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# THE HEALTH OF NATIONS PART III ◆ ◆ ◆

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<https://unsplash.com/@sergio76garcia>



**THE HEALTH OF  
CIVILIZATIONS**

**DEPEND ON  
WOMEN**

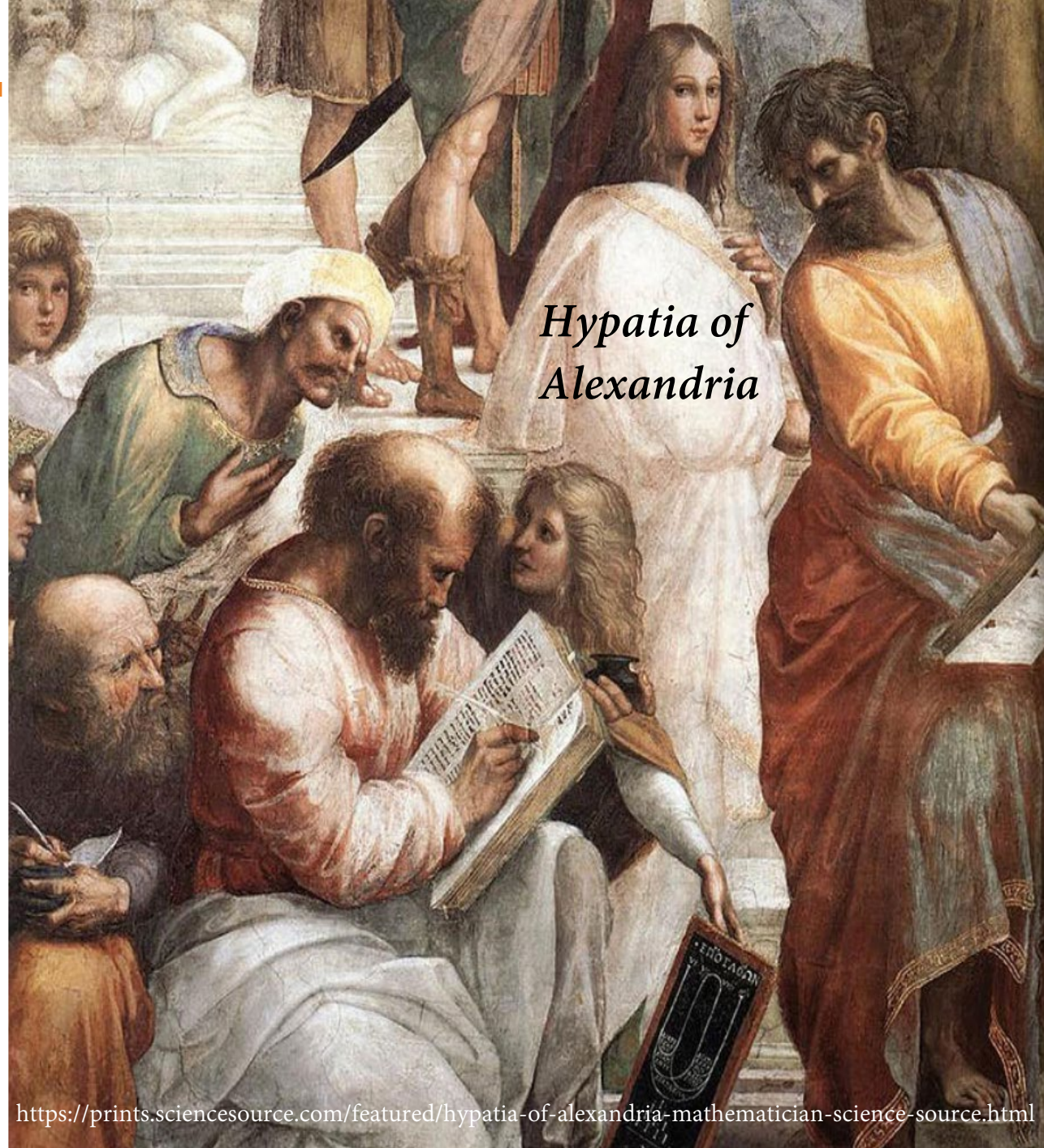




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# THE HEALTH OF NATIONS

# DEPEND ON WOMEN



*Hypatia of  
Alexandria*





<https://engines.egr.uh.edu/episode/3087>



[https://en.wikipedia.org/wiki/Irene\\_Joliot-Curie#/media/File:Irene\\_and\\_Marie\\_Curie\\_1925.jpg](https://en.wikipedia.org/wiki/Irene_Joliot-Curie#/media/File:Irene_and_Marie_Curie_1925.jpg)





Karikó, K., Buckstein, M., Ni, H. and Weissman, D. Suppression of RNA Recognition by Toll-like Receptors: The impact of nucleoside modification and the evolutionary origin of RNA. *Immunity* **23**, 165–175 (2005).

Karikó, K., Muramatsu, H., Welsh, F.A., Ludwig, J., Kato, H., Akira, S. and Weissman, D. Incorporation of pseudouridine into mRNA yields superior nonimmunogenic vector with increased translational capacity and biological stability. *Mol Ther* **16**, 1833–1840 (2008).

Anderson, B.R., Muramatsu, H., Nallagatla, S.R., Bevilacqua, P.C., Sansing, L.H., Weissman, D. and Karikó, K. Incorporation of pseudouridine into mRNA enhances translation by diminishing PKR activation. *Nucleic Acids Res.* **38**, 5884–5892 (2010).



What we do  
in life, echoes  
in eternity ...



## Rowing Mom Wins Nobel

Submitted by: Susan Francia  
(October 3, 2023)



Longtime rowing mom Dr. Katalin Kariko won the Nobel Prize for Medicine, achieved during a time she sent in Photos of the Day to row2k over the years, really impressive. row2k asked Susan for a photo of the family at a rowing race, and she sent this one taken by her aunt, along with the following note.

<https://www.nobelprize.org/prizes/medicine/2023/kariko/interview/>



Photographer: Bela Francia

Dr. Katalin Karikó receiving call from Sweden at her home on Oct 2, 2023

@kkariko @zfrancia

<https://www.nobelprize.org/prizes/medicine/2023/summary/>

## The Nobel Prize in Physiology Medicine 2023

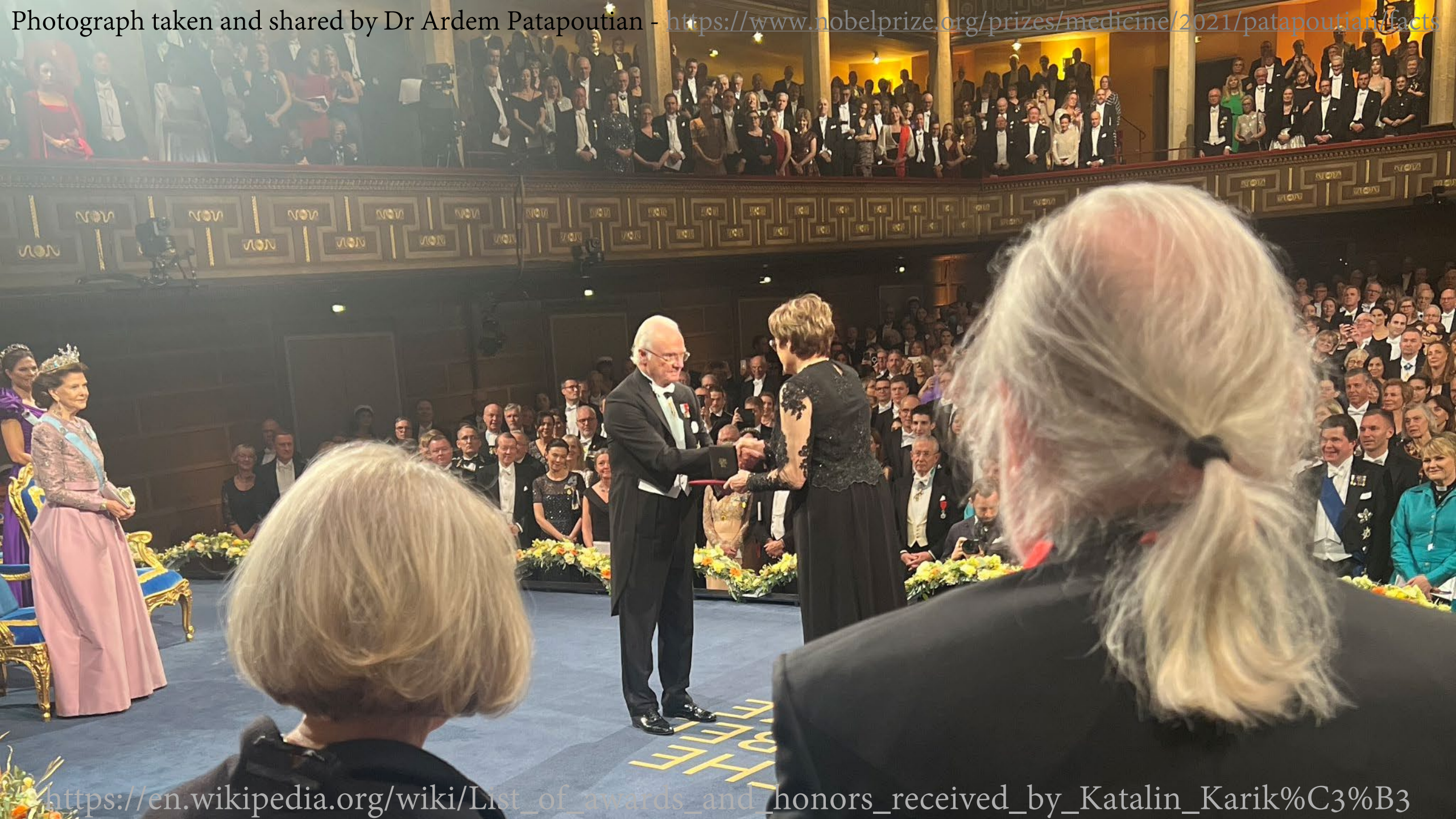


Ill. Niklas Elmehed © Nobel Prize Outreach  
Katalin Karikó  
Prize share: 1/2



Ill. Niklas Elmehed © Nobel Prize Outreach  
Drew Weissman  
Prize share: 1/2







Terry Jo Bichell became a PhD student in her 50's to train as a neuroscientist. Her goal: investigate treatments for Angelman syndrome, a developmental disorder that affects her son. It wasn't her first career change. She was a documentary film-maker when she witnessed the tragic end to a difficult birth. That inspired her to become a midwife. After her PhD, Bichell also founded COMBINEDBrain, a non-profit that connects patient advocates with scientists.

## How a midwife became a neuroscientist to seek a cure for her son

Terry Jo Bichell felt the need to work on a scientific solution to her son's rare disorder, even though it meant being a PhD student in her fifties.

By [Elizabeth Landau](#)



Terry Jo Bichell (pictured in her laboratory)

[www.nature.com/articles/d41586-024-02723-9](https://www.nature.com/articles/d41586-024-02723-9)



# HEDY LAMARR aka H. K. Markey

In response to the German Nazi jamming the signals of British torpedoes during World War II, Hedy Lamarr worked with George Antheil to find a solution. They invented a frequency-hopping system. This system allowed ships and torpedoes to communicate through multiple radio frequencies while reducing the risk of detection, jamming and interference. Hedy Lamarr (aka H. K. Markey) received U.S. patent 2,292,387 for invention. Lamarr's frequency-hopping system was key to the development of GPS, Wi-Fi and Bluetooth wireless systems. These are enabling us to read this PDF on our smartphones or computers, right now!

## Hedy Lamarr

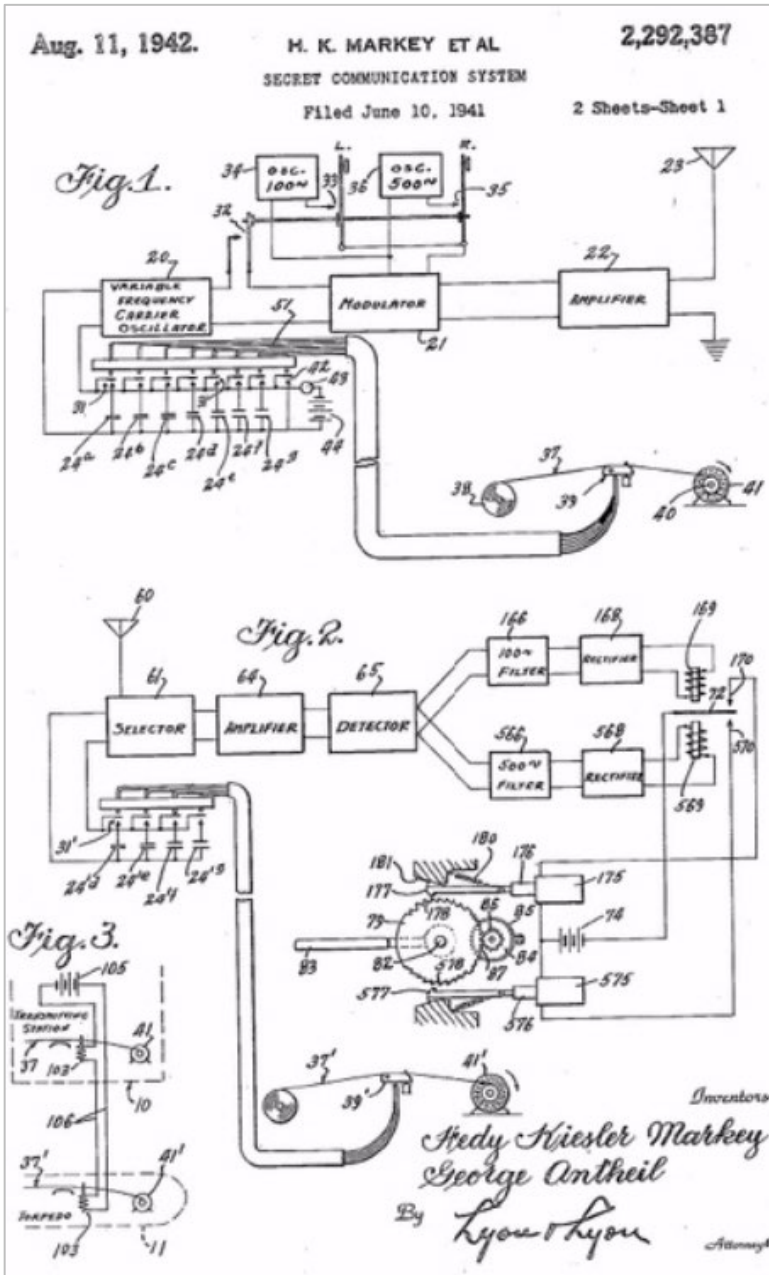


[https://en.wikipedia.org/wiki/Hedy\\_Lamarr](https://en.wikipedia.org/wiki/Hedy_Lamarr)

Lamarr, c. 1944

<b>Born</b>	Hedwig Eva Maria Kiesler November 9, 1914 Vienna, <a href="#">Austria-Hungary</a>
<b>Died</b>	January 19, 2000 (aged 85) <a href="#">Casselberry, Florida, U.S.</a>
<b>Citizenship</b>	<a href="#">Austria</a> (until 1938) <sup>[1]</sup> <a href="#">Stateless</a> (1938–1953) <a href="#">United States</a> (from 1953)
<b>Occupations</b>	Actress · inventor

<https://airandspace.si.edu/multimedia-gallery/4790640jpg>





Hedy Lamarr's house in 1946 at 2707 Benedict Canyon Road, Beverly Hills, CA 90210. This house was previously owned by Humphrey Bogart & Lauren Bacall (the first house they lived in after they got married). It was built in 1938. Ann-Margret and Roger Smith bought it in 1968. Ann-Margret currently lives in this house.



Left to Right – Glenn T. Seaborg, Ann-Margret Smith, Shoumen Datta (Northridge, CA ◦ November 10, 1996)





The Nobel Prize in Physiology or  
Medicine 1947

# Gerty Cori

## Facts

Carl Cori  
Gerty Cori  
Bernardo Houssay

Gerty and her husband, Carl Cori, described (in 1929) the Cori cycle; an important part of our energy metabolism. Lactic acid formed in muscles is converted to glycogen in the liver. Glycogen, in turn, is converted into glucose, which is absorbed by muscle cells. The pair continued to investigate how glycogen is broken down into glucose and, in 1938-1939, were able to identify the enzyme that initiates the decomposition and created glycogen in a test tube.



Photo from the Nobel  
Foundation archive.

Gerty Theresa Cori, née Radnitz  
The Nobel Prize in Physiology or Medicine 1947

Born: 15 August 1896, Prague, Austria-Hungary (now Czech Republic)

Died: 26 October 1957, St. Louis, MO, USA

Affiliation at the time of the award: Washington University,  
St. Louis, MO, USA

Prize motivation: “for their discovery of the course of the catalytic conversion of glycogen”



**Dorothy Mary Crowfoot Hodgkin** (12 May 1910 – 29 July 1994) was a Nobel Prize-winning English chemist who advanced the technique of X-ray crystallography to determine the structure of biomolecules, which is essential for structural biology. Among her most influential discoveries are the confirmation of the structure of penicillin and mapping the structure of vitamin B<sub>12</sub>, for which in 1964 she became the third woman to win the Nobel Prize in Chemistry. Hodgkin also elucidated the structure of insulin in 1969 after 35 years of work.



