

Speech @ Heart Conference

(About)

Bianca Muntean: The e-Health ecosystem of Cluj and its surroundings

In modern medicine textbook knowledge is not enough. It must be aided by technology through laboratory findings and additional procedures in order to offer accurate diagnoses and to provide the appropriate care for all patients. Given the widespread benefits of technological advancements in other domains, it is only natural to wonder how they could further impact the medical field. Bianca Muntean's talk will **highlight the importance and advantages of digitalization in modern society, while also emphasizing the crucial need for cooperation between the IT and medical fields.**

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[Slide 1, 2] - Intro

Good morning, ladies and gentlemen. It is a great pleasure and honor for me to be here with you today. First of all, I would like to express my heartfelt thanks to the organizers for inviting me to speak on such an important topic.

In my speech today, I will be discussing the importance and advantages of digitalization in modern society, while also emphasizing the crucial need for collaboration between the IT and medical fields. Together, we can leverage technology to create a better and healthier world for all.

Thank you once again for inviting me to speak, and I hope you find my insights informative and thought-provoking.

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1. Advantages of digitalization in the medical field

The widespread use of digital technology has transformed the way we live, work and communicate with each other. In particular, the medical field has experienced significant advancements due to digitalization, which has revolutionized the way healthcare is delivered. However, the benefits of digitalization can only be fully realized through collaboration between the IT and medical fields.

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The medical field is one that relies heavily on accurate diagnoses and appropriate care for patients. While textbook knowledge and clinical experience are crucial components of medical practice, they are not always sufficient on their own. Technological advancements have played an increasingly important role in modern medicine, allowing healthcare professionals to better understand and treat a wide range of illnesses and conditions.

Laboratory findings and diagnostic procedures are just a few examples of how technology is used to aid medical professionals in their practice. Through blood tests, imaging scans, and other diagnostic tools, physicians are able to identify potential health issues and develop treatment plans that are tailored to the individual needs of each patient. These tools also enable doctors to monitor patients' progress over time, ensuring that their treatment remains effective and any potential complications are identified and addressed.

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2. Working together

As technology continues to evolve, there is no doubt that it will play an increasingly important role in the future of medicine. From artificial intelligence and machine learning to wearable devices and virtual reality, there are countless possibilities for how technology can be applied to improve patient care and outcomes.

However, it is important to note that technology should never replace the expertise and human touch of healthcare professionals. Rather, it should be seen as a complementary tool that enhances their ability to provide the best possible care to their patients.

The IT and medical fields need to work together to ensure the effective implementation of digitalization. **There is a need for collaboration between healthcare professionals and technology experts to develop digital tools that meet the specific needs of the medical industry.** This requires a deep understanding of both the technological capabilities and medical requirements. Additionally, it is important to address issues related to privacy, data security and interoperability to ensure that patient information is kept safe and can be easily shared among healthcare providers.

Interoperability is particularly important in the medical field as it allows healthcare providers to access patient information regardless of the system they use. This is crucial for providing timely and accurate care. Therefore, IT experts must work with healthcare providers to develop standards and protocols for sharing information between different systems.

Furthermore, there is a need for healthcare professionals to be trained in the use of digital tools and technologies. While digitalization has the potential to improve patient care and outcomes, it can only be effective if healthcare professionals have the skills and knowledge to use them.

Therefore, IT experts must work with medical professionals to develop training programs that ensure healthcare professionals are adequately equipped to use digital tools in their practice.

3. Transilvania IT Cluster

So, the benefits of digitalization can only be fully realized through collaboration between the IT and medical fields. But how do we get them to meet and work together?

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This is where we, Transilvania IT Cluster, come in. We're not only talking about digitalization and progress and collaboration, we make things happen, by creating the setting for them.

