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Welcome: Marko Delimar, University of Zagreb — Chair, IEEE European Public Policy Initiative

Delimar opened his address to the 2017 IEEE Summit by highlighting the title of this year’s event: Technology for Health. “Allow me to echo that one more time,” he said. “It’s about technology for health, not technology in health. It sounds like a very subtle distinction, yet a paramount one.”

“It was a gathering much like this one, that IEEE began more than 130 years ago,” he continued. “In decades since we have brought some of the most talented and visionary leaders in the world of technology to bring and share perspectives, push boundaries and advance technology to benefit humanity. Today nearly 60,000 IEEE members call Europe home, and they’re a part of a global community of 420,000 professionals working in fields as diverse as aerospace, photonics, energy and of course life sciences and healthcare.”

Delimar explained that the IEEE European Public Policy Initiative aims to help the European technology community become “more aware of important technology policy issues and to connect with key decision makers.”

“It is the belief of both the European Public Policy Initiative, and that of IEEE, that most forward-facing technology policy efforts come from policy makers and technologists discussing possibilities together, sharing their perspectives and finding a common path forward. Indeed, we firmly believe that wise and robust technology policy is best created through discussion that involves many sides. On a topic such as technology for health, that of course includes medical and healthcare communities, ethics communities, and above all, the patient,” he concluded.
Summit Opening: James A. Jefferies — IEEE President-Elect

“The future of healthcare is changing at an ever-increasing rate,” said Jefferies, before listing a vast array of technical innovations including digital medical records, advances in biomedical engineering, digital convergence of genomics, embedded devices, the potential for artificial intelligence in healthcare, nanobiology, and advances in supercomputing. These are all “creating a new landscape and a new opportunity in healthcare,” added Jefferies.

“But like any disruptive technology, technology-enabled healthcare presents a number of complex policy challenges that require extensive understanding of science and technology for effective decision making. These issues also span a wide spectrum of ethical and privacy considerations. And as the biological and the technological continue to converge, there will be questions about their ethical use and questions about the appropriate use of the data that is created in this environment. The answer to these questions will be found by bringing together leaders in the fields of healthcare, technology and ethics, by sharing expertise, perspectives and ideas at conferences and workshops such as this, and by enabling global standards through consensus building,” he said.

“IEEE can be an excellent convener for this kind of discussion. As an international organisation, we are uniquely positioned to be the bridge between the engineering experts who understand the emerging technologies, the policy makers who devise the regulatory environment, and the public which has varying levels of understanding, engagement and involvement with new technologies,” continued Jefferies.

He said that “demographic changes throughout industrialised countries and an increase in chronic diseases have led many to ask how technology can help to ease the burden on healthcare professionals, and how technology can help people cope with conditions in home environments.”

Unsurprisingly, as IEEE is one of the world’s leading developers of standards, the IEEE President-Elect said that standards are essential to reap the benefits of medtech: “A key tool to bringing these cutting-edge technologies to market and enabling the benefits to people is innovation. If innovation is the catalyst for standard advancement, then standards are a catalyst for supporting innovation.”
Summit Keynote: Roberta Viola, Director General, DG CNECT, European Commission

Viola remarked that as an engineer by training, he was well aware of the importance of IEEE’s work to shape society for the better. “The transformation of our economy and society, digital society is one of the largest challenges of modern times,” he continued.

A day like this is important in order to explain to politicians what needs to be done, he added.

“At the European Commission, we are trying to really help this digital transformation of society and economy in all possible fields and of course, healthcare is not an exception. The transformation of digital healthcare is so important to our society. Personalised medicine will bring much more customised answers to needs as we integrate the concept of health with wellbeing. But personalised medicine is particularly disruptive because it will use genetic information. The era of genetic medicine is approaching and that will be really a disruptive transformation of healthcare. And I think there’s no doubt that this is for the better,” said Viola.