**Born:** May 12, 1910, Cairo, Egypt

**Died:** July 29, 1994 (age 84 years), Ilmington, United Kingdom

**Parents:** Grace Mary Crowfoot, John Winter Crowfoot

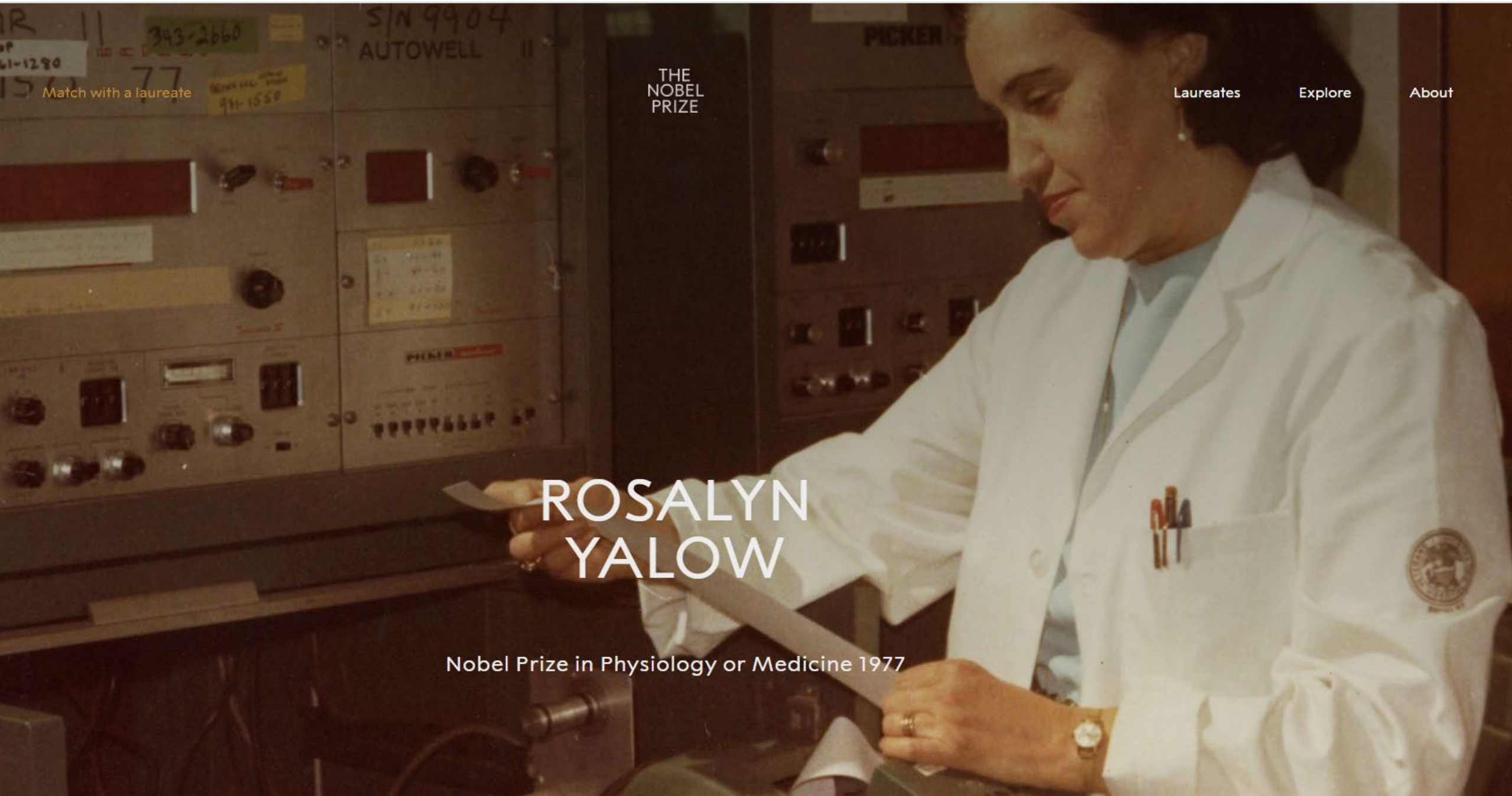
**Education:** University of Cambridge (1932–1937), University of Oxford (1928–1932), Somerville College

**Awards:** Nobel Prize in Chemistry, Copley Medal, Royal Medal, Lomonosov Gold Medal

**Children:** Elizabeth Hodgkin, Luke Hodgkin, Toby Hodgkin

**Siblings:** Joan Crowfoot Payne





Match with a laureate

THE  
NOBEL  
PRIZE

Laureates

Explore

About

# ROSALYN YALOW

Nobel Prize in Physiology or Medicine 1977





# THE NOBEL PRIZE

Medicine



The Nobel Prize in Physiology or Medicine 1983

Barbara McClintock - Facts



The Nobel Prize in Physiology or  
Medicine 1983

Barbara McClintock

## Barbara McClintock Facts



Photo from the Nobel  
Foundation archive.

Barbara McClintock  
The Nobel Prize in Physiology or Medicine 1983

Born: 16 June 1902, Hartford, CT, USA

Died: 2 September 1992, Huntington, NY, USA

Affiliation at the time of the award: Cold Spring Harbor  
Laboratory, Cold Spring Harbor, NY, USA

Prize motivation: “for her discovery of mobile genetic  
elements”

Prize share: 1/1



Rita Levi-Montalcini began her scientific career in danger, as a Jew in Fascist Italy. She ended it in triumph, as the neuroembryologist who co-discovered nerve growth factor, a very prominent figure in Italian **politics**, and an active researcher and mentor until her death (age 103).

THE  
NOBEL  
PRIZE

# RYTA LEVI-MONTALCINI

Nobel Prize in Physiology or Medicine 1986

Rita Levi-Montalcini in her office at Washington University in St. Louis in the late 1950s. © Becker Medical Library, Washington University School of Medicine. Photographer unknown. Kindly provided by Becker Medical Library



## Gertrude "Trudy" Belle Elion

(Jan 23, 1918 – Feb 21, 1999)

Shared the 1988 Nobel Prize in Physiology or Medicine with George H. Hitchings and Sir James Black for their use of innovative methods of rational drug design for the development of new drugs. Her work led to the creation of the anti-retroviral drug AZT, used against AIDS. She developed the first immunosuppressive drug, azathioprine, used to fight rejection in organ transplants, and the antiviral drug, acyclovir, for treatment of herpes infection.

[https://en.wikipedia.org/wiki/Gertrude\\_B.\\_Elion](https://en.wikipedia.org/wiki/Gertrude_B._Elion)

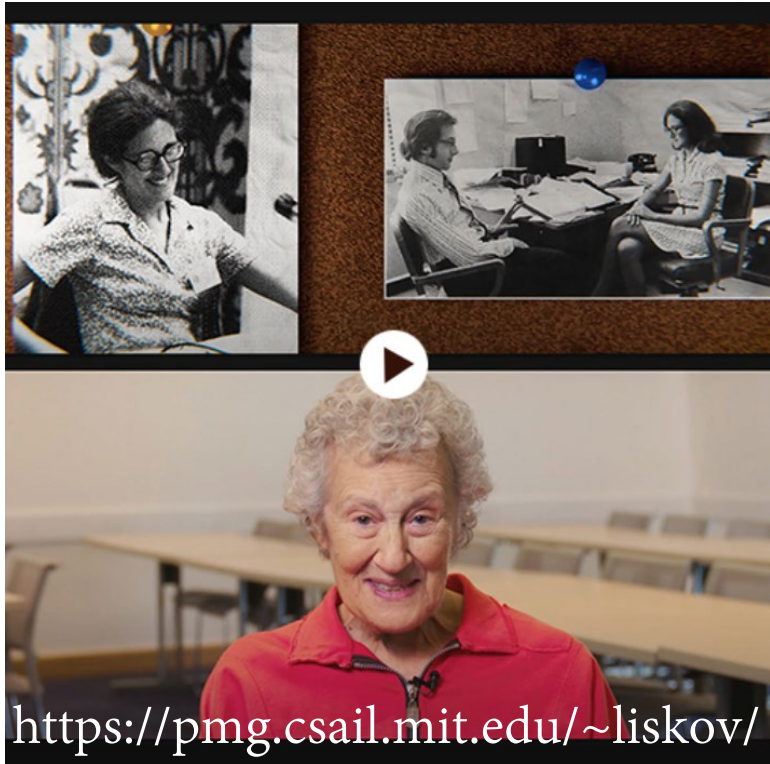




# BARBARA LISKOV

Completed her PhD at Stanford (under the supervision of John McCarthy), becoming the first woman to get a computer science PhD in the United States, or have a programming principle that's named after her. In 1974, she changed the software world (MIT Institute Professor Liskov invented Abstract Data Types).

[www.youtube.com/watch?v=f0f5iQ3e0V4](https://www.youtube.com/watch?v=f0f5iQ3e0V4)



<https://pmg.csail.mit.edu/~liskov/>

MIT Institute Professor Emerita Barbara Liskov, is a computer scientist whose fundamental contributions have shaped modern programming. Liskov laid the foundation for modern object-oriented programming (50 years ago) with a paper introducing the concept of “abstract data types.” She is celebrated for “utterly transforming the way software is written, leaving a mark on nearly every single program and app we use today.”

Barbara Liskov and Stephen Zilles. 1974. *Programming with abstract data types*. In Proceedings of the ACM SIGPLAN symposium on very high level languages. Association for Computing Machinery, New York, NY, USA, 50–59. <https://doi.org/10.1145/800233.807045>  
<https://dl.acm.org/doi/pdf/10.1145/800233.807045> ▪ [https://amturing.acm.org/award\\_winners/liskov\\_1108679.cfm](https://amturing.acm.org/award_winners/liskov_1108679.cfm)  
<https://medium.com/a-computer-of-ones-own/barbara-liskov-inventor-of-abstract-data-types-9f8908fdcf86>



## For the Greater Good: A Profile of Eva Harris

Through groundbreaking studies on dengue and efforts to build scientific infrastructure in Latin America, the University of California, Berkeley, professor has bridged research with its benefits to society.



### Professor, Infectious Diseases and Vaccinology

**Director, Center for Global Public Health**

**Program Head, Infectious Diseases and Immunity PhD Program**

**President, Sustainable Sciences Institute**

Eva Harris is a Professor of Infectious Diseases and Vaccinology at UC Berkeley who developed a multidisciplinary approach for studying the virology, pathogenesis, immunology and epidemiology of dengue and other prevalent mosquito-borne viral diseases in humans.



## CHANCELLOR CHRIST



Carol Christ began her term as the 11th chancellor of the University of California, Berkeley on July 1, 2017. A celebrated scholar of Victorian literature, Christ is also well known as an advocate for quality, accessible public higher education, a proponent of the value of a broad education in the liberal arts and sciences, and a champion of women’s issues and diversity on college campuses.

Christ spent more than three decades as a professor and administrator at UC Berkeley before serving as president of Smith College, one of the country’s most distinguished liberal arts colleges, from 2002 to 2013. She returned to Berkeley in January 2015 to direct the campus’s Center for Studies in Higher Education, and was appointed interim executive vice chancellor and provost in April 2016 before being named chancellor in March 2017. Since her return to Berkeley, she has worked to foster community and improve the campus climate for people of all backgrounds, celebrate the institution’s longstanding commitment to free speech, strengthen Berkeley’s financial position, address a housing shortage, and develop a ten-year strategic plan for the campus.

Prior to joining Smith, Christ served as UC Berkeley’s executive vice chancellor and provost from 1994 until 2000. During her six years as the campus’s top academic officer, she sharpened Berkeley’s intellectual focus, strengthening many of the institution’s top-rated departments in the humanities and sciences as well as advancing major initiatives in areas including neuroscience and bioengineering.

Christ received her B.A. (1966) from Douglass College, and her M.Ph. (1969) and Ph.D. (1970) from Yale University. She joined the Berkeley English faculty in 1970, and in addition to her other roles, has served as chair of that department, dean of the Division of Humanities, and provost for the College of Letters and Science. Christ has authored two books, *The Finer Optic: The Aesthetic of Particularity in Victorian Poetry* (1975) and *Victorian and Modern Poetics* (1994), and has edited or co-edited several others, including *The Norton Anthology of English Literature*. She is a member of the American Academy of Arts and Sciences and the American Philosophical Society.



# LEADERSHIP



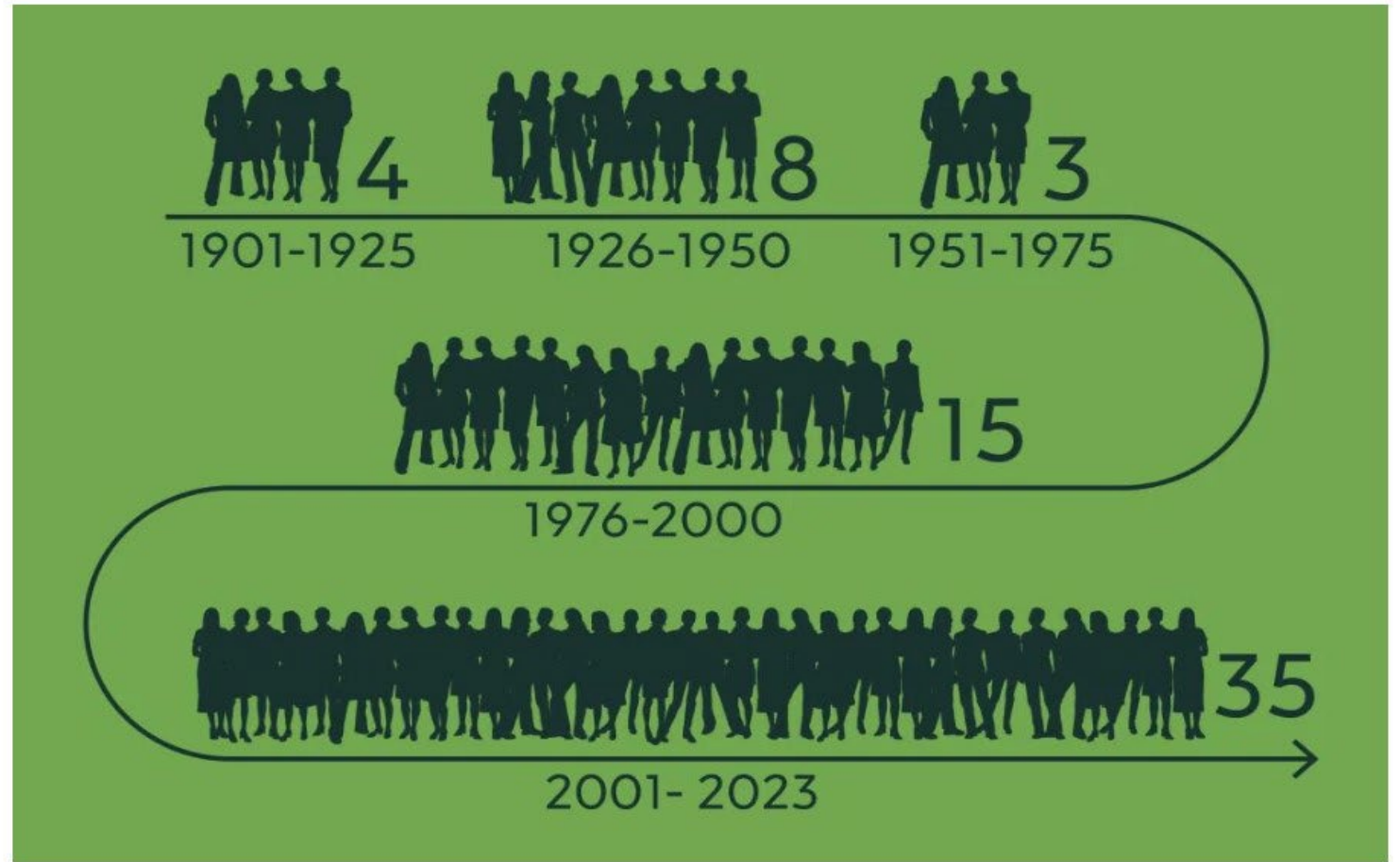
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THE

HEALTH

OF

NATIONS



Nobel Prize awarded women 1901-2023.

***depend on women***

<https://www.nobelprize.org/prizes/lists/nobel-prize-awarded-women>





Maud Menten

Lise Meitner



[https://en.wikipedia.org/wiki/Lise\\_Meitner](https://en.wikipedia.org/wiki/Lise_Meitner)

# Women who changed the world

*(but ignored [?] by The Nobel Committee)*



[https://en.wikipedia.org/wiki/Rosalind\\_Franklin](https://en.wikipedia.org/wiki/Rosalind_Franklin)

Rosalind Franklin

Lydia Villa-Komaroff



[https://en.wikipedia.org/wiki/Lydia\\_Villa-Komaroff](https://en.wikipedia.org/wiki/Lydia_Villa-Komaroff)



# WILL WOMEN REMEDY IRREMEDIAL INJUSTICES ?

AMARTYA SEN "THE IDEA OF JUSTICE" [HTTPS://DUTRAECONOMICUS.WORDPRESS.COM/WP-CONTENT/UPLOADS/2014/02/AMARTYA-SEN-THE-IDEA-OF-JUSTICE-2009.PDF](https://dutraeconomicus.wordpress.com/wp-content/uploads/2014/02/amartya-sen-the-idea-of-justice-2009.pdf)

The Sveriges Riksbank Prize in  
Economic Sciences in Memory of  
Alfred Nobel 1998

Amartya Sen

## Amartya Sen Facts

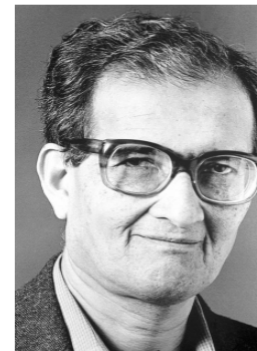


Photo from the Nobel  
Foundation archive.

