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FOR THE

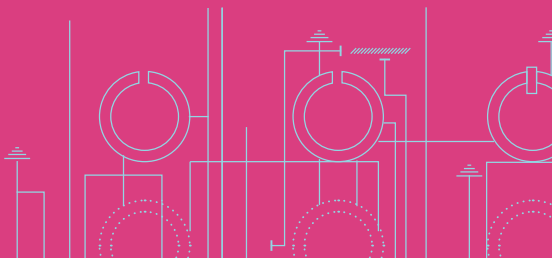
**FUTURE**

**NEW WAYS TO TACKLE NUCLEAR RISK**





THE INNOVATORS NETWORK SPECIFICALLY REACHES OUTSIDE THE SECTOR TO BUILD BRIDGES WITH OTHER FIELDS. WE ENCOURAGE NUCLEAR SECURITY EXPERTS TO WORK IN NEW WAYS AND TO ACCESS NEW IDEAS THAT WILL HELP THEM ACHIEVE NUCLEAR SECURITY GOALS. AT THE SAME TIME, WE SUPPORT NON-EXPERTS TO EXPLORE AND SHAPE NARRATIVES ABOUT NUCLEAR WEAPONS AND GLOBAL SECURITY TO ENGAGE A NEW GENERATION.









**N Square** is a multi-million dollar initiative designed to stimulate innovation in the fields of nuclear disarmament, nonproliferation, and safety and security. N Square is the brainchild of five of the largest peace and security funders in the United States: The Carnegie Corporation of New York, the William and Flora Hewlett Foundation, the John D. and Catherine T. MacArthur Foundation, the Ploughshares Fund, and the Skoll Global Threats Fund. N Square is based on the idea that new forms of cross-sector collaboration—combined with the sheer ingenuity of an engaged public—will enable us to innovate our way to a world free from the risks associated with nuclear weapons and fissile materials.

**N SQUARE**

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Special thanks to the experts who helped us navigate and understand the issues related to global security.

**EDITED BY**  
**ERIKA GREGORY**  
**TIM MALY**

**BOOK DESIGN BY**  
**BRIAN G PAYNE** ATON.DESIGN



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# SIGNALS

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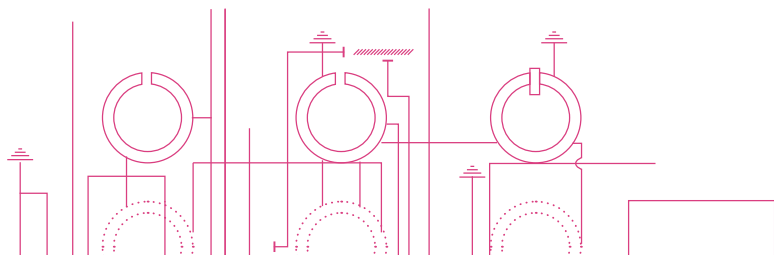
FOR THE

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# FUTURE

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NEW WAYS TO TACKLE NUCLEAR RISK





What if this field  
became one  
of the brightest  
sources of  
creativity and  
innovation  
on the planet?



What if we built a virtual “lab”  
to create and distribute  
geographically-coded data?

What if we combined wearable  
technologies with high-definition  
satellite imagery to help verify  
international nuclear agreements?

What if we involved private industry  
in establishing incentives to reduce  
nuclear threats?

What if we collaborated with  
different networks to energize  
a new generation of innovators?

What if data scientists helped reduce  
the proliferation threat by identifying  
relevant patterns in the millions of  
pieces of multilingual multimedia data  
generated every second of every day?

What if educators inspired the  
next generation of leaders to see  
nuclear threat as a compelling  
innovation challenge rather than  
an intractable reality?

What if we could shed the mindsets  
of the past and focus instead on  
lighting up the field of nuclear threat  
experts with new energy, new assets,  
new partnerships, and new solutions?

What if we created a vibrant,  
collaborative ecosystem that  
inspires new generations  
to approach this problem  
in new ways?

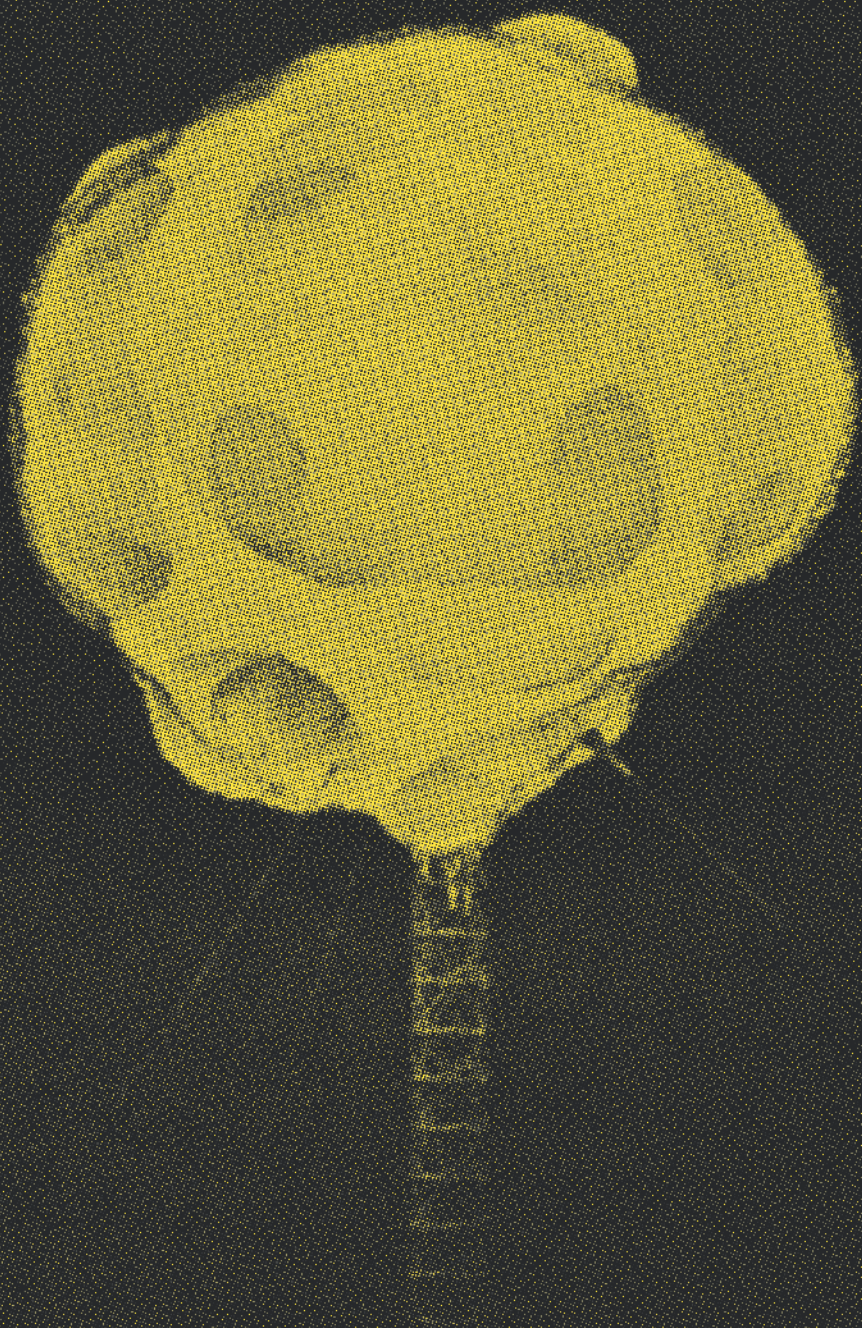
What if game designers built a  
commercially successful strategy game  
that educated and empowered game-  
players about the nuclear threat?

What if we used new storytelling  
techniques to make the “invisible”  
threat of nuclear risk visible?

What if we applied novel tools such  
as natural language and sentiment  
analysis to marshal resources  
for treaty negotiation processes?

What if the most effective leaders in the field  
of non-proliferation had career opportunities  
commensurate with their abilities regardless  
of age, gender, or ethnicity?







06 INTRODUCTION

26 TEAM  
EXPANDING

40 TEAM  
REPORTING  
MONITORING  
WARNING

56 TEAM  
VERIFICATION

70 TEAM  
VISIBILITY

90 THE  
PROCESS

120 MEET  
COHORT 2

Nuclear explosion captured by rapatronic camera milliseconds after detonation.

Nuclear weapons have threatened the existence of humanity for the last 70 years. At this very moment, there are weapons pointed at heavily populated targets all over the world that could be launched in less than 30 minutes.



We call on:

**INFLUENCERS**

**INNOVATORS**

**CULTURE-SHAPERS**

**THINKERS**

**DOERS**

**MAKERS**

**...**



... to join us in  
making the world safer  
from the prospect of  
nuclear catastrophe.

Today, there are more than 14,000 nuclear weapons in the world—and if you live near an urban area, one is likely pointed at you. 1,800 of these weapons are on “high alert,” which means they can be launched within 15 minutes of a command being given.



**N Square seeks to build a global network of experts, philanthropists, and innovators committed to accelerating the achievement of internationally agreed goals for nuclear threat reduction.**

**We want to ignite the imagination of the world's most creative minds and engage them—you—in solving one of the world's most vexing challenges. Our goal, in short, is to innovate our way toward what President Obama described in his first term as "the peace and security of a world without nuclear weapons."**



N Square is a path-breaking initiative designed to accelerate the achievement of internationally agreed goals for the reduction and ultimate elimination of nuclear weapons.

A hands-on alliance between staff, funders, and advisors; N Square brings new ideas, new people, and new perspectives to nuclear threat reduction. By fostering “high-impact collisions” between experts from diverse backgrounds, N Square helps nuclear specialists gain new perspectives on the possibilities of their work as innovators and helps influencers from other fields identify smart ways to apply their own expertise to solving some of our toughest nuclear challenges.

#### FUNDER-ADVISORS

EMMA BELCHER

*Director*

Nuclear Challenges Program  
MacArthur Foundation

CARL ROBICHAUD

*Program Officer*

International Peace and Security  
Carnegie Corporation of New York

BRUCE LOWRY

*Director*

Policy and Global Security  
Skoll Foundation

MICHELLE DOVER

*Director of Programs*  
Ploughshares Fund

The risk of a nuclear detonation, whether by accident or design, is considered by many experts to be greater today than at any other time in history.



# 11.15.17

## SIGNALS FOR THE FUTURE

RHODE ISLAND SCHOOL OF DESIGN PROVIDENCE, RI



Photo by David O'Connor



RP  
NUCLEAR SECURITY

NuCorps facilitates collaboration across diverse networks, inspiring a culture of innovation and strengthening the creative problem-solving capacity of the nuclear security field.

How might we identify, track and understand developments that pose a threat to humanity? How might we reduce data asymmetries? How might we improve engagement by citizens and private sector actors to reduce global risks?

Kicking  
ENGAGING, ENRAGING AND

ATOMIC  
DESIGNING NUCLEAR TALK

ATOMIC  
ION





## INTRODUCTION

**As the first snow of 2018 fell in Providence, Rhode Island, nearly 80 members of the N Square Innovators Network assembled to celebrate. The occasion? The first public presentation of projects produced by our inaugural cohort of innovation fellows and the launch of an ambitious new cohort.**

The gathering took place at Rhode Island School of Design (RISD), one of the oldest art and design colleges in America and one of the most highly revered in the world. RISD is an institution that prizes making as a form of thinking and that champions the role art and design can play alongside more traditional STEM and policy fields to tackle urgent, complex problems.



The audience for our November Innovation Summit comprised nuclear experts, network members, RISD faculty, and students. They were introduced to a variety of bold new ideas, from Datayo.org, an open source data-fusion platform that tracks threats to humanity, to Nuclear Experts Get Bombed, a pilot TV program that demystifies nuclear threats and makes nuclear expertise accessible to new audiences.

That snowy evening in Providence was a special milestone for all of us lucky enough to work with this super-energized cadre of inventors and designers. They are unafraid to provoke. They're courageous and accomplished in their fields, and they place a high value on resource-sharing and collaboration. One fellow described the Innovators Network as a "strange and wondrous group" while another commented that their colleagues were distinguished by their "intelligence, exuberance, and commitment." They were—they are—full of promise and primed to make a difference in the world.

The chance of a nuclear catastrophe may be low probability, but it is extremely high consequence. Wherever you sit on the spectrum from complete disarmament to modernization of the current arsenal, we can all agree that keeping that probability as low as possible is crucial.



**We can build lasting collaborations by bringing people together from a wide variety of fields, offering them an interesting and thorny problem to tackle, and affording them support and opportunities for personal development.**

The Innovators Network is at the very heart of N Square. It is a vibrant community of cross-sector leaders working together to prototype and pilot breakthrough approaches. Innovators Network fellows are visionary leaders who recognize the opportunities embedded in tough challenges. They are scientists, game designers, Hollywood screenwriters, and global security gurus. They are inventors, branding specialists, diplomats, Gen-Y satellite imagery analysts, and public radio producers. They are also philanthropists and investors keenly interested in sustaining systemic innovation and helping collaborative networks flourish.

For newcomers to nuclear weapons issues, the barriers to entry are high. The challenges are complex, the language arcane, and the field both insular and fragmented. As if that were not enough, nuclear weapons have been shrouded in secrecy since their inception. All of that makes it difficult for potential partners to know how, where, or to whom they can offer support. It also discourages democratic discourse about an issue that affects us all.



**This benefits the people who participate,  
the organizations who send them, the field  
that they inhabit and—in time—the world.**



This is why the Innovators Network reaches outside the sector to build bridges with other fields. We encourage nuclear security experts to work in new ways and to access new ideas that will help them achieve nuclear security goals. At the same time, we support non-experts to explore and shape narratives about nuclear weapons and global security that speak to a new generation.

This approach is based on the theory that people dependably form deep, long-lasting relationships through time-bounded work on real-world problems, and that cognitively diverse groups reach breakthroughs more quickly and more reliably than do homogeneous ones. We believe it is important to draw on proven creative processes from the fields of design and innovation, cutting through the numerous and sometimes invisible—but often palpable—boundaries that divide people in this field.

The stories in this book center around the inaugural cohort of the N Square Innovators Network, the innovative tools and technologies they developed, and the methods they learned along the way. By the time you finish reading this, a second cohort of fellows will be well on their way to adding their own solutions to the network's growing portfolio, with a third cohort right behind them.

**Regional instability, unpredictable state and nonstate actors, the challenges of securing nuclear/radioactive materials, and the need to better detect the theft and diversion of nuclear materials are all issues that increase the likelihood of nuclear war if they are not addressed and resolved.**





11.15.17  
SIGNALS FOR THE FUTURE



engagement by citizens and private sector actors to





**KEY OPPORTUNITIES**

**How might new thinking, innovation, and multidisciplinary approaches lead to breakthrough solutions?**

**How might a broader population positively contribute to “traditional” nuclear expertise?**

A yellow starburst graphic with the word "BOOM!" written in white, bold, sans-serif capital letters inside it.

**BOOM!**



# HOW MIGHT WE ...

create open source data platforms that help us identify, track and understand developments that threaten humanity

cultivate innovative, nimble and adaptive leadership for the nuclear arms control regime

develop new nuclear weapons narratives for film and television in collaboration with Hollywood showrunners, writers and producers

spark unique funding mechanisms to help drive innovative solutions for technical verification constraints

design new tools and techniques to verify adherence to international arms control treaties

build open source data platforms that help us identify, track and understand developments that threaten humanity

craft new radiation detection tools and approaches to detect shielded nuclear materials and activities from a distance

devise “black box” technologies to protect proprietary and sovereign information

Every day, nuclear professionals diligently address challenges in governments, international organizations, nuclear facilities, and companies. But they need our help.





JON BELLISH



PAUL CARROLL



ARIEL CONN



GENA CUBA



BRIAN FINLAY



KATE FOLB



NICHOLAS FORTUGNO



JODI GERSH



VINCENT IALENTI



DEREK JOHNSON



KARIM KAMEL



ELIZABETH KISTIN KELLER



TIM MALY



MORGAN MATTHEWS



ALLISON MUSSOLINE



BRIAN G. PAYNE



DEBORAH ROSENBLUM



EMILY ROTHSCHILD



BRETT SCHILKE



IAN STEWART





MICHELLE DOVER



SAMARA DUN



LIZA EZBIANSKY



LEETHA FILDERMAN



ZACH GONZALEZ-LANDIS



MELISSA HANHAM



COREY HINDERSTEIN



MEREDITH HOROWSKI



MORITZ KUTT



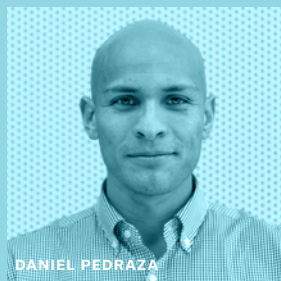
ALEXANDER LEE



BRUCE LOWRY



CARMEN MACDOUGALL



DANIEL PEDRAZA



CARRICK PIERCE



ALLISON PUCCIONI



CARL ROBITAUD



ELIZABETH TALERMAN



IRINA WANG



TOM WEIS



ALEX WELLERSTEIN



To maximize the chances of success, we screened potential fellows for their interests, commitment to collaborate, diversity of professional background, and expertise. Aiming for a rough 50/50 split between nuclear experts and innovators from other fields, we asked them what they were looking for in the fellowship. Here's what they told us.

## I'M MOST EXCITED TO WORK ON PROJECTS THAT...

### SAMPLE RESPONSES

Span boundaries and  
require collaboration

Connect uncommon collaborators  
around a powerful vision for the future

Inspire new partnerships and provide  
the opportunity to work with new  
materials and processes

Bridge traditional sector  
and disciplinary divides

Engage journalists

Create physical objects, art, illustration,  
and functional designs as a means  
to creatively think through and  
communicate complex issues

Inspire engagement

Come up with new and creative ways  
to engage the public in nuclear  
weapons issues and inspire others  
that they can make a difference in  
reducing nuclear risks

Focus on solutions

Develop practical pilot solutions that  
can ultimately be proven and scaled

Touch on decentralized monitoring and  
track 1.5 diplomacy

Tell stories in new and interesting ways  
outside of normal narrative styles

Can be freely shared with others,  
both the results and the hardware  
and software involved

Make things happen, and  
challenge the status quo



# I'M LOOKING FOR FOR **PARTNERS** THAT CAN HELP ME WITH...

## SAMPLE RESPONSES

Advanced and  
open source technologies

Establishing opportunities for  
young people to bring new  
thinking to age old problems

Remote sensing, computer vision,  
and data analysis

Engaging next generation leaders

Understanding the evolution,  
convergence and implications  
of emerging technologies on  
nonproliferation

Finding new and creative ways to  
inform the public and get more  
people to take action

Data analysis on cultural diversity

Imagining and addressing policy and  
international institution dynamics

Open source, commercial,  
and crowd-sourced data,  
intelligence, and analytics.

Messaging

Bringing in new messengers of nuclear  
issues with diverse, powerful platforms

Technical expertise in developing  
trusted electronics for measurement  
systems to be used for arms control  
and disarmament verification

Making technical and policy content  
come alive for non-experts and learn  
lessons from analytics to innovate  
thinking in the threat reduction field

Forging partnerships to build impactful  
and powerful games for change

Understanding the most effective  
audiences to reach and explain  
the issues in ways that engage  
non-experts

Evolutions in algorithms that control  
just about everything on the internet

Cultivating new leadership  
and engagement

Discovering content, stories and  
background information that  
can be transformed from abstract  
ideas into real things for others  
to relate to and learn from



# I FEEL MOST INSPIRED IN MY WORK WHEN...

## SAMPLE RESPONSES

Variety and diversity are key values

Working with the next generation

Seeing how engaged the students at RISD, West Point, and the School of Visual Arts became when invited to bring innovative thinking to the challenge of nuclear threat

Connecting with passionate experts approaching a shared challenge in many different ways

Any moment at the end of an undertaking that required dozens of hands to make happen, when we could recall the birth of an idea and know we had seen it through to completion.

Working with others with different approaches and perspectives to accomplish things i couldn't have done alone

The impact is demonstrable and global

I convinced a room full of hard-nosed insurance executives to invest in innovative solutions to secure foreign nuclear facilities, technologies, and materials

Participating with the ICAN movement at the UN to ban nuclear weapons

I began to take civil defense more seriously as a powerful cultural phenomena, and not just dismiss it as amusing nonsense

Witnessing our Colombia program win the trust of the FARC negotiating team in havana two days prior to the Colombian peace accords

Designing educational materials for an endangered language in the politically oppressed Chittagong Hill tracts of Bangladesh—a project at the intersection of my interests in typography, linguistics, literature, and anthropology. It changed my perception of the designer's role and potential in addressing broken systems

We acknowledge the value of serious play and making things

Working with teams with a wide range of skills and knowledge to create objects, systems, and services that would otherwise have been impossible

Seeing adults being silly, rolling a pair of giant inflatable dice at the request of their children, and seeing the release that having fun gave them

Realizing that everyday objects can function as entry points to a range of issues, as be catalysts for education, discussion and affecting different points of view



# INNOVATIONS IN MY FIELD I'M MOST EXCITED TO WORK ON WILL...

## SAMPLE RESPONSES

Energize new partners

Involve applying theories of behavioral economics and cognitive bias to establish a sense of agency and harness the energy of people in solving the seemingly unsolvable

Pull from crowdsourcing and citizen science

Change the messaging around nuclear weapons so that more people can relate to the issues, like bringing the Don't Bank on the Bomb campaign to the US

Inspire the next generations of designers to think carefully about the concepts, artifacts, and products they create to reduce the amount of "stuff" in the world

Navigate the ethics of humanitarian design through transdisciplinary process

Enable novel connections

Apply brand strategy to civic issues because brands are our way of making sense of massive cultural exchanges, and crafting the right conceptual structure and language to guide a brand well is both an art and science

Involve intersectional connections with nuclear issues—particularly around race, gender, corporate wealth, and the environment

Examine how disciplines such as healthcare, journalism, philanthropy, and public policy are using games to forward their messages

Suggest new models for governance, philanthropy and cooperation

Develop solutions for dynamic governance and citizen-driven innovation

Use rapid prototyping for innovation in peace and apply network theory to program design and evaluation

Include newly released open silicon microprocessors (SiFive E300) and get closer to hardware where everything including integrated circuits is open source

Benefit from public/private partnerships

Involve applications of technology that both yield a social value (nonproliferation) and corporate value (enhanced market value)

Explore intersections between artificial intelligence, advanced manufacturing, biotechnology, and blockchain and their implications for nonproliferation

Bolster the use of AI for the public good, raising awareness that technology does not exist in a vacuum but often has policy implications



Each generated concept resulted from the work of extraordinarily diverse small teams organized around four challenges:

01

HOW MIGHT WE engage new people, facilitate new partnerships and enable the development, integration and adoption of new ideas and approaches related to nuclear threat reduction?

02

HOW MIGHT WE identify, track, and understand developments that pose a threat to humanity? How might we reduce data asymmetries and improve engagement by citizens and private sector actors to reduce global risks?

03

HOW MIGHT WE better articulate the problems and opportunities in the nuclear verification space so that people without expertise understand the issues and feel empowered to contribute?

04

HOW MIGHT WE use cultural pressure and social influence to spark innovation and create policy changes that reduce or eliminate nuclear danger? How might we cultivate awareness and agency among a broad group of concerned citizens, providing them with a tool for active engagement?



**The program was designed so methods and skills developed by teams as they worked on their projects would benefit the work of Innovation Fellows in their home organizations or careers.**

#### **INNOVATION AND DESIGN METHODS**

Design and innovation comes to the table with its own established and well-understood approaches for digging into complex problems. Participants got to see this sometimes strange—often unfamiliar—way of working modeled by experts and to try it out for themselves.

#### **NEEDS-FINDING RESEARCH TECHNIQUES**

Understanding the nature of a problem can be a deep and subtle thing. Why are obviously bad situations allowed to persist? Why do people behave in such strange ways? Needs-finding research allows investigators to break down some of the barriers to progress by taking time to really understand what drives or constrains stakeholders.

#### **NEW OPPORTUNITIES TO WORK**

For new partners, coming face to face with the issues we must address can be a life-changing experience. It's daunting, but with access through the network, new partners quickly discover, "Hey, I can do something about this." New partners found themselves empowered to bring the nuclear question to their own practices, or discovered opportunities to contribute in the field.







01  
INTERVIEWS  
WITH  
EXPERTS

ONE  
YEAR  
FELLOWSHIP

3  
BIG CONVENINGS

4  
TEAMS

10  
DATA-RICH  
TARGET USER  
PROFILES

4  
TEAM CHARETTES

MANY  
PROTOTYPES  
MANY

6  
BIG IDEAS

We met three times as a full community (twice in person, once in a colossal video conference) and once in individual teams. Each team also met weekly or biweekly by videoconference.

