1st Kavli Symposium on the Future of Science Journalism

The Hyatt Lodge, Oak Brook, Illinois, USA, 17th-19th February 2014

Detailed Report

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Preface

The 1st Kavli Symposium on the Future of Science Journalism brought together an international group of leading science journalists and specialists to explore the future of science journalism.

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Participants

Fifty journalists and experts from 16 countries, who work for newspapers (14), web media (11), magazines and journals (6), television networks (3), and radio (1), attended the symposium. Their names can be found in Appendix A and biographies in Appendix E.

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Acknowledgment

We would like to thank the organizing committee for their time and effort in making the symposium a success. In addition to The Kavli Foundation, the symposium received generous support from the International Development Research Centre of Canada.

Dear Readers,

The following pages encompass a report summarizing the ***1st Kavli Symposium on the Future of Science Journalism***. The goal of the Symposium was to strengthen independent and critical science journalism. The approach of the Symposium was to explore how science journalists from leading media and from all over the world could design their profession's future. Ultimately, the Symposium would initiate a process through which science journalists would take initiative in shaping their future, instead of strictly being buffeted by technology and economics.

This first meeting was to provide an open forum for discussing this goal, as well as to identify a selection of issues and initiatives that could be pursued.

On February 19th of 2014, some 50 journalists and experts, working in four separate teams, including observers from several foundations, proposed a series of recommendations, including outlines of ambitious projects that could make an exciting future for independent and critical science journalism.

The report attempts to remain true to what was said during the invited presentations and subsequent breakout sessions so as to reflect the group deliberations that occurred during the event.

We would like to thank the members of the Organizing Committee: Mariette DiChristina, Dan Fagin, Pallab Ghosh, Phil Hilts, Robert Lee Hotz, Rosie Mestel, Ivan Oransky, Ginger Pinholster, and Volker Stollorz. We also thank David Secko and his team of rapporteurs: Dominique Brunet-Vaudrin, Chelsey Coombs, Andy Freeberg, and Mitsui Makoto. Special thanks to Jean-Marc Fleury the central cohesive source of support for the whole project. Finally, we express our gratitude to the International Development Research Centre of Canada, who contributed to make the Symposium truly international.

Yours truly,

Damien Chalaud
Executive Director
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Introduction

What is the future of science journalism?

On February 17th-19th, 2014, 50 journalists and specialists from 16 countries assembled to openly take ownership of this question and to begin to study, articulate and pursue a vision for the future of science journalism.

This report summarises the free exchange of new thinking, ideas and possible collaborations that occurred during the event. No sessions during the workshop were tape recorded, so the report was constructed from notes taken during the day. The organizers welcome any additional reader comments.

RATIONALE FOR THE SYMPOSIUM

Over the past decade, a renewed urgency has developed regarding the need to more fully and openly discuss the field of science journalism. This urgency has emerged as the pace of scientific research has quickened while growing more global, interdisciplinary, and privately funded. These changes have been accompanied by the increasing strategic orientation of science to today's media and major structural changes in public communication due to the Internet.

It is becoming increasingly clear that science journalism needs to better define and distinguish itself in the midst of a growing array of information sources. It needs to clarify its connection to direct "viral" social transmissions from scientists, scientific institutions, industry and other sources, which may not employ the standards of the field or may serve conflicting interests. It needs to innovate to support publicly engaged science. It needs to consider how it will support itself as a business and as a career for veterans and newcomers. Essentially, science journalism needs to weigh and shape its future.

Within this context, the idea for a symposium to discuss how the community of science journalists could take the initiative originated from a discussion between The Kavli Foundation and the World Federation of Science Journalists. This evolved into asking an organizing committee of leading science journalists and specialists to identify key themes for discussion, followed by identifying participants from 16 countries. The group was assembled to think collaboratively about what the future of science journalism requires and what actions can be proposed on a few select issues important to science journalism.

WHAT WAS DISCUSSED?

The organizing committee defined three themes for discussion.

1. DEFINING SCIENCE JOURNALISM

It is becoming increasingly important for science journalism to better define and distinguish itself in the midst of a growing array of information sources. This is also a growing need with the increase in direct science communication from scientists and scientific institutions, as well as industry and other sources, which may not employ the standards of the field or serve conflicting interests. The symposium focused on this issue, as well as how science journalism itself may be impacted by efforts to provide centralized sources of scientific information, such as the national 'science media centers' either established or being developed in several countries. Among the questions: How does science journalism more effectively distinguish itself from other sources of information? What role, if any, should science journalists have with these national science media centers?

2. INTERNATIONAL COLLABORATION IN SCIENCE JOURNALISM

There are areas of the world where coverage of science issues is more difficult, yet coverage is critical not only locally but to the international community. Looking forward, science journalism needs to consider how it can more effectively cover some of the key issues in the field, such as clinical trials that have moved to developing countries. It should also consider how it can collaboratively cover these issues, as well as discern ways that established science journalists and media can collectively improve their support of local science journalism in developing nations. Among the questions: When it comes to covering issues and supporting the development of the field, what are the areas where collaboration can supersede competition?

3. SUPPORTING SCIENCE JOURNALISM[1]

There are new, innovate practices and media business models available to science journalism, but there remains a need to discuss how science journalism can benefit from these practices. Science journalism needs to identify the innovative practices and business models that can strengthen the field, as well as the ways to support their use and development for common benefit? (Theme 3a) It must also consider what tools exist or

[1] Supporting Science Journalism was divided into two sub-themes: Business models (Theme 3a) and new tools (Theme 3b).

should be developed to help the field? For example, are there new ways for science journalists to mine and process the increasing amounts of data being accumulated on individuals and societies? (Theme 3b) How can new technologies and software be integrated in the tool kit of science journalists? Science journalism must also consider how new, alternative sources of funding such as crowd-funding might impact the field.

HOW WHERE THE THEMES DISCUSSED?

The symposium program (Appendix C) involved three parts: (i) an introductory 'Tour de Table and Discussion' that asked the participants "where do we want science journalism to be in ten years and what can we do to get there" (Appendix D); (ii) four plenary sessions (one on each theme) that involved presentations by invited speakers and were followed by open discussion; and (iii) four work group breakout sessions where participants were divided among the themes for more intensive discussion.

1. Tour de Table and Discussion. Moderator Mariette DiChristina leads a group discussion of "One Problem and One Great Idea" (see Appendix D).

The goal of the symposium was to move forward a selection of issues important to science journalism. This task was largely competed in the breakout sessions, which asked participants to:

- Clarify the key issues for each breakout topic, as well as the areas of agreement/disagreement;
- Consider how these key issues might be addressed by the participants, the profession (associations and the Federation), and its supporters; and
- Consider and propose recommendations for moving forward.

What follows are the reports from each theme discussed during the symposium.

Theme 1 Report: Defining Science Journalism

Theme Leader: Pallab Ghosh
Contributing Team: Clive Cookson, Dan Fagin, Jean-Marc Fleury, Joost van Kasteren, Keun-Tae Park, Penny Park, Ginger Pinholster, Ron Winslow, Osama Abu el Rub, Dan Kahan
Rapporteur: David Secko

PLENARY SESSION

The plenary speakers for theme 1 were **Dan M. Kahan**, Elizabeth K. Dollard Professor of Law & Professor of Psychology at Yale Law School and **Osama Abu El Rub**, Medical Editor, AlJazeera.net. Kahan opened the session by addressing how science journalism contributes to how people engage with democratic science policy. He addressed what he termed *the science communication problem*, where for example with climate change, people respond to the issue based on political orientation and tend to polarize with increased scientific comprehension. Science communication, suggested Kahan, is therefore not a normal situation as people accept scientific ideas and debates based on their peer group and not based on interpreting evidence. This can create a polluted information environment. Kahan asked: Can you count on science journalists to police this polluted information environment?

Abu El Rub addressed medical reporting at AlJazeera.net. He noted that medical coverage is a fundamental part of AlJazeera.net's mission with a clear focus on audience needs. AlJazeera.net re-launched its health and medical page in 2013. However, he noted two difficulties with medical reporting at AlJazeera.net: (i) readers are not primarily interested in medicine and (ii) there are few experienced medical reporters on staff. Abu El Rub has begun to address these issues by building recourses to train reporters and embedding their medical coverage in wider political issues. Abu El Rub's take home point was that the future of science journalism at outlets such as AlJazeera.net is directly tied to the need to cover politics. The issue is how this need can be best combined with a need/desire to tell science stories. For Abu El Rub, political journalism is the "elevator" that will allow science journalism to flourish.

The question and answer periods after the plenary talks touched on many issues, but revolved around how to (re)define science journalism as related to evolving political environments, Kahan's science communication problem, the unknown impacts of science journalism and the need to remember that there may not be "one thing that is science journalism". There were conflicted feelings expressed as to what the community of science journalism should be in 2014 and the future. Who are we? Where are we headed? How do we define our community? What are

our fundamental values and core skill set? Such questions provoked discussion on the need to move away from having too many plausible answers for what the future of science journalism should and can be. There was an expressed need for framing principles that will allow the narrowing down to which plausible answer(s) might work best.

WORK GROUP DISCUSSION

The work group for theme 1 discuss how to define science journalism. This discussion considered science journalism in two ways: (a) science as news and (b) coverage of scientific controversies and policy. The discussion noted the role of science journalism as to critically examine, challenge and assess scientific information. The group did not focus on distinguishing science journalism from a wide view of journalism. Instead, the group focused on a definition of science journalism as involving four items:

1. Finding and using experts (science journalists as 'experts in experts');
2. Use of scientific explanation and argumentation in their work;
3. Use of weight-of-evidence reporting (evidence is assessed and weighted in their work); and
4. Connecting science to everyday experience and important cultural, economic, political and social context.

The group decided it needed a structure to consider a definition and build upon it. This structure would seek to explain what the group meant when it said "this is good science journalism". The group extensively discussed a structure that involved articulating:

i. Core values as our beliefs (e.g., verification/critique, transparency, use of context and evidence, integrity and engagement); and
ii. Core competencies as the skills needed to do science journalism (e.g., science literacy, use of experts and evidence, clarity and entertainment value, pursuing science and society connections).

The need for articulating our values and competencies was based in a desire to support the future of the profession and to promote a clear definition to allow wider groups to adopt, examine or debate this mission. The group discussed producing a white paper that explains the definition and the values discussed as "what we aspire to". Any paper, the group felt, must recognize the reality of current work and the democratization of information flows.

The discussion then moved onto science media centres (SMCs). It was noted that SMCs might present an opportunity if we look beyond strict definitions of journalism, as they are spreading and having influence. Discussion noted that the experience with SMCs had been good but that there were concerns with the standardisation of protocols across different SMCs and whether

they reduce critical assessment and create herd effects. It was asked: Should the WFSJ take on the activities of the SMCs? An argument was presented that science journalism should help shape the future of SMCs, since the goal of an SMC is to help people understand and make use of science and the reality is SMCs are here to stay.

The session ended with a discussion of how to promote the group's vision of science journalism to the wider community. This discussion involved a desire to inform people (e.g. editors) that science journalism gives something extra, the need to show the importance of science and technology (science literacy) to our world and thereby the need to effectively deliver this information to people, and the need to be proactive.

MOVING FORWARD: KEY MESSAGES AND RECOMMENDATIONS

Recommendation A: Skills and core values

The working group from Theme 1 recommends creating a collaborative working document that states the core values and skill competencies of science journalists and explicates what the group means when it says *this is good science journalism.*

This document would seek to support a future generation of journalists in having clarity in their mission and to reflect the future prospects for the profession. It would seek to expand the use of these values and competencies in diverse environments and with a wide set of generalists and communicators. Once drafted, the document would be opened to wider discussion. It may inform the production of a future skills handbook.

Draft inclusions in this document are:

1. Core Values
    a. Challenge and verify
    b. Transparency
    c. Context
    d. Use of evidence
    e. Integrity
    f. Engagement
2. Core competencies
    a. Science literacy and numeracy
    b. Use and evaluation of experts and expertise
    c. Use of evidence and scientific augmentation
    d. Clear, entertaining presentation of scientific information

e. Understand and pursue science and society connections
f. Combining science storytelling/backgrounds with use of new digital and social media tools

To accomplish this recommendation, a small team could be established to produce the skills handbook as suggested; focusing on the production of a handbook would give a practical goal to the enterprise and focus the energy.