Amartya Sen  
The Sveriges Riksbank Prize in Economic Sciences in  
Memory of Alfred Nobel 1998

Born: 3 November 1933, Santiniketan, India

Affiliation at the time of the award: Trinity College,  
Cambridge, United Kingdom

Prize motivation: "for his contributions to welfare  
economics"

Prize share: 1/1

<https://www.nobelprize.org/prizes/economic-sciences/1998/sen/facts>



At  
Justice Jackson's  
historic  
confirmation,  
the pride in  
Leila Jackson's  
eyes as she looks  
at her  
mother.





THE EDUCATION OF A BOY MAY CHANGE THE LIFE OF A MAN. THE EDUCATION OF A GIRL MAY CHANGE THE DESTINY OF A NATION.

# Taking on a challenge

Ann Pfohl Kirby describes her time as part of the first class at Harvard Law to admit women



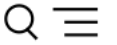




hls.harvard.edu/today/ann-pfohl-kirby-53-on-the-family-tradition-of-taking-on-a-challenge/



“She was never angry about being one of the only women in the room at times; she was really proud of it and enjoyed it,” said Paula Kirby. “And that gave all of us a really positive attitude about our approach to different educational options.” Four of Ann Kirby’s seven children became lawyers, and two attended Harvard Law School, as did her brother and a niece. Her eldest daughter became an anesthesiologist. And the educational drive has continued to the next generation — currently one granddaughter is at Harvard College and two are studying engineering at MIT.



“When you educate a woman, you educate a generation.”

—Ann Kirby '53

# THE FUTURE IS BRIGHT





*Happy National Student Parent Month! This month, the Office of Graduate Education is featuring one graduate student parent per week, highlighting their academic work and parenting journey at MIT. Please check back weekly for more student parent features!*



***Diana Grass***

*Family:* Husband and two children

*Degree program:* PhD in Medical Engineering and Medical Physics in the joint Harvard-MIT Health Sciences and Technology program

*Years at MIT:* Entering 3rd year

---

Diana Grass, a third year PhD student at MIT, was raised in Colombia and moved to the Boston area for school. Her cutting-edge research bridges the fields of neuroscience, immunology, and engineering

“You’re not just building your future; you’re inspiring theirs.”



This September, to mark National Student Parent Month, MIT’s Office of Graduate Education (OGE) is featuring one graduate student parent per week, highlighting their academic work and parenting journey at MIT. This week OGE highlights Diana Grass, a third-year PhD student from Colombia whose research bridges neuroscience, immunology, and engineering to investigate the communication between the nervous and immune systems. “To all the parents out there chasing dreams while nurturing little ones, keep going,” says Grass, a mom to two children. “You’re not just building your future; you’re inspiring theirs.”

[Learn more via OGE](#)

[https://oge.mit.edu/oge\\_news/celebrating-national-student-parent-month-diana/](https://oge.mit.edu/oge_news/celebrating-national-student-parent-month-diana/)



**BlackRock.**

# **Lifting global growth by investing in women**

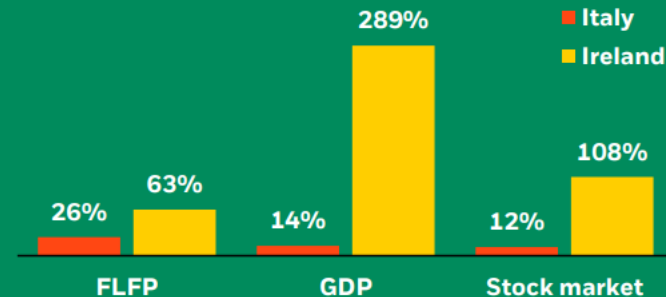
**Long-term capitalism at BlackRock**

February 2023

Box 1

**A material increase in female labor force participation is associated with higher growth in GDP per person**

Percentage change from 1990-2021 (or latest available)

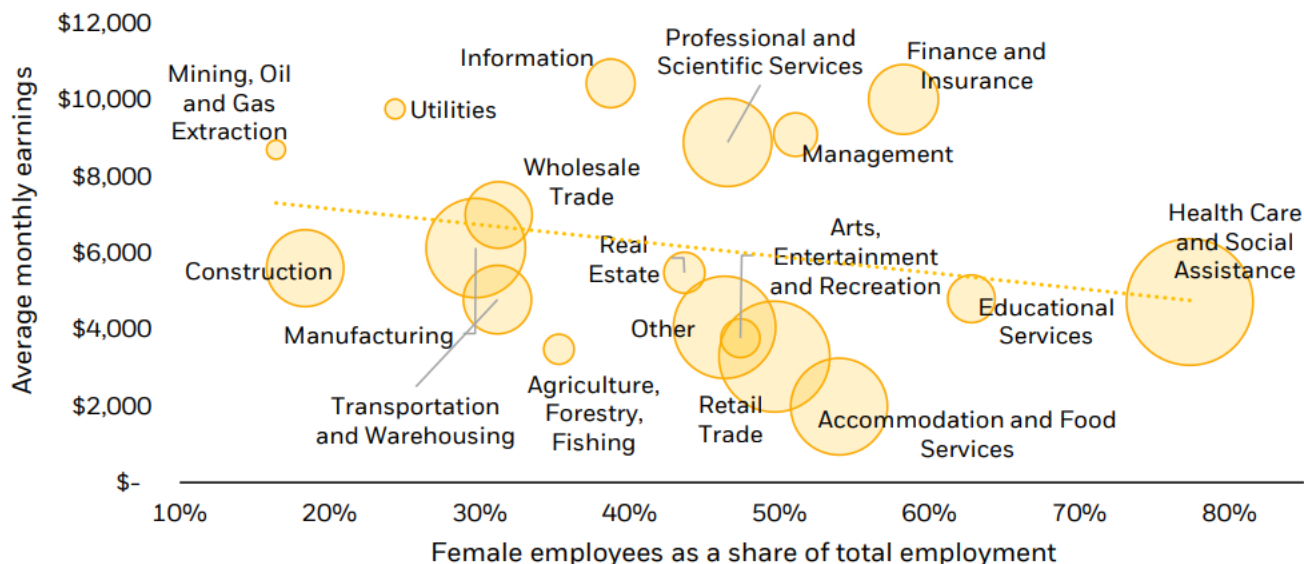


Source: OECD, IMF, Bloomberg, stock market indexes – FTSEMIB and ISEQ - are for 1997-2021 period.

“This years’ prize gives highest honour and dignity to the hundreds of millions of women all around the world who struggle every day to make a living and bring hope for a better life for their children.” M. Yunus

Alderotti, “Female employment and first childbirth in Italy: what news”. Genus Journal of Population Sciences, April 2022.

**Chart 12: Women in the US are more likely to work in lower-paid subsectors**



Source: US Census, BLS. Average monthly earnings from 2020, female employment share from 2021. Bubble size indicates total employment in the sector as of 2021.

Glassdoor Economic Research, Progress on the Gender Pay Gap: 2019, Research Report, March 2019.

Eurostat, Gender pay gaps in the European Union – a statistical analysis – Revision 1, 2021 edition, March 2022.

The Nobel Peace Prize 2006

Muhammad Yunus - Facts



Photo: N.A. Mamun

Muhammad Yunus  
The Nobel Peace Prize 2006

Born: 28 June 1940, Chittagong, British India (now Bangladesh)

Residence at the time of the award: Bangladesh

Role: Founder of Grameen Bank

Prize motivation: “for their efforts to create economic social development from below”

**Banker to the Poorest of the Poor**

Muhammad Yunus and Grameen Bank were awarded the Nobel Peace Prize for 2006 for their work to “create economic and social development from below”. Grameen Bank's objective since its establishment in 1983 has been to grant poor people small loans, aka micro-credit. Dr Yunus is the bank's founder.



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# WHY

**YET ONLY ONE-THIRD  
OF THE STEM WORKFORCE  
ARE FEMALE ?**

# Global Gender Gap 2024

INSIGHT REPORT  
JUNE 2024

FIGURE 2.16 | Shares of women and men in STEM occupations, by industry

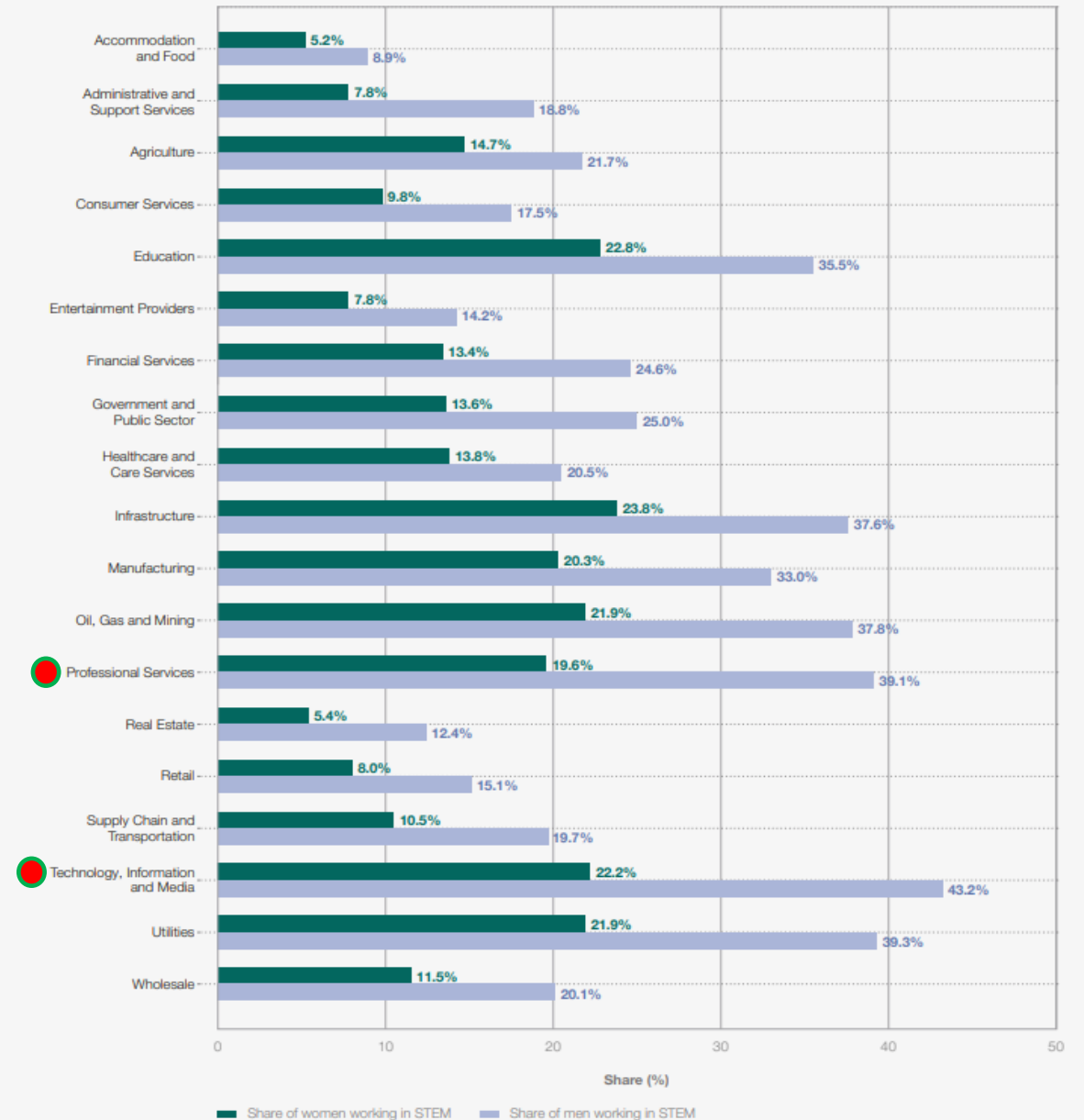
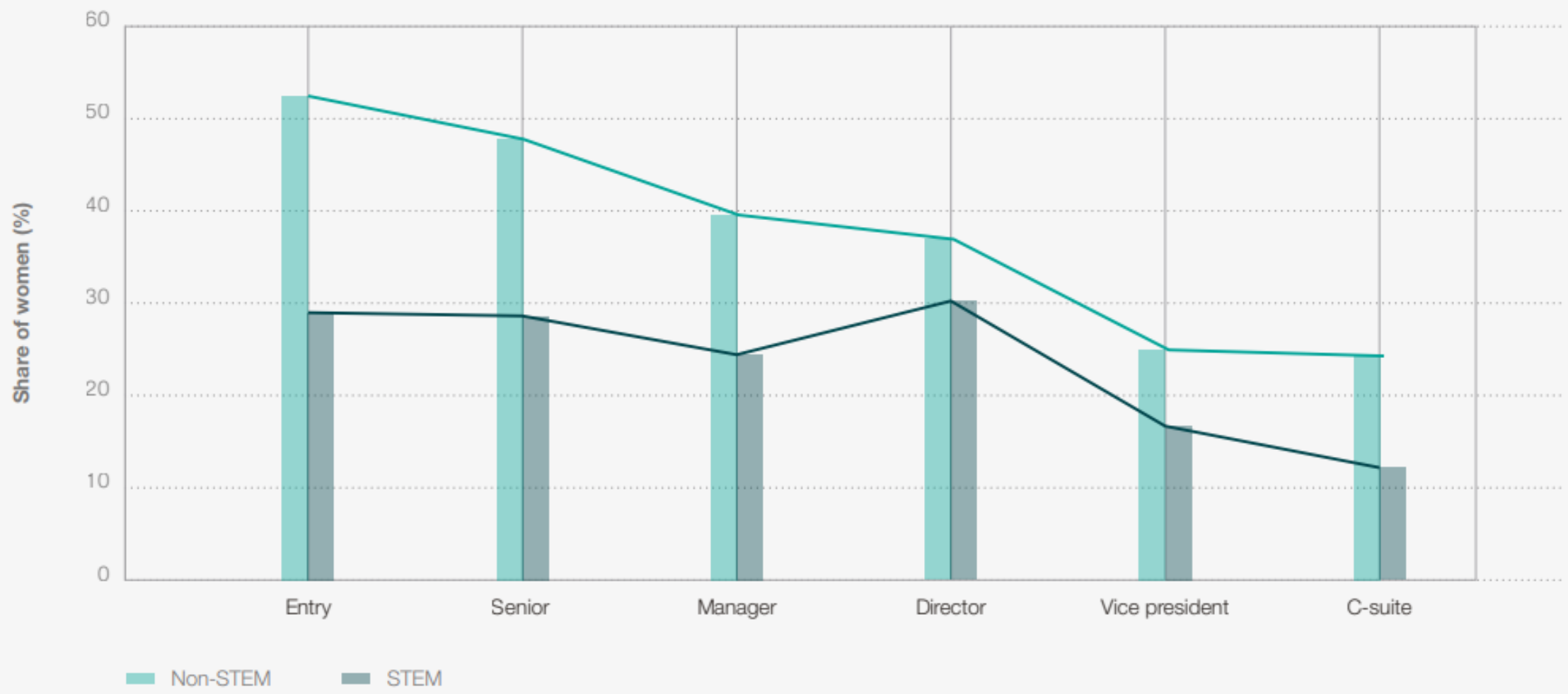
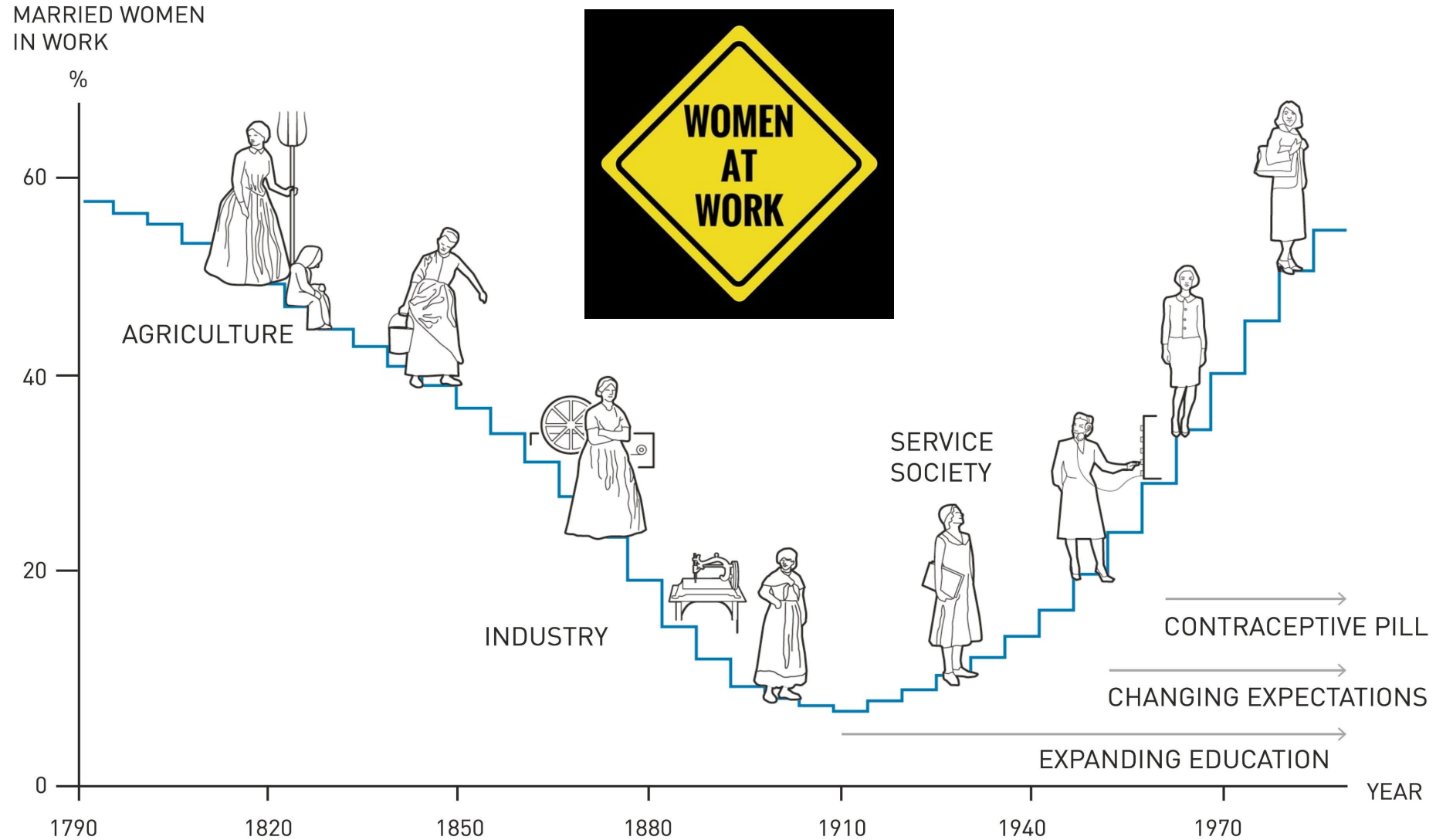




