

Smart fitness bands and smart watches - a reflection of smart living?

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Abstract

This paper starts from the observation of how smart fitness bands and smart watches are symbols of and also reflect smart living, serving as objects that distinguish inhabitants of smart cities from those of traditional cities. Objectives include analyzing wearables as tools of digital health and as cultural symbols of smart life in smart cities, next to the associated risks, and the way in which the perception of their users influences their perception of technological safety. **Prior research** includes studies of digital transformation, digital literacy in healthcare, and digital inclusion in smart city life contexts. **The approach** combines political and cultural studies, examining how wearable technologies align with European Union health policies and democratic values such as well-being and citizen empowerment. Culturally, these devices reflect the priorities of individualist societies where personal health monitoring supports self-reliance and autonomy. Vulnerabilities of citizens in the digital medium will be explored, starting from data protection concerns, digital divide, as well as frauds. Case studies of frauds related to wearables will be examined, together with the issues they raise. **Results** show that wearables promote active health engagement, allowing users to independently monitor their well-being and consult medical professionals selectively. **The implications** are related to the growing presence of misleading AI-generated content, such as fake videos advertising nonexistent smartwatch features, such as sugar levels control, and the need for skepticism in the digital world. Users must learn to critically assess claims about technological progress. The **value** of this paper lies in its interdisciplinary analysis, revealing wearables not just as health tools, but as cultural artifacts reflecting autonomy, digital inclusion, and even community-building, as many apps allow for social connection among users with similar goals.

Keywords: digital transformation, digital literacy, European Union health policy.

1. Introduction

1.1. The context

We cannot imagine our lifestyle without technology in today's world and, for that matter, not even one single day without it. This is because "The evolution of technology has permeated all sectors of society" even if "it has not progressed equally across all countries, leading to disparities". The European Union makes efforts to reduce disparities through its policies in all areas. Schools, universities and other institutions in EU member countries apply for EU funded projects to get the necessary technological equipment. We try in all professional sectors to keep up to date with technology, since we need the knowledge and skills associated with it, as technology has changed the way all professions look like. We see how technology has been introduced in fields such as education, as well as in other areas of social and everyday life. We can also start considering how society can educate us with the help of technology at all times during our lives, not only during our usual school years. At the same time, our education is not restricted to schools. We keep learning all our lives and technology makes the process of life-long learning easy. In turn, we also need to learn more about technology as time progresses. Nowadays, the improvement and development of technology for all purposes, including entertainment and health monitoring ones, is beyond dispute [1].

Next to our smartphones, which are both a necessary gadget and one we use for our pastime, we can now add smart fitness bands and smartwatches. These bands and watches have various functions: they can show us our health status, by measuring heart beats and heart rate, SpO2 (oxygen saturation) levels, number of footsteps per day, they can allow us to answer calls and text messages, and they can also allow us to connect to an online community formed by users of the respective band's brand in a fitness application, where they can organize and accept challenges regarding number of steps per day or per month.

Together with the popularization of fields such as psychology and medicine, as well as science, through printed and online books and articles, we notice the popularization of medical knowledge based on fitness bands and smartwatches. We learn how to monitor our health, as the slogans of all companies creating smart fitness bands and smartwatches claim, and we begin to become aware of the values which should be healthy. We start learning how many steps per day are healthy enough so that we do not lead a sedentary lifestyle with all its associated problems. The smart fitness bands or smartwatches can help us apply our knowledge gained from popular science magazines and books to ourselves, and to be aware of various changes and to know when to worry and when to be reassured that we are fine.

As we live in a smart city, we adapt to and are included in its particular cultural identity manifestations. Cultural identity manifestations refer to symbols, values, rituals, traditions, and practices, as well as to personalities [2]. We can find several layers to what we call culture nowadays: the national culture, our urban culture, the culture of our immediate group and the culture related to our interests. For gadget users, we can include the users of a certain company's network of users, and platforms where they communicate. In addition, we can include the online social media with posts and advertisements related to a certain type of gadgets, in our case smart fitness bands and smartwatches. Smart fitness bands and smartwatches can be considered symbols of the culture of those concerned with a healthy lifestyle. They can stand for the values of a do-it-yourself monitoring of our health, as well as of a highly technologically developed lifestyle in the smart cities we live in.