In total, each fellow spent approximately fifteen days involved in NSIN collaborations over the course of twelve months, with N Square staff adding support in the form of team facilitation, desk research, data analysis, communication, and design.



26

TEAM

**EXPANDING**





How might we  
engage new people  
and facilitate new  
partnerships in  
ways that enable  
the development,  
integration and  
adoption of new  
ideas and approaches  
related to nuclear  
threat reduction?



## TEAM

## EXPANDING

**Michelle Dover***Program Manager*  
**Ploughshares Fund**

Michelle is director of programs at Ploughshares Fund, where she leads the grantmaking team. Prior to joining Ploughshares in 2015, she conducted research at the James Martin Center for Nonproliferation Studies on nuclear, chemical, and biological cooperative threat reduction programs. Michelle holds an MA in conflict resolution from American University and graduated with honors from the University of Denver with a degree in international studies and French.

**Lisa Ezbiansky***Brand Strategy Researcher*  
**Nucleus Strategy**

Lisa designs research that helps us understand how people think about topics, categories and brands. She uses her training in clinical and organizational psychology to facilitate working and research groups. An education in cognitive science shapes the way Lisa approaches data, a background in computer science helps her to understand and integrate technologies, and long experience in consumer insights keeps her focused on solutions that are effective.

**Leetha Filderman***President*  
**PopTech**

Leetha is a gifted strategist intrigued by the power of collaboration as a tool for social change. She serves as president of the PopTech Institute, where she oversees a portfolio focused on global health, the environment, social justice, and the future of work. Her tenure at PopTech began with the establishment of the PopTech Social Innovation and Science Fellows programs, which are dedicated to identifying and training promising innovators and scientists. She has a deep and diverse background in strategic development, and has advised and served on the boards of numerous organizations and agencies.

**Brian Finlay***President and CEO*  
**Stimson Center**

Brian leads the Stimson Center, a nonpartisan public policy think tank in Washington DC. His areas of expertise include nonproliferation, transnational crime, counter-trafficking, and supply chain security. He is an Adjunct Instructor in the School of International Service at American University in Washington. He chairs the Board of Directors of iMMAP, serves on the Advisory Board of Black Market Watch, and sits on the Editorial Board of Global Security.

**Erika Gregory***Managing Director*  
**N Square Collaborative**

Erika leads a team that is exploring cross-disciplinary, collaborative approaches to reducing nuclear weapons threat, from engaging tech innovators to recasting the way nuclear weapons are portrayed in popular media. Part R&D lab, part venture fund, N Square's approach reflects Erika's long experience designing innovation programs in government, the corporate world, the NGO community and philanthropy.



**Elizabeth J. Kistin Keller***Systems Analysis**Sandia National Laboratories*

Born and raised in New Mexico, Elizabeth works in Sandia's Systems Analysis Department (Org. 159) where she leads work on strategic foresight, global security dynamics, and policy analysis. Before joining Sandia, Elizabeth worked on water conflict and cooperation in North America, Southern Africa, and South and South East Asia. She serves as an adjunct professor in UNM's Department of Geography and Environmental Studies and an affiliate of the Utton Transboundary Resources Center at the UNM School of Law.

**Tim Maly***Writer and Design Critic*

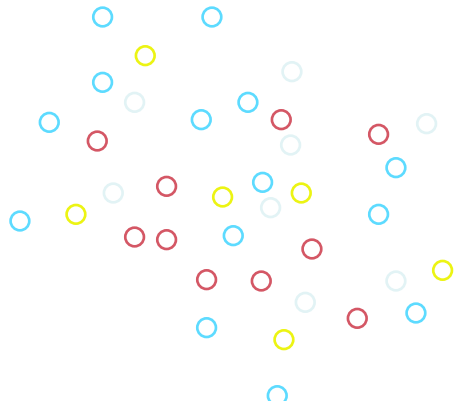
Tim's work focuses on the role of speculation, magic, and words at the strange edges of architecture and design. He has been a journalist, video-game maker, virtual worlds educator, and debating coach. He teaches in the Masters of Industrial Design program at RISD. He is a fellow at Harvard's metaLAB, and co-founder of The Dredge Research Collaborative. With Emily Horne, he co-wrote *The Inspection House: An Impertinent Field Guide to Modern Surveillance*, published by Coach House Press. He is @doingitwrong on Twitter.

**Rushika Maheshwari***Brand Strategist**Nucleus Strategy*

Rushika is a brand strategist striving to identify logic and weave a yarn of magic in crafting authentic brands that morph into telling culturally relevant stories. She moved from Mumbai to New York to pursue her Master's in Branding from the School of Visual Arts and found herself interested in the friction between the human truth and the world realities. Her forte lies in the gap between what science knows and what business does while working with intention and empathy.

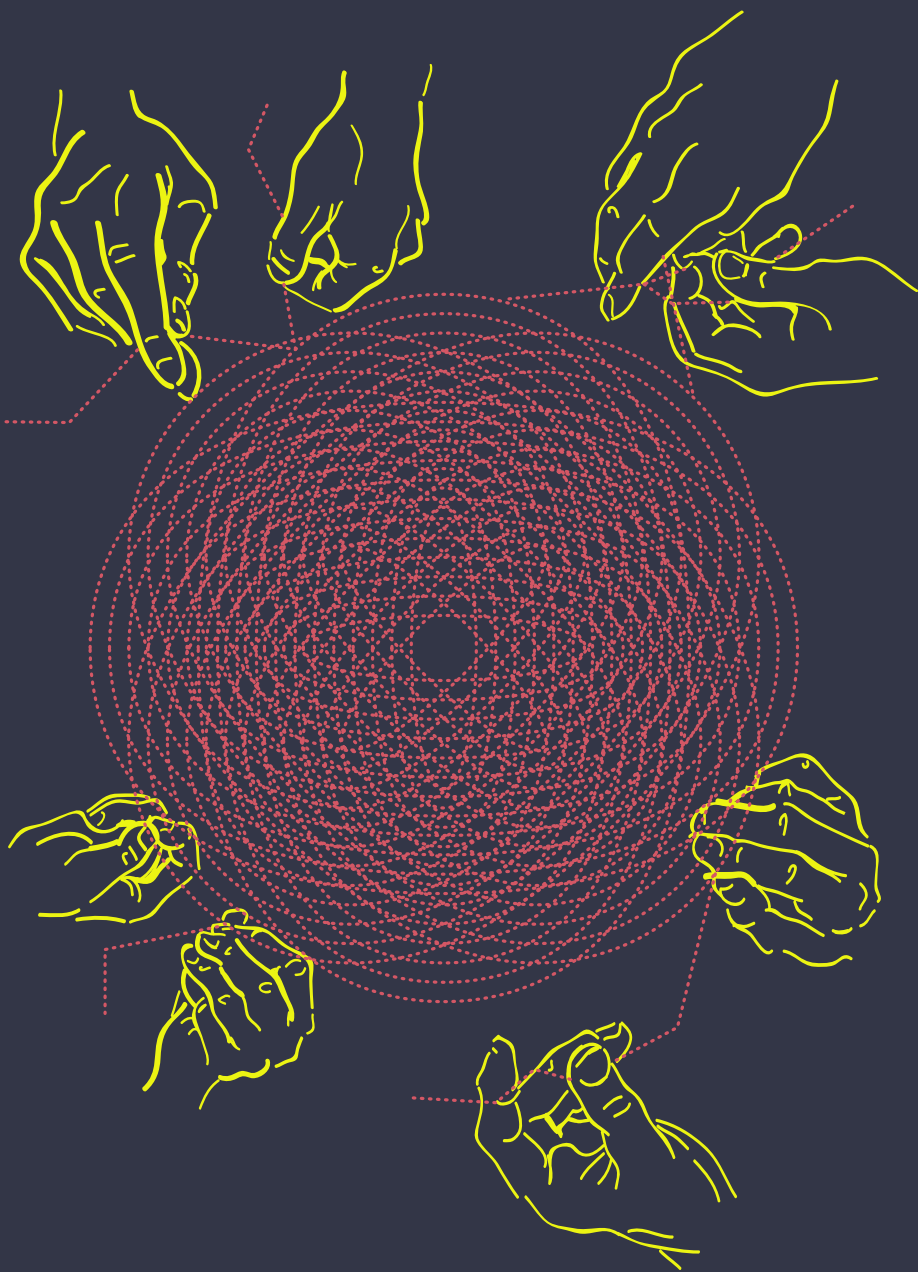
**Brett Schilke***Director of Impact**Singularity University*

Brett is director of impact at Singularity University and regularly speaks around the world on the future of learning, communities of action, and the business and social implications of technological disruption. Prior to joining SU, Brett spent nearly a decade in international development as the head of an NGO working in global security, weapons reduction, and civil society. His work since has included lecturing at a private university in Russia, publishing research on the evolution of human psychology through periods of social change, and launching educational programs that have reached more than 75 countries.





NUCORPS







# NUCORPS

## NEW CONNECTIONS FOR NUCLEAR SECURITY

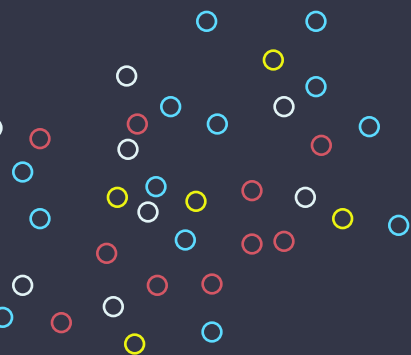
*Team Expanding* focused on the fact that technical and political innovation happens too slowly in a world in which nuclear threats are constantly evolving. Meanwhile, the community working on nuclear threat reduction is both small and siloed. If we are to develop solutions to these rapidly changing security challenges—and more importantly, adopt them—collaborative innovation is essential.



+

**NuCorps enables cross-sector, multidisciplinary teams to tackle the most critical nuclear security challenges and opportunities of our time.**

Our three program tracks increase global nuclear security by accelerating the development, adoption and funding of new technology and policy solutions.



**NUCORPS**



## Why do we need an organization like NuCorps?

- + Because this is a tricky environment where those of us within the nuclear security space have struggled to talk to and work with one another—much less experts from beyond the field.
- + Because change takes time. NuCorps is dedicated to sustaining systems change.
- + Because reaching outside of your network is overwhelming. NuCorps not only cultivates a “strange and wondrous” talent pool, but equips organizations to really use it.
- + Because trusted relationships don’t come easy. NuCorps creates the environment and projects that build confidence in new ideas and approaches.



NuCorps is a multi-dimensional service that enables cross-sector, multidisciplinary teams to tackle the most critical nuclear security perils and opportunities of our time. NuCorps has three program tracks which build on N Square's current fellowship model, but encourage longer term and more intensive collaborations.

They are designed to attract new minds to nuclear challenges; to establish new connections within and beyond the field; and to enable organizations to institute new practices that will enhance global safety and security.

The first tier of NuCorps already exists in the form of the N Square Innovators Network. The creative collisions and professional development opportunities offered by the Innovators Network's fellowship program are enough to spark sustained partnerships and organizational change or creation.

But the fellowship is just a starting point. For many of us Fellows, no matter how much we have learned, how fired up we are by our experience, or how many new colleagues we now enjoy, it can be hard to bring the full magic of this "strange and wondrous" network into the work we do everyday in our respective organizations.

With this in mind, we designed the Envoy and Embedded Programs, making it easier for international organizations, federal agencies, labs, universities, non-governmental organizations, think tanks, foundations and private businesses to tap into the talent and tools contained in the network. At the same time, the Envoy and Embedded programs provide alumni of the fellowship program with additional real-world opportunities to put their expertise to use—opportunities for alumni to remain engaged and involved that don't require them to quit their day jobs.



**connects curious new minds with seasoned veterans in nuclear security and nonproliferation**

#### **PARTICIPANTS**

Leaders in nuclear threat reduction efforts

Leaders and innovators in other fields such as technology, media, education, finance, or the arts and sciences

**DURATION: 9–12 MONTHS**





connects nuclear security  
and nonproliferation  
organizations with talent and  
tools for short term projects

**PARTICIPANTS**

NGOs  
National Labs  
Federal Agencies  
Universities  
Private Companies  
Think Tanks  
International Organizations  
Members and alumni of  
the Innovators Network

**DURATION: 1–3 MONTHS**



designed for longer-term,  
extended engagements,  
helping organizations build  
innovation capacity and  
culture while advancing  
specific goals

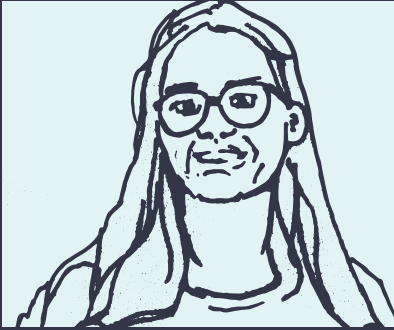
**PARTICIPANTS**

NGOs  
National Labs  
Federal Agencies  
Universities  
Private Companies  
Think Tanks  
International Organizations  
Members and alumni of  
the Innovators Network

**DURATION: 6–12 MONTHS**

**WE NEED  
YOU**



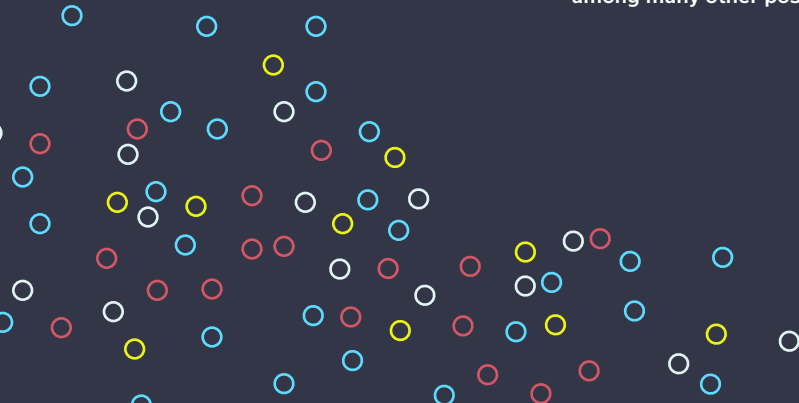


Meet Reena, a program lead in non-proliferation policy at a federal agency. She was first introduced to NuCorps when she was interviewed by a Fellows program team and later attended the annual Innovation Summit.

When Reena was charged with leading her agency's analysis of emerging technologies and opportunities for nuclear security, she tapped the NuCorps community, hiring an Envoy team to help her design a series of workshops on the topic. The team expertly helped her to articulate the series' core goals and worked side-by-side with Reena and her colleagues to design and implement it.

In this case, the Envoy team consisted of: a **design expert**, with extensive experience in interactive workshops; a **tech expert**, with a background in machine learning; a **journalist**, known for tracking emerging tech trends globally; select group of **innovators** whose diverse expertise helped to surface new insights and stress-test new ideas.

This is one example. Depending on organizational needs, other Envoy teams might focus on creating innovation challenges, reshaping investment strategies, or facilitating organizational strategy sessions—among many other possibilities.







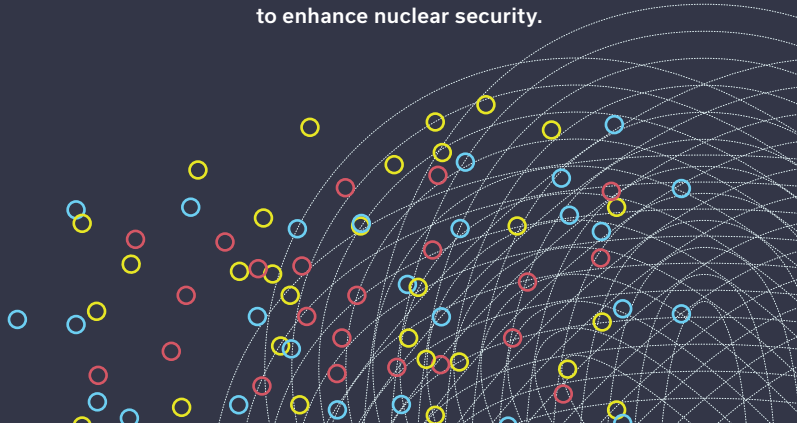
This is Armando, a newly selected executive director of a nonprofit organization supporting nuclear nonproliferation.

Armando turned to NuCorps when he and his board of directors decided to conduct a strategic rethink of the organization. Armando was clear that he wanted to honor the nonprofit's history while adapting for a more dynamic future, positioning his organization as the employer of choice for the field's most promising and most diverse young leaders.

By tapping into NuCorps, Armando, his staff, and his board are able to scope and implement the effort with an expanded team that includes expertise in innovation culture, organizational change, technology integration, and space planning.

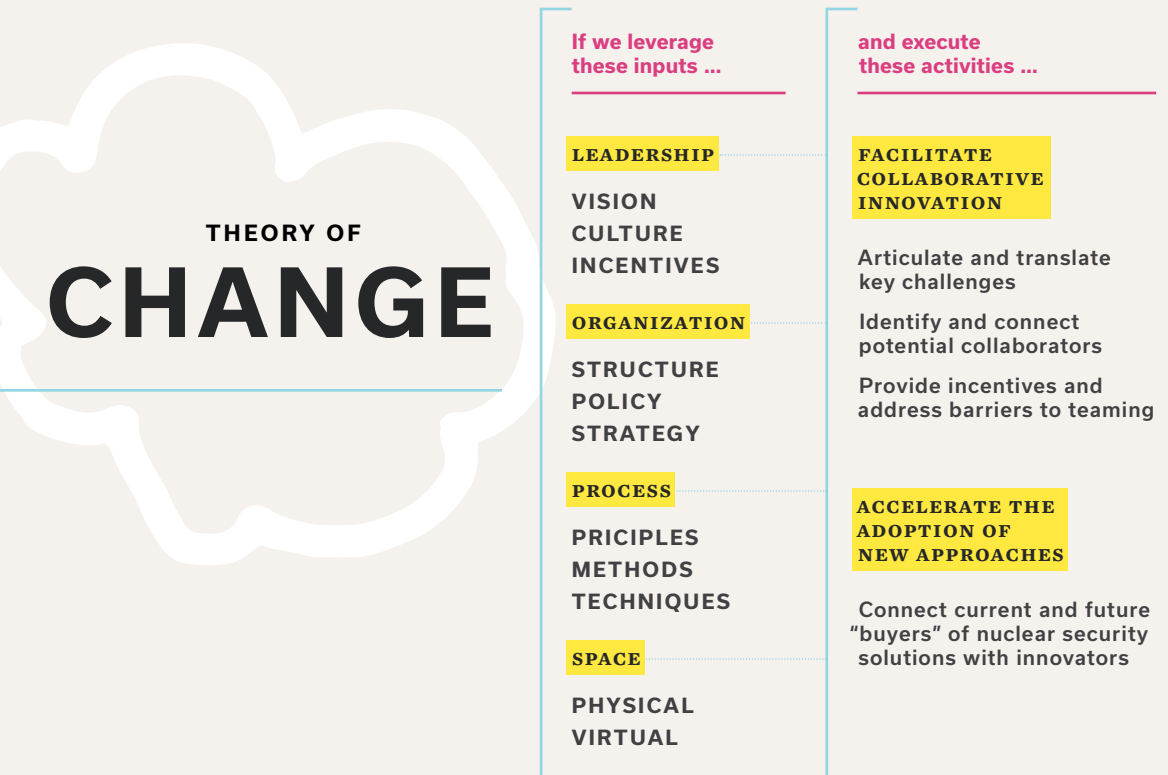
Over the course of a year, through a combination of live workshops, training modules and remote collaboration, a NuCorps team was embedded with Armando's staff as they developed and launched a new organizational structure and revamped programming.

At the same time, other embedded teams are at work with other institutions and agencies, resulting in nontraditional, interagency talent management initiatives, the accelerated adoption of new technology and policy solutions in international agencies, and novel public-private partnerships to enhance nuclear security.



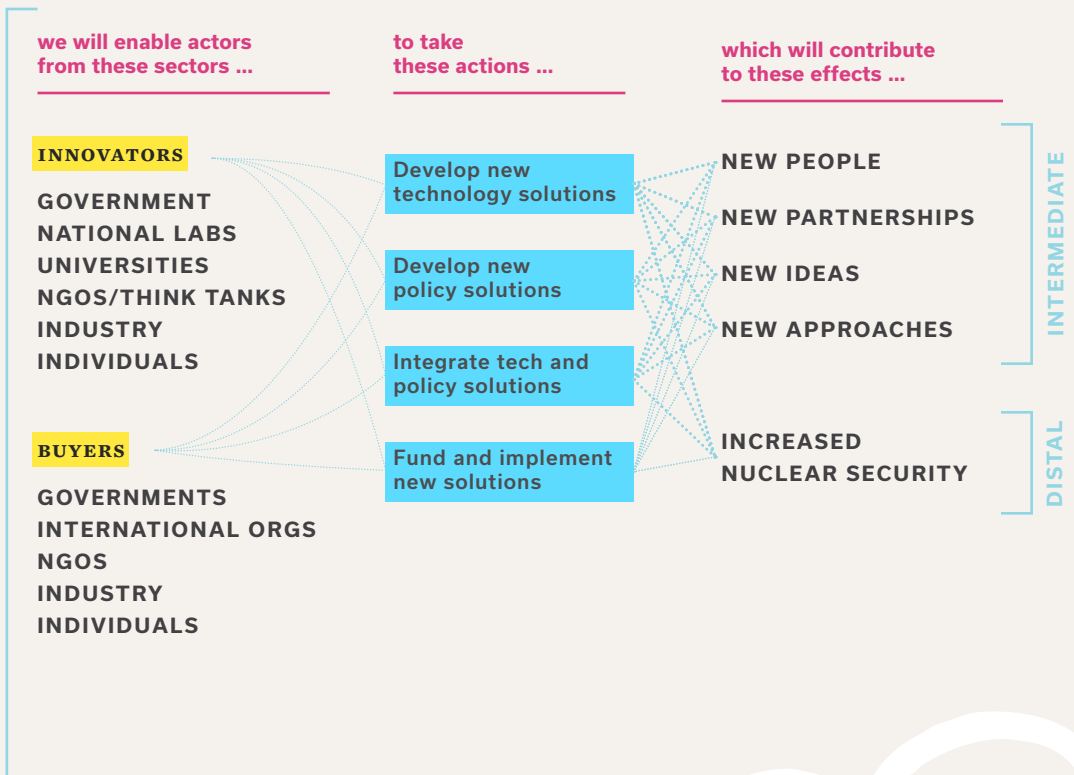


Throughout the nuclear security field, organizations and institutions recognize the need to adapt to keep pace with evolving threats and opportunities. But *finding the capacity* to adapt opens more possibilities for this to happen.





NuCorps is a vector for ongoing problem-solving and innovation—a solution that links members of the Innovators Network with opportunities to stay engaged with nuclear challenges while enabling much-needed capacity building, leadership development, and systems change.





40


TEAM

REPORTING

# MONITORING

WARNING





How might we  
identify, track,  
and understand  
developments  
that pose a threat  
to humanity?

And how might we reduce data  
asymmetries and improve engagement  
by citizens and private sector actors  
to reduce global risks?



# TEAM REPORTING MONITORING WARNING

## **Jon Bellish**

*Director  
Future Labs*

Jon is the Director of Future Labs, which designs and supports program strategies for the One Earth Future Foundation (OEF). OEF is a Boulder, CO-based operating foundation looking to harness the power of networks to undermine drivers of war, currently operating in Somalia, Colombia, and on issues of African maritime governance. Prior to joining OEF in 2010, Jon wrote and consulted on the international law of maritime piracy and worked in advertising and public relations.

## **Gena Cuba**

*Design Strategist  
Nucleus Strategy*

Gena focuses on re-framing large, complex problems in surprisingly simple ways. She spends her time carefully observing and inquiring about the curiosities that we call home, community, work, and purpose. Through ongoing investigations of cultural mores and individual motivations, her work turns observations into empathetic diagnosis and clear roadmaps of action.

## **Samara Dun**

*Former Manager, Strategic Partnerships  
N Square*

Samara worked with N Square to help expand funder collaborations and partnerships that lead to sustained support for innovative projects that reduce nuclear risk. Previously, Samara was the Director of Development at Ploughshares Fund. Before joining Ploughshares, Samara worked for the Golden Gate National Parks Conservancy and Friends of the Earth. Samara has a degree in Anthropology from the University of California, Santa Cruz.

## **Melissa Hanham**

*Senior Research Associate  
James Martin Center for Nonproliferation Studies*

Melissa supports MII's research by investigating new techniques in open source geospatial analysis, incorporating imagery and other remote sensing data, large data sets, social media, 3D modeling, and GIS mapping. She teaches "Geospatial Tools for Nonproliferation Analysis" at the Middlebury Institute of International Studies, and is a regular contributor to Arms Control Wonk.