FIGURE 2.15 | Representation of women, by seniority, STEM vs non-STEM roles



# Women at Work – Past, Present & Future ?

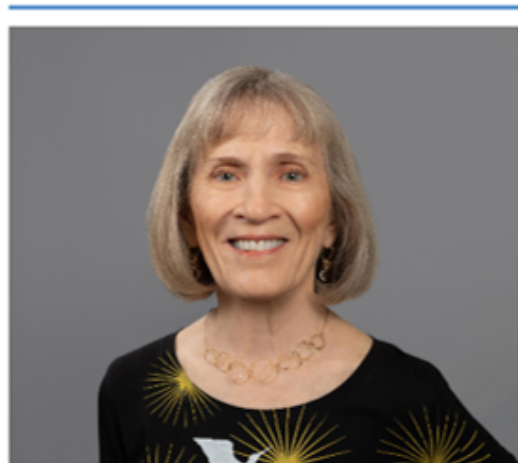
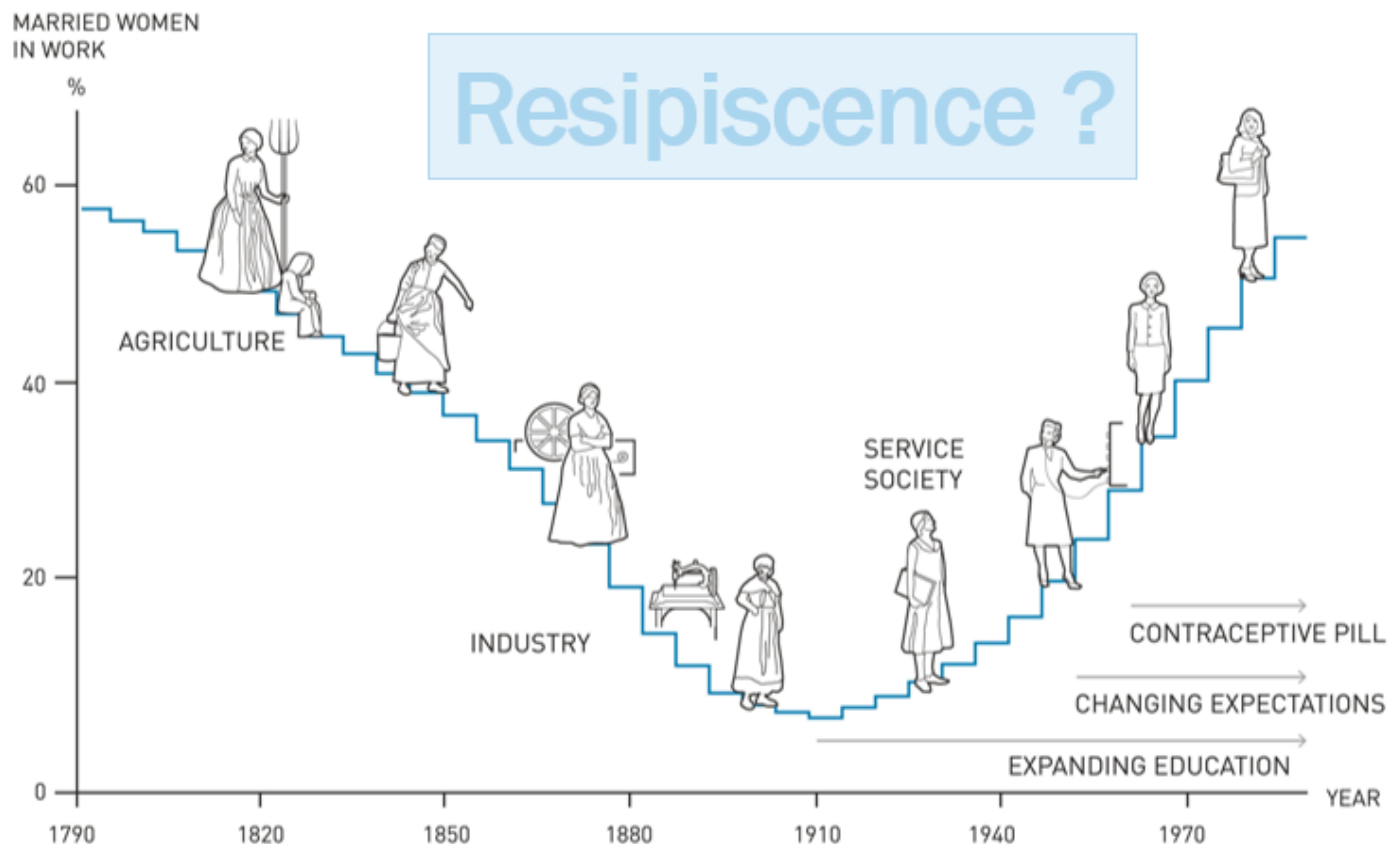






Businesses had been banning married women from work since at least the 1880s. Marriage bars were designed not only to reserve employment opportunities for men, but to ensure that unmarried women without families to support were kept in the lowest paying, least prestigious positions.

Claudia Goldin [www.nber.org/papers/w2747](https://www.nber.org/papers/w2747)



**NBER** NATIONAL BUREAU OF ECONOMIC RESEARCH

[www.nobelprize.org/prizes/economic-sciences/2023/summary/](https://www.nobelprize.org/prizes/economic-sciences/2023/summary/)  
 Prof Claudia Goldin awarded 2023 Nobel Prize for Economics

**Marriage Bars: Discrimination Against Married Women Workers, 1920's to 1950's**

Claudia Goldin

WORKING PAPER 2747 DOI 10.3386/w2747 ISSUE DATE October 1988



## Elinor Ostrom Facts



© The Nobel Foundation.  
Photo: U. Montan

Elinor Ostrom  
The Sveriges Riksbank Prize in Economic Sciences in  
Memory of Alfred Nobel 2009

Born: 7 August 1933, Los Angeles, CA, USA

Died: 12 June 2012, Bloomington, IN, USA

Affiliation at the time of the award: Indiana University,  
Bloomington, IN, USA; Arizona State University, Tempe,  
AZ, USA

Prize motivation: "for her analysis of economic governance,  
especially the commons"

*“In contrast to purchasing power parity (PPP), which is a real number, gender parity appears to be an imaginary number, similar to the quest for the square root of negative numbers.”*

**ONLY ONE-THIRD  
OF THE STEM WORKFORCE  
ARE FEMALE**



# ONLY ONE-THIRD OF THE STEM WORKFORCE ARE FEMALE



## National Center for Science and Engineering Statistics

[WMPD Home](#)

[Report](#)

[Data Tables](#)

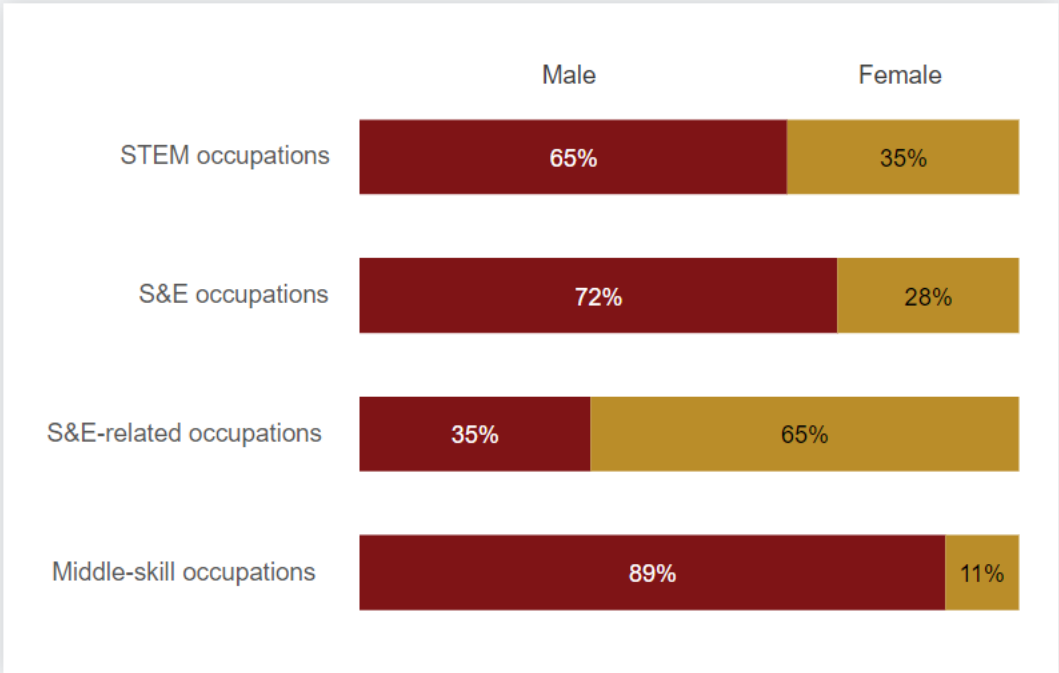
[Technical Notes](#)

[Additional Resources](#)

[Downloads](#)

[FAQs](#)

### Report Data Highlights



### STEM workforce ages 18–74, by occupation and sex: 2021

STEM = science, technology, engineering, and mathematics.  
S&E = science and engineering.

### Diversity and STEM

Women, Minorities, and Persons with Disabilities

2023

## Women in STEM — A celebration of excellence and curiosity

An MIT Values event showcased three women's career journeys and how they are paving the way for the next generation.

Dario Salati | Sharece Corner  
April 16, 2024



(From left to right): Professors Sangeeta Bhatia, Ann Graybiel, Paula Hammond, and Mary Fuller

Photo: Safa Benyettou

Sangeeta Bhatia  
<https://ki.mit.edu/people/faculty/sangeeta-bhatia>

Ann Graybiel  
<https://mcgovern.mit.edu/profile/ann-graybiel/>

Paula Hammond  
<https://cheme.mit.edu/profile/paula-t-hammond/>

Mary Fuller  
<https://lit.mit.edu/mfuller/>



# Women in Medicine ♦ Massachusetts General Hospital, Harvard Medical School



DEPARTMENT OF MEDICINE

## Women in Medicine Trainees' Council (WIMTC)

The WIMTC brings together trainees and faculty, across medical specialties to address the needs of women-identifying residents and fellows in the Department of Medicine at Massachusetts General Hospital.

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## WOMEN IN SCIENCE AND ENGINEERING (WISE ??) **AND MEDICINE**

Opportunities for women to be trained in STEM professions must be made ubiquitous in partnership with university laboratories, STEM-related businesses, corporations, R&D focused organizations and government-supported institutions as well as the scientific industrial complex.

Programs already exist, i.e., the intent and understanding of the need appears to be undisputed:

<https://www.nsf.gov/crssprgm/reu>

<https://researchtraining.nih.gov/career/undergraduate>

<https://www.nigms.nih.gov/research-training/programs/high-school-and-undergraduate>



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## **HOWEVER, THE VAST MAJORITY OF SMALL AND MEDIUM BUSINESSES (SMEs WITH STEM AS THEIR KEY COMPETENCY) ARE NOT ENGAGED**

SMEs must be supported by government and philanthropic funding to build capacity to train women. STEM workforce development must become an integral and integrated part of their core business operation rather than an occasional “feel-good” public service. The economic incentive of SMEs should be related to business productivity. The training process must not be divorced from the for-profit or non-profit line of business for which the SME exists. The training program must produce goods and services that the SMEs can profitably utilize in their usual business. Funding and economic incentives must allow SMEs to profit from their engagement with WISE while serving STEM workforce development with the focus on creating a steady stream of women trained in science and engineering jobs.

*To run these programs/operations SMEs must hire a real scientist (PhD in hard science/math) and refrain from hiring an “educator” (M.Ed).*

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# WISE MANTRA

Train women in highly technical science and engineering roles to prepare for high demand, high paying jobs, e.g., [1] healthcare and related fields (genetics, antigen-antibody assays, protein/nucleotide chemistry, pathology, forensics), [2] organic chemistry and biopharmaceutical industry, [3] engineering design in electronics/semiconductor industry, [4] fermentation and drug development [5] process chemistry (chemical engineering) for product development, e.g., commercial/household detergents/cleaners, paints, construction materials, [6] material science related fields, etc.

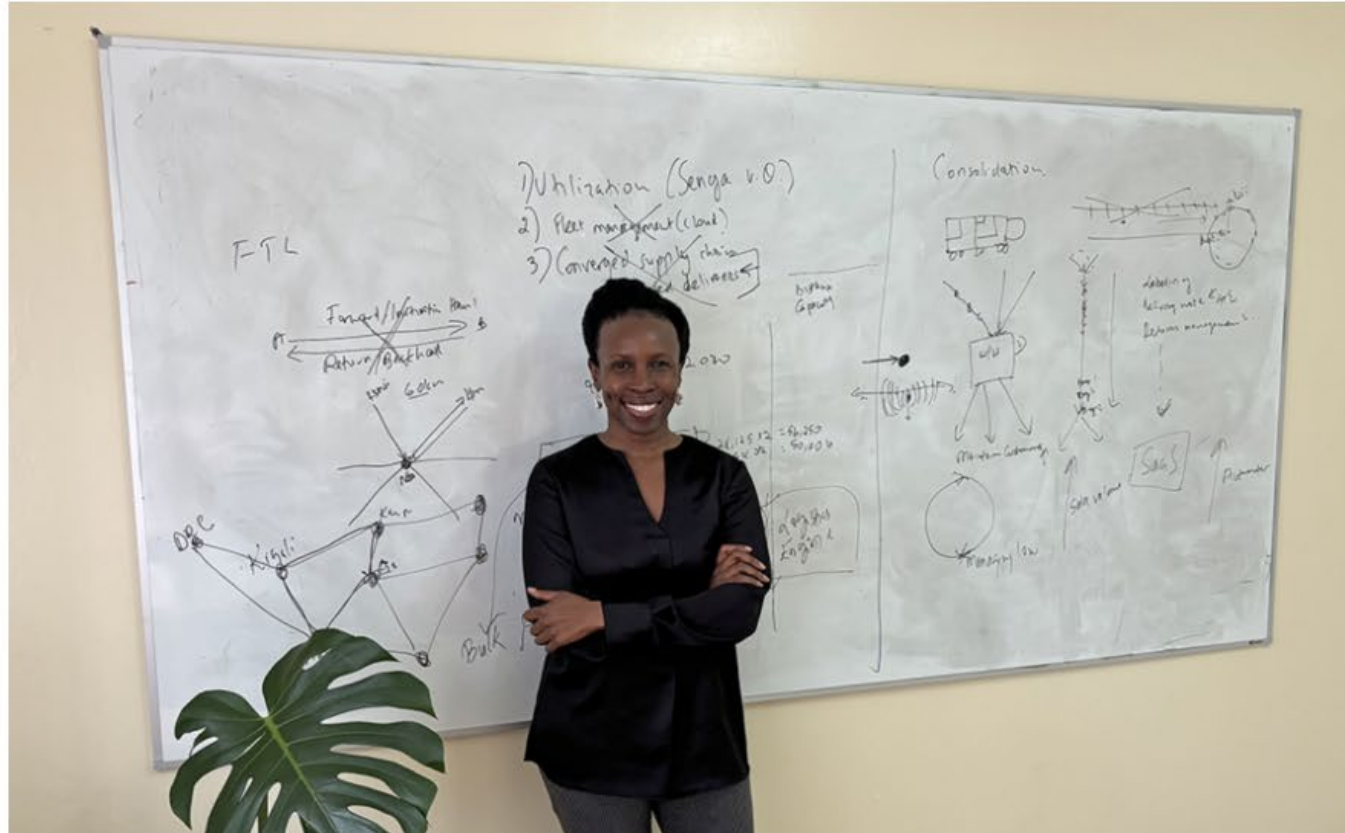
Training process MUST be supplemented with foundational education support to strengthen the content of training with online courses, e.g., <https://openlearning.mit.edu/>; <https://ocw.mit.edu/>; [www.khanacademy.org](http://www.khanacademy.org); [www.coursera.org](http://www.coursera.org)



## Entrepreneur creates career pathways with MIT OpenCourseWare

June Odongo uses free, online MIT courses to train high-quality candidates, making them job-ready.

