

# LISTENING TO A LUMINARY

EXCERPTS OF AN EXCITING CONVERSATION BETWEEN

**Mr. TERRENCE R. BRADY,**

PRESIDENT & CHIEF EXECUTIVE OFFICER, UNDERWRITERS LABORATORIES INC. &

**K.N.K. Murthy,** Journal Executive Editor

*I: Introductory Segment*

*a) About the leader at centre stage*

*Terrence R. Brady is chief executive officer, president, and a trustee of Underwriters Laboratories Inc. In his role Brady sets the direction, priorities and strategies for Underwriters Laboratories' standards development, scientific research, education, and public outreach activities. He is a recognized thought leader in global safety science and a frequent speaker and author on empowering trust in a world of increasingly complex supply chains and technologies.*

*Before assuming the role of CEO in January 2020, Brady served as UL's senior vice president and chief commercial and legal officer. He managed key functions, including legal services, ethics and compliance, government affairs, global security and brand protection, corporate marketing, and enterprise strategy.*

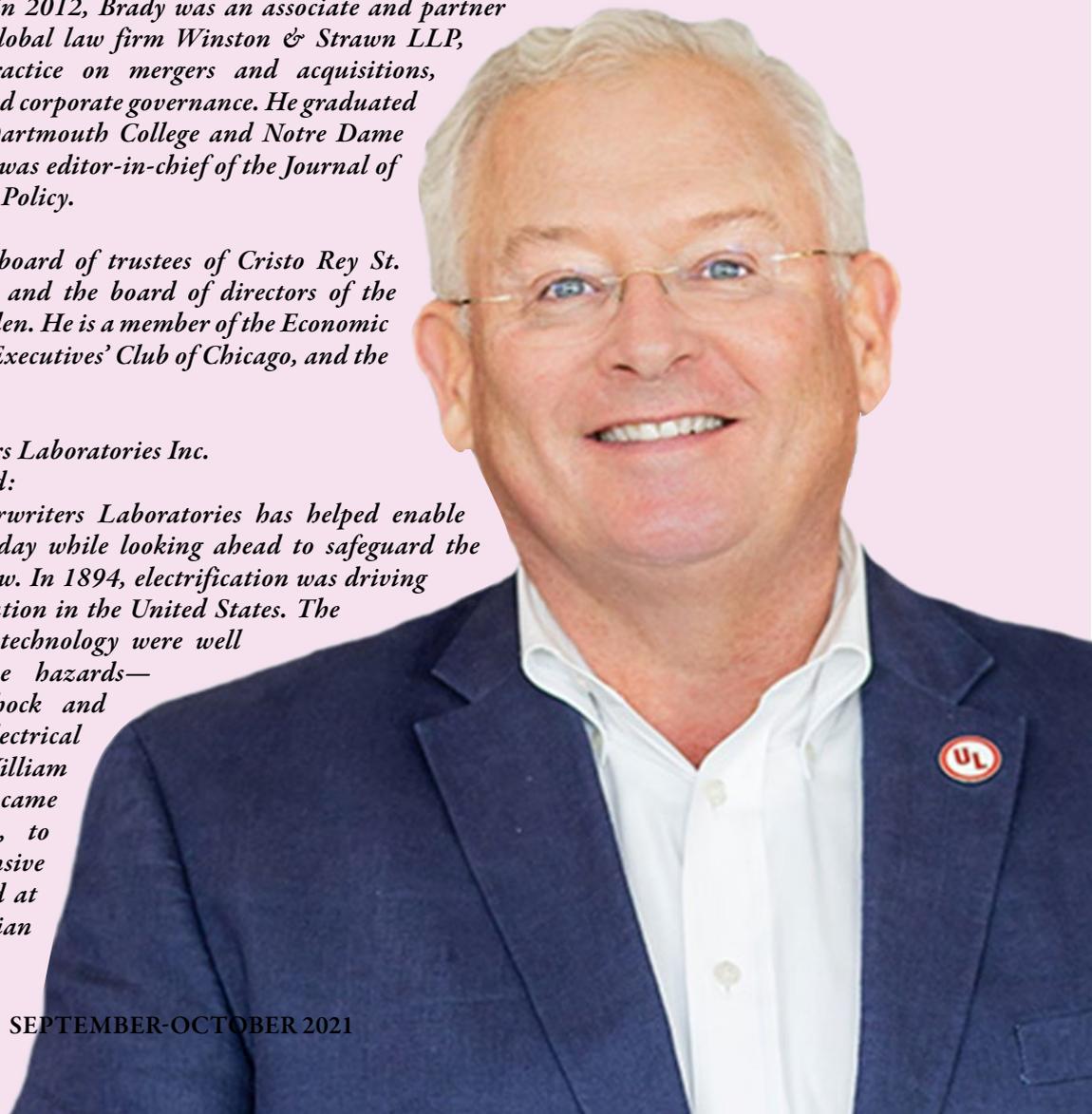
*Prior to joining UL in 2012, Brady was an associate and partner for 27 years in the global law firm Winston & Strawn LLP, concentrating his practice on mergers and acquisitions, securities offerings, and corporate governance. He graduated with honours from Dartmouth College and Notre Dame Law School where he was editor-in-chief of the Journal of Law, Ethics & Public Policy.*