Transilvania IT Cluster is the organization that operates at the crossroads of various fields such as entrepreneurship, research, innovation, and public administration. **By bringing together these diverse areas of expertise, the cluster is able to facilitate important conversations and initiatives focused on driving digital transformation in the community.**

Our main expertise is building the ecosystem with all the major entities relevant for the digital transformation of our society: companies, big corporations, universities and, last but not least, the public administration.

Our mission is primarily to represent the interests of member companies and to generate added value for them through all our commitments, contributing at the same time to the development of our regional innovation ecosystem and increasing its digital maturity.

Transilvania IT Cluster means more than **130 member companies** and we are happy to partner with a coalition of the best universities in the region: Babeş-Bolyai University, Technical University of Cluj Napoca and Iuliu Hațieganu University of Medicine and Pharmacy, with some of the most innovative and progressive local authorities such as the Municipality of Cluj-Napoca and Cluj County Council, with the most dynamic clusters' ecosystems in Europe, with progressive and industry-oriented research institutions and the other relevant civic actors. With this we are demonstrating our broad and inclusive approach in making digital transformation real.

3.1. Members and activity

As I began this presentation discussing the importance of precise diagnoses and appropriate care for patients, and how digitalization has revolutionized medical research, I would now like to introduce some of our cluster members who exemplify these principles.

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3.2. Accurate diagnoses

One of the key advantages of digital health technologies in diagnosis is the ability to access and analyze patient data from multiple sources. Electronic medical records, imaging scans, and laboratory test results can all be integrated and analyzed using advanced software tools, providing a comprehensive view of a patient's health status. This allows healthcare professionals to identify potential health issues and make more informed and accurate diagnosis and treatment decisions.

Another advantage of digital health technologies in diagnosis is the ability to use predictive analytics to identify potential health risks and diagnose diseases at an earlier stage. Machine learning algorithms and other advanced analytics tools can be used to analyze large amounts of patient data, identifying patterns and trends that may be indicative of specific health conditions. This can enable healthcare professionals to make more accurate and timely diagnoses, improving patient outcomes and reducing the likelihood of complications.

Digital health technologies also enable healthcare professionals to collaborate more effectively, sharing patient data and expertise across different disciplines and specialties. This can lead to more accurate diagnoses and treatment plans, as healthcare professionals are able to draw on a wider range of knowledge and experience to inform their decision-making.

Overall, digital health technologies are transforming the way healthcare professionals approach diagnosis, enabling them to provide more accurate and precise diagnoses than ever before. By leveraging the power of advanced digital tools and techniques, healthcare professionals are able to access and analyze large amounts of patient data, use predictive analytics to identify potential health risks, and collaborate more effectively to deliver better patient care.

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Synaptiq

Synaptiq has developed a revolutionary software tool called Mediq that uses Artificial Intelligence to separate cancerous tumors and organs at risk. The software aims to assist doctors in identifying and delineating cancerous tumors, as well as communicating effectively with their colleagues involved in the radiation treatment planning process. Mediq's cutting-edge technology and AI-based approach distinguish it from traditional technologies in healthcare by enabling it to gather data, process it, and provide a well-defined output to the end-user.

Using Mediq's advanced contouring software, doctors can detect tumors in CT and MRI scans five to ten times faster than traditional manual contouring methods. This innovative software also reduces the time required to elaborate on a treatment plan, while enabling doctors to communicate effectively by using a centralized platform and speeding up their work using the pipeline. With the help of deep learning models, doctors can achieve the same level of expertise faster than those using only traditional methods.

Mediq covers all major cancer sites, and the team at Synaptiq has leveraged its collective intelligence and resourceful spirit to deliver the best AI-based solutions for enhancing the quality of the healthcare industry. By providing objective and robust treatment planning, Mediq ensures

that more patients can be treated efficiently, leading to increased efficacy and reduced complexity. The combination of Mediq's cutting-edge technology and Synaptiq's innovative approach holds tremendous potential for improving the quality of care for cancer patients and revolutionizing the way doctors approach radiation treatment planning.