Recommendation B: SMCs

While there was not universal agreement on the relationship between SMCs and science journalists, the working group from Theme 1 recommends that further discussion of the issue is warranted.

Considerations for this discussion include:

- Should an external review of SMCs be done?
- Can SMCs help spread the value and competencies we find important?
- Can SMC structures be standardized?
- Should science journalists run all SMCs? To what effect and to support what?
- How can constructive criticisms be discussed and acted upon?

The WFSJ could hold a follow-up meeting to assess whether an independent review of SMC activities would be helpful in addressing concerns and opportunities. Any follow-up meeting or online discussion (e.g. on Basecamp) should aim at setting terms of reference for an external review of SMCs (and proposals for new SMCs), discuss proposals for funding this activity and ensure any review looks at all aspects of the relationship between SMCs and science journalists. This project could be a joint activity of one or several academics with the WFSJ.

Recommendation C: Selling science journalism

The working group from Theme 1 recommends the development of a proactive marketing campaign to support the future of science journalism and the outputs of this meeting. Recommendation A and B will not succeed without ideas on how to sell science journalism, which should be prioritized in the next round of work. This campaign may focus on senior editors. The organizers of the 2015 World Conference of Science Journalists could make a concerted effort to invite editors to the June 2015 World Conference in Seoul; members of the working group could develop a proposal for an editors' session at the Seoul Conference.

Theme 2 Report: International Collaboration in Science Journalism

Theme Leader: Ivan Oransky
Contributing Team: Erik Vance, Chul Yoon Kim, Mar Cabra, Violet Otindo, Damien Chalaud, Mariko Takahashi, Eunsung Kim, Phil Hilts, Rosie Mestel
Rapporteur: Dominique Brunet-Vaudrin

PLENARY SESSION

The plenary speaker for theme 2 was **Mar Cabra**, International Consortium of Investigative Journalists (ICIJ). Cabra began by noting that journalists often like to work alone (they are "lone wolves"), but that it is time for them to get together, even if to be selfish. An example of lone wolves getting together is the ICIJ, which includes 175 journalists from 60 countries. Cabra said that the ICIJ works to build a network of trust between journalists so that international stories can be investigated more easily and with fewer funding issues (i.e., "if you have trusted people, then you don't need to travel"). This form of collaboration between journalists allows the use of local knowledge to build global stories. Cabra explained that the ICIJ selects stories based on answers to three questions: (i) Is the story a global concern? (ii) Is the system to protect people broken? (iii) Will we get a result? The ICIJ also makes use of collaboration between journalists to assess large sets of data, which a small group would be unable to effectively examine. This model of collaboration has been applied to science stories, such as the series 'Skin and Bone'. Cabra ended her talk with a discussion of the tools used to allow distant collaborations, including private email programs, VoIP, Skype, Jistsi, Secure Reporter, Google Drive and working with software companies such as Nuiz and Palanti.

The question and answer period after the plenary talk focused on how journalists get paid at ICIJ, how the editorial structure works and the techniques for how the ICIJ built trust between journalists and organizations. Cabra noted that the most successful projects include local media from the very start and that trust develops over time ("you establish connections before you need something"). It was noted that extending the ICIJ model to international collaboration between science journalists would best be tested with a small pilot project, whose results could be examined and used to attract media partners (i.e. funding is often directly tied to the impact of the collaborative stories created). Another key was setting up a climate of sharing and transparency with information and data. The session ended on the point that Science Media

Centres (SMCs) are already collaborating in this way, so is there not something science journalist can learn and do together?

WORK GROUP DISCUSSION

The work group for theme 2 discussed how international collaboration between science journalists could be achieved, what would be consider a success, how journalists would be convinced to work together, and how universal attempts at collaboration should be. The discussion began with an example of the WFSJ training program SjCOOP Asia, as international collaboration need not only involve story production but also training and the development of tools to help journalists. The group felt that the success of collaborations will rest on equal contributions from partners and the building of trust. It was noted that workshops where people can meet are a good way foster initial levels of trust ("we have to encourage individual journalists to collaborate and we need projects to do this").

After some discussion, the group defined the general goal of international collaboration between science journalists as: (a) creating better journalism and higher standards, (b) providing more varied, accurate and sophisticated source use that reflect global realities, (c) leading to better accountability and sharing, and (d) resulting in more appreciation for science journalism. The group was concerned with how to measure the success of international collaboration and discussed metrics such as impacts on policy, creation of better science stories, the number of contacts between involved journalists and sources, pre/post evaluation of the number of international bylines, the growth and sustainability of local efforts, and the level of community pickup of initiatives.

The discussion then moved onto how to attain the above goals. A broad brainstorming session raised ideas such as modeling events on hacks and hackers, creating fellowships for travel and exchanges, supporting boot camps to have journalists learn collaboratively about covering different science stories fast, and the creation of handbooks on best practices. It was deemed useful to have a map of worldwide science journalist profiles to support new collaborations and that perhaps this could be developed at an upcoming WFSJ conference. It was clear that an initial need was also to create an active group with motivated leaders that could spark collaborations. This might be created at an initial focused event where "we get together and write the best practices in (collaborative) science journalism". Discussion ended with agreement that pilot projects should be developed with a focus on a pilot grant and fellowship program, the creation of organizing services, and developing a training handbook.

MOVING FORWARD: KEY MESSAGES AND RECOMMENDATIONS

Recommendation D: Pilot grant and fellowship program

The working group from Theme 2 recommends the creation of a pilot grant and fellowship program to facilitate international collaboration between science journalists.

This program could involve two components:

a) Fellowship exchange program: This component would focus on the exchange of journalists between newsrooms by partnering news organizations together. Journalists in the program could spend one month in another newsroom and report for their home publication thereby creating a mini-bureau. Such a program would need to be sensitive to unequal partnerships and that some one month projects may fail.
b) Travel exchange program: While some travel programs exist, this program would specifically support the travel of journalists between existing science, health and technology conferences and workshops in another country or local region. The program would help journalists travel to other regions to learn about them and report on them, with the goal of building the participating journalist's an improved network of international connections.

The success of the program would be measured by tracking the number of exchanges and number of stories fellowship recipients produce based on their travel. The program could be piloted in the medium term (1-2 years) and initially seek funding from non-governmental organizations (NGOs) and the International Center for Journalists (ICFJ).

Recommendation E: Services

The working group from Theme 2 recommends the creation of three services to help organize international collaboration between science journalists:

a) A resource list of international journalists, fellowships, legal information and online courses that can support new collaborations. This resource could take the form of a wiki and seek funding from journalism societies, the National Association of Science Writers (NASW) or universities for its initial creation.
b) A peer-to-peer network (e.g. forum or listserv) to facilitate mentoring. This resource would require little to no funding, but could support new relationships aimed at learning from international colleagues.
c) Local meetings that would put people together and stimulate an international exploration of a single topic. These meetings could be done simultaneously (same day) around the world.

The success of these services would be measured by usage, the level of engagement, documentation of the relationships created, and user feedback. These services could be piloted in the short to medium term (3 months to 1 year). The peer-to-peer network could be created with little funding to test interest and develop initial collaborations, followed by seeking funding for local meetings and to build resource lists.

Recommendation F: Training handbook on reporting on international science stories

The working group from Theme 2 recommends the creation of a training handbook to improve the skills of journalists in reporting on international science stories. This training handbook should include curated online resources that cover topics such as how to work with open data, how to fundraise for story production and how to collaborate across borders. The success of the handbook would be measured by its usage and ability to help journalists create better stories.

The training handbook could be created in short to medium term (1 year) by initially seeking funding from organization such as UNESCO, the World Bank, European Union, various foundations and open data advocates.

2. Rosie Mestel, Chief Magazine Editor, Nature, discusses the future of science journalism.

Theme 3a Report: Supporting Science Journalism, Business Models

Theme Leader: Robert Lee Hotz
Contributing Team: Julia Belluz, Daniel Berger, Mariette DiChristina, Phil Hilts, Brandon Joo, Manuel Lino, Esther Nakkazi, David Sassoon, Bobbie Johnson
Rapporteur: Chelsey Coombs

PLENARY SESSION

The plenary speakers for theme 3a were **David Sassoon**, Founder and Publisher, InsideClimate News and **Bobbie Johnson**, Founder and Publisher, readmatter.com. Robert Lee Hotz moderated the session and began by suggesting we need to think hard about how to increase the number of science journalism stories and we need money to do this. New technologies may be opening new opportunities to accomplish this task, but thought must also be given to how the trust and authority of science journalists can be maintained and built upon.

Sassoon began by saying in a hard hit profession we need to show people the value of journalism and the need to pay for it. But science journalism is faced with a predicament: (1) the rise of global propaganda ($1 billion spent/year on the climate counter movement), (2) the demise of some journalism outlets and (3) specific attacks on science journalism. For the case of climate change, this predicament, said Sassoon, meant that while science journalism is seen as vital to the creation of knowledge, it failed to educate the American public. Sassoon asked: So what do we do? The answer for Sassoon was to start a blog, InsideClimate News. The goal was to fill in the gaps on climate coverage, navigate for impact, rely on some luck, and to lead the conversation with impeccable journalistic standards. Sassoon explained that InsideClimate News has two gears: (i) a slow gear involving investigations and eBooks and (ii) a fast gear involving the aggregation of headlines. InsideClimate News sells impact, not big numbers (i.e. seeks to decouple profit and journalism). InsideClimate News is currently foundation funded, but Sasson spoke about moving to a sponsor model where everyone has a piece of the organization and an endowment is developed to ensure it never goes away. Sassoon ended with an argument that it is time to inform people about journalistic values, to ask the public to help, to rethink our relationship to the free market and to gain freedom from adverts, click baiting, speed and confusion. Sassoon wants new attributes for science journalism: specialization, independence, cooperation and symbiosis.

Johnson began his presentation by saying he was hearing familiar things at the symposium. He was once frustrated and worried about journalism, as he often saw his colleagues' freelance stories not getting picked up. Johnson decided he should become the publisher of these science stories based on an iTunes model, as talent seemed cheap and available. Through a kickstarter campaign, readmatter.com raised approximately $140K from 2,500 interested people. It started with a paywall model at $0.99 for a long form science story and was recently brought by a private donor ('medium'). In reflecting on the development of readmatter.com, Johnson said that entrepreneurism starts you thinking about "who you are really writing for, what your audience needs and why you are doing it". Johnson was clear that he felt it was time for science journalists to innovate about business models themselves and to stop just letting the problems of profit happen to them.

The question and answer periods after the plenary talks first focused on how start-ups get an audience and whether big media is needed for exposure. The discussion noted that start-ups can use big media to build audiences and for mutual benefit, but need to think about the "long game" in terms of how initial audiences are turned into a sustainable business. Private funding and crowd-funding can be a place to start, but so far, many business models appear to use a combination of luck/timing and promotion to convince people of their value. The session ended with a need to more closely examine case studies of business models to inform how best to support new science journalism start-ups.

WORK GROUP DISCUSSION

The working group for theme 3a focused primarily on brainstorming the business models of science journalism with a particular focus on the ways science writing/funding organizations can pave the way in the creation of novel business models or practices.

The group discussed creating a white paper – whether that be in the traditional sense or in a Wiki page people could add to as time goes on – that included case studies of various science journalism business models. The models included in the white paper would be both those considered "successful" and "unsuccessful," with the subjective quality of success being measured in the 2-3 year survival of the outlet (or about the length of time it takes for an iPhone to go out of date). The group discussed how "success" or "failure" isn't always measured by amount of profit. Because of the international focus of the symposium, the group also emphasized that a case studies' success in various locations internationally may vary (i.e., the best model for France may not be the best model for the U.S.).

With the discussion of a white paper came the idea for a how-to field guide for science publishers, entrepreneurs and start-ups. Although there have been many iterations of science writing field guides, the group noted that there is not a guide that focuses specifically on the business side of science journalism; this is especially critical in a changing media environment in which venturing out on one's own to create a new business is difficult, but often a necessity.

The discussion moved onto creating a start-up incubator involving grants for the creation of science media outlets, with the cost of entry and failure being low. It would let people try out their ideas, no matter how "out there" they may be. The group also discussed the potential to create a Match.com-like system that matches science media ventures with potential funders as this step in the process is often the biggest hurdle. Members of the group who had started their own science media ventures noted that when they started, there was a gap between the science media content and logistics side of their businesses; after all, no one is a jack-of-all-trades. The group felt it would be helpful to have networks of consultants in the marketing, finance, tax, IT, HR and legal fields that could offer services, advice and reduced rates to new science media ventures.

