research and Innovation Student Outreach: How International Experience Can Enhance Your Career

February 10

Is Aging Reversible? Can We Reset the Clock? Co-Sponsor: Leopoldina - The German National Academy of Sciences

March 12

EU - USA Research Collaboration and Funding Opportunities in Horizon 2020, the European Framework Programme for Research and Innovation Co-Sponsor: Delegation of the European Union to the United States of America

March 18

Bridging the Innovation Gap Between Academia and Industry Co-Sponsor: Max Planck Innovation

March 19

"Ausgezeichnete Orte im Land der Ideen" Award Ceremony for the BronxBerlinConnection Co-Sponsors: Deutsche Bank Germany - Land of Ideas Location: Bronx Music Heritage Center Bronx, NY

The Origins of Mass, Matter, and the Early Universe Co-Sponsor: German Research Foundation (DFG)

March 27

Who Owns Your Body? The Ethical, Legal, and Economic Implications of Gene Patenting Co-Sponsor: McCarter & English, LLP

March 31

The Global Energy Challenge: Germany's Energiewende and Beyond Co-Sponsor: German Research Foundation (DFG)

April 5

The Power of Education Research for Innovation in Practice and Policy Co-Sponsor: German Institute for International Educational Research (DIPF) Location: Philadelphia, PA

April 14

German Center for Research and Innovation Student Outreach: Ohio University and Leipzig University

April 22

- The European Unified Patent System and Its Impact on U.S. Businesses Co-Sponsors: Boehmert & Boehmert
- German American Chambers of Commerce, Inc. (GACC)

April 30

German Center for Research and Innovation Student Outreach: Fresenius University of Applied Sciences



May 1 - 2

- International Perspectives on the Development of Entrepreneurship: From Education to Ecosystem Co-Sponsors: Edmonton Economic Development Council German-Canadian Centre for Innovation and Research (GCCIR)
- TEC Edmonton University of Alberta
- Location:
- Alberta, Canada

May 15

- Where is "Knowledge" in the Globalization of Higher Education and Research? Co-Sponsor:
 - American Friends of the Alexander von Humboldt Foundation (AFAvH)

May 20

Science or Fiction: Design Thinking Workshop for Digital Media Innovators **Co-Sponsor:** Brandenburg Economic Development Board (ZAB)



May 22

The Challenges of Building an External Innovation Pipeline - and Solutions Co-Sponsors: Sparkup Inc. European American Chamber of Commerce New York (EACCNY)

June 12

Max Planck Images of Science (\mathfrak{A}) Exhibition Co-Sponsor:

Max Planck Society

June 17

Skills Training for a Modern Manufacturina Workforce: Does the German Model Have Lessons for the United States? Co-Sponsors: The Aspen Institute Program on Manufacturing and Society in the 21st Century The Embassy of the Federal Republic of Germany The Representative of German Industry and Trade (RGIT) Location: Washington, D.C.

July 15

Accelerating German States Co-Sponsors: German Accelerator (GA) Commerce, Inc. (GACC)

July 24

The Road Ahead for Cyber Security - Challenges and Opportunities

August 14

Investigating Telomeres: Using High-Performance Microscopy for Understanding Cancer Co-Sponsor: Carl Zeiss, Inc.

September 2

Climbing Ladders, Building Bridges: Mathematical Philosophy at Work Co-Sponsor: German University Alliance (GUA)

September 3

Education vs. Training: A Contradiction or Productive Synergy? Co-Sponsor: German Rectors' Conference (HRK)

September 5

4th Transatlantic GAIN Entrepreneurial Breakfast Co-Sponsors: Network (GAIN) Location: Boston, MA

Entrepreneurship in the United

German American Chambers of Consulate General of the Federal Republic of Germany in New York

Consulate General of the Federal Republic of Germany in Boston German Academic International



October 15

Globalizing Research: How Strategic are U.S. and German Universities' Internationalization "Strategies"? Co-Sponsor: American Friends of Alexander von Humboldt Foundation (AFAvHF)

October 22

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Healthcare Delivery to Developing Countries Using Mobile Technology Co-Sponsor: Physicians Interactive

November 3

Urban Health and City Planning Co-Sponsor:





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November 5

FOCUS: Smart Grid 2014 Co-Sponsors: UAS7 German Universities of Applied Sciences Consulate General of the Federal Republic of Germany in New York German American Chambers of Commerce, Inc. (GACC) The Urban Institute

December 2

The Impact of Innovation on the Efficacy of Central Banks Co-Sponsors: Women in Sovereign Entities (WSE) Allianz Global Investors **BNP** Paribas BNY MELLON UBS



December 9 Construction Smart Cities

Co-Sponsor: German Aerospace Center (DLR)

December 11

Green Logistics Co-Sponsor: University Alliance Ruhr (UA Ruhr) DB Schenker

Selected Event Participants

The following is a selection of 2014 event participants who attended GCRI events in New York and at other locations.

- AARP
- Air Berlin GmbH & Co. Luftverkehrs KG
- Albert Einstein College of Medicine
- Allianz Global Investors
- American Express
- American Federation for Aging Research
- American Museum of National History
- Barnard College
- BASF Corporation
- Bayer Corporation
- BMW Manufacturing Co., LLC
- BNP Paribas

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- Boehringer Ingelheim
- Boston Consulting Group
- Brain Trauma Foundation
- Brookhaven National Laboratory





- Carl Zeiss Microscopy, LLC
- CERN, the European Organization for Nuclear Research
- Cisco Systems
- Citigroup Inc.
- Cold Spring Harbor Laboratory
- College Board
- Columbia University
- Consolidated Edison, Inc.
- Consulate General of Canada
- Cornell NYC Tech
- Council on Foreign Relations
- Daimler AG
- Dartmouth College
- DB Schenker, Inc.
- Delegation of the European Union to the United States of America
- Deloitte & Touche LLP
- Department of Health and Human Services
- Deutsche Bank AG
- Deutsche Presse-Agentur

- Deutsche Telekom Group
- DHL Express
- Die Zeit
- FADS North America
- Elsevier B.V.
- E.ON SE
- Ernst & Young
- European Central Bank
- European Patent Office
- Federal Institute for Vocational Education and Training
- Federal Ministry of Economics and Technology
- Federal Reserve Bank of New York
- Federal Trade Commission
- Focus
- Food and Agriculture Organization of the United Nations
- General Electric
- German Aerospace Center
- German Academic Exchange Service
- German Rectors' Conference
- German Research Foundation
- Goldman Sachs
- Google
- Handelsblatt
- Hapag-Lloyd AG
- Harlem Biospace
- Harvard University
- Howard Hughes Medical Institute

- IBM
- Institute of Electrical and Electronics Engineers
- Intel Corporation
- International Association of Gerontology and Geriatrics
- International Monetary Fund
- Johns Hopkins University
- Johnson & Johnson
- JPMorgan Chase & Co.
- Lufthansa
- Manitoba Institute of Cell Biology
- Massachusetts General Hospital
- Massachusetts Institute of Technology
- Max Planck Innovation
- Memorial Sloan-Kettering Cancer Center
- Merck
- Microsoft
- Mount Sinai Hospital
- National Academy of Engineering
- National Cancer Institute
- National Institutes of Health
- National Institute of Standards and Technology
- National Oceanic and Atmospheric Administration
- National Science Foundation
- Natural Sciences and Engineering Research Council of Canada
- Nature Publishing Group

- Plannina
- New York City Department of Education
- New York City Department of Information Technology and Telecommunications
- New York City Economic **Development Corporation**
- New York University
- Nomura Holding America
- Novartis Corporation
- Office of Science and Technology Policy, The White House
- Office of the Mayor, The City of New York

Pfizer Inc.