## **Derek Johnson**

*Executive Director  
Global Zero*

Derek is the chief executive of Global Zero, the international movement for a world without nuclear weapons. As a creative strategist working on the front lines of catalytic advocacy, foreign policy, and social change, he has spent the last eight years positioning Global Zero as a highly credible source of thought leadership and policy analysis, a trusted intermediary among nuclear-armed governments, and a provocative grassroots operation in key regions. In addition to leading organizational strategy, Derek also spearheads special projects—from coordinating backchannel diplomatic dialogues to producing viral and award-winning digital content.

## **Karim Kamel**

*Program Analyst  
Carnegie Corporation of New York*

Before joining the Corporation in 2015, Karim was a program associate at the Conflict Prevention and Peace Forum of the Social Science Research Council. Prior to that, he worked as an external relations consultant at the Comprehensive Nuclear-Test-Ban Treaty Organization. He holds a Master of Arts in Nonproliferation and Terrorism Studies from the Middlebury Institute of International Studies at Monterey and earned his Bachelor of Arts degree at San Jose State University. Karim also attended The American University in Cairo. He currently sits on the steering committee of the Middle East Next Generation of Arms Control Specialists Network.



**Alexander Lee****Freelance Researcher**

Alexander is a data-driven researcher on humanitarian and human dignity issues. His current research focuses on data ethics and the appropriate adoption of new technologies in the sector, as well as on capacity building projects in the South East Asia. His prior research has focused on proliferation network mapping, social network analysis, geospatial data, and chemical weapons incidents. Alexander was previously a researcher at Project Alpha, where he studied illicit trade and proliferation networks. He also has a background in open source monitoring and investigations on Syria and Yemen, and will be continuing to work on issues of mass atrocities and war crimes. He holds a BA in politics from the School of Oriental and African Studies, and an MA from the Department of War Studies, King's College London.

**Daniel Pedraza****Engineer Entrepreneur and Technologist**

Daniel is passionate about leveraging technology at scale. Daniel is co-founder of Veilos, a deep-learning startup rethinking global insights for agriculture. As Data Innovation Specialist for the United Nations Global Pulse, Daniel has looked at open challenges to harnessing data for sustainable development and humanitarian action. As a child Daniel dreamt of becoming an astronaut. He never made it into space.

**Carrick Pierce****Donor****Financial Service Executive**

Carrick believes strongly in nuclear arms control—that there is no greater existential threat facing our world today. A former options trader who graduated from Georgetown University and also studied at Carnegie Mellon, he has spent a career on Wall Street designing and developing derivatives trading platforms. He's worked for hedge funds, banks and exchanges and also served as CEO of a derivatives software firm.

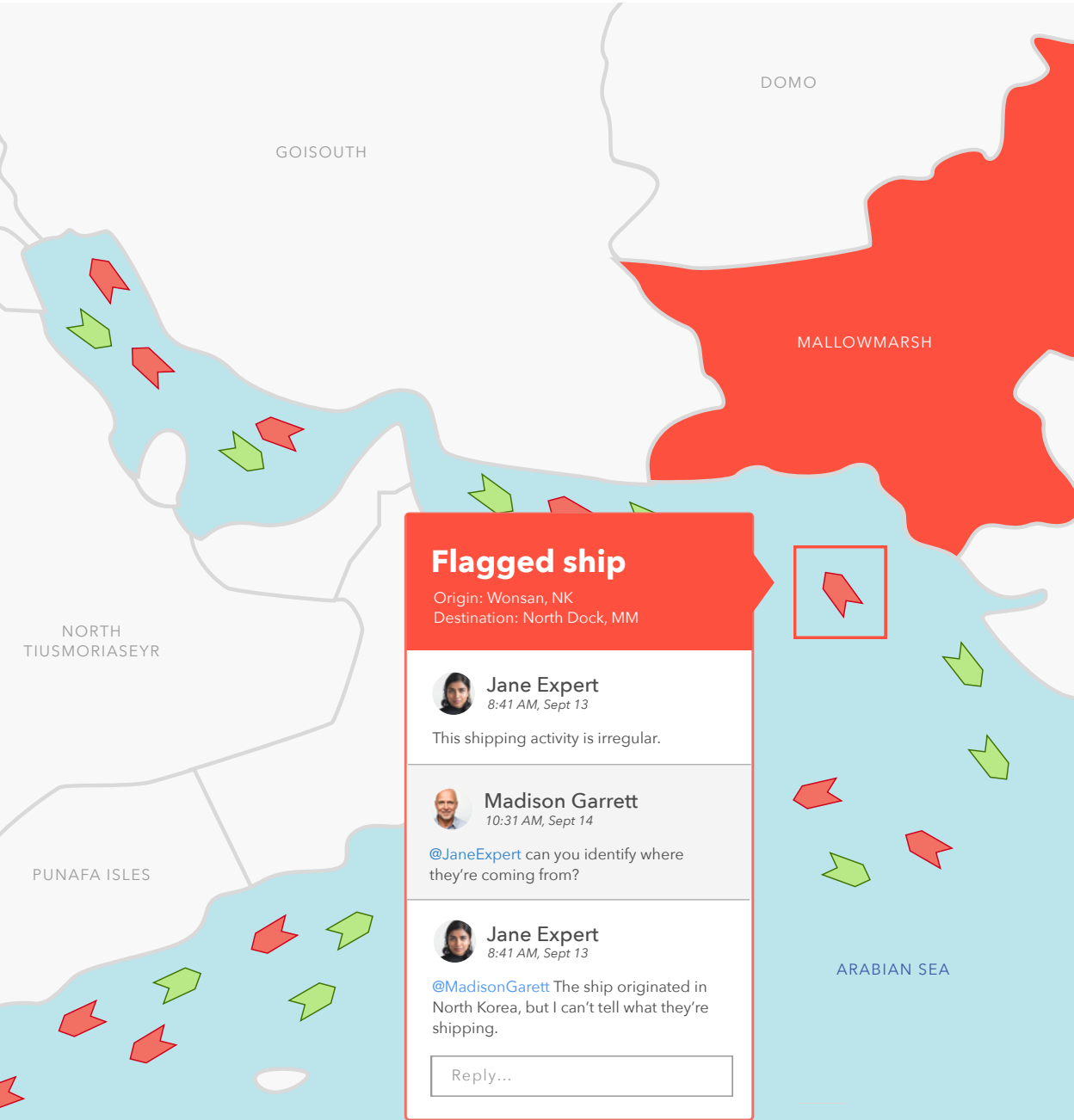
**Carl Robichaud****Program Officer****Carnegie Corporation of NY**

As program officer in International Peace and Security, Carl manages a portfolio of grants to strengthen nuclear security. In this capacity, he heads the Corporation's work on strengthening nuclear governance and investing in the next generation of nuclear experts. He is especially interested in the intersection of new technologies and nuclear risk.

**Ian J. Stewart****Senior Research Associate****King's College**

Ian, an engineer by training, has many years of experience in government and working with companies and international organisations in relation to non-proliferation matters. He was a research fellow at Harvard's Belfer Center for Science and International Affairs. Ian is undertaking a part-time PhD examining the evolution of the non-proliferation regime through the lens of collective action. Research for this PhD has taken him to nearly every US Presidential archive.







Alerts



## OPEN DATA OPEN CONVERSATIONS

*Team Reporting, Monitoring, and Warning* wanted to make sure that journalists, academic analysts and others—not just experts and governments with large budgets—were privy to data that helps them identify and respond to threats to humanity. The purpose of this project was to make data available and understandable, leading to better-informed decisions and more meaningful action.

ZEANE



When we started this fellowship, we decided we had to tackle a central injustice: conversations about nuclear weapons and the indiscriminate threat they pose cannot be the domain of the powerful and elite alone. We are all subject to these threats, so we all deserve to have a role in making decisions about them—by extension, we all need access to data that will inform those decisions.

We brainstormed many possibilities. We tested a lot of ideas. We drew a lot of models. We talked to our colleagues and we integrated their feedback—not all of which was positive—which helped us change course, iterate, elevate certain ideas, and abandon others.

At the end of that exploration, we refined our focus to information asymmetry. We are experiencing a data explosion, with access to new tools providing incredible insights—yet national and global security is still “owned” by a powerful few three-letter intelligence organizations.

**How might we reduce data asymmetries and improve engagement by citizens and private sector actors to reduce global risks?**





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# open data. open conversations.

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Datayo is an open source insights platform to identify, track, understand and prevent security breaches that pose a threat to humanity.

GET STARTED



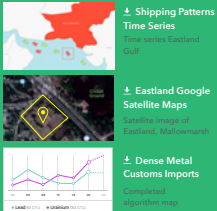
The playing field is undeniably tilted; the distribution of information and access to tools is unequally distributed. This is something that citizens should care about—as should the media, small states, and international organizations. The “Reporting, Monitoring, and Warning” team wanted to make sure that journalists, academic analysts and others—not just experts and governments with large budgets—were privy to data that helps them identify and respond to threats to humanity. That’s what our solution is really about: Making use of data, which might be siloed, unsorted, overwhelming, and turning it into meaningful, actionable insights and better-informed decisions.

We want to enable people to draw insights, enabling critical conversations with a broader audience. In our vision, intelligence agencies will no longer have a monopoly on the truth. Our solution, Datayo, increases data symmetry by putting the power to detect and warn in to the hands of all people and all countries. This open-source collaborative data lab serves public stakeholders and private customers interested in greater sharing, understanding, and use of data.

**Datayo increases data symmetry by putting the power to detect and warn in to the hands of all people and all countries.**

[Return to Gallery of Stories](#)

## Data Sets



## Learn More

Datayo experts offer tailored training sessions in areas including:

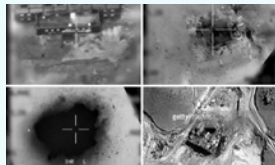
- Data-based research
- Machine learning
- Export and intangible technology controls
- Working with data and tools

[HIRE AN EXPERT](#)

## Shipping Patterns Indicate Uranium Processing in Mallowmarsh

[SHARE](#)  
12 SHARES

Published by Datayo Staff, 11.05.2018



Fusce vehicula dolor arcu, sit amet blandit dolor mollis nec. Donec viverra eleifend lacus, vitae ullamcorper metus. Sed sollicitudin ipsum quis nunc sollicitudin ultrices. Donec euismod scelerisque ligula. Maecenas eu varius risus, eu aliquet arcu. Curabitur fermentum suscipit est, tincidunt mattis lorem luctus id. Donec eget massa a diam condimentum pretium. Aliquam erat volutpat. Integer ut tincidunt orci. Etiam tristique, elit ut consectetur iaculis, metus lectus mattis justo, vel mollis eros neque quis augue. Sed lobortis ultrices lacus, a placerat metus rutrum sit amet. Aenean ut suscipit justo. Donec eget massa a diam. Donec viverra eleifend lacus,

Fusce vehicula dolor arcu, sit amet blandit dolor mollis nec. Donec viverra eleifend lacus, vitae ullamcorper metus. Sed sollicitudin ipsum quis nunc sollicitudin ultrices. Donec euismod scelerisque ligula. Maecenas eu varius risus, eu aliquet arcu. Curabitur fermentum suscipit est, tincidunt mattis lorem luctus id. Donec eget massa a diam condimentum pretium. Aliquam erat volutpat. Integer ut tincidunt orci. Etiam tristique, elit ut consectetur iaculis,

As seen on:



The Washington Post





## Who will be using this?

Because Datayo is fundamentally a tool for civil society, the information we produce is not classified and can be shared easily, meeting the needs of several groups of users:

**Citizen, researchers, and advocates** will use our products to advance their advocacy work.

**Journalists and reporters** will incorporate our data narratives into their own stories.

**Government analysts** will have access to credible and verifiable analysis. This includes analysts from nations whose intelligence systems and information about proliferation threats are less advanced than those of the UK or the United States.

**Compliance officers** from major international banks will find actionable information to prevent money laundering and the funding of illicit nuclear programs.

**Investment professionals** can make market-based decisions based upon well-sourced data about proliferation threats.

datayo

### Flagged irregular shipping activity in Mallowmarsh

#### 1 DATA SOURCES

Select all that apply.



☐ Shipping Patterns



☐ Topography



☐ Weather Patterns



☐ Seafloors



☐ Notice to Airmen (Notam)



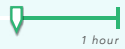
☐ Satellite Imagery

#### 2 TIME PERIOD

Drag to select.



5 years



1 hour

#### 3 SHARE

How do you want to export?

Publish to my site

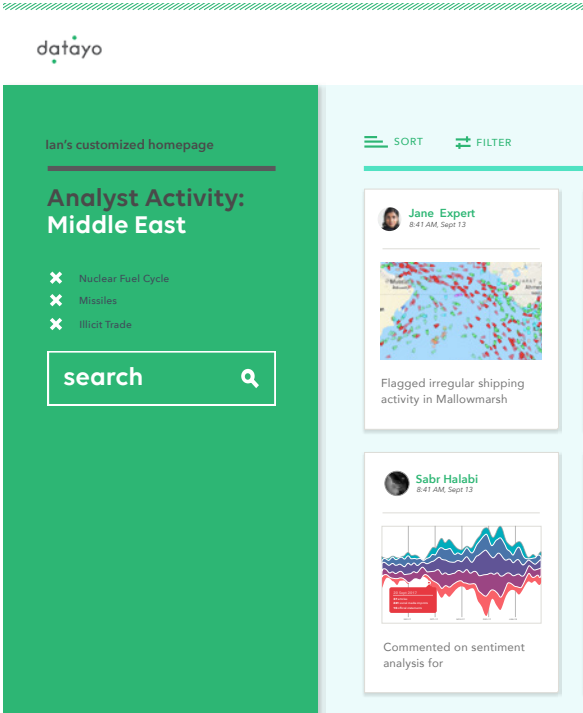
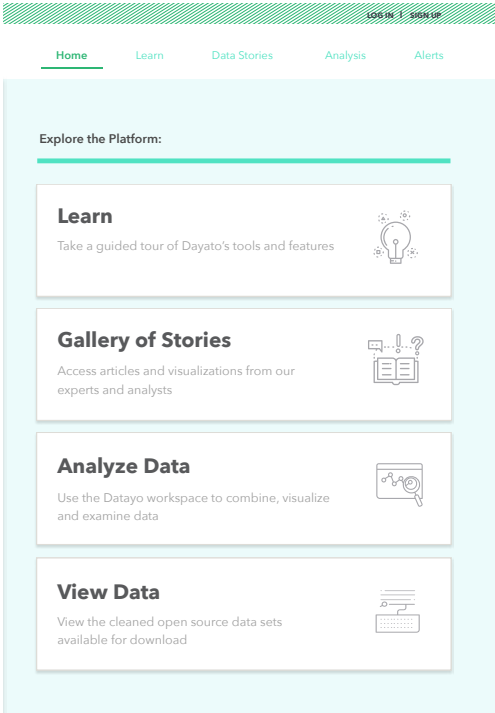
Publish to social media

Make an animated gif

View source data

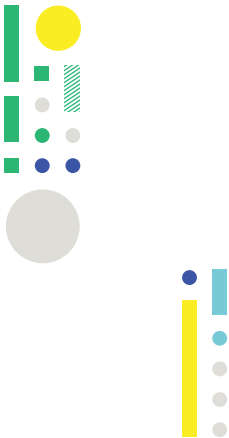
SUBMIT



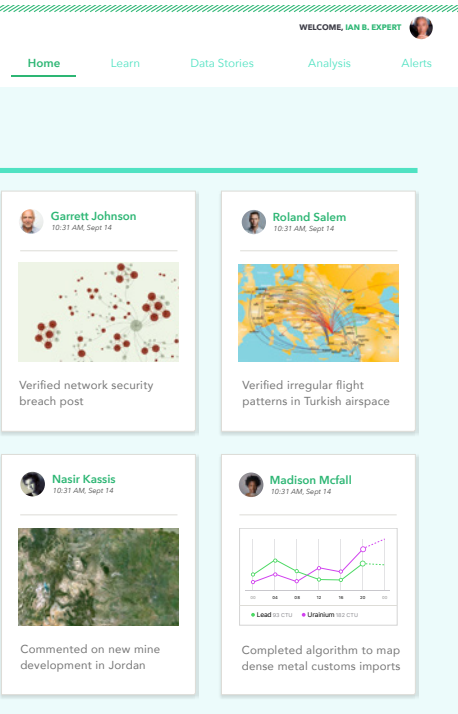


Datayo is a data fusion platform that blends artificial and human intelligence, drawing on the 18th-century idea of a “Mechanical Turk,” in which audiences were mystified and delighted by an apparently automated chess-playing machine that actually had a human player hidden within the apparatus.

The platform leverages a distributed network of talent around the world, drawing on multidimensional expertise in nuclear nonproliferation and analogous issues, pulling meaningful information out of various data streams, surfacing insights that would otherwise have been missed, and capitalizing on novel connections between seemingly unrelated sources.







This open-source collaborative data lab serves public stakeholders and private customers interested in greater sharing, understanding, and use of data.

Datayo is both a data warehouse and a platform for collaboration equipped with tools for shaping data into rich stories. We envision three sets of products: raw data assets, analysis, and data-driven narratives. We expect these stories to be the most impactful way to share insights and support our networks.

During the course of our work, the Trump administration's narrative held that North Korea had halted its nuclear and missile activity. But a think tank in Washington—the Center for Strategic and International Studies (CSIS)—purchased commercial satellite imagery (imagery that would have only been in the hands of top satellite agencies a decade ago) and scoured it for evidence of new and existing missile installations. They used their knowledge and expertise to identify sixteen missile bases, many of which were not being put out of commission, but were actually being upgraded.

CSIS' work changed the conversation. We no longer had to trust what the administration was telling us because we could look with our own eyes and say, "Something is going on here, and we need to talk about it."

Datayo creates more of those conversations—not just with satellite imagery, but with the aggregation and diffusion of import/export control data, open source data, the news media, textual data, and more.





WELCOME, **IAN B. EXPERT**

MALLOWMARSH

**1** As a verified analyst, **Ian B. Expert** is invited to use Datayo and is provided with a code that will privilege his comments, flags, and contributions with greater weight in the system. Ian then personalizes his account, targeting regions and issues in which he is most interested and about which he has greatest expertise. As a result, every time Ian goes to the Datayo homepage it will be automatically populated with content most relevant to him.

**2** A newly-posted comment by Jane Expert (no relation) flags irregular activity in Mallowmarsh, a recently discovered country in the Middle East. Ian clicks through to see what Jane has been working on by tracking automatic information system (AIS) data which reveals the position, course and speed of commercial shipping vessels. Jane has identified a flagged North Korean vessel approaching Mallowmarsh.

### Flagged ship

Origin: Wonsan, NK  
Destination: North Dock, MM



Jane Expert  
8:41 AM, Sept 13

This shipping activity is irregular.



Madison Garrett  
10:31 AM, Sept 14

@JaneExpert can you identify where they're coming from?



Jane Expert  
8:41 AM, Sept 13

@MadisonGarrett The ship originated in North Korea, but I can't tell what they're shipping.

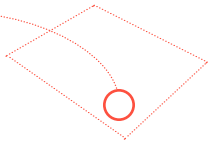
Reply...



Because Ian can see that nobody knows what the vessel is carrying, he clicks in to join the conversation.

**3**

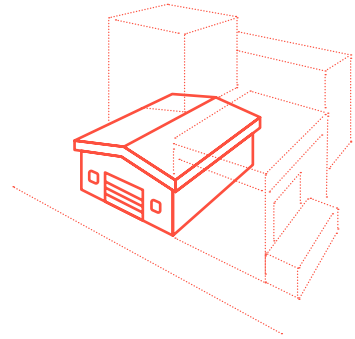
Ian examines customs records and investigates destinations for recent shipments. He maps the results, and determines that most of the cargo has been delivered to a single warehouse on the outskirts of a business park.





4

Ian posts his work, then turns to satellite imagery on Datayo. Examining changes revealed by a series of images taken over time, he sees that the warehouse in question has expanded in size, causing Ian to flag this as suspicious activity. Based on his evidence, Ian hypothesizes that the facility could possibly be enriching uranium and alerts the Datayo community.



5

Prompted by Ian's query, Juan—another expert verified by Datayo—uses Open Street Maps to see that the building has been tagged as a refinery. He also notes that the company, Eastland Nuclear Corporation, has recently been sanctioned. Juan responds to Ian's post, attesting to Ian's hypothesis, which alerts Datayo.



6

The Datayo staff reviews the data then crafts a story, including the most relevant and compelling user-created data visualizations. Because of the network Datayo has built with news professionals, Datayo staff know precisely which journalists are interested in this type of story. They post it, tagging it for those particular journalists as well as for appropriate analysts and subject matter experts. Datayo then shares the story with media partners who amplify and expand upon it using their own platforms.

The value of this story is in the information that accrues to academics, citizens and experts who want to be more involved in nuclear nonproliferation; who want to contribute observations, analysis and insight. The private sector can also use such insights to make money, leading to a revenue stream for Datayo and a model in which private sector actors subsidize social good.



Datayo reduces information asymmetries and busts up the silos that keep people from connecting seemingly disparate pieces of data. The team at Datayo and its user base comprise diverse perspectives and voices, dismantling the “nuclear priesthood” by empowering civil society to make novel contributions to global security. Datayo is, essentially, a tool for informing the public discourse about nuclear weapons and the materials used to create them.

The goal is to increase security for everyone—not just those countries who build and maintain nuclear weapons or who are wealthy enough for advanced intelligence systems—by enabling us to discover important nuclear truths for ourselves.

**datayo.org**







open  
data.

datayo

open  
conversations.

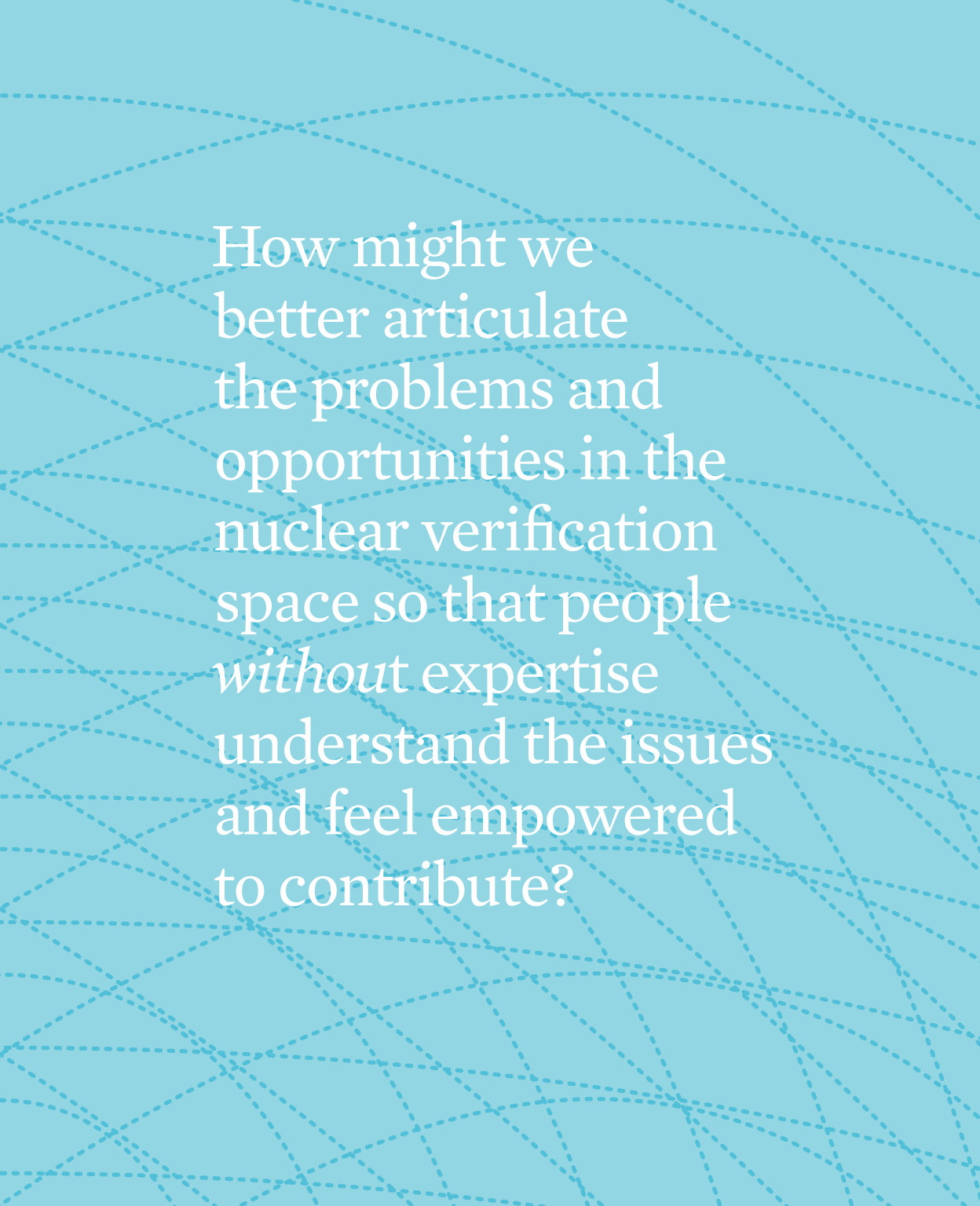


56

TEAM

# VERIFICATION





How might we  
better articulate  
the problems and  
opportunities in the  
nuclear verification  
space so that people  
*without* expertise  
understand the issues  
and feel empowered  
to contribute?