The final prominent discussions involved the importance of defining a science media venture's audience members. It was noted that it is important to be honest when defining an audience market, and it often helps to invent an audience member to turn an abstract audience segment like "post-doctoral researchers" into a concrete audience member like "Bob Smith, the post-doctoral researcher who studies behavior." The group discussed the need to constantly re-evaluate a business model because readers, their world and their needs change over time.

MOVING FORWARD: KEY MESSAGES AND RECOMMENDATIONS

Recommendation G: Report on best practices in business models

The working group from Theme 3a urges the WFSJ to create a collaborative working document (white paper) on best practices in business models that focuses on two aspects:

a. Cases studies and best practices from past experiences that worked (e.g. Matter, InsideClimateNews, Retraction News); and
b. Case studies and lessons learned from past experiences that did not work.

This report could involve a small group examining business models used in the last 3-5 years from multiple countries.

Recommendation H: Field guide for science publishers/entrepreneurs

The working group from Theme 3a suggests building on recommendation A to support the creation of a field guide for science publishers/entrepreneurs. This field guide would focus on business tools and how-to advice to help science publishing start-ups

Recommendation I: Start-up incubator

The working group from Theme 3a recommends a follow-up discussion on how to create a science publishing start-up incubator. The incubator would have a low barrier to entry and let people try out their ideas.

Recommendation J: Online resources

The working group from Theme 3a recommends the creation of online resources on business tools for publishing science journalism. These resources could include a match.com inspired site to link funders to start-ups and the creation of a network of consultants (marketing, financial, tax, IT, HR, legal) that can be accessed for advice and new collaborations.

3. Julia Belluz, MIT Knight Science Journalism Fellow, describes her experiences reporting on science.

Theme 3b Report: Supporting Science Journalism, New Tools

Theme Leader: Volker Stollorz
Contributing Team: Geoffrey Carr, Makoto Mitsui, Alex S. Pentland, Nicky Phillips, Debbie Ponchner, Megda Sachdev, Ivan Semeniuk, Yunanto Utomo, Mohammed Yahia
Rapporteur: Volker Stollorz and Andrew Freeberg

PLENARY SESSION

The plenary speakers for theme 3b were **Volker Stollorz**, Frankfurter Allgemeine Sonntagszeitung, and **Alex 'Sandy' Pentland**, Director, Human Dynamics Laboratory, Director, Media Lab Entrepreneurship Program, MIT Media Lab. Pentland spoke in the evening of Day 1 and gave an overview of the revolution in social sciences made possible by Big Data. He described how the 'digital bread crumbs' we now leave behind as we use our GPS devices, our smart phones, and interact with each other and make transactions over the internet produce patterns of human behaviors. The analysis of these big data patterns makes social physics[2] possible. Pentland presented several examples where social physics captured the behavior of communities in such details and in such depth, bank and call center employees, that he could make precise recommendations that improved their efficiency. He ended his presentation urging science journalists to identify "whose business are you key to"; suggesting, for example, that science journalists could see their "business" in new ways such as commenting on how successful universities are at producing multi-discipline research useful for society.

Stollorz began by asking what type of future we want for science journalism. In 1969, Herbert Simon suggested that with increasing amounts of information there is decreasing levels of attention to it. We do not live in a knowledge rich world (i.e., where information is converted into patterns and understanding), but only an information rich world. Stollorz argued that, if this is accepted, one mission for science journalism is to buffer people from information overload and to help increase our knowledge. To do this, we need new professional tools and tool makers. These professional tool makers would help: (1) change how we explore science and technology (e.g., creating searchable pattern-based databases); (2) change the way we work and organization information (e.g., using data-driven storytelling); and (3) change the way we interact with people (e.g., audience interaction to build knowledge as a key driver). Stollorz gave an example of

[2] *Social Physics: How good ideas spread – the lessons from a new science* by Alex Pentland, The Penguin Press, New York, 2014.

potential new tools such as news scrapers, programs based on machine learning to detect changes in the scientific literature, and predication tools for when information will go viral. Stollorz ended his talk by asking: Can we also get better at sharing the journeys we take in creating a science story? These tracked journeys would allow better training and reflection on how stories are positioned and framed.

The question and answer period after the plenary talks addressed issues of the profession seeking to build these tools themselves as opposed to asking others to do it, how you justify spending time on building new tools and whether analytics should influence the way science stories are created. A key issue was the argument that the science journalism community needs to increase its competency in creating and using data-driven tools. This requires a group be created to a take leadership role and start to develop tools together, being particularly sensitive to imagining how journalists will interface with anything created. The session ended on the point that the place to start is with new tools that address the tasks science journalists do frequently.

WORK GROUP DISCUSSION

Motto: Tools to do better what we science journalists do

The work group for theme 3b had a vibrant discussion with fruitful ideas, some realistic, some dreams for a better future of science journalism, some that may even be a new business model or lead to more international collaboration between science journalists. It was the feeling in the group that we should rapidly develop some ideas further to identify and attract competent scientists and possible funders to ignite progress. The group identified a great need for more collaboration inside and outside the trade, making tools to allow better outreach to science journalists in the developing world. The group discussed the following ideas for new tools:

1. **Data mining tools – We can go hunting![3] Filters to sort science for science journalism**

a. *Intelligent story finder*
Science journalists get press releases all the time and check sources and journal sites (e.g. eurekalert.org), conferences, etc., *manually* to find story ideas. Some editors use/pay freelancers to pitch unusual stories from disciplines not well known or covered. Because science is such a vast array of disciplines and is always changing, many good and relevant

[3] "You can turn up a new paper that´s just sitting quietly in a preprint archive and share it with the world" Carl Zimmer Talk at 2014 AAAS, http://phenomena.nationalgeographic.com/2014/02/19/scientists-on-the-loose-my-aaas-talk/

stories may get lost. How can we find them more easily? The work group discussed creating an 'Intelligent Story Finder' that would use machine learning and automation to allow faster theme-searching of the scientific literature. This tool could use intelligent scraping/filtering algorithms designed to help science journalists in their story selection practises.

b. Tracking tool to detect rising stars in science

It is difficult to avoid echo chambers, self-promotion and reputation communication in science. So how can science journalists spot younger investigators, rising stars that are rated brilliantly inside the scientific community but still invisible outside? How can we better identify hot science stories at the research front? The group discussed the desire to detect potential breakthroughs earlier through the development of a set of possible indicators and metrics combined with a scraping tool to extract this information from the web.

Possible metrics and indicators for this tool include: (i) calculating the changing rate of citations to spot rising stars (e.g. H-Index); (ii) tracking spin off companies from major universities; (iii) keep track of rising stars through crowdsourcing the number of colloquia of young researchers (e.g. a younger post-doc is giving 5-6 talks in short succession at different places); (iv) mining social media networks to find what scientists themselves are talking about (e.g. extract what scientists are talking about in networks like Research-Gate, Faculty of 1000 or blogs); (v) trying to detect and avoid echo-chamber-effects due to self-citation by submitting data into a commons (this could also avoid everyone using the same experts); (vi) using semantic algorithms to sift through literature to alert journalists when something different from the main body of knowledge is showing up (e.g. differential science mapping); and (vii) collecting emotional reactions of scientists on the web (e.g. Twitter) to capture group think about a scientific paper.

2. Science journalist journey tracker – Dreaming about developing a tool that doesn´t exist

The group discussed developing tools to see the trails and tracks that other professional science journalists took to explore stories. The goal of this tool would be to monitor and scan life explorations and interactions between science journalism and science and extract what professionals do in different settings. Overtime this tool would create a live footprint of the collective when different journalists explore a breaking story. Do we follow each other's trails? When and why do we depart?

The dream would be to have a web-browser that works as a map and a feedback-tool during our exploration of new topics in real time. The system could allow a journalist to organise their own research in exchange for providing an anonymized log-book of where they explore. This could

be interesting to outsiders who want to know how science journalism is done, to insiders who want to make sure they're not all doing the same thing and to aspiring science journalists as a training tool. It could automatically draw data and partly organize information the journalist enters. It would be opt-in and anonymous so people don't know where the data comes from, but would analyze in general how science journalism is done. Sort of like how young science journalists often shadow a mentor, but done through a digital mirror.

The group discussed some early ideas about metrics for this tool: (i) a space to see what other looked up on the web; (ii) tracking percentages of journalists completing a task; (iii) tracking how journalists rate experts, marking dead ends, mistakes, bad science warnings; (iv) tracking important milestones you need to contextualize a story; and (v) tracking how journalists deviate in approach. Alex Pentland provided some guidance with methodological issues which would need to be worked out. In a pilot study one could study online searching patterns, phone calls, zip codes and country codes of scientists. One could even compare journeys across different media formats. A science journalist journey tracker could be a fascinating social media tool and help young journalists shadowing established science journalists to learn the trade. The group was clear that this is NOT about Big-Brother watching you, but science journalists helping each other.

3. Storytelling in new media - Guides, tools and common frameworks

These days simply submitting good copy isn't enough, you need to deliver stories in a way that are optimized for a variety of mediums. What tools could be created to better incorporate various kinds of media into a story so that it takes advantage of what web browsers, tablets and phones are capable of? Are there common tools or frameworks so that science journalists can lead the way in standardizing because they have slightly longer deadlines? The group discussed the need for better "do it yourself" multimedia storytelling tools for web publishing, including resources for "off the shelf" tools can be used by science journalists on the fly. These could be also used as educational tools surrounding a story, e.g. via Podcasts.

4. Ideas and needs briefly touched on

The group ended its discussion on two brief topics: (a) to emulate the ICIJ model presented by Mar Cabra for a global science journalism workspace to collaborate on issues of international concern and in need for cross-national cooperation (e.g. clinical trials in developing countries, the roll out of the polio eradication campaign, transnational investigations); and (b) to develop a crowdsourcing-data app to help audiences in different regions to create interactive storytelling for media (e.g. on bird watching, spotting maybucks, mosquitos, and pollution).

MOVING FORWARD: KEY MESSAGES AND RECOMMENDATIONS

Recommendation K: Creating a data mining group

The working group from Theme 3b recommends creating a data mining group to write up a proposal and try to interest computational scientists in helping to create data mining tools, such as an *intelligent story finder* and a *tracking tool to detect rising stars in science*.

First tasks for this group could include: (a) exploring a defined set of search criteria for science journalists to apply; (b) planning a boot camp with interested computational scientists on computational data mining for science journalism; (c) trying to interest a software company foundation or university already doing search analytics (e.g. Thomson Reuters); and (d) igniting a collaborative pilot project on tracking tools for science and science journalists.

Recommendation L: Science journalist journey tracker

The working group from Theme 3b recommends developing a science journalist journey tracker.

This development should first involve assembling a group to deliver a feasible project plan, interact with computational scientists and get funding to develop a proof of concept for a browser-based tracking tool which uses "grounded social web" traffic. This topic could be folded into the computational data mining boot camp from Recommendation K.

The creation of the tool could involve partnerships with Knight Media Lab/MIT Media Lab, National Science Foundation, Simmons-Foundation, Volkswagenstiftung, and Klaus Tschira Stiftung. The pitch for funding is the desire to better understand the process of science journalism, so that science journalists can do a better job by learning from each other with anonymous learning tools that run in parallel with their daily job. This recommendation could lead to a new methodology to investigate our craft.

Recommendation M: Initiating collaborative tasks

The working group from Theme 3b recommends initiating the following collaborative tasks to support recommendations K and L:

a. Collecting best practice tools for interactive storytelling, asking companies like Palantier to collaborate on this task.
b. The WFSJ helping to build a core team to develop a collaborative network that will start with a first project suitable for network building.
c. Examining best practise examples of citizen science to learn how can we work together to develop a framework tool that fits the need of science journalism for crowdsourcing data.

Summary and Outcomes

FINAL PLENARY DISCUSSION

The *1st Kavli Symposium on the Future of Science Journalism* ended with a group discussion of the 13 recommendations generated from the four working groups. This discussion noted that a common theme of the symposium was the proposal to strike small working groups to pick up recommendations from each theme. The discussion overlapped in the desire to create working documents, identify leaders for their creation and hold follow-up events on specific recommendations that "will guide us in the project of reinventing science journalism". Several ambitious pilot projects were also proposed. The group ended its discussion by suggesting a work plan should be created to be vetted by the steering committee, followed by the WFSJ selecting projects to initially pursue.