University

Reuters

• New York City Department of City

- Polytechnic Institute of New York
- Princeton University
- Public Broadcasting Service



- Robert F. Kennedy Center for Justice & Human Rights
- Rutgers University, The State University of New Jersey
- Salk Institute for Biological Studies
- SAP
- SCHOTT North America, Inc.
- Science Friday NPR
- Scientific American
- Siemens Corporation



Selected Event Participants

- Social Sciences and Humanities Research Council of Canada
- Spiegel Online
- Stanford University
- Süddeutsche Zeitung
- The Andrew W. Mellon Foundation
- The Aspen Institute
- The Brookings Institution
- The City University of New York
- The Chronicle of Higher Education
- The Dana Foundation
- The Earth Institute, Columbia University
- The Economist
- The Henry Luce Foundation
- The Huffington Post
- The Information Technology & Innovation Foundation

- The National Museum of Mathematics
- The New York Academy of Sciences
- The New York Times
- The Paul H. Nitze School of Advanced International Studies, Johns Hopkins University
- The Rockefeller University
- The Wall Street Journal
- The World Bank Group
- Tiffany & Co.
- UBS
- U.S. Agency for International Development
- U.S. Department of Commerce
- U.S. Department of Energy
- U.S. Department of Health and Human Services
- U.S. Department of State



- U.S. House of Representatives
- U.S. Public Health Service
- United Nations
- University of California, Berkeley
- University of California, Los Angeles
- University of Massachusetts Amherst
- University of Michigan
- University of Southern California
- Volkswagen of America, Inc.
- WABC-TV
- Weill Cornell Medical College
- Wharton School of Business, University of Pennsylvania
- World Economic Forum
- WQXR New York Public Radio
- Yale University
- Zweites Deutsches Fernsehen

2014 Conferences & Symposia

February 1

18th European Career Fair at Massachusetts Institute of Technology (MIT) Location: Cambridge, MA

February 2

Research in Germany: Career Opportunities Symposium Location: Cambridge, MA

February 27

4th Annual Conference on Sustainable Real Estate Location: NYU Schack Institute of Real Estate, New York, NY

February 28

2014 Canada-U.S. Cybersecurity Conference: Securing our Financial Infrastructure Location: Consulate General of Canada, New York, NY

March 7

Columbia University Spring Career Fair Location: Columbia University, New York, NY

April 6

NYC FIRST Regional Competition and Expo Location: Jacob K. Javits Convention Center, New York, NY

April 9

New York City Next Idea Global New Venture Competition Location: New York, NY

April 24

8th Annual STEM Postdoc Conference & Career Fair Location: Bethesda, MD

April 24

New York Academy of Sciences Career Development Workshop Location: New York, NY

April 26 - 30

Experimental Biology Annual Meeting Location: San Diego, CA





May 5 - 6

May 8

May 19

June 2

June 3

June 29

Foundations

Conference

New York, NY

New York, NY

Conference

New York, NY

Global Conference & Workshop of the Deutsche Wissenschafts- und Innovationshäuser (DWIHs) Location: Berlin, Germany

Spring 2014 Energy Policy

Location: Columbia University,

German Entrepreneurs Meetup Location: New York, NY

Career Panel Discussion: Non-Governmental Organizations &

Location: New York University,

The 2014 German Small & Mid-Cap

Location: Princeton Club of New York,

2014 Lindau Nobel Laureate Meeting Location: Lindau, Germany

August 10 - 14

248th American Chemical Society (ACS) National Meeting & Exposition Location: San Francisco, CA

August 14

DAAD Young Ambassadors Workshop: Info Session on German Higher Education & Research Organizations Location: New York, NY

August 15

DAAD Research Ambassadors Seminar Location: New York, NY

September 5 - 7

14th German Academic International Network (GAIN) Annual Meeting Location: Boston, MA

October 17

Engineering Consortium Career Fair Location: Columbia University, New York, NY

November 15 - 19

Society for Neuroscience (SfN) Annual Meeting Location: Washington, D.C.

December 5

Career Forum: Third-Party Funding from Acquisition to Distribution Location: Technische Universität Dortmund, Germany

Selected Speakers & Guests...

















who participated in GCRI events in New York and at other locations























Bridging the Innovation Gap Between Academia and Industry



When Teri Willey, Vice President of **Business Develop**ment and Technology **Transfer at Cold Spring Harbor** Laboratory, describes the process of moving a brilliant innovation from the lab to the commercial market. she doesn't mince words. "There are no shortcuts and you can't start in the middle," she says.

Willey and her counterparts at research institutions around the world are charaed with what is often characterized as the most difficult, rewarding work in the scientific community today–building the partnerships and forging the deals that bring life-changing technologies out of academia and into the hands of consumers in a way that isn't just responsible, but also profitable.

The gap between academic research institutions and commercial industry has been notoriously hard to bridge. Yet despite the current climate, where research budgets are shrinking and complex intellectual property and patent laws leave precious little common ground, both sides are finding new ways to reach across the divide.

Life science fields, in particular drug discovery and diagnostics, are rich with opportunity. But unlike technology fields such as cleantech, where a product can move from concept to commercial product in just three to five years, the commercialization process for life science innovations can stretch well beyond a decade. It is in these areas that technology transfer encounters the greatest hurdles, and where visionary institutions and corporations are finding that borrowing each other's best practices may be the secret to success.

Dr. Jörn Erselius, Managing Director for Max Planck Innovation, the technology transfer arm of the Max Planck Society (MPG), characterized the gap in the drug discovery arena as the space between where research stops-often at the point of identifying targets yet shy of a lead compound-and where the healthcare industry picks up, typically at the point of clinical development. "We may have good early research results, but industry is usually looking for much riper technology," Erselius said.

MPG is no stranger to good results: Pfizer's billion-dollar chemotherapeutic Sutent[®] was developed by MPG scientists. But with the founding of its new Lead Discovery Center, designed to vault promising targets over the gap by creating proof of concept in an animal model, the institution hopes to create a faster paradigm for attracting industry support for novel therapeutics.

"You have to do a lot of work to get to some of the big wins," said Dr. Barbara Dalton, Director of the Pfizer Venture Investments Team, remarking that despite the hundreds of biotech startups that spin out of universities each year, few will achieve major commercial successes. "It's a rare event," she said.

To boost the odds. Dalton recommends that research institutions adopt one of the pharmaceutical industry's key practicescultivating Entrepreneurs-in-Residence. Hotly recruited by

pharma companies, these EIRs, as they're known, are experienced entrepreneurs who shepherd a promising concept from the project stage all the way through company formation, licensing, and even acquisition. Many academic institutions offer mentorship and support for fledgling companies through business incubators, but EIRs

provide deeper expertise. "My group doesn't invest in projects, we invest in businesses, so it's critical to have an intermediate step," said Dalton. "This is an area where attention is lacking, and it could really help bridge the gap."

Intellectual property disputes also complicate exchange between industry and academia. Easing the negotiations is often the role of business development teams, like the one Teri Willey leads in Cold Spring Harbor Laboratory. On the one side are the scientists Willey describes as "some of the smartest people in the world," and on the other, industry representatives and investors. "We're always trying to be better matchmakers, and the real work is finding the right partner," she says. "We have a responsibility to ensure that our scientists' ideas aren't shelved, so we have to choose partners that offer the best chance

"We have a responsibility to ensure that our scientists' ideas aren't shelved, so we have to choose partners that offer the best chance of commercializina the technology."

of commercializing the technology."

Pairing innovators with those scouting for new ideas remains a low-tech, "person-to-person situation," says Willey, who believes that tools like the Bio

March 18, 2014: Bridging the Innovation Gap Between Academia and Industry

When academia and industry work in tandem to push the frontiers of knowledge, they have the potential to become a powerful engine for innovation and economic growth. A panel of experts discussed the key factors that enable this type of seamless innovation partnership as well as how some visionary companies and their academic partners have successfully overcome their inherent differences to forge a higher level of strategic collaboration. The speakers also addressed how the gap between industrial R&D and academic research has changed during the past decade.

Event Speakers:

Dr. Barbara Dalton Director, Pfizer Ventures Investments Team

Dr. Jörn Erselius Managing Director, Max Planck Innovation Teri Willey

Vice President, Business Development & Technology Transfer, Cold Spring Harbor Laboratory (CSHL)

Prof. Dr. Mark Ebers Professor of Business Administration, Corporate Development & Organization, University of Cologne (Moderator)

Co-Sponsor:



Industry Organization's Bio Partnering meetings can break down barriers between industry and scientists. Featuring rapid-fire pitch sessions and networking events, "it's like speed dating for innovators," she said.

A similar approach has succeeded in Germany, with the annual Innovation Days events convened by MPG in partnership with Fraunhofer-Gesellschaft. the Helmholtz Association, and the Leibniz Association

Bridging the gap also depends on finding a common language, something both industry and academia readily agree upon. Agreeing to terms is a smoother process when the players have an understanding of the other side-scientists benefit from learning core business skills, and industry and venture partners with scientific backgrounds often excel. "For years we've tried to separate science and business," Dalton said, "but they need to be pushed closer."