## TEAM

## VERIFICATION

**Corey Hinderstein**

*VP, International Fuel Cycle Strategies*  
*Nuclear Threat Initiative (NTI)*

Corey recently returned to NTI after a three-year leave, during which she served as senior coordinator for nuclear security and nonproliferation policy affairs at the National Nuclear Security Administration, US Department of Energy (DOE). Corey led the DOE's Iran Task Force, responsible for implementing the Joint Comprehensive Plan of Action (JCPOA) with Iran, and was the lead for the 2016 Nuclear Security Summit. Previously, she led the development and launch of the World Institute for Nuclear Security (WINS), an international organization based in Vienna, Austria. She also played a significant role in NTI's initiative to create an international low-enriched uranium bank at the International Atomic Energy Agency.

**Moritz Kütt**

*Postdoctoral Research Assoc.*  
*Princeton University*

Moritz Kütt is working as a Postdoctoral Research Associate at Princeton University's Program on Science and Global Security. He received a PhD from the Physics Department at the Technische Universität Darmstadt in 2016. For his dissertation, he analyzed the role of Open Source software for trust and transparency in Nuclear Arms Control applications. His current research interests are nuclear reactor simulations (criticality/burnup), new warhead verification technologies (information barriers/virtual reality applications) and on a broader scale the role of access and classification of information for the verification of a nuclear weapons ban treaty.

**Bruce Lowry**

*Director of Policy and Advocacy*  
*Skoll Global Threats Fund*

Bruce directs SGTF's nuclear nonproliferation and Middle East work. He began his career in the U.S. State Department, serving overseas and in various economic roles in Washington, D.C., working on the G-7 process, peace in the Middle East, and nuclear safety. Bruce chairs the board of Cazadero Music Camp.

**Morgan Matthews**

*Program Manager and Design Strategist*  
*N Square*

Morgan is a people-focused design strategist and innovation practitioner with expertise in strategic planning, systems thinking and design thinking methodologies. Morgan is energetic and enjoys building community, connecting the dots in new ways, and convening teams to collaboratively solve problems. She joined the N Square Collaborative because she believes that innovation frameworks are essential to uncovering unexpected and effective solutions to nuclear challenges. She brings an MBA in Sustainable Management and a BA in International and Intercultural Communications to that task.

**Allison Puccioni**

*Founder*  
*Armillary Services*

Throughout her career, Allison has created and presented intelligence for entities including the U.S. Secretary of Defense, the Supreme Allied Commander of NATO, and numerous ministries of defence and intelligence. As a civilian, Allison was a Senior Operations Planner for the U.S. Navy SEALs in Coronado, California. In 2008, Allison established the first continuous imagery intelligence publication through the magazines *Jane's Defense Weekly* and *Jane's Intelligence Review*.



**Deborah Rosenblum**  
*Executive Vice President*  
 Nuclear Threat Initiative

Deborah was named executive vice president in 2010. Working with NTI's president, she oversees the organization's operations, development, and programs with an annual operating budget of nearly \$20 million. She also led the successful development of Connecting Organizations for Regional Disease Surveillance (CORDS) as an independent, self-sustaining global network of regional disease surveillance groups, and continues to serve on its board as finance ch. Deborah also leads NTI's work on all security issues related to China and travels there regularly to meet with government officials and nongovernmental organizations. In addition, she leads NTI's Middle Eastern partnerships, with a focus in the Ne Levant region, travelling regularly for programmatic work as well as speaking engagements on behalf of NTI.

**Emily Rothschild**  
*Industrial Designer & Educator*

Emily is an Industrial Designer and educator with a background in fine arts, art history, and curatorial studies. Upon graduating with a MID from RISD in 2008, Emily started her own line of objects and jewelry and co-founded the design firm Hello. which works on research-based design projects ranging from cookware to medical design. Emily teaches graduate and undergrad studios in Industrial Design at RISD and Parsons School of Design.

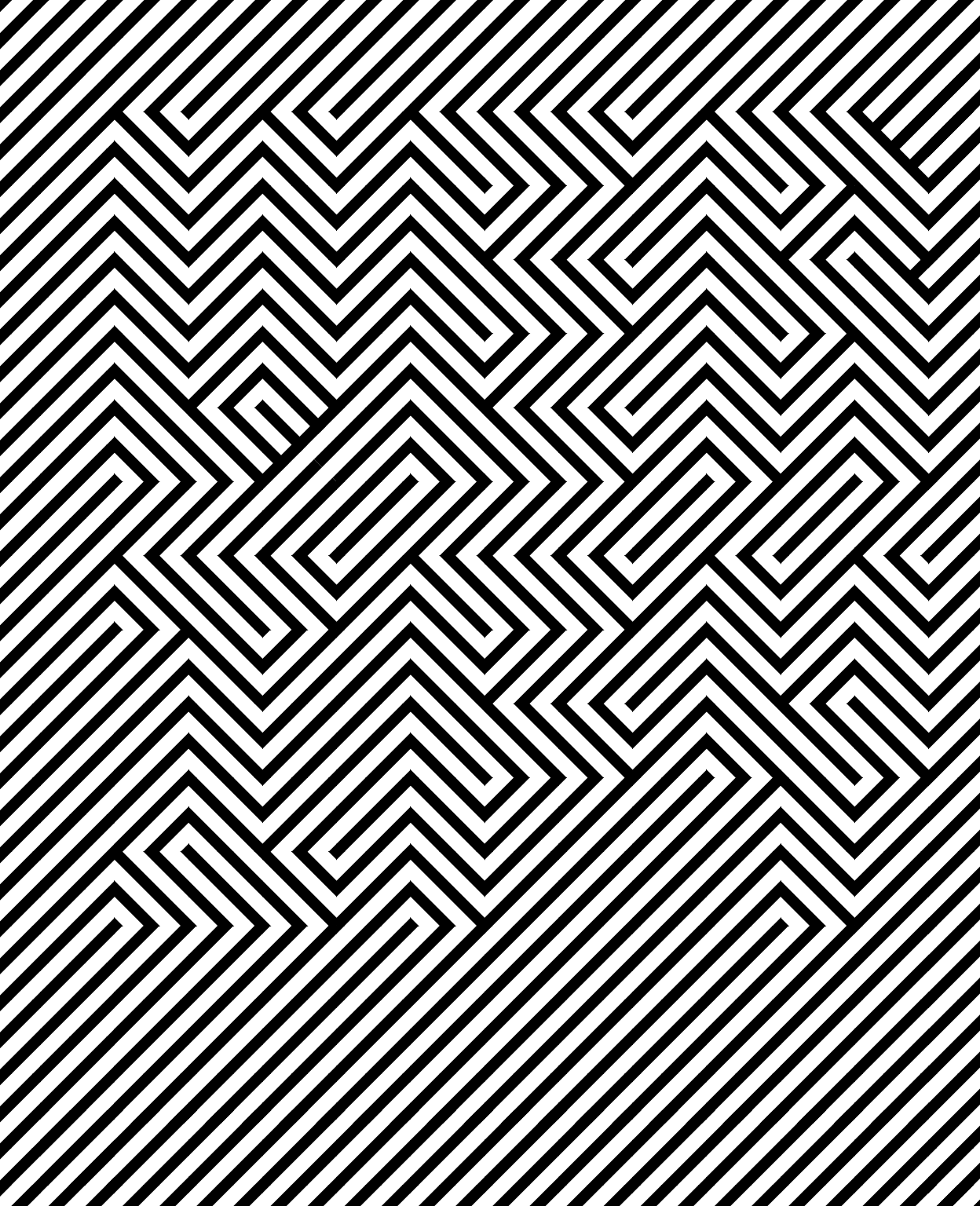
**Irina Wang**  
*Master's Candidate*  
 Rhode Island School of Design

Irina grew up as a first-generation Floridian with Taiwanese parents. She lived in the UK while completing her undergraduate studies and working for two years at renowned London design studio Pentagram. Upon graduating from University of the Arts London, Chelsea College of Arts, in 2015, she was granted the Mead Fellowship for continuing design work for endangered languages. In January 2018 she moved from England to New England, where she is currently obtaining a master's in industrial design at Rhode Island School of Design. Irina has a soft spot for leavened bread, existentialist jokes, her old Bianchi bike, campfire smell, and the printed word. She attempts to dabble in far too many things, but believes that design can be a wide-angle lens to view—and change—the vast and varied world.

**Tom Weis**  
*Assistant Professor, Industrial Design department*  
 Rhode Island School of Design

Tom's undergrad courses include advanced prototyping, aquaponics and global security. Drawing upon a background in sculpture, cabinetry and wooden boatbuilding, Weis pursued Industrial Design which led his work to such places as the Cooper Hewitt National Design Museum, *Time* magazine's Best Inventions of 2010 and the Mass General Hospital's Russell MD Museum of History and Innovation. Weis is the co-founder of the design firms, Hello, We Are and the Steel House.







Verification is the act of checking whether countries are keeping their promises to reduce nuclear weapons or keep all nuclear activity peaceful.

## CAN YOU VERIFY?

*Team Verification* created a design competition as an invitation to graphically interpret the nuclear procedures, techniques, and industry jargon used by experts working to ensure that nuclear countries keep their promises. The resulting posters translate technical concepts so non-experts can understand both how verification measures contribute to global security and how new partners can help.



At first, most of the nuclear experts on this team thought we should look at ways to use new technologies to verify adherence to arms control agreements. Our initial hypothesis was that if we engaged a lot of smart tech people from Silicon Valley, all would be well. But we realized quite quickly that as a group we didn't all even understand the term "verification" in the same way. We certainly didn't have shared views about what ways we hoped new partners could help. If we didn't have common language to communicate effectively in this small team, we wondered, didn't this reflect a larger problem? It seemed we were experiencing a barrier that was likely pervasive: Before we can form effective partnerships, arcane technical language needs to be translated into terms accessible to people with complementary—but different—domain knowledge.

So we sought to abandon our own assumptions about language and meaning, devoting ourselves to learning what others hear and think when presented with language about nuclear challenges. We went back to first principles, asking people to tell us what the words "nuclear" and "verification" meant to them. We surveyed over one hundred people—some had nuclear expertise, but most did not. What we found confirmed our suspicion that they all had different views on what these words mean and what they imply for the field.



Cole Jorrissen

**A panel of judges including nuclear experts and professional designers awarded winners in four categories**

#### **The Designer's Choice**

(for overall quality of design)

#### **The Single Source Inspiration**

(for the submission that drew on only one expert's information)

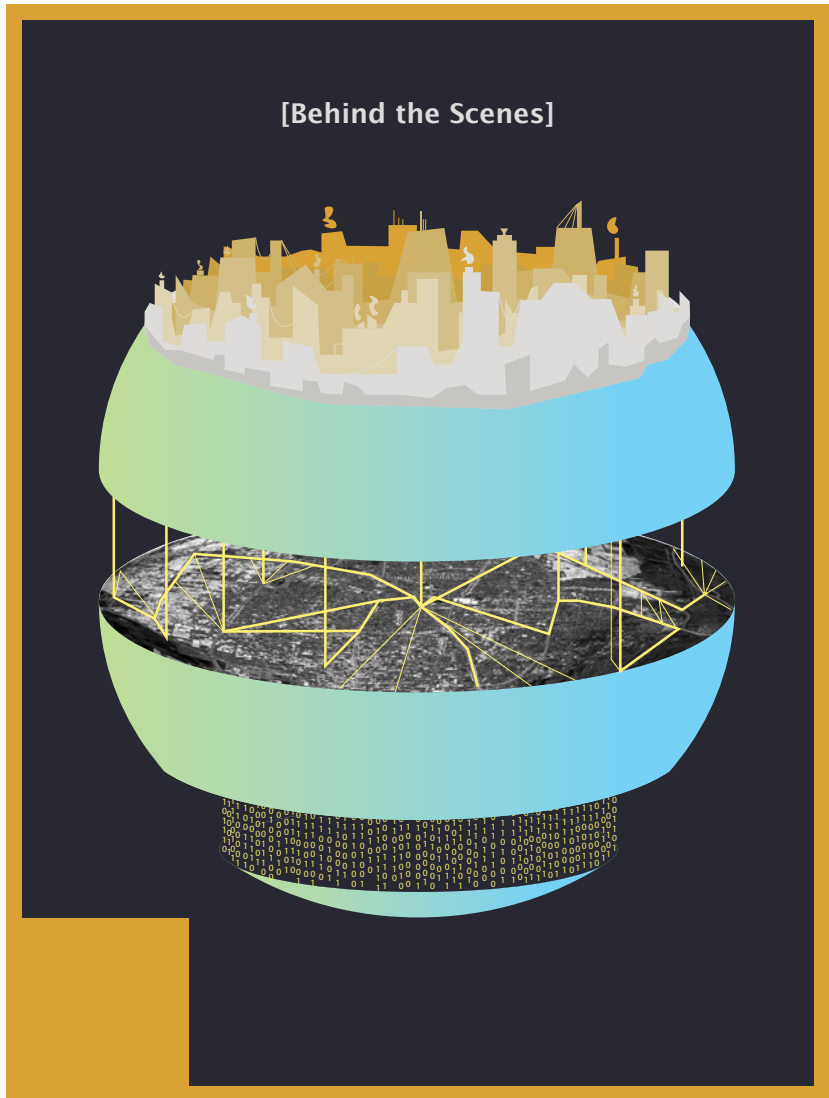
#### **The Multi-Source Inspiration**

(for interpreting a combination of experts' responses)

#### **The Expert's Choice**

(for efficacy and impact)





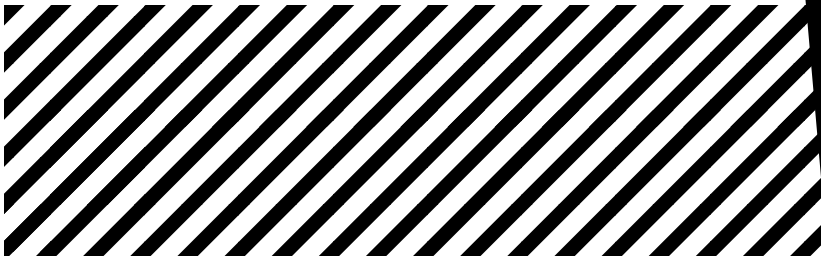
Megan Holzrichter



### A NEW HYPOTHESIS

**"Newcomers" to complex nuclear challenges like verification are more likely to form effective partnerships with experts if we can present the issues using language that facilitates transdisciplinary collaboration. The better we understand how our language is received, the better equipped we will be to improve upon it.**

We also need to understand what ideas are most intriguing or exciting to the partners we hope to attract, and we need to frame our challenges in such a way that our new colleagues can easily see themselves having a piece of the solution.





First, though, we wanted to think more about the function of what is essentially “tribal” language. Just as it communicates a sense of special understanding and belonging among its members, it also serves to keep others out. Our language (perhaps unintentionally) perpetuates the idea that you have to be a nuclear physicist or engineer, or have advanced degrees from institutions like MIT, to make a meaningful contribution. In that sense, the language we use reinforces the assumption that the nuclear threat is just too complex for the layperson to understand. While nuclear weapons pose an existential threat to us all, the complicated technical language we use implies that only governments and the cognoscenti have a place in the conversation. We stifle collaboration and discourage agency simply by using incomprehensible vocabulary.

the absence  
of something,

something  
is not there

that something  
you know is there  
is doing what it is  
supposed to

the process,  
going from  
where you think  
you are  
to where you  
want to be

is there  
anything

you don't know?



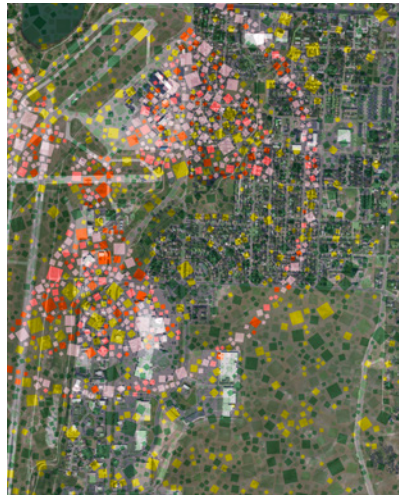
## OUR SOLUTION

We narrowed and refined our goal to “enabling greater connectivity and cooperation between experts and unconventional partners through the development of shared language.” Not only did we think it imperative to build language bridges between innovators across sectors, but we also recognized that new language had the potential to enhance understanding and trust between members of our community.

We considered what it would mean to follow the Reagan Administration’s adage “Trust, but verify” in the 21st century. In light of all that’s going on technologically—ubiquitous computing, data analytics, artificial intelligence, remote sensing—we thought about the tasks for which technology partners would be particularly well-suited.

Then we created a baseline by asking thirteen nuclear experts to explain the tasks associated with nuclear verification in language that could be understood even by young children, using the “Explain it Like I’m Five” (ELI5) framework popularized on Reddit. Still, easily-understood language proved elusive when terms like “retrospective dosimetry” popped up in the experts’ ELI5 responses.

Cole Jorissen, Lucas Roy, Alex McLaughlin (L-R)





**PERPETUA**  
SAFEGUARDS INSPECTOR  
INTERNATIONAL ATOMIC ENERGY AGENCY

Let me share my experience in one of my inspections. There was a receipt of fresh fuel assemblies and this receipt should be verified according to agreed requirements. The shipping documents on this transaction were already examined by the inspector. However, examining the documents was not enough. The fresh fuels should be seen with the inspector's eyes. This was complicated since the fresh fuel assemblies were individually stored, covered and locked. During the inspection, to confirm the serial number of each assembly, each containers should be unlocked and the cover should be lifted.

This was a time consuming job for the operator and he was not happy to do it. He raised the question: "Why do you have to look at each one of them, don't you trust me?" Instead of answering, the inspector asked the question: "If someone gave you a box, are you OK when the person says what is inside the box, or would you rather open it to see for yourself?" The operator did not answer. He continued opening and closing the container and the inspector was able to finish the job. Trust and verify!

**MORITZ**  
POSTDOCTORAL RESEARCH ASSOCIATE

Nuclear weapons are very powerful bombs. Just a single one of them can destroy a large city. The best way to avoid such explosions is to destroy the weapons before they are used. Many people work on that, in many different countries. However, countries are not yet sure how to destroy their weapons. They fear that other countries might keep some weapons during the process. It is important that all nuclear weapons in all countries are destroyed.

Here, scientists can help implementing a process called verification. Nuclear weapons are radioactive, the material inside sends out small particles, called radiation. The radiation signal is unique signal for each type of nuclear bomb. It is possible to detect these particles from outside the bomb with special tools. So far, there are several different tools for such measurements, but more development is needed. In the future, when countries start disarming weapons, the process would look like this: While destroying bombs, countries will invite people from other countries. These inspectors measure the radiation of each weapon before the destruction, and report back to their own country. Doing so, they verify that weapons are dismantled and destroyed, convincing states to trust each others' promises.

# EXPLAIN IT LIKE I'M FIVE





We took the conversation to the IAEA Innovative Safeguards Symposium in Vienna, Austria, where we presented our thinking about the relationship between verification challenges, language, and innovation. We found the audience's overall response to be positive and encouraging, reflecting a high degree of openness to new ways of thinking—and talking—about the issues. This helped us lay plans to take the “inside game” further in collaboration with international agencies, national labs, and others.

Meanwhile, we were pursuing our “outside game.” To see how potential partners might interpret and/or communicate key verification challenges, we created *Can You Verify?*, a website and poster competition. We posted thirteen of the clearest responses from the ELI5 challenge, in which experts explain what they do and where they need help, asking information designers to depict the challenges visually.

Irina Wang





Jamie Withorne

### THIS IS MUCH MORE THAN JUST A POSTER COMPETITION

It's proof of a larger concept, which is that it is possible to build an effective interface between the expert community and the rest of the world.

Because the challenges associated with nuclear weapons are growing more complex every day, and because the community committed to them is relatively small and insular, this type of interface is critical. Today's poster competition might just be tomorrow's nuclear grand challenge for collaborative, cross-sector teams committed to enhanced global security.



70

TEAM

**VISIBILITY**





How might we use  
cultural pressure  
and social influence  
to spark innovation and  
create policy changes  
that reduce or eliminate  
nuclear danger?

And how might we cultivate awareness  
and agency among a broad group of  
concerned citizens, providing them with  
a tool for active engagement?



## TEAM

## VISIBILITY

**Paul Carroll***Senior Advisor  
N Square*

Paul is an expert on a broad array of nuclear weapons topics, from the history and current status of US plans and programs, to international programs and treaty regimes. He has a particular expertise on the Department of Energy's nuclear weapons infrastructure and is an expert on North Korea's program. He has published articles and appeared as a commentator for a number of media outlets including The Daily Beast, Hannity, CNN International, AP Radio, Canadian Broadcasting Corporation and Al Jazeera America.

**Ariel Conn***Director of Media and Outreach  
Future of Life Institute*

Ariel oversees all online outreach and communication efforts, covering fields, including AI policy, autonomous weapons, nuclear weapons, biotechnology, and climate change. She holds bachelor's degrees in English and Physics and a Master's degree in geophysics, as well as experience mixing advertising, marketing, and scientific research. Ariel founded Mag10 Media, an organization dedicated to improving science communication.

**Kate Folb***Director  
Hollywood Health and Society Program*

Kate is a career professional in the entertainment education field. After a career in TV and music production/management, Kate has worked with the Hollywood, Health & Society, the Scott Newman Center, and the Media Project (a partnership of Advocates for Youth and the Kaiser Family Foundation). Kate holds a BA in Spanish from the University of Denver, and an MA in education from UCLA.

**Nicholas Fortugno***CCO/Co-Founder  
Playmatics*

Nick is a designer of digital and real-world games and co-founder of Playmatics, a game design company in NYC. He has been a designer, writer, and producer on dozens of games, serving as lead designer on the downloadable blockbuster Diner Dash, Ayiti: The Cost of Life, Breaking Bad: The Interrogation, and Body/Mind/Change. Nick is co-founder of the Come Out & Play street games festival, and teaches game design and interactive narrative at Columbia University and the New School.

**Jodi Gersh***Head, New Engagement Lab  
Public Radio International*

After 17 years at The Gannett Company/USA TODAY, Jodi became the head of the new Engagement Lab at Public Radio International. Over the years, she has worked in a variety of areas across many disciplines, but always with a focus on innovation and engagement. Her attention to audience and her skills with digital engagement fit perfectly with a mission focused on the intersection of journalism and engagement to effect positive change in people's lives.

**Zach Gonzalez-Landis***Transmedia Specialist  
Hollywood Health and Society Program*

Zach joins HH&S from NBC where he worked as a content writer in the digital marketing department and helped develop and maintain online content for NBC series and specials. Prior to NBC, Zach lived in Chicago where he worked in nonprofit marketing at the Steppenwolf Theatre and the Art Institute of Chicago while he wrote and performed sketch comedy and improv. He holds an MFA in screenwriting from the University of Texas at Austin.



**Meredith Horowski**  
*Global Campaign Director*  
 Global Zero

Meredith is the Global Campaign Director at Global Zero, the international movement for the elimination of nuclear weapons. She spearheads GZ's international advocacy strategy, creative campaigns, and public mobilization. Prior to joining Global Zero, Meredith managed college organizing at the ONE Campaign. She spent three years as a research assistant at the National Poverty Center. Meredith graduated from the University of Michigan's Gerald R. Ford School of Public Policy, with a focus on human rights and international development.

**Vincent Ialenti**  
*MacArthur Nuclear Waste Solutions Fellow*  
 George Washington University

Vincent holds a PhD in Anthropology from Cornell University and an MSc in "Law, Anthropology & Society" from the London School of Economics. Vincent's first ethnographic project explored how Finland's nuclear waste disposal experts grappled with deep time, death, and the limits of imagination. Vincent has been a U.S. National Science Foundation Graduate Research Fellow (2011–2016) and a Mellon Fellow at Cornell's Society for the Humanities (2015–2016). Alongside his academic publications, Vincent has written articles for NPR, *Forbes*, *Physics Today*, *Nautilus*, and other outlets.