The Commission recently published a report on the status of healthcare in Europe revealing that public healthcare in Europe costs roughly 10% of European GDP. “This is expenditure number two after pensions,” said Viola. “And if you project this to the year 2050, I have very good news for you that we tend to live longer, and very bad news that this is going to be very expensive. So, we are approaching what I call the critical crossing point between pension expenditure and healthcare expenditure.”

“The way to have a sustainable healthcare for our society is through technology, because what you can do through technology can bring a dramatic reduction in costs. For instance, introducing mass scale IT to healthcare could save in the order of four or five percent. But when you introduce remote care, you introduce artificial intelligence and you go to the next step, which is personalised medicine, these savings can be 10 to 15, or even 20 percent which, when translated, is a huge amount of money,” he explained. Viola pointed out that not only is it a saving, it’s an investment in the future.
“It’s a vicious circle: more technology, better quality of life and at the same time, saving for our public expenditure. So, that is what is at stake, it’s not something you can ignore.

However, according to European Commission statistics, only 6% of people currently have access to their digital healthcare record. Only 18% can browse their health history. Viola said this is depressing when compared with, for example, electronic banking. “Why this is not possible with healthcare?” he asked. “Why, if the GP retires or you change city, do you risk losing your entire medical history? In the times we live in, I find it an absurdity!” he said. “So the first fundamental step to a digital healthcare system is to digitise health records and have an open standard for medical records.”

“From 1 January 2018, electronic identification in Europe will be totally interoperable. 500 million citizens will have, if they want, an electronic ID recognised anywhere in Europe. This is quite an achievement and I think the obvious next step is to apply this to medical records.”

Supercomputing is the way to achieve this according to Viola: “At the moment, high performance computing in Europe can only serve 10% of the needs of the scientific community. That’s not good, and that’s why we will launch, at the beginning of next year, the largest effort ever in supercomputing, which we call Euro HPC.

“The intention is to not only to build the machines, but to join up with industry to make sure that supercomputing is accessible as service. Our dream is to have the medical community connected through the cloud exchanging datasets and accessing supercomputing.”

“Imagine a system by which the patient can give continuous feedback about the quality of the healthcare they are receiving, ensuring really customised care to the patient.” Viola said that it was up to policy makers to deliver the right regulatory environment to make this a reality. “This would be possible through data, searchable data, sensors and the rest. But the regulatory environment has to fit. We need to make sure that all this is patient-centred, respects the privacy of the patients, the regulations are fit for purpose, and that we have regulation really when it’s necessary to have regulation; regulation should not stifle innovation.”
Technology Keynote: Joost Felix, Global Head of Integrated Care Solutions, Agfa HealthCare

Felix started by also mentioning the approximate 10 percent of GDP spent on healthcare: “We know that this is ever increasing. The trend is slowing down, but it’s not going away. But it is probably more of a challenge in the aging society. This is the biggest healthcare challenge that we see today. Why is that such a problem? Because of the fact that people get sick as they get older. Because of the disabilities that people will have. This is why we need smart technology,” he said.

According to the CDC, 75 percent of spending is on chronic disease management. The World Health Organisation also recognised the trend and said we need to think about something new, to redesign healthcare delivery, because if we continue what we have done, we will fail, explained Felix.

But he also issued a warning: “In the US, we have this big push for technology. We pushed the EMR (electronic medical record) out, and at the same time a problem occurred. We got higher physician burn out because it was badly designed. And if we are not very careful, we will by pushing technology and burn out the workforce.”

“Usability of medical devices for patients and caregivers is what I see as the biggest challenge at Agfa,” said Felix, adding that this needs to be designed in. "We know, for example, with EMR portals that only 25 percent of people are actually using them. So how will we use technology, to help make changes to healthcare?

Felix believes that we have focused so much on interoperability, exchanging health data, etc., that we have forgotten about the bigger picture. A publication from the Robert Wood Johnson Foundation claimed to be able to predict which diseases a patient is suffering from with just a postal code.

