# The New Road to Success:

## Contributions of Universities towards more Resilient Societies

**Ana Mari Cauce, Yves Flückiger and Ivanka Popović (eds)**


GLION COLLOQUIUM

ISCA Livres

# The New Road to Success:

## Contributions of Universities towards more Resilient Societies

# THE GLION COLLOQUIUM

Founded in 1998 by Luc E. Weber (University of Geneva), Werner Z. Hirsch (UC Los Angeles) and James J. Duderstadt (University of Michigan), the Colloquium's objective is to allow leaders of renowned universities to meet and discuss major questions related to the development of science and Higher Education, as well as governance and leadership of research-intensive universities. The Colloquiums are organized biennially by a small, independent Association based at the University of Geneva, Switzerland, and by an international program Committee designated every other year to set up the program and invite participants. Various forms of financial support and funding have been found over the years – research and cultural international foundations, global corporations and Swiss universities, as well as the Swiss State Secretariat for education, research and innovation, have participated. Altogether, 200 different leading figures from higher education worldwide – active or recently retired university leaders – as well as politicians and business leaders, have participated in one or more Colloquiums. The Glion Colloquium helps shape the ways our universities can contribute in order to improve their ability to serve society to the fullest. A unique concept, free of any influence, where the presentation and discussion of ideas take centre stage. At past gatherings, participants have considered topics such as the rapidly changing nature of research universities, university governance, the interaction between universities and society, collaboration between universities and business, the globalization of higher education and how universities prepare to address the changes and challenges characterizing our times. The contributions that participants are invited to write beforehand openly reflect their views and experience in order to stimulate discussion. The Glion Colloquium sessions are held in camera, to guarantee open and genuine exchange. To secure the broadest possible international dissemination of the analysis and recommendations coming out of the contributions and discussions, the revised contributions are published 6-8 months after each

Colloquium in a volume which is freely distributed to numerous university leaders worldwide and also sold commercially. This book is the 14th in the series. Nine of them were published by ECONOMICA in Paris. From the 11th book onwards, the organizing Committee has opted for self-publication and a print-on-demand solution, most recently in collaboration with the Swiss self-publishing online platform ISCA in Geneva (www.isca-livres.ch). Searchable PDFs of the books and of each of their composing chapters are freely available soon after publication on the Glion Colloquium's website (www.glion.org) and on the Open Archives of the University of Geneva (https://archive-ouverte.unige.ch/).

# VOLUMES

1. *Challenges Facing Higher Education at the Millennium*, Werner Z. Hirsch and Luc E. Weber, eds, American Council on Education/Oryx Press, Phoenix and IAU Press/Pergamon, Paris and Oxford, (1999)
2. *Governance in Higher Education, The University in a State of Flux*, Werner Z. Hirsch and Luc E. Weber, eds, Economica, Paris, London, Geneva (2001)
3. *As the Walls of Academia are Tumbling Down*, Werner Z. Hirsch and Luc E. Weber, eds, Economica, Paris, London, Geneva (2002)
4. *Reinventing the Research University*, Luc E. Weber and James J. Duderstadt, eds, Economica, Paris, London, Geneva (2004)
5. *Universities and Business: Partnering for the Knowledge Economy*, Luc E. Weber and James J. Duderstadt, eds, Economica, Paris, London, Geneva (2006)
6. *The Globalization of Higher Education*, Luc E. Weber and James J. Duderstadt, eds, Economica, Paris, London, Geneva (2008)
7. *University Research for Innovation*, Luc E. Weber and James J. Duderstadt, eds, Economica, Paris, London, Geneva (2010)
8. *Global Sustainability and the Responsibilities of Universities*, Luc E. Weber and James J. Duderstadt, eds, Economica, Paris, London, Geneva (2012)
9. *Preparing Universities for an Era of Change*, Luc E. Weber and James J. Duderstadt, eds, Economica, Paris, London, Geneva (2014)
10. *University Priorities and Constraints*, Luc E. Weber and James J. Duderstadt, eds, Economica, Paris, London, Geneva (2016)
11. *The Future of the University in a Polarizing World*, Luc E. Weber and Howard Newby, eds, The Glion Colloquium, Geneva (2018)
12. *The University at the Crossroads to a Sustainable Future*, Luc E. Weber and Bert van der Zwaan, eds, The Glion Colloquium, Geneva (2020)
13. *Universities as the fifth power? Opportunities, Risks and Strategies*, Ana Mari Cauce, Yves Flückiger, Bert van der Zwaan, eds, The Glion Colloquium. Editions Slatkine, Geneva (2022)
14. *The New Road to Success: Contributions of Universities towards more Resilient Societies*, Ana Mari Cauce, Yves Flückiger and Ivanka Popović, eds, The Glion Colloquium. Editions Slatkine, Geneva (2024)