In a smart city, we can see how health becomes digitalized, once we can receive the results of our yearly medical checkup and blood tests by accessing a site using a code. The smart fitness bands and smart watches can also be considered as symbols of this digitalized lifestyle. At the same time, wearing a smart fitness band or smart watch can make us consider that we are wearing the symbols of a digitalized lifestyle in the smart city, and that these gadgets distinguish us from people living in traditional cities.

However, we cannot expect only positive outcomes from the growing popularity of technology and from the popularization of science and, especially, medical knowledge about the way our bodies work and how they should work. We can also find plenty of hoaxes and fake news, in all areas of life. Gadgets such as smart fitness bands and smartwatches make no exception.

1.2. Purpose of the study and research questions

Since our lifestyle is that of smart living, we expect to have access to the newest offers of products and to the newest technological devices and gadgets. Smart living is not only full of advantages. We do not always have more comfortable lives due to technology, as technology does not solve all of our problems. We can also be victims of hoaxes. We can consider that we live under the impression that we need to follow the others' examples and have what the others have. Online social media mimics our social life and social circles, together with those persons which are the most influential in our group.

The present paper will focus on those Facebook advertisements related to a smart fitness band and fitness watch having the function to measure sugar levels. We are given videos of how the respective function appears and works. However, there is nothing true regarding these videos. A smart fitness band or smartwatch with such a function does not exist. We can draw an analogy with the concept of fake news, where we can read fictional news. Technology facilitates the creation of such news, as well as of products such as gadgets which do not, or at least not yet, exist.

How can we understand such an issue with reference to our leading a smart lifestyle in a smart city? Why do we believe that such a function on smart fitness bands and smart watches can exist when it does not?

2. Literature review

2.1. Digital literacy and digital transformation

In the world we live in today, we can definitely be aware of the impact of the digital aspects, since "data has become an important part of our daily lives, permeating every aspect of society". What is more, "It serves as a gateway to knowledge, giving us access to important information that shapes our understanding of the world" [3].

We can consider smart fitness bands and smart watches within the frame of digital literacy and digital transformation.

Digital literacy refers to our ability to use digital technologies in an effective and responsible manner [4]. For digital literacy, we can include skills such as the following: searching for information online, together with using and evaluating it; communicating and collaborating using digital tools; understanding issues such as digital safety – and here we can include privacy and the sense of ethics; and creating digital content – an activity into which we are all involved, at least if we have in view that we are all called by our Facebook accounts digital creators.

Digital transformation refers to the process based on which we manage to integrate digital technologies in all areas of life [5]. For instance, we can integrate digital technologies in all areas of an organization, which can lead to the way in which we can improve how the organization operates and also generates value. Some examples concerning the way we can improve an organization through digital technologies include: automation processes, the use of data for decision-making, the improvement of customer experience, and the

change of organizational culture so that it can adapt to the idea of innovation. Technology changes completely the way in which businesses and institutions work.

For the present paper, the concern for digital literacy narrows down to digital literacy in healthcare [6]. Patients, professionals in the health domain, and health organizations should be able to use digital tools and technology to have access to, understand and to apply their gained knowledge of information about health. Patients and, thus, the general public, through digital literacy can use digital devices such as wearables, smartphones, computers and patient portals. They are also expected to access information about health from reliable source, to have access to online services such as appointment systems and to be able to interpret digital data (such as lab results and wearable metrics). In addition, this digital literacy includes ability to recognize scams and to manage personal health information. Self-management of health issues is one of the main advantages of digital health literacy.