“That to a large extent is true,” said Felix. “If we talk about big data for health and re-designing healthcare, it is about data collections in many different aspects. It’s not just about healthcare services for the critically ill or the complex chronic – because we know that year over year only 10% of the people remain in that group. You either get better or you die, it’s as simple as that.
“The [main] cost is associated with the at-risk and simple chronic disease management. How do we find those people? How do we manage them?” he asked.

Felix said that the plain fact of self-care is that 40 percent of people on chronic disease management do not take their medication after a certain point. “The majority of self-management programmes fail,” he added.

“How do we put psychology, gamification, and better technology in place to make sure that people adhere, that people take care of their health, or if people stop doing that, that we at least notice?” he asked.

Another challenge for aging populations is that sometimes the hospital is the worst place to be, continued Felix. “We need to put technology in place to have what is called ‘hospital-at-home’. There are many successful programmes and the US is leading the way here, and I think that Europe can learn a lot from that.”

“There are people that use digital services for health, and there are people that don’t. And you will always have both, but what we need to do is design it such that it becomes very attractive to become a digital patient, to start using digital service. The most important medical device at this moment in time is probably your smart phone. For the healthcare leader, that’s what we need to be looking at.”

Finally, he admitted it’s all about trust in the data and getting patients to hand over such sensitive personal data. “What you need to do is be able to monitor patients, but let’s also be open and honest: If you speak with me, a patient, when I am healthy, I will object if you put my data on the internet. Tomorrow if I have a rare disease, I would be happy to put all my data on the internet and cry out for help. And that’s the challenge that is there with healthcare data.”

“And that’s the challenge where we also need to overcome and speak to people and make health and health technology a trustable resource that is not just driven by companies, not just driven by health-tech or IT companies, we need governance and we need trusted bodies. “I think that the regulatory environment greatly helps, to get the trust from the public. On the other side, I see that the regulatory environment we have today is hindering things like machine learning. Because what you would like to do with data exploration, is look at the right set of data and just find the links, etc. But the regulatory framework today says I can only look at well-defined and predefined data elements. However, if I look at health factors, I don’t know yet what I will be looking for or what I will find, and that’s the challenge with the regulatory framework today.

“So, a long story short, we need technology. We need a lot of technology, and there are positive things there. I think that really technology is one of the key enablers, maybe not to immediately jump to personalised medicine, but at least to jump to person-centred care,” he concluded.
Panel I: Introducing the Technological Revolution in Health and Wellbeing

The first panel looked to the future, not just of medical devices, but also new ways of using what we have and new applications. One of the key debates was around wearables and to what extent current commercial gadgets can improve health.

Christian Hofmann, Group Manager Medical Sensor System, Fraunhofer Institute for Integrated Circuits, doesn’t believe they can replace true medical devices. “All these gadgets measuring all kinds of parameters work like an optical system. They indeed measure something from the body, but with poor quality. It’s not in comparison with a traditional ECG from the torso, the smart garments deriving the signals from the human body are different to clinical measurements. This would be the gap to close to get good quality, because only with good measurements can you do good analysis.”

Chris Van Hoof, Director, Wearable Healthcare, IMEC, both agreed and disagreed. “He is perfectly right that a gadget alone isn’t leading to an outcome. Yet there are, at the moment, a few devices, a few apps, that are using the smartphone and they’re FDA approved, and do actual fibrillation detection, for example. So, with the proper evidence and a lot of hard work, it is possible in certain cases to use, at first sight, gadget devices and non-medical devices to still draw an outcome.”

“I am not saying that this is perfect yet, but on the other hand it shows that unexpected outcomes are possible from consumer devices,” he added.

Andreas Lymberis, Head of Sector, Wearables and Bioelectronics, DG CONNECT, European Commission, said there are many inter-related reasons that the potential of wearables is not yet fully realised. “I think with technology, new concepts, new materials and new sensors, integration takes a lot of time and the progress in different disciplines is not synchronised. I think in order to invent or fabricate a new sensor, you need 10 years – and that’s only a sensor, so can you imagine to put it in a specific material, test the material properties, test compatibilities, and then to put it in an industrial form, integrated with other materials, other processes, in a device? It takes a lot of time!”

