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HEALTH CONSUMERISM

WHEN HEALTH BECOMES A
CONSUMER GOOD

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SUMMARY

In the coming years, we will see a citizen-/patient-led healthcare revolution that will alter the way healthcare is distributed and delivered today. Patients and citizens will slowly but steadily grow into health consumers who have a thorough understanding of their own wants and needs and expect the healthcare sector to respond to these immediately and in a personalized, much more tailored way.

This revolutionary shift towards health consumerism will require support on all (managerial/ political) levels of society in terms of getting the technological, socioeconomic and cultural infrastructures in place for this change to happen; users in all areas involved will need to get familiar and be educated in taking up new roles, methods and responsibilities. Companies may take advantage of opportunities within e.g. motivating (all) citizens and their surrounding community/ network and supporting preventive actions. It is, however, also necessary to be aware of the barriers relating to whether the healthcare sector is ready for the changes and new solutions, as well as the question of who will pay for them; the citizens or the healthcare sector. Nevertheless health consumers and their demands for personalized healthcare goods and services create an increasingly significant market and big business opportunities for companies within healthcare and beyond.

DEFINITION

Inspired by Hal Wolf, President and CEO of Himss and Member of the Advisory Board to Patient@Home, we define 'Health Consumerism' as a movement towards citizens demanding involvement, influence on treatment and high levels of information when it comes to healthcare. 'Health Consumerism' concerns a change of expectations from citizens of healthcare and what it will do for them. There is, for instance, an increasing expectation that healthcare services will be created specifically to them and delivered in a customisable, personalised way. Health consumers will expect more than ever that their problems ought to be solved in an immediate and convenient manner which also takes into account their (oftentimes widely different) given circumstances (Wolf, 2018).

WHAT IS HEALTH CONSUMERISM?

Health Consumerism revolves around the demand for personalised healthcare and solutions. Here the citizens are sitting in the drivers' seat who request more (and better) goods and services for their health, in accordance with their individual preferences, and therefore initiate that healthcare is slowly moving closer to them and their local environment.

PERSONALISED HEALTHCARE AND SOLUTIONS

Health consumers are a mixed pool of people, who are differing by their individual goals and preferences. But what many health consumers have in common though is the fact that they are living healthily and moreover, have slowly integrated being healthy as a part of their identity. Regarding this people seem to have individual perceptions of what 'health' actually means in their particular circumstances, which partly might be due to the overall change in the concept of health in society; where the focus once has been on health equals prevention of death and illness, it has by time shifted to health being about engaging in and experiencing a good and improved life (Copenhagen Institute of Future Studies, 2017, p. 26).

Carsten Obel, Director at the Centre for Collaborative Health, MD, GP, PhD and Professor in General Medicine at Aarhus University, agrees that the concept of health has undergone change; people prioritise health to a larger degree, and they consider health to be *"much more than smoking, physical activity, it might actually be the better life"* (Obel, 2017). The think-tank Mandag Morgen in collaboration with the Danish foundation TrygFonden (2017) expand this evolving health concept even towards, e.g. a good night's sleep, having close friends and good family relationships (Mandag Morgen & Trygfonden, 2017).

This morphing concept of health underpinning health consumers' preferences and expectations will greatly influence how healthcare services are delivered in the future. Hal Wolf explains:

> *"Consumerism usually follows the three Cs […]; Choice, Control, Convenience, and then sometimes people put the word Cost in, depending upon the system that you are in. Consumerism is all wrapped around sort of an expectation that things are going to be created for me, delivered to me in a personalised way... The citizen as an individual has expectations about what a healthcare system is going to do for them. They pay taxes […]. The consumer will have expectations about how the capabilities will be applied to them. Is it instant? Is it quick?" (Wolf, 2018)*

CITIZENS AS THE DRIVERS

As mentioned before, Health Consumerism is driven by the citizens who increasingly make demands on the healthcare services that they receive. Aligning with this Peder Jest, Executive Director of the Odense University Hospital and Member of the Executive Board to Patient@Home, anticipates a growing number of patients and citizens that will lead change in the form of a revolution in the Danish healthcare sector, which is something that politicians have realized and will be backing up:

> *"So you will see a revolution, the revolution will come from the patients and the citizens. And I think the politicians, in fact, have seen this, they are on the patients' and the citizens' side if it would become a fight. I do not think it would become a fight but ... a change will happen within the next five years" (Jest, 2018).*

Hal Wolf also underlines that Health Consumerism, driven by the citizens, will alter the way in which healthcare is delivered and actually improve the quality of care:

> *"It is changing our expectation of healthcare; it is changing our expectations of working at the individual level. Consumerism is huge; it is the right thing to occur, healthcare systems now have to modify how they deliver care, not strictly from the point of view of the institution but including the point of view of the individual. And to that end it is fantastic because it is improving care, it is improving speed, it is improving connectivity, and all of those things contribute to positive things in healthcare." (Wolf, 2018)*

CLOSER TO THE CITIZEN

The classical roles of citizens/patients and the healthcare sector will change as healthcare moves closer to the citizen and puts their personal needs, choices and everyday life at the centre.

With new development in terms of technologies and the global economy, more and more citizens will have information at their fingertips. Citizens will expect the same to be true for healthcare information and resources (Coughlin, Wordham, & Jonash, 2015). As consumers the citizens will therefore request more from their healthcare providers, private as well as public; such as instant access and solutions that match their needs. Hal Wolf describes how the patients, to a large extent will decide how and where they receive healthcare:

> *"So consumerism in healthcare really does have an impact on the expectations, speed and the delivery of care and delivery of services; there is an expectation that it is going to be done at a perso-*

nalised level. You will contact me and work with me where I would like that to occur versus what you may wish, except for obvious things like surgery and things of that nature. […] Comparative to other industries, as a consumer I have expectations that my problems are going to be taken care of for me in a convenient manner, right in my home. Why do I even have to leave the building? Those are consumer driven issues." (Wolf, 2018)

Peder Jest agrees that the patients have and will continue to have different but very particular expectations, e.g. a wish to receive healthcare where they are:

"The patients are different. We know it already from the young native users of new technology that they are thinking quite differently. […] They are very visual, and they don't care if you are in the same room or on the other side of the globe." (Jest, 2018)

WHY IS HEALTH CONSUMERISM RELEVANT?