*Brady serves on the board of trustees of Cristo Rey St. Martin College Prep and the board of directors of the Chicago Botanic Garden. He is a member of the Economic Club of Chicago, the Executives' Club of Chicago, and the Asia Society.*

*b) About Underwriters Laboratories Inc.*

*Historical background:*

*For 127 years Underwriters Laboratories has helped enable the possibilities of today while looking ahead to safeguard the unknowns of tomorrow. In 1894, electrification was driving a technological revolution in the United States. The benefits of this new technology were well understood, but the hazards—including electric shock and fire—were not. An electrical engineer named William Henry Merrill, Jr., came to Chicago, Illinois, to evaluate the new, extensive electrical systems used at the World's Columbian*



*Exposition in 1893. After Merrill successfully evaluated and mitigated the fire risks posed at the exposition, he founded the Underwriters' Electrical Bureau in 1894 (later renamed Underwriters Laboratories in 1917) and built the first laboratory to study and test these risks on electrical devices before they were sold to consumers. Underwriters Laboratories published its first standard—for tin-clad fire doors—in 1903, and the techniques that Merrill and his team developed became the foundation of modern safety science research. Ever since, Underwriters Laboratories has carried Merrill's legacy forward—and his contributions continue to save lives today.*

*Journey forward:*

*Today the global enterprise is a world leader in creating safer living and working environments, and its legal structure offers flexibility as well as access to the funding needed to grow, maintain independence, and further its mission of working for a safer world.*

*Underwriters Laboratories Inc. is a 501(c)(3) nonprofit organization and the parent company of UL Inc. It is dedicated to creating a safer, more secure and sustainable future, advancing the UL mission through the discovery and application of scientific knowledge.*

*The company has grown into a global organization engaging in four principal activities. The organization:*

- 1. Conducts and disseminates scientific research on public safety issues*
- 2. Engages in education and outreach activities to promote public safety*
- 3. Develops standards for public safety with a wide variety of products and services*
- 4. Provides testing, inspection, verification, certification and auditing services as well as digital tools and applications that support the safety, security, and sustainability needs of the marketplace.*

*In 2012, UL transferred its testing and certification activities to a group of for-profit subsidiary companies under the umbrella holding company UL Inc. This separation has allowed the two organizations to grow and focus on their respective goals.*

*Today, Underwriters Laboratories Inc. continues to engage in the first three activities outlined above, while the UL Inc. business focuses on the fourth, offering a significantly expanded suite of testing, inspection, audit, certification, verification, advisory, training, analytical, and digital application services around the globe.*

*The nonprofit organization conducts rigorous independent research and analyzes safety data, convenes experts worldwide to address risks, shares knowledge through safety education and public outreach initiatives, and develops standards to guide the safe, sustainable commercialization of evolving technologies.*

*Underwriters Laboratories also fosters communities of safety—from grassroots initiatives for neighborhoods to summits of world leaders—and shares its findings broadly to encourage awareness and adoption of safety research. By collaborating with scientists, safety professionals, policymakers, and industry leaders, the organization helps drive transformative change in pursuit of a safer and more resilient society.*

**Q1:** Dear Mr. Terrence R. Brady, hearty and warm welcome to FSAI Journal.

You have been very kind by consenting to our request for offering an interview in this highly popular and prestigious column. As could be understood through the illustrious resume including academia, professional and career development, you bring in a blend of long-term experience and rich expertise. That would prove

complementary while leading UL from the front.

In this context, we are eager to know what inspired your transition from a high profile career spanning 27 years, which was directly related to merger, acquisition practices, security offerings and corporate affairs, to an institution like UL that focuses on Scientific Research oriented Laboratory experimental cum Testing followed by Auditing, Inspecting

and Certifying work among various clients and that too gauged against the standards/codes created by UL with due recognition from Govt. and other regulators?