Michel Goldman, Founder and co-director of the Institute for Interdisciplinary Innovation in Healthcare (i3h), Universite Libre de Bruxelles, added: “I think that one of the reasons for the fact that it seems to take too much time is that we need the patient, the citizen, to adopt these new technologies. This means that they have to really be convinced that these will change the course of their life – and this takes time.”

“To give one example of what I consider as an important application: some patients don’t think that they have to continue to take their drugs. It’s a so-called compliance issue to show that the patient continues to take their drugs and is really extremely important. Now we have digital devices that allow you to track whether the patient has taken another pill. This is the type of application which will be extremely useful to monitor the patient, and of course for clinical trials, which could become essential,” continued Goldman.

Nicole Denjoy, Secretary General, COCIR, agreed that the focus should be on patient buy-in: “We are talking about technology, technology, technology, and I think we should get away from the technology push because there are so many technology solutions that never take off because of lack of trust. I believe technology can do as much as it can, but there are limitations. Of course, technology should be tools at the service of the population. Technology is going
so fast, we should be opportunistic and use it for the best and for the citizen. There is a problem of trust, but we are talking about revolution and we need our policy makers and governments to be a little bit brave in order to reward innovation.”

Hofmann pointed out that there is “a huge gap from a gadget to a medical device. You can describe so-called ‘intended use’ and we all seek to improve people’s health. But the big problem is that with their advice, manufacturers have to decide to be a consumer electronics or a medical device.” This creates difficulty from a regulatory perspective he added.

According to Van Hoof, looking back over 10 years of wearables, they have mainly focused on “creating solutions that are still looking for a problem.” “It’s been heavily technology-driven, rather than a specific application that needs a solution. I am getting on thin ice here, but for engineers it is easy to misinterpret the name of this summit: it says technology for health, it doesn't mean generic technology. It means technology for specific health applications, and the devil is in the details.”

“What we are talking about is a disruptive technology” said Lymberis, adding that many of the existing ICT and telecom tools have been in place for 20 years. So why aren't medical doctors using it? “There are liability issues,” continues Lymberis. “There are enforcement issues. There are policy issues of member states, etc. You need precise, reliable technology – tested, validated technology. This is why we talk about technology, you need it to bring solutions to the medical field.”

Despite potential long-term cost savings, Goldman explained that affordability of technologies – particularly gene therapies – is a huge challenge. “I think what we need is objective studies to really look at what is a reasonable cost of a new technology. Obviously, the industry will tell you that research and development is costly and we have to recover and get our return on investments, which is true. But on the other hand, the government organisation will tell you we are sure we will make savings. So I think that there is a real need now to create new economic models – they are not easy, but I think that it’s a priority. It is not just about the technology we have, but how to make them affordable and accessible.”

Denjoy added, “We need to be opportunistic, and we need a top-down and a bottom-up approach at the same time. With regards to convincing doctors to prescribe a digital solution, the problem is, generally speaking, they hate technology and don't see the value. We need to educate them and stop this wrong expectation that technology is going to hamper them.

“I am a doctor and I love technologies,” replied Goldman. “Really, we have to change the way we discuss all this, and I think that there should be efforts on both sides.” Doctors need to be persuaded that the new applications will have a real effect he added.

“Eric Topple published a study, I think late last year or early this year, where consumer wearables were used in a large trial and there were no meaningful outcomes. So there is no guarantee if you just use these devices on a large sample population that it is going to lead to insight and wisdom,” pointed out Van Hoof. “I am not a medical doctor, but all our work is driven by clinical partners. They define the needs, because that's so important to find out where is the pain, where is the problem,” he added.

“My personal opinion is that standards will lead the way and avoid the problems we had in consumer electronics 10 years ago. With different transmission technologies and different protocols, there must be a standard in medical applications in order to improve and to get the system started,” said Hofmann.