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3.3. Treatment and care

Beyond diagnostics, technology has also made significant contributions to **treatment and care**. For example, advancements in surgical techniques and medical devices have made procedures less invasive and more effective, allowing for faster recovery times and improved outcomes.

Also, electronic health records allow for easier access to patient data, which can aid in identifying potential health risks, track progress and reduce errors. Wearable devices and mobile apps allow patients to monitor their health, receive reminders for medication, and communicate with healthcare professionals in real-time.

Telemedicine and other remote care options have made healthcare more accessible to individuals in remote or underserved areas, and have also increased convenience and flexibility for patients.

In the past 3 years, digitalization has played a crucial role in the fight against COVID-19. Telemedicine and remote patient monitoring have become essential tools for healthcare professionals to treat patients during the pandemic. With digital tools, patients were able to receive care from the comfort of their homes, reducing the risk of exposure to the virus.

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Telios

Telios has developed an innovative telemedicine service to cater to a wide range of healthcare needs. This service is designed to help patients who are unable to reach a doctor or require a quick and efficient consultation. Through Telios' telemedicine service, patients can obtain real-time medical consultations through their mobile application or web platform. This method of

consultation is not only convenient but also cost-effective, as it saves patients from traveling to a clinic or hospital. Moreover, Telios provides a safe and confidential environment for patients to discuss their healthcare needs with specialized doctors from different fields.

Telios offers a diverse range of medical services that includes general consultations, medical prescriptions, treatment recommendations, and health monitoring. Patients can expect quality, affordable, and easy-to-use medical services with the added benefit of receiving medical care safely and comfortably in their own homes. The telemedicine service is designed to cater to patients' needs, and they can book a consultation with a specialist doctor in their desired medical field at a time that suits them. Before the consultation, patients can complete an online medical questionnaire to provide more information about their health. During the consultation, patients can discuss their health concerns with the doctor and receive medical advice, treatment recommendations, and prescriptions if needed.

To access Telios' telemedicine service, patients need to create an account on their mobile application or web platform. The registration process is simple, and once completed, patients can book a consultation with a specialist doctor of their choice. Telios' telemedicine service is designed to be convenient, secure, and accessible. Patients can get the medical care they need from the comfort of their own homes, and at a time that suits them. With Telios' telemedicine service, patients can receive quality healthcare services without having to worry about the hassle of visiting a medical facility.

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3.4. Medical research

Digitalization has revolutionized the field of medical research, providing researchers with powerful tools to process and analyze large amounts of data. This has enabled researchers to identify new trends and patterns in patient health outcomes, leading to new discoveries in medical science and the development of innovative treatments and devices.

One key advantage of digitalization in medical research is the ability to collect and store large amounts of patient data. Electronic medical records and other digital health technologies allow for the collection of vast amounts of patient data, including medical history, diagnostic test results, and treatment outcomes. This data can be analyzed using sophisticated software tools and techniques, allowing researchers to identify correlations, patterns, and trends that might not be apparent through traditional methods.

In addition to analyzing patient data, digitalization also enables researchers to conduct clinical trials in a more efficient and cost-effective manner. Digital platforms can be used to recruit and enroll study participants, track their progress and collect data in real-time. This not only reduces the time and cost associated with traditional clinical trials, but it also allows researchers to collect more accurate and reliable data, ultimately leading to better results.

Digitalization has also enabled researchers to collaborate and share data more easily than ever before. With the use of cloud-based platforms and other digital tools, researchers from around the world can collaborate on projects in real-time, sharing data, insights, and expertise to accelerate the pace of discovery.

Overall, digitalization has transformed medical research, providing researchers with powerful new tools and techniques to collect, analyze, and share data. By leveraging the power of digital technology, researchers are able to make new discoveries, develop innovative treatments and devices, and ultimately improve patient outcomes.