A1: I knew of the important work happening at UL and was very much aware of the company's reputation and its mission of working for a safer world. When I joined Underwriters Laboratories, I had the opportunity to make an

impact at a pivotal juncture in the organization's history.

Underwriters Laboratories is the world's oldest nonprofit, nongovernmental safety organization. We are a magnet for expertise in science, technology, and standards, and we have the rare privilege to do objective, evidence-based research, free from bias or influence. We envision a world where technology protects and promotes human society. But new technologies often bring unintended consequences, which is why we work collaboratively with stakeholders from all over the world. Our network of partnerships—in academia, industry, and government—spans the globe.

The challenges in front of us are multiplying—running the gamut from hazardous chemicals in our environment and autonomous vehicles that will reshape our cities—to high-potential batteries that will soon power every part of our society. Complicating matters further, emerging technologies are interacting with one another in ways that are both dynamic and unpredictable. Independent research and standards development will continue to be crucial, and the growing influence of safety science holds enormous potential to transform society for the better.

**Q2: : Before we come to your current role in UL, it would be prudent to ask one pertinent question about the long stint at Winston & Strawn LLP, where you excelled by availing the opportunity to work across geographies in the world. Do you now find a big difference in the adoption of standards and attaching importance to compliance among developed economies, emerging nations and the ones sincerely trying out the development routes? This is in view of the fact that India is a**

**developing economy.**

**At this phase of ours a crucial debate takes place with regard to competitiveness cum cost effectiveness vis-à-vis adequate compliance to codes as well as standards. To elaborate, let me give the example of our reliance on coal for generating power, which is cost-effective as compared to cleaner energy that could definitely be expensive. The argument is in relation to the developing economies who require some more time to completely change over to cleaner fuels and remain competitive in the short run. Do you see any parallel in the adoption of standards as well by other developing countries? Kindly elaborate:**

A2: Prosperity, well-being, and safety are deeply connected. As a global safety science leader, we embrace our responsibility to impact the planet positively by acting to preserve prosperity for future generations. Correspondingly, we support modes of governance that prioritize policy coherence and compliance linked across sectors. As countries manufacture or adopt new technologies and products, consensus-based standards help ensure greater public safety and ensure that new technologies meet standards of quality.

Whether a country is considered developed or developing, international cooperation among nations can lead to significant progress in achieving healthier, regenerative, and ecologically connected societies. Public-private partnerships can also help advance initiatives as diverse as installing fiber-optic cables, improving air quality, and supporting more sustainable cities. Both public and private groups can work together to create co-regulatory approaches and improve standards for safety.

Importantly, the collaborative efforts of researchers, policymakers, and industry leaders serve as a critical lever of transformation, while enabling both standards and technological developments to move forward in a way that supports healthy economic growth.

**Q3: What's been UL's journey objectives, with regard to countries like India since you had already established a base in these locations? Accordingly, what could be road map for growth in the coming years?**

A3: Our work throughout India encompasses a wide range of activities that advance safety through research, standards, and education and are designed to address the country's areas of opportunity. Underwriters Laboratories Inc. has a strong presence in India, and we work closely with our Indian colleagues—as well as with our regional partners—so that we can better understand the safety, security, and sustainability issues posed by emerging technologies. Our staff in Bengaluru provides first-hand insights into the current environment, and, as we've done for many years, we work collaboratively to address those issues most pressing for our partners in India.

For example, we convene fire safety council meetings that foster discussion between regulators and implementation authorities, helping to identify and solve India's fire safety challenges. And, our thought leadership around the safety of electrical energy storage systems helps to ensure best practices are incorporated into the safe use of lithium-ion energy storage systems. In a final example, our National Safety Science Quiz and National Safety Science Campaign helps advance a safety mindset and encourages

India's next generation to focus on, discuss, and think creatively about relevant safety issues.

**Q4: In your opinion, did Globalisation – i.e., the crossover of products, services, and people across the world – pose any challenge to an organisation like Underwriters Laboratories? Because, in such a scenario, you are all the time required to be pro-active and be ahead of time, trying to evaluate what's coming up new, from where while pursuing, defining and establishing of appropriate standards. The follow up question would be "Are globalisation and global standardisation at loggerheads?"**

A4: We do not necessarily view globalization as challenging to our organization; rather, it creates opportunities for us to share knowledge, better understand the risks and hazards that require attention in a specific region, and build impactful, new partnerships to help advance our mission of working for a safer world.