Sara Feijo | MIT Open Learning  
January 25, 2024



June Odongo, founder and CEO of Senga Technologies, is using MIT OpenCourseWare to make high-quality candidates job-ready. Odongo created a six-month “bridging course” modeled after the classes she once took as a computer science student.

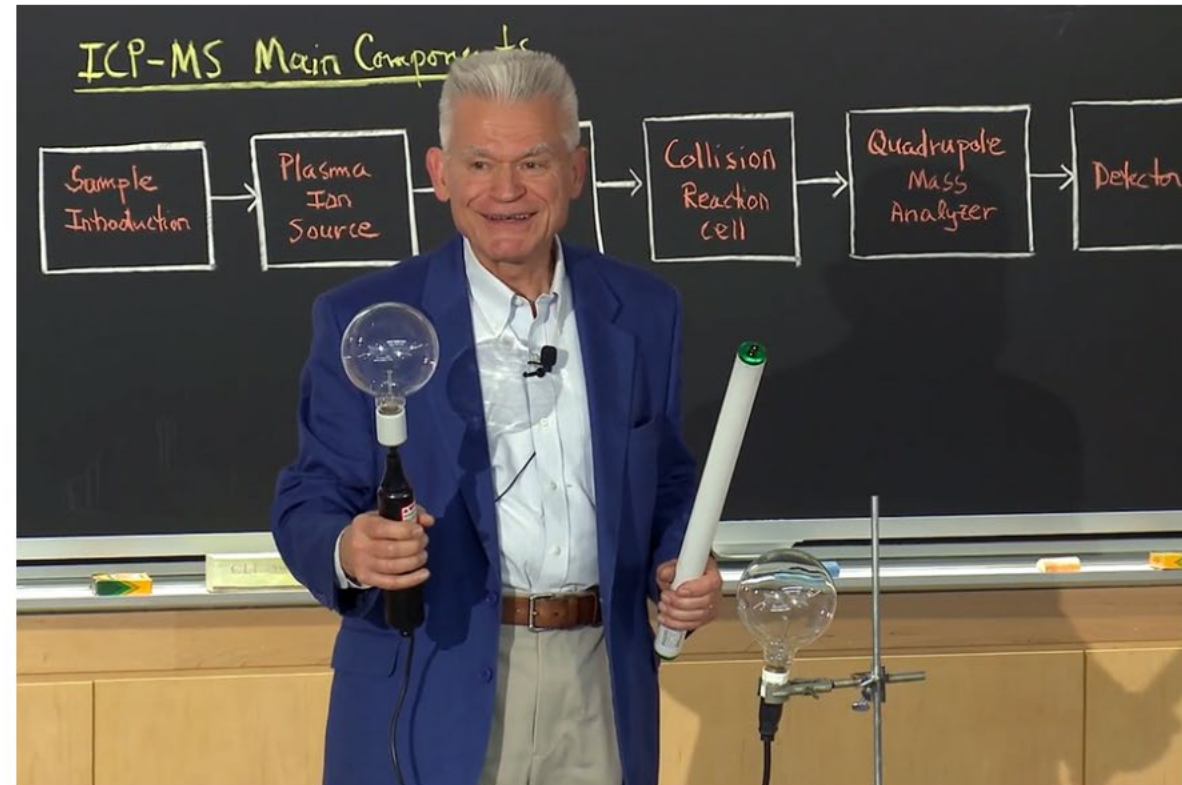
<https://senga.co>

## How free online courses from MIT can “transform the future of the world”

MIT OpenCourseWare’s YouTube channel inspires millions of learners across the globe to expand their knowledge and develop new skills for free.

[Watch Video](#)

Sara Feijo | MIT Open Learning  
March 12, 2024



[www.youtube.com/channel/UCeBb1b\\_L6zDS3xTUrlALZOw](https://www.youtube.com/channel/UCeBb1b_L6zDS3xTUrlALZOw)

<https://openlearning.mit.edu>

A global model for open sharing in higher education, MIT OpenCourseWare offers materials on its website from more than 2,500 undergraduate and graduate courses. And with 5 million subscribers, OpenCourseWare’s YouTube channel inspires millions of learners across the globe to expand their knowledge and develop new skills for free. Pictured: John Dolhun as seen teaching 5.310 (Laboratory Chemistry).

<https://ocw.mit.edu>

*From courses in engineering, biology, psychology, and computer science to lectures about financial concepts, linguistics, and music, the [MIT OpenCourseWare YouTube channel](#) offers millions of learners around the world a pathway to develop new skills and knowledge base with free offerings from MIT educators. Michael Pilgreen, a sculptor, painter, poet from Memphis, TN, discovered OpenCourseWare when he found himself unemployed in 2020 and [used it to jumpstart a new career](#) on Wall Street. After watching several lectures about finance, computer science, programming, mathematics, and algorithms on the OpenCourseWare YouTube channel and website, Pilgreen enrolled in the MITx MicroMasters program in finance. He is now a business operations specialist for the [Jameel World Education Lab](#) at MIT Open Learning, where he helps educators and innovators worldwide.*



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to transform  
the world

Dr. Shuren received his B.S. and M.D. degrees from Northwestern University under its Honors Program in Medical Education. He completed his medical internship at Beth Israel Hospital in Boston, his neurology residency at Tufts New England Medical Center, and a fellowship in behavioral neurology and neuropsychology at the University of Florida. He received his J.D. from the University of Michigan.

Participation of the US FDA  
CDRH was a powerful  
incentive for medical device  
manufacturers to explore  
innovative medical  
technology solutions,  
especially those benefiting  
from interoperability  
between manufacturers



**JEFF SHUREN**  
**DIRECTOR**  
**FDA**  
**CDRH**



DEPARTMENT OF HEALTH & HUMAN SERVICES

Food and Drug Administration  
10903 New Hampshire Avenue  
Room 5447, Building 66  
Silver Spring, MD 20993-0002

November 3, 2014

Julian M. Goldman, MD  
Director, Medical Device Interoperability Program  
65 Lansdowne Street  
Cambridge, MA 02139

Dear Dr. Goldman,

Thank you for reaching out to the Center for Devices and Radiological Health (CDRH) via our Emergency Preparedness/Operations and Medical Countermeasures (EMCM) Program.

We understand that The Medical Device "Plug-and-Play" (MD PnP) Interoperability Program, under your coordination, has been asked by the White House Office of Science and Technology Program to mobilize resources among medical device manufacturers and the clinical community, so as to design and demonstrate proof of concept for an interoperable platform that would enable critical care of Ebola-infected patients in an isolation environment with reduced exposure to health care workers.

FDA recognizes the importance of implementing strategies that minimize direct exposure of clinical personnel to patients infected with Ebola virus. We understand that MDPNP, along with its collaborators, are developing potential approaches that would include comprehensive data access and potential remote control of medical devices in the isolation environment, thereby reducing the risk of healthcare worker exposure to the virus.

CDRH recognizes the importance of these efforts and is ready and willing to collaborate with you, the clinical community and your industry partners to demonstrate the potential of this technology in serving this particular public health emergency. We are eager to observe the demonstration taking place Friday November 7th for OSTP, and we look forward to participating in the development of next steps with MDPNP and your medical device partners so as to do our part in enabling advancement of technology that can protect our healthcare workers who put themselves on the front line to promote the public health mission.

Sincerely,

A handwritten signature in black ink that reads "Jeffrey Shuren".

Jeffrey Shuren, M.D., J.D.  
Director  
Center for Devices and  
Radiological Health

## The Nobel Prize in Physiology or Medicine 1937



Photo from the Nobel Foundation archive.

Albert von Szent-Györgyi Nagyrápolt

Prize share: 1/1

[HTTPS://WWW.NOBELPRIZE.ORG/PRIZES/MEDICINE/1937/SUMMARY/](https://www.nobelprize.org/prizes/medicine/1937/summary/)

Research is four things: brains with which to think, eyes with which to see, machines with which to measure and, fourth, money.

— *Albert Szent-Gyorgyi* —

*Money is often the necessary catalyst for development.*



STEM FUNDING SOURCES ARE UNLIMITED AND ONLY LIMITED BY YOUR IMAGINATION AND CREATIVITY

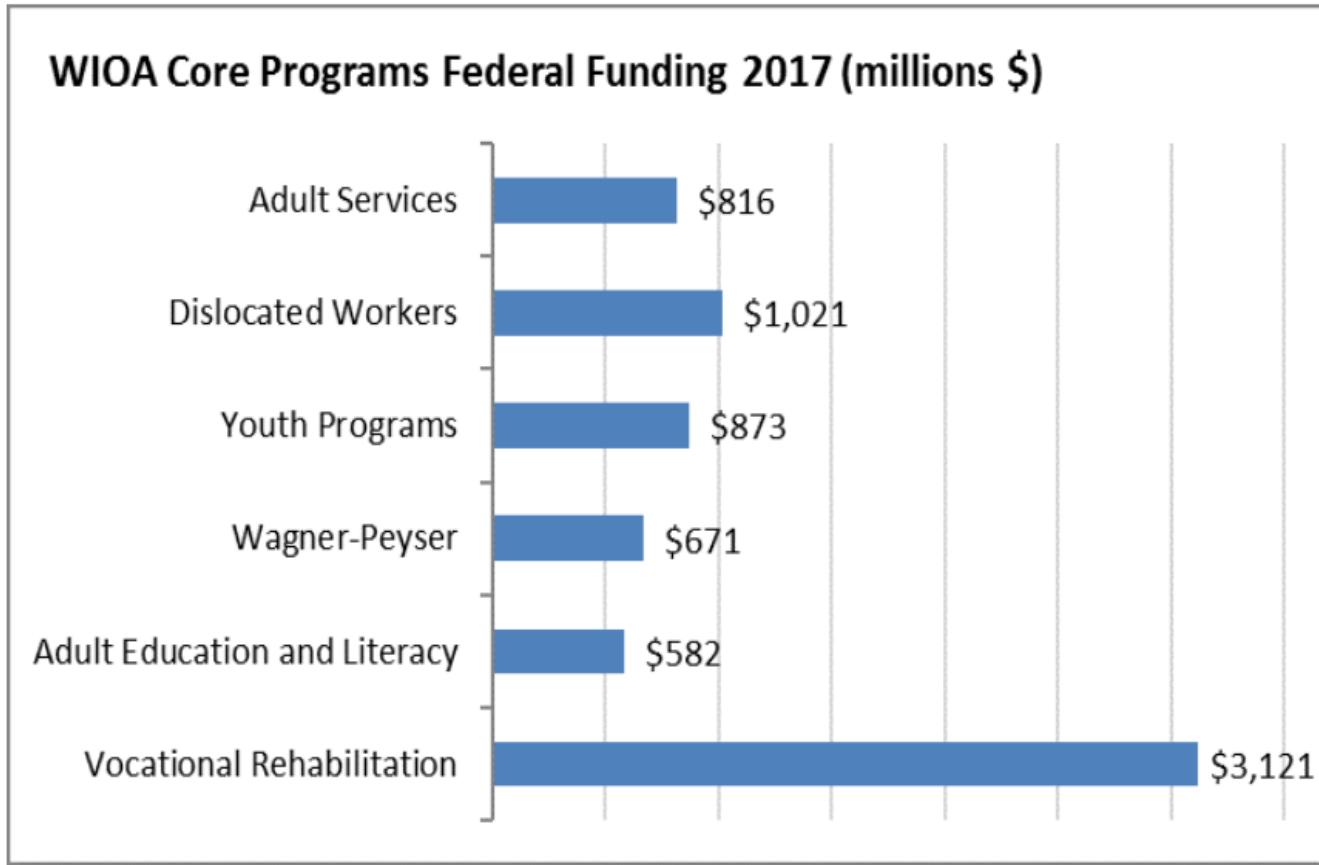
FUNDING, *unlimited*

# Workforce Innovation and Opportunity Act

**What are these federal funds used for?** Under the Workforce Innovation and Opportunity Act of 2014 (WIOA), the federal government distributes funding to states for six core programs, including the US Department of Labor's Adult Services, Dislocated Workers, and Youth Services programs (for employment and training activities), Wagner-Peyser programs (employment services for job seekers), and the US Department of Education's Division of Adult Education and Literacy (for basic skills) and its rehabilitation services programs (for employment services for individuals with disabilities). In 2017, the federal government distributed over \$7 billion in funding under WIOA.

Some important aspects of WIOA include

- an increase in the priority for providing services to out-of-school youth ages 16 to 24 from prior legislation;
- encouragement of the implementation of career-pathway approaches;
- improving services to employers by promoting sector-based partnerships and making state and local workforce boards responsible for activities to meet the workforce needs of local and regional employers; and
- encouraging [work-based learning](#) activities, such as on-the-job training, [registered apprenticeships](#), unpaid work experiences, like internships and job shadowing, and incumbent worker training.



<https://www.dol.gov/agencies/eta/wioa>;

<https://workforce.urban.org/node/69.html>



## Job Creation, Competition, and Small Business' Role in the United States Economy

115th Congress (2017-2018)

**HOUSE COMMITTEE HEARING**

Hide Overview ✕

**Committee:** [House Small Business](#)

**Related Items:** Data will display when it becomes available.

**Date:** 02/14/2018

**Location:** 2360 Rayburn House Office Building, Washington, D.C.

**Website:** <https://smallbusiness.house.gov/>

**Transcript:** [JOB CREATION, COMPETITION, AND SMALL BUSINESS' ROLE IN THE UNITED STATES ECONOMY](#)

<https://waysandmeans.house.gov/committee-report-shows-ways-means-focused-on-job-creation-in-opening-months-of-112th-congress/>

DC drum beat – JOBS, funding for JOB creation

<https://www.congress.gov/bill/107th-congress/house-bill/3090>

<https://www.congress.gov/bill/112th-congress/house-bill/2837/all-info>

<https://www.govinfo.gov/content/pkg/BILLS-111s3103is/pdf/BILLS-111s3103is.pdf>

<https://www.govinfo.gov/content/pkg/CHRG-112hrg72493/pdf/CHRG-112hrg72493.pdf>

<https://www.whitehouse.gov/briefing-room/statements-releases/2021/03/31/fact-sheet-the-american-jobs-plan/>

### EXPANDING OPPORTUNITIES FOR JOB CREATION

#### HEARING

BEFORE THE

COMMITTEE ON EDUCATION  
AND THE WORKFORCE  
U.S. HOUSE OF REPRESENTATIVES  
ONE HUNDRED TWELFTH CONGRESS  
SECOND SESSION

HEARING HELD IN WASHINGTON, DC, FEBRUARY 1, 2012

Serial No. 112-49



Top Panel (left and right)  
Dr Mary Good  
Undersecretary  
US Department of Commerce  
(& Shoumen Palit Austin Datta, MIT)



Bottom Panel (left and right)  
Dr Ernie Moniz  
Secretary of Energy  
US Department of Energy  
(& Shoumen Palit Austin Datta, MIT)



3 March 2009, MIT



21 January 2017, MIT



STEM WORKFORCE FUNDING AVAILABLE AS GRANTS FROM EVERY BRANCH OF GOVERNMENT, EVERY TYPE OF MAJOR CORPORATION, MOST MAJOR NON-PROFIT FOUNDATIONS AND MANY BUSINESSES.

FUNDING, *unlimited*

<https://orip.nih.gov/division-construction-instruments/s10-instrumentation-programs>

Did you know that corporations contributed more than **\$21.08 billion to nonprofits**? And, more importantly, that number is expected to grow year over year?

<https://www.instrumentl.com/blog/corporate-grants-list-for-nonprofits>

<https://justcapital.com/reports/annie-e-casey-foundation-2022-workforce-equity-and-mobility-ranking-top-100-companies/>

<https://purposebrand.com/blog/diversity-report-examples-fortune-2023/>



## FOUNDATIONS SUPPORT STEM WORKFORCE DEVELOPMENT

STEM WORKFORCE FUNDING AVAILABLE AS GRANTS FROM EVERY BRANCH OF GOVERNMENT, EVERY TYPE OF MAJOR CORPORATION, MOST MAJOR NON-PROFIT FOUNDATIONS AND MANY BUSINESSES.