While healthcare data security is a topic of concern, as it deals with sensitive information, and with the way it is stored and transmitted through electronical means, and, as it "refers to measures and practices implemented to protect patient information" [3], we also need to take into consideration online frauds related to promoting devices and gadgets with functions which do not exist yet on the market. Next to cybersecurity issues such as phishing – which is "the most common method of theft" [7] and measures in general, we also need to take into account measures against the promotion and advertising of false products such as glucose levels measuring smart bands and smart watches. We have by now already been warned that "Almost any type of crime can be committed in cyberspace, currently including specific forms of organized cybercrime, extremely difficult to control and combat by judicial bodies" [8]. We have also been warned that "smart technology can introduce potential vulnerabilities that, if exploited, could affect private life, economic security, critical infrastructure operations etc" [9]. We realize that the issue of the smart band and smart watch fraud is not related to the personal data stealing, but is more related to issues related to consumer protection. We can relate this problem of selling inexistent function gadgets to how "The endless increase in the number of smart devices started to seamlessly bridge the physical and digital worlds" [9]. The same problems related to selling a product which does not do what the seller promises can be found in both physical and digital environments. AI itself can be used both to our benefit and to exploit our vulnerabilities, as we find out from the way in which AI is used to identify anomalies and prevent cyberattacks [10] - since it "can analyze behavioral patterns and unusual activities in real-time" [11] - but also to create functions and devices which do not yet exist. We have been warned that "Cyber-attacks and cybercrime are growing in number and sophistication across Europe" [7]. In addition, "The future is uncertain, with the trend expected to continue to grow" [7]. While we have been made aware that "AI has become a driving force for cyber threats, enabling adversaries to launch more effective and sophisticated attacks at a larger scale and faster" [11], and that hackers can use AI to defeat security systems [12] we also need to consider how AI can be used for highly realistic and convincing visual images of products and functions that do not exist. We may consider this fraud to be related to fake news, since we deal with a spread of false information related to a new technological development. In turn, "Technological advancements and

the widespread reach of mass communication platforms have led to the widespread dissemination of misinformation". The solution proposed against fake news is that of education via schbocool systems [13]. At the same time, fake news and frauds are increasing in complexity and become less likely to be identified. The fraud related to the fake video of the glucose measuring function cannot be included in the AI-driven cyber attack types and methods presented in the research in [14]. Within the category of social engineering, we can find the mention of deepfake technology, where AI creates a fake video where a person is placed in a context where he or she declares something that he or she did not. Consequences include victims giving away sensitive information. Automated social engineering refers to the way in which people are influenced psychologically to give away personal information [14]. Creating convincing videos of non-existent functions of smart watches and smart bands relies on psychological mechanisms of persuasion as well.

The main feature of cyberspace is "the absence of borders, creating opportunities for the development of the knowledge-based information society and risks to its functioning". The EU has developed a cyber security strategy, under the form of The European Union Directive on cyber security measures, known as the NIS Directive² (by Law No 362/2018), which works "in conjunction with the provisions of Article 72 of the Treaty on the Functioning of the European Union" [7].

Leaving the disadvantages related to fraud aside, we can consider smart bands and smart watches as facilitating access to the digital world and, more specifically, to digital inclusion. Digital inclusion [15] in smart city life is achieved through the use of wearables, since they are intuitive, easy to use, they come in a wide range of prices, and they can be paired with low-cost smartphones. In addition, the data is collected anonymously from wearables in order to offer information for inclusive urban planning. Information such as physical activity patterns and heat exposure is collected. Smart city planners rely on this collected data in order to optimize public health interventions, improve walkability and identify those neighborhoods which are disadvantaged. Such a practice is in line with the way in which "information and communication technologies" are used in smart cities in order to improve "enhance public services, optimize resource use, and foster citizen engagement" [16]. Indeed, "Data collected through technological means informs policies, planning, and public life. Therefore, advancements in technology and the richness of technological scenarios enable smart cities to evolve and undergo systematic upgrades" [17].

We can only wonder how do older generation keep up with the constantly developing technology. This is a specific concern of digital inclusion. Digital participation and digital engagement are the main components of digital inclusion in the case of older adults [18, 19]. Digital participation refers to "the active involvement into society through using digital tools whereas digital engagement refers to policies, research projects and practices that promote engagement in the society" [18]. In order to ensure digital inclusion in the case of older adults, we can rely on the inclusive technology design, on the way they have access to better health possibilities, on the way in which data is shared with them equally, and on considering their needs within the area of digital literacy. Digital inclusion competencies for older citizens, from the baby boomers and generation X, have led to a

revised version of the Digital Competence Framework (2017) [18, 20, 21]. We can thus notice the high presence of and impact of technology on all age groups.