Health Consumerism as a concept is influenced by several of the mega-trends e.g., democratisation, acceleration and technological advances, all of which help to enable processes and solutions that have the potential to fulfil the demands of health consumers.

According to John Christiansen, District Chair of the Danish Nurses Organization, healthcare is moving from a focus on volume towards a focus on value:

> *"[There will be] a change of focus, from producing a lot to producing the right things, at the right time, with the right outcome. And there has been a tendency that the incentives, which have been poured down over us, have more gone in the direction of speed and increased production […] where the future will, and this is already happening, the future will bring a larger focus on delivering quality."* (Christiansen, 2017)

The increased focus on quality will impact how patients are cared for, how physicians and hospitals are paid, and how life sciences companies approach the market (Coughlin et al., 2015). In Danish Regions, a number of projects have already been initiated to develop the foundation of a more value-based healthcare system (Danske Regioner, 2018; Mandag Morgen & Danske Regioner, 2017). The buzzwords are: patients' needs. In line with the demands of the health consumers, value-based healthcare may set new standards for how healthcare providers fulfil their tasks and deliver services.

The change is driven on the one hand by the citizens. Another driver towards this change is that we all generate massive amounts of data every day, for example sensor-based data collected through Smart Health Technology (Syddansk Sundhedsinnovation, 2018). There is a strong indication that this data and the analysis of it will empower citizens and enable them to make knowledge-based decisions about their health. From a health consumer perspective, health data goes beyond the realms of the healthcare sector and into the private sphere.

HEALTH CONSUMERISM IN THE DANISH HEALTHCARE SECTOR

TODAY

In today's Denmark we definitely see a trend towards Health Consumerism, as well. Health Consumerism in the Danish context though differs from countries which have more privatised healthcare systems such as the United States. In Denmark the focus of the healthcare sector is on the empowerment of citizens to benefit from healthcare and on equal healthcare service offers (Regionsrådet, RSD, 2015). Hal Wolf, who is familiar with both privatised and publicly financed healthcare systems, argues that equality is extraordinarily important in the Danish context (Wolf, 2018).

Although the Danish Healthcare Sector is clearly interested in accommodating health consumers, the solutions are not fully in place yet, and the mind-set of the healthcare providers is not yet fully tuned into the citizens slowly becoming health consumers. Peder Jest explains:

> *"If you have some diseases, how can you still live a good life? I think that is not the way we are thinking today. […] There is no doubt for me that we are not thinking clearly enough on consumerism. Health consumerism is big business in the future."* (Jest, 2018)

The accommodation of health consumers in the healthcare sector is a welcomed vision but there is still a long way to go in order for it to become a reality. With regard to this cautious steps such as, a general focus on empowerment and patient involvement and health professionals' initially using personal health data collected by the citizens, even if the quality is not quite adequate, seem to point in the right direction. Health Consumerism and related adjustments that have to be made within the healthcare sector will continue to rise in Denmark in the future.

IN 2025

In 2025, the Danish healthcare sector will be quite different, in the way it is offering and delivering healthcare to citizens, compared to what we are used to at the moment. This is partly due to the technological advances that naturally are moving forward, within the healthcare domain as well as others, and to the conceptual changes in terms of what health and healthcare encompasses. Peder Jest argues that the very nature of healthcare will change beyond our imagination:

> *"I think everything will change. I don't think you can even imagine how much it will change."* (Jest, 2018)

Hal Wolf elaborates that every industry has been disrupted and influenced by the expectations of individuals as well as by technology:

> *"The citizen as an individual has expectations about what a healthcare system is going to do for them. They pay taxes, they have*

functional expectations. Those are things that they think about at a governmental level just by using the definition of citizen. The consumer will have expectations about how the capabilities will be applied to them." (Wolf, 2018)

Peder Jest agrees that in a Danish context Health Consumerism will be increasingly important. Citizens will have expectations of and make demands on their healthcare services, and the healthcare sector needs to keep this in mind and remember what seems to be forgotten, namely that the healthcare sector exists for the citizens:

"Everyone working in the healthcare sector should think of the citizens and the patient as a consumer. What is it that you want from me? What can I deliver to you right now? You are paying for it, you are paying in Denmark through your taxes. That is why we have a very nice high tax system, because we can offer something to you later in your life or when you need it. And I do not think that we have taught our employees enough to respect that they are here for the citizens, all the time. So consumerism is very, very important in the future, and the citizens and the patients will expect it." (Jest, 2018)

Erik Jylling, Executive Vice President of Health Politics at the Danish Regions, argues that in 2025 citizens will both have better abilities and more opportunities of interacting with the Danish healthcare sector and take an active role themselves (Jylling, 2017), especially those citizens who are able and interested in influencing their own healthcare; the health consumers. The healthcare system will have to organise itself accordingly, taking the capabilities of the individual citizens into account. Erik Jylling explains:

"The patient will have a lot more abilities and possibilities to interact with the system and to go for themselves. We will see a system that is much more differentiated […] where we much earlier take action in intervention […] in prevention, and we support the strong patient in doing what he or she wants for themselves, and we support the weak patient much more." (Jylling, 2017)

Kevin Dean, Honorary Professor at the University of Southern Denmark, in Health Informatics and Member of the Advisory Board to Patient@Home, argues that there will be a focus on prevention in the future:

"We will have to shift from treatment to prevention at some point in the next 10 years." (Dean, 2018)

Here the citizens will have a significant role in the actual promotion of health and preventive initiatives.