By Hallie Kapner

Max-Planck-Innovation



Interview with:

Dr. Berthold Neizert

Head of Division, International Relations, Max Planck Society



In your opinion, what fosters a seamless innovation partnership between academia and industry?

The transfer of scientific findings, particularly from academic basic research to industrial application, is a vital challenge for the economic development of modern nations. That is why bridges must be built between the different worlds in a wide variety of ways: spin-offs, validation centers and incubators, as well as professional technology transfer organizations are examples of how to forge paths from research findings to application. But finally, this transfer is not possible

without clever minds-the education of outstanding experts by universities and research institutions therefore remains the most important basis for the successful implementation of ideas into economically relevant products, processes, and services.

How does the Max Planck Society's alobal research network contribute to solving the scientific and technological challenges of the 21st century? Scientific research in the Max Planck Society is conducted at the frontiers of knowledge; research results do not

serve short-term objectives, but rather

unfold their effects over a longer period of time: the technological or economic benefit of scientific breakthroughs often takes decades to become visible. This is particularly true for global challenges like health, nutrition, energy supply, environment, and climate, which can only be successfully met through international cooperation. These are only a few areas, mentioned by way of example, in which scientists of the Max Planck institutes are cooperating in international consortia to find solutions to key issues that humanity will face in the future. Two-thirds of all publications of Max Planck scientists emerge as a result of international cooperation.

How does the Max Planck Society benefit from planning joint events with the German Center for Research and Innovation in New York?

The German Center for Research and Innovation in New York offers an excellent platform for transatlantic dialogue in science. The center provides a forum for topical research results to not only be presented and discussed with U.S. partners, but also with a well-informed audience from the New York City area. New exciting questions are often raised in this way. But this platform is also a place where new cooperation partners can find each other and where the curiosity of junior scientists can be piqued about opportunities at a university or a research institution in Germany. These are all great advantages from which the Max Planck Society can benefit.

The Energiewende: An Energy Future Built on Wind and Sun

Later this year, as the massive turbines begin to spin at eight new wind farms, Germany will set a record for offshore wind power installations in Europe—just the latest achievement in a steady flow of progress toward one of the most ambitious energy policies in the world.

The German Energiewende, or "energy transition," is the country's bold plan to reduce energy consumption and greenhouse gas emissions and develop new methods of renewable energy production and storage. The goals are nothing short of astonishing: an overall 40 percent reduction in carbon emissions by 2020 and an 80 to 95 percent reduction by 2050.* Yet what seems impossible on paper is slowly becoming reality, one innovation at a time.

A Long-Term Commitment

Germany's commitment to pursuing sources of energy beyond nuclear and fossil fuels dates back to the 1970s. The term Energiewende was coined as part of that decade's anti-nuclear movement, which enjoyed increased support following the Chernobyl reactor meltdown in 1986.

The Renewable Energy Act of 2000 sparked an initial boost of development of renewables in Germany, and a plan to close all 17 German nuclear facilities by 2022 was announced shortly thereafter. As early as 2009, Germany had already been hailed in the media as "the world's first major renewable energy economy."





The disaster at Japan's Fukushima nuclear and emissions goals can only be dubbed power plant in 2011 is widely credited as the "bia" Energiewende. the event that kickstarted what Prof. Dr. Building one of the most advanced Ferdi Schüth, Director of the Max Planck renewable energy supplies in the world Institute for Carbon Research, refers to as means reimagining the entire system: every the "small Energiewende." Almost aspect of production, storage, and immediately, eight nuclear power plants consumption is subject to were decommissioned far examination and overhaul ahead of schedule. This "As early as 2009, And that doesn't take into definitive move ushered in **Germany had** account the most complex the energy transition of already been hailed system of all-the thoughts today, and with it a wave and habits of consumers. in the media as of innovation in renewable 'the world's first energy technology and Finding renewable policy that the country is major renewable replacements for coal and still riding-and making natural gas for electricity energy economy."" history in the process. and heating, as well as liquid hydrocarbons like

The "Big" Energiewende

If the initial closure of nuclear plants represented the first, smaller stage of the modern energy transformation, Schüth argues that the work needed to achieve Germany's aggressive energy consumption

gasoline and diesel for transportation, is the first hurdle. The second is delivery, as advancements in green energy technologies are of little use without the infrastructure for storing, delivering, and regulating energy distribution.

Thanks to considerable investment and public support, efforts on all fronts are yielding promising results. Over the past four years, the greatest gains in generation and delivery of clean power have focused on two main areas: wind and solar energy.

Wind farms have sprung up in record numbers over the past 15 years, with the most productive results coming from offshore farms in the North Sea. Germany also leads the world in photovoltaic installations, both commercial and residential. "What seems Over the past two years, Germany reached grid impossible parity with photovoltaics, on paper and depending on the is becoming season, the cost of pulling reality, one electricity from the grid actually exceeds that of innovation solar power. at a time."

On several days in 2014, Germany set world records

for clean production-producing as much as 75 percent of the country's energy needs on a single good-weather day in May. Today, Germany leads Europe in clean energy production, with 27 percent of electricity generated from renewable sources in 2014. Comparatively, the United States generated about 14

percent of its electricity from renewables during that same timeframe.

As green energy production continues to surge in Germany, considerable government resources have been pledged to boost the reliability and stability of the grid, and to build high-energy transmission lines from wind farms in the north to industrial regions and major population centers further south. Sophisticated algorithms to forecast energy consumption are being refined as the renewable energy grid grows, aiming

to better balance energy delivery within a system that literally changes with the weather. Advances in battery technology are providing new options for storing excess power and minimizing loss.

On the research side, efforts to develop solutions for the transportation sector are focusing on increasing the efficiency of fuel cells and developing

biomass fuels that may someday have the potential to replace liquid hydrocarbon fuel in aviation.

"The Major Questions"

Much of Europe is following in Germany's path of energy transformation, some countries more quickly than others. France, which relies heavily on nuclear power, announced its own energy sector revamp, and the UK's Climate Change Act has been in place since 2008. But for Schüth, there's something more important than the technology and the global community. "I often say that the technology questions aren't the big ones," he said. "The major questions are psychological, sociological, and political."

Change of this magnitude is impossible without public support, and one key to Germany's success with the Energiewende is the concept of Bürgerenergie-citizen-owned energy projects. More than half of Germany's renewable energy comes from citizen-owned sources. Schüth emphasizes that personally experiencing new technologies-like fast-accelerating electric cars-help change public views and habits, but he admits it's a long-term communications challenge. "The social sciences are really energy sciences," he says. "We need a change of mindset."

While we can only guess what life will look like in 2050, when the deadline for the Energiewende goals arrives, one thing is certain: Germany's actions today are shaping the future.

By Hallie Kapner

March 31, 2014: The Global Energy Challenge: Germany's Energiewende and Beyond

lobal energy demand is Gexpected to rise dramatically as the world's population grows, economies flourish, and standards of

living increase, enabling greater access to modern energy. By 2040, consumption is projected to increase by more than 56 percent worldwide, according to a U.S. Energy Information Administration (EIA) report. Germany has long been a



recognized leader in environmental protection and clean energy initiatives. Prof. Dr. Ferdi Schüth, a highly esteemed German chemist, spoke

> about Germany's national energy policy, the Energiewende, a mix of market-based instruments and regulation, which was designed to tackle climate change, diminish and eliminate the risk of nuclear power, and stimulate technology innovation in the green economy.

Event Speakers:

Prof. Dr. Ferdi Schüth

Vice President, German Research Foundation (DFG); Director, Max Planck Institute for Carbon Research, Mühlheim/ Ruhr; Leibniz Prize Recipient, 2003

Dr. Eva-Maria Streier

Director, New York Office German Research Foundation (DFG) (Moderator)

Co-Sponsor:



The Skills Initiative:

A German Model for Building U.S. Manufacturing Skills

Statistics show that the leading U.S. imports from Germany are goods such as cars, machinery, pharmaceuticals, and medical equipment. **But United States Secretary of Commerce Penny Pritzker has** a different point of view. In 2014, she told a packed house of government and manufacturing industry representatives in Washington, D.C., that "the effort to bring the dual system of training to America may be one of the most valuable German imports over the long term."

pritzker is referring to the educational system that has allowed Germany to develop one of Europe's strongest manufacturing economies-one that has grown and advanced, producing huge trade surpluses while the same sector in the United States has struggled with mounting trade deficits. It is the apprenticeship system, and now more than ever, countries around the world are looking to it as a model for reinvigorating their own approach to vocational training.