2.2. Online social media. Its impact on society and on promoting new technologies

Nowadays, we notice a high impact of online communication in our lives, which we can identify right away in the case of online social media. We can communicate with and connect instantly with people from whom we are separated "by great geographical distances: different cities, different countries, different continents" [22]. This type of communication facilitates our finding out about the most recent technological innovations.

Online social media platforms such as Facebook, which is mentioned in the present paper do not have as an only role to facilitate social interaction. They represent sources of technology promotion, and, specifically, of promoting new products and helping new ideas be known fast. We can see this role in the promotion of new wearable devices such as smart bands and smart watches. The procedure and context is a familiar one to users, making them ready to accept the idea of a smart band or smart watch able to measure glucose levels using sensors. We can go as far as to mention that online social media has a strong role in shaping our society, with respect to how we interact, to how we spread information around, as well as to how we develop new cultural norms, symbols, and practices. Wearable become part of a lifestyle where we are concerned about our health and willing to improve it.

Reacting against and warning about online scams is part of the online social media practices. Members of online communities show a strong sense of solidarity in warning against scams related to technological devices and in offering honest reviews of gadgets and other products.

The scam about a smart band or smart watch able to measure glucose levels relies on shared practice in online social media where companies use these platforms to announce their recent innovation, as well as to demonstrate their use by relying on videos shared online. In addition, they also answer customer questions suggesting them that everything is real about the smart bands and smart watches with glucose level measuring functions.

Online social media shows us how we have internalized the values, symbols, rituals and practices of the ideology of the society we currently live in. This shows in our preoccupation with the newest technological gadgets and in adopting practices specific to online social media. The ideology of the present-day society relies on what the European Union promotes, in the case of Romania as a member of the EU, and especially on the individualism, openness to technology and digitalization of services. When we access online digital media, we have formed certain expectations about what is advertised there. As a result, we can rely on previous experiences where we have seen adds for wearables which had been real and honest, and we assume that the same holds true for wearables having a function measuring glucose levels – which have not yet been released.

2.3. Smart cities and their promotion of a culture of innovation and well-being of citizens

There is a strong association between innovation and smart cities and, what is more, smart cities are, in fact, the outcome of innovation. In smart cities, we start technology innovation from the user's side, e.g. applying wireless connection technology in public spaces in the city. Another way in which technology innovation begins from the user's side is represented by "wearable devices and mobile phones". Technology innovation can also start from the developers's side, e.g. in the case of developing 5G technology [17, 23, 24, 25].

Strongly connected to innovation, we can find the concept of citizens' well-being in a smart city. A smart city can be improved for the well-being of its citizens if the citizens are active participants "in the design of smart development policies at the local level" [26].

Digital technology and citizen participation can both improve well-being, once technology is used properly and responsibly. Therefore, citizen participation can help raise awareness about what goes on wrong in cases of frauds related to devices, and online social media can be a very good tool for citizen participation. Citizen participation in this case can lead to online social media users raise awareness about the frauds related to the ad about the glucose levels measuring smart bands and smart watches which are not in fact sold and are not yet present on the market. Afterwards, institutional support can be asked based on consumer protection, a policy which is present within the European Union series of policies. Online social media has been used for informing and engaging citizens in smart cities by municipalities [27].

3. Materials and methods

3.1. Methodology and data collection

The paper relies on a selection of advertisements present on Facebook, which were sponsored to appear to users once they start looking for non-invasive sugar-level measuring devices. A series of screenshots can make us better understand why the images and videos of the blood glucose measuring function can be convincing, but also how by reading comments can make us doubt about the reality of it all.

Netnography can help us understand the way in which gadgets such as smart watches and smart fitness bands become the object of advertisements, as well as of discussions in online social media, in this case, on Facebook. The paper relies on the participant observation [28] method, since the author of the present paper has witnessed growing interest in this type of gadgets, together with discussions around them.