NEXT STEPS: FINAL REFLECTIONS FROM THE WFSJ

The profession of journalism in general, is facing major challenges and obstacles. Today's media and communication playing field is vast, and it is continually evolving: consumption, news cycle, business models, intellectual property, audience segmentation, new tools, new means of production and dissemination. As a journalistic community we are operating in a far less tangible environment than a few years ago. News has gone from a device that shows up on your doorstep to a website or a mobile device. It opens up a whole new universe of ways of understanding and listening your readers, viewers and listeners.

The Kavli Symposium enabled us to identify some of the cyclical, technological and long-term challenges faced by science journalists around the world. We witnessed national differences in how audiences use news and how the "consumer" is increasingly transforming the wider communications environment through the rise of crowdsourcing, aggregators and search engines.

There is still time for the business of science journalism to reinvent itself provided we are willing to learn from different developments around the world. We need to work on a number of avenues, particularly identify elements of the digital world that are transforming the business of scientific journalism, including changes in audience, aggregation, distribution, customer experience and cost structure. We need to look at some of the new initiatives and tools. Highlight some of the successes and failures in the sector and map out possible areas of development. We

must consider how technology and tools can help journalists overcome some of the standard reporting barriers, help counter the geographical obstacles and resource constraints.

The World Federation of Science Journalists (WFSJ) proposes to accompany and coordinate some of the project ideas that have been identified and documented in this report. We will look at developing new tools that, amongst other things, enable science journalists and bloggers to obtain and verify information, draw on citizen networks, and crunch big data sets. The WFSJ will want to spearhead an international project that promotes individual engagement with science and the public life of the community, and/or coordinate the production of investigative multimedia stories that incite the science journalist community to connect with citizens. With member associations in some 40 countries on all continents, the Federation will also be keen to gather and share information on innovative business models that can support science journalists. The WFSJ will continue to be at the leading edge of the reflection on how the overall profession is evolving and redefining itself.

To develop and engage in some of these new activities, the WFSJ will be looking for your pro-active input. We will also be seeking your help to bolster our networking and fundraising efforts.

Appendices

A. WORKING GROUPS

Theme 1: Defining Science Journalism
Theme Leader: Pallab Ghosh, Science Correspondent, BBC
Speakers: Dan M. Kahan, Yale Law School and Osama Abu El Rub, Al Jazzeera.net

Theme Discussants:

- Clive Cookson, The Financial Times
- Dan Fagin, New York University
- Jean-Marc Fleury, Université Laval (Québec)
- Joost van Kasteren, Science Journalist, The Netherlands
- Keun-Tae Park, Science Journalist, Chosun Biz, Korea
- Penny Park, Science Media Centre of Canada
- Ginger Pinholster, Director of Public Programs, AAAS
- Ron Winslow, Wall Street Journal

Rapporteur: David Secko, Associate Professor, Concordia University, Montréal

Theme 2: International Collaboration in Science Journalism
Theme Leader: Ivan Oransky – MedPage Today
Speaker: Mar Cabra, International Consortium of Investigative Journalists, Spain

Theme Discussants:

- Damien Chalaud, World Federation of Science Journalists
- Chul Joong Kim, President, World Federation of Science Journalist
- Eunsung Kim, Organizing Committee, 2015 World Conference of Science Journalists, Seoul
- Rosie Mestel, Nature
- Violet Otindo, Citizen TV, Nairobi, Kenya
- Jae-Eok Shim, Seoul Shinmun, Korea
- Mariko Takahashi, Senior Staff Writer, Asahi Shimbun, Tokyo, Japan
- Erik Vance, freelance science journalists, Mexico

Rapporteur: Dominique Brunet-Vaudrin, Student in Science Journalism, Université Laval

Theme 3a: Supporting Science Journalism: Business Models
Theme Leader: Robert Lee Hotz – The Wall Street Journal
Speakers: David Sassoon, InsideClimate News and Bobbie Johnson, Matter/Medium

Theme Discussants:

- Julia Belluz, MIT Knight Science Journalism Fellow
- Daniel Berger, Science, Washington
- Mariette DiChristina, Editor-in-Chief , Scientific American
- Phil Hilts, Director, Knight Fellowships Program, MIT
- Brandon Joo, Secretariat of 2015 World Conference of Science Journalists, Seoul
- Thomas Lin, Editor, Qanta Magazine
- Manuel Lino, El Economista newspaper, Mexico
- Esther Nakkazi, science journalist, Kampala, Uganda

Rapporteur: Chelsey Coombs, Journalism Student, University of Illinois at Urbana-Champaign

Theme 3b: Supporting Science Journalism: New Tools
Theme Leader: Volker 'Watch the Step' Stollorz
Speaker: Alex 'Sandy' Pentland, Director, Human Dynanics Laboratory, MIT Media Lab

Theme Discussants:

- Geoffrey Carr, Science Editor, The Economist
- Keon-Hyung Park, Science Journalist, Chosun Biz, Korea
- Nicky Phillips, Science Editor for The Sydney Morning Herald, Australia
- Debbie Ponchner, Managing Editor, La Nación, Costa Rica
- Meghna Sachdev, Social media strategist, Science magazine, Washington
- Ivan Semeniuk, Science Editor, The Globe and Mail, Toronto, Canada
- Yunanto Utomo, Science Online Editor, Kompas, Jakarta, Indonesia
- Mohammed Yahia, Editor, Nature Middle East, Cairo, Egypt

Rapporteur: Mitsui Makoto, The Yomiuri Shimbun, Tokyo, Japan, and Andy Freeburg, Communications Officer, SLAC National Accelerator Laboratory

Observers:

- Genny Biggs, Communications Officer, Gordon & Betty Moore Foundation
- Kathryn Brown, Head Communications, Howard Hughes Medical Institute
- James Cohen, Director of Communications & Public Outreach, The Kavli Foundation
- Judith Gan, Director, National Science Foundation, Office Legislative & Public Affairs
- Angela Prokopiak, Director Communications, International Development Research Centre
- James Simons, Chair, Simons Foundation
- Marilyn Simons, President, Simons Foundation
- Patricia Weisenfeld, Vice President, Special Initiatives, Simons Foundation

B. SYMPOSIUM PRIMER

Compiled by David Secko and Jean-Marc Fleury

This primer is intended to stimulate your thinking before the Kavli Symposium. As an introduction, it is not intended to encompass all available information, viewpoints and opinions. Instead, we expect you to bring your expertise, your views on missing but vital topics, and your energy to the event to build knew knowledge on the topic.

Introduction
This document contains four 1-page primers for each of the themed sessions at the upcoming Kavli Symposium. The theme leaders have written these brief documents to dust off the stage and allow us to begin to think collaboratively about what the future of science journalism requires and what concrete actions we propose on a few select issues important to science journalism. Included are suggested readings to provide additional food for thought.

Goal of the Symposium:
Move forward a short selection of issues important to science journalism.

Goals of the breakout sessions:
- clarify the key issues for each breakout topic, as well as the areas of agreement/disagreement;
- consider how these key issues might be addressed by the participants, the profession (associations and the Federation), and its supporters; and
- consider and propose recommendations for moving forward.

Theme 1 – Defining Science Journalism
Theme Leader: Pallab Ghosh

Over the past decade, a renewed urgency has developed regarding the need to more fully and openly discuss the field of science journalism. This urgency has emerged as the pace of scientific research has quickened while growing more global, interdisciplinary, and privately funded. These changes have been accompained by the increasing strategic orientation of science to today's media and major structural changes in public communication due to the Internet.

It is becoming increasingly clear that science journalism needs to better define and distinguish itself in the midst of a growing array of information sources. It also needs to clarify its connection to direct "viral" social transmissions from scientists, scientific institutions, industry and other sources, which may not employ the standards of the field or may serve conflicting interests.

There is (so far) no widely agreed upon definition of science journalism. A recent review of the academic literature suggests four different (but not mutually exclusive) approaches to science journalism: (a) focus on science literacy and give citizens the information needed to make decisions in their daily lives; (b) focus on context and pay attention to the needs and situations of narrow audiences; (c) focus on a broad idea of knowledge where scientists and non-scientists have equal input; (d) focus on the processes behind science and the inclusion of a multitude of stakeholder viewpoints, and aim at engaging audiences in pluralistic debates.

The issue in this session is how science journalism can more clearly define its profession, practices, and foundational concepts.

Questions to frame discussion:

- How can science journalism more effectively distinguish, or define, itself from other sources of information?
- What future for science journalism do we predict and envision? How will we come to define ourselves in this future?
- What traditional concepts should support a definition of science journalism regardless of its future prospects and information environment?
- What new concepts need to be developed and articulated to support and secure the role of science journalism in 5 years? 10 years?
- What role, if any, should science journalists have with emerging sources of non-specialist scientific information, such as national science media centers?

Food For Thought on Theme 1:

- **BBC Trust review of impartiality and accuracy of the BBC's coverage of science**
  An independent assessment by Professor Steve Jones and content research from Imperial College London, BBC Trust, July 2011.
  http://www.bbc.co.uk/bbctrust/assets/files/pdf/our_work/science_impartiality/science_impartiality.pdf

- **Global science journalism report: working conditions & practices, professional ethos and future expectations**
  Bauer, Martin W. and Howard, Susan and Romo Ramos, Yulye Jessica and Massarani , Luisa and Amorim, Luis (2013). Science and Development Network, London, UK.
  http://eprints.lse.ac.uk/48051/1/Bauer_Global_science_journalism_2013.pdf

- **Four Models of Science Journalism**
  David M. Secko, Elyse Amend & Terrine Friday, *Journalism Practice*, February 2013, Vol. 7 Issue 1, p62-80.
  http://www.csjp.ca/wordpress/wp-content/uploads/2011/11/Seckoetal_JourPrac2013-2.pdf

- **New media landscapes and the science information consumer**

Brossard, Dominique. *Proceedings of the National Academy of Sciences* 110.Supplement 3 (2013): 14096-14101. http://www.pnas.org/content/110/Supplement_3/14096.full?sid=f7bb7db4-aba8-4e27-bfda-3b5b6faae7eb

- **Why We're Shutting Off Our Comments**
  http://www.popsci.com/science/article/2013-09/why-were-shutting-our-comments

Theme 2 – International Collaboration in Science Journalism
Theme Leader: Ivan Oransky

We often hear that science is a global enterprise. Many projects, from physics to pharmaceuticals, require researchers from dozens of countries to work together. (The LHC itself is in two countries, after all.) A disease vector – aka an airline passenger – can board a plane in one part of the world and spread disease in another, all within 24 hours. These stories demand an international perspective.

But does scientific journalism reflect that globalism? Some reporters focus only on issues of local interest, or research by nearby institutions, and even those with larger scope find it more and more difficult to justify travel. At the same time, we are seeing impressive models – such as those led by our speaker, Mar Cabra of the International Consortium of Investigative Journalists – designed to hold organizations accountable around the world.

This session will focus on how – and when – to bridge these gaps in coverage and geography.

Questions to frame discussion:

- What types of issues would benefit from, or even require, an international journalism effort? (eg climate change, social determinants of health, the spread of infectious disease)
- How do different scientific funding systems and priorities provide challenges and opportunities for collaboration?
- How can such collaborations be organized? How do successful projects overcome journalists' natural inclinations to compete instead of collaborate?
- What can international science journalism efforts learn from international science collaboration efforts?
- How can such collaborations strengthen science journalism competencies in regions where it is a young field?
- Is there a role for citizen journalism?
- Who pays? What sorts of incentives, including prizes, might help?

Food For Thought on Theme 2:

Virtual Science Newsroom

- First Virtual Science Newsroom Launched: http://www.scidev.net/global/capacity-building/news/first-virtual-science-newsroom-launched.html

International Consortium of Investigative Journalists:

- About: http://www.icij.org/about
- Our speaker, Mar Cabra: http://www.icij.org/journalists/mar-cabra
- Examples of collaborative stories: http://www.icij.org/tissue and http://www.icij.org/projects/looting-the-seas-ii

Arguments for the need for global journalism

- Global Journalism: An Emerging News Style, by Peter Berglez: http://www.caerdydd.ac.uk/jomec/resources/foj2009/foj2009-Berglez.pdf
- Some Optimism for the Future of Science Journalism, by Cristine Russell: http://www.cjr.org/the_observatory/some_optimism_for_the_future_o.php?page=all

Theme 3a – Supporting Science Journalism: Business Models
Theme Leader: Robert Lee Hotz

In an era of non-profit journalism, how do we securely fund our future?
The Pew Journalism Research project recently reported that nearly $26 million was donated to 50 non-profit journalism start-ups in recent years, but most are failing in finding ways to financially sustain their efforts for the long term.