In addition to this Carsten Obel, speaking from the point of view of both a medical professional and an expert in collaborative health, aspires for Denmark in 2025 to have a healthcare system that supports the citizens in their health-related decision-making process. The healthcare sector should invest in individual health, in the different ways of living healthily, whatever that may mean for each person:

> *"Ideally, if we invest in people's health and what is health for people, I think we will come a lot closer to what is this. I'm not in favour of giving all responsibility to the citizen for living the right life, but I think freedom and autonomy to develop what is the best life for every citizen, I hope we will get closer to this. In fact going from quantified self to qualified self would be ideal in 2025."*
> *(Obel, 2017)*

CHALLENGES FOR HEALTH CONSUMERISM

We have to acknowledge that in the future health services will be seen as goods in line with other consumer goods (Mandag Morgen, 2006), and the consumers will have demands regarding these health services and goods accordingly. Peder Jest, hospital director at a large Danish hospital, underlines that healthcare is for "the patient's sake" and the meaning of the healthcare sector is to give patients and citizens a good, long life, as free as it can be from diseases (Jest, 2018). He agrees that citizens are to be seen as consumers and that those healthcare services should be offered which actually make sense and give meaning to the individual health consumer:

> *"All of us are consumers, we are also consumers of the healthcare sector. Of course it is not something that you can pick down (from the shelf) free because it is very expensive but the healthcare sector is for you as a citizen." (Jest, 2018)*

The healthcare sector will need to prepare itself for the opportunities and challenges brought along with the trend of Health Consumerism. Erik Jylling gives his (and the Danish Regions') perspective on the potential opportunities and challenges within Health Consumerism:

> *"You can put health consumerism as an opportunity or a challenge. I think the conditions for health consumerism in Denmark are there. The more digitalised, and the more homogenised our healthcare system will be, the better opportunities there will be for a patient, and the well-empowered citizen to take action themselves. The challenge for the system is, however, how to support them. What tools could support their empowerment, in a suitable way, at the right time? It would be very suitable if we could support these well-empowered citizens, to be prepared in the interaction with the healthcare system." (Jylling, 2017)*

The challenges are predominantly related to how we can adapt the system to better accommodate the health consumers, and how we prepare the healthcare sector and healthcare personnel for this change.

CULTURAL CHANGE

Carsten Obel voices his opinion on what has to be done in terms of preparing the healthcare sector and personnel for 2025. According to him Denmark needs to develop and invest in an even better frame for citizens' health, rather than implementing cost reductions (Obel, 2017). There is a need to focus on co-responsibility, on all levels of society, and for this the Danish healthcare sector requires support from the different societal institutions in terms of getting the infrastructure in place beforehand; users across the healthcare system will in parallel need to be formally educated in ow to take up new roles and responsibilities. Peder Jest advocates the need for education regarding the cultural change that is about to happen:

"We have to educate the people, our employees, much more in thinking differently. We have to make a cultural change." (Peder Jest, 2018)

PREPARING COMPETENCIES

At the moment, the healthcare personnel are not prepared for the significant future changes in their everyday practice that will be a reality in about five years' time. Peder Jest explains:

"They don't expect it. I expect that 70% of the employees they are not thinking about the future, they are thinking about what is happening here today and they even can't imagine how it will be in 5 years from now." (Jest, 2018)

According to John Christiansen the increasing demands from health consumers may decisively 'push' and affect the role of the healthcare personnel in the future:

"[…] Seeing the patient as an active teammate, which we are already talking about today and have done for many years. We also talk about rehabilitation and utilising people's self-care capacity. But the challenge will be making the available resources cover the demands that society poses but also the expectations from the citizens and their families. Therefore, I think that the patients will also be more their own man/woman, and at big part of our role will be to help the citizen and patient make the right choices." (Christiansen, 2017)

The healthcare personnel need to strengthen their competencies to become better at assessing and targeting the individual needs of citizens (McDonagh, 2017). As straightforward as this might sound, some healthcare personnel may resist the new roles and responsibilities. Peder Jest gives an example:

"The GPs, though they do not like it, […] will have to work with telemedicine and virtual systems too, they are still old-fashioned in their way of thinking that they have to meet the patient." (Jest, 2018)

It may actually be more difficult to see patients as partners in health as one might think at first sight. For example, healthcare personnel often raise concerns about the quality and reliability of the health information that patients find themselves on e.g., the internet.

At this point in time the healthcare sector, especially management needs to take charge and confidently guide the healthcare personnel in taking ownership of, and accepting and adapting to, the changing nature of healthcare services.

SUPPORTING ALL CITIZENS

While the health consumers should be supported in managing their own health, not all citizens will have the capabilities or desire to be a health consumer and take an active role in their health. Some may prefer the healthcare sector making decisions for them (Coughlin et al., 2015). These citizens need the further support of the healthcare system, the healthcare personnel, relatives and society in general to identify e.g., relevant health information (Camerini & Schulz, 2015). Educating all citizens in health management as early as primary school may be a good advice to start with (KORA, Højgaard & Kjellberg, 2017).

According to Kevin Dean the challenge is to design an inclusive education system that is able to support long-term health across sectors, at an early stage regardless of one's socioeconomic background:

> "The wrong thing to do is to ban the technologies from those who can afford it. The right thing to do is to find effective ways for everybody to access it. But just because you have access to it, does not mean that you will use it. We probably have to address this long term health issue in the education system far earlier then we do now, and with far more rigor then we do now. And that is the real challenge because getting social care to talk to healthcare is really difficult. To get education to talk to social care and to talk to healthcare is a really big challenge." (Dean, 2018)

OPPORTUNITIES FOR COMPANIES

The Health Consumerism trend in the Danish Healthcare Sector may offer the following opportunities for companies developing solutions for health consumerism:

- Integrating solutions with the Danish healthcare sector

- Designing solutions for prevention

- Behavioural design and nudging

- Designing for instant gratification and gamification

- Designing solutions with individualized options

- Gaining a loyal and proactive, partnering customer base

INTEGRATING SOLUTIONS WITH THE DANISH HEALTHCARE SECTOR

The Danish national infrastructure for data sharing provides great opportunities for companies to integrate their healthcare solution with the Danish health care system. Nevertheless, companies need to set up a thorough business model which exhibits what knowledge they have gained of the existing healthcare system and how their solutions can fit to the context by upholding the legal framework around data protection. They also need to include and have experience with an iterative design and development process which includes the different stakeholders at relevant points in time, to discuss what the functions and features actually imply for each stakeholder, in order to allow for a smooth integration of their newly developed solution with the existing infrastructure.

DESIGNING SOLUTIONS FOR PREVENTION

People are interested in maintaining and, to a larger extent, optimising their physical and mental health during the span of their lifetime. They will ask for solutions that can aid in this process, before, during and after (potential) illness or injury. This, in addition to the fact that healthy is becoming the new wealthy, indicates that companies will have to target well across age, gender, race, culture, personality and socioeconomic background that will different in each of the consumers segmented according to 'prevention' and 'health promotion' parameters.