By the time German students reach the equivalent of high school, teachers have long been following their progress and skills to guide them toward career training. More than half of German students enter the dual vocational training system, which splits learning between the classroom and an apprenticeship, where students learn workplace skills and receive hands-on training in various fields. Students are paid an entry-level wage during the course of their training,

an investment many German companies willingly make to grow the pool of skilled potential employees. In 2012 alone, more than 800,000 students apprenticed at manufacturing firms across Germany. "We've heard

from many foundation of a broader **German CEOs in** federal technology the U.S. that the strategy designed to link basic and applied lack of skilled scientific research to the labor was manufacturing sector one of, if not through partnerships the biggest, between universities. obstacle to public and private research organizations, further German and manufacturing firms. investment." By keeping close ties between those doing innovative research and those poised to turn ideas into products, the German system has largely bridged the so-called "valley of death" that stymies other nations' manufacturing sectors when



The dual system forms the

research and production are on opposite sides of the globe.

While German manufacturing companies can choose employees from a deep

pool of skilled technical workers and, in turn, maintain a sector that boasts more than 20 percent of the country's employment and contributes 22 percent to GDP, the situation in the United States is starkly different. The "skills gap" between the needs of manufacturers and the available workforce continues to widen, and the number of skilled laborers retiring outpaces the

number of new entrants.

Enter the German Skills Initiative. Launched in 2012 by the German Embassy, the Skills Initiative aims to apply the best practices of the dual training system within the U.S. manufacturing sector, boosting the skilled workforce and increasing opportunities. Germany is the third-largest foreign job creator in the United States, and 3,400 German companies-many of them in manufacturing-have a U.S. presence. But, as German Ambassador to the United States Peter Wittig commented, "we've heard from many German CEOs in the U.S. that the lack of skilled labor was one of, if not the biggest, obstacle to further German investment."

Over the past two years, the Skills Initiative has zeroed in on America's manufacturing hot zones, traveling to Kentucky, the Carolinas, Michigan, Tennessee, and other states to help companies develop training programs in partnership with local community colleges. Students accepted into these programs complete a multi-year course comprising classroom and on-site learning. Upon completion, they will not only have a college degree_they'll have a job.

Some companies have gone so far as to bring the tasks of both education and practical training under their own roofs. Ilker Subasi spent several years as Assistant Manager of Technical Training at Volkswagen Academy in Chattanooga, Tennessee. Formed in partnership with Chattanooga State Community College, the program brings the classic elements of the German system to U.S. soil-in this case, at a state-of-the-art training facility adjacent to the VW plant where the students plan to work after graduation. VW estimates that by 2018, 60 percent of its workforce will be outside of Germany. "We have to make sure we have the right measures in the right place to move forward and be successful," Subasi said, "And this system works."

Eric Spiegel, President and CEO of Siemens USA, believes that his industry is on the brink of "the biggest shift we've ever seen in history," referring to the increased role of high-tech robots, computer-aided manufacturing, and advanced automation. "We need big skills," Spiegel says. The Skills Initiative team is on the road, touring the United States and helping to fill that need.

By Hallie Kapner

June 17, 2014: Skills Training for a Modern **Manufacturing Workforce: Does the German** Model Have Lessons for the United States?

skilled workforce is Aindispensable to sustaining the manufacturing resurgence in the United States. In recent decades, the United States has faced the challenge of training the types of workers-whether in skilled production and higher professions or in science and engineering research fields-needed to remain competitive in global markets. In this environment, the German dual system of training is increasingly seen as a major contributor to narrowing the skills gap. This conference brought together

Event Speakers: Penny Pritzker

Secretary, United States Department of Commerce (Keynote)

Peter Wittig

German Ambassador to the United States of America (Welcome Remarks)

Thomas J. Duesterberg

Executive Director, Manufacturing & Society in the 21st Century, The Aspen Institute (Welcome Remarks)

Eric. A. Spiegel President & CEO, Siemens USA

Emily S. DeRocco

CEO, E3 Engage Educate Employ; former President, The Manufacturing Institute; former Assistant Secretary of Labor for Employment & Training, U.S. Department of Labor (Moderator)

Ilker Subasi

Assistant Manager of Technical Training, VW Group of America

Peter Fischer

Minister, Head of Economic Affairs, The Embassy of the Federal Republic of Germany (Closing Remarks)

THE ASPEN INSTITUTE MANUFACTURING AND SOCIETY IN THE 21st CENTURY Embassy of the Federal Republic of German

R G REPRESENTATIVE

I T of German Industry + Trade



Interview with:

Sebastian Patta

Executive Vice President for Human Resources, Volkswagen Group of America, Chattanooga Operations, LLC

How has Volkswagen successfully imported the "German model" of vocational training to promote manufacturing in the U.S.?

Volkswagen strongly believes in dual vocational training to prepare its future workforce (e.g. skilled team members) for upcoming challenges. Since we will witness increasing job complexity in the future, a mix of theoretical and hands-on training is necessary for equipping our students with a broad set of skills needed for various positions. For Volkswagen, this skill base is a fundamental start towards life-long learning in order for students to later become experts in a desired field and pursue a long-term career. Globally, Volkswagen has 20,000 apprentices that follow the same standards of dual vocational trainina.



Together with our partner, Chattanooga State Community College, Volkswagen Chattanooga implemented its apprenticeship program in 2010. Since then, 25 students have successfully graduated from the program. All of them are DIHK/AHK -certified, which means they fulfill the same requirements as that of similar programs in Germany.

Please describe the Volkswagen Academy—a unique collaboration between a global manufacturer and an American community college.

The Volkswagen Academy is a learning center located at the Volkswagen facility. Volkswagen partners with Chattanooga State Community College to offer our Automation Mechatronics Program (AMP) and Car Mechatronics Program (CMP). We have instructors from the college on site in the Academy teaching mechanical, electrical, and informational classes. Each of these areas is managed by Volkswagen staff. The mechatronics programs are three-year programs consisting of nine semesters, five of which are in the Academy and four that consist of on-the-job training in the plant. The Chattanooga State staff assists in the application review process, registration, and the interviewing of prospective students. During their time in the Academy, students follow the college course curriculum outline to prepare for positions in the plant. At the end of the course, each student receives an associate's degree from the college as well as a DIHK-AHK certificate



leading experts from government and

individual companies, often German

multinationals and regional consortia,

the dual system to the U.S. economic

are finding effective ways to adapt

and social environment.

industry to explore ways in which

Co-Sponsors:



Students also receive a conditional job offer with Volkswagen upon completion of the program.

What can the American manufacturing sector learn from the German dual education system?

Volkswagen as well as German society in general believe in dual vocational training as one of the major educational paths. More than 65



percent of German graduates decide to complete an apprenticeship. We value apprenticeships as an investment in our people and as human capital for our future workforce. The apprenticeship model gives our company the opportunity to educate students for our company's unique needs and to increase employee lovalty.

Interview with:

Prof. Dr. Ursula Gather Rector, Technische Universität Dortmund

What is the purpose of a university education?

The purpose of a university education is to convey a profound scientific understanding of a discipline by providing students with an insight into contexts, the current state of research, and enabling them to anticipate the challenges of the future. Apart from factual knowledge, this includes methodological knowledge as well as the ability to apply these methods.

Are institutions of higher education adequately preparing students to compete in today's global knowledge economy?

Absolutely. German university graduates are very well prepared. Conducting research, writing papers, selecting information, and assessing various opinions and events in a alobal context are integral parts of a university education.

Are universities realigning their social missions to meet evolving labor market demands? If so, what role do students, parents, educators, policymakers, and employers play in driving this trend?