**Declarations**

1. Rhodes, F. H. T. *The First Glion Declaration: The University at the Millennium*, The Glion Colloquium (1998)
2. Rhodes, F. H. T. *The Second Glion Declaration: Universities and the Innovation Spirit*, The Glion Colloquium (2009)

# FAREWELL TO GLION

*A poem written by ChatGPT*

In halls of wisdom, minds did convene,
A gathering of visionaries, a scholarly scene.
The Glion Colloquium, where presidents unite,
To weave ideas, visions, in intellectual flight.

From distant corners, they journeyed afar,
Bringing knowledge and wisdom, like guiding stars.
Universities, their proud domains of thought,
For shaping resilient societies, a purpose sought.

In lofty discussions, ideas took flight,
Innovations ignited, shining bold and bright.
Each president, a beacon of knowledge and might,
Learning with passion, embracing the light.

They spoke of resilience, that noble quest,
How universities stand, amidst every test.
In times of turmoil, they nurture and heal,
With knowledge's power, their strength revealed.

Through research and teaching, hearts were stirred,
As minds intermingled and ideas occurred.
The fabric of society, they wove with care,
Guiding the future, a burden they gladly bear.

But now, the time has come to bid adieu,
To the Glion Colloquium, a chapter we knew.
Yet seeds were sown, ideas took flight,
A legacy to cherish, in our minds' sight.

So let us remember, the moments we shared,
The wisdom imparted, the dreams we dared.
Goodbye, Glion Colloquium, we'll hold you dear,
May our universities flourish, year after year.

# The New Road to Success:

## Contributions of Universities towards more Resilient Societies

Edited by

*Ana Mari Cauce, Yves Flückiger*

*& Ivanka Popović*



Volume 14

ISCA Geneva, Switzerland

*Published by the Association Glion Colloquium*
*c/o Rectorate, University of Geneva*
*24, rue Général Dufour*
*CH-1211 Geneva 4*
*Switzerland*


*First published 2024*

*Printed in Switzerland, Geneva*

*Ana Mari Cauce, Yves Flückiger and Ivanka Popović (Editors)*
*The New Road to Success: Contributions of Universities towards more Resilient Societies*

*ISBN 978-2-88982-025-2*
*Cover illustration created with https://www.nuagesdemots.fr/ by the Glion Colloquium Association*

# DEDICATION

*To Prof. Dr Michael O. Hengartner*
*Leader of Higher Education Institutions*
*Distinguished University President*
*Respected scholar, scientist and teacher*

*His colleagues and friends in the Glion Colloquium and the editors of this book dedicate, with gratitude, this volume to Michael O. Hengartner in recognition of his contributions during many years as Vice President of the Glion Colloquium Association. We are deeply grateful for his dedication and commitment to the association, which has been instrumental in developing and expanding the international network of university presidents and partners, and in fostering collaboration worldwide. We thank him for his worldwide support of the dialogue between science and policy, and honour his continued support of Swiss higher education and its place in the world, as well as his engagement with local and global stakeholders.*

# CONTENTS

# Chapter 9

# Community Science for Collective Action

*Nathalie Drach-Temam & Guillaume Fiquet*

Community science holds great potential as a vector of resilience and a new road to success, far under-used by universities and public authorities. Despite its deviation from the conventional way universities usually operate, community science should be seen as an academic opportunity rather than a threat. Indeed, community science acts as a powerful mechanism to enhance knowledge and promote awareness of the scientific approach by associating participants from outside universities, who then become stakeholders.