BEHAVIOURAL DESIGN AND NUDGING

As our behaviours and choices diversify and fragment, and every aspect in our daily life becomes digitalised, there will be many more opportunities to specifically target and keep a consumer engage if behavioural designs and

nudging are employed. Companies can target and support the continuous motivation of different users by growing and fine-tuning existing solutions and services based on behavioural design and nudging, or they can invest in growing such designs as new and profitable business branches.

DESIGNING FOR INSTANT GRATIFICATION AND GAMIFICATION

Those companies which are already well established within the healthcare sector have the opportunity to collaborate with 'new', proactive and/ or start-up companies that work with game theory and gamification, as well as rewards and instant gratification, options in order to equally motivate and draw in the consumers. This becomes increasingly important in times of accelerating pace in all spheres of life (Palmer, Lunceford, & Patton, 2012).

DESIGNING SOLUTIONS WITH INDIVIDUALISED OPTIONS

Health consumers have high expectations to the flexibility and adaptability of goods or services that are offered to them; any solution should fit their specific set of circumstances (Copenhagen Institute of Future Studies, 2017). There will be a market for individually adjusted, personalized (-able), highly flexible solutions in terms of the specific consumer profiles that target the changing needs as health patterns shift over time.

GAINING A LOYAL AND PROACTIVE, PARTNERING CUSTOMER BASE

People will be proactive and fluent in their own health and healthcare needs to such an extent that they are seen as the CEO of their own health. Companies can take advantage from this development and engage early on with health consumers in an equal and esteemed manner. This helps them to gain a positive, loyal and growing customer base that, in addition, can be much valuable in co-creation processes.

BARRIERS FOR COMPANIES

There are, however also some barriers for Health Consumerism solutions to overcome:

- Financial barriers – who is going to pay for the solution? The healthcare sector or the citizen?

- The organisational framework and prioritisation in hospitals

- The competencies of citizens and healthcare personnel

- Cross-sector services (and solutions) are complex

FINANCIAL BARRIERS

WHO IS GOING TO PAY FOR THE SOLUTION?
THE HEALTHCARE SECTOR OR THE CITIZEN?

Current activity based financing of hospitals can make it rigid for companies to provide full solutions. Products that dramatically change the treatment and provide extended services are not necessarily rewarded properly through tenders and current financing models. Regarding this, companies may keep an eye on the value-based healthcare movement in the Danish healthcare sector, which might advise on how to make the transition from product based offerings to individualized service offerings easier.

It is expected that health insurances and the private health market will increase in the years to come. This might include public and private health insurance marketplaces and the growing use by employers of vehicles such as high deductible health plans and greater cost sharing to manage medical cost trends (Coughlin et al., 2015).

But who are the payers? A 2015 Deloitte report (Coughlin et al., 2015) illustrates that e.g., health insurance can distort the true costs and access to services. "The disconnect between payment and service shift is underway as more financial risk in paying for health care migrates from payers to individuals" (Coughlin et al., 2015, p. 167). This poses a risk for providers, in those cases where individu¬als cannot pay (anymore). Companies have to be aware of this risk and plan ahead when offering goods and services, in order to both keep a responsible reputation and loyal customer base. Although, the question remains: who else is going to pay then, and how will this be structured?

THE ORGANISATIONAL FRAMEWORK
AND PRIORITISATION IN HOSPITALS

Hospitals might lack the organizational set-up and framework in order to facilitate a paradigm change towards health consumerism. Management might not be able to find the resources and expertise for actually training staff to take up different roles and responsibilities towards patients, support system and (other) healthcare staff, so that these are able to work hand-in-hand on a holistic, value-based level of care. Hal Wolfs argues for the importance of developing technology that can be utilised by healthcare systems and integrated. He says *"It is a long game. It takes a lot of patience; it takes a lot of work with healthcare systems. Companies need to understand that."* (Wolf, 2017)

If the healthcare service providers are unable to work with the above mentioned challenge during their development and implementation processes, service offerings that were once desired for the citizens might actually end up being those kinds that diminish trust into the providers and healthcare system.

THE COMPETENCIES OF CITIZENS AND
HEALTHCARE PERSONNEL

Traditionally, to facilitate training for healthcare personnel in the use of complex assistive living and other technology is not the predominant focus in hospitals. Patients are cared for by executing long-run processes, procedures and care packages – where staff moves on known territory. When new, oftentimes more complex technology is introduced it often means, especially for some of the experienced healthcare personnel, that they meet the 'unknown' which challenges their understanding of processes and tasks and their use of any existing technology (Mandag Morgen & Danske Regioner, 2017).

Companies need to be aware of the complexity of the competencies which healthcare personnel have, in order to secure an actual adoption profit within the existing context (existing people, materials/ technologies, images and ideas). In some cases, companies might need to offer product-specific training, and be in it for the long haul, since implementation can take an unexpectedly longer period of time (but with a higher success rate afterwards).

On the other side, companies will meet different health consumers with different skills and expertise in managing their own health. Some of these will be able to participate in and give feedback on the companies on their service offerings; whereas others might fall short of this and will need more assistance than expected in using the solution correctly and to its fullest potential. How do companies actually assess when someone is healthy

enough? When someone needs assistance, and how and how much? There are clear ethical questions and legal issues involved here, which a company has to prioritize.

CROSS-SECTOR SERVICES (AND SOLUTIONS) ARE COMPLEX

Companies developing integrated solutions for the collective healthcare sector (See Integrated Healthcare Service report) should be aware of the diversity and fragmentation of involved stakeholders and the challenges it may present to ensure motivation, involvement and ownership across many different stakeholders. Each stakeholder will also have their individual budgets, and solutions that cover multiple stakeholders need individual decisions from each stakeholder. Hal Wolf pinpoints that *"the challenge is for companies to be able to make it relevant to the medical model and to the health model so it becomes integrated"* (Wolf, 2018).

CONSIDERATIONS FOR COMPANIES

When developing solutions for healthcare, particularly solutions that handle personal data, the following aspects will be relevant to consider.