It is of course our objective to provide our graduates with a degree that allows them to start a successful career. In addition to the profound factual knowledge mentioned earlier, our graduates are also capable of acquiring knowledge independently and of transferring their understanding of already established processes and methods to new areas of application. Equipped with these skills, our graduates are flexible and able to easily branch out into many different areas

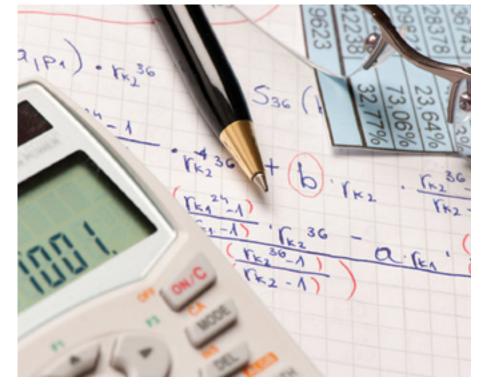
Today more than half of each year's araduating class in Germany goes to university. However, due to its depth of content and the required

independence, a university education is not for everybody. Particularly due to the reduction of the required years of school attendance in Germany from nine to eight years, the freshmen starting university today are generally vounger and often require more guidance and support. Parents are increasingly involved in the process of choosing a study program and consequently find it difficult not to interfere with questions and problems their children might encounter during their studies. Instead, they should be fostering their children's independence.



What challenges and opportunities does alobalization present to university education?

With globalization accelerating at its current pace, young people need to be prepared for a workplace in international and intercultural contexts. At universities students are obviously exposed to an international environment as science and research have been driven by transnational exchange. Already at an early point in their education, our students use international literature, meet exchange students and auest scientists, and thus get excited about global networks and intercultural experiences. This is excellent preparation for jobs in a global market.



What efforts currently exist in Germany to 'modernize' the university system?

Over the last 15 years, the Bologna Process has introduced fundamental changes to the European university landscape: A standardization of course structures was implemented to achieve a comparability of degrees and academic performance in order to increase the mobility of students. For Germany in particular, this meant the transfer of the German degree programs of "Diplom" and "Magister" into the Bachelor and Master system. Here, another goal was to reduce the length of studies, because now it is possible to obtain the first degree after three years, whereas before it usually took five years. Many students and employers, however, favor the concentration and specialization offered by master's programs.

As a more recent development, classroom teaching is complemented by e-learning courses giving students more flexibility in terms of working hours and location. This has also paved the way for part-time study programs and continuing professional development.

Education vs. Training: September 3, 2014: A Contradiction or Productive Synergy?

panel of higher education A experts discussed the rapidly changing relationship between a traditional university education and the university degree as preparation for a career. Topics ranged from how universities in both countries are responding to the pressure to graduate students who are able to find jobs to promising models that allow for the cooperation and interplay of the liberal arts with vocation-specific training.

Co-Sponsor:

HRK German Rectors' Conference The Voice of the Universities



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Event Speakers:

Prof. Philip G. Altbach Director, Center for International Higher Education, Lynch School of Education, Boston College

Prof. Dr. Ulrike Beisiegel President, Georg-August-Universität Göttingen

Prof. Dr. Andreas Bertram President, Osnabrück University of Applied Sciences

Prof. Jeffrey M. Peck

Vice Provost for Global Strategies and Dean of the Weissman School of Arts and Sciences, Baruch College, The City University of New York (CUNY) (Moderator)



e-Health: Delivering Better Care to Those Who Need it Most

Powerful Programs Improve Patient Outcomes in Remote Regions Around the World

roundbreaking developments in Je-health technology have succeeded in providing access to informed, modern healthcare in places previously underserved. The impact of these e-health innovations often go far beyond the original target of developing countries to reach mature countries, resulting in a alobal reach that supports overall population health.

e-Health Innovation: Novel **Diabetes Management Solutions**

While diabetes is often framed as a first-world condition, the truth is that it has become a worldwide epidemic. According to the World Health Organization, an estimated 347 million people now have diabetes, with the number of deaths from the disease expected to double between 2005 and 2030.

The 2013 Healthcare Innovation World Cup, funded by Boehringer Ingelheim and organized by the Healthcare Innovation and Technology Lab and the German Center for Research and Innovation, honored pioneering solutions that aim to considerably reduce those numbers. The competition invited entrepreneurs, public health workers, healthcare providers, pharmaceutical professionals, and other visionaries to submit their innovative concepts for prevention, early diagnosis, and management of the condition.

Previous entries from winners and finalists included a wireless pill bottle



that strengthens patient adherence, a mobile and web-based rewards program for people with insulin-dependent diabetes, and other state-of-the-art solutions that use e-health and patient empowerment to agin control over this epidemic.

Global Reach: New Healthcare Strategies

Improving the health of the underserved has long been a goal for many governments and organizations around the world. For the most part, the focus has been to furnish providers with the supplies and training needed to care for these populations. The challenge is that there will never be enough providers to achieve this goal.



Given this reality, the new paradiam is to equip midwives, nurses, and other non-physician healthcare professionals from underserved areas with the medical knowledge they need to treat and heal their people. This strategy is made possible, in part, through advances in tablet design and medical content agaregation for digital applications.

A compelling example of this new approach was featured in a documentary screened at the German Center for Research and Innovation's "Healthcare Delivery to Developing Countries Using Mobile Technology" symposium, which

By Wolfgang Renz, MD



Wolfgang Renz, MD, is President of International Business at Physicians Interactive and President of the Board for the German Center for Research and Innovation Foundation, Dr. Renz is board-certified in emergency medicine and has extensive executive experience in developing innovative solutions for global markets for leading pharmaceutical companies and digital healthcare start-ups in North America, Europe, and Israel. He is also a Senior Research Fellow for the Healthcare Innovation & Technology Lab in New York City.

took place in October 2014. The documentary spotlighted a voung woman who had traveled from her South Sudan home to receive training in maternal care from Health eVillages, the non-profit founded by Physicians Interactive in partnership with the Robert F. Kennedy Center for Justice & Human Rights.

Upon returning home to work at a local clinic, the woman treated a pregnant mother. At one point, this patient's blood pressure reading suddenly became undetectable. Pre-eclampsia was immediately suspected. There was no printed drug index at the clinic for her to reference the correct dosage of magnesium sulfate to administer-and no need for one. The young woman possessed a tablet loaded with the largest medical content library in the world, a device that was also

provided by Health eVillages. As such, she was able to quickly consult this digital library for the right dosage.

Developing countries aren't the only ones to benefit from this new strategy. Mature countries such as Germany, the United States, and Canada are also leveraging non-physician medical professionals,

supported by the latest in e-health and mobile technology, to meet the needs of their aging populations, chronically ill patients, and newly insured consumers. In addition, many first-world countries are expanding care delivery to include alternate locations, with the goal of avoiding

costly emergency room and urgent care visits. In the United States and Canada, for example, pharmacies are adding rooms for physician assistants to facilitate delivery of affordable and easily accessible patient care. Furthermore, ongoing enhancements to remote patient monitoring will extend the healthcare delivery model into the ultimate sphere of accessibility: the patient's home

Evolution of the Healthcare Model

With so many changes, it is inevitable that the patient's role in care delivery would also undergo a significant shift in focus. In fact, we often don't refer to them as patients anymore, but rather as educated consumers who come for treatment bearing printouts of information gleaned from hours of Internet research. These educated consumers

An estimated

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2005 and 2030

arrive at their rubberstamping the

future populations, trends, both for emerging and By evolving the

who can learn and use healthcare technology, we will create a new reality where the willingness to broaden the profession of healthcare will expand the number of people who have access to that care, resulting in an ever healthier world.

October 22, 2014:

Healthcare Delivery to Developing Countries Using Mobile Technology

Experts convened to discuss the role of mobile health technology in solving the global healthcare crisis. The speakers focused on how society can best deploy mobile and e-health technologies to empower communities and help save lives.



Event Speakers:

Bernd Altpeter CEO & Founder, German Institute for Telemedicine and Health Promotion (DITG)

Kerry Kennedy President, Robert F. Kennedy Center for Justice & Human Rights

Donato J. Tramuto CEO & Chairman, Physicians Interactive

Dr. Wolfgang Renz Co-President, GCRI Foundation, Inc. (Moderator)

Co-Sponsor:





physicians' offices in a position of authority, with the clinicians often patients' meticulously researched care plans

Given the challenges of treating current and these are all positive developed countries. healthcare model of

Planning for 2050: Creating Smart Cities of the Future



Since the late 19th century, artists and architects have set forth predictions of what city life would be like 50 or 100 years into the future. Renderings of a metropolitan sky filled with airships floating over interconnected skyscrapers have given way to images of all-glass, solar-powered homes, and noiseless expressways teeming with driverless pod cars. Neither scenario quite captures city life in 2015, but a new initiative launched by the German **Federal Ministry of Education and Research** (BMBF) aims to bring the urban future into sharper focus.