Pew found that nearly a third of the news start-ups spent less than 10% of their staff time on business development, while more than half said such activities occupied between 10% and 24% of their time. By contrast, 85% of the ventures said editorial tasks consumed at least half of their time. As Silicon Valley news consultant Alan Mutter has said: most start-ups are concentrating on their journalistic missions without giving due regard to the equally vital task of building financially healthy organizations to sustain their efforts over the long term.

What are we doing to cultivate our audience?
Instead of chasing a declining number of science news loyalists, how should science journalists serve – and profit from – individuals who don't look, think, or behave like traditional subscribers?
How do we persuade them that credibility, expertise, and trust are assets?
Where do we find our new audience?

Is there a transformative and satisfying digital product for science journalism?
Fully 79% of the 181 million Americans who own smartphones reach for them within 15 minutes of waking up in the morning, according to a survey last year by IDC. A Pew study in 2013 found that the Internet is the leading news choice for nearly half of those under the age of 45, as compared with the 17% who favor newspapers.

Facebook reported that nearly 70% of its daily users in September accessed the social site from mobile devices. BuzzFeed gets 50% of its traffic from mobile, YouTube serves 41% of its page views on mobile and Forbes delivers 35% of its views on mobile, according to a survey last fall by the DigiDay website.

Why don't we think like entrepreneurs?
How can we best fuse 21st-century technology to our core values of news reporting and science writing? This is too important to leave solely to legacy publishers or digital news aggregators. We cannot afford to be paid solely in media exposure and name recognition.
Source: Allan Mutter: Reflections of a Newsosaur; Nonprofit Journalism: A Growing but Fragile Part of the U.S. News System, Pew Research Center Project for Excellence in Journalism, Knight Foundation.

Food For Thought on Theme 3a:

1. Americans Show Signs of Leaving a News Outlet, Citing Less Information
http://stateofthemedia.org/2013/special-reports-landing-page/citing-reduced-quality-many-americans-abandon-news-outlets/

2. DIGITAL: AS MOBILE GROWS RAPIDLY, THE PRESSURES ON NEWS INTENSIFY
http://stateofthemedia.org/2013/digital-as-mobile-grows-rapidly-the-pressures-on-news-intensify/

3. ProPublica Annual report 2013: Tackling the Toughest Stories, Five Years On
http://s3.amazonaws.com/propublica/assets/about/propublica_2013report_final.pdf

4. Q&A: John Yemma on managing the Christian Science Monitor's leap from print to digital
http://www.niemanlab.org/2014/01/qa-john-yemma-on-managing-the-christian-science-monitors-leap-from-print-to-digital/

5. Predictions for Journalism 2014: Excerpts from a Nieman Lab Series
--- Jan Schaffer:
Lost in the gloom, an entrepreneurial boom
http://www.niemanlab.org/2013/12/lost-in-the-gloom-a-boom-in-entrepreurship/

---- Jenna Wortham:
The future of news is… Sasha Fierce
http://www.niemanlab.org/2013/12/the-future-of-news-is-sasha-fierce/

-----Raju Narisetti:
Loosen the newsroom's chokehold on the brand
http://www.niemanlab.org/2013/12/loosen-the-newsrooms-chokehold-on-the-brand/

----- Dan Shanoff:
Find starters, not stars
http://www.niemanlab.org/2013/12/find-starters-not-stars/

Theme 3b – Supporting Science Journalism: New Tools
Theme Leader: Volker Stollorz

The world we live in is becoming ever more complex and contingent at the same time. Complex, because the world creates many more possibilities then actualities; contingent, because every possibility that emerges may have emerged differently. To make sense humans need media of communication to know how we see the world and how it will be evolving. Today, a multiverse of sciences transform societies at an ever increasing pace, we have become countries of immigrations for new knowledge. Digital technologies are at the moment disrupting not only the way science is done and communicated, but also how publics learn about what´s new, what´s relevant and where to find expertise and knowledge.*

The issue in this session is how science journalism as a profession can develop and use new tools of sensemaking to have a voice in a future that helps communities come to grips with issues they face. We as a profession need to be much more innovative toolmakers to help people sort out the stuff they care about or need to know more about.

Questions to frame discussion:

- Do we want to ask what science journalists have to do differently or what society has to do differently? Alex Pentland asks: "How can we built an integrative understanding of the many things happening, so we can act better and built a better society? Even if you read all the science journals, let alone the newspapers, you can´t tell."
- How can we do things differently? What can we learn from the scientists' way of tackling the information versus knowledge gap? Can we dream up story telling tools that can address why one person's opinion is better than another person's opinion?
- Big Data. Why do science journalist have – so far so few – clever toolboxes that harvest data automatically out of all science journals and construct stories out of it?
- What kind of new tools can we think (and dream) of to research and report science related stories and at the same time add tools to analyze its content connected to public issues?

- Can we create spaces of knowledge where science journalists can collect, report and edit growing or evolving ideas over time in need of public discussion? How could we raise up the stability, diversity and truth level in science journalism?
- How could we develop a space with tools to share something about your own journeys researching and digging deeper in return for seeing other people journeys in science journalism or journalism in general?
- What kind of competences and organizational settings science journalism needs to fulfil any of these future dreams? What collaborations should be formed to develop these tools?

Food For Thought on Theme 3b:

Rethinking Democracy – Are Societies becoming Less Democratic and Citizens Less Knowledgeable? J. Rogers Hollingsworth
http://faculty.history.wisc.edu/hollingsworth/documents/Hollingsworth,Are_Societies_becoming_Less_Democratic.htm

Beyond the Echo Chamber
Alex "Sandy" Pentland
http://hbr.org/2013/11/beyond-the-echo-chamber/ar/pr

The new science of building great teams
Alex "Sandy" Pentland
http://hbr.org/2012/04/the-new-science-of-building-great-teams

**"The function of news is to signalize an event, the function of truth is to bring to light the hidden facts, to set them into relation with each other, and make a picture of reality on which men can act."*
Walter Lippmann: Public Opinion, Long Island, 1921

C. EVENT PROGRAM

Kavli Symposium on the Future of Science Journalism
The Hyatt Lodge, Oak Brook, Illinois, USA, 17th-19th February 2014

Organizers
World Federation of Science Journalists
Symposium Steering Committee
The Kavli Foundation

Monday Evening, 17th February 2014

7:00 Dinner – Q Room

7:45 **Welcoming Remarks**

Damien Chalaud, Executive Director, World Federation of Science Journalists, and James Cohen, Director of Communications & Public Outreach, The Kavli Foundation

8:00 **Group Discussion** led by Mariette DiChristina, Editor in Chief, Scientific American

Tuesday, 18th February 2014

7:30 Breakfast – Grand Oaks Pavilion A

8:30 Plenary Theme 1 – **Defining Science Journalism** – Grand Oaks Pavilion B

Presentations by Dan M. Kahan, Elizabeth K. Dollard Professor of Law & Professor of Psychology at Yale Law School and Osama Abu El Rub, Health and Medicine Editor, AlJazeera Network

Discussion moderated by Pallab Ghosh, Science Correspondent, BBC, London

10:30 Session Break – Grand Oaks Foyer

10:40 Plenary Theme 2 – **International Collaboration in Science Journalism** – Grand Oaks B

Presentation by Mar Cabra, International Consortium of Investigative of journalists, Spain

Discussion moderated by Ivan Oransky, VP and Global Editor, MedPage

1230: LUNCH BUFFET – Grand Oaks Pavilion A

1:30 Plenary Theme 3a – **Supporting Science Journalism: Business Models** – Grand Oaks B
Presentations by David Sassoon, Founder and Publisher, InsideClimate News, and Bobbie Johnson, Founder and Publisher, readmatter.com.
Discussion moderated by Lee Hotz, The Wall Street Journal

3:30: Session Break – Grand Oaks Foyer

3:40 Plenary Theme 3b) – **Supporting Science Journalism: New Tools** – Grand Oaks Pavilion B
Discussion led by Volker Stollorz, Frankfurter Allgemeine Sonntagszeitung

5:00 BREAKOUT SESSIONS

- **Defining Science Journalism** – Grand Oaks Pavilion B
- **International Collaboration in Science Journalism –** Forest View Room
- **Supporting Science Journalism: Business Models –** Fullersburg A Room
- **Supporting Science Journalism: New Tools** – Fullersburg B Room

7:00 DINNER – Q Room

Taking Stock: Dan Fagin, Director, Science, Health & Environmental Reporting Program, New York University, and Phil Hilts, Director, Knight Fellowships Program MIT

Presentation: **Social Physics and the Science of Journalism**
Alex 'Sandy' Pentland, Director, Human Dynamics Laboratory: MIT Media Lab (Introduced by Volker Stollorz)

Wednesday, 19th February 2014

7:30 Breakfast – Grand Oaks Pavilion A

8:30 BREAKOUT SESSIONS

- **Defining Science Journalism** – Grand Oaks Pavilion B
- **International Collaboration in Science Journalism –** Forest View Room
- **Supporting Science Journalism: Business Models –** Fullersburg A Room
- **Supporting Science Journalism: New Tools** – Fullersburg B Room

12:00 WORKING Lunch Buffet – **Group recommendations** – Grand Oaks Pavilion B

1:00 PLENARY – **Discussion of final recommendations** – Grand Oaks Pavilion B
Moderated by Rosie Mestel, Chief Magazine Editor, Nature

3:00 WRAP-UP – Grand Oaks Pavilion B
by Damien Chalaud, World Federation of Science Journalists

3:30 CLOSURE

SYMPOSIUM STEERING COMMITTEE

Mariette DiChristina
Editor-in-Chief
Scientific American

Dan Fagin
Director
Science, Health and Environmental Reporting Program
New York University

Jean-Marc Fleury
Bell Globemedia Chair in Science Journalism, Laval University & WFSJ Team Leader for the Symposium

Pallab Ghosh
Science Correspondent
BBC

Phil Hilts
Director, Knight Science Journalism Program
Massachusetts Institute of Technology

Robert Lee Hotz
Science Editor
Wall Street Journal

Rosie Mestel
Chief News Editor
Nature

Ivan Oransky
Global Editorial Director
MedPage Today

Ginger Pinholster
Director
Office of Public Programs
American Association for the Advancement of Science

Volker Stollorz
Science Journalist
Frankfurter Allgemeine Sonntagszeitung

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International Development Research Centre
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Canada

D. KEY MESSAGES FROM THE OPENING DISCUSSION

*(***Key messages from the initial Tour de Table and Discussion: Where do we want science journalism to be in ten years and what can we do to get there? Discussion led by Mariette DiChristina, Editor in Chief, Scientific American, addressed what people saw as one problem and one great idea for the future of science journalism.)*

ONE PROBLEM

Resources: Financial
No advertising support
No travel money

Resources: Knowledge/Communication
Health effects of risks (Fukushima, avian flu)/fast-moving stories
Better communication across areas
Better understanding of technical papers/science literacy
Science journalism in early stages in much of the world
Lack of appreciation for fundamental research
Lack of medical awareness
People don't know what's reliable
Reaching younger generations
Scientists not actively engaged
PIOs not available in developing areas
Non-science journalists don't understand journalistic values
Scientists unwilling to engage

Resources: Talent
Talent pool
Thinning ranks
Supporting young science journalists
Talent
Not enough mentors
Access for young people to the profession

Pressure: Digital Media
Commoditized audiences
Click baiting
Low standards
Aggregators

Chasing traffic (stupider & stupider stories)
Paid vs. free content
Media that do stories justice

Demonstrating Value/Transparency
Measuring impact
Unseen retractions
Seen as not part of the mainstream
Proving science is relevant
Transparency

Pressure: Influences
Propaganda
Funder influence
Politicization—not journalistic enough
Not enough reliance on evidence
Too much low-hanging fruit; not enough in-depth coverage
Too much cheerleading

Lack of progress, same old problems

ONE GREAT IDEA

Digital Tools to Share Knowledge
III Data-driven journalism tools (algorithms to sort data, infographics)
Crowd citizen journalism
Science media centers
Empower national associations (i.e., NASW) to serve journos
IIII Social media ("flood the zone")
IIIII Better video/science storytelling (interactive, multimedia, Science Takes)
IIIII Partnerships: with photographers, videographers, classes, WFSJ, watchdogs
Motivate other journos to include science
Engagement/direct conversations/online community/journos curate conversations
Digital tools to demo science story relevance
Democratize journalistic values beyond journos: evaluate, source, verify

Financial Resources
Non-profit journalism (investigative, public interest, Texas Tribune model, courage, self-supported)
Monetize stories (iTunes model)

Storytelling
Literary feature writing
TV documentaries with useful stories people care about
Marketing science-journo skills
Tell good stories
Vision & trust that audiences want real stories

Education
Scientist op eds/invest in science
Scientific and medical stylebook

Talent
Veteran journos mentor newcomers

E. PARTICIPANT BIOS

Kavli Symposium on the Future of Science Journalism
Bios

Theme 1: Defining Science Journalism

Theme Leader:

Pallab Ghosh, Science Correspondent, BBC

Pallab Ghosh is a science correspondent for BBC news. He reports for BBC Radio and Television News, The Today Programme, Newsnight, The BBC News Website and The BBC News Channel. He began in 1984 at the British Electronics and Computer Press before joining New Scientist as the magazine's Science News Editor. He Joined BBC News in 1989, where he became a Senior Producer on BBC Radio 4's Today Programme. He is a former Chair of the Association of British Science Writers, and was President of the World Federation of Science Journalists (WFSJ). He was part of a BBC news team that won the Arthur C Clarke award in recognition of BBC News's coverage of Space. He has also won the Media Natural Environment Award and has been named BT Technology Journalist of the Year.