GENERAL DATA PROTECTION REGULATION (GDPR)

In May 2018 the General Data Protection Directive from EU (GDPR) will enter into force in the EU (European Council, 2016). The purpose of the directive is to strengthen citizens' fundamental rights when it comes to data, privacy and digitalisation – but also to simplify rules for companies and thereby facilitate growth. Some of the more noteworthy changes enforced by the directive are the possibilities of issuing fines amounting to up to 4% of a company's annual turnover.

In order to adhere to the GDPR, companies may look at the Guidelines for Cybersecurity (ISO 27032).

CONSENT

The regulation regarding data subject consent has been further strengthened and clarified. Consent must be explicit and the citizen must be clearly informed of the precise and defined purpose of data collection. Furthermore the citizen has the right to revoke consent. If consent is revoked the data must be deleted and proof that it has taken place presented to the citizen. This will affect all companies handling data pertaining to the citizen's health.

DATA PORTABILITY

Data portability is a new topic introduced by the GDPR. With GDPR the citizen will have the right to data portability. This means that if you collect personal data the citizen has the right to receive the personal data concerning him or her in a structured, commonly used and machine-readable format. They also have the right to transmit those data to another organisation that collects data about the citizen. The purpose of this obligation is to limit the number of times citizens have to answer questions about the same subject matter, e.g. age, height, gender etc.

This is particularly interesting from a healthcare perspective because data might be required to be shared across different organisations in the healthcare sector to a much greater extent than they are today. This might also prove a new business opportunity for companies, since there may be a whole new market emerging for solutions to support data portability, e.g. by providing system integration or sharing information between different IT systems.

EUROPEAN MEDICAL DEVICES DIRECTIVES

In addition to the more general GDPR directive, an updated directive on Medical Devices will enter into force in the spring of 2020 and 2022. The two directives (EU) 2017/745 "MDR" & EU 2017/746 "IVDR" - (European Parliament & European Council, 2017a, 2017b) heavily regulate what is defined as medical devices, and how such devices can be tested and used within the boundaries of the EU. This is central for especially Data Analytics and Smart Health Technologies. 'Medical purpose' is defined as any type of diagnosis, prevention, monitoring or treatment or alleviation of disease or disability. The vast majority of devices which collect health information are likely to be considered medical devices, even if they do not process or analyse the data. Companies operating within the domain of health should proactively investigate compliance with these regulations and adjust development processes accordingly.

ETHICAL GUIDELINES

Bringing technology into the sphere of healthcare services brings with it relevant ethical considerations. The Health Innovation Centre of Southern Denmark has developed two videos that illustrate the expectations and challenges that may arise when new technology meets the healthcare sector. The videos focus on the perspectives of the patients at home and the clinicians working across sectors, respectively. Companies may consider these ethical aspects in their development process.

ADVICE FOR COMPANIES

Health Consumerism-related advice

Companies developing solutions for the Danish health consumers of 2025 should particularly consider the following:

- Holistic solutions

- Works with Motivational Elements

- Reputation

HOLISTIC SOLUTIONS

Markets with a much more holistic perspective, such as, where physical and mental health, wellness and health promotion with a 360 degree view-point of the individual person are put into perspective, can be explored. These make space for including other fields and areas of expertise, in order to enable citizens to engage in preventive activities and health promoti-on. From a company perspective, this does not necessarily demand new (product) developments, but new concepts of interventions, and a general buy-in into new ways of using existing facilities in urban and, in particular hospital settings. Such interventions will to some degree involve e.g., play, competitions, social aspects, rights and choices left to the consumers.

WORK WITH MOTIVATIONAL ELEMENTS

For citizens to take an active role in their healthcare and choose their own care plan, companies are advised to consider solutions that have a built-in motivational aspect. Carsten Obel argues that it is necessary to support the individual motivation of citizens:

> *"If you accept this premise that all citizens have a mixture of intrinsic and extrinsic motivations, I think the citizen will get a better life because she/he will get more autonomy, making her/his own decision about what to do. As a citizen you will also feel more competent and feel the relation of supporting each other more than being supported by health professionals." (Obel, 2017)*

Gamification and game theory, amongst others, can help to conceptualise potential solutions, as these approaches have the ability to activate citizens and make them responsible for their health choices (Deloitte, 2016). Peder Jest agrees on the potential of gamification: *"what we see in the play and the game industry are also possible to use in the healthcare sector"* (Peder Jest, 2018).

REPUTATION

Similar to what consumers do in other situations, health consumers may compare stores, products and services and choose providers on the basis of their reputation. It is therefore important for companies to build and nurture their reputation, also with regard to keeping a proactive, loyal and co-creating customer base.

GENERAL ADVICE FOR COMPANIES

In their prioritisation of future research and development activities, companies that develop solutions for the Danish healthcare sector of 2025 are advised to consider how to:

- Solve the User's Needs

- Co-Create with Users and Stakeholders

- Understand and Document the Value of their Solutions

- Contribute to Implementation

SOLVE THE USERS' NEEDS

> "It is not technology for the technology's sake; it is for the patient's sake we are working!" (Jest, 2018)

Peder Jest underlines that serving the patients is the primary purpose for the healthcare system. The development of new solutions should be centered on the users and their needs.

UNDERSTAND THE NEEDS AND CHALLENGES OF THE USERS

The users are the experts! A common challenge for development of successful solutions is lack of knowledge about the users. Investing the time and resources in identifying and understanding the needs and challenges of the future users of your solutions may be a worthwhile investment. Erik Jylling says:

> "Just bringing in new solutions and declaring that innovation will do it is not enough for a public healthcare system. Who is against innovation? Nobody! But we need to have solutions that can help us running the system. And we have to have the ability to assess that the solutions are also in favour of being integrated in the system. So it should benefit the patient, the outcome, and it should also benefit the spending of the public economy." (Jylling, 2018)

The healthcare sector is interested in solutions that match their needs and challenges. Hal Wolf underlines:

> "Companies have got to figure out how to help integrate and develop innovations that are not just interesting, that can be utilised by the health systems themselves. And that is the big challenge that companies have, it is not about simply developing (…) technology. Companies that are developing technology for technology's sake will not win!" (Wolf, 2018)

For companies it may be relevant to look into the fields of user-driven innovation, anthropology and design research. These fields may offer approaches and essential tools to uncovering unrecognised needs and transforming these insights into valuable solutions.