**Carmen Macdougall**  
*VP Communications*  
 Nuclear Threat Initiative

Carmen is an award-winning communications professional with experience in public affairs and marketing in the private, public, and nonprofit sectors. At the Nuclear Threat Initiative she leads communications efforts that extend NTI's reach among policymakers and oversees education initiatives to engage broader publics. Her background includes work at Ogilvy Public Relations Worldwide, the US Department of Energy, Carnegie Endowment for International Peace, and the Congressional Commission on the Prevention of Weapons of Mass Destruction Proliferation and Terrorism.

**Allison Mussoline**  
*Brand Strategist*  
 Nucleus Strategy

Allison is a brand strategist who finds inspiration in the people and conversations around me. She has a knack for qualitative research and trend forecasting. She is most intrigued by the relationship branding has to the internal structure and functions of companies. She believes branding has a role to play in building a stronger emotional connection between an employer and its employees.

**Brian G. Payne**  
*Designer and Illustrator*  
 A TON

Brian works on projects that communicate complex ideas and concepts through graphic design, illustration and objects. This includes designing publications, creating original artwork, prototyping products, developing graphic identities, and making tools for interpretation and learning. Brian has a Master's of Industrial Design from Rhode Island School of Design and a BFA in Illustration from Maryland Institute College of Art.

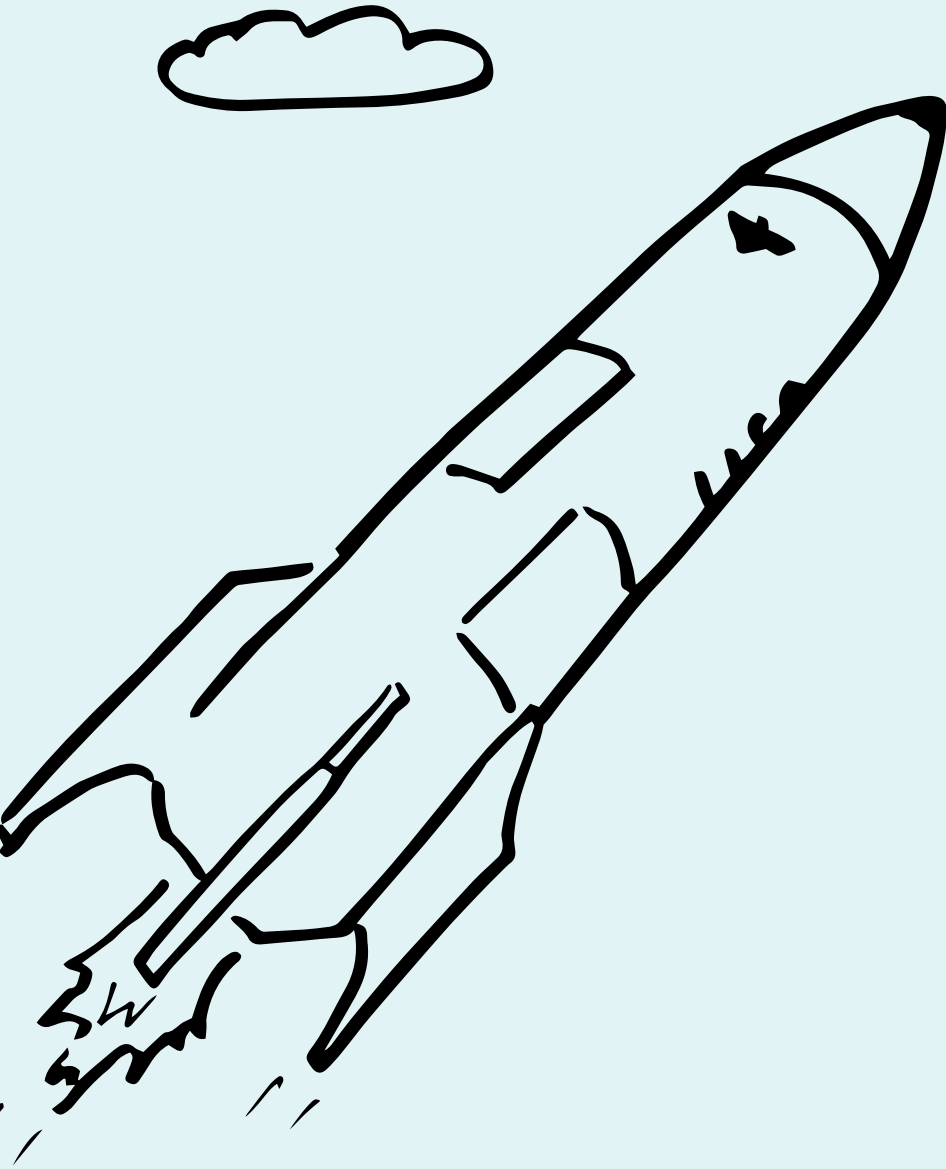
**Elizabeth Talerman**  
*CEO*  
 Nucleus Strategy

A tool-builder and teacher, Elizabeth works with organizations to establish meaning, clarify purpose, streamline decision-making and turn strategy into action. A recent recipient of a MacArthur grant for work on engaging new generations in efforts to reduce the threat posed by nuclear weapons, she is the leader of Nucleus Strategy, on the faculty of the School of Visual Arts Masters in Branding program, a frequent lecturer at Barnard College, and on the boards of PopTech and Mohawk Fine Papers.

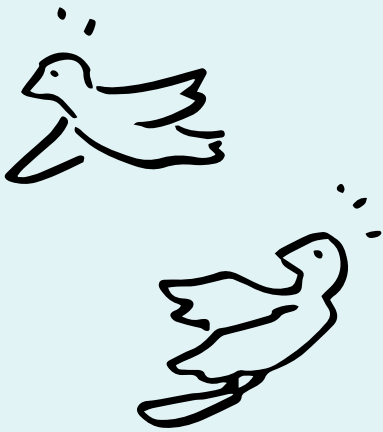
**Alex Wellerstein**  
*Assistant Professor*  
 Stevens Institute of Technology

Alex is the author of *Restricted Data: The Nuclear Secrecy Blog* and the creator of the online NUKEMAP nuclear weapons effects simulator. He is a co-PI on the Reinventing Civil Defense Project, sponsored by the Carnegie Corporation of New York. He is currently working to complete his book on the history of nuclear secrecy in the United States, under contract with the University of Chicago Press.









## KICKING THE NUCLEAR HABIT

In thinking about how to make nuclear threats more visible and accessible to the public, *Team Visibility* noted that many of us had only a vague consciousness of the prospect of nuclear war, and it was shaped like a billowing mushroom cloud. Seventy-plus years ago, after two Japanese cities were wiped out, we were left with Godzilla, an arms race (that's heating up again), and an addiction to mutually assured destruction. Oh, and Duck and Cover. Not the kind of civic engagement that's going to keep us safe today.



We're in a complacent slumber. For most of us, the issue of nuclear is so big and so far away that we just compartmentalize it. While we push it aside, the problem is actually getting worse. We have to wake up, take control, take ownership. The good news is that we're living in a golden age of activism. People are more politically activated than they have been in decades. We have the tools and the organizing power to scale nationwide protests in a matter of days or even hours.

Research shows that when 3.5% of a population is actively engaged in a movement, the movement succeeds. That's been demonstrated on every issue from slavery to civil rights, from women's suffrage to Apartheid. Right now, in the US, that means approximately 11 million people have to be actively engaged. That's a lot of people, but a goal that is absolutely within our grasp—especially with the organizing tools available today.

Our team's job is to find ways to pierce through complacency and to do that in an empowering way. We don't want to scare the crap out of people and paralyze them, but we do want to open up their minds to creativity, to dialogue, to connect with their curiosity, to foster their sense of indignation, and to channel their outrage. We know outrage is one of the most effective things to spur people to action. We can be just one hashtag away from creating a safer world.



artwork by  
Brian G. Payne

**When 3.5% of a population is actively engaged in a movement, the movement succeeds. To reach that number we need participants.**



## OUR SOLUTION(S)



One of the ways that we can get people to take action is by informing them, and one of the best ways to inform people is by entertaining them. It's no coincidence that people like Samantha Bee, John Oliver, Jimmy Kimmel, and Trevor Noah are so successful. They may call themselves comedians, but they are the daily explainer for millions of Americans who are trying to keep themselves informed. When we are barraged by all these awful, despicable things happening in the world, we turn to humor to help us make sense. We also have all these memes that show up on the internet, and when we see them often enough we're able to translate them into our actual physical world.

Our goal is to create a new conversation about nuclear weapons to catalyze curiosity, dialogue and engagement. As cartoonist Tom Fishburne says, "Humor gives us a way to bond with others. Opening up conversations and making people feel connected to each other. It's also disarming. Letting us talk about things that we'd otherwise be uncomfortable bringing up."

## Kicking the Nuclear Habit: Three Approaches

In *Atomic Comic Roadblock*, artists create comics to appear across media outlets on 7/16/19—the anniversary of the Trinity Test.

*Atomicon* is a traveling carnival with interactive exhibits that illustrate how nuclear risk is more a part of our lives than we may think.

*Nuclear Experts Get Bombed* invites nuclear experts to share fascinating stories of our nuclear past, present, and feasible future.



## The confounding and existential nature of a nuclear threat makes most people just shut down, but what can we accomplish if instead we raise our voices together?

### THE ATOMIC COMIC ROADBLOCK

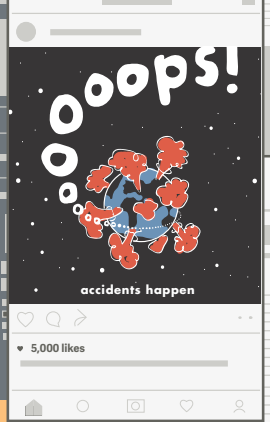
The Atomic Comic Roadblock is designed to provoke curiosity and create conversation. What if one day you looked up your favorite online cartoonist, or opened your newspaper to check out the comics or watched a late night skit and they were all about nuclear weapons? What if it happened on a day of resonance? July 16, the anniversary of the Trinity Test, the first atomic explosion. The atomic comic roadblock can shine a light on the absurdity of our nuclear dilemma and spark a wave of empowered and outraged engagement through humor.

We pitched the idea to cartoonists, illustrators and comic writers from across the globe, who all responded positively with interest. We think this idea has power. We also can envision opportunities for leverage through media coverage of the initiative, exhibits of original art, a website to encourage engagement and action, and more. We think humor disarms and the atomic comic roadblock is within reach.

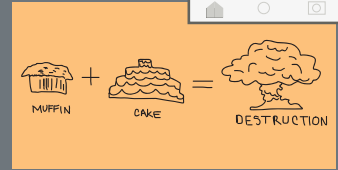
Comics created by Brian G. Payne helped to show how the idea could spread across different media.



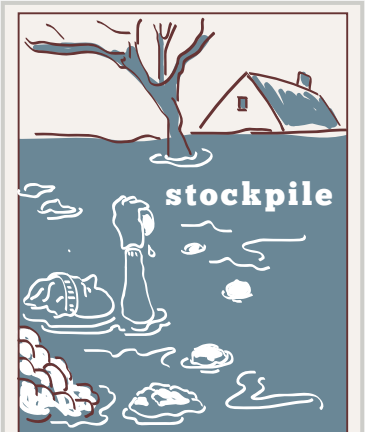
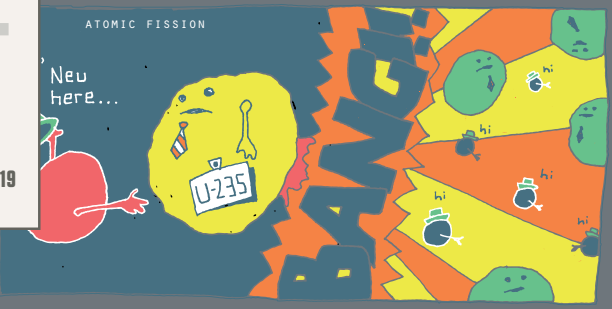




7.16.19



7.16.19



7-16-19





# ATOMICON

## DEFUSING NUCLEAR THREATS

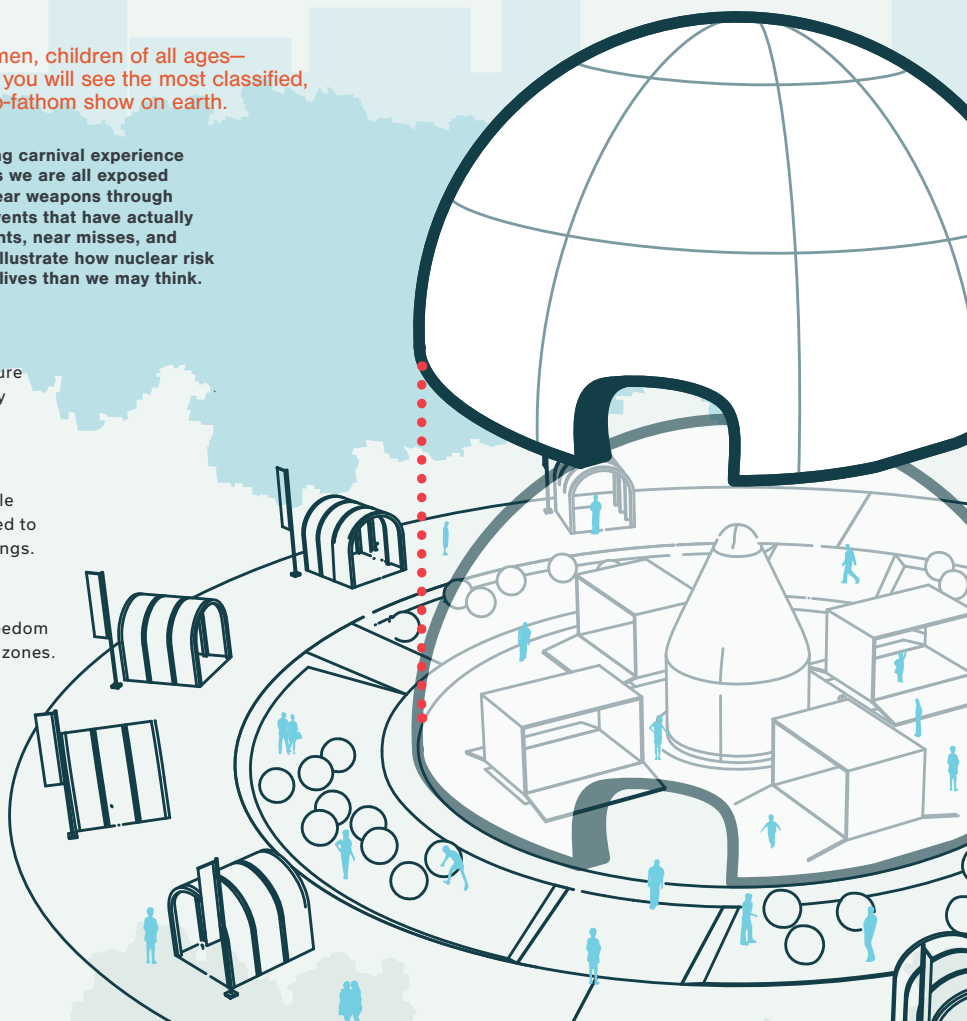
Ladies and gentlemen, children of all ages—inside these doors you will see the most classified, dangerous, hard-to-fathom show on earth.

Atomicon is a traveling carnival experience that conveys the risks we are all exposed to as a result of nuclear weapons through the hard-to-believe events that have actually occurred—the accidents, near misses, and miscalculations that illustrate how nuclear risk is more a part of our lives than we may think.

Inflatable dome structure can be installed quickly and houses up to five interactive exhibits.

Modular, interchangeable parts can be customized to location and surroundings.

Accessible and open structures allow for freedom of movement between zones.



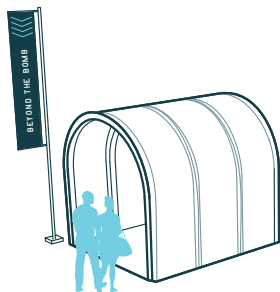


**What could we accomplish if we made nuclear weapons approachable? What does it mean to make something so scary more inviting? How does one make something that frightens people or is dangerous into something that one can reach out and touch, and maybe even introduce one's children to?**

## ATOMICON

Carnivals invite families into places that are dangerous. They're dangerous with rides, they're dangerous with animals, they're dangerous with scams. Carnivals ask us to engage imaginatively in dangerous scenarios in a way that's actually safe and approachable. What if we took the issues surrounding nuclear weapons and brought them to a space that was both approachable and scary?

That's how we imagine Atomicon, a traveling carnival experience that conveys the risks we are all exposed to as a result of nuclear weapons. We imagine a festival setting that exists in four layers. The outermost layer is a spectacle, something designed to attract. As you get closer, the nuclear topic starts to become more apparent and you start to see activities around those themes, introducing concepts. As you get deeper into the experience, we can give you more factual information. By leading you in through spectacle, we can introduce you to information and have you exit with real interest and real curiosity.



### FOOD + KNOWLEDGE VENDORS

Stop into these bunkers to gather more info on what's happening in the current field of nuclear weapons and meet people who think about them every day. Grab a bite to eat from local food vendors who created special atomic-themed treats just for this event.



## ZONES

1

Vendor bunkers offering nuclear knowledge and nuclear-themed food from a mix of local and international organizations.

## LAUNCHPAD

2

Energetic activity that demonstrates the reactions happening on the atomic level during a nuclear explosion with big inflatable spheres.

## ATOM SMASH

3

Inflatable structure housing the event's main interactive exhibits and serving as an iconic attraction for the surrounding area.

## VISIDOME

MODULAR EXHIBITS  
BOOM BUDGET  
FIND + VERIFY

INSTABILITY  
AVERT / ALERT

## LOCATION ANALYSIS

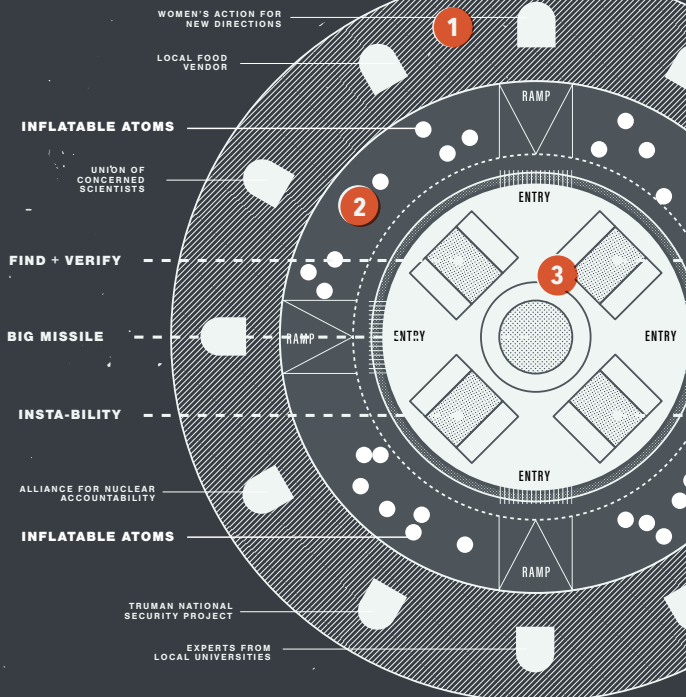
**Atlanta**  
near Savannah River Site, southern, large population; also in same state as one of only two US nuclear sub bases

**Kansas City / St. Louis**  
midwestern, legacy of nuclear site in the city so some environmental linkage

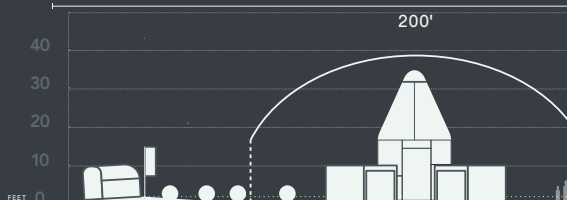
**Seattle**  
west, same state as Hanford, a huge facility with massive environmental issues, and Seattle is the second US nuclear sub base

**Denver**  
western but not coastal, near Rocky Flats site, also near central Intercontinental Ballistic Missile bases

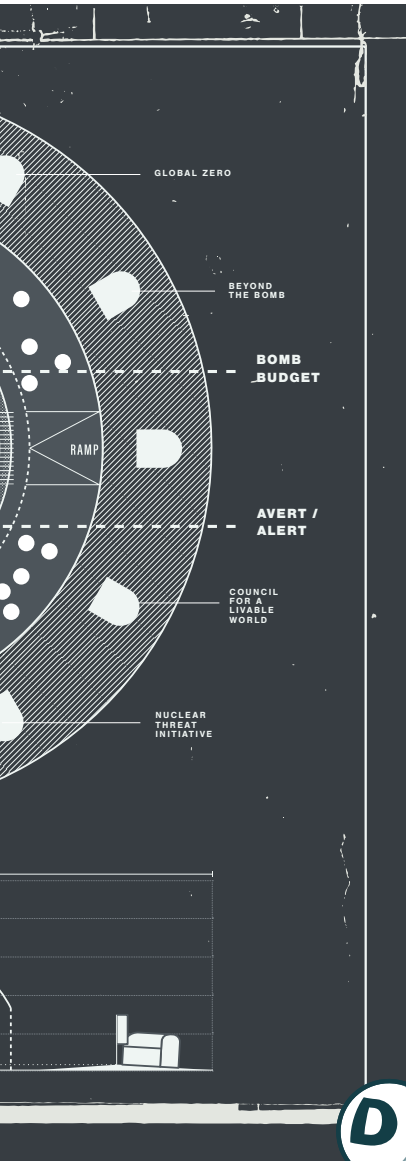
## PLAN VIEW



## ATOMICON







Proximity sensors activate sounds upon contact. Atoms react differently to one another based on the science.

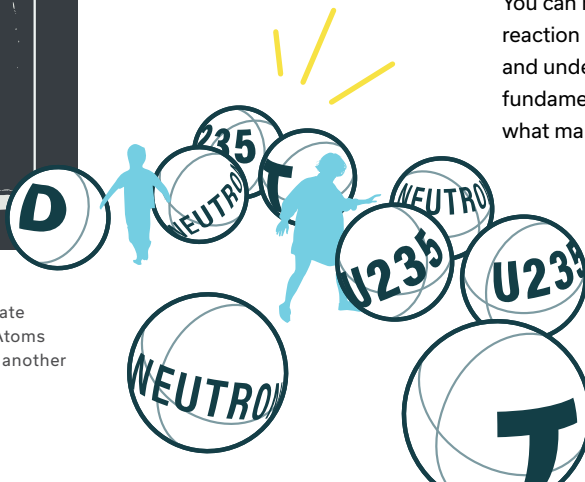
All of it's really just designed to be fun and big and slightly scary the way carnivals can be. You're eating something funny and drinking something blue. You can see game activities happening around you like Atom Smash. Experiences like this work as entry points to understanding overwhelming concepts through play.

As you get further in, activities that you're engaging with start to present you with more detailed facts. The experience never stops being playful, but it can now give you more information because you've been primed for it. It's a game, so you get to play it and you get to see the outcome, but the game that you're playing is something that policy makers play—and maybe that causes you to think about those policies differently.

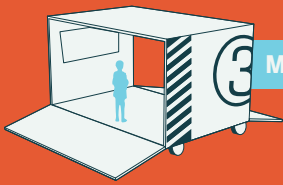
Now that you have been immersed in aspect of the nuclear threat, we can give you more information tuned to your interests that were sparked by those activities. We can make contact with people in the field so that you who came in just looking for a spectacle are now activated, engaged, informed and potentially taking a step further to be involved.

### ATOM SMASH

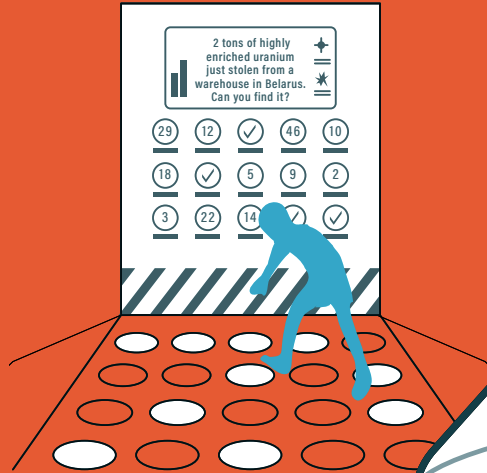
Push around different kinds of atoms and see how they react when you put them together. You can mimic a nuclear chain reaction at the atomic scale and understand some of the fundamental principles involved in what makes nuclear weapons work.