Speakers:

Dan M. Kahan, Professor of Law and Professor of Psychology, Yale Law School

Dan Kahan is the Elizabeth K. Dollard Professor of Law and Professor of Psychology at Yale Law School. In addition to risk perception, his areas of research include criminal law and evidence. Prior to coming to Yale in 1999, Professor Kahan was on the faculty of the University of Chicago Law School. He also served as a law clerk to Justice Thurgood Marshall of the U.S. Supreme Court (1990-91) and to Judge Harry Edwards of the United States Court of Appeals for the D.C. Circuit (1989-90). He received his B.A. from Middlebury College and his J.D. from Harvard University.

Osama Abu El Rub, Health and Medicine Editor, Al Jazzeera.net

Osama Abu El Rub is Senior Producer, Health and medicine editor, Aljazeera network, Doha, Qatar. He has been presenter and editor at Al Balad radio (Amman), medical consultant for Islam on Line network (2006-2007), and has published six books, including novels and short stories; he was First Rank Winner Novel in the Tenth Youth Innovation Awards from the Jordanian Ministry Of Culture, in 2010. He holds a Master Degree in Fixed and Removable Prosthodontics and a Bachelor Degree in Dentistry from the Jordan University of Science and Technology. He is a member of the Arabic Scientific Journalists Association and of the Publications committee in the Arabic Scientific Journalists Association.

Theme Discussants:

Clive Cookson, Science Editor, The Financial Times

Clive Cookson is the Science Editor at The Financial Times. He has worked in science journalism for the whole of his professional life. He graduated with a First Class degree in chemistry from Oxford University in 1974. After journalism training on the Luton Evening Post, he became science correspondent of the Times Higher Education Supplement in London and then spent four years in Washington as American Editor of THES. He returned to London in 1981 as technology correspondent of the Times and moved to BBC Radio as science correspondent in 1983. He joined the Financial Times as technology editor in 1987 and has been Science Editor of the FT since 1991.

Dan Fagin, Director, Science, Health & Environmental Reporting Program, New York University

Dan Fagin is the director of the Science, Health and Environmental Reporting Program at Arthur L. Carter Journalism Institute, New York University, where he teaches Environmental Reporting and Current Topics in Science, Health and Environmental Journalism. The New York Times described his latest book, Toms River: A Story of Science and Salvation (2013), as "a new classic in science reporting." His recent bylines include The New York Times, Nature and Scientific American. For 14 years he was the environment writer at Newsday, where he was a principal member of two reporting teams that were finalists for the Pulitzer Prize. His stories on cancer epidemiology in 2003 won both of the best-known science journalism prizes in the United States, from the American Association for the Advancement of Science and the National Association of Science Writers. He is also the co-author of the book Toxic Deception (1997), which was a finalist for the Investigative Reporters and Editors book-of-the-year award. He is a former president of the 1,500-member Society of Environmental Journalists. More about Dan and his work at www.danfagin.com

Jean-Marc Fleury, Bell Globemedia Chair in Science Journalism, Université Laval (Québec)
WFSJ program leader for the Symposium

Jean-Marc Fleury is invited professor and holds the Bell Globemedia Chair in Science Journalism at Laval University, Québec City. He was the Executive Director of the World Federation of Science Journalists from 2004 to 2013. He was previously Director of Communications at the International Development Research Centre (IDRC) in Ottawa (Canada). He worked as a science journalist at Le Soleil newspaper in Québec City and was editor-in-chief of the magazine Québec Science. His most cherished award is the 'Prix Hommage 2007' from the Québec Science Communicators Associations, but he also won several prizes for his articles. His degree is in Physics Engineering.

Joost van Kasteren, Science Journalist, The Netherlands

Joost van Kasteren is an independent journalist/consultant specialized in the coverage of science, technology and agriculture, from the perspective of sustainable development. His clients include newspapers (Trouw, NRC Handelsblad), magazines (Engineering, Chemistry Magazine Research Netherlands), ministries, businesses and different organizations. He is president of the Dutch Association of Science Journalists. He is a graduate in Molecular Sciences from Wageningen University in The Netherlands.

Keun-Tae Park, Science Journalist, Chosun Biz, Seoul, Korea

Keun-Tae Park is a senior science journalist at Chosun Biz, a new media company affiliated with Chosun Ilbo. He writes articles for both Chosun Ilbo, the daily, and Chosun Biz news site. After receiving his B.A. in electronic engineering, he has started his career as a science journalist from 2001 at the Electronic News. He has earned his reputation of all round player in science journalism while working at Dong-A Science, which is 30-year old Total Science Media Company, specializing in science, and publishing for children as well as adults. He has experience from writing to editing and from daily news to monthly magazine. He won the Song-Gok Science Journalist Award in 2013 for his contribution to science journalism was named "Science Journalist of the Year" in 2013 by KSJA for his unshaken faith in the truth.

Penny Park, Director, Science Media Centre of Canada

Penny Park is the first Director of the Science Media Centre of Canada, since December 2009. Before, she was with Discovery Channel (Canada), where she helped develop the program now known as "Daily Planet," the first nightly TV magazine show about S&T in the world. Also, as a senior producer of live specials at Discovery, she covered the science behind such major events as 9/11, the Pathfinder and Sprit/Rover landings on Mars, and Canada in space. She was also in charge of international specials at "Daily Planet," including week-long series that showcased the S&T and engineering research in Japan, China, India and Brazil. She earned a BA in linguistics from the University of New Brunswick, and a B.Sc (honours) in biology from the University of Guelph.

Ginger Pinholster, Director, Office of Public Programs, AAAS

Ginger Pinholster is Director, Office of Public Programs at the American Association for the Advancement of Science (AAAS). She oversees all public information and public engagement activities for AAAS, which is the world's largest general scientific organization and publisher of the *Science* family of journals. The Office of Public Programs encompasses the weekly *Science*, *Science Translational Medicine*, and *Science Signaling* press packages, the AAAS Annual Meeting, AAAS programmatic news and information, and EurekAlert! She earned her B.A. degree in English from Eckerd College, and her M.F.A. degree from the Queens University at Charlotte. Her earlier work included freelance reporting for *Science, Popular Science, Omni,* and other publications; staff positions with the *Athens Daily News, Northeast Georgian, Marietta Daily Journal,* and *Electronic Times;* and public information roles with Georgia Tech, the University of Delaware, and the National Academy of Sciences. She is a Fellow of AAAS.

Ron Winslow, Deputy Bureau Chief Health/Science, Wall Street Journal

Ron Winslow is Deputy Bureau Chief Health/Science at The Wall Street Journal. He has been a reporter and editor at the Wall Street Journal for 31 years, the last 25 covering health and medicine. Earlier, he taught journalism at his alma mater, the University of New Hampshire. He is the author of Hard Aground, the Story of the Argo Merchant Oil Spill; co-author of Open and Shut (a true crime story) and was a co-writer of NOVA, the book published in commemoration of the 10th anniversary of the PBS science program. In 2011, he won the Victor Cohn Prize for Excellence in Medical Science Reporting. He is President of the National Association of Science Writers and was founding board member of the Association of Health Care Journalists.

Rapporteur:

David Secko, Associate Professor, Department of Journalism, Concordia University, Montréal

David Secko is an Associate Professor in the Department of Journalism at Concordia University (Montréal) where he leads the Concordia Science Journalism Project (www.csjp.ca). He previously worked as a reporter, columnist and freelance science writer for The Scientist magagine, Vancouver's Tyee, Canadian Medical Association Journal and the U.S. Public Library of Science (PLoS). He was trained as a molecular biologist at the University of British Columbia. He won a University Research Award for his research contributions in 2011, the Dean's Award for excellence as a new scholar in 2010 and was awarded the Hal Straight Gold Medal in Journalism from UBC's School of Journalism in 2006. Examples of his recent research include a qualitative metasynthesis of the experiences of science journalists (Science Communication 34, 2: 241-282) and a narrative analysis of online commentary after science stories (Journalism 12, 7: 814-31).

Theme 2: International Collaboration in Science Journalism

Theme Leader:

Ivan Oransky, Vice President/Global editorial Director – MedPage Today

Ivan Oransky is vice president and global editorial director of MedPage Today and he blogs at Retraction Watch and Embargo Watch. He teaches medical journalism at New York University's Science, Health, and Environmental Reporting Program, and he is the vice president of the Association of Health Care Journalists. In the past, he has been executive editor of Reuters Health, managing editor, online, of Scientific American, deputy editor of The Scientist, and editor-in-chief of the now-defunct Praxis Post. For three years, he taught in the health and medicine track at the City University of New York's Graduate School of Journalism. He earned his bachelor's at Harvard, where he was executive editor of The Harvard Crimson, and his MD at the New York University of School of Medicine, where he holds an appointment as clinical assistant professor of medicine.

Speaker:

Mar Cabra, Journalist, International Consortium of Investigative Journalists, Spain

Mar Cabra, Spain, is a multimedia investigative journalist, and a freelance data journalist and reporter with ICIJ. She has worked for BBC, CNN+, laSexta Noticias and has been part of ICIJ's projects Looting the Seas II and Looting the Seas III. She was a Fulbright Scholar at the Toni Stabile Center for Investigative Journalism at the Columbia University Graduate School of Journalism. The investigative segment she co-produced for the PBS program Need to Know about overuse of psychotropic drugs in the American foster care system won the DuPont-Crichton Award and was a finalist for the Investigative Reporters and Editors Student Work Award. She produced and edited the video component of an investigation into the post-earthquake trafficking of Haitian children for El Nuevo Herald and The Miami Herald. Her work has also appeared in the International Herald Tribune, the Huffington Post, Le Monde and El País, among others.

Theme Discussants:

Damien Chalaud, Executive Director, World Federation of Science Journalists

Damien Chalaud is the Executive Director of the World Federation of Science Journalists. He graduated from the University of London – Goldsmiths College with a Masters degree in Communications and a Masters degree in Journalism. From 1993-1997 he was a journalist and producer at BBC Radio and the BBC World Service. In 1998 he joined the European Broadcasting Union in Geneva as Director of Eurosonic satellite operations. In 2001 he was appointed Director of the cross-media platform at RFO-France Télévisions. From 2004 to 2007 he became Director of content for the Radio France CityRadio network in Paris. From 2008-2013 he has been a project manager and consultant for different international broadcasters and web/mobile entities: BBC, CBC, Danmarks Radio, Radio-Canada, ARD, RTE, Vodafone, and O2.