Below, in Figure 1, we can see two screenshots of such ads on Facebook, showing how the smartband is used:

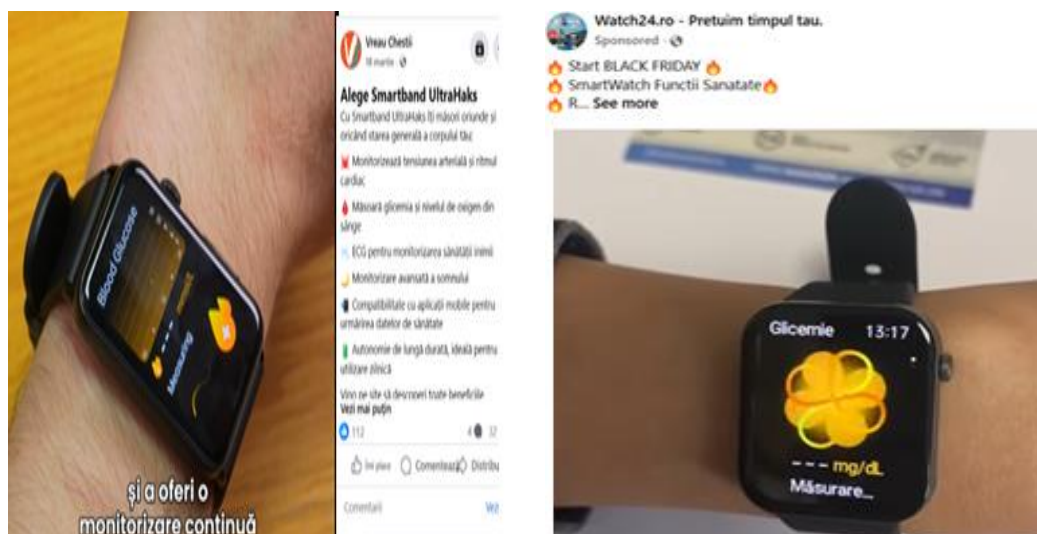


Fig. 1. Measuring glucose levels demonstrated on video. (a) first picture; (b) second picture.
Source: a) Vreau Chestii Facebook page; b) Watch24.ro Facebook page

We can see that the fitness smart band and smart watch differ in shape, and remind users watching the adds of the shapes of bands and watches from various companies, such as Samsung Galaxy Fit3 or Huawei Band 6 and Huawei Watch Fit 3, respectively. Taking over an entirely new function using sensors can be considered, by smart bands and smart watches users, as the natural next step in the development of these gadgets. We notice how, in Figure 1a, we are also given a few words about this gadget, which measures blood pressure and heart rate, next to glucose levels. Next to this information, we can see mentioned how this gadget can help us keep track of and be aware of our health status at any time. This is in line with current recommendations and raising-awareness campaigns. In this way, we feel that once we start using this gadget, we can align with the newest trends in such gadgets and be part of a digital community of such gadgets' users. We believe that this is the latest development and tendency in the area of smart watches and smart fitness bands for monitoring our health. The other picture, in Figure 1b, shows us a very advantageous offer for Black Friday, when prices get lower. In this way, we get the impression that we are given the latest tips regarding the current trends and evolution of such gadgets.

In Figure 2 below, we can see a question regarding the accuracy of such a smartwatch with respect to non-invasive measuring of blood glucose levels asked in a Facebook group dedicated to those users having type one diabetes:

Figure 3a shows us, first of all, a first question which invites reflection, claiming that glucose levels sensors are not reliable. The second comment claims that there is no such smart watch, since it was not invented yet. The third comment claims that there are, indeed, such watches, yet they are not accurate. The fourth comment invites us to doubt the way in which sensors can be used to measure glucose levels, since glucose levels are measured in the blood, which is not touched by sensors. The last comment tells us that there are watches that only list the glucose levels. They do not measure them. Measuring glucose levels is done by other devices. At the end of this last comment we witness a rhetorical question, inviting us to doubt the possibility of noninvasive measuring of blood sugar levels.

Figure 3b presents us with data regarding the experimental level in the creation of smart watches and smart fitness bands which can measure glucose levels with sensors, in a non-invasive way. Currently, we understand that research is being done. As an example, Apple is currently working on a smart watch since 2015, while GlucoTrack makes use of ultrasounds, electromagnetic and termic technology, yet it can only offer for now a voluminous device, which also needs to be calibrated with a traditional glucose level measuring device.