We share the belief held by many in the global standards community that standardization is essential to ensuring that globalization can occur safely without hindering its remarkable progression. Global standards offer a path to safer, more secure, and sustainable living and working environments in a rapidly advancing world.

By harmonizing standards, we can identify commonalities as well as critical national differences. This practice enables our teams to contribute their expertise and help streamline the requirements contained within standards. It is a responsive approach to the world's evolution toward becoming a more singular marketplace. Further, it lowers the barrier of entry for producers in developing countries by helping them to compete globally and grow. This final

point aligns with the principles of the World Trade Organization's Technical Barriers to Trade Agreement, which Underwriters Laboratories supports.

**Q5: Do you think that adequate focus and attention are being given to "Safety, Security and Sustainability" in engineering curriculum the world over? Is there a need to review this in the present context? Your take.**

A5: Going forward, we plan to involve Underwriters Laboratories in even deeper conversations with the scientific community. We will continue pooling our knowledge with world-class institutions, such as IIT-Gandhinagar, with whom we have a longstanding relationship. With partner organizations, we have been targeting our inquiry strategically: on questions where safety science will make a meaningful difference for technology and society. As supporters of the IIT-Gandhinagar Safety Centre, we help advance its mission to promote safety in public and private spheres. We've worked collaboratively to conduct fire safety research and better understand how fire behaves in commercial and residential structures and have presented talks on electrochemistry and the safety of lithium-ion batteries.

If what we learn is going to make an impact, we must translate our findings more broadly and put them into language that policy-makers, industry leaders, educators and decision-makers worldwide can use to solve the world's most complex safety problems. What we do at Underwriters Laboratories can catalyze the field of safety science, making it integral to academic inquiry and learning.

I envision a future where we will inspire engineers, scientists,

inventors, and students to weave safety into the fabric of innovation. We will work alongside the scientists and engineers who are inventing tomorrow's technologies. And I sincerely hope a growing cohort of scientists will push our field in new directions. Together, we will address safety risks from the start. This is our ambitious vision.

**Q6: As we speak, the whole universe is in the midst of the Covid19 pandemic that has disrupted lives and our way of living like never before. As a torch bearer of safety and sustainability, what are the changes an organisation like UL would contemplate to address a similar situation like this in future should one unfortunately erupt?**

A6: COVID-19 has exposed how all countries remain deeply vulnerable; however, we've also seen how cooperation across borders can foster innovation during moments of great crisis, enabling scientific and technological developments to move forward at a rapid pace.

Although the study of infectious diseases is not one of our focus areas, we contributed to the global effort to mitigate the spread of COVID-19. For example, we identified 23 standards in our catalogue that could be applied to virus mitigation efforts, and we provided free access to these documents to share the best practices and research that they contain.

In another example, our standards and sharing of engineering expertise to global initiatives support safety in the research, development, and storage of vaccines for COVID-19 and other diseases:

- o ANSI/UL 471, Standard for Commercial Refrigerators and Freezers

- o CAN/UL 2984, Standard for Management of Public Risks – Principles and Guidelines
- o UL 61010, Safety Requirements for Electrical Equipment for Measurement, Control and Laboratory Use

**Q7: Sir, your most important responsibility matrix at UL is related to the offering of directions, setting up of priorities and strategies for its scientific research and standards. Looking specifically at the standard segment referred above, how do you desire to collaborate with similar as well as potentially strategic organizations to be associated in our country; for example, BIS (Bureau of Indian Standards) and CII (Confederation of Indian Industries). Besides, how do you see the relationship evolving in the future?**

A7: Underwriters Laboratories has strong, longstanding relationships with these organizations and others in India. Our partnership with BIS and CII includes information-sharing and the convening of conclaves, roundtables, and workshops to foster the development of a robust, high-quality ecosystem that focuses on global standards while addressing locally relevant issues and standards' alignment with these issues.

Our working relationship with BIS was further strengthened through the signing of a Memorandum of Understanding (MOU) earlier in 2021, formalizing what was already a strong and productive partnership. We work closely with industry associations and have MOUs with CII – IQ, the Indian Society of Heating Refrigerating and Air Conditioning Engineers (ISHRAE), the India Energy Storage Alliance (IESA), and other organizations.