Denjoy summed up her position: “On the policy framework I think there are three issues. The first is a lack of investment, specifically small and medium enterprises are suffering from a lack of investment. So, we are not giving an opportunity to our brains in Europe. The second is we need to move from ‘sick care’ to ‘health care.’ If you do more prevention and early diagnosis, then you will have a population that will be in a better shape. The third is the regulatory framework. In our industry we have a collision between a lot of regulations on environment, on nuclear safety and on medical devices, and some of them are kind of over burdening and duplicating.”
Policy Keynote: Miguel Gonzalez-Sancho, Head Unit, – eHealth, Wellbeing and Aging Unit, DG CNECT, European Commission

Gonzalez-Sancho said that the question of eHealth has “risen clearly on the political agenda recently,” not just from the perspective of the digital single market, but also from the perspective of “more mainstream health policy, European policy and other horizontal policies like privacy, for instance.”

“Data, data, data, that’s the centre of many of the discussions – how to manage data, what is the right technology, what are the pitfalls to address, how to reassure people, etc.”

“Data, data, data, that’s the centre of many of the discussions – how to manage data, what is the right technology, what are the pitfalls to address, how to reassure people, etc.,” he continued.

“In using digital for better health management, many of you would have heard about this 4P concept: personal, predictive, participatory, preventive, to which some add the fifth P of the point of care.”

According to Gonzalez-Sancho, what is driving the debate is the possibility of shifting from an intervention-based approach of health to a preventive or value-based outcome. “This is the promise of digital health: better quality, more efficiency, less waste, improved quality of life. And with it, the patient or citizen is much more an active participant in the healthcare process than before.”

“The question for us at the European Commission is, when it comes to technology, which are the technologies that have more potential and should be further supported? What is it that the European Commission at the European level can do, given that in this area, primary responsibilities lie with member states and regions? Yet there is a case for European intervention in terms of relevant legislation, patient directive, medical devices and all those more horizontal, such as IDs, cybersecurity, privacy and then of course, funding,” he explained.

Referring to the recent State of Health Report, Gonzalez-Sancho pointed out that there is a full chapter on data really showing how central technology and data have become to mainstream healthcare delivery.

He explained that the three priorities are patient access to health information, such as electronic records; the development of personalised medicine through the use of new technologies; and empowering patient-centred care.

In preparation for a forthcoming policy proposal, the Commission ran a public consultation that received more than 500 responses. “I think it’s interesting that more than 90 percent of those who responded said that citizens should have access to their own health data,” said Gonzalez-Sancho. “There was also very strong, very strong support for the idea of sharing health data, but always with a strong caveat, provided privacy and security are ensured. We were interested to see there is a very positive attitude towards sharing data for research purposes, even more than for my own treatment. But then organisations reply that for different reasons they find it hard to apply big data to do data mining and data analysis when it comes to health data, so the big data for health is something which still encounters barriers,” he said.

As we get closer to the entry into force of the General Data Protection Regulation, questions about identification, security, quality of the data, and the liability are dogging the healthcare business, said Gonzalez-Sancho.

“There is relevant legislation that exists addressing those different areas, and we are actually seeing to what extent what we have is fit for purpose and how to implement it. Because sometimes what you have is good, but it needs to be implemented. With the new data protection regulation, there’s a clear right for citizens to have access to their data. Is that implemented in practice? Let’s see,” he concluded.
Panel II: Managing the data deluge linked to connected technology in health.

With the huge amount of data being generated, security and management of data was high on the agenda. Panel II tackled the key issues.

On security, Gunter Rauchegger, CEO, Austrian Electronic Healthcare Record, said: “We are talking about security implementation on devices, but let’s start a little bit easier. In Austria, for example, we have all these e-government purposes and therefore of course we need a unique identification. Why don’t we use this unique identification for medical data? Another option would be to implement a kind of security measure on an electronic device. But this is still open. We cannot differentiate if this is my wife on the device or me, this is a little bit missing. This might be a huge problem when it comes to the quality of data, if we mix up data from perhaps different persons, different members of my family for example, so this needs to be addressed.”