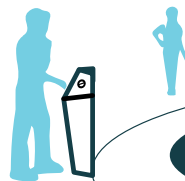


## MOBILE INTERACTIVE EXHIBITS

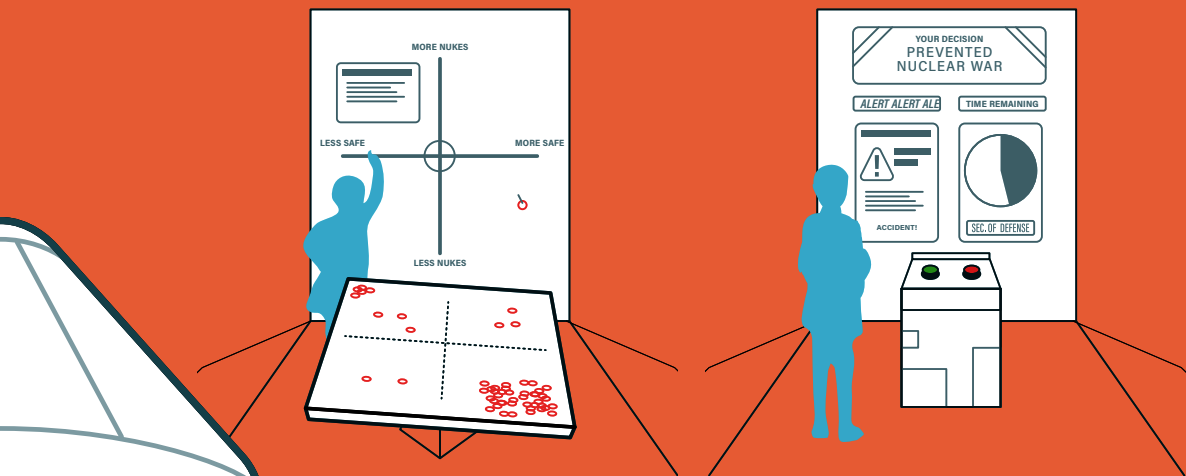


**1 BOOM BUDGET**  
If you had a trillion dollars, what would you spend it on? Move around the money chunks between barrels and decide where the government should focus its funds.

**2 FIND + VERIFY**  
Some 15,000 nuclear bombs exist on Earth, and enough nuclear materials to make tens of thousands more. You can help reduce these numbers, but you have to be confident in the information you get and the way you go about it.







4

## INSTA-BILITY

Place a ring on the chart in the location that best represents where you stand on nuclear weapons. Where do you hope we are by 2045?

5

## AVERT / ALERT

This exhibit will put you in the shoes of real-life people who found themselves in an impossible fix: decide whether a nuclear attack was actually happening. Do you launch? Pause? Don't worry, only millions of lives depend on you.

6

## BIG MISSILE

Turn the two launch keys to display facts about nuclear missiles and weapons, from costs to explosive force to accidents that have happened.







When you chose this bar, I thought ...



this is very much what the nuclear weapons age in the US has been like ...



—very little daylight for the general public.



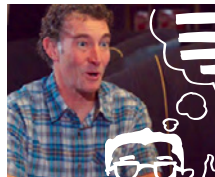
... a new thing called Born Classified ...



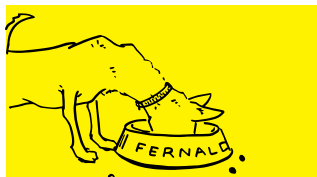
... sounds like the name of an '80s punk band.



Say you just had some wild idea about how to increase the explosive force of a weapon ...



—that was instantly so



There's a dog food company you may know that also has red and white checkers as their logo ...



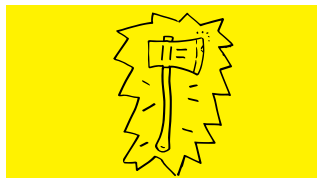
... a small citizen's group started to ask questions.



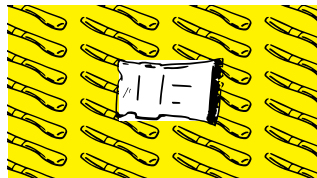
... citizens finally understood what was happening—they were getting poisoned.



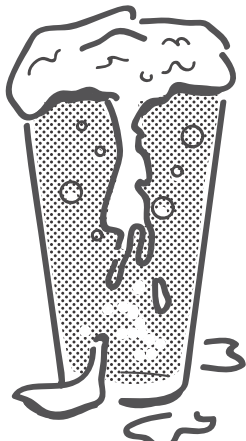
This was the beginning of a wave of public awareness



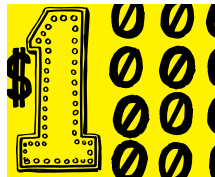
If you have an old axe ...



... what we are building is a bunch of new axe handles

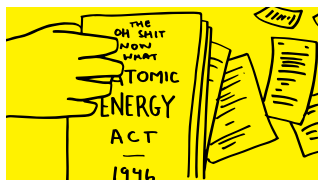


It's to the tune of a trillion dollars ...



... just to build the delivery system over the next 25 years

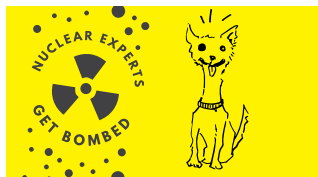




A very special kind of secrecy was born ...



There was a facility called The Fernald Feed  
Materials Production Center ...



of what these facilities  
were doing and the impact.



It's about making decisions as a country about  
these resources and the money we are spending.

artwork by  
Brian G. Payne

## NUCLEAR EXPERTS GET BOMBED

*Nuclear Experts Get Bombed* is a concept that was inspired by a dinner in New York with a couple of nuclear experts whose names we won't say out loud. They had a few drinks while talking about the nuclear threat. That's when we had the idea for an educational and entertaining video, and/or podcast series. It would feature renowned nuclear experts from across the country in casual conversation about nuclear history, policy, and science—while easing their existential dread in the company of their favorite cocktail (or two or three).

Nuclear Experts Get Bombed is fun, it's quirky, it's informative. The series aims to leverage nuclear experts with the fascinating and largely untold stories of our nuclear past, present and feasible future in order to bring the discussion of imminent nuclear dangers to a mainstream audience. Think *Comedians in Cars Getting Coffee* meets *Drunk History*.

Although *Nuclear Experts Get Bombed* could take a variety of forms, we envision it as a short digital series that could live on a platform like YouTube and could also roll out as an audio-only podcast on iTunes. With an amiable host (preferably a comedian), the show will welcome a guest or guests with expertise and/or professional experience regarding nuclear subjects. Each episode will focus on a separate topic, and the information discussed would be supported by quirky animations. We created a short pilot (on a very, very low production budget with lots of donations and favors thrown in). When you watch it, imagine what it could be: clinking of glasses, people in the background chiming in, another round.





In the end, our project is about finding ways to engage, enrage, and entertain our way to a nuclear weapons-free world. Taken together, these concepts play with humour, irony, pleasure, and danger to build awareness and cultivate agency. Once people know there is a need for something to be done, and have a sense that they can do something about it, it's much easier for them to get involved. **Goodbye mushroom cloud, hello movement.**



... information has to be as accessible to the public as possible to make informed decisions



Is there anything that's the blind spot, that we still don't know?  
Sorry thats classified.



... we know a heck of a lot more now than we used to.





# PRECISION

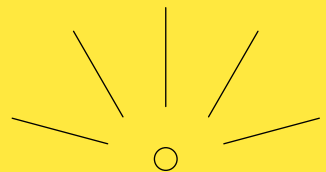




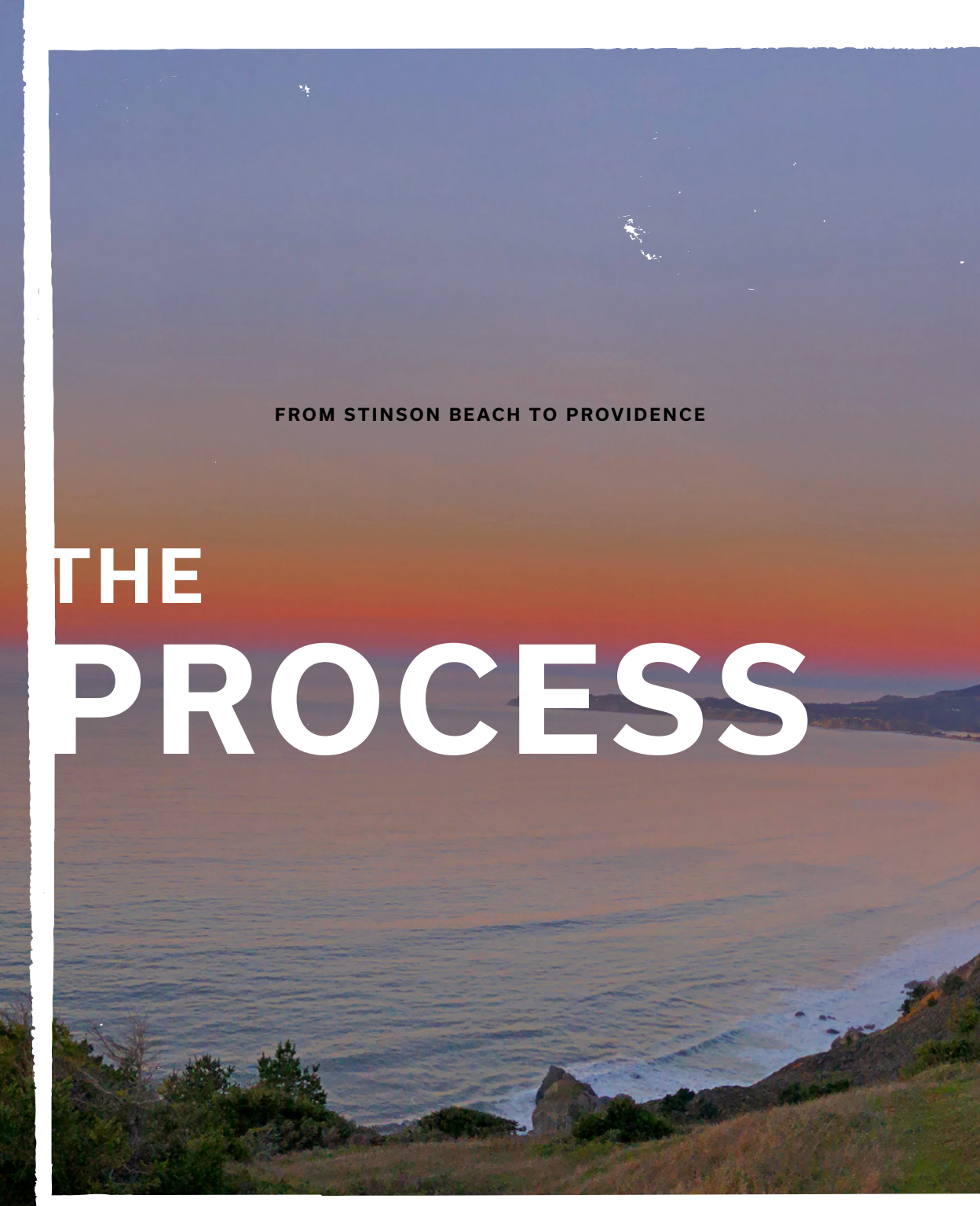
THE COLD WAR MAY BE OVER, BUT  
TODAY'S NUCLEAR SECURITY SITUATION  
IS MORE VOLATILE THAN EVER. WHEN  
IT COMES TO NUCLEAR WEAPONS,  
PANDORA'S BOX IS ALREADY OPEN.



let's not forget  
the rest of that myth:  
at the bottom  
of the box lies hope.








FROM STINSON BEACH TO PROVIDENCE

# THE PROCESS





Nuclear risk is  
by definition  
"super wicked"  
—that is, a jumble  
of many different  
types of problems,  
from dilemmas to  
puzzles to conflicts,  
for which no central  
authority is responsible.

Stinson Beach, CA  
11.30.17

COHORT

PHOTO: BRIAN G PAYNE

01



# What it takes to tackle a problem of this size.

Dr. Jonathan Rosenhead,  
*London School of Economics*

**Use group interaction and iteration.**

**Generate ownership of the problem formulation through stakeholder participation and transparency.**

**Focus on relationships between discrete alternatives.**

**Facilitate a visual representation of the problem space for the systematic, group exploration of a solution space.**

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# Audience Risk Finder

GAMIFY!  
INCENT  
ENGAGEMENT  
=  
CONSPIRATORIAL

COMMUNITY  
AMONG  
DISCONNECTED  
PEOPLE CONNECTED

CONTEXT  
TO CARE!  
WHAT TO  
LOOK FOR

YOU CAN'T  
FIX WHAT  
YOU DON'T  
KNOW

YOU CAN  
FIX IT  
IF YOU CAN  
SEE IT

incentives  
within  
gamification

Point  
System  
for action

ACCESSIBLE  
ROUTES  
TO ACTION

GEO.  
CACH

GAMIFY

incentives  
within  
amification

WHAT YOU  
DON'T KNOW  
CAN HURT  
YOU

## AUDIENCE

# RECOGNITION FOR RISK REDUCTION

OF  
ENGAGEMENT  
ASSUMING  
PEOPLE  
WILL  
PARTICIPATE

THE NUCLEAR  
WORLD

ING

LA  
ETING

37

ER

IKS

Nuke

# LONGING



## WICKED PROBLEMS AND SUPER WICKED PROBLEMS

In 1972, UC Berkeley Professor Horst Rittl, responding to failures of contemporary planning methods, defined a “wicked” problem as being one that is highly resistant to resolution because it has these 10 key characteristics:

|  |   |
|--|---|
| <b>No definitive formulation.</b>                                | <b>A symptom of another problem.</b>                                      |
| <b>Problems bleed into each other.</b>                           | <b>No definitive scientific test.</b>                                     |
| <b>Solutions can only be good or bad, not true or false.</b>     | <b>Trial and error tests difficult.</b>                                   |
| <b>Teams must literally make things up as they go along.</b>     | <b>Every wicked problem is unique.</b>                                    |
| <b>More than one explanation, each depending on perspective.</b> | <b>Those working on wicked problems are responsible for the outcomes.</b> |

In 2012, Levin, Cashole, Auld, and Bernstein updated the definition with four characteristics that made a problem super wicked:

|  |  |
|--|--|
| <b>There is no central authority.</b>                              | <b>Those seeking to solve the problem are also causing it.</b> |
| <b>Policies discount the future irrationality of participants.</b> | <b>Time is running out.</b>                                    |

*The good news is we know a few things about how to approach a wicked—or super wicked—problem.*

First, it is critical to get an aerial view of the whole problem space. Second, we have to break the problem into tractable pieces, knowing that the solution to each will help resolve the whole.

We know how important it is to work iteratively and collaboratively and to accept a lot of ambiguity for a lot longer than it’s comfortable. And we know it matters less *where* you start than just *that* you start, because any strand you pull will take you to all the other strands. Every question answered will lead to other questions, information may never be perfect or fully realized, and, at times it can feel like much of the problem beyond your control. How do you make meaningful progress in those circumstances? Research shows that creative processes measurably flourish in groups where minority or deviant opinions are voiced. So, you find leaders who tolerate risk and error, and create the conditions for “creative deviance” from the norm. Those leaders need to come from across the system: from government, philanthropy, the military, and the private sector.

Those leaders have to understand when to empower the “lone genius” and when to call on the intelligence of a cognitively diverse group. There is interesting data about what happens when one person with a fire in their belly takes an idea as far as she can before being joined by a second person with very different problem-solving style and experience—the pair begins acting as one and take the idea as far as they can together. When joined by a third collaborator, as different from the other two as possible,

Nuclear theft and smuggling is an alarming concern in a world in which we have 2000 tons of nuclear material—not all of which is properly secured or even accounted for. In short, nuclear weapons are likely the greatest threat to global security today.



the trio acts as a single multifaceted unit. According to researchers, a trio managed this way can bring virtually as much valuable perspective to a problem as would a much larger group.

A tenet of the Innovators Network is the use of the “charrette,” a dedicated project space in which ideas are rapidly given shape, iterated and reworked. A charrette is more visually-oriented, tactile, immersive, and experiential than a normal professional workshop. The charrette also requires a very different approach to using physical space.

For our first charrette—and the inaugural meeting of the Innovators Network—we chose the Northern California town of Stinson Beach. We put team members up in private homes instead of hotels and met at the local community center instead of in a ballroom. What would





otherwise have been an ordinary conference became a shared life experience. We ate at the local diner and walked the beach together in the evening, getting to know each other personally, swapping stories about life and work. This helped build the bonds and trust that would keep fellows working together through a largely remote collaboration process.

**Stinson Beach has a little-known historical connection to the issue that brought us there: In the 1940s—during the Manhattan Project—“father of the bomb” Robert Oppenheimer regularly spent time in Stinson Beach at the home Haakon Chevalier, professor of French and a translator at the Nuremberg Trials. Oppenheimer allegedly later betrayed Chevalier to the House Subcommittee on Un-American Activities, sending Chevalier into exile for the remainder of his life.**





To develop the charrette, and facilitate the year of work, N Square partnered with Nucleus, a strategic design firm.

N Square then polled all members of the Innovators Network to gather information that would help form four teams. Two teams were primarily focused on technological solutions and two on messaging, social, and cultural dynamics. Each challenge was defined sufficiently broadly to allow teams to define their own priorities and direction.

Each of the four teams had a nuclear expert as an “anchor” or “client” for the team’s work. Yet, the unconventional composition of the teams is what distinguishes this effort.

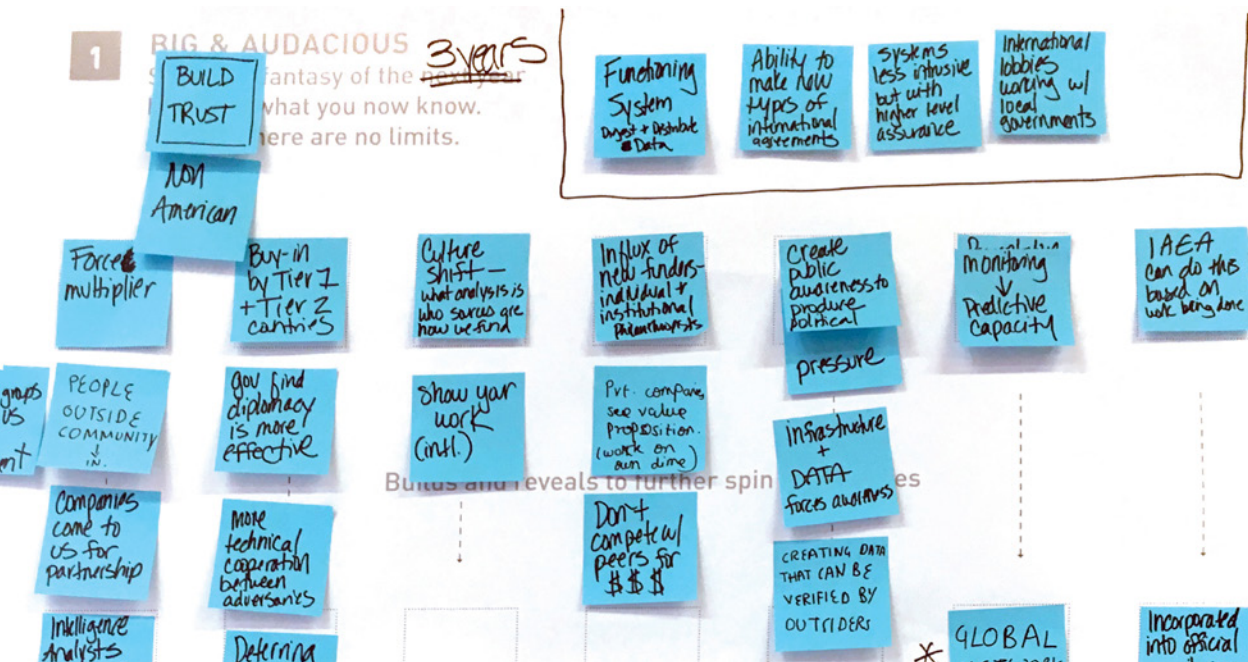
N Square and Nucleus provided participants with a step-by-step workbook that laid out a specific, human-centered design approach. The intention was that participants could learn and apply a replicable innovation methodology rather than just hacking together solutions.

In order to form working groups for the charrette, N Square interviewed a cross-section of nuclear threat experts about their priorities for collaborative work, asking:

What are you working on now that would benefit most from collaboration with others—specifically those with expertise in emerging technologies, media, and other nuclear threat experts?

In thinking about that work, what do you most want to learn from others?

What types of new partners could be of the greatest help in your work?





Along with a nuclear expert,  
each team included:

A project manager

A facilitator

An industrial or graphic designer

A current or potential funder

"Catalysts" from the worlds of  
technology, gaming, media, etc.

Other nuclear experts

In addition to the educational and facilitative resources made available to the teams, N Square provided each with \$10,000 budgets. Some used the funds to obtain research assistance, others to work with graphic designers to produce high-quality pitches for potential funders, others to fund extra in-person encounters, or retain outside expertise.

Over the course of the year, Cohort 1 worked towards a summit in November 2018 where final projects would be presented to an invited audience. With this event N Square would concurrently launch Cohort 2, intending to build on, and expand on the work and lessons learned from Cohort 1.

2

## TEAM'S ODYSSEY

Record multiple stories or  
land on one big, sharable idea

Global network of open  
data analysts working to  
impose + + provide transparency to proliferation.

proliferation

## OUR INTERESTS

How / why monitoring

Agreement  
treaty  
monitoring

Anonymous  
data  
patterns

Point us  
to areas  
of concern

3

Break out  
Countries

IAEA

Risks/  
Crises/  
Nuclear  
flashpoints

Media:  
photos,  
video,  
remote sensing

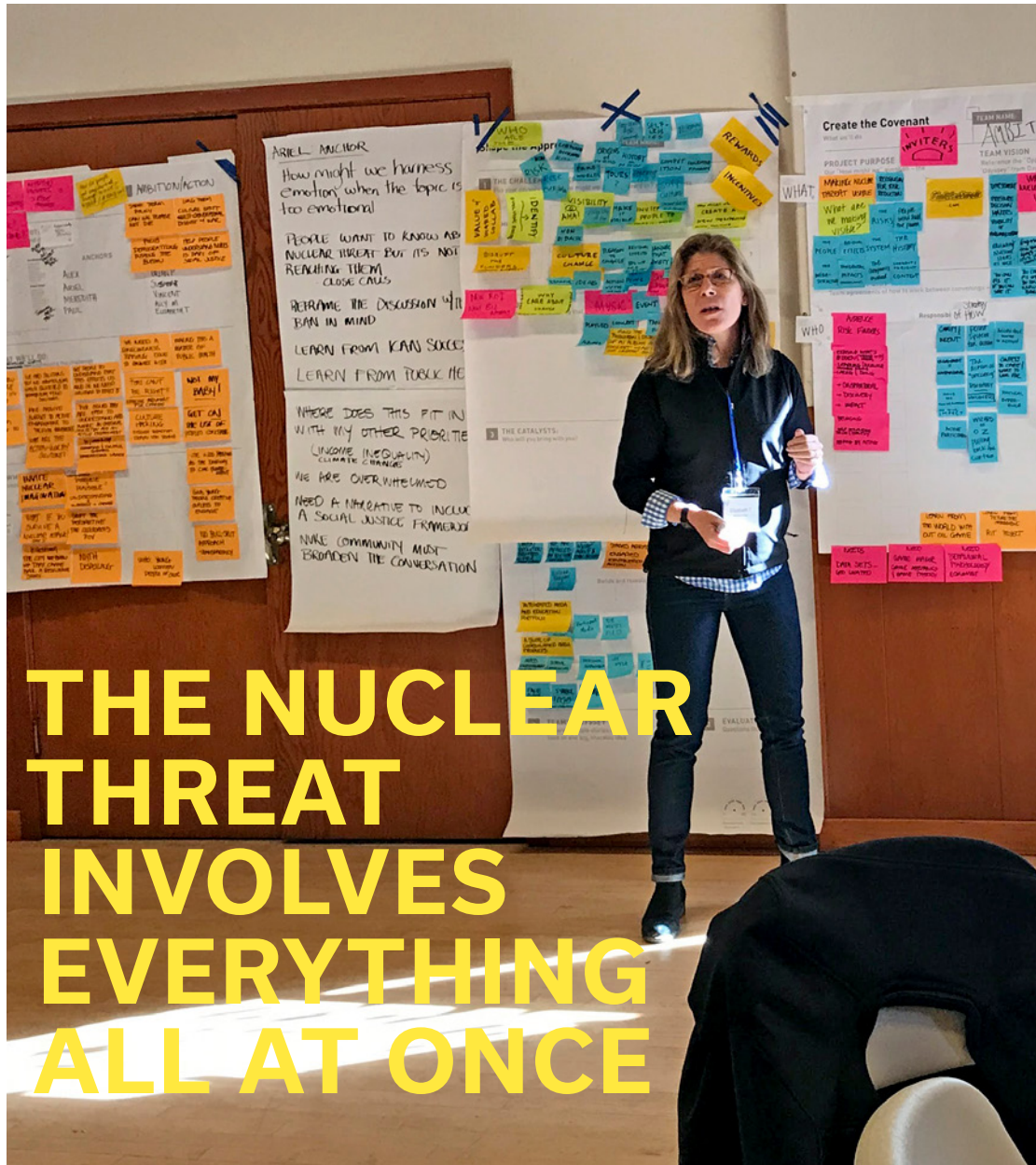
Managing  
non-text  
data  
(video, photos,  
etc.)