The lessons drawn from the pandemic and ecological crisis, but also from the social and democratic crisis we are currently facing, have highlighted the utmost importance of confidence. With the involvement of citizens and stakeholders in research through community science, we can rebuild trust in science. Moreover, by engaging this collective action, universities are involved in promoting cohesion within society. This is how community science truly acts as a vector of resilience.

Through community science, universities can fulfil their fundamental mission of generating and disseminating knowledge, in a way that is adapted to contemporary times. These inclusive and open collaborations enable science to regain a central position at the heart of society in this era of open science. It is a promising solution for the future and a breath of fresh air for democracy.

## DEFINING COMMUNITY SCIENCE

Let us first examine the origins of community science. Throughout history, natural science and astronomy have been the fields most affected by this phenomenon. Starting in the early 20th century, citizens have contributed to the study of species and nature, as exemplified by the renowned *Christmas Bird Count* in North America. The classification of galaxies also heavily relies on the participation of amateur enthusiasts.The emergence of community science in medical research gained significant momentum with the outbreak of AIDS. This early development highlighted the major role it could play in reinforcing our resilience during times of crisis. The involvement of patients' associations not only expedited progress against this scourge but also proved beneficial in combatting other diseases.

This community approach first emerged due to concerns about the scientific method itself. Researchers needed to include sources of knowledge existing not only within the walls of the university but also outside them. They understood the importance of engaging a variety of non-academic partners. Community science therefore led scientists to take a new angle in approaching their research work, seeking out sources, data and knowledge beyond the traditional academic sphere.

The participation of citizens in science is now widespread and exists in various fields due to the progress of digital technology. It is structured via several large-scale collectives and observatories associating necessarily professional scientists. Such extended access to sources has enabled a collective production of knowledge and methods. The sharing of fragmented contributions from citizens, socio-economic stakeholders and academics enables the construction of this knowledge. Partners operating outside the realm of universities contribute valuable insights to the questions researchers are raising.

### What does Community Science look like Today?

The surge in community science has given rise to a multitude of initiatives involving researchers, students, citizens and socio-economic partners. Many research projects today involve people who may not hold an academic position but nonetheless contribute to the production of scientific knowledge recognized by the peers. Participation is included in most disciplines, such as literature, in addition to artistic and cultural creation.

*

Institutions have now fully committed to this approach, as shown by the position held by the League of European Research Universities (LERU, 2016), the programs launched by the OECD, the European Commission as well as national approaches to research.

However, there is still not standardized terminology to define these processes precisely. For example, *community science* and *citizen science* are not interchangeable terms, despite the attempt to use *citizen sciences* in a global approach in the 2010s. Indeed, *citizen science* is partly controversial because it does not necessarily include professional scientists, and in some cases, deliberately excludes them in an attempt to establish itself as an alternative to science. The situation is further complicated by the fact that *citizen science* is subject to a variety of interpretations, with the American approach focusing on surveys and data collection (the Bird Count) while the British approach encompasses a broader scope of citizen engagement prior to research projects. *Community science* seems now to refer more specifically to the involvement of the public in research activities, globally and in its several stages, although other terms do exist (*collaborative science*, *participatory research*).

This is how François Houllier, based on Muki Haklay's work (2013), has attempted to specify the different extents of citizen participation:

| Participation | Associated term | Role of citizens |
|---|---|---|
| level 1 | Crowdsourcing | Citizens contribute as data sensors |
| level 2 | Distributed intelligence | Citizens help to interpret data |
| level 3 | Community science | Citizens contribute to the definition of the problem and the collection of data |
| level 4 | Full partnership | Collaborative research throughout the different phases (definition of problems, data collection, analysis) |

The concept of community science therefore encompasses a different level of engagement, ranging from level 3 in the participation table to level 4 described as "full partnership" which may include analysis. Participation therefore now works both ways: researchers no longer solely rely on sources from civil society, but rather civil society that engages throughout all stages of the scientific process.