# FUNDING, *unlimited*

<https://www.instrumentl.com/browse-grants/workforce-grants>

<https://www.swfinstitute.org/fund-rankings/foundation>

<https://www.tgci.com/funding-sources/all/top>

<https://www.caseygrants.org/core-grantmaking>

<https://www.nptrust.org/grants-in-action>

<https://www.forbes.com/lists/top-charities>

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STEM WORKFORCE FUNDING AVAILABLE AS GRANTS FROM EVERY BRANCH OF GOVERNMENT, EVERY TYPE OF MAJOR CORPORATION, MOST MAJOR NON-PROFIT FOUNDATIONS AND MANY BUSINESSES.

# FUNDING, *needed for*

*Instrumentation, Supplies*

*Mentors & Supervisors FTE*

*Student Stipends & Scholarships*

*Overhead, Operations, Facilities, Maintenance*

*Capacity Building, Communications, Job Support*



ALL NEEDED FUNDING MAY NOT BE PROCURED FROM 1 SOURCE (PURSUE PATCH WORK OF GRANTS).

# FUNDING, *needed for*

*Instrumentation, Supplies*

*Mentors & Supervisors FTE*

*Student Stipends & Scholarships*

*Overhead, Operations, Facilities, Maintenance*

*Capacity Building, Communications, Job Support*

THE THREE MAGIC BULLETS IN FUNDING ACQUISITION: RELATIONSHIPS, PURPOSE, PERSEVERANCE  
THERE IS ONLY 1 MAGIC BULLET WHICH IS THE BEDROCK OF FUNDING ACQUISITION: CREDIBILITY

# FUNDING, *process*

*Engage with the funding organization [individual(s)] to understand the person and their purpose.*

*Build relationship with the organization by sharing your purpose (outcome-informed, grand challenges).*

*Grasp the parameters of the organization and their board members to determine their need / indicators for success.*

*Align your key performance indicators for the WISE workforce development program with their indicators for success.*

*Create and discuss draft proposal per discussion, guidelines and lessons learned during the relationship building process.*

*Discuss the semi-final draft with a seasoned and wise well wisher in the same funding stream to arrive at the final version.*

*Submit. If you are true to your purpose and if your key purpose is to lift many boats, then success will find a way to your door.*



---

# SLIGHTLY ALTERNATIVE APPROACH TO TRAIN WISE, TRAIN BEST

MAKE NO LITTLE PLANS. THEY HAVE NO MAGIC TO STIR MEN'S BLOOD AND PROBABLY WILL NOT THEMSELVES BE REALIZED. MAKE BIG PLANS, AIM HIGH IN HOPE AND WORK, REMEMBERING THAT A NOBLE, LOGICAL DIAGRAM ONCE RECORDED WILL NEVER DIE, BUT LONG AFTER WE ARE GONE WILL BE A LIVING THING, ASSERTING ITSELF WITH EVER GROWING INSISTENCY.

Make no  
little plans  
they have no  
magic to stir  
men's blood.

- Daniel  
Burnham

# TRAIN WISE TRAIN BEST

**TRAIN WISE** (WOMEN IN SCIENCE AND ENGINEERING)

**TRAIN BEST** (BIOMEDICAL ENGINEERING, SCIENCE AND TECHNOLOGY)

<https://girlswhocode.com>

# GIRLS WHO DECODE

TRAINING PROGRAM FOR WOMEN IN BIOMEDICAL ENGINEERING, SCIENCE AND TECHNOLOGY



# INSPIRE TO PAY IT FORWARD

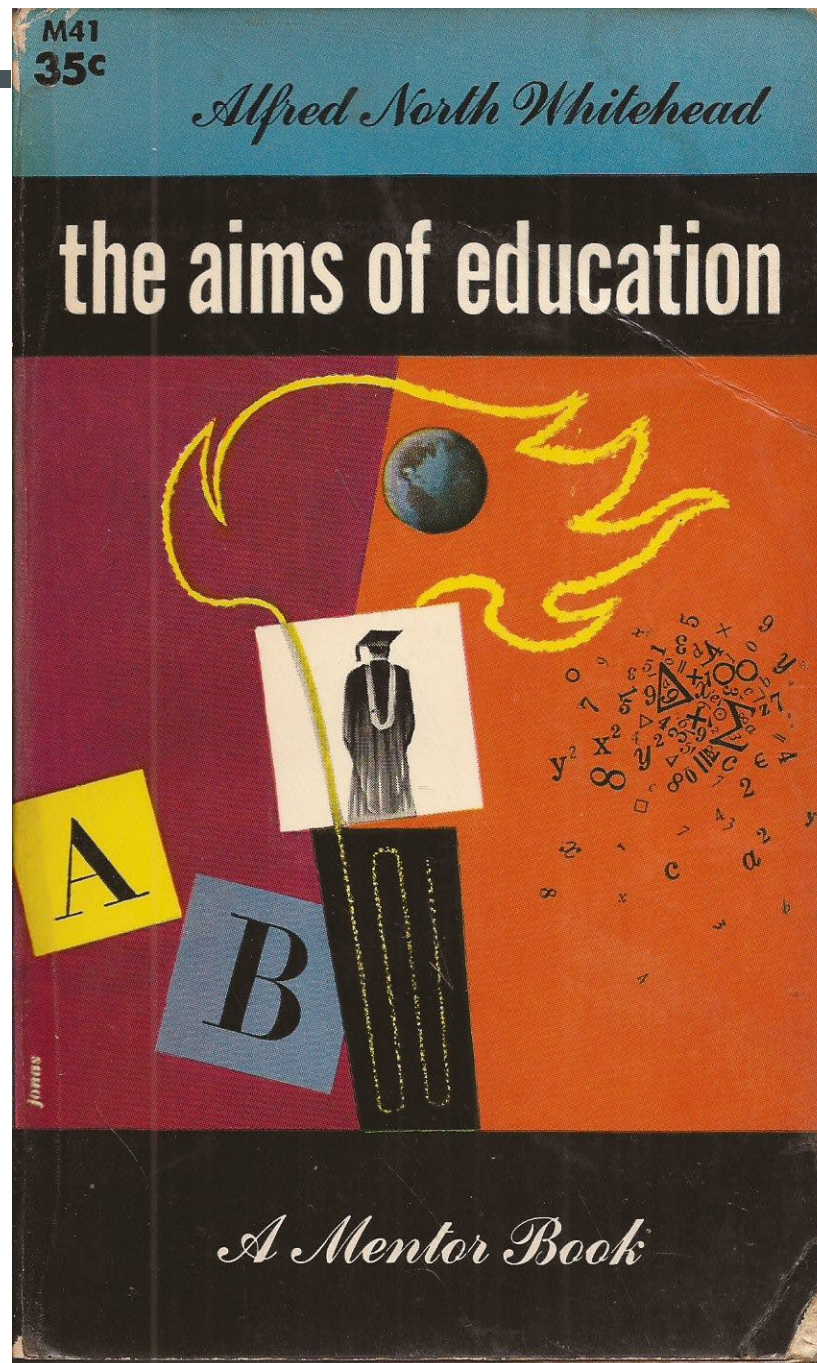
To reduce dependence on grants and charities, could we consider that women who complete the TRAIN WISE program may be willing to reimburse the training entity with about half of the cost of training? The funds, thus gathered, will help to increase the number of women who are trained, in the future. The repayment request will take effect if the TRAIN WISE graduate (in the future) earns at least thrice the US average per capita income or twice the US median household income. The repayment must be over time, not mandatory or legally enforceable.

## GIRLS WHO DECODE

**Data-Informed Entrepreneurial Financial Instruments • [www.census.gov/quickfacts/fact/table/US/SEX255222](http://www.census.gov/quickfacts/fact/table/US/SEX255222)**

TRAINING PROGRAM FOR WOMEN IN BIOMEDICAL SCIENCE, TOOLS AND TECHNOLOGY

What was discussed so far is simply a nano-drop in the ocean of education.

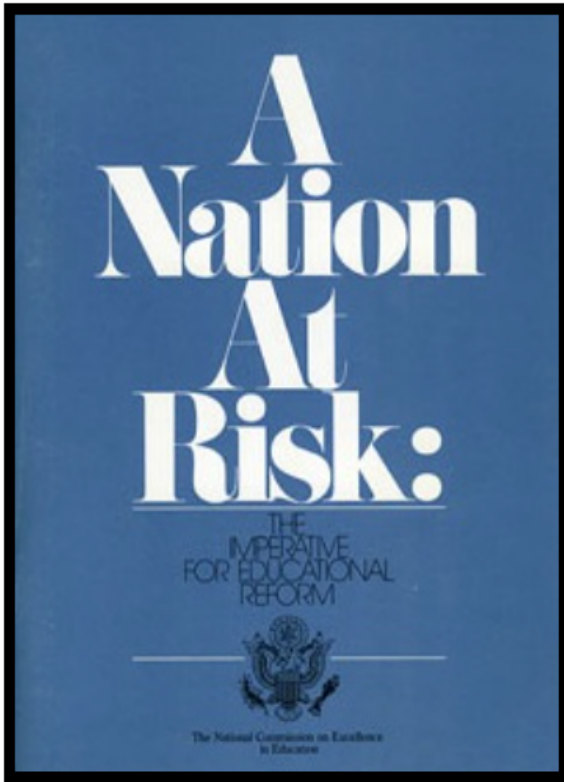


STEM  
workforce  
development  
only enables  
WISE  
women to  
compete in a  
job market.



# 1983 – A NATION AT RISK – Glenn T. Seaborg (co-author)

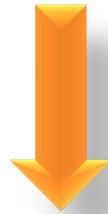
[https://edreform.com/wp-content/uploads/2013/02/A\\_Nation\\_At\\_Risk\\_1983.pdf](https://edreform.com/wp-content/uploads/2013/02/A_Nation_At_Risk_1983.pdf)



April 26, 2013 marks the 30 year anniversary of one of the education reform movement's most influential reports, *A Nation At Risk*. With an unprecedented urgency, the 1983 report called for Americans to reverse the course of a crumbling U.S. education system plagued by "a rising tide of mediocrity that threatens our very future as a Nation and a people. If an unfriendly foreign power had attempted to impose on America the mediocre educational performance that exists today, we might well have viewed it as an act of war."

Now, thirty years after this grave warning, we still have an education system where students graduate without even basic literacy skills. So where do we go from here?

The commission that wrote [A Nation At Risk](#)



**Glenn T. Seaborg**

[www.nobelprize.org/prizes/chemistry/1951/seaborg/facts](http://www.nobelprize.org/prizes/chemistry/1951/seaborg/facts)

## Nobel laureates in bid to revamp science teaching

8<sup>th</sup> JAN 1998

[SAN FRANCISCO] A group that includes ten Nobel laureates will learn shortly whether it has been successful with its offer to restructure academic standards for California's science curriculum. The move follows a decision last month by a state commission to reopen a process under which the group's bid had earlier been rejected.

The Nobel prizewinners include such well-known names as David Baltimore, Glenn T. Seaborg, Henry Taube, Dudley Herschbach and Paul Berg, and the group is keen to counteract what its members regard as a 'dumbing down' trend in science education. [www.nature.com/articles/34255.pdf](http://www.nature.com/articles/34255.pdf)

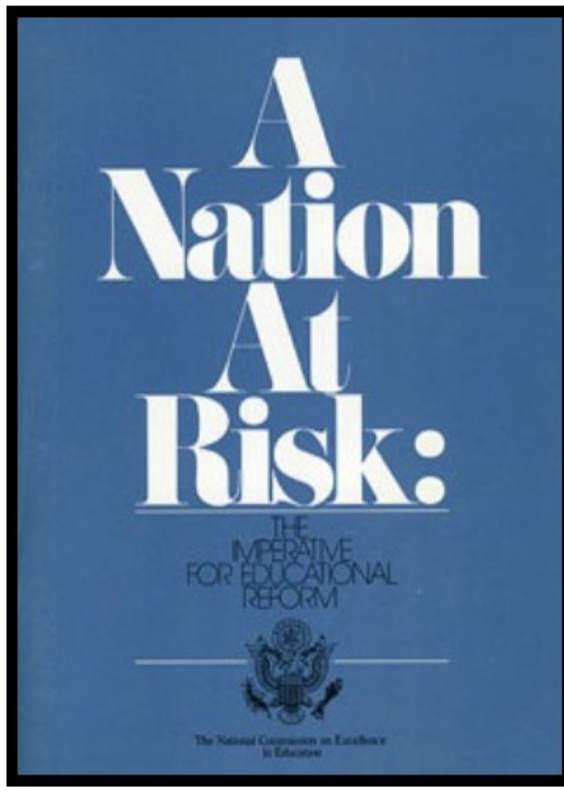


Seaborg: 'go back to basics in teaching.'

"Technology firms are hurting because they can't find people with elementary scientific knowledge," he says; even those in other fields need a basic understanding of science in order to perform adequately as citizens. Seaborg was the lead author of a 1983 report, *A Nation at Risk*, which detailed educational weaknesses and stimulated a wave of reforms.



**Glenn T. Seaborg**



“SHODDY AND SECOND GRADE  
MASQUERADING AS GOOD ENOUGH”

ABOUT THE QUALITY OF K-12 PUBLIC EDUCATION IN THE UNITED STATES



# EPILOGUE: MICAH SAMUELS WAS A CO-AUTHOR OF OUR 2004 BOOK CHAPTER

Datta, Shoumen, Bob Betts, Mark Dinning, Feryal Erhun, Tom Gibbs, Pinar Keskinocak, Hui Li, Mike Li, and **Micah Samuels** (2003) *Adaptive Value Network*. Chapter 1 (pages 3-67). In *Evolution of Supply Chain Management: Symbiosis of Adaptive Value Networks and ICT*. Chang, Yoon Seok, Makatsoris, Harris C., and Richards, Howard D. ed. ISBN 978-1-4020-7812-5 <https://doi.org/10.1007/b110025> 2004 Kluwer. <https://link.springer.com/book/10.1007/b110025>  
Pre-Publication Version in French (in MIT Library) <http://dspace.mit.edu/handle/1721.1/41907>

## Micah Samuels

---

**From:** Micah Samuels

**Sent:** Monday, March 11, 2024 12:06 PM

**To:** Shoumen Datta <shoumen@mit.edu>

**Subject:** Re: Part 3

A training program targets the narrow part of the funnel, and I believe we also need to target getting more into the wide end of the funnel. We need to change gender stereotypes starting at a very young age. The percent of women getting college degrees has improved over the years, but we still have a long way to go to improve their representation in STEM curriculum.

## A Nation in Progress

PDF of this essay is now available from the MIT Library - <https://dspace.mit.edu/handle/1721.1/146640>

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# Lifting women up

First Lady of Sierra Leone Fatima Maada Bio is working to end gender-based violence, and empower women

Mar 18, 2024 By Colleen Walsh



Credit: Lorin Granger

According to the 2019 [Sierra Leone Demographic and Health Survey](#), 61% of women and girls between the ages of 15-49 have experienced physical violence since the age 15, and 7% have experienced sexual violence. The non-governmental organization Human Rights Watch has said sexual violence during the nation's civil war from 1991 to 2002, "affected thousands of girls and women of all ages," and was rooted in "the persistent human rights violations that push women into a lower status with limited rights in all spheres of their lives." For more information go to <https://dhsprogram.com/pubs/pdf/FR365/FR365.pdf>



mitalphahi







**ARAGON Louis**  
Poète et écrivain.

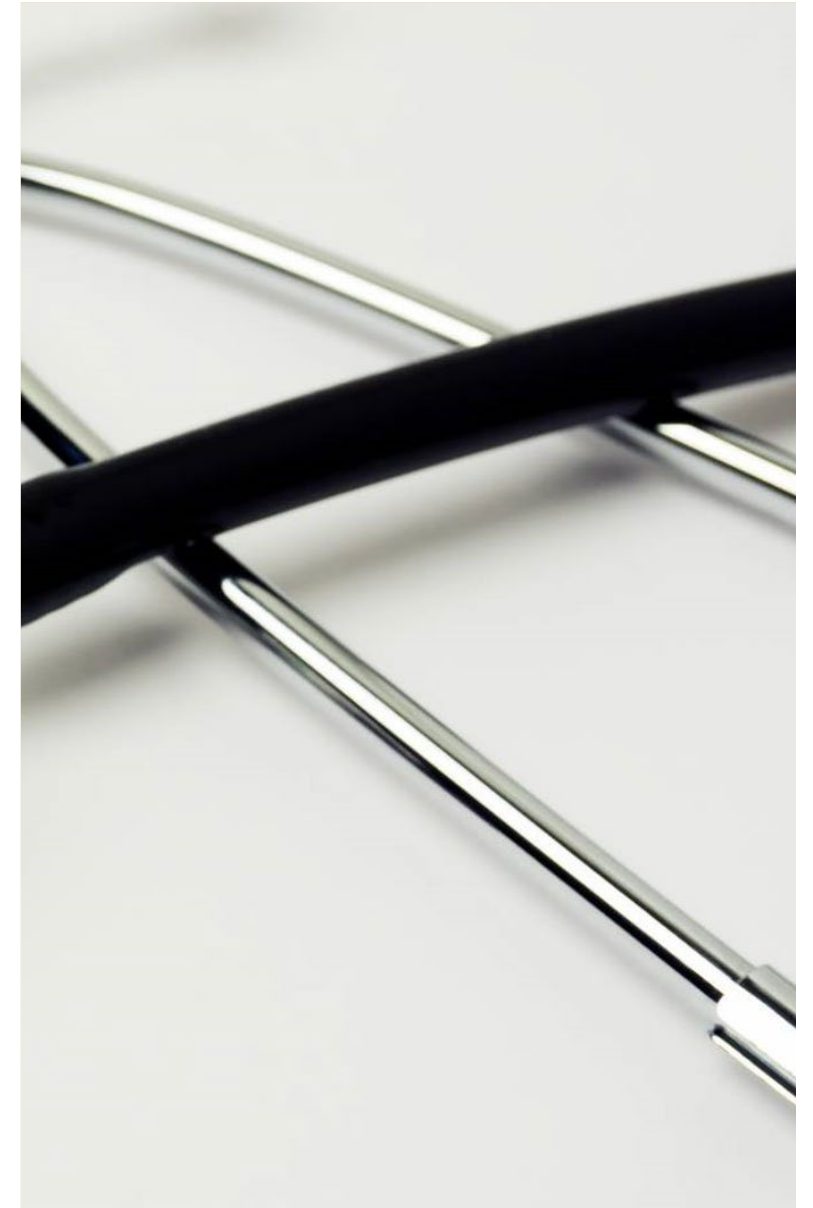
L'avenir de l'homme est la femme.  
Elle est la couleur de son Ame.  
Elle est sa rumeur et son bruit.  
Et sans Elle, il n'est qu'un blasphème.