DESIGN FOR USABILITY

The technological development offers many opportunities for new solutions, and there is undoubtedly a vast national and international market for healthcare solutions (Jylling, 2017), however it is essential that companies and developers focus their efforts on developing solutions that address and solve the actual needs and challenges of the healthcare sector and their daily operations. Hal Wolf goes as far as to say:

> *"Technology by itself without the process piece and the people piece that sits behind it, it's useless, it means nothing" (Wolf, 2018)*

When designing new technologies it will be important to accommodate the users and design for user preferences and capabilities. John Christiansen argues that:

> *"For new technologies, in the future I (nurse) will not need to educate myself for new technologies but technologies will be ready to incorporate us all, whoever I am, without needing to read piles of manuals but that it will be more intuitive." (Christiansen, 2017)*

He continues:

> *"If systems are so complicated that we have to educate ourselves to understand the systems that we use for reporting, then maybe we are not the ones who need to be educated, maybe it is the way we think systems that is not intuitive enough." (Christiansen, 2017)*

In other words, technologies should be adjusted to fit the capabilities of the users and not the other way around.

CO-CREATE WITH USERS AND STAKEHOLDERS

POOL MULTIDISCIPLINARY RESOURCES IN OPEN INNOVATION COLLABORATIONS

There is a general trend towards open innovation, in the acknowledgement that the benefits of pooling resources and knowledge allow 1 plus 1 to equal 3.

Peter Watts, CEO and Co-founder of Solutionize Inc., argues the importance of a multidisciplinary approach. He argues that companies:

"[…] need to get a balance of skills (…) My team is made up of technical people, medical people, financial, legal, and I think that healthcare is so complicated, it needs understanding, it needs empathy, it needs lots of different skillsets. (…) I've been in technology all of my life, and I've been very lucky to see many good things happening in that time. And I'm very aware that technology isn't the solution to anything, it's the use of it that's the value. And you need smart people to do that, and you need multi-discipline people." (Watts, 2017)

Carsten Obel agrees that multidisciplinary collaboration is a good strategy:

"You should work together with people who have quite as different backgrounds as possible and engage in as many collaborative networks as possible, but still have the focus on the citizen and the value creation in focus." (Obel, 2017)

A company should not be an island in itself but acknowledge that others may have knowledge and expertise that is worth utilising to accelerate and improve development of new innovation. Especially large corporations could benefit from collaborating with SMEs/ smaller companies to a greater extent, by e.g. auctioning their needs for small companies to develop on (Munksgaard, Johnson, & Patterson, 2015). This is both the fastest process as well as the most cost-effective in the long run. Both large and smaller companies can utilise their best skills, which are e.g. the enthusiasm and ideating skills of small, entrepreneurial companies and the grounded strategy and long experience of larger corporations, which also often have more conservative professions and less resources for experimentation and new thinking (Nissen, 2017).

Peter Watts agrees that large companies and smaller companies could benefit from collaborating:

"Big companies can explain their roadmap and where they are going and what they need, and the benefit to the industry is fantastic. They may have big money for R&D but they don't always have the time and they don't always have the enthusiasm that small companies have. So bringing those together I think, is a real big key, and I think the role of government is really important too." (Watts, 2017)

Mature Solutions through Public-Private Collaboration

There is a growing general interest from public partners in Scandinavia in opening up and collaborating with private partners in Public-Private Partnerships (PPPs), Public-Private Innovation Partnerships (PPIs) etc. This openness enables companies to get access to and collaborate with the

public healthcare sector (Nissen, 2017). Collaboration with public partners presents a significant opportunity for private companies. However, it is important that companies are aware that the healthcare system is a 'supertanker'. Things take time; e.g. rules and regulations, particularly within public procurement, are time-consuming. Quick wins are not possible and companies should expect a long lead time from the first dialogue to a contract (Øllgaard, riis, Boding-Jensen, & Garsdal, 2016). This timespan may clash with the short-term focus of many companies, particularly SMEs. Companies are advised to invest in the long term when collaborating with public partners.

The Capital Region of Denmark argues that bidding on a tender does not start with writing the bid. They advise companies to: *"communicate with the municipalities leading up to a tender and influence the process. Prioritise which tenders you want to invest in"* (Øllgaard et al., 2016). The primary focus and outcome of public-private collaborations is not sales/procurement. Helle Nissen, Ph.d. and postdoc in Public-Private Innovation at the University of Southern Denmark, argues that from a company's perspective collaborations are a long-term strategy to achieve a) insights into needs and organisational structures, b) further needs-based development of a solution, and c) networks with relevant stakeholders (Nissen, 2017), all of which can influence future sales potential for a solution.

FAIL AND LEARN EARLY THROUGH USER TESTING

Fail fast, succeed sooner! A prototype is not a tool to prove that you are right. It is a tool to help you learn. User testing is an essential part of innovation processes within healthcare. Getting new insights and knowledge about stakeholders through testing and co-creation can ensure that a solution meets the user needs and demands.

The general rule of thumb is to test early, fail fast and learn cheaply. Helle Nissen recommends to companies to "test it! Have different kind of user groups to test it. Not only focus on one user group, but have different kind of stakeholders test the solution. And have a dialogue also with different kinds of stakeholders to understand what they value, and then you can adapt the solution so that it fits these kinds of values among the different stakeholders" (Nissen, 2017).

Carsten Obel argues that the possibilities of testing are special and very valuable for Denmark:

> *"Testing approves that it actually works and gives an 'approved in Denmark' sign. So I think this is a great opportunity that health providers have in Denmark, because this doesn't exist in any other place in the world, except for the Nordic Countries."* (Obel, 2017)

John Christiansen believes that there are so many needs in the healthcare system that new solutions can address, however companies need to prepare to fail and learn, and they need to investigate the market:

> "The challenges will be having the energy and courage to fail many times and having an overview of whether what one is developing is already out there" (Christiansen, 2017)

SAVE TIME THROUGH ESTABLISHED CHANNELS

Each public region in Denmark has established a 'single-point-of-entry' for the industry (Danske Regioner, n.d.), similar to the single-point-of-entry for organising collaboration between public and private partners that many municipalities have. These access-points are specialised in public-private collaboration and matchmaking. They have insights into which departments and health professionals may be interested in collaborating within a specific field as well as access to test facilities and clinical trials, saving companies the time-consuming task of knocking on multiple doors.