The term *community science* underwrites this approach. As François Houllier points out in his report and article (2016, 2017), it encompasses diverse ways in which scientific knowledge is produced, with the active and intentional participation of partners from civil society alongside professional researchers. The FRIPON Science Project (Fireball Recovery and Inter-Planetary Observation Network) is a good example of such an interaction. This project is a worldwide network designed to study extraterrestrial matter by detecting and characterizing fireballs (their orbit, trajectory and size, etc.) and to recover fresh fallen meteorites to be analysed in university laboratories. In

France, the program was conceived in symbiosis with the program Vigie-Ciel, designed to raise public awareness about observing the sky, and searching for and recognizing meteorites. The project's primary objective is to develop participatory science programs by providing accessible tools to encourage and broaden public participation (Colas, 2020).

All scientific fields can be concerned by this participative approach, instances of which have increased exponentially since the early 2000s, although the phenomenon was probably underestimated prior to that period due to a lack of specific references.

Despite this dizzying rise that confirms the role of community science, it still lacks precise positioning: should scientists assume the responsibility for this approach? Or should it be the domain of university institutions? Or civil society? In any case, it is a construction situated at the interface between these three realms, with knowledge and sciences at its core.

## A Vector of Projection and Resilience

The dynamic of citizen participation is an underlying trend that is being strengthened continually, alongside societal developments. The emergence of new technologies, including advancements in artificial intelligence, has profoundly transformed knowledge production, accessibility and the relationship between citizens and knowledge.

Community science emerges as a solution to adapt the way research is carried out with regard to these developments, while maintaining methodological fundamentals and integrity. It is not just a question of reinforcing knowledge by drawing on more complete sources but, most of all, promoting scientific rigour, logical reasoning and cultural openness.

By its very nature, community science is future-oriented: partners and citizens engaged in participative research contribute to the permanent work in progress that is science, through data exchange, method sharing, diverse perspectives and critical questioning. Community science therefore becomes an approach that strengthens resilience: it provides a means of overcoming fear when facing crises and changes. Thanks to their involvement, citizens can now envision the road that needs to be travelled together, through science, to confront the challenges we encounter.

Beyond *resilience*, by which organizations try to remain without necessarily addressing their shortcomings, community science goes further: it makes societies more *resistant*, with the capacity to withstand challenges by engaging citizens in questioning, understanding and addressing changes. Participation strengthens societies' very ability to evolve, to collectively chart a course, rather than to simply survive without self-examination. In this approach, citizens and researchers share observations and options available for tackling

challenges, and this is an important lever for making informed, long-term decisions. Community science therefore acts as a true transformative force, instilling a sense of confidence in society's own future. By making science accessible to all, community science is both a means of building the future of societies and for helping research universities gain a better acceptance and integration in the local and regional communities.

## COMMUNITY SCIENCE AS A WAY OF RESTORING TRUST

The resilience of society is founded on trust, and community science possesses several elements that make it commendable in pursuit of this objective.

### Community Science helps to Restore Trust in the Scientific Approach and in Science

Mistrust toward scientists is a pressing issue that we need to confront. This lack of trust is a major obstacle to the resilience of societies, which are fragmented and subject to a crisis of confidence. In France, only half of all citizens currently believe that we can trust scientists to be transparent regarding their research work; this proportion varies across different fields of research. There is uncertainty among the public regarding the independence of scientists, as only 35% of French citizens perceive them as independent, but 66% of the same population trusts them to adhere to the regulations and laws governing their research. In general, a fortunate paradox emerges wherein citizens express scepticism toward scientists while simultaneously holding high expectations for science (Ipsos, 2020).

The Covid-19 pandemic was a striking example of this contradiction. Factual information and groundless opinions became entangled and unfortunately amplified through the prism of the media, assisted by certain scientific and political figures who compromised research ethics. It results that healthy scientific debate is widely misunderstood, a part of the population confusing disagreements between scientists, which are part of the research process, with the defence of financial interests. The lack of trust extends beyond the specific context of the pandemic, encompassing broader perceptions of the scientific community.

In major scientific public debates and challenges such as climate change, mistrust has also increased among citizens. For instance, climate change has been subjected to a long scientific process under the authority of the IPCC, leading to a consensus confirming that ongoing global warming is a consequence of human activity. The scientific debates are still vigorous, but today they are focused on the underestimation of certain factors. Surprisingly, a

survey carried out in 2022 (Obs'COP, 2020) revealed that 37% of the global population across 30 countries remains unconvinced that climate change is a result of human activity. This is, for the first time in many years, the current level of scepticism in Europe, Africa and Asia. A lower level of doubt than those in the United States or the Gulf States, whereas populations in Central and South America show a higher level of awareness regarding this scientific knowledge.