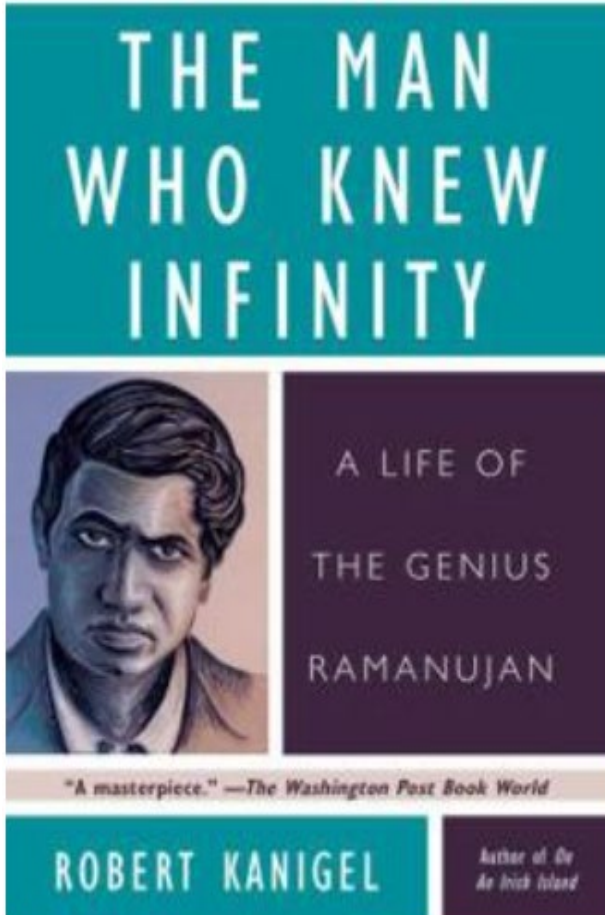
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**Source :** Le Fou d'Elsa, éd. Gallimard

**Date de publication :** 1963

**Thèmes :** Femme





“Per aspera ad Astra.”

– Lucius Annaeus Seneca

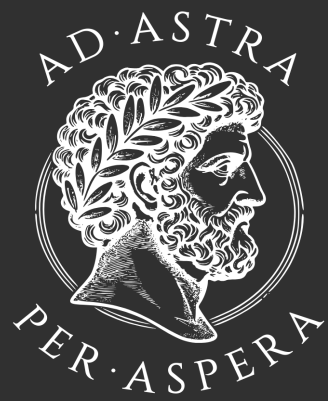




# *Woman is the future of man*

L'avenir de l'homme est la femme  
Elle est la couleur de son âme  
Elle est sa rumeur et son bruit  
Et sans elle il n'est qu'un  
blasphème

Louis Aragon



**Katherine G. Johnson-1983-NASA**



**Dorothy J. Vaughan-NASA**



**Mary W. Jackson- NASA**



THIS PRESENTATION WAS DISCUSSED VIA ZOOM BY SHOUMEN DATTA ON 6 MARCH 2024  
MATERIAL WAS PROVIDED BY SQUARE ROOT OF NEGATIVE NUMBERS LLC (SRNN LLC)  
SHOUMEN PALIT AUSTIN DATTA IS CHIEF IMAGINARY OFFICER (CIO) OF SRNN LLC

---



# SQUARE ROOT OF NEGATIVE NUMBERS LLC

IS AN IMAGINARY CORPORATION WHOSE COMPANY I KEEP

IMAGINATION-INVENTION-INNOVATION-IMPLEMENTATION



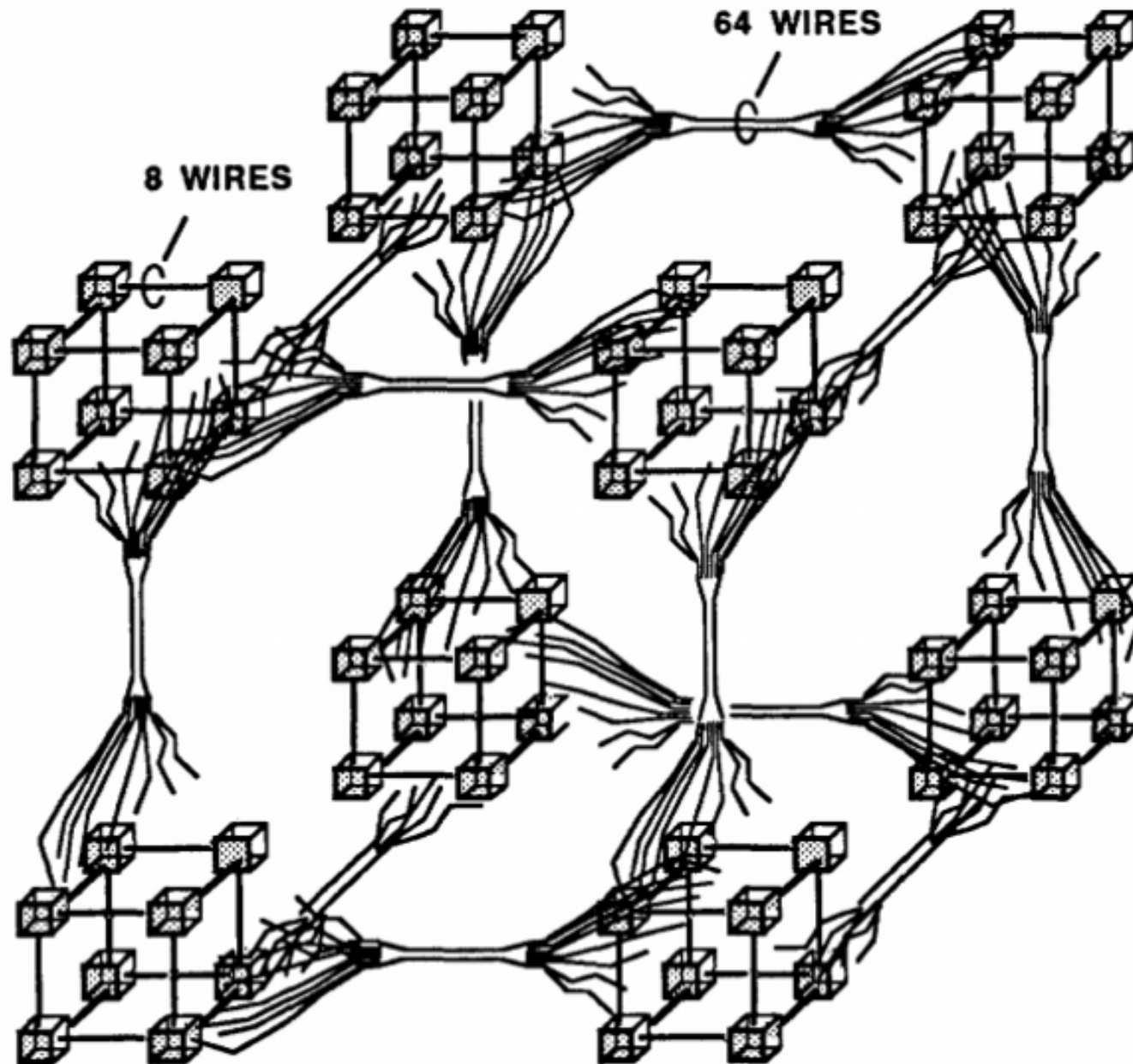
# SQUARE ROOT OF NEGATIVE NUMBERS LLC

ADVOCATES A STRATEGIC DESIGN METAPHOR BASED ON THE CONCEPT OF CUBE-ON-CUBE CONNECTIVITY

IMAGINATION-INVENTION-INNOVATION-IMPLEMENTATION



Marvin Minsky's cube-on-cube concept is extrapolated from and is a schematic representation of the topological connectivity between neurons / neuronal circuits (biological design of dependencies preserved through evolution).



*Each corner of a cube is a parameter or attribute or characteristic or point in a network (person, contact or influencer)*

*Thus, eight corners of a cube could represent various factors that could potentially influence an outcome or eight individuals or eight nodes or groups which could be involved in a project (an alliance, consortium or grand challenges)*

*Each smaller cube then may act as the vertex of the next larger cube and the larger cube then becomes a vertex of an even larger cube as problems grow (local, regional, national to global scales)*



# SQUARE ROOT OF NEGATIVE NUMBERS LLC

ADVOCATES A STRATEGIC DESIGN METAPHOR BASED ON THE CONCEPT OF CUBE-ON-CUBE CONNECTIVITY

AIMS TO BUILD LAYERS OF NETWORKS TO CATALYZE PERFORMANCE THROUGH CONNECTIVITY & INFLUENCING

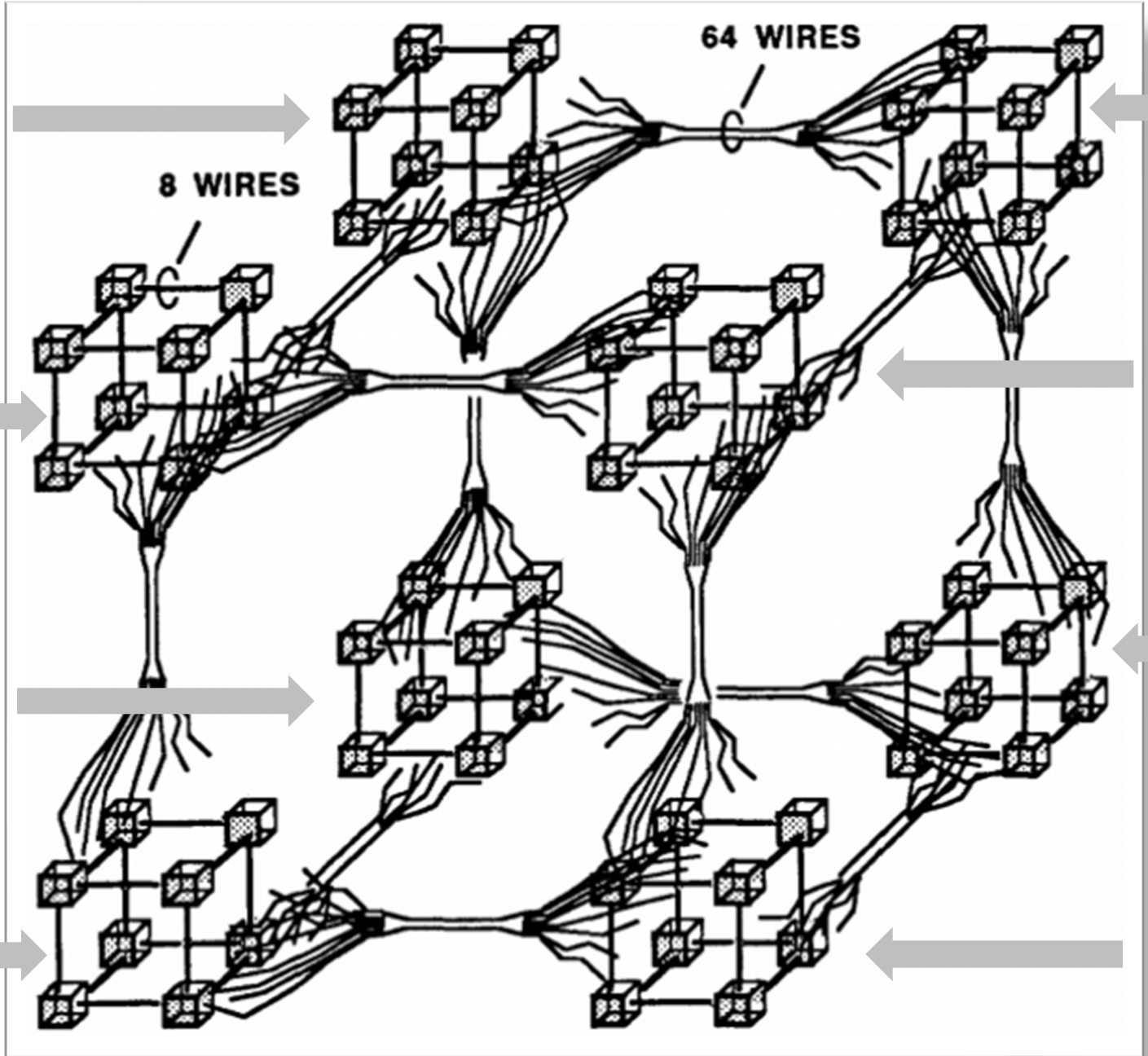
# CONVERGENCE OF A SPECTRUM OF NODES TO INFORM AND INFLUENCE KEY PERFORMANCE INDICATORS (KPI)

SCIENCE & SCIENTISTS

GRANTS & DONORS

WORKFORCE DEVELOPMENT

RESEARCH & CREDIBILITY



EQUIPMENT & REPOSITORIES

BUSINESS DEVELOPMENT

PRODUCTS & MARKETING

GOVERNMENT LIAISON & PR



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## ◆ WHY THIS ELUSIVE QUEST ?

- PURPOSE OVER PROFIT
- ETHICAL PROFITABILITY
- ECONOMIC PRODUCTIVITY
- SCIENCE AS A SERVICE TO SOCIETY

Nobel Prizes & Laureates

Nomination

Alfred Nobel

News & insights

Events

Educational

Economic Sciences



Prize in Economic Sciences 1987

Robert M. Solow - Facts



The Sveriges Riksbank Prize in Economic Sciences in Memory of Alfred Nobel 1987

# Robert M. Solow Facts

Robert M. Solow



Photo from the Nobel Foundation archive.

Robert M. Solow  
The Sveriges Riksbank Prize in Economic Sciences in Memory of Alfred Nobel 1987

Born: 23 August 1924, Brooklyn, NY, USA

Died: 21 December 2023, Lexington, MA, USA

Affiliation at the time of the award: Massachusetts Institute of Technology (MIT), Cambridge, MA, USA

Prize motivation: "for his contributions to the theory of economic growth"

Prize share: 1/1



Robert Solow (L), 18 September 2009, MIT (Shoumen Datta, MIT)

*At MIT, Solow served as principal advisor to over 70 doctoral students and four of his PhD students went on to win the Nobel Prize in Economics (George Akerlof PhD '66, Peter Diamond PhD '63, William Nordhaus PhD '67, and Joseph Stiglitz PhD '67). One student who wrote an undergraduate economics thesis for Solow, (H. Robert Horvitz '68) also won the Nobel Prize but in Physiology or Medicine.*

*<https://news.mit.edu/2023/institute-professor-emeritus-robert-solow-dies-1222>*

*<https://www.technologyreview.com/2019/12/27/131259/the-productive-career-of-robert-solow/>*

<http://piketty.pse.ens.fr/files/Solow1956.pdf>

[www.nobelprize.org/prizes/economic-sciences/1987/solow/facts/](http://www.nobelprize.org/prizes/economic-sciences/1987/solow/facts/)

# RAISON D'ÊTRE

A photograph of a classroom. A teacher, wearing a white hijab and a dark dress, stands at the front of the room, facing a large green chalkboard. She appears to be writing or pointing at the board. In the foreground, several students, also wearing white hijabs and dark dresses, are seated at their desks, looking towards the teacher. The classroom has a simple, somewhat worn appearance with a concrete floor and plain walls. The lighting is somewhat dim, and the overall atmosphere is that of a traditional educational setting.

*Science as a service to society*









*Inveniam viam aut  
faciam*

---

*Shoumen Palit Austin Datta*

← → ↻ ictp.it/home/scientific-calendar







  The Abdus Salam  
**International Centre  
for Theoretical Physics**  

 Advanced filters 

## March 2024

March

**06**

 Starting time <b>11:00</b> - 12:00	<b>Seminars</b> 	 <b>LUIGI STASI SEMINAR ROOM (AND VIA ZOOM)</b>
 <b>06 Mar 2024</b>		 <b>Angela Parise (CNR-IOM at SISSA)</b>
		 <b>CONDENSED MATTER AND STATISTICAL PHYSICS</b>

**CMSP Seminar (Atomistic Simulation Webinar Series): First Principles Simulations of Biological Matter under Ionizing Radiations**



THIS MATERIAL WAS ADDED AFTER THE TALK (03/06)







# PUBLIC VISIBILITY OF IDEAS AND OPINIONS

IN RESPONSE TO THE QUESTION “WHAT IS THE VALUE OF THE PRESENTATION HANGING IN THE MIT LIBRARY?”