The Zukunftsstadt, or City of the Future, is the theme of the 2015 BMBF "Science Year," an annual program to draw public attention to current issues in science and technology and spur research efforts in critical areas. The 2015 Science Year: City of the Future is the latest component in a broader national platform to explore the technologies and strategies needed to create ultra-sustainable urban living environments.

Over the next 35 years, the world's population is set to jump to nine billion people, 75 percent of whom are expected to live in urban areas. The issues that face today's cities-conserving energy, reducing emissions, managing natural resources, improving mobility, and maintaining public safety and security-will only be magnified as populations increase.

"Smart cities," often defined as those that integrate information and communications technologies throughout urban planning, along with best practices in green building, transportation, and energy usage, have long been held up as a solution to ease the burden. But what will it take to transform the cities of 2015 into the livable smart cities of tomorrow?

Experts throughout Germany in fields ranging from science and technology to business, urban planning, policy, and agriculture, have developed a research agenda to answer this question. Probing every aspect of modern urban living, researchers are exploring the potential of solutions both familiar and cutting-edge.

For cities of the future to meet both environmental and livability standards, "we need to readjust our mindset and reinvent our urban management," says German Federal Minister of Education and Research Johanna Wanka. This means assessing energy production and usage, food supply chains, mobility and infrastructure, building standards, information systems, and more.

A typical day in 2050 may start with a wake-up call from a smartphone that also activates the water heater and coffee maker, which run on clean solar energy produced and stored by each passive house. Breakfast may consist of food grown as locally as the backyard or green roof, and the ride to work-whether in an autonomous electric car, train, or some combination of both–mav be seamlessly coordinated by an advanced

communications network that maximizes efficiency and eliminates traffic congestion.

But such theoretical concepts and visions can only go so far: what's missing is a plan for adapting innovations to suit each city's individual needs. "Society is the hardest factor to grapple with when approaching schemes for smart cities," said Prof. Dr. Jan Wörner, Chairman of the Executive Board of the German Aerospace Center. "The experts may know what to do, but you have to be

able to put it into the hands of the people."

The BMBF is doing just that, with the City of the Future competition, which is part of Science Year 2015. Fifty communities across Germany will receive funding as pilot sites for implementing plans for local sustainability. "Ideas for

sustainable living and economic management most often originate in cities," Wanka says, and this competition will build bridges between motivated localities and the scientific community

while creating dozens of testbeds to serve as models for the future.

Urban areas pose some of the greatest challenges to meeting the energy conservation and emission reduction goals set forth in Germany's Energiewende, but the City of the Future initiatives are determined to show that there's no better place to overcome them. Rather than using a top-down approach, where government consults with experts to formulate a plan and passes it down to society, the BMBF is "Ideas for upending the working order and galvanizing citizen support sustainable simultaneously. living and

Wörner says this is exactly the right approach for success. He believes that the demands and expectations of those who live in cities need to be considered early in the process, as changes will only succeed if they are adopted at scale.

economic management most often originate in cities" "We need the whole society for the future," he says. "And if we do it correctly, it's not just a future—it's a smart future."



By Hallie Kapner

December 9, 2014: Smart Cities

rbanization, globalization, Udemographic shifts, and climate change are critical issues that will affect the way we live in the coming decades. At the same time, these challenges offer society the opportunity to design better, more technologically advanced cities. A panel of experts convened to discuss how new "smart city" concepts will shape urban life to become healthier, more mobile, and more efficient in the future.

Event Speakers:

Prof. Dr. Barbara Lenz

Director, Institute of Transport Research, German Aerospace Center (DLR)

William Sisson Director, Sustainability United Technologies Research Center (UTRC)

Prof. Dr.-Ing. Jan Wörner Chairman of the Executive Board German Aerospace Center (DLR)

Dr. Joann Halpern Director, German Center for Research and Innovation (Moderator)

Co-Sponsor:





Interview with:

Dr.-Ing. Eckhart Hertzsch Fraunhofer Institute for Building Physics (IBP), Head of "National Platform Future City," Coordination Working Group 1 (Energy and Resource Efficiency)

What are the primary goals of the National Platform Future City ("Nationale Plattform Zukunftsstadt (NPZ)") agenda?

The National Platform Future City agenda was initiated by the German federal government to address the main sustainability research policy goals for the transformation of cities in Germany. During the agenda process, over 100 experts from various backgrounds have been working together to prepare a comprehensive plan that includes relevant strategies for achieving these environmental policy objectives. In addition, the platform has encouraged its main stakeholders to harness their potential and facilitate collaborations designed to advance these goals.

How does Germany compare to its global counterparts on smart city initiatives, especially with regards to sustainability measures?

Implementing smart city solutions in German cities is somewhat different from doing so in other countries. We are dealing with historic urban structures, diverse property ownership models, and a unique variety of ways in which space in cities is utilized. These basic conditions require that solutions be individualized and adaptable. The platform's main goal is to preserve the unique character of different cities while implementing new sustainability measures. In addition to environmental protection concerns, we are facing other challenges like the implications of demographic change, including new work models and modified mobility requirements. The social and economic divide in urban areas also has to be taken into account with regards to smart city solutions. Most of all, we have to encourage citizens to play an active role in this transformation. Gaining public acceptance of these initiatives is a basic condition for implementing new urban solutions.

What are the biggest challenges facing the city of tomorrow?

All measures concerning urban transformation have to be designed with the needs of people living in cities in mind. A sustainable and future-oriented development program targets the preservation and expansion of the quality of urban life. Nevertheless, cities are also in need of professional partners providing smart solutions to drive this transformation process. Innovative partnerships between research institutions, commercial enterprises, city administrations, and citizens are necessary for accelerating this transformation. The National Platform Future City came to the conclusion that the main challenge of the future is the reorganization of competences and the mobilization of pre-existing, but insufficiently addressed potential. A vast amount of research is already underway in Germany concerning smart city solutions. Now it's time to implement these research findings in a real world setting.

By Dr.-Ing. Eckhart Hertzsch & Martha Vobruba, M.A.









"The GCRI is an excellent resource for sharing scientific knowledge and connecting global innovators. In particular, I have found the GCRI online newsletter very informative and have incorporated the full newsletter or specific sections into my Innovation Daily newsletter, which is distributed to over 100 countries every week."

 \bigcirc

- Richard A. Bendis, President and CEO, Innovation America

The GCRI Website www.germaninnovation.org

he GCRI's website, a key instrument in fulfilling the organization's mission, provides an information platform for individuals who are interested in the

In 2014,

the GCRI

website

tracked

232,470

page

views.

German science and innovation landscape and wish to conduct research or business. In addition to presenting GCRI events and related media, such as videos, podcasts, and photo galleries, the GCRI website features a

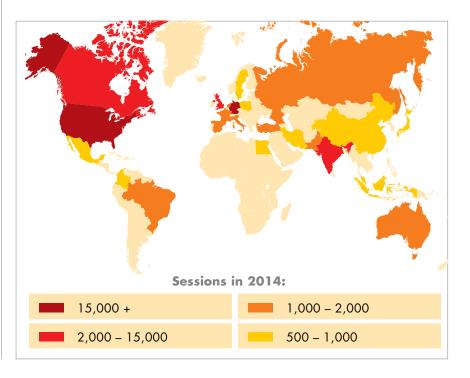
wealth of programs, funding opportunities, and first points of contact for academia and industry. As a one-stop-shop, www.germaninnovation.org also offers an overview of German research organizations, current research focus areas as well as the German higher education system.

The Most Popular Pages in 2014:

1. J	ob I	Posti	ng
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- 2. Home
- 3. Events Calendar
- 4. Ph.D. in Germany
- 5. Technology Parks
- 6. Resources for Graduates
- 7. Careers
- 8. Resources for Postdocs
- 9. Centers of Innovation in Germany
- 10. Resources for Undergraduates

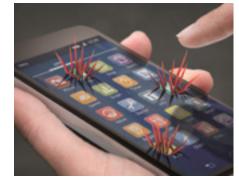




-NNOVATION GERMANY The GCRI Newsletter









Each month, GCRI's newsletter, E-NNOVATION GERMANY highlights a different topic from the German science, research, and innovation landscapes. Since its launch in April 2010, E-NNOVATION GERMANY has captured the attention of a growing readership in North America and Germany. During the past year, the number of readers increased by 60%.