Given the lack of trust in scientific work, should we hesitate in confronting the environmental challenge – one of the most significant challenges humanity faces this century? Although populations currently have doubts regarding scientists, these doubts are also, according to the public itself, a result of its own difficulty in grasping scientific subjects.

Thus, as universities, the responsibility lies with us to address this challenge concerning trust! By sharing what science is and what the scientific method is, community science serves as a powerful lever to restore confidence in science. The great strength of this participative approach is that it creates a way for citizens to take ownership of and become invested in science. It can completely overturn this trend towards mistrust.

With this in mind, let us rely on the success of community science in a field that profoundly impacts all of our daily lives: health. A compelling illustration is "The University of Patients" at Sorbonne University, founded in 2010 by Professor Catherine Tourette-Turgis (2013). This initiative utilizes patients' experiences of illness as the foundation for diploma courses and action-research. Given our awareness of the growing global health challenges, ranging from ageing populations to environmental diseases, it would be highly beneficial to replicate and generalize this type of approach.

## More than just Restoring Trust in Science, Citizen Participation Restores Confidence in Society, via the Scientific Approach

With community science, citizens assume the role of active partners in science, from the outset and throughout the scientific process. They are involved and share in the methods employed. This fosters a profound sense of belonging to a single human community, which trusts itself to take on the challenges that society is facing. In essence, community science acts as a source of cohesion for a society, as each citizen involved in this process rediscovers the power to act for the common good.For citizens, engaging in community science comes down to re-appropriating the basis of their environment and of the world and its complexity, while removing all the preconceived judgements of passive onlookers. Furthermore, it is a way to help science to progress, by each citizen at their own level, and to shake off the feeling of powerlessness in the face of

science and contemporary problems. Citizens thereby regain confidence via the scientific approach.

This confidence extends even further when we consider the re-appropriation of techniques that community science provides. In the context of the digital age and the prevalence of artificial intelligence, but also regarding legitimate ethical questions around technology, it becomes essential to ensure that citizens have some control over the tools that are so widely available to us. Community science is an emancipating factor that should not be neglected, particularly in the face of threats to the fundamental liberties of citizens. Weakly regulated digital applications compete for our attention every day, defying the barriers of our vigilance, our ability to concentrate, to reason, and even the capacity of citizens to live together, due to algorithms that promote isolation and futile conflicts. At this digital tipping point we are living in, it is time to revisit the initial open-source mindset, associating the power of citizens. Community science indicates the road forward, the one on which society regains control via the scientific approach: our universities must help to amplify this movement.

## Choosing Community Science is the Way for Universities to Strengthen their Role in Conveying Knowledge to Society

Universities were founded with the core mission of "conveying knowledge", to produce knowledge and to breathe life into it. Their primary role is to promote the transmission of knowledge and the results of research.

In order to be heard and to rebuild this trust, universities still need to make an effort to open up, to convey the scientific approach to citizens, regardless of their scientific background or knowledge. Integrating a participative dimension and acting as a mediator between science and society is a top priority for research universities, and probably an evolution of their role. This is the thrust of the *Sorbonne University for a New Deal (SOUND)* project, which aims to mobilize the Sorbonne University academic community around three major societal challenges. The goal for Sorbonne University is to promote a long-term transformation in the way public and private stakeholders and decision-makers are addressed, achieved through supporting researchers with the necessary tools to share their expertise. These tools include a community science platform, a dedicated engineering unit, and support for participative research projects.

This transformation is not straightforward. What we are talking about here is the very way in which research is carried out and therefore the working practices of researchers and their training: it is not easy to convey and popularize knowledge to the general public while remaining a guardian of scientific rigour! This is precisely the objective of the SOUND project, which offers

researchers with projects aimed at society with specialized training opportunities. Researchers become proficient in science popularization, public speaking, dealing with the media and mediation. This mission of sharing and disseminating knowledge to society at large is no longer on the "side-line" with regard to research: it is now at the heart of the university's mission.