Therefore, the currently artificial intelligence generated smart fitness bands and smart watches rely on real experiments and research which is currently in progress. We are tempted to believe, if we are informed, that these experiments and research have worked out a way in which to create such gadgets.

3.2. Analysis of the data

3.2.1. Technology, making wishes come true

We can notice that technology is not used for good purposes only. It is also used to deceive us. We all want every problem we have to be solved, and we also want it to be solved in a simple and fast way. Artificial intelligence is currently well-known for creating and imagining episodes in history which never happened, or photographs of famous people which document certain scenes that never occurred. We can see this phenomenon in Facebook discussions on various pages, where engineering discoveries are also nothing but pure fiction. It is in this exact same way, and along the exact same lines, that artificial intelligence has been used to create videos of smart fitness bands and smartwatches which have an additional function to all the well-known health functions (heartbeat, heart rate, SPO2 levels, and number of footsteps): the function to measure sugar levels just by using sensors, and no needles. The traditional way is that of using a device to draw blood from one's finger to measure sugar levels, and commercials for smart fitness bands and smartwatches promise an entirely different, pain-free method for this. In addition to smart fitness bands and smartwatches, there are also commercials circulating in online social media such as Facebook presenting a device able to measure sugar levels only by using sensors. These devices all promise to be pain-free, which clearly relies on our wishful thinking. We see in these commercials and in these devices our wishes coming true, just like in the mechanisms of infantile dreams, where our wishes are instantly gratified, according to Freud's dream interpretation theory based on his psychoanalytic method.

Another theory which can explain this behaviour is that of motivated reasoning [29]. We start believing what we want to be true, which makes us more vulnerable to hoaxes once we have this psychological tendency. Motivated reasoning refers to the cognitive process through which we rely on our wishes and goals in order to influence us related to how we look at information in order to reach a pre-determined conclusion. We search for that information confirming our wishes, we construct based on them a certain version or reality and we evaluate information according to what we wish to be true. We push aside the possibilities that such a device as that measuring blood sugar levels without using needles may not be accurate or even not exist at all. For those persons having diabetes or having blood sugar levels issues, we realize how desirable a non-invasive method and device of measuring them can be.

3.2.2. Reliance on current research and expectations about technological development

The idea of non-invasive measuring devices for sugar levels is not without foundation. However, all research is still experimental and, thus, hypothetical. We mostly anticipate what could follow next, and this does not mean that it has already happened and that it has already been invented and working. Nowadays, we are used to technology evolving as a very fast pace, and we are not surprised once we hear about different ways of measuring sugar levels. We may expect a smart fitness band or smart watch to not be entirely accurate when it promises to measure sugar levels only by using sensors, but we do not expect this idea to be entirely nothing but a hoax. Here we rely on the expectation of inevitability [30], which refers to our belief that something will definitely happen, even if it has a negative, not only a positive, outcome. In such a case we can see how we are easily manipulated since expectations shape the way we see reality. Due to technological determinism [31], we rely on the assumption that technology will continue to develop and progress in a linear way and in an accelerating manner.

We can also consider, in our search for explanations as to why most of the users have been tricked into believing that such a function and such a device can exist, the Hype Cycle. Gartner's Hype Cycle [32] describes how the common pattern of new technologies works. It all starts with the innovation trigger, where we are all enthusiastic about the possibility of a new technology, even if it does not exist yet. The news about it and current research creates a feeling of sensationalism. We always read articles about possible new technologies and advantages they may offer. We are used to thinking ahead, to anticipating what can happen and technology is part of this tendency. The peak of inflated expectations is the next phase of the cycle, which refers to how the new technology receives high media attention, and how the audience is highly enthusiastic. At this point we can hear both success stories and stories of failure. The third phase is the trough of disillusionment, which refers to how the new technology does not meet our expectations, and to how our interest declines. At this point, the companies producing the technology can put it aside or try to improve it. During the slope of enlightenment phase, we can witness how we deal with more realistic understanding regarding the possibilities and the limitations of the new technology. It is the moment when we can use second and third generation products. The last phase is represented by the plateau of productivity, meaning that at this moment the technology starts being mainstream and is seen and used from a more realistic perspective.