GCRI newsletter articles and interviews have also been published on the Innovation Daily blog by Innovation America, which reaches over 1,000,000 unique visitors in over 185 countries and was voted fourth Best Blogger in the World by Blogging Innovation.

Newsletter Subscribers per Month

German Innovations of the Month

ech issue of E-NNOVATION GERMANY presents a "German Innovation of the Month." which is also listed on the GCRI website.

January 2014



Care-O-bot[®] 3 – Product Vision of a Robotic Home Assistant

Fraunhofer Institute for Manufacturing Engineering & Automation IPA

February 2014



Algae-powered Bio Intelligent Quotient House

Colt International, Arup, SSC

March 2014



Blippex – A Search Engine Made by the People, For the People

Blippex

April 2014



TinkerBots – A Building Set that Makes Creating Toy Robots a Snap

Kinematics GmbH

May 2014



The Max Planck Science Tunnel Max Planck Society

June 2014



Volkswagen Chattanooga -World's First LEED® Platinum **Certified Auto Manufacturing** Plant

Volkswagen Group of America, Chattanooga Operations LLC

July 2014



OpenGo - World's First Fully Integrated Sensor Insole

Moticon GmbH

August 2014



labfolder – A Digital Notebook that Accelerates Scientific Research

abfolder GmbH

September 2014



Socio-Emotional Competency Through Gaming

Dr. Nikos Green, AFFECTIVE SIGNALS, c/o Freie Universität Berlin, Affective Neuroscience & Psychology of Emotion

October 2014



Swoozy Future TV - The **Intelligent Semantic TV System**

Swoozy

November 2014



ubitricity – Ubiquitous Smart **Charging Made Affordable**

ubitricity Gesellschaft für verteilte Energiesysteme mbH

GCRI Interviews

Each newsletter features an interview with a leading German expert to highlight the month's topic. In 2014, GCRI conducted interviews with authorities from academia, industry, and government.



Prof. Dr. Dr. h.c. Andreas Kruse Professor (Chair) & Director, Institute of Gerontology, Heidelberg University Aging, Issue 46, January 2014

Prof. Dr. Ferdi Schüth



Director, Max-Planck-Institut für Kohlenforschung; Vice President, German Research Foundation Energy, Issue 47, February 2014

President, Cyber Security Council Germany e.V. Cyber Security, Issue 48, March 2014



Chairman, Advisory Board, "Young Digital Economy," Federal Ministry for Economic Affairs & Energy; Chair, E-Business & E-Entrepreneurship, University of Duisburg-Essen; Managing Director, netSTART Venture GmbH Entrepreneurship, Issue 49, April 2014





Arne Schönbohm



Peter Bosch Head of Strategy, Processes, & Structures, Production and Logistics Division, Volkswagen Green Manufacturing, Issue 51, June 2014



Christian Stammel Founder & CEO, Wearable Technologies AG, Munich Wearable Technology, Issue 52, July 2014



Prof. Dr. Andreas Bertram President, Osnabrück University of Applied Sciences Higher Education, Issue 53, August 2014



Prof. Dr. Dr. h.c. Angela D. Friederici

Director, Department of Neuropsychology, Max Planck Institute for Human Cognitive & Brain Sciences, Leipzig Language & the Brain, Issue 54, September 2014



Univ.-Prof. Dr. rer. nat. Sabina Jeschke

Director, Institute Cluster IMA/ZLW & IfU, Department of Mechanical Engineering, Vice Dean, RWTH Aachen University

Digital Society, Issue 55, October 2014



Univ.-Prof. Dr. Marion Weissenberger-Eibl

Head, Fraunhofer Institute for Systems & Innovation Research ISI; Chair, Innovation & Technology Management, Institute for Entrepreneurship, Technology Management, & Innovation, Karlsruhe Institute of Technology

Smart Cities, Issue 56, November 2014



The German Center for Research and Innovation joined the online social networking and microblogging service Twitter www.twitter.com on May 31, 2011. By December 31, 2014, GCRI had sent 10,290 tweets to over 2,030 followers. As part of its social media strategy, GCRI's tweets correspond to the monthly newsletter topics of E-NNOVATION GERMANY. In addition to these topics, GCRI tweets about funding opportunities for research as well as jobs and internships in Germany.

GCRI 2014 Twitter Profile

GCRI's Twitter account provides information and updates on the German research and innovation landscape. The GCRI team tweets about German science, technology, and society.

GCRI's Most Retweeted Tweet of 2014* **#Germany shatters record by** producing 31% of its **#electricity from #renewables** in the 1st half of 2014. **#SmartCity**

*as calculated via the measuring tool FavStar

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	711 3 0	New York Tanda Survey	

Top 10 GCRI Follower Interests

(4) Research (general) Science (general) Technology, High-Tech Innovation, Research & Development Energy, Renewables Medicine, Health, Life Sciences, Medical Technology Education, University, Study Abroad, Higher Education, Learning Environment, Climate, Ecology, Sustainability Business, Entrepreneurship, Economy, Investment, Marketing International/Transatlantic Relations, Politics, Diplomacy



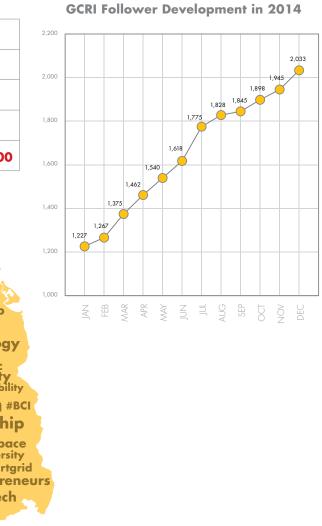
Twitter Statistics

72.4 %	% Increase in Number of Followers in 2014
3,005	Number of Tweets Sent in 2014
2,033	Number of Followers
854	Number of Followers Gained in 2014
25,000 - 60,000	Reach per Tweet Unique Accounts*

*estimated accounts reached as calculated via the measuring tool TweetReach using the @gcri_ny handle

#Europe





commonly Used GCRI Hashtags*

ulated via the measuring tool TweetStats

About the GCRI



"Within its five years of existence, the German Center for Research and Innovation has played an essential role in fostering German-U.S. collaboration in science and technology."

 \bigcirc

-Peter Wittig, German Ambassador to the United States of America



German Houses of Research and Innovation

The German Houses of Research and Innovation (DWIHs) are part of the Internationalization Strategy of the German federal government and the Federal Foreign Office's Research and **Academic Relations** Initiative. Located in Cairo, Moscow, New Delhi, New York, São Paulo, and Tokyo, the DWIHs facilitate collaboration with Germany by bringing together leaders in science, the humanities, technology, and industry and providing a platform to foster creativity and enhance innovation.

he Federal Foreign Office is implementing this project in cooperation with the Federal Ministry of Education and Research and in close collaboration with the Alliance of German Science Organizations, which includes the Alexander von Humboldt Foundation (AvHF), Fraunhofer-Gesellschaft, German Academic Exchange Service (DAAD), German Council of Science and Humanities (WR), German National Academy of Sciences Leopoldina, German Rectors' Conference (HRK), German Research Foundation (DFG), Helmholtz Association, Leibniz Association, Max-Planck-Gesellschaft as well as the Association of German Chambers of Industry and Commerce (DIHK).

The houses were created to:

Promote Germany as a research location

Provide a forum for international dialogue and scientific exchange

Offer support and services, e.g. advising for international researchers, organizing educational events, facilitating collaboration



Deutsche Wissenschaftsund Innovationshäuser (DWIHs)



New York

German Center for Research and Innovation Deutsches Wissenschafts- und Innovationshaus

New York

General Questions: info@germaninnovation.org www.germaninnovation.org

Kairo

São Paulo

Deutsches Wissenschafts- und Innovationshaus São Paulo

Centro Alemão de Ciência e Inovação São Paulo

General Questions: info@dwih.com.br www.dwih.com.br

Moscow

Cairo

German Science Centre Cairo

Deutsches Wissenschaftszentrum

General Questions: info@dwz-kairo.de www.dwz-kairo.de

Deutsches Haus für Wissenschaft und Innovation Moskau

General Questions: dwih@daad.ru www.dwih.ru

New Dehli

German House for Research and Innovation New Delhi

General Questions: info@dwih.in www.dwih.in

Tokyo

German Research and Innovation Forum Tokvo

General Questions: info@dwih-tokyo.jp www.dwih-tokyo.jp

GCRI Advisory Council

Inder the leadership of its chair, Dr. Cathleen Fisher, Uand GCRI's governing directors, Dr. Nina Lemmens and Dr. Annette Doll-Sellen, the Advisory Council strongly supports GCRI's activities and outreach as it presents Germany to the North American market.