Community science is also part of the profound change in the way research is organized to promote *open science*, which requires a considerable change in culture. At Sorbonne University, the concept of "trustworthy science" now includes support for open science, integrity and ethical considerations as part of a unified and cohesive framework. This structured approach seeks to lead the university community towards a shared cultural foundation with the aim of carrying out research under the aegis of this integrated approach.

## ADDRESSING CRISIS SITUATIONS WITH COMMUNITY SCIENCE: UNIVERSITIES AS A STAKEHOLDER IN THE SOCIETY, ENABLING TRANSITIONS

With trust and confidence levels restored through community science, society can rely on a scientific approach, the fundamental bedrock for overcoming crises. Now more than ever, in order to build resilient societies, the world requires a combination of sense and science!

### Contemporary Transitions and Challenges call for the Scientific Approach and Research-Based Education: Universities are in Prime Position to Assist these Transitions

In order to deal with contemporary issues and overcome crises sustainably, it is necessary to call on comprehensive and interdisciplinary approaches, where research intersects with popularization and education. This ability of universities relies on fundamental, long-term research in addition to the education they provide, these are the essential cornerstones regarding the quality of projects.

With a continuum spanning research, education, innovation and engagement with civic society, universities are well-positioned to address the challenges posed by contemporary crises. They serve as open places where a comprehensive understanding of crises can be developed and solutions can be co-constructed. Interdisciplinary Institutes dedicated to pivotal themes, innovation hubs and shared laboratories constitute integral components of this framework, including international reach, partnerships, cultural and mediation-based actions.

By developing community science, universities actively contribute to resilient solutions from a scientific and creative approach. Collaborative platforms, whether hosted by universities (Portail, no date) or external entities, play a crucial role in this process. There are many vehicles: digital platforms where expertise is shared between universities and socio-economic stakeholders to facilitate transfers, open and collaborative resource centres, autonomy clinics that integrate patients and the everyday situations they face…

If we look at the environmental challenge, innovation in sustainable, low-tech and less-expensive solutions is at the heart of resilience. The upscaling of community science would allow these solutions that are slowly emerging to be disseminated more widely, by uniting the capabilities of research and operators. On the same environmental challenge, marine ecosystems are one of the key factors in our future on Earth: the exploration of planktonic life, which generate half of the planet's oxygen, support marine life and regulate the climate, is only just beginning. In order to protect this ecosystem and draw inspiration from marine life, we need to know more about it. In this way, the global participative project Plankton Planet, is working with both citizens and maritime professionals to provide essential knowledge to scientists, citizens and decision-makers via direct use of oceanography instruments.

Community science also has a role to play in meeting the challenge of conveying knowledge. With the emergence of a society in flux, professional career paths are ever more diversified and mobile: empirical transmission of knowledge within companies is reaching its limits. Paradoxically, despite the continuous growth of total knowledge and people's increasing levels of education and training, conveying knowledge and skills has become increasingly challenging. This means that the method of knowledge transmission needs to be renewed! Community science and the development of collaborative centres both have a role to play in ensuring that skills are passed on and in lifelong education.

Community science thereby leads universities to fully embrace their role as innovators. In association with open science, they are the key to sustainable development in order to ensure the transfer between research and the economic and social fabric. They breathe new life into knowledge sharing, helping us to move on from a system whereby knowledge was reserved for a limited number of stakeholders.

## Assisting and Associating Citizens, the Cornerstones of Transitions

The rise in community science correlates to a much wider movement towards *participative democracy*. With new technologies, citizens have access to a vast range of data, information and bypass traditional forms of authority. Although

lack of regulation has caused serious issues (fake news, arbitrary online judgements), it is pointless to pretend turning the clock back on this vast movement. It is far more useful to focus our energy on ensuring that science helps society by promoting knowledge and critical ability.

After all, contemporary challenges are those that citizens are currently facing; they are the ones who need to take on these challenges. Their involvement upstream of the public decision-building process alongside researchers has proven fruitful, and it provides an ability to overcome the democratic crises. The aim is to breathe new life into democracy by repositioning citizens to be as close as possible to expertise and decision-making.