Indeed, we could see based on the comments on some of the post of these adds about the sugar-level measuring smart fitness bands and smart watches how users tell each other that there is no such a function on these devices and that no other device exists yet to measure sugar levels simply by using sensors. The sellers of the product, however, deny this. Even so, doubt can spread due to seeing such comments, which is why the sellers delete them periodically and create new sites for buying the devices and new advertisements.

We expect technological innovation to solve various problems and inconveniences such as finger-pricking in order to measure blood sugar levels. According to Evgeny Morozov [33], technology can find a solution to every problem. We do believe, after all, at least to some extent, that every problem should have a solution. When confronted with a problem, we expect and hope that someone may have searched and even found a solution to it before us. In this way, we are led to believe that adds claiming that non-invasive devices can help solve this problem look realistic and common-sensical. Our immediate reaction is not to question whether they exist, but to be glad that the problem has been solved. Many adds and product presentations rely on the pattern of someone looking for a solution and finding it with the help of a certain technological device or gadget. We have seen this happening before, so we find it realistic and highly probable to be true.

Next to technology, science is another key term in the world we live in today on which we rely for solutions and for the improvement of our lives. In this sense, once we hear technical terms such as sensors and non-invasive ways of measuring glucose levels, we tend to believe that the device and the claims about it are all real. In addition, bringing in high technology devices makes matters all the more believable, as we have all seen how smart fitness bands and smart watches have become parts of our daily lives. Once we hear science and technology language and discourse, we tend to believe that the ads are true. What is more, we have seen with our own eyes how science fiction realities have become part of our lives, e.g. video calls and meetings. After all, this is how some media articles portray our current technological inventions. In such an environment, anything becomes possible and the idea that a non-invasive, sensor-based smart fitness band or smart watch exists is not at all surprising and nothing can make us suspicious about all of this. The tendency to believe this is reinforced by the videos of the smart fitness band or smartwatch being used to measure blood sugar levels, which, as we think back after finding out the truth, has likely been the creation of artificial intelligence, which is now available for us all to use.

Since science and technology are such a large part of our everyday lives, we rely on the way in which it has become an expected pattern for us to find out anytime that a new gadget has been invented and that other ones have been highly improved in a very short time. Since we can easily be tricked by means of technology, we can add this as a reason why we fear it, next to the anxieties over us and our work being replaced to a high extent by technological innovation in the future.

3.2.3. The alignment of smart fitness bands and smart watches with European Union health policies and democratic values

We can easily associate smart fitness bands and smart watches with the European Union health policies and in particular with raise-awareness campaigns regarding notions of our health, such as those monitored by these gadgets: sleep monitoring, heart health, stress, number of footsteps and times we get up and walk, etc. The use of such gadgets is also in line with the smart, digitalized lifestyle which allows their users to have access to popular medicine notions and to digitalized health services. We notice how, within the European Union, individuals become more and more independent, having control through these gadgets and popular medicine knowledge over their health data. Self-care is encouraged and made possible, through policies such as those related to digital services in health and care, where we can find, among the priorities, "citizen empowerment with digital tools for user feedback and person-centred care" [34].

To be precise in mentioning health policies, The European Health Data Space Regulation [35] which was recently adopted and which has been in force since March 2025, claims that data from wearables and other health-monitoring apps can be part of the health data which is used for personal healthcare and for research.

This state of affairs can draw our attention to the way in which the basic democratic values promoted by the European Union are underlined: transparency of information through the personal health data and health-related awareness, personal agency and autonomy of the individual related to decision over one's health. As an example, it has been reported that smartwatches help improve Romanian users' health as far as a percentage as high as 86% is concerned [36].