Andrea Adam Moore Executive Director German University Alliance Representative of the German Universities Ligison Offices in New York



American Friends of the Alexander von Humboldt Foundation

sectors.



Dietmar Rieg President & CEO German American Chamber of Commerce. Inc. New York



Prof. Dr. Kurt H. Becker Associate Provost for Research & Technology Initiatives, Professor of Physics Polytechnic Institute of New York University





Andrea Noske

Head of the Science & Technology Section

Embassy of the Federal

Republic of Germany



The Advisory Council works collaboratively to help GCRI achieve its mission. The Council members' expertise and

leadership ensure that GCRI is well connected to key

stakeholders in the United States and Germany across

the business, government, academic, and nonprofit

Busso von Alvensleben (until June 2014) Consul General Consulate General of the Federal Republic of Germany in New York



Prof. Jeffrey Peck Vice Provost for Global Strategies & Dean of the Weissman School of Arts & Sciences Baruch College, The City University of New York (CUNY)



Brita Wagener (since August 2014) Consul General Consulate General of the Federal Republic of Germany in New York





Dr. Joann Halpern Director

- Main Responsibilities:
- Strategic Planning
- Strategic Outreach
- Program Development

Jennifer Audet Communications Officer

- Main Responsibilities:
- GCRI Web & Social Media Presence E-NNOVATION GERMANY
- GCRI's Monthly Newsletter
- Public Relations & Marketing



Katharina Glaser Program Officer

- Main Responsibilities:
- Program Planning & Coordination
- Event Logistics
- Office Administration

Dr. Annette Doll-Sellen (since April 2014) Director DFG Office North America/New York

Dr. Eva-Maria Streier (until April 2014) Director DFG Office North America/New York

GCRI Foundation Board

The GCRI Foundation, Inc. was incorporated in 2012 and held its inaugural Board meeting on August 14, 2012, at the German House in New York City. The GCRI Foundation, Inc. supports the mission and work of the German Center for Research and Innovation through activities to expand the Center's funding base and enhance the sustainability of GCRI's operations, including its public events, workshops, publications, website, and other relevant projects. On November 17, 2013, the GCRI Foundation. Inc. received its official status as a 501(c)(3). On June 6, 2014, the GCRI Foundation, Inc. welcomed its newest member, Joerg Sommer, Vice President of Product Marketing & Strategy for Volkswagen of America, Inc.



Dr. Annette Doll-Sellen since April 2014) Treasurer Director, DFG Office North America/New York



Dr. Joann Halpern Director German Center for Research and Innovation



Dr. Nina Lemmens Director DAAD North America



Prof. Dr. Wolfgang Renz Co-President President, International Business Physicians Interactive (since October 2014) Corporate Vice President, Business Model & HealthCare Innovation Boehringer Ingelheim (until October 2014)



James Sharp Chairman President, Carl Zeiss Microscopy, LLC President & CEO Carl Zeiss, Inc.



Joerg Sommer Vice President Product Marketing & Strategy Volkswagen of America, Inc.







Dr. Eva-Maria Streier

O. Sinan Tumer Co-President

Sr. Director, SAP Co-Innovation Lab SAP Research, Technology & Innovation Platform, SAP Labs, LLC

GCRI Partner Institutions

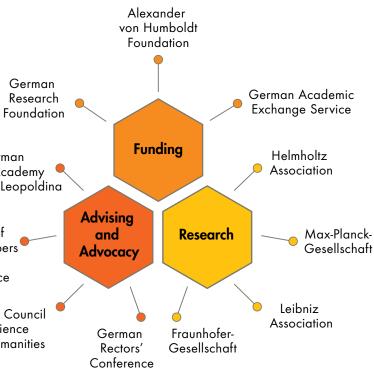
CRI is under the joint Uleadership of the German Academic Exchange Service (DAAD) and the German Research Foundation (DFG), and is funded by the German Federal Foreign Office. Additional designated partners are the Association of German Chambers of Industry and Commerce and the Alliance of German Science Organizations, which in addition to DAAD and DFG, also includes the Alexander von Humboldt Foundation, the Fraunhofer-Gesellschaft, the Helmholtz Association, the German Rectors' Conference, the Max-Planck-Gesellschaft, the Leibniz Association, the German National Academy of Sciences -Leopoldina, and the German Council of Science and Humanities.

GCRI works closely with the following organizations, which are also located in the German House New York: the Consulate General of the Federal Republic of Germany in New York, the German Academic International Network (GAIN), and the German Universities Liaison Offices in New York. These include Bucerius Law School Fresenius University of Applied Sciences in New York, German University Alliance, Heidelberg University Association, UAS 7 German Universities of Applied Sciences, University Alliance Ruhr, and University of Cologne.

The German National Academy of Sciences - Leopoldina

Association of German Chambers of Industry and Commerce

> German Council of Science and Humanities



Imprint

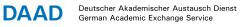
The German Center for Research and Innovation is a cornerstone of the German government's Internationalization Strategy and its Research and Academic Relations Initiative.

German Center for Research and Innovation – New York



Germany Land of Ideas

Under the Joint Leadership of:



DFG Deutsche Forschungsgemeinschaft

German Research Foundation

Funding Provided by:



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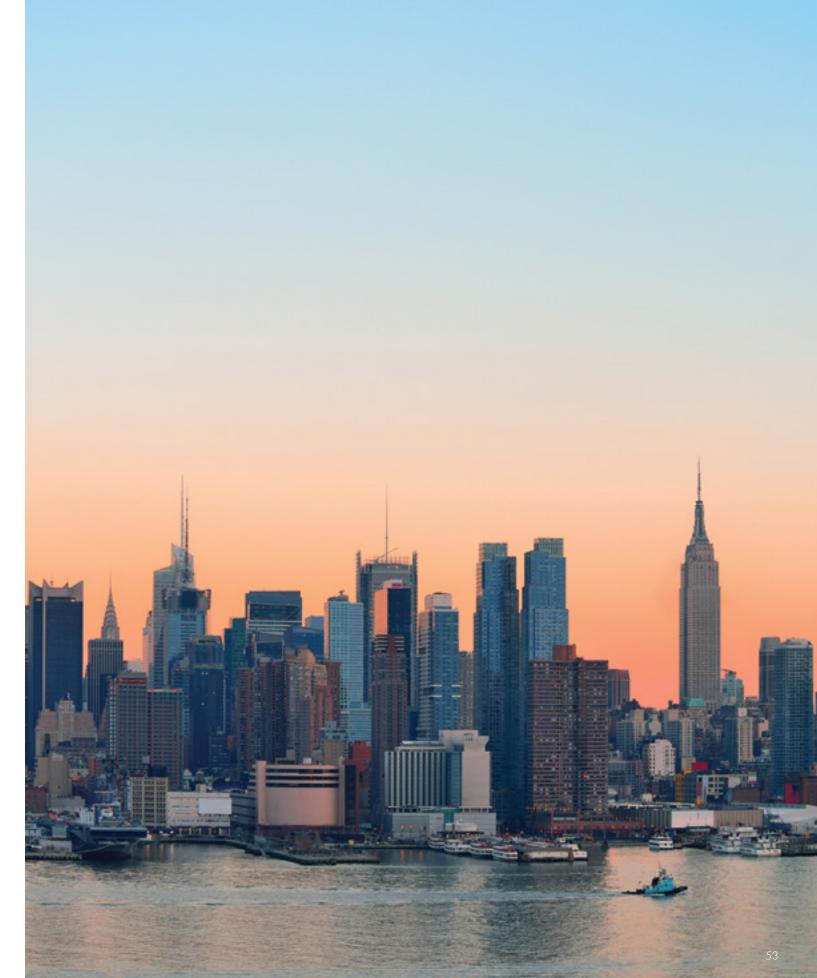
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German Center for Research and Innovation – New York Ì



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