Dealing with the question of the quality of data, Hadas Lewy, co-founder CARE HIT and Director, Innovation and Business Development, CRI, Clalit Health Services, explained “We have a lot of noise in the data that we are collecting, we know that. And it takes a lot of ongoing maintenance in the organisation to improve the data. So, it’s done at several points: for example, when someone is released from the hospital, they check the release codes and what has been done there. In the organisation, when we take it to research, we know that we have to pull it out several times and ask the question in different ways in order to get a good quality of data. I think this is the reason that in Israel the Minister of Health encourages collaboration with healthcare [industry], and not just giving the data. Because if a company comes and sees the data, it’s not always the best outcomes she can get, if she collaborates with the organisation they will probably get better outcomes.”

“We call it patient summary,” said Rauchegger. “It is not an artificial process or highly sophisticated process. Since we have a highly-structured document, it’s only necessary to get hundreds of documents in our health records. It is only a process of extracting the most relevant information for exactly this patient. In the first set it is a very, very simple approach, you don’t need any kind of knowledge base or artificial intelligence. In the first step, this might also be enough for the patient, as this data deluge is already here – especially in hospital. We connect all the data and we have some patients that have 100 or 1,000 of laboratory results for example, so you need a kind of data processing.
Aurelie Pols, Data Governance and Privacy Engineer, Mind Your Privacy, said this is not a new phenomenon: “In the time of the data warehouses, we’re talking about garbage in and garbage out. This is nothing new. The problem is it’s never been sexy within companies to do master data management or get data governance or things like that. Which is where, interestingly, the GDPR (General Data Protection Regulation) is actually pushing for companies to be slightly more structured with what they’re doing with the data. So hopefully that’s kind of the step forward to doing more housekeeping internally with how you use the data, one way or another.”

Pols also queried what exactly doctors see and how feedback loops work. “We still use a lot of data, but it’s always pushed data, and yet the promise of the data deluge from economists 10 years ago was it’s going to be a conversation.”

“When you develop the tool, it has to be transparent, which means that you’re showing something, you are commanding something, but you can always drill down and understand what’s behind it,” said Lewy.

“I am not talking about the development phase, but the usage phase,” explained Pols. “This idea that when you read articles and they ask was that useful yes or no, or would you prefer this or that, is using kind of feedback loops to make sure that in terms of user experience things are continuing to evolve in order to make sure that you put the right data in front of the doctors or the medical intermediary that is there. The problem is that’s an additional cost and who is going to bear that cost in order to make sure it’s not about just delivering a tool and that’s it. It’s about continuously evolving and making sure it’s flexible and dynamic enough.”

Referring to the implementation challenge with the General Data Protection Regulation and the role of the EU more broadly, Gonzalez-Sancho said there is a “concern out there as to the potential for fragmented implementation. That is something that the Commission will follow closely.”

He added that patients will have the right to access to their data, but how this is going to be implemented in practice remains to be seen. “Today, in some countries I can go into the hospital and get away with my [records], yet in some other cases and in some other countries, I would be told this is property of the hospital.”

“The issue of processing data for research purposes – sometimes called secondary use of data – and how consent will be defined and interpreted and in particular the interplay between this, the GDPR and the clinical trials regulation will be an interesting one to follow,” he added.

Pols agreed: “We are all watching how the UK is updating their data protection act and what it looks like. And in that sense, the GDPR is a very strange type of legislation because each country can still define certain things and it’s pretty scary because bits and pieces are kind of missing here and there. Obviously, there’s this idea of a European data protection board that will replace the Article 29 working party, which has increased powers, so we see more and more collaboration between data protection authorities. But, for example, I am based in Spain and in Spain they consider gender to be personal data, but that’s not the case in other countries, so some kind of a supervisory authority to see how we can collaborate, not just between data protection authorities, but also on a more coordinated level in order to rebalance this lack of symmetry of power between data subjects, companies and legislation, is needed.”
In his speech, Iakovidis focused on the paramount importance of the human touch. “The first and most important message for me is that people care for people,” he said. “Technology can make it better or worse, but people care for people. It’s the human touch that makes the healing.”