From the point of view of popularization of medical knowledge and encouraging individuals to be aware of their own health, which can be achieved by using various devices and from being informed, using smartwatches and smart fitness bands which have the so-called latest function, glucose levels measuring, included, can be a reasonably realistic state of affairs. This is the extent to which the ideology promoted by the European Union can shape our mindset and lead to vulnerabilities. Based on cultural studies [37], we adopt the values of our society during a certain period of time, values which are promoted through various means. Smart watches and smart fitness bands can be considered such means. Political studies complete the methodology of the research, showing how these gadgets can have connotations related to supranational organizations such as the EU's policies and health raise-awareness campaigns. Commercials themselves borrow from the rhetoric and ideology imposed by supranational organizations such as the EU. The autonomy of the individuals and their self-awareness of health issues can be such examples. We can also see that raising awareness to such hoaxes related to gadgets with functions which do not exist yet should be part of the goals of the EU or of the individuals' raise awareness campaigns, since this ideology can make them vulnerable. However, we cannot help but notice the solidarity among online social media user communities such as those related to smart wearables who raise awareness for other users regarding the fact that gadgets measuring glucose levels do not exist yet.

4. Results

Analysing the phenomenon of promoting the still not existing non-invasive blood sugar levels measuring smart fitness bands or smart watches, we realize how much science and technology have become part of our mindset and lifestyle. We automatically apply the learned patterns which are part of our reality in order to make intuitive decisions and judge what is possible to exist and what is not. Technology and science are no longer available to those working in the domains only. They are available to the general public, which opens the ground for rumours, hypotheses and imagining future outcomes. This mindset is explored by those creating hoaxes using artificial intelligence. They rely on plausible hypotheses and present us with the issue which has just been solved – that of having, finally, smart fitness bands and smart watches which can measure our glucose levels without using needles and without feeling discomfort and pain. This can be considered wishful thinking [38], based on psychoanalytic theories' interpretation. At the same time, such hoaxes can trick those who are relying on scientific backgrounds and knowledge, just as much as they can trick the average user of gadgets. At the same time, this is also usual hypothetical thinking, referring to how we expect and believe that it is highly probable that technology and research have managed to create such devices.

We can see that wearables are cultural symbols or artifacts, which are part of our sense of individualism, autonomy, and self-awareness, and not only tools for health monitoring. Wearing smart bands and smart watches goes beyond their practical, down-to-earth purpose of monitoring health. We can connect them with the larger urban culture and health-concerned community, where its members can belong to fitness culture, for instance. Those creating the hoaxes are highly aware of this mindset and of the needs of those whose interest they may gain.

5. Discussion and conclusions

We rely very strongly on technology and place high hopes on it in order to see our problems solved. Technology becomes the equivalent of magic in fairy-tales, where anything can be fixed. What is more, artificial intelligence which can be used by any of us makes it easy to satisfy our needs and turn almost anything into reality, by means of visual images. We start telling stories and making things up using artificial intelligence. The disadvantage is that artificial intelligence, together with science and technology can be used in order to trick us to buy gadgets whose functions do not exist or which do not exist at all themselves. We are eager to keep up with all the new technological developments of the gadgets we currently use, which makes us vulnerable to such hoaxes.

We always anticipate, we always think ahead of what may come. The development of wearables having glucose levels measuring functions is the expected next step. This makes it for us highly likely that such devices will, sooner or later, be available for us to buy. Based on this mindset, we grow all the more vulnerable and become the victims of hoaxes relying on artificial intelligence creating believable videos of gadgets having glucose level measuring functions available.

Technology is present in our everyday life, smart city culture, as smartphones, ear buds and wearables have become distinctive marks of our lifestyle and symbols of the

individual adapted to his or her times. Popular health concepts and notions have become part of our everyday life vocabulary, such as are heart rate, blood pressure, number of steps, stress, SPO2 levels, and calories consumed per day, as well as sleep quality. Wearables have become means of educating smart city citizens in monitoring and self-managing their health and health issues. Based on political sciences and cultural studies, this type of education and instruction is related to ideological purposes. This education relies on the values of well-being of the EU, which are transmitted via health policies. Technology is part of our current lifestyle, and it is present in EU policies as well, e.g. digitalization policies, reduction of inequalities policies, as well as innovation and research and development policies. As part of the citizens' empowerment and right to freedom of speech and opinion, we can find adds for gadgets and devices, as well as reviews by buyers on online social media. We have already formed a pattern of detecting real adds and fabricated, fake news and information. However, the adds for glucose level measuring wearable have broken the usual pattern, and have tricked some users into buying them. What is now left for them to do is raise awareness to the hoax and spread the news about it, taking advantage of the rapid spread of information in online social media.

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