# HERE IS AN EXAMPLE

[HTTPS://DSPACE.MIT.EDU/HANDLE/1721.1/117273](https://dspace.mit.edu/handle/1721.1/117273)



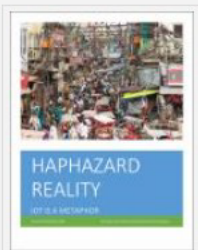
# MIT Auto-ID Laboratory

## Recent Submissions



### Digital Transformation - IoT is a Metaphor

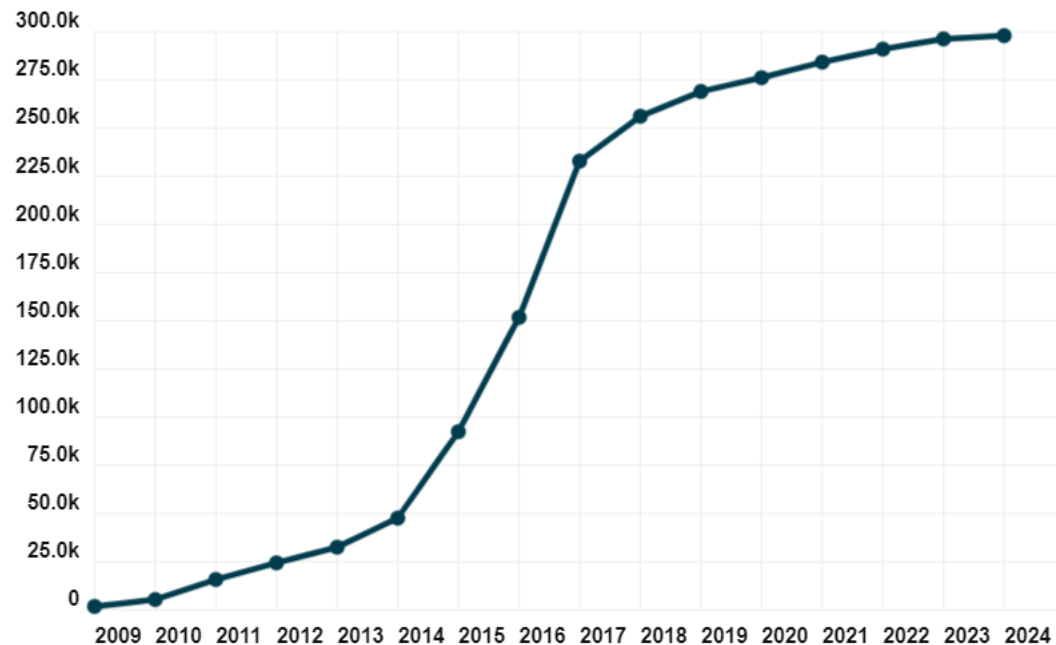
Datta, Shoumen (2017-08-26)  
Digital Economics is approaching and the "new economy" will need new rules, new changes and new thinking. Digital Transformation is a step toward Digital Economy. In this article, we haven't even scratched the surface of ...



### Healthcare and Medical IoT

Datta, Shoumen (2017-04-06)  
Detection of analytes in the context of nano-diagnostics for preventive medicine and global public health may be within our grasp. But, it appears to be far removed from the reality of the world where 80% of the people ...

Cumulative Article Downloads



### Top items of the past 6 months based on downloads

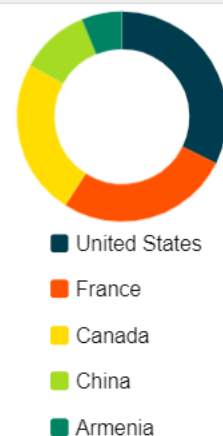
Item	Downloads
<a href="#">Internet of Systems (IoS) - Economic Re-equilibration Catalyzed by Internet of Things (IoT)</a>	758
<a href="#">Digital Transformation - IoT is a Metaphor</a>	643
<a href="#">RFID tag antenna based temperature sensing</a>	130
<a href="#">Healthcare and Medical IoT</a>	120
<a href="#">Design, development, and validation of a remotely reconfigurable vehicle telemetry system for consumer and government applications</a>	102

Show more

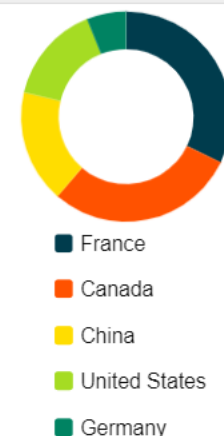
All Time Usage



Top countries by item views



Top countries by downloads







# OPEN ACCESS TO PUBLIC REPOSITORIES ARE VITAL

WHEN THE PURPOSE IS TO INFORM AND PRESENT KNOWLEDGE IN ORDER THAT SCIENCE MAY SERVE THE PUBLIC

WHEN THE PURPOSE IS NOT TO COUNT CITATIONS OR USE PUBLICATIONS TO ASCEND THE ACADEMIC LADDER



HERE ARE EXAMPLES FROM OPEN PRE-PRINTS

[HTTPS://DOI.ORG/10.26434/CHEMRXIV-2021-L393T-V36](https://doi.org/10.26434/CHEMRXIV-2021-L393T-V36)

[HTTPS://DSPACE.MIT.EDU/HANDLE/1721.1/145774](https://dspace.mit.edu/handle/1721.1/145774)

- <https://doi.org/10.26434/chemrxiv-2021-l393t-v36>
- <https://dspace.mit.edu/handle/1721.1/145774>

## Biological and Medicinal Chemistry



# Aptamers for Detection and Diagnostics (ADD): Can mobile systems linked to biosensors support molecular diagnostics of SARS-CoV-2? Should molecular medicine explore multiple alternatives as adjuvants to or replacement for traditional and non-traditional vaccines?

01 November 2021, Version 36

Working Paper

Shoumen Datta 

[Show author details](#) ▾

Title	Description	Actions
 Molecular Virology	MIT Library	<a href="#">View</a> 

### Comments

[Log in or register with ORCID to comment](#)

Oct 23, 2020 Version 1

### Version Notes

Page 87

### Metrics

11,855 Views

7,875 Downloads

0 Citations

DOI

[10.26434/chemrxiv-2021-l393t-v36](https://doi.org/10.26434/chemrxiv-2021-l393t-v36) 

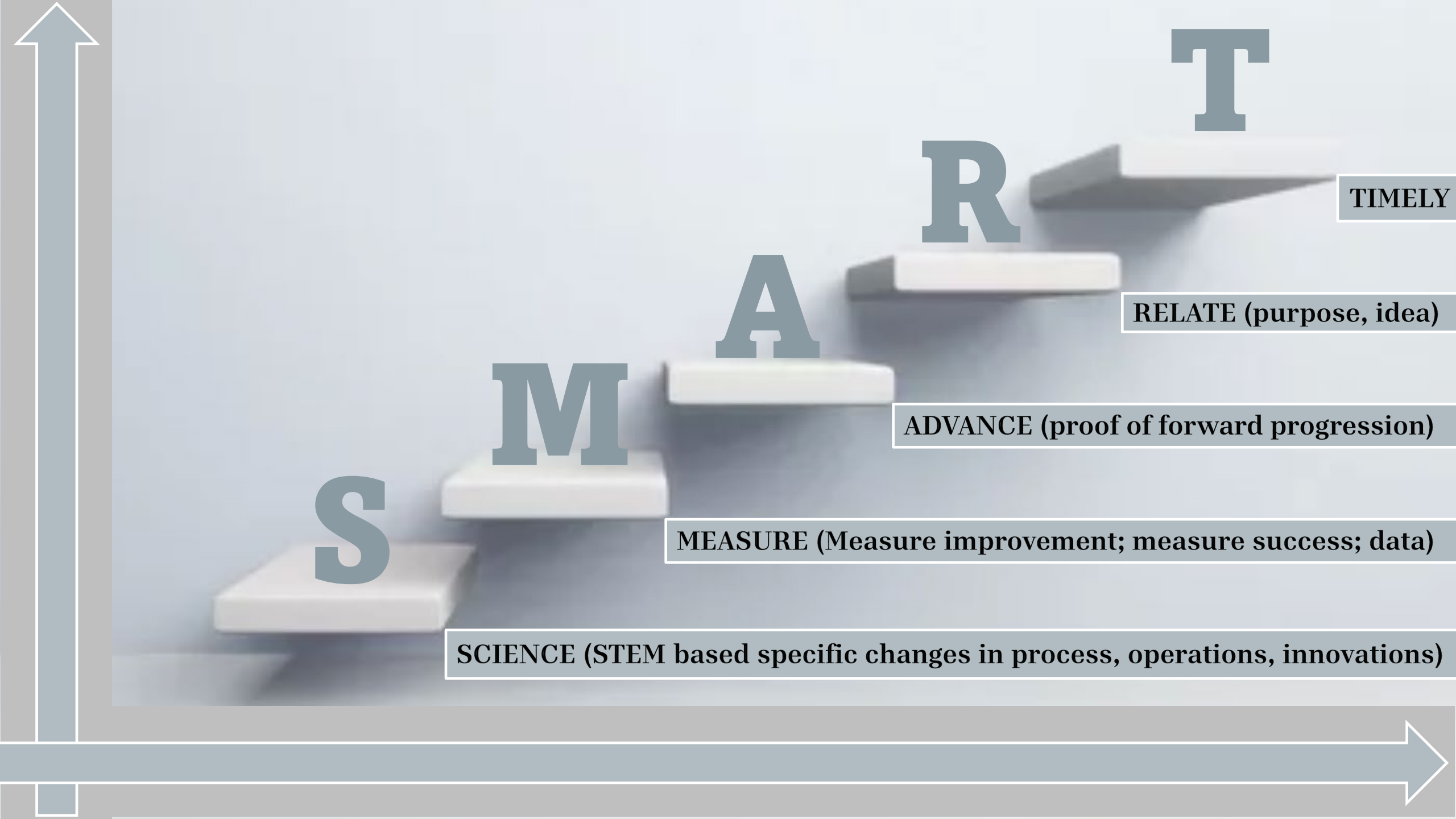


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# HOW TO DELIVER A SENSE OF THE FUTURE

NOT EASY BUT HERE ARE A FEW GUIDING STEPS





**S**

**SCIENCE** (STEM based specific changes in process, operations, innovations)

**M**

**MEASURE** (Measure improvement; measure success; data)

**A**

**ADVANCE** (proof of forward progression)

**R**

**RELATE** (purpose, idea)

**T**

**TIMELY**



# NOTHING IS SET IN STONE

ARE THESE IDEAS SUBJECT TO CHANGE ?

NOTHING IS PERMANENT EXCEPT CHANGE.





Three years ago, Jonathan Zittrain, the vice dean at Harvard, conceived of an event he called “Why I Changed My Mind,” that would demonstrate different ways faculty members reckon with changing ideas, as their previously settled points of view evolved with new arguments, information, and data. “We try to at times both be bold and humble at the same time about our commitments, ready to revise in the face of new facts, of new views, of growth, of reflection.”

<https://hls.harvard.edu/faculty/jonathan-l-zittrain/>

## ‘Intellectually, it was sort of whiplash’

Harvard Law experts Janet Halley, Juliette Kayyem, and Ruth Okediji share moments of reckoning when they changed their minds, at an event moderated by Jonathan Zittrain

Apr 04, 2024 By Christine Perkins



<https://hls.harvard.edu/today/faculty-share-stories-of-an-intellectual-about-face>

# ‘Do what you care most about that can have a positive impact on others’

During her Last Lecture to the graduating class, Harvard Law professor Sharon Block advised students to persevere despite setbacks, and ‘listen to your mother’

Apr 09, 2024 By Rachel Reed



Credit: Tony Rinaldo



meche.mit.edu/people/faculty/ritur@mit.edu


MITMECHE

Home

Assistant Professor  
**Ritu Raman**  
 Brit (1961) and Alex (1949) d'Arbeloff Career Development Professor in Engineering Design

INTERESTS

- Biofabrication
- Neuromuscular Tissue Engineering
- Biohybrid Robots



Kendall Square Association  
**BUILDING A BETTER FUTURE, TOGETHER**

**LUNCH 'N LEARN**

MIT MUSEUM  
 314 Main St, Sharp Room  
 Cambridge, MA

April 10, 2024  
 12:00 - 1:30 pm

**Women in Science:  
 Past, Present and Future**

Discussion featuring  
**Ritu Raman, PhD d'Arbeloff Career Development Assistant  
 Professor of Mechanical Engineering at MIT and Founder of the  
 Women in Innovation and STEM Database at MIT (WISD)**


ramanlab.mit.edu

**RAMAN LAB**  
 — mit mechanical engineering —

RESEARCH TEAM PUBLICATIONS JOIN NEWS

RESEARCH

Biology teaches us how to be better engineers. Engineering helps us understand and manipulate biology.




<https://meche.mit.edu/people/faculty/ritur@mit.edu>



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# WHAT TO DO WITH IDEAS & RESEARCH OUTCOMES?

*HERE'S ONE OPTION, PERHAPS ...*

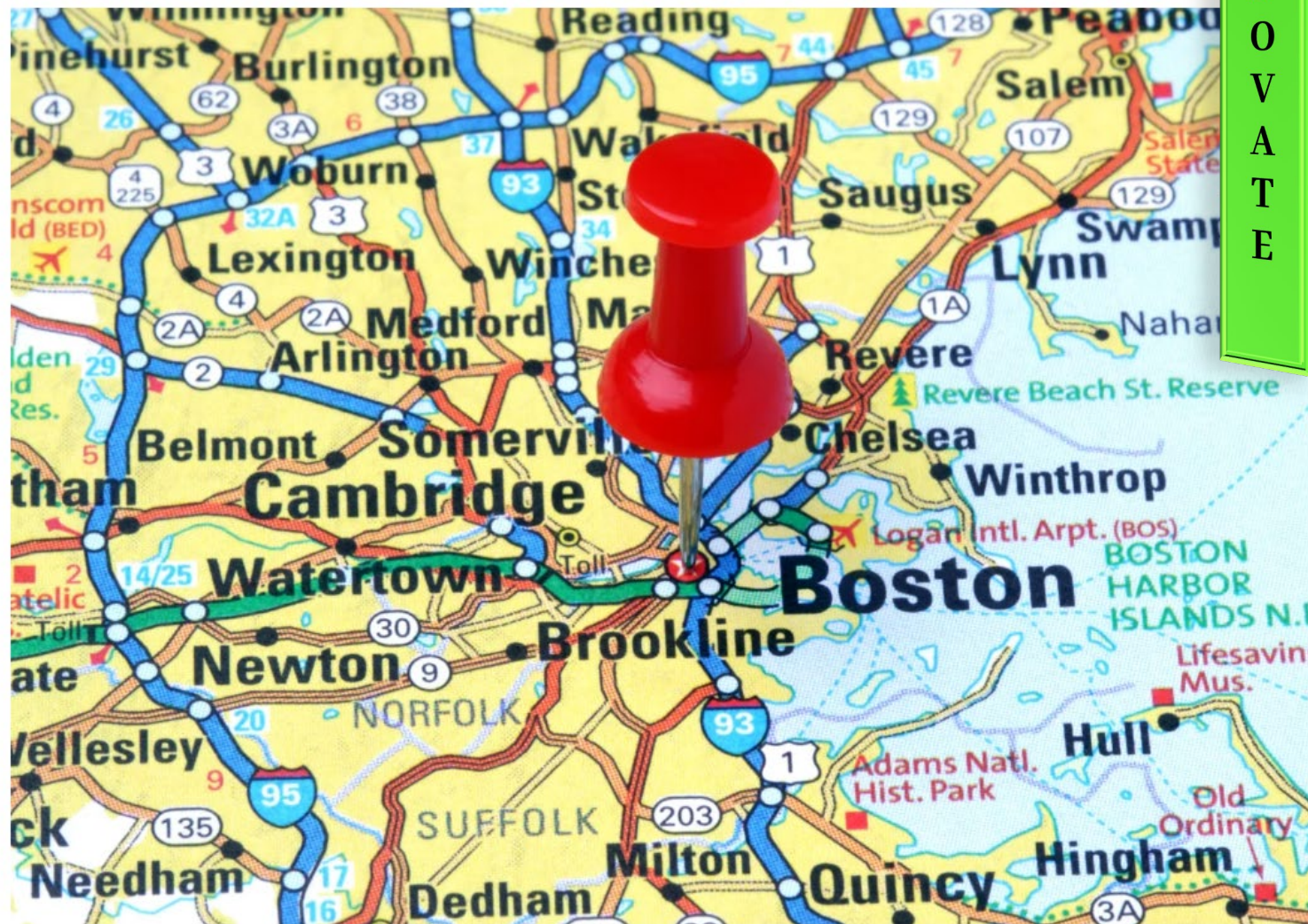


## When it comes to building startups in Boston, success begets success

And from HubSpot to Klaviyo, it's had its share of successful exits

Ron Miller @ron\_miller / 1:07 PM EDT • April 6, 2024

Comment



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WRITING IS EASY.  
ALL YOU HAVE TO DO  
IS CROSS OUT  
THE WRONG WORDS.

MARK TWAIN



# CONFUCIUS IS CONFUSED: WHAT IS CONSULTING?



Consulting often comprises of non-linear events of varying complexity which may progress as an oxymoronic conundrum of punctuated equilibrium