Underwriters Laboratories is a proud contributor to the Indian National Standards Strategy as well as the Standards National Action Plan (SNAP) for implementing the strategy. We look forward to continuing our work with these partners to develop globally harmonized standards, eliminate duplication of work, and facilitate advancement of safer technologies while supporting India's growth in technology, infrastructure, and commerce.

**Q8: In your energy & utility vertical, like many other industries, technology has significantly increased asset life of products (cables, solar panels, wind turbines, transmission towers etc). What has been Underwriters Laboratories' approach to these fields and others which experience so much rapid advancement?**

A8: As products and technologies become increasingly sophisticated, assuring their performance, reliability, and safety criteria over an extended period can be a daunting task that is not to be taken lightly. Consistent regulation and oversight are critical. Advancing and maintaining complex critical infrastructure technologies requires collaboration across sectors, not only to advance the safety and performance of photovoltaic, electrical, and wind power technologies, but also to establish a solid foundation for defining safety and performance over the increasing design life of these systems.

For example, Underwriters Laboratories research, engineering, and standards development teams have identified the need to evolve a standard test protocol that can address the increasing use and reliability of photovoltaic systems in India, and we are working with academia, private industry, and

governmental agencies to bring key stakeholders together. The project will consider photovoltaic system design, materials specification, manufacturing of all components, integration, operation, and maintenance.

Fundamental research can also help to address potential challenges, and the team has already established the groundwork for this effort by monitoring photovoltaic power plant performance to assess energy production and degradation under realistic field conditions.

**Q9: UL operates as a leader across many different industries from healthcare to energy to construction to chemicals. In your experience, which industry has been the fastest, and which has been the slowest, in embracing the change of stricter compliance and higher safety standards, and why?**

A9: These are all complex industries with extensive, multifaceted requirements, and while some have tighter regulations and compliance standards built into their manufacturing and development process, others do not have the same restrictions. Regional laws and regulations have also made a big difference, which means that in certain regions, chemical safety may be much more tightly regulated, while in other regions the same can be said of healthcare technology or the construction industry. Certainly, public policy has made a difference for some industries. So has public opinion—consumers recently have been demanding greater accountability from industry leaders.

The good news is that we're seeing increased attention paid to higher safety standards across all these industries. Businesses now

know that they need to support compliance and safety standards to realize their long-term growth goals. Leading companies pursue compliance strategies and higher safety standards because they produce real results. Correspondingly, investors and stakeholders often expect companies to establish programs that meet and exceed high safety standards.

**Q10: Standard organizations like yours, as many other core functionaries in our society, remain in the background and create a strong foundation for other entities to flourish. If UL does its work well, which it is well known for, it will never be in news, as most safety concerns gain attention only after an accident. Given this reality of the nature of the job, how do you instil a sense of impact and purpose in your team?**

A10: While our staff appreciates public recognition of its work, we are far more motivated by, and committed to, the UL mission of working for a safer world. We are driven by the impact of our efforts—the UL mark appears on more than 22 billion products annually. Furthermore, the insights that emerge from our research have pioneered changes to practices and habits that have saved lives and reduced injuries. As it relates to standards, our team is highly enthusiastic about maintaining and growing our library of nearly 2,000 standards and other documents as we expand into new programs and build upon our knowledge base in core legacy focus areas.

For example, we support India's efforts to modernize its energy infrastructure, provide greater access to electricity, and invest in renewable energy and smart grid technology. We recognize these needs will require the safe

deployment of energy storage systems and increased usage of lithium-ion batteries. In response, UL Standards proactively supported the development of a standard for India based on one of our existing standards: ANSI/CAN/UL 9540, Standard for Energy Storage Systems and Equipment. By sharing the content of our Standard and other information used in the United States and Canada, we intend to affect the safe deployment of energy storage systems in India.

**Q11: We are fairly acquainted with the great service being rendered by UL since its inception in late 19th century. The entity is widely known and respected especially among sectors like business entrepreneurship/corporates/industrial/building construction, infrastructure development etc., In addition consultant professionals from different branches of engineering, risk insurance companies as well as Fire/ Life Safety/Environment service personnel are also richly benefitted by your standards and codes. Accordingly, what are the additional challenges that you are likely to address with reg, to amendments/changes in existing documents or the formulation of new standards/ codes looking at the aspirations of stakeholders?**

A11: As technologies and the supply chain for products and systems evolve, standardization must also adapt to change. We are leaders in the development of standards for legacy sectors, including fire and life safety, because we have a proven ability to adapt to advancements and changes in demand. We apply that same adaptability when we seek new areas of standards development with the intention of assuring safety in areas of new and rapid development, including

those of autonomous vehicles, photovoltaic systems, and the impact measurement of circular economy efforts.