SENTIMENTAL  
ANALYSIS

How does  
monitoring  
work?

Career  
Structure





**THE NUCLEAR  
THREAT  
INVOLVES  
EVERYTHING  
ALL AT ONCE**















# Importance of PLAY

Agency  
=  
Exploration

Don't  
want to  
make  
obvious

~~storytelling~~

Awareness  
of Hints  
clues

"Finding  
your  
way"

I DID  
THAT!

## OUR DESIGN TOOLKIT

Design work involves a mixture  
of exciting creativity and the  
hard work of coordinating efforts  
and exchanging knowledge.

Here are some of the tools  
we used to make our work.

- |                      |                            |
|----------------------|----------------------------|
| Interviews           | Team<br>Conference Calls   |
| Broad Surveys        | In Person<br>Meetings      |
| Storyboarding        | Basecamp and               |
| Personas             | Message Boards             |
| Scenario Building    | Speculative<br>Prototyping |
| Crowdsourcing        | Making Physical<br>Things  |
| Precedent<br>Finding |                            |

+

Constraints

▷

Explore

Designed

7-Layer  
Cake Version

INCENTIVE

PLAYFULNESS

SIMULATION

EMBODED  
EXPERIENCE  
↓  
LEARNING

DOING  
NOT  
TELLING

WHEN  
REAL

2 WAYS  
TO BUILD  
GAMES

#1  
INCENTIVES  
lines up  
w/ what you  
are teaching

#2  
Build  
Model &  
see How  
Explore

Negative  
possibilities

INCENTIVES  
pull you  
toward

Real  
World  
Impact

~~SERIOUS  
STAKES~~

~~FREE  
RICE~~

~~OBVIOUS~~

~~COMPLETE  
KNOWLEDGE~~

~~LITERATURE~~

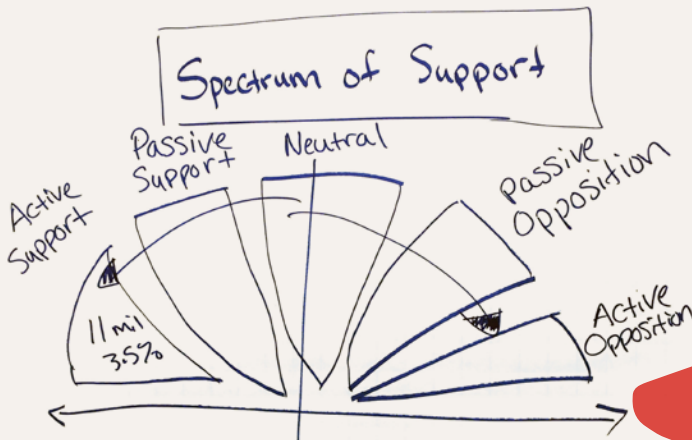
GAM



★  
TEAMS EXPECTED TO WORK TOGETHER  
OVER THE COURSE OF A YEAR TO  
PRODUCE VIABLE CONCEPTS THAT ADDRESS  
SIGNIFICANT ISSUES IN NOVEL WAYS.

The following pages present a selection of early prototypes teams created in order to explore and develop their ideas.

Purpose: 3.5% of population  
active in movement (11 million people)





# In-Their-Life" Storyboarding

BADGES OF MASTERY

CAN EATEN BRIDGES IN THE SUBWAY GET A PRACTICE DATE AND EVEN GET COLLEGE CREDIT FOR THEM? (Joke about the subway being a bridge over a river of traffic)

Hmmm I have this work project I'm coming to!



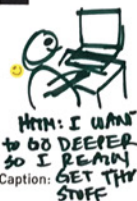
Now this is such a cool experience!

ESCAPE THE ROOM

PINS DOWN THE CORNERS OF ALL MAJOR ISSUES in this & PROBLEM SPACE - HAVE TO ENCOUNTER! SAVE ALL TO GET OUT

- \* deterring things in 21st century
- baronial enablers of dis/m/culture
- prompt launch
- hunger prior
- diplomacy

5



MMH: I WANT TO GO DEEPER SO I REAM GET THY STUFF

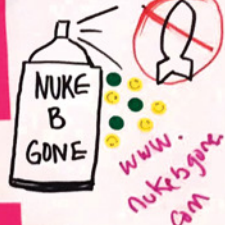
Caption:

WOW! ATLANTIC / THE BULLETIN IS PARTNERING ON THE VERY SAME SET OF CHALLENGES I ENCOUNTERED IN THE ESCAPE ROOM... AND NOW I WANT TO FOLLOW BULLETIN & THEIR PARTNERSHIP IN/RE/ALIZING on the many central challenges!

Later night that night



THEATRICAL IMAGINATION INVITATION



www.nukegone.com

"I'M HERE TO TAKE CARE OF YOU" IT'S EASY

8

PICKS CHANGES OF THE FUTURE ARE TO NOT PRODUCE

NUCLEAR ON MY

Caption:



an and have you seen this funny? Oh yes, this is the first bit

9



Caption:

YOU NEED GET IT THIS WAY... ENTRY INTO THE ISSUE

AND IT TAKES OUT THERE IS A VERY COHERENT X-CHANGE COMMUNITY/SEE PROBABLY WITH ACHIEVING!

IT'S A NATIONAL CAMPAIGN - MY FRIENDS IN LA HAVING SIMILAR EXPERIENCE & THE SAME 12 ISSUES ACROSS COUNTRIES

- NRDC
- UES
- TED
- BURNER
- GLOBAL ZERO ROOMS
- ATLANTIC
- PEI
- LEAR
- ART
- RISD
- POSTER
- NETFLIX
- CHICAGO PUBLIC SCHOOLS

DESIGN, ART, CONTENT, CULTURE ALL RELATE

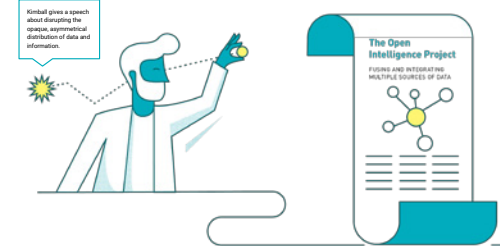
I CAN BRING MY CREATIVE THOUGHTS +

THIS NEEDS

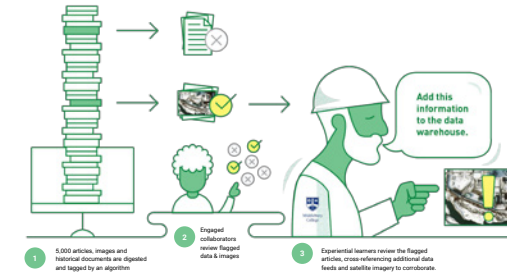
each group provides the 10 ways for central thinkers to explore the



## 1: Kimball's Great Unveiling



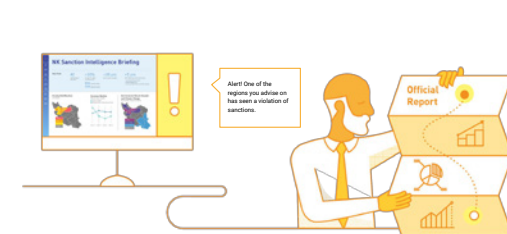
## 2: Engaged Collaborators Run a Mechanical Turk Service Behind the Scenes / Experiential Learners Provide Confirmation



## 3: Isa's Discovery



## 4: Proprietary Data Analysis Used by Hans



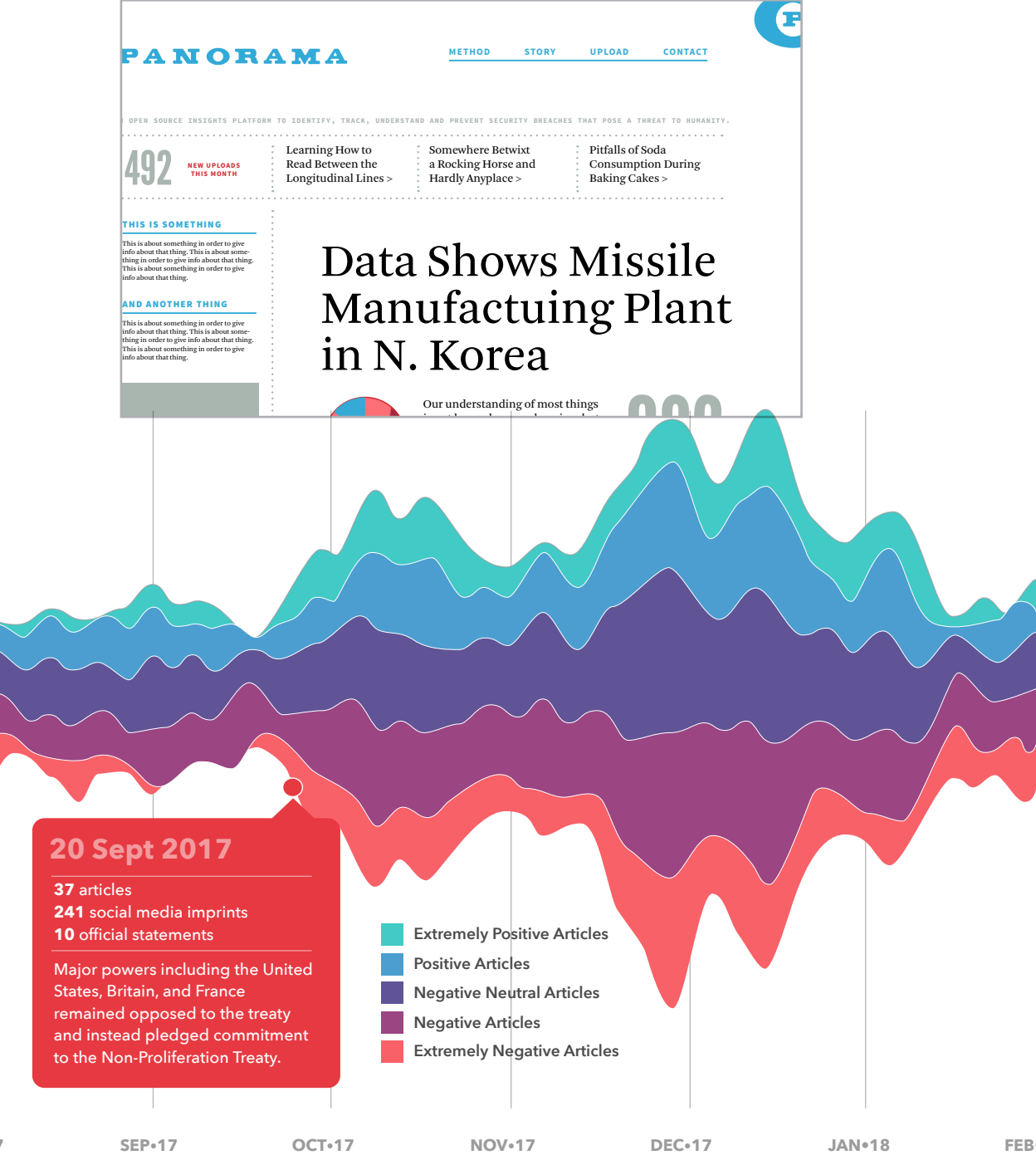
## 5: Raw Data Used by Brock



## 6: Data Stories Used by Carla











**Anna,**  
NGO Nuclear Policy Expert

Believes in government service and diplomacy for nuclear security  
Wishes to build credibility for her work in the field  
Wants to gain experience running projects



**Rick,**  
Technology Entrepreneur

- Believes in the power of technology to improve the world
- Wants to make a better future for his child
- Knows how to build and grow technology with social impact; needs a network and resources for execution



**Stephanie,**  
Up-and-coming Technologist

- Driven by the hope and possibility of new technology
- Wants to find creative and meaningful ways to use her skills and talents
- Wants to build things



**Jennifer,**  
Government Technology Director

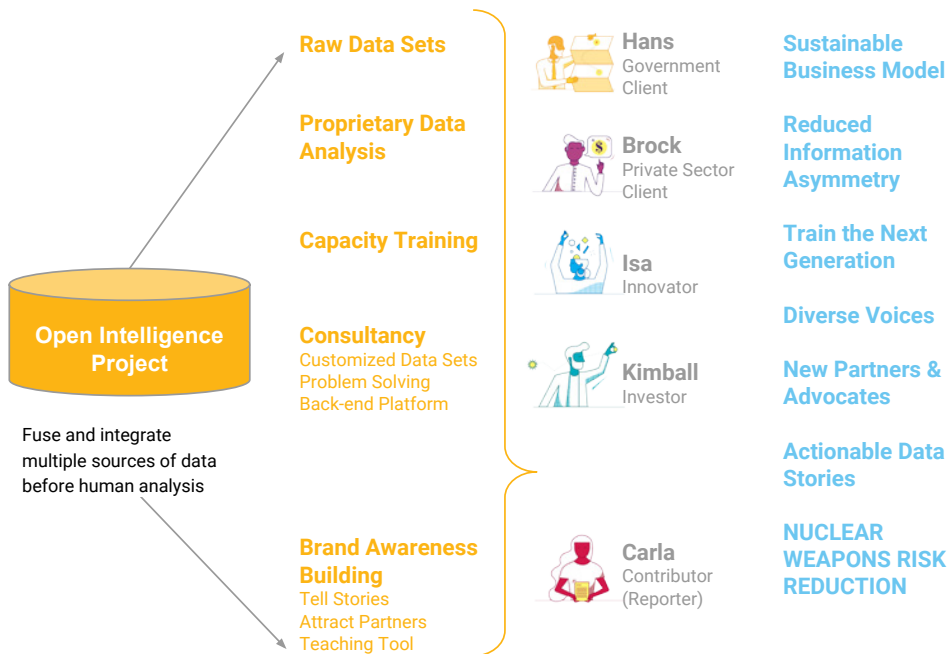
- Fostering ingenuity and collaboration to keep us all safe.
- Desires to help herself, her team and the US stay ahead of the curve on issues of WMD
- Needs to find new workers and technologies to apply to nuclear risk reduction



**Shilpa,**  
Nuclear Engineer

- Advancing science in service of humanity
- Excited by the possibilities of new discovery
- Desires to connect and collaborate with passionate peers
- Wishes to become a senior scientist
- Looking for new opportunities

41









## PLANT MEMENTOS

**WHAT:** In pots made from rubble collected from the sites of nuclear tests or accidents, we grow plants native to those same sites. These are given as gifts to graduates of the Fellow's Program (or winners of the X-Prize, or graduates of the Nuclear Corps).

**WHY:** The rubble is a reminder of the stakes, that things can and do go wrong. The plants grow in defiance of those disasters.

**FOR WHOM:** Any situation that merits giving out an award.



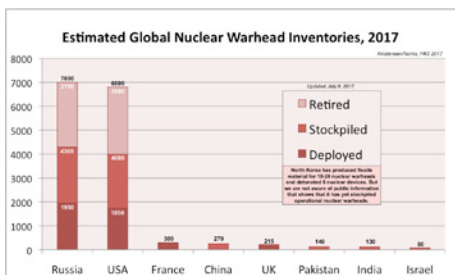
**NEXT:** Choose and mock up pots for multiple sites. Further refine the look of the plaques. Maybe create an accompanying fact sheet.

## INFOGRAPHIC BUBBLE TEA

**WHAT:** At the nuclear after-party, you can order drinks. After you pick your flavour, the bartender asks something like "Minuteman or Titan II?" Depending on how you answer, you'll get different amounts of tapioca balls, representing magnitudes of warhead/number of accidents/or other statistical facts.

**WHY:** As party-goers mingle, each one becomes the keeper of an interesting fact. As an icebreaker they can compare their statistics and share knowledge.


**FOR WHOM:** Party goers (conference, x-prize, corps).



**NEXT:** Make and photograph real bubble tea. Decide on the specific facts and comparisons that we'd want you to order. Mock up and layout the drinks menu to hint at there being more to this. Think about what markers or information would come printed with/on the drinks.



4



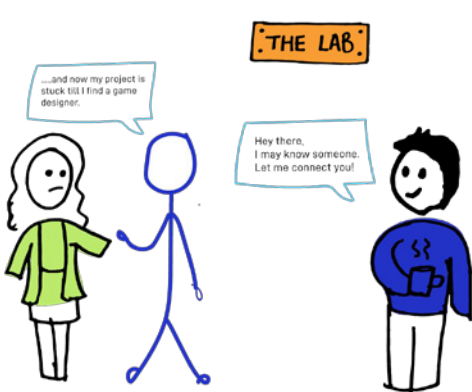
Through his residency at Anna's NGO, Rick learns about specific challenges.

5




He is able to apply his experience, skills and networks to propose solutions...

6



...and makes connections to other innovators outside of the nuclear security space.

4



ADJUDICATION PROCESS  
Exposure to funders and audiences for their ideas via the adjudication process.

All teams receive exposure to funders and audiences for their ideas via the adjudication process.

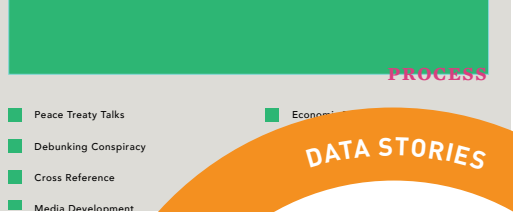
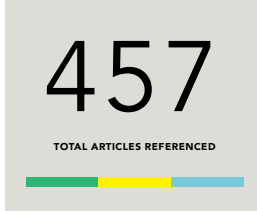
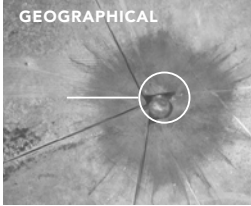
5



Pitch presentation to the judges with live broadcasting for the world to see







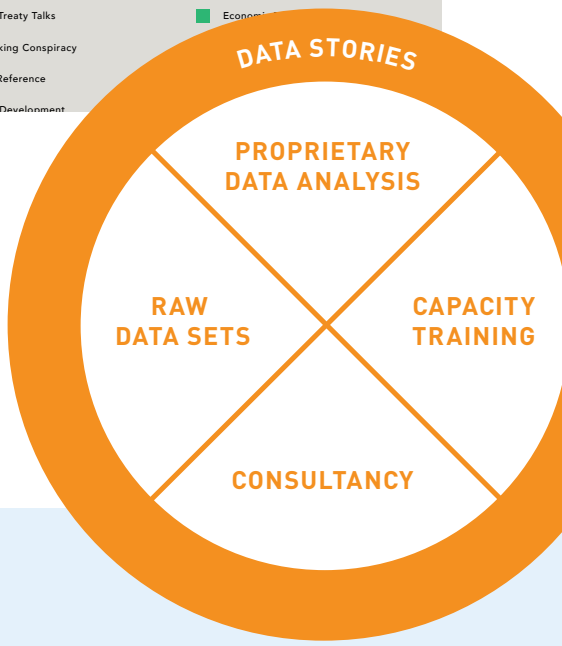
datayo

datayo

datayo

datayo

datayo



## Iran Intelligence Briefing

Dashboard February 2018

### Key Facts

#2

Global Political Risk, 2017

+30%

Growth of conflicts over last month

+20 pts

Rise of Islamic Jihadism

+5 pts

Risk of Political and Social Tensions

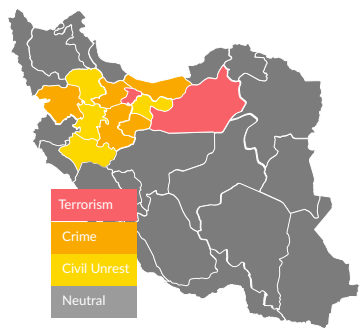
- raw materials price down
- political tensions up
- rising societal risks due to policy change

80% internal conflicts

20% external conflicts

### Country Risk Monitors

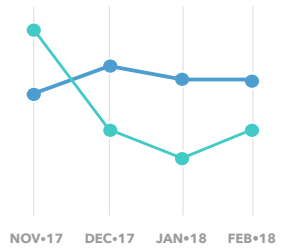
Last Updated



### Economy Monitor

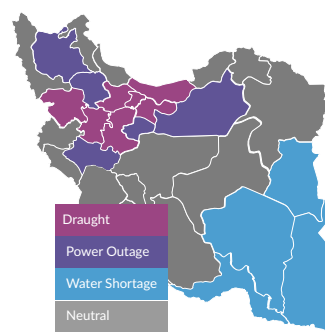
Macroeconomic stability

- Labour market
- Foreign direct investment and trade



### Environment, Natural Hazard and Climate Change

Map Climate Change vulnerability





## 3

**NUCLEAR SECURITY AND INSECURITY**

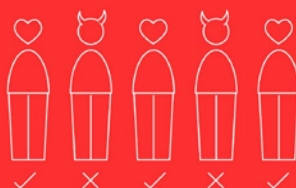
What are the difference points of view on security?  
 What could possibly go wrong?  
 How would a nuclear bomb impact everyday life?  
 What has gone wrong? = accidents and miscalculations/human error  
 Understanding that the surviving of a nuclear bomb is the hard, awful part.  
 Preventing existential threat  
 Doomsday clock  
 Trade-offs  
 Validators  
 Areas of Disagreement  
 Why can't I come to this party?  
 + If I don't know  
 + Things to know  
 + What we don't know



## 4

**DO NUCLEAR WEAPONS CREATE FRIENDS OR ENEMIES?**

What is the role of cooperation?  
 Unilateralism vs. Cooperation  
 Political Leadership/will  
 Historic dynamics of weapons reduction  
 Russia, North Korea  
 Nonproliferation, ubiquity  
 Sovereignty vs. Nationalism vs. Collectivism  
 The dilemmas we live with



## 5

**WHAT ARE OUR STATED GOALS, RULES OR LAWS WITH REGARD TO NUCLEAR WEAPONS?**

NPIT Disarmament safety/security  
 NPT  
 Deterrence in the 21st Century





## NUCLEAR CARNIVAL: Day time experience

A museum exhibit within the carnival depicts artifacts of awe - creating instagrammable moments and selfie opportunities.

### ARTIFACTS OF AWE

Puzzles, stations where kids can create things, VR & AR games, performances/shows and characters like SpongeBob, Herman Kahn and Pettrash walking around mingling with the visitors.



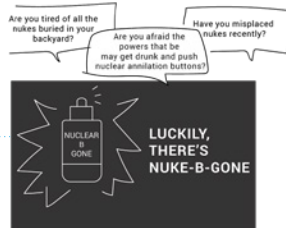
Kids can collect stamps in their nuclear passports as they move through a variety of activities giving them a reason to share with friends and incentive to engage in as much as possible..

Rides and games:: nuclear football, duck and cover yoga/aerobics and a nuclear dunk tank.

## NUCLEAR FAMILY CHANNEL

### #2 Fake Commercials & Products for Purchase

Satirical infomercial, using all the same methods as a typical infomercial to sell an aerosol that would get rid of all your nuclear worries.



Nuke-B-Gone



Mock Big Pharma Commercial

Depicting post-apocalyptic products like a bedazzled radiation detector, a new face mask product, a SnapChat filter to add your nose back in, Emotion Potion, and Laugh in a Box, that help us get back in touch with our pre-apocalypse selves.

John Oliver's "our Lady of Perpetual Exemption" ([14:52 here](#)) or A Cards Against Humanity's commercial promoting "\$20 off when you save the world" - establish a satirical entity that raises money and educates the public at the same time.



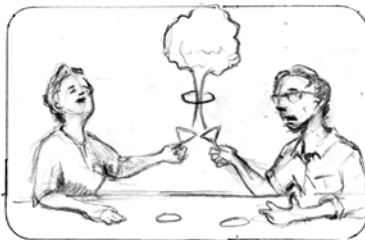
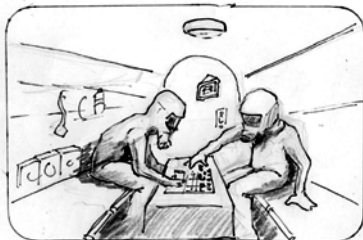
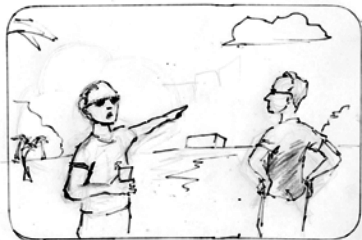
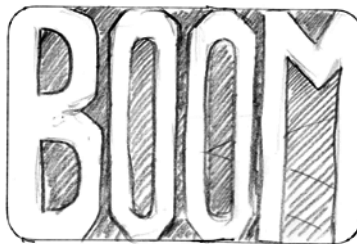
Cards Against Humanity



The Diplo Mat

People stand on the mat and (violently or vociferously) agree with each other.