Chul Joong Kim, President, World Federation of Science Journalist

Chul Joong Kim is a senior staff writer in Medical Affairs & Health Information News Desk at Chosun Ilbo, the largest circulation Korean newspaper. He is also President of the World Federation of Science Journalists since June 2013. In 1982, he entered the College of Medicine at Korea University and graduated as a medical doctor in 1990. Whilst working on his Ph.D. program, he also received a master's degree in journalism from the graduate school of Korea University. Beyond is weekly production of articles, he bylines a monthly column. He has hosted a TV program entitled, "Dr. Kim's Health File" and was a regular panel member of "Healthy Morning Show". He is the recipient of the Golden Cross Award granted by the Seoul Medical Doctor Association in 2002. In 2007 and 2012, he won the Kunyang Journalist Award given by the Korean Science Writer Association and Norvatis Medical Journalist Award by the Korean Heath Communication Society.

Eunsung Kim, World Conference of Science Journalists 2015 Organizing Committee, Korea

Eunsung Kim is Deputy Director of International & Public Relations Division in Korea Research Council of Fundamental Science and Technology, which is the umbrella organization of 11 public research institutes in science and technology. She is Operation Advisor of the organizing committee for World Conference of Science Journalists 2015. Her career includes 10 years in convention and exhibition industry and 10 years in public relations. She earned her B.A. in communication and journalism, M.A in convention and exhibition management. The Ministry of Education, Science and Technology gave her Minister's Prize in 2010 for her outstanding services on bridging between science and public.

Rosie Mestel, Chief Magazine Editor, Nature

Rosie Mestel joined Nature as Chief News Editor, in March 2013, and then became Chief Magazine Editor before the ear ended, after 14 years working as a science and medicine journalist at the Los Angeles Times. Before that, she was a staff reporter at Discover, west coast correspondent for New Scientist, and a freelance writer covering broad topics within the biomedical sciences. She has an undergraduate degree in genetics from Queen Mary, University of London, a PhD in genetics from the University of California, Davis, and is a graduate of the science communications program at the University of California, Santa Cruz.

Violet Otindo, K24 TV, Nairobi, Kenya

Violet Otindo is the features editor and a special health and environment reporter at the television station K24, in Nairobi, Kenya, and chair of Media for Environment, Science, Health and Agriculture Association (MESHA). She is an award-winning journalist, taking home the CNN/Multichoice 2009 Environment Award. She also graduated with distinction from the SJCOOP mentoring program in science reporting of the World Federation of Science Journalists, in 2012.

Jae-Eok Shim, Medicine and Health journalist for the newspaper Seoul Shinmun, Korea

Jae-Eok Shim is a senior writer who specializes in the field of Medicine and Health at the newspaper Seoul Shinmun. He is President of KSJA, the Korea Science Journalists Association and chairs the organizing committee of the upcoming 9th World Conference of Science Journalists, planned for June 2015, in Seoul. He started his career at The Seoul Shinmun in 1987 covering political, social, cultural and medical issues. He was assigned medical journalist in 2008 and writes a "Weekly Health Issue" column. He received the GSK Medical Journalist Award by Glaxo Smithkline, Green Cross Journalism Award by the Korea Medical Association and Green Cross Pharmaceuticals. In 2012, he won the Korea Academy on Communication in Healthcare's Novartis Healthcare Journalist Award. He was given a Korea Journalists Achievement Award in 1997 for his contribution to establish "the standing rule for fair reporting of Presidential Elections."

Mariko Takahashi, Senior Staff Writer, Asahi Shimbun, Tokyo, Japan

Mariko TAKAHASHI is a senior staff writer at the Asahi Shimbun. She joined Asahi Shimbun as a journalist in 1979, and has been staff writer of the science news section, Tokyo, staff writer and editor of Monthly Science KAGAKU ASAHI, deputy editor of the science news section, Osaka, editorial writer and science editor. She holds a B.Sc. (physics) degree from the University of Tokyo. She is a board member of Japanese Association of Science and Technology Journalists (JASTJ) and had been a treasurer of World Federation of Science Journalists from 2002 to 2007.

Erik Vance, freelance science journalists, Mexico

Erik Vance has written about ecology, energy, high energy physics, chemistry, the search for extra-terrestrial intelligence, mathematics, and even hamster sex. His articles have been published in Discover, Nature, The New York Times and many other prestigious publications. His background is in biology and ecology. He has a special flair for overlooked stories.

Rapporteurs:

Dominique Brunet-Vaudrin, Master's Student in Science Journalism, Université Laval, Québec

Dominique Brunet-Vaudrin is presently doing a Master's in Science Journalism at the Department of Information and Communication of Université Laval, in Québec City. She was the first recipient of the MS Scholarship of the Bell Globemedia Chair in Science Journalism and won The Award for Best Academic Performance amongst the 2012-2013 graduates in Public Communication. Her degree is in Public Communication, International Reporting, Université Laval.

Andy Freeberg, Communications Officer, SLAC National Accelerator Laboratory

Andy Freeberg leads media and external outreach efforts at the Department of Energy's SLAC National Accelerator Laboratory at Stanford University, where he's worked since 2011. Prior to coming to SLAC, Andy spent four years as a multimedia and public affairs specialist at NASA's Goddard Space Flight Center, where he helped launch Goddard's social media channels. He holds a Master of Fine Arts degree from Montana State University's Science and Natural History Filmmaking program and has a bachelor's degree in environmental science and radio/television/film from Northwestern University.

Theme 3a): Supporting Science Journalism: Business Models

Theme Leader:

Robert Lee Hotz, Science Journalist, The Wall Street Journal

Robert Lee Hotz has been reporting on new research and its impact on society for 35 years. He was a Pulitzer Prize finalist in 1986 for his coverage of the legal, moral and social impacts of genetic engineering, and again in 2004 for his coverage of the space shuttle Columbia accident. Mr. Hotz shared in The Los Angeles Times' 1995 Pulitzer Prize for articles about the Northridge Earthquake. He is president of the Alicia Patterson Foundation, which funds independent journalism projects around the world. He is a Distinguished Writer in Residence at New York University's Arthur L. Carter Journalism Institute. He is a past president of the National Association of Science Writers. He also is an elected fellow of the American Association for The Advancement of Science and an honorary life member of The Research Society Sigma Xi. He holds BA and MA degrees from Tufts University

Speakers:

David Sassoon, Founder/Publisher of InsideClimate News

David Sassoon is the Publisher of InsideClimate News. InsideClimate News is a Pulitzer prize-winning, non-profit, non-partisan news organization that he founded in 2007. Its mission is to produce clear, objective stories that give the public and decision-makers the information they need to navigate the heat and emotion of climate and energy debates. InsideClimate News has grown from a founding staff of two to a mature virtual newsroom of ten full time professional journalists and a growing network of contributors. He holds a MS in Journalism from Columbia University and graduated in history from Harvard University in 1979.

Bobbie Johnson, Publisher, Matter/Medium

Bobbie Johnson is co-founder of MATTER, a new digital publisher focused on long-form investigative journalism about science, technology, and the ideas shaping our future. The company got started with a record-breaking campaign on crowdfunding website Kickstarter, and launched in November 2012. In April 2013, MATTER was bought by Medium, the new publishing platform launched in 2012 by Ev Williams, co-founder of Twitter, Blogger, and Odeo. Bobbie was previously technology correspondent for The Guardian in London and San Francisco, and European editor for tech industry blog GigaOM.

Theme Discussants:

Julia Belluz, MIT Knight Science Journalism Fellow

Julia Belluz is a Canadian National Magazine Award-winning multimedia journalist covering health care and policy. She is presently an MIT Knight Science Journalism Fellow. A senior editor at the Medical Post and contributor to Maclean's, Julia's writing has appeared in Slate, the Globe and Mail, the National Post, the Times (of London), the Economist's Intelligent Life, and other publications. Her blog/column 'Science-ish'won a 2013 Gold National Magazine Award and a Canadian Medical Association Award. Julia is co-writing a book about the misuses and abuses of science in policy, clinical practice and journalism. She holds a MSc. from the London School of Economics and a B.A. from Ryerson University's School of Journalism.

Daniel Berger, Web Developer/News Producer, Science, Washington

Daniel Berger is Web developer for Science magazine at the American Association for the Advancement of Science. He builds out the content management system, adding features, templates and plugins, build special projects and online applications for the magazine. He has been Staff Writer and Editor at the National Forest Foundation and is a graduate from Syracuse University.

Mariette DiChristina, Editor-in-Chief, Scientific American

Mariette DiChristina oversees Scientific American, ScientificAmerican.com, Scientific American Mind and all newsstand special editions. A science journalist for more than 20 years, she first came to Scientific American in 2001 as its executive editor. She was president (in 2009 and 2010) of the 2,500-member National Association of Science Writers. She has been an adjunct professor in the graduate Science, Health and Environmental Reporting program at New York University for the past few years. Previously, she spent nearly 14 years at Popular Science in positions culminating as executive editor. In spring 2005 she was Science Writer in Residence at the University of Wisconsin/Madison.

Phil Hilts, Director, Knight Fellowships Program, MIT

Philip J. Hilts is director of the Knight Fellowships since June 2008. He is the author of six books, has been a prize-winning health and science reporter for both the New York Times and the Washington Post. His most recent book is RX for Survival: Why We Must Rise to the Global Health Challenge. His previous book, Protecting America's Health was winner of the 2004 Los Angeles Times Book Prize for Science and Technology, as well as a New York Times Notable Book of the Year. His book Scientific Temperaments was a finalist for the National Book Award. Smokescreen: The Truth Behind the Tobacco Industry Cover-up was selected as one of the ten best books of the year by Business Week Magazine. Hilts teaches science journalism to graduate students at Boston University and has taught journalism to undergraduates at the University of Botswana.

Brandon Joo, Secretariat PM of World Conference of Science Journalists 2015, Korea

Brandon Joo is project manager of the conference secretariat for World Conference of Science Journalists 2015. He worked as a public relations consultant over 6 and a half years serving information technology companies IBM Korea, Facebook Korea, and LG-Nortel. He has been IT journalist for the daily newspaper "The Digital Times" over 4 years. He has covered various IT issues including government policies, industry trends, products and corporations like Intel, HP, Samsung, and LG. He holds B.A. in Journalism and M.A. in International Studies.

Thomas Lin, Editor, Quanta Magazine

Thomas Lin, the founding editor of Quanta Magazine, joined the Simons Foundation after more than seven years at The New York Times, where he managed the online science and national news sections, edited the Scientist at Work blog, created the Profiles in Science video series, produced the Science Times podcast, and wrote about tennis, science and technology. He has also been a home page editor for The Indianapolis Star, a reporter and photographer covering Queens, New York, a teacher and a mechanical engineer. He holds a College Scholar bachelor's degree from Cornell University and a master's degree in teaching from Oregon State University, completed the Writers' Institute program at the City University of New York's Garaduate Center and has taught at the CUNY Graduate School of Journalism.

Manuel Lino, Editor, El Economista newspaper, Mexico

Manuel Lino is currently the editor of the Art, Ideas & People section at the newspaper El Economista. He's also building the start-up Los Intangibles, a news site which will cover stories on culture, understanding it as the sum of science, humanities and arts. He has studies in music, biology and creative writing; has won two prizes, one national and one Latin-American, with his fictional short stories and used to work as a musician in films, theater and parties.

Esther 'Uganda SciGirl' Nakkazi, Science Journalist, Kampala, Uganda

Esther Nakkazi is a science journalist from Kampala, Uganda. She has been a freelance reporter and contributed to several local, regional and international publications, from The East African newspaper to SciDev.net and occasionally the journal Nature. She was a Knight Fellow in Science Journalism at the Massachusetts Institute of Technology in 2007/08. She served as a women's representative in the International Federation of Journalists (IFJ) and she was a mentor in the SjCOOP training program in science journalism of the World Federation of Science Journalists, from 2010 to 2013. She is a member of the Uganda Science Journalists Association (USJA) and the founder of the Health Journalists Network in Uganda (HEJNU), www.hejnu.ug, which aims to improve public awareness of health issues in Uganda. She is also the Executive Editor of the 'Health Digest' a quarterly magazine on Uganda's health issues.

Rapporteur:

Chelsey B. Coombs, Journalism Student, University of Illinois at Urbana-Champaign (UIUC)

Chelsey Coombs does events planning, writes articles and gives tours at the National Center for Supercomputing Applications, UIUC, where she is a SPIN fellow for NCSA Public Affairs. She is also doing an internship in Science Writing at the News Bureau of UIUC and Undergraduate Researcher at the Gene Robinson's Entomology and Neuroscience Laboratory, UIUC, where she conducts research on the behavior and neuroscience of bees, mostly pertaining to aggression.