Our standards development process is essentially continuous. Anyone from anywhere in the world may submit proposals for the development of a new standard or the revision of a standard that already exists in our catalogue. Further, we convene panels of experts (including experts from India) who participate in the review and balloting of these proposals.

To ensure we are in the best position to address the world's safety needs now, and in the future, we are undergoing a comprehensive modernization of our systems, operations, and approach to stakeholder engagement. We believe that standards are more important than ever and remain determined to be leaders in our field for many years to come.

**Q12: What types of reviews and research are being undertaken to ensure that each standard becomes more reader as well as user-friendly? This relates to a larger cross-section of end users with different educational and professional backgrounds**

A12: Standards are highly technical documents that require precise wording and methods of presenting information to engineers, product designers and others involved in a product or system's life cycle and supply chain. Because of this, standards traditionally have not been easily read by people who are not immersed in the subject. We anticipate that user-friendliness will evolve over time for two primary reasons:

1. We are working to expand the diversity of the participants in our Standards Technical Panels (STP)

and Technical Committees (TC) to include more users, consumers, and international members. Their participation will likely expand the readability of the content for a broader audience.

2. We are researching the use of natural language processing tools to analyse the content of our standards to provide objective scores for readability. The scores can then be used by the STP or TC to determine whether the standard is presented in a manner suitable for the target audience.

We are also working to improve the accessibility of our standards because we believe it is important to share this information with the world, which is in line with our global safety mission.

Our Digital View program allows anyone registered on our standards sales site, (<https://www.shopULstandards.com>), to view at no cost, any of the nearly 2,000 UL and ULC standards and other documents in our catalogue. We launched this functionality in 2018, and since then it has provided free access to thousands of people around the world. We are exploring even more ways to advance the accessibility of our standards, including additional languages for translation, acceptance of additional world currencies and further expansion of our digital documents' functionality.

**Q13: Undoubtedly automation has helped reduce safety incidents significantly across many industries, however as**

**automation and AI takes on roles that traditionally humans used to perform in ensuring safety compliance, how should we look at the trade-off between automation and job loss specifically from a safety and sustainability standpoint?**

A13: If we can commit to creating safer working environments and retraining our workforce so that people can find meaningful employment opportunities and live safer lives, the rise of automation can potentially empower workers.

The question we pose—is how can the benefits of automation and artificial intelligence (AI) be maximized while minimizing any potential harmful effects? Put another way: how do we use these technologies to solve problems without introducing serious unintended consequences?

There's no denying that this is a challenging problem and one unlikely to yield to quick fixes or easy answers, particularly given the breadth of application areas to which AI and automation are (and will be) applied. Our experience has taught us that arriving at solutions takes careful cooperation between a wide range of experts.

It requires us to work together to find solutions that advance everyone's interests—and, most importantly, that serve the public good. Merging social science, ethics, and public policy, along with fundamental and applied research, can propel our

understanding of the trade-offs. This is how we can together weave safety and sustainability into the fabric of innovation.

**Q14: In conclusion, do you have any special advice, message or counsel that would benefit our readers? This is regarding how organizations like Underwriters Laboratories can be instrumental in enhancing the growth of organizations like FSAI through strategic partnership.**

A14: As a nonprofit organization, we are committed to working for a safer world, and we are steadfast in our pursuit of a more secure and sustainable society. Underwriters Laboratories prides itself on its ability to convene global experts and organizations united by a shared desire to improve safety through science. However, even the best research and standards cannot save lives on their own, which is why we place special emphasis on collaboration, outreach, and education.

Using the deep connections Underwriters Laboratories has built across the global safety community, we bring knowledge to the people who can put it into practice.

We welcome the involvement of partners from throughout the world for the purpose of sharing knowledge with one another. I encourage anyone interested in learning more, or in partnering with us to advance our work in safety science research, standards development, and safety education to visit us online at [UL.org](http://UL.org) and contact us about working together.

---

*Sir, this interaction experience threw a pleasant surprise as we came to know that you had also adorned the chair of 'Editor-in-Chief' of the "Journal of Law, Ethics & Public Policy" at University level as part of your passionate efforts to complement the academic excellence.*

*Before drawing the curtain, FSAI would like to gratefully acknowledge the kind gesture of commencing the contribution of scholarly articles to our journal penned by senior officials of Underwriters Laboratories.*

---