There have been 256 false alarms since 1959 that could have resulted in an all-out nuclear war between countries.  
*Isn't it time we work to reduce that risk?*

Get informed and help invent a way out of our mess.

COMIC BY:

Dana Witherbee

COMIC #:

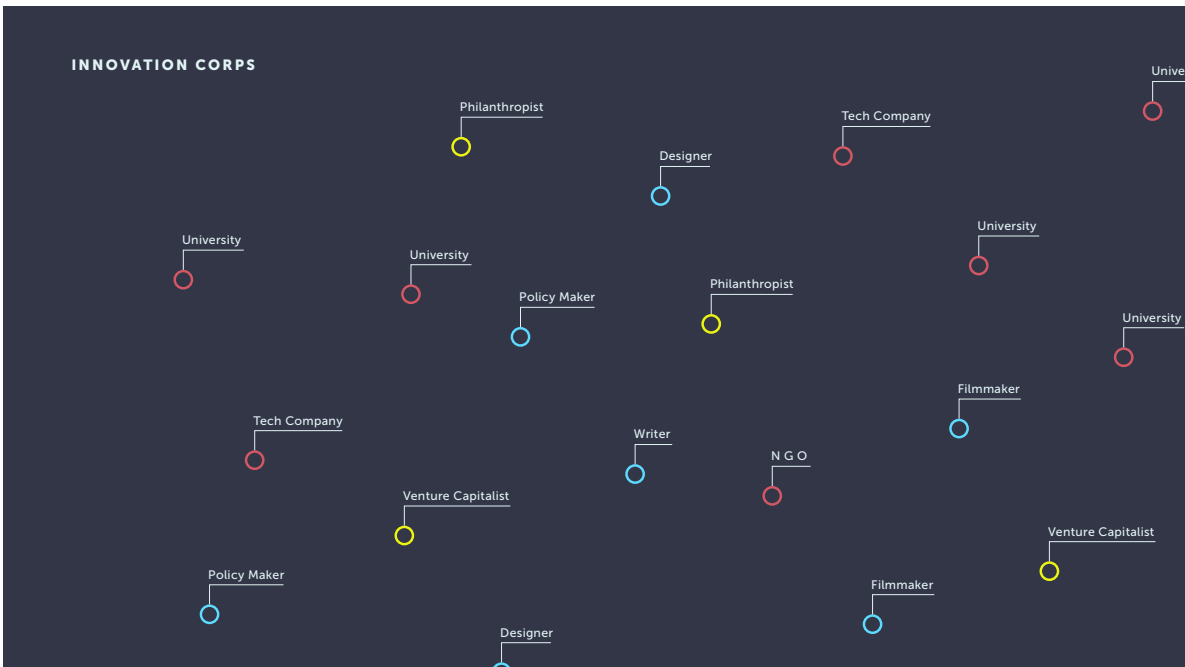
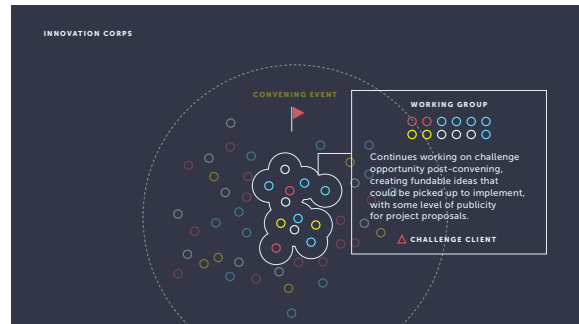
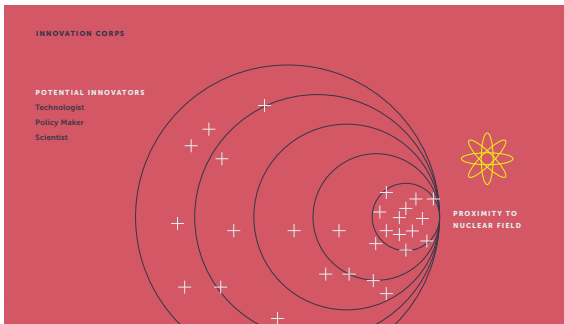
**205**

CAMPAIGN TO END  
THE THREAT OF  
NUCLEAR WEAPONS

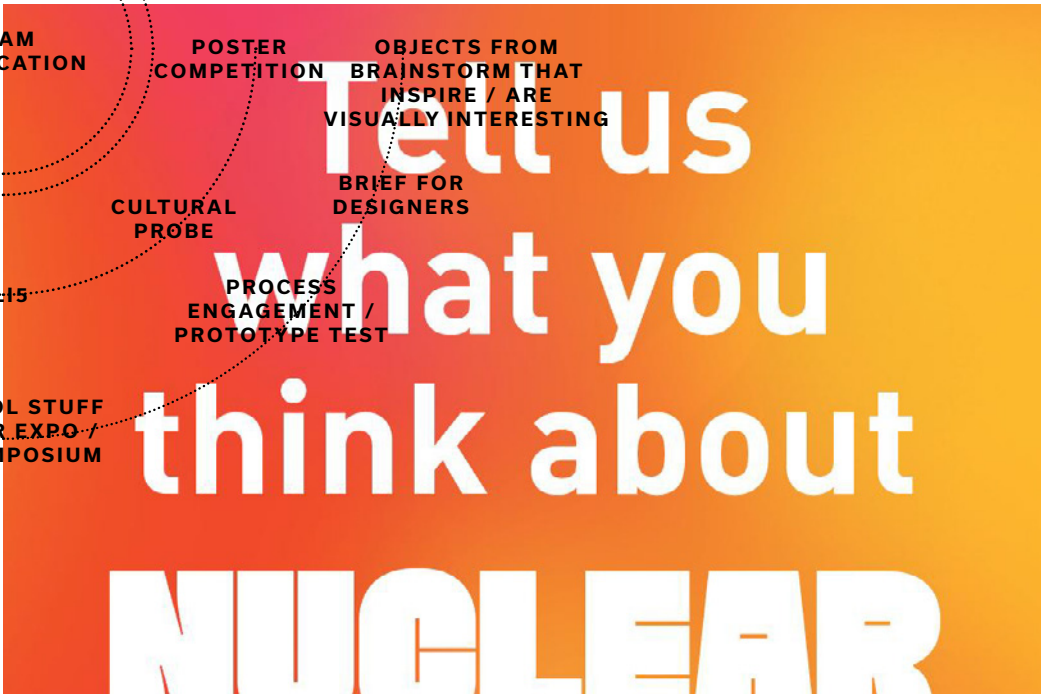
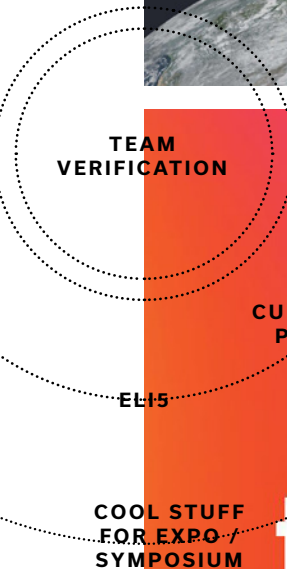
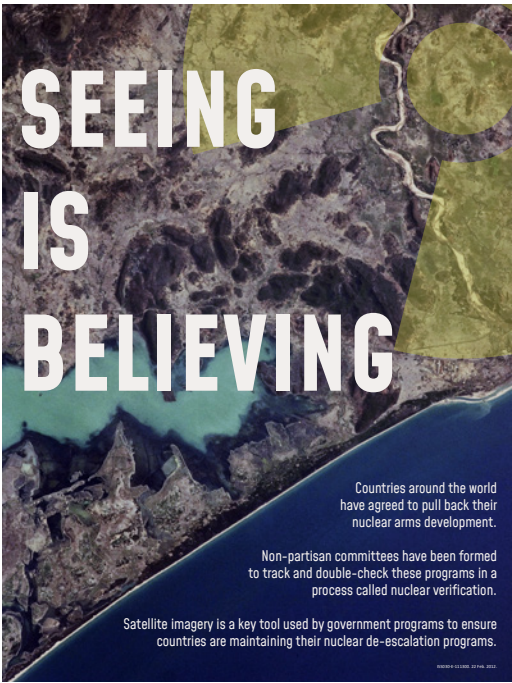
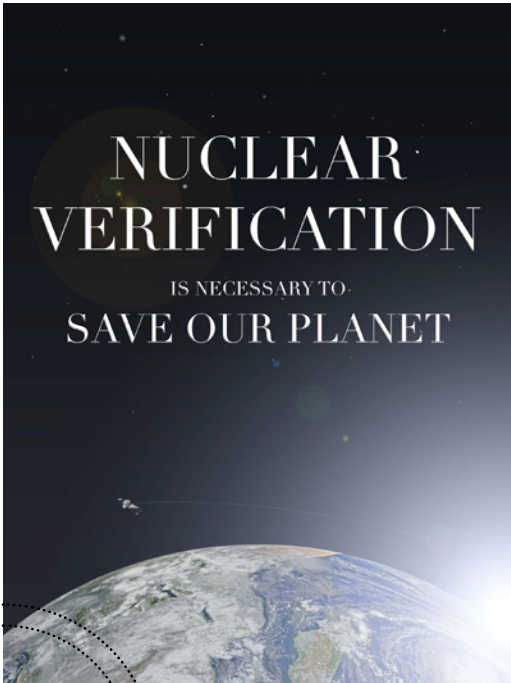
SEE ALL THE EXPLOSIVE COMICS AT [NUKOMICS.COM](http://NUKOMICS.COM)



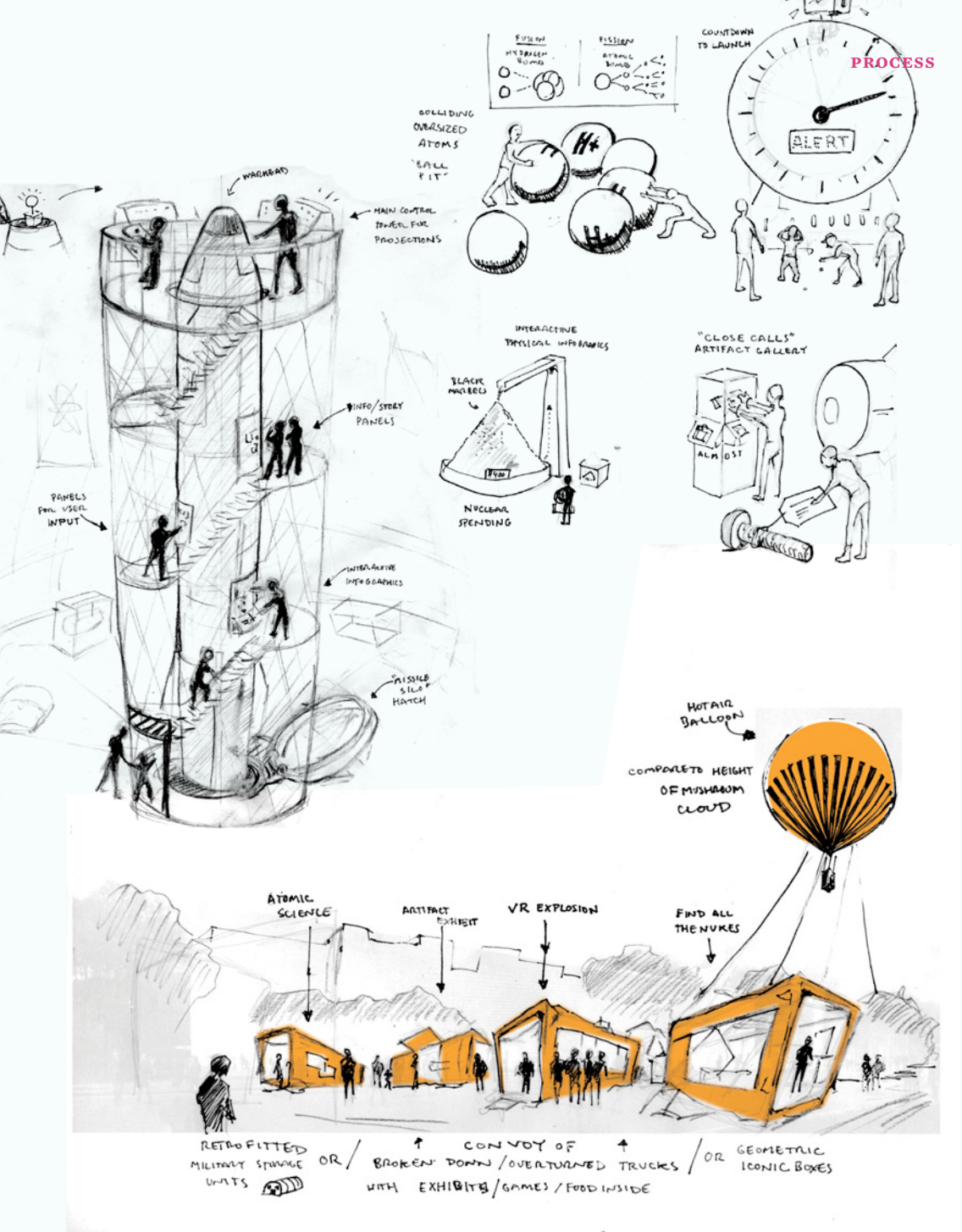














COHORT

02

# A New Cadre of Innovation Fellows Pick up the Baton



That snowy evening in Providence marked the end of Cohort 1's official time together, but it also marked the launch of Cohort 2. While Cohort 1 was putting the finishing touches on their final presentations, members of Cohort 2 were meeting one another for the first time—taking their first tentative steps into partnership and collaboration. As Cohort 1 were on stage celebrating their accomplishments, Cohort 2 were exchanging glances in the audience, wondering, "How are we going to top that?" It's a friendly challenge—but one that drives teams forward. By picking up the lessons learned in Cohort 1, Cohort 2 find themselves with an opportunity—and a responsibility—to go further and reach higher.



How might we make  
the power imbalance  
surrounding nuclear  
weapons a personal  
issue for influential  
communities?

TEAM

**MAKE IT PERSONAL**



## Public Impact at Scale

Our mission is to shift attitudes about weapons from being essential for survival to being detrimental to survival. Our goal is to activate the public in order to create demand and accountability for policymakers to implement change. We are at a dangerous moment unless we get the public engaged. Luckily, we are at a moment in time when people are on people's minds—social justice is a now issue, and we plan to make it everyone's issue. To threaten our existence is to threaten our democracy. So we must encourage our fellow citizens to act.

---

**Ryan Beickert**

*Filmmaker*  
**Courageous Studios, CNN  
& Great Big Story**

**Alex D'Haeseleer**

*Graduate Student*  
**Rhode Island School of Design**

**Maxwell Downman**

*Nuclear Policy Analyst*  
**British American Security  
Information Council (BASIC)**

**Lindsay Harper**

*Deputy Director*  
**Georgia WAND Education Fund, Inc.**

**Karim Kamel**

**Carnegie Corporation of New York**

**Daron Murphy**

*Co-Founder*  
**Art Not War**

**Joan Rohlfing**

*President*  
**Nuclear Threat Initiative**

**Eric Schlosser**

*Playwright, Filmmaker,  
and Journalist*

**Elizabeth Talerman**

*CEO*  
**Nucleus Strategy**

**Lovely Umayam**

*Program Manager & Founder*  
**Bombshelltoe**  
*Fellow*  
**The Stimson Center**



How might we develop a sustainable platform that engages educators and interested parties to share and access adaptable curriculum for multiple audiences and ages?

TEAM

**TEACH + LEARN**



## Education for Action

We want to help educators incorporate lessons about dealing with nuclear threat in their curriculums. The presence of nuclear weapons and the threat of nuclear war are significant realities in our society today. The general public is relatively uninformed on this ongoing issue. In the absence of awareness and clear calls to action, nuclear threats will continue to persist.

---

**Tara Drozdenko**  
*Managing Director*  
Outrider Foundation

**Kiran Lakkaraju**  
*Senior Member of Technical Staff*  
Sandia National Laboratories

**Dan Esposito**  
*CEO, Co-Founder*  
Guardion, Inc.

**Rives Matson**  
*Graduate Student*  
Rhode Island School of Design

**Anne Harrington**  
*Professor of International Relations*  
Cardiff University

**Khushbu Sanghi**  
*Brand Strategist, Writer,*  
*Storyteller and Designer*

**Kate Hewitt**  
*National Nuclear Security*  
*Administration*

**Tom Weis**  
*Assistant Professor*  
Rhode Island School of Design

**Harry Jones**  
*Assistant Professor, Ethics Faculty*  
United States Military Academy



How might we guard  
against susceptibility  
to various forms of  
disinformation and  
misleading narratives?

TEAM

**(DIS)INFORMATION**



## Narrative-Building and Sensemaking

We believe in the strength of storytelling as a way to change current ideologies and give future generations and marginalized communities a foundation for sensemaking. With the ability to share information widely and the habits to consume so much of it daily, the danger of disinformation is amplified—and particularly deadly when related to nuclear weapons. We're exploring ways by which old narratives can be broken down, new narratives can be woven, or multiple narratives can be understood.

---

**Marc Ambinder**

*Adjunct Professor of Journalism*  
University of Southern California

**Bruce Lowry**

*Director, Policy and Advocacy*  
Skoll Foundation

**Rob Baker**

*Director, Signal Program*  
Harvard Humanitarian Initiative

**Sarfraz Nawaz**

*Data & Analytics Product Manager*  
Apple

**Justin Cook**

*Director*  
Rhode Island School of Design

**Mareena Robinson Snowden**

*Senior Engineer*  
The Johns Hopkins University  
Applied Physics Laboratory

**Sara Kutchesfahani**

*Director, N Square DC Hub*  
N Square Collaborative

**Jim Walsh**

*Senior Research Associate*  
MIT Security Studies Program

**Phillip Lauria**

*Strategist*  
RoAndCo

**Irina Wang**

*Graduate Student*  
Rhode Island School of Design

**Alexander Lee**

*Research Assistant*  
King's College London

**Peter Waring**

*Senior Researcher*  
Ridgeway Information



How might we foster  
the development of  
artistic work with lasting  
impact on this issue?

TEAM

**ART, SCIENCE &  
NUCLEAR THREAT**



## Collaboration for Impact

Using (quality) public oriented art, we want to awaken or create a constituency that will create pressure that leads to a safer world. We believe that artists and people working in the nuclear field can work alongside one another to create more compelling work. And what kind of support do they need? We are exploring what it would take to create a contemporary show with the cultural impact to make real change, and what kinds of platforms can bring artists and scientists together successfully.

---

**Rachel Bronson**  
*President & CEO*  
**Bulletin of the Atomic Scientists**

**Tim Maly**  
*Writer/Designer*  
**Rhode Island School of Design**

**Deepika Choudhary**  
*Senior Media Associate*  
**ReThink Media**

**Halley Posner**  
*Finance Coordinator*  
**Bulletin of the Atomic Scientists**

**Catherine Dill**  
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**Middlebury Institute of  
International Studies**

**Paul Shambroom**  
**University of Minnesota**

**Emma Claire Foley**  
*Research and Policy Assistant*  
**Global Zero**

**Caroline Smith**  
*Graduate Student*  
**Rhode Island School of Design**



The Innovators Network specifically reaches outside the sector to build bridges with other fields. We encourage nuclear security experts to work in new ways and to access new ideas that will help them achieve nuclear security goals. At the same time, we support non-experts to explore and shape narratives about nuclear weapons and global security to engage a new generation.

As the N Square Innovators Network grows, our mentors become even more important. Led by Dr. Jewlya Lynn, an expert in the fields of collective impact and developmental evaluation, our mentors surround the network with support, bringing knowledge, connections, and access to additional resources.



# ADVISORS & MENTORS

---

**David Bray**  
*Executive Director*  
People-Centered Internet

**Franz Busse**  
*Cofounder and Chief Scientist*  
Hala Systems

**Cyndi Conn**  
*Executive Director*  
Creative Santa Fe

**Chris Diehl**  
*Partner & Cofounder*  
The Data Guild

**Mark Graham**  
*Director*  
the Wayback Machine,  
Internet Archive

**Melanie Greenberg**  
*Managing Director, Peacebuilding*  
Humanity United

**Laicie Heeley**  
*CEO*  
Inkstick Media  
*Fellow*  
The Stimson Center

**Jewlya Lynn**  
*Facilitator, Advisor, and Researcher*  
PolicySolve

**Tammy Nguyen**  
*Artist, Bookmaker, and Founder*  
Passenger Pigeon Press

**Martin Pfeiffer**  
*Scholar, National*  
Security Studies Program  
University of New Mexico

**Amy Sands**  
*Former Executive Director for*  
Research Centers and Initiatives  
Middlebury Institute of  
International Studies

**Varun Vira**  
*Chief Operating Officer*  
C4ADS



By 2045 we will have held billions of people hostage to the threat of nuclear annihilation for a full century. Surely, 100 years will have been enough. Surely, a century of scientific advancement, economic development, and the evolution of military strategy will have provided better ways to manage global security.

The field of professionals working to control the threats we face from nuclear weapons is both insular and fragmented. The barriers to entry are high—the issues are complex, the language arcane, and the field has a history of secrecy. All that makes it difficult for newcomers to know how, where, or to whom they can offer expertise. It also discourages democratic discourse about an issue that affects us all.

That's what the Innovators Network is all about: Unlikely partnerships, breakthrough ideas, and world-changing projects—all geared to a future free from the threat that nuclear weapons will ever be used again, by accident or by design.

Surely, if ever there was a global moonshot worth supporting, this is it.



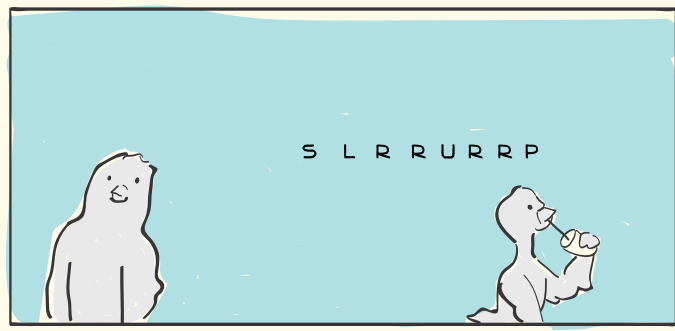
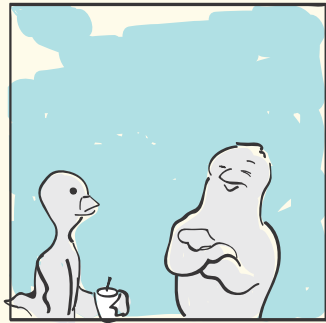
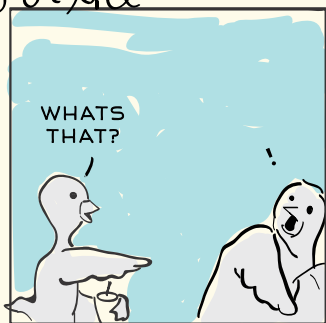


LEA



# For the Birds

BY BEN FINCH



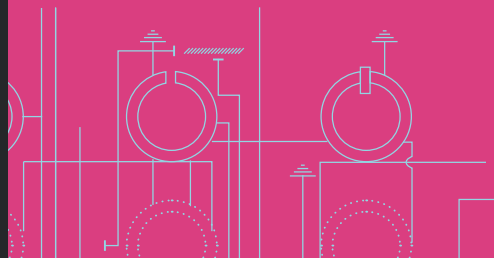
artwork by  
Brian G. Payne



"When people experience uncertainty, the bias against creativity is greatest. That bias interferes with our ability to recognize creative ideas.

Meanwhile, dissent, debate and competing views have positive value in stimulating divergent and creative thought. "

**DR. JACK GONCALO**  
*Department of Organizational Behavior*  
Cornell University





THE FIELD OF PROFESSIONALS WORKING TO CONTROL THE THREATS WE FACE FROM NUCLEAR WEAPONS IS BOTH INSULAR AND FRAGMENTED. THE BARRIERS TO ENTRY ARE HIGH—THE ISSUES ARE COMPLEX, THE LANGUAGE ARCANE, AND THE FIELD HAS A HISTORY OF SECRECY. ALL THAT MAKES IT DIFFICULT FOR NEWCOMERS TO KNOW HOW, WHERE OR TO WHOM THEY CAN OFFER EXPERTISE. IT ALSO DISCOURAGES DEMOCRATIC DISCOURSE ABOUT AN ISSUE THAT AFFECTS US ALL.