Supporting Science Journalism: New Tools

Theme Leader:

Volker Stollorz, Science Journalist, Frankfurter Allgemeine Sonntagszeitung, Koln

Volker Stollorz is a biology graduate, book author and freelance science journalist. He lives in Cologne and works for the most prestigious German media organizations including the newspaper daily (Frankfurter Allgemeine Sonntagszeitung), national magazines (STERN) and the public television channel WDR. He is a member of the German Science Journalists Association and has been awarded numerous prizes for his work, including the renowned Georg von Holtzbrinck Prize for Scientific Journalism.

Speaker: **Alex 'Sandy' Pentland, Director, Human Dynamics Laboratory, MIT Media Lab**

Alex `Sandy' Pentland directs MIT's Human Dynamics Laboratory and the MIT Media Lab Entrepreneurship Program, co-leads the World Economic Forum Big Data and Personal Data initiatives, and is a founding member of the Advisory Boards for Nissan, Motorola Mobility, Telefonica, and a variety of start-up firms. He has previously helped create and direct MIT's Media Laboratory, the Media Lab Asia laboratories at the Indian Institutes of Technology, and Strong Hospital's Center for Future Health. In 2012 Forbes named Sandy one of the `seven most powerful data scientists in the world', along with Google founders and the CTO of the United States, and in 2013 he won the McKinsey Award from Harvard Business Review. He is among the most-cited computational scientists in the world, and a pioneer in computational social science, organizational engineering, wearable computing (Google Glass), image understanding, and modern biometrics. His research has been featured in Nature, Science, and Harvard Business Review, as well as being the focus of TV features on BBC World, Discover and Science channels. His most recent book is `Social Physics,' published by MIT Press, came out just on time for the Kavli Symposium!

Theme Discussants:

Geoffrey Carr, Science Editor, The Economist

Geoffrey Carr is the Science Editor at The Economist, which he joined in 1991 as Science Correspondent. He then became Tokyo Correspondent in 1994 and in 1995 moved to his current job as Science Editor. When he isn't editing he has particular interests in human evolution, genomics, biotechnology, AIDS, malaria and evolution.

Keon-Hyung Park, Science Journalist, Chosun Biz, Seoul, Korea

Keon-Hyung Park is a science journalist at Seoul Shimun since 2007. He worked at Joong-ang Daily In 2002, and moved to Ebay Korea in 2004. Since last year, he has stayed in Zaarbrueken, Germany as a visiting researcher of the Korea Institute of Science Technology-Europe on one-year based program of KSJA. In 2012, he has been awarded "The Journalist of the Month" from The Journalists' Association of Korea for his article on plagiarism in Seoul National University. He also won "The Science Journalist of the Year" from the Korea Foundation for the Advancement and Creativity for "Controversies on Description of Evolution in the of 8th Graders' Textbook." He majored in chemical engineering and journalism at Sungkyunkwan University.

Nicky Phillips, Science Editor, The Sydney Morning Herald, Australia

Nicky Phillips is the Science Editor at the The Sydney Morning Herald, where she has worked since 2010. She has previously been Radio reporter and producer with the Australian Broadcasting Corporation (ABC) Radio National science unit and Science writer for ABC Online. She presently is a mentor in the Asia SjCOOP program of the World Federation of Science Journalists. She holds a Bachelor of Science (Communications) with a double physiology/biochemistry major.

Debbie Ponchner, Managing Editor, La Nación, San José, Costa Rica

Debbie Ponchner joined La Nación in 2001 as a reporter for the Living section and later was responsible for the creation and coordination of the Global Village section. She studied Mass Communication at the University of Costa Rica, specializing in Science Communication at the Universitat Pompeu Fabra in Barcelona, Spain. In 2003-2004, she was part of the Knight Science Journalism Fellowship program of the Massachusetts Institute of Technology, USA. Her reporting has been recognized twice by the Vargas Gené Journalists Association Award and three times with the Science Journalism Award granted by CONICIT, the National Council for Scientific and Technological Research of Costa Rica.

Meghna Sachdev, Digital Media Strategist, Science magazine, Washington

Meghna Sachdev is a social media producer and digital media strategist for Science magazine. She manages Science's social media accounts and online presence and develops the magazine's digital strategy. She previously worked for 60 Minutes at CBS News and for the weekly radio show War News Radio. She is a founder of medical news website meMedicine.org. Meghna has a degree in History & English Literature from Swarthmore College.

Ivan Semeniuk, Science Editor, The Globe and Mail, Toronto, Canada

Ivan Semeniuk is the Science Editor for Canada's most influential newspaper, The Globe and Mail, Toronto. He has worked as a science journalist in both print and broadcast media. He was US bureau chief for New Scientist magazine and a columnist and field producer for Discovery Channel's science show Daily Planet. In 2007 he was named a Knight Fellow in Science Journalism at the Massachusetts Institute of Technology. He earned his Master's degree in Science Journalism at Boston University after a prior career developing exhibits and programs at the Ontario Science Centre in Toronto. He holds an undergraduate degree in astronomy and physics from the University of Toronto.

Yunanto Utomo, Science Online Editor, Kompas, Jakarta, Indonesia

Yunanto Utomo is the Science Online Editor for Kompas.com, sister company of Kompas Daily, largest media in Indonesia. He holds bachelor degree in biology and has worked as a science journalist for three years. Yunanto reports on a wide range of science issues, from earthquake and tsunami, astronomy, conservation, and HIV/AIDS. Currently, he is interested in social media phenomenon and its impact on disease and disaster management.

Mohammed Yahia, Editor, Nature Middle East, Cairo, Egypt

Mohammed Yahia is the first editor of the web publication Nature Middle East. He graduated from Cairo University with a bachelor degree in Pharmacy and Pharmacology. After a year working in community pharmacies and for major pharmaceutical organizations, he started reporting and editing for the Health & Science section at IslamOnline.net, where he let the use of New Media.net. He has written for the Turkish Weekly and The Daily Star Egypt. He was involved in the inauguration of the Virtual Newsroom of the Kamal Adham Center at the American University in Cairo and taught a course on media convergence using virtual worlds. Prior to joining Nature Middle East, Mohammed was the MENA region coordinator for the website SciDev.Net.

Rapporteur:

Makoto Mitsui, Fulbright Scholar at UC Berkely/ The Yomiuri Shimbun, Tokyo, Japan

Mitsui Makoto is Staff Writer, Science News Department, at the Tokyo Head office of The Yomiuri Shimbun, the Japanese daily newspaper credited with having a circulation of about 10 million, one of the largest in the world. He reports news for life science, climate change, space development and science policy, not only the technical aspects of these topics but also on the ethical and social issues related to them. After March 11th, 2011, he covered the disaster at the Fukushima nuclear power plant, focusing on the safety aspects and the health effects of radiation. He is presently visiting scholar at the Graduate School of journalism in UC Berkeley as a Fulbright Scholar. He graduated from Kyoto University, in Molecular Biology.

Observers:

Genny Biggs, Communications Officer, Gordon & Betty Moore Foundation

Genny Biggs manages the Gordon and Betty Moore Foundation's media relations and integrates strategic communications in the Science Program's work. Before rejoining the Foundation in 2008, she worked for the David and Lucile Packard Foundation's Conservation and Science Program and for the Environmental Grantmakers Association. Previously, she held positions at National Geographic Magazine, the Sierra Club and Green Seal. She holds master's degrees in international relations and environmental management from Yale University. She also earned a B.A. in English literature from Vanderbilt University.

Kathryn Brown, Head Communications, Howard Hughes Medical Institute

photo: James Kegley

Kathryn Brown oversees HHMI's communications and public relations, including overall strategy, media relations, web presence, editorial services, outreach, and internal communications. Prior to joining HHMI, she served for six years as vice president of marketing and communications at The Conservation Fund. An award-winning writer, she is a former contributing correspondent for Science magazine and has written for Scientific American, Discover, Popular Science, New Scientist, Technology Review, and other popular magazines. She received bachelor's degrees in journalism and psychology from the University of Missouri.

Jim Cohen, Director of Communications & Public Outreach, The Kavli Foundation

James Cohen is the communications head for The Kavli Foundation, which is dedicated to advancing science for the benefit of humanity, promoting public understanding of scientific research, and supporting scientists and their work. The Foundation's mission is implemented through an international program of research institutes in the fields of astrophysics, nanoscience, neuroscience and theoretical physics, and through the support of conferences, meetings, endowed professorships and other activities including the biennial Kavli Prizes, which recognize scientists for their seminal advances in three research areas: astrophysics, nanoscience and neuroscience. As director of communications and public outreach, Cohen provides strategic direction and oversight for all of the Foundation's communications initiatives and programs, ranging from its support of science journalism to helping scientists become better communicators to a variety of direct public outreach activities. Prior to joining the Foundation, Cohen was director of media relations at the University of California, Irvine, as well as associate director of communications. He is a member of the Author's Guild and Writer's Guild of America, West. He has an M.S. in Journalism at Columbia University and a B.A. in political science from Hampshire College.

Judith Gan, Director, National Science Foundation, Office Legislative & Public Affairs

Judith Gan leads a 53-member team supporting the United States' $7 billion premier science funding agency through strategic communications across diverse channels and stakeholders. She is a member of the Foundation's senior leadership team where she develops communications strategies and addresses matters with significant ramifications for the nation's science and engineering enterprise. She worked previously as a Director Communications and External Affairs for NOAA, was Vice President, Communications at Lockheed Martin Information Systems & Global Solutions, and Communications Specialist and Senior Science Writer and Spokesperson for IBM Federal Systems and IBM Research Division. She holds a M.S. in journalism/science communication from Boston University and a B.A. in Chemistry from the University of Virginia.

Angela Prokopiak, Director of Communications, International Development Research Centre, Canada

Angela Prokopiak is Director, Communications and Parliamentary Relations. She has more than 20 years of experience in the field, notably as part of the senior management teams at the Canadian Institutes of Health Research, the Canadian Radio-Television and Telecommunications Commission, and the Canadian Red Cross Society. She is a member of the International Association of Business Communicators. She holds a bachelor of arts in Biology from Carleton University.

James H. Simons, Chairman, Simons Foundation

James H. Simons is chairman of the board of the Simons Foundation. Simons is also board chair and founder of Renaissance Technologies. Prior to his financial career, Simons served as chairman of the mathematics department at the State University of New York at Stony Brook, taught mathematics at the Massachusetts Institute of Technology and Harvard University, and was a cryptanalyst at the Institute for Defense Analyses in Princeton, New Jersey. Simons' scientific work was in geometry and topology; his most influential work involved the discovery and application of certain measurements, now called Chern-Simons invariants, which have had wide use, particularly in theoretical physics. Simons holds a B.S. from the Massachusetts Institute of Technology and a Ph.D. from the University of California, Berkeley, and won the American Mathematical Society's Veblen Prize for his work in geometry in 1975. He is a trustee of the Stony Brook Foundation, The Rockefeller University, the Massachusetts Institute of Technology, Brookhaven National Laboratory, the Mathematical Sciences Research Institute and the Institute for Advanced Study, and a member of the American Academy of Arts and Sciences and the American Philosophical Society.

Marilyn Simons, Ph.D., President, Simons Foundation

Marilyn Hawrys Simons is president of the Simons Foundation. Under her leadership, the foundation has grown to become one of the country's leading private funders of basic scientific research. Simons leads the foundation's Education & Outreach efforts, backing initiatives like Math for America, a program dedicated to enhancing the public's understanding of mathematics and science. Simons is vice president of the board of Cold Spring Harbor Laboratory, treasurer of the board of the Learning Spring School in New York City and a member of the board of trustees at the East Harlem Tutorial Program. She holds a B. A. and Ph.D. in economics from Stony Brook University.

Patricia Weisenfeld, M.P.A., Vice President, Special Initiatives, Simons Foundation

Patty Weisenfeld's work at the Simons Foundation involves working with its directors, grantees and members of the community to manage and enhance the impact of the Simons family's philanthropic efforts and the discretionary grant making of the foundation. Additionally, Weisenfeld is involved with the management of the foundation's Education & Outreach program, designed to enhance the public's interest in and understanding of mathematics and science. Prior to joining the staff in March 2008, Weisenfeld spent ten years in Southeast Asia on assignments for Pathfinder International, Planned Parenthood, the Asian Development Bank, the World Health Organization and the United Nations. Weisenfeld holds a B. A. in political science from Stony Brook University and an M.P.A. from New York University's Wagner School of Public Service.