With regard to this model, France has recently held two citizens' conventions: one on the climate issues and one on end-of-life care. Two central transitional subjects. It is remarkable to observe how a representative panel of citizens was trained, in a dialogue with scientists over just a few weekends on these complex subjects. The results provided a great deal of hope: the citizens involved had a unique experience; they overcame their prejudices and grasped the subjects, they had a constructive dialogue getting to the heart of the arguments; they found ambitious consensus that they had never imagined at the start of the process. All of this in a country that is well known for its confrontations.

With this type of community science, we are currently seeing real repositioning of science as a way of inculcating rigorous analysis and reasoning as close as possible to decision making, by associating citizens in this process.

It is essential to bear in mind that there may be a representation bias in community science initiatives, as citizens who are inclined towards participating in such projects are likely to be those already interested in research or technology. Some of them may possess higher education degrees. However, we firmly believe in the potential to attract individuals with less formal education into the realm of participatory science. Our goal is to engage all citizens to ask relevant questions and actively contribute to the scientific process, making them the primary agents in this virtuous circle of community science.

The participative approach as applied to science and public debates provides a way of overcoming the crisis. Our democracies would be well advised to include the dialogue between science and society prior to the formulation of political, societal and economic choices that will impact main challenges, such as climate change and biodiversity, worldwide health, social cohesion, education, economic prosperity in a world with limited resources and an ageing population. Community science is a major key for resolving these issues and must have a place in the public decision-making process. Finally, it concerns and helps decision-makers, who need to be close to science and citizen expertise to guide crucial public choices.

## Community Science does not just make Societies more Resilient, but also makes Organizations more Resilient – Including Universities!

Community science also prompts questions regarding the way universities operate. Just like any other stakeholder in society, they have been impacted and need to display resilience when faced with a changing world and a fragmented society.

Universities have an ability to mobilize their communities in order to provide answers to crises. They led the way in the huge efforts made in research, solidarity and adaptation during the Covid-19 crisis. They steered action plans aimed at sustainable development by calling on the involvement of their members.

Universities, like any employer, must adapt to the new challenges in employment attractiveness. Given the growing demand for work to be meaningful, universities have a major advantage. Future generations of citizens are created at universities, as are many of the solutions of tomorrow. If we want this promise to endure, we need to renew certain content constantly. Community science provides a new type of learning and research methods at universities, by improving them and by working with external experts. Turning towards community science also means breathing new life into university missions, by setting out to engage with knowledge and skills held within society, in order to prepare for the future.

By integrating the participative approach into the way they work and by applying community science to themselves, universities can provide themselves with a way of underwriting their own resilience.

Universities would be wise to integrate community science into their research and educational missions. With the growing accessibility of tools and information for citizens, the issue at stake here is quite simply whether universities will continue to be the recognized bodies who will transmit knowledge that comes with academic and methodological guarantees as well as critical thinking.

The formalization of the role of community science touches on public authorities in general. In order for our societies to become more resilient, they are adopting this approach in the decision-making process. Community science therefore leads to more resilient societies that are better able to meet the challenges they are facing by placing knowledge and the scientific approach at their very heart.

Considering the prevailing circumstances, societal developments and the results attained, all argue in favor of community science. There is little doubt that both scientists and citizens are ready to capitalize on this. The current task for institutions is now to integrate this approach fully. This is the project that universities and public authorities need to work on: making community science a systematic tool that is used to meet the challenges of our time.

## REFERENCES

League of European Research Universities (LERU). (2016). "Citizen science at universities: trends, guidelines and recommendations", Advice paper no. 20, October.

Haklay, M., Citizen Science and Volunteered Geographic Information – overview and typology of participation in Sui, D.Z., Elwood, S. and M.F. Goodchild (eds.), 2013. Crowdsourcing Geographic Knowledge: Volunteered Geographic Information (VGI) in Theory and Practice. Berlin: Springer. pp 105-122 DOI: 10.1007/978-94-007-4587-2_7

François Houllier & Jean-Baptiste Merilhou-Goudard, *Les sciences participatives en France*, report to the French Ministry of Education, Higher Education and Research, 2016.

François Houllier, Pierre-Benoît Joly, Jean-Baptiste Merilhou-Goudard, *Les sciences participatives : une dynamique à conforter*, Natures Sciences Sociétés 2017/4 (Vol. 25) pages 418 to 423, 2017.