To illustrate the point, Iakovidis said that the longest ever study done by Harvard following people over 75 years, found that the secret for healthy and happy aging and for wellbeing is human touch. “Human touch is the best predictor of your wellbeing, happy and healthy growing up and aging. It’s stronger than genetic predisposition. Human touch is stronger than anything as a factor of your health,” he continued.

“You will often hear technology is not the problem, it’s the human issues that are the problem. And I come back, and I say: No, technology is the problem, as well. Technology is not yet there. Technology is not there to be user friendly, to be fast to be reliable, to be trusted, and to be a commodity that you don’t need to think about. It’s a problem,” stated Iakovidis.

He added that his wife is a doctor and in her view the most important things with technology are speed and reliability. “They freak out when their HR system is down, they completely panic, because they have a patient in front of them,” explained Iakovidis.

“The second thing my wife said, is that some doctors, not me, actually look at the screen all the time and patients hate that because the human touch is lost,” he said.

“The last point I want to make is the common denominator when fighting the societal challenges. When you have climate change, energy consumption, mobility, health, obesity, whatever, what is the common denominator for all the policies trying to impact and change it? It’s behaviour change. The holy grail of most of the politicians and policy makers is to change individual behaviour in order to get healthier lives, more sustainable future, energy consumption, more sustainable mobility, public transport, etc.
“And we are really, really stupid at that. Most, if not all, policy that tries to change behaviour falls into one of those categories that don’t work. Just take one, people knowledge: I just throw knowledge at them: for example, smoking is bad for you. Does that make any difference? I’m assuming that everybody is rational, and if I explain to them the consequence it will make a difference. Like it or not, luckily we are all very irrational human beings, I am saying luckily because otherwise they would be manipulated very easily!” he concluded.

“But what do we know, is that eHealth is a new kid on the block and it’s very, very immature.”
Panel III: The Human Touch, how technology enabled healthcare can change lives

In the final panel of the day, Tapani Piha, Head of Unit, Cross Border Healthcare and eHealth, DG SANTE, European Commission, was keen to talk about the so-called “digital gap” and concerns that some people, particularly elderly people, are left behind. Actually, he said “what we are now seeing is that nowadays even 5-year-olds already are masters of the tablet or the laptop, and when these people grow older they know how to use all these digital tools. But also, we see the same change happening among the elderly people, so that many elderly people nowadays can also use these digital tools. So we shouldn’t be worried about people left behind. Of course there are situations where, for example, a person has a memory illness or a brain illness, and then that person’s capacity to use anything goes down. But we have seen many experiments in countries where age 90-plus people can perfectly well learn to use digital tools.”

Piha’s second point is that we need to have a behavioural change. “I have seen very few medical professions really looking at what digitisation means. The example I know best comes from the country I know best. In Finland they ran a two-year project where they looked at the future of a medical doctor – it was called Doctor 2030. One of the findings was that with all these developments the role of doctors is absolutely going to change. They were so radical that they even said that whereas the doctor used to be an authority giving instructions to patients, in the future it will become a guide or even a coach.”

Ain Aaviksoo, Deputy Secretary General for eServices and Innovation, Estonian Ministry of Social Affairs, thinks the changes will be even larger. “I don’t believe that everything in the relationship will remain the same, we will just use technology to have more of it. The power relationship will change and that is, in my experience, the elephant in the room. Some doctors are embracing it and others are not. Technology democratizes so it equalises the knowledge bit. So, doctors are no longer smarter than the patients, because technology can take the same information and translate it in a way that is understood by layman.”
He gave the example of a family doctor who was initially irritated by patients who came to see him with a lot of printed out information from the internet. “Two years later she changed her mind. First these people don’t disappear, and actually many of them are smarter about their health than I could ever possibly be, because they have all the time to study their personal case.” So, said Aaviksoo, we should not push technology in a way that it frightens the professionals that they will lose the control.