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Wello

Another member of Transylvania IT Cluster is Wello, a Romanian AI tech startup that aims to promote healthy living for families with children between the ages of 8 and 14. The Wello app offers information on nutrition and healthy lifestyle habits, as well as personalized nutrition programs and advice from nutrition experts, fitness coaches, and general practitioners, based on user information collected through artificial intelligence. The app also recommends places to eat healthy and find healthy food suppliers, based on the personalized nutrition plan.

Wello's focus is on raising awareness of the alarming rates of childhood obesity, and providing a multilateral approach to improving the mental and physical well-being of families. The startup provides curated resources that help parents educate their children about the importance of nutrition, as well as a virtual companion through their mobile app, and a real-life community that offers support and guidance through different programs.

Wello offers a School of Health, which consists of nutrition and psychology classes in primary schools, and a Wello Camp, a health summer school filled with nutritious food and various physical activities. By applying the right dietary principles and regular exercise, families can improve their overall health and well-being with Wello's help.

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Therefore, as you can see, things are moving in the right direction. These are just three examples of organizations close to us that are working in the field of health and technology. It is essential to have this kind of involvement and good ideas to evolve and improve things. At Transylvania IT, we strive to see, identify, and connect all actors at all levels for this purpose.

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4. Connected society

We hold another viewpoint which concerns regional representation since Transylvania extends beyond Cluj. It encompasses Bistrița Năsăud, Sălaj, Satu-Mare, Maramureș, and Bihor, and we plan to undertake various initiatives and programs aimed at serving the needs of these communities.

Additionally, we actively participate in national and European networks to derive the benefits of valuable connections, funding opportunities, and networking prospects. These networks also offer us and our members access to innovative solutions and fresh perspectives on different issues.

Through our work at Transilvania IT Cluster, we seek to promote the development of the community through the process of digitization. We know that digital technology has the power to transform the way people live, work, and interact with each other. By leveraging the latest innovations in digital technology, the cluster aims to create a more connected, efficient, and sustainable society.

At its core, Transilvania IT Cluster is committed to fostering a culture of innovation and collaboration. We work to connect entrepreneurs, researchers and public officials to share ideas and resources, and to support the growth of digital businesses in the region. By doing so, we hope to create a thriving ecosystem of innovation that can drive economic growth and improve the quality of life for everyone in the community.

We have a number of projects, either stand-alone services or part of European projects that address regional, national and international opportunities and challenges, provide digitalization solutions or develop and pilot innovative curricula related to the digital sector.

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4.1. Transilvania Digital Innovation Hub

Transilvania IT Cluster is the orchestrator of Transilvania Digital Innovation Hub, working together with a strong consortium of partners which includes the best 3 universities of Cluj-Napoca, a research institute, a consulting company and the local authorities.

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Transilvania DIH strives to tackle industry and societal challenges by leveraging digital innovation technologies. Our team utilizes cutting-edge tools, including AI, HPC, and Big Data, to drive digital transformation, foster sustainable solutions, and improve productivity, competitiveness, growth, and well-being at regional, national, European and international levels.

In 2022, Transilvania DIH was selected to be funded through the Digital Europe Programme. This was a major achievement for the organization, as it meant that we would be able to expand our services and capabilities in the field of digital innovation.

As a result of this funding, Transilvania DIH became part of the European Digital Innovation Hub (EDIH) Network. The EDIH Network is a community of digital innovation hubs located across Europe, working together to support the digital transformation of businesses and industries in the region. Being part of this network allowed Transilvania DIH to connect with other experts and innovators in the field, share knowledge and resources, and collaborate on new projects and initiatives.

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With this funding, Transilvania DIH is able to enhance its capacity to support the digital transformation of businesses in the region. They were able to invest in new technology and infrastructure, hire new talent, and expand their network of partners and collaborators. This allowed them to offer a wider range of services and support to businesses looking to innovate and grow in the digital age.

Overall, being selected for funding through the Digital Europe Programme and becoming part of the EDIH Network is a major milestone for Transilvania DIH. It allowed us to take our work to the next level and become a key player in the European digital innovation ecosystem.