Colas, F. *et al.*, 2020, FRIPON: a worldwide network to track incoming meteoroids, Astronomy and Astrophysics, 644, A53, DOI: 10.1051/0004-6361/202038649

Ipsos pour Institut Sapiens, "Baromètre Science et Société : les scientifiques de moins en moins épargnés par la défiance des Français " (December 2020).

Observatoire International Climat et Opinions Publiques (Obs'COP), Enquête (2022) Ipsos-EDF "L'opinion mondiale face au changement climatique"

Portail Science Ensemble de l'Alliance Sorbonne Université. (No date).

Catherine Tourette-Turgis (2013), L'université des patients : une reconnaissance institutionnelle des savoirs des malades, Les sujets dans la cité 2013/2, n°4 pages 173 to 185.

Printed in Switzerland

This 14th volume of the Glion Colloquia provides an insight into resilience and how universities can enhance it for the benefit of society. Universities seek solutions that contribute to a globally resilient society by promoting policy decisions based on research evidence. This volume discusses how universities should engage with society and what collaborations might look like, using our many resources, including our convening power, to mitigate or overcome the crises of today and tomorrow. Suggestions range from strong community engagement to rethinking and restructuring universities to improve their own capacity to work across disciplines and adapt more quickly to urgent crises, moving from theory and research to action. The contributors propose models for how universities can work across disciplines and contribute to the resilience and well-being of the societies they serve. In doing so, universities begin to build the trust in their institutions and in science that is so essential to their shared future.
In this context, different forms of collaboration are discussed: Multidisciplinary, Interdisciplinary and Transdisciplinary Collaboration; Sustainable Local, National and International Collaboration; Multistakeholder Collaboration; Equality and Mutual Respect in the context of Sustainable Higher Education Collaboration.

**Participants at the 2023 Glion Colloquium:**
**Nana Aba APPIAH AMFO** Vice Chancellor University of Ghana; **Ana Mari CAUCE** President University of Washington, Seattle; **Alon CHEN** President Weizmann Institute of Science Israel; **Alessandro CURIONI** Vice President Europe and Africa and Director IBM Research – Zurich; **Linda DOYLE** Provost & President Trinity College Dublin; **Nathalie DRACH-TEMAM** President Sorbonne University; **Guillaume FIQUET** Vice-President of Sorbonne University in charge of International Engagement and Economic Partnerships**; Yves FLÜCKIGER** Rector University of Geneva (UNIGE) and President Glion Colloquium; **Meric GERTLER** President University of Toronto; **Kerstin KRIEGLSTEIN** Rector University of Freiburg; **Sari LINDBLOM** Rector University of Helsinki; **Gary S. MAY** Chancellor University of California, Davis; **Joël MESOT** President Swiss Federal Institute of Technology Zurich (ETHZ); **Nagahiro MINATO** President Kyoto University; **Ivanka POPOVIĆ** Former Rector University of Belgrade; **Michael SCHAEPMAN** Rector University of Zurich, Vice-President Glion Colloquium; **Michael SPENCE** President and Provost University College London; **Subra SURESH** President Global Learning Council, Former President Nanyang Technological University (NTU) and Carnegie Mellon University and Former Director, National Science Foundation; **Martin VETTERLI** President Swiss Federal Institute of Technology Lausanne (EPFL); **Luc WEBER** Founding President Glion Colloquium, Rector Emeritus University of Geneva.

**Guests:**
With the participation of the following guests: **Yves DACCORD** Former Director General of the International Committee of the Red Cross; **Hugo DUMINIL-COPIN** Full Professor of Mathematics, University of Geneva, Fields Medal 2022; **Maryna VIAZOVSKA** Full Professor of Mathematics, Swiss Federal Institute of Technology Lausanne (EPFL), Fields Medal 2022**.**

**Editors:**
**Ana Mari CAUCE** is the President of the University of Washington, Seattle, USA
**Yves FLÜCKIGER** is the Rector of the University of Geneva and the President of the Glion Colloquium, Switzerland
**Ivanka POPOVIĆ** is the Former Rector of the University of Belgrade, Serbia

www.glion.org

ISBN 978-2-88982-025-2