“In a sense that comes back to what I was saying about the changing role of the medical professionals and I think that this is the essence of the digitalisation,” said Piha. “We are not digitalising current processes. The real digitisation comes from the disruption where the new processes are put in place, and the role of the doctor, or the nurse, or whoever is the health professional, changes completely in that process.”

Estelle Jobson, fellow of the European Patients’ Academy (EUPATI), agreed that the doctor mindset is changing slowly. “It’s happening in small ways, but I think the need and the push must also come from the patient community,” she said. “We need to teach our fellow patients and you need to teach your children how to be a good patient. How to be an intelligent, informed, curious, engaged patient. You don’t go to the doctor empty-handed with nothing, like an empty bucket. You plan, you think, you note your symptoms. If you have a disease diagnosis, you do some research. The better prepared you are for an appointment, the more you can get out of it. Because the doctor doesn’t have to explain the basics to you. So, the access to digital information and the time, perhaps at home, to look over your own records. I’ve got photographs from my operations. I’ve got all my records. I read them on my own time and then I come with hand-picked questions. And I have a much richer, more interesting exchange with my doctor. But this involves a mind-set change from both sides: the doctor needs to be less patriarchal and less paternalistic, and the patient needs to come prepared. In the same way you would for a job interview,” continued Jobson. She added that she believes technology can help improve the quality of doctor-patient contact.

What would you do to bring about this mind-set change that we’re talking about?

Panagiotis Bamidis, Associate Professor Medical Education Informatics, Aristotle University Thessaloniki, summed it up: “We are producing systems that can help people, so what happens when the project ends? Usually we have a business plan, how to do it and how to sustain it. So, let’s suppose that one of these systems is there and is sustained and is utilised by society. Then, we bring that system to the students first, so the students have to use that system in some way. I have the luxury of not only having produced systems like that, but also being able to send students for internship for two months to practice with stakeholders with this kind of technology. So, they don’t only become aware of the technology in the lecture, but they utilise it in practice with patients, people, and citizens. Then they come back, and we do focus groups on how useful it would be, and whether they would be able to use it in professional life. They now say yes, I can do it because I know it exists and I know how I can practice it. I don’t know what’s going to happen in the future, but unless you train them properly during their studies, there is no way they can handle it in their professional careers afterwards.”

“I think that it’s, there are two hard issues,” said Piha. “One is the need to convince the doctors that it works. We do have enough evidence that eHealth as a whole works, but in order to introduce a treatment method for a specific disease, you need to convince the doctor that the treatment method for that disease works. The second point is that if it works, it needs to be reimbursed. If you don’t have reimbursement, people are not using it because of the financial barriers. In the kind of NHS-type system like in England, it has to be part of the healthcare system and it is used there as part of the healthcare normal practice. Then comes the chicken and the egg problem, that of course reimbursement is not there unless you prove that it works,” he concluded.
Concluding remarks: Christopher James, University of Warwick — Chair, IEEE Summit Programme Committee

We all know technology for health really is creating many opportunities for us across the entire healthcare spectrum. We’ve all bought into that. Like most changes, this of course is also creating challenges and we believe that a lot of these challenges are coming from the data deluge, the amount of data that’s being generated. And last, but not least, we’ve mentioned many, many times the words “human touch.” In other words, keep the patients at the centre, keep the end-users at the centre. I believe that as engineers, we are no longer very narrow-minded. As engineers, we are very much multi-disciplinarians: we work with clinicians, we work with nurses, we work with end-users, carers, and patients. I am confident that through this continued interaction between us – between the disciplines and through discussion as was mentioned – we will continue to strive to find solutions to these very complex problems. It is all about managing wellness, as well as managing illness.
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