Our goal is to improve Romania's rank in DESI (Digital Economy and Society Index) by providing comprehensive digital transformation services to SMEs and public sector organizations. This requires the effort and contribution of technology and non-IT companies. The aim is to promote economic development and societal progress in the Digital Health and Industry 4.0 sectors.

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4.2. Working Groups: Digital Health

Transylvania DIH focuses on three working groups that meet regularly to discuss opportunities, topics of interest and possible collaborations related to the industry.

- (1) Industry 4.0
- (2) Human Resources
- (3) Digital Health

The working group on digital health is a dedicated team that meets regularly to identify the current needs of the digital health community and to find the appropriate tools and resources to implement relevant projects that are replicable in other regions and sectors.

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The group comprises experts from various fields, including healthcare, IT, and academia, who share their expertise and knowledge to drive innovation and promote digital transformation in the healthcare industry. We were able to engage not just experts with a theoretical perspective, but also key stakeholders, including representatives from hospitals such as the Podiatry Clinic, Rehabilitation Hospital, Emergency County Clinical Hospital Cluj-Napoca, and Infectious Diseases Clinical Hospital.

Additionally, the working group discusses funding opportunities and aims to create collaborative teams that apply for funding to implement their eHealth solutions.

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For instance, during the group's latest meeting, last month, a special guest was Mr. Adrian Răulea, Secretary of State at the Ministry of Investments and European Projects, who, during the meeting, presented the funding opportunities within the Health Program 2021 - 2027.

The Health Program 2021-2027 outlines seven main priorities, which include enhancing the quality of primary and community medical assistance services, improving preventive services, and strengthening outpatient services. It also prioritizes the provision of rehabilitation, palliative, and hospitalization services for chronic diseases, taking into account the impact of population

aging and disability. The program aims to increase the effectiveness and resilience of the medical system in critical areas of strategic importance, including investments in new hospital infrastructures, innovative medical research approaches, and digitization of the medical system. Additionally, measures to support oncology and transplantation fields are also included in the program.

Mr. Răulea met and discussed with representatives of the Transilvania IT Cluster, representatives of the Health ecosystem, the university environment and representatives of IT companies that propose solutions for the field, and they established a work plan, together.

As a next step, technical working meetings will be organized, in which both hospitals and IT companies will be involved with the aim of identifying needs and solutions, in terms of digitizing the health system.

This is just an example of how the digital health working group is driving collaboration, innovation, and progress towards a sustainable and effective healthcare system that benefits everyone.

During 2022 the Digital Health Working Group has hit the number of 40 members, representatives of the digital health community. They had more than 10 meetings in which members of the working group shared know-how, news from the field, possible opportunities and the launch of joint collaborations.

A collaboration between two members of the working group has led to the development of a project called Body & Soul Health Education, which has received funding from EEA and Norway Grants.

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4.3. DIHs_P4Medicine

One of our organization's new projects is DIHs_P4Medicine, which officially launched on July 1st, 2022. The project aims to create a collaborative action plan that leverages Digital Innovation Hubs across Europe to support the development of the P4 Paradigm in Medicine.

This paradigm emphasizes a shift towards a healthcare model that is predictive, preventive, personalized, and participatory.

Our team is committed to engaging with healthcare companies in our region to contribute towards this paradigm. By collaborating with other Digital Innovation Hubs across Europe, we aim to facilitate the sharing of innovative ideas and best practices to promote this approach in the healthcare sector.

As part of the project's network, we will showcase successful examples from our region, demonstrating the significant impact that companies in our area are making towards this paradigm shift. Our goal is to drive collaboration and innovation across Europe to create a sustainable and effective healthcare system that benefits everyone.

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5. Networking and Ecosystem building

Our organization specializes in ecosystem building, which means that we have the expertise to bring together different stakeholders, such as startups, investors, corporations, researchers, and government officials, to create a community focused on innovation and growth. Our goal is to involve all relevant entities in the digital transformation of society, including large corporations, universities, research centers, and public authorities.