UNDERSTAND AND DOCUMENT THE VALUE OF SOLUTIONS

> "Some firms get to know how the system actually works and they get to know that in the healthcare system there are lot of different actors who influence the decision to buy a new innovative solution. So some of the firms who succeed to commercialise solutions across hospitals and regions, they actually take into account that there are a lot of different stakeholders at different levels within the healthcare system, and they use that when they promote their innovative solutions. So that they remember to take into account the different needs and the different values which different actors want to have taken into account." (Nissen, 2017)

Selling solutions to the public sector can be a lengthy and complex process due to the stakeholder complexity and procurement processes. It is important to understand the value of a solution for the relevant stakeholders, and to document this value.

ENSURE BUSINESS MODEL AGILITY AND ADAPT TO DIVERSE CONTEXTS

It is important to be aware of the direction that incentive- and payment structures are moving in Denmark and how it will affect your solution. Company business models should contain the flexibility and agility to incorporate this development. This agility is even more necessary for companies aiming to bring their solutions to international markets where the financial structures are considerably different.

Erik Jylling argues the relevance of ensuring scalability of your solution:

> *"They have to take into account that the product should be scalable, and the product should bring us not only new products but it should bring us solutions that helps us solve the big fundamental structural problems that we see in the healthcare system, not only in Denmark but internationally, today and especially in the years to come." (Jylling, 2017)*

As previously described in Fail and Learn Early through User Testing there are many opportunities for testing solutions in a Danish context. It is, however, important to be aware that testing a solution in e.g. one hospital department with a few healthcare personnel representatives is unlikely to cover the organisational diversity across all Danish hospitals. Even less so across international hospitals.

Companies should develop solutions that incorporate appropriate flexibility to accommodate the diversity of organisational needs, nationally as well as internationally. According to Helle Nissen some *"firms as a strategy choose to engage in new collaborations (Public-private partnerships) in order to improve their product or in order to adapt it to a specific context"* (Nissen, 2017). She argues that:

> *"Firms have to interact with these different actors in some sort of way in order to adapt the development of their solutions, so they fit with the different kinds of users in the healthcare system." (Nissen, 2017)*

PROVE AND DOCUMENT THE VALUE

Helle Nissen underlines the importance of understanding your stakeholders and procurement processes (Nissen, 2017). Healthcare budgets are under increasing pressure and the healthcare sector is interested in the proven value and effect of solutions. Erik Jylling argues that:

> *"companies that are concerned about developing new solutions for the Danish healthcare system should take into account that the [economic] pressure for public economy now and in the years to come will be quite substantial." (Jylling, 2017)*

He underlines that the healthcare sector:

> *"have to have the ability to assess that the solutions are also in favour of being integrated in the system. So it should benefit the patient, the outcome, and it should also benefit the spendings of the public economy." (Jylling, 2017)*

This necessitates not only an understanding of the value of the solution but also evidence of this value.

Business cases and technology assessments are often required prior to a sale to a public partner. Business case processes can be both time- and resource consuming. Therefore it is relevant to consider to what extent the results, criteria, quality and validity of business case results are transferrable to other settings and customers. Companies should take into account that a public partner will usually have a primary interest in business case results for their own specific context, so it will, as a general rule, be the responsibility of the company to ensure the focus on transferability of results.

UTILISE POLITICAL DIRECTIONS AND FUNDING OPPORTUNITIES

The Danish healthcare sector is mainly governed by politicians. Continuously assessing and following the political and public opinion, which is dynamic, may enable companies to utilise e.g. political waves to strategically time initiatives and communication in favour of the solution. It is also relevant to keep an eye on and utilise the many funding possibilities for innovation. See https://www.innosouth.dk/.

CONTRIBUTE TO IMPLEMENTATION

It is crucial to be aware of the importance of implementing solutions. Peder Jest underlines:

> *"You can invent anything and you can find evidence for everything but if you cannot implement it, it doesn't matter." (Jest, 2018)*

Like many others, Hal Wolf argues that implementation is much harder than the actual technology development:

> *"Well, I think the implementation of any technology at the hospital level, moving into the next generation of healthcare, just like in any industry, always comes down to three basic things; it's people it's process and it's technology! (…) the technology inevitably is the easiest part. It is changing the processes necessary to take care, or utilise the technologies, and then the cultural components of how to integrate them into daily work habits, and our expectations." (Wolf, 2018)*

Solutions that support the healthcare sector and contribute to implementation may have an advantage.

SUPPORT AND CO-CREATE IMPLEMENTATION PROCESSES

Jørgen Løkkegaard, CEO, the Danish Technological institute and Innovation Manager in Patient@home, states in Mandag Morgen:

> *"Our experience is that technology represents only 20 % of the task with successful implementation, while the culture of technology accounts for 80 %." (Reiermann, 2017) (translated from Danish by author)*

It is a common challenge in the public sector that some new solutions, which have been procured to save time and increase quality, are not fully implemented or adopted. This affects both the public sector, who do not fully realise the intended benefits of the solution, and the company, for whom the case becomes a poor reference.

It is clear that implementation is important and difficult (Wolf, 2018). Companies that are able and willing to support the public sector and co-create a strong implementation process for their solution are more likely to achieve a mutually beneficial outcome for all stakeholders.

DESIGN THE FULL SOLUTION

> *"Technology overall is never the answer! In any situation. In any industry. In any moment in time. You know, technology is a component of a full answer." (Wolf, 2018)*

Hal Wolf makes it crystal clear that technology is just one part of the puzzle; a much bigger part of that puzzle is the full service design. According to Hal Wolf the value of new solutions diminishes if the processes and culture are not changed (Wolf, 2018). According to Christian Bason, CEO at the Danish Design Center, in order to succeed companies must challenge their assumptions regarding their company and solution and take their point of departure in the user perspective as a motivating force for change. (Bason, 2017).

Service design is active planning and organisation of people, infrastructure, communications, media and services. Service design contributes to good coherent service experiences. It helps to read, understand and identify users' needs and expectations so that you have a solid foundation for developing new workflows, services and products that actually work. Service design puts the user at the center and gives you a fresh look into your own organisation, its habits and challenges (Schneider & Stickdorn, 2010).

Designing the full solution is therefore about combining the technology and service components into an integrated solution, and Hal Wolf underlines that what matters is integration of a technology into the daily operations and workflows: *"There are thousands of technologies available, they mean nothing until you load them into your own domain and begin to use them as a part of how you deliver care."* (Wolf, 2018)

VALUES AND RISKS OF HEALTH CONSUMERISM

Health Consumerism may add value for the citizens, healthcare personnel, healthcare sector and society as a whole in relation to:

- Informed, involved and empowered citizens

- Higher quality in healthcare services

- Boosted knowledge

- Health promotion – healthier population

- Socioeconomic Value

However there are also potential risks to consider:

- Inequality in Healthcare

- New roles and responsibilities and a cultural change in the healthcare sector

- Supporting the socioeconomically disadvantaged citizens

These are all described in the following.

CITIZENS (AND RELATIVES)

VALUES

Generally health consumerism deals with the empowering of citizens-patients to become pro-active in preventing and treating themselves in collaboration with the healthcare sector towards a healthy and meaningful life. This has potential long-term benefits for the quality of care and everyday experience for citizens and their support system.

INFORMED, INVOLVED AND EMPOWERED CITIZENS

The future healthcare consumers will be very motivated for and interested in health-related issues and keep themselves updated in terms of making the best choice to optimize their own health. Some of them will even develop services and products themselves and distribute these to those who have similar challenges, thereby being able to support themselves or be supported by relatives and others. The individual attention and herein surplus of energy are valuable assets in order to make qualified choices regarding their sickness (or health) and to experience an overall good or even excellent quality of care. That is why Peter Watts thinks, that *"the value for citizens is to allow their input before decisions are made."* (Watts, 2017)

RISKS

INEQUALITY IN HEALTHCARE

Some citizens may not choose to, or are not able to be health consumers. On the contrary, some citizens may be 'dangerous self-managers', meaning empowered patients who assume an authoritative role in their healthcare decisions but lack the adequate knowledge and skill and who could therefore make dangerous choices that actually impede their health goals. These consumers might pose problems not only for themselves but also for the healthcare system as they lack the skills and knowledge and/or the motivation to engage in constructive health-related activities (Camerini & Schulz, 2015). Consequently, how can equality be ensured and how do we motivate all citizens equally to stay engaged in a continuous dialogue?

HEALTHCARE PERSONNEL

VALUES

HIGHER QUALITY IN HEALTHCARE SERVICES

This paradigm change towards health consumerism, bringing along different role and responsibilities, will almost 'force' the health professionals to give responsibility to those who actually have the best vantage point to be in charge of their own health. *"[Welfare technologies] can improve their work processes and make their work easier so that they have more time to take care of patients in the traditional care sense and I think that is something that is much valued by the healthcare professionals. That they can actually use that part of their nurse profession. - To talk to the patients, to show their empathy for them, instead of only focusing on how to lift them up or how to handle them more physically. So I think is something they will value I think."* (Nissen, 2017) Adding to this, Carsten Obel argues that these new roles can leave space to try to support this person [patient] by understanding the context of this persons' life, besides the value of relocating resources. He says: *"Actually, what motivates lots of G.P's, many of my colleagues, is this interesting thing in finding out, how can I support another person who is challenged by something in life. So I'm quite sure the relation will be better if you go the right way."* (Obel, 2017) Moreover, as he pinpoints, the additional value of this is increased job satisfaction, presumably resulting in less sick leaves and saved costs.

RISKS

NEW ROLES AND RESPONSIBILITIES AND A CULTURAL CHANGE IN THE HEALTHCARE SECTOR

> *"I think the responsibility of defining your health is the patients, which I think is a good thing, but the responsibility of giving you the best solution that we know about is the doctors. As it is today."*

(Obel, 2017)

With greater freedom of choice, comes greater responsibility. This puts demands on the GP's insights into new types of treatments, and also the openness and reciprocal collaboration with the patient.

HEALTHCARE SECTOR

VALUES

BOOSTED KNOWLEDGE

By generally following a more open-minded and co-creative approach to healthcare (e.g., involving all users, enabling collaboration between patients and healthcare professionals, and between different healthcare professions), there is a chance that the healthcare sector in the whole will get a greater and deeper knowledge base to act from. It will be better equipped to make decisions and allocate resources more effectively within hospital and healthcare institutions and offer a better level of service towards the citizens and patients.

RISKS

SUPPORTING THE SOCIOECONOMICALLY DISADVANTAGED CITIZENS

There is an increased demand for understanding the different consumer segments' needs and desires in order to deliver the appropriate constellation of services and treatment to each individual at the right time (Ellis, 2016). Technological advances, individualisation as well as other megatrends, will drive healthcare providers towards the (strategic) need for listening to and coaching citizens into the right direction of 'healthy' living (Ellis, 2016). How do we structure a healthcare system that makes it possible to easily reach out and support all socioeconomic groups, also the ones who are less advantaged?

SOCIETY AS A WHOLE

VALUES

HEALTH PROMOTION

The healthcare sector might meet an enlarged interest from (global and local) companies to want to enter the Danish market and help Danish citizens live a healthier life. What might be rather important but not too obvious yet is the fact that, such a healthier society will impact future generations and change social relationships in a positive way as well as improve mental

health status, so that there will be even less citizens falling (unnecessarily) ill in the future.

SOCIOECONOMIC VALUE

According to the region's growth strategy, health has a socioeconomic value because it affects the overall health expenses (Regionsrådet, RSD, 2015). By having a larger number of empowered citizens and patients with increased health literacy, services, resources and structures can be (re-) allocated more appropriately in terms of what gives the greatest value.

RISKS

INEQUALITY IN HEALTHCARE

Marginalization of certain citizens might increase as globalization and individualization influence the Danish society to a larger degree. How can society pay attention and take care of each citizen? How can we integrate them so that they equally benefit no matter where they are?

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