As a catalyst, we bring these entities together to create a strong ecosystem that can benefit from digital transformation. We have counterparts throughout Europe who can facilitate connections and we focus on signaling funding opportunities directly from Brussels, including through our relationships with HADEA, the agency for digital healthcare.

Our team has extensive experience in identifying key players, fostering collaboration, and creating an environment that encourages the exchange of ideas and resources. We understand the unique challenges and opportunities that arise in different industries and regions, allowing us to tailor our approach to meet the specific needs of each ecosystem.

Through various activities, projects, events, and programs, our mission is to represent the interests of our members and create value-added opportunities for them. Our contribution to the development of the regional ecosystem in the North-West development region is twofold, through direct collaboration with actors in all four categories of the Quadruple Helix model and through the positive impact we have on member companies, public institutions, academic and research environments, and civil society organizations.

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6. Empowering the next generation

At Transilvania IT Cluster, we are committed to serving our community by ensuring a neutral and healthy approach to digital transformation in the healthcare industry. Our goal is to facilitate the adoption of new technologies and processes that can improve the quality of care and enhance the patient experience.

One of the programs we offer is Innovation Labs, which provides unique opportunities for medical students to learn about the latest developments in healthcare technology. Through these labs, we aim to expose students to the potential of digital solutions in healthcare, while also providing them with practical experience in working with emerging technologies.

We believe that by offering these opportunities to students who may be less familiar with the technology industry, we can help to bridge the gap between the healthcare and tech sectors. By encouraging students to keep up with developments in the startup world while they prepare to become doctors, we hope to equip them with the skills and knowledge they need to excel in their field and potentially open their own businesses in the future.

Ultimately, our goal is to empower the next generation of healthcare professionals to be innovative and adaptable in a rapidly changing industry. By providing them with the tools and resources they need to succeed, we believe that we can make a positive impact on the healthcare landscape and improve outcomes for patients across our community.

7. Conclusions

In conclusion, digitalization has become an essential part of modern society and has the potential to revolutionize the healthcare industry. It offers many advantages, including improved patient care, enhanced medical research, and the ability to fight pandemics such as COVID-19. However, its implementation requires cooperation between the IT and medical fields.

Collaboration is needed to develop digital tools that meet the specific needs of the medical industry, ensure patient information is kept safe and secure, and provide adequate training for healthcare professionals to use these tools effectively. Only through this collaboration can we fully realize the benefits of digitalization in the medical field.

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Transilvania IT Cluster focuses on creating spaces and opportunities for people to connect and collaborate, with the ultimate goal of finding solutions to the challenges facing our society. We believe that by fostering interaction and dialogue among different stakeholders, we can create a more inclusive and equitable environment that promotes innovation and growth.

One of the ways we achieve this is by organizing periodic workgroup meetings, where individuals from different backgrounds and industries can come together to discuss various topics and share their expertise. These meetings provide a platform for open and constructive discussions, allowing participants to learn from one another, exchange ideas, and identify potential areas for collaboration.

Although the impact of our work may not always be immediately visible, we believe that our efforts are making a significant difference in the medium to long term. By facilitating connections and fostering a culture of collaboration, we are laying the foundation for more sustainable and resilient communities that can adapt to the ever-changing needs of our society.

At times, our work may not be directly credited with the results we see, but we are driven by the knowledge that we have contributed to creating a better future, even if our impact may not



always be visible. Ultimately, our goal is not to be recognized, but rather to create an environment where people can thrive and achieve their full potential.

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In conclusion, I would like to invite you all to join us in our mission to foster cooperation between the IT and medical fields. Let us work together to leverage technology and create a brighter future for healthcare.

We are committed to driving progress in this field, and we would be honored to have your support and involvement. So, whether you're an IT professional, a healthcare provider, or simply someone who cares about improving our world, I urge you to get involved and join us in this important endeavor.

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Thank you once again for your attention today, and for your ongoing commitment to improving healthcare.