



# BEYOND THE DIGITAL HYPE

SALON SANTÉ – A DIALOGUE ON 21ST CENTURY HEALTHCARE

# APPLICATION AREAS OF DIGITALISATION

## VIRTUALISE

The creation of augmented or virtual realities delivers new opportunities for diagnostics, treatments and medical education.

## AUTOMATE

Computer-operated systems take over tasks and processes with software and/or robotic instruments.

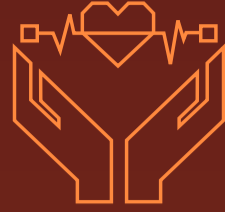
## CONNECT

Digital infrastructures facilitate the exchange of information between people and machines.

## REALISE

Powerful computers and production technologies enable the development and production of small-scale and decentralised services and products.

## PROMISES



### HUMAN AUGMENTATION

Digital technologies can be used to improve cognitive and physical capacities through invasive or non-invasive interventions.

### ENHANCED MEDICAL RESEARCH

Through in silico clinical trials, additive manufacturing and increasing access to data, new ways of drug discovery and production arise.

### DECENTRALISED ACCESS

On-demand and decentralised services provide care in patient's living environment. Costs can be reduced while quality of care and convenience can be improved.

### EMPOWERED PATIENTS

Improved access to information enables the participation of patients in treatment decisions, which results in a more efficient treatment provision that is better aligned with individual needs.

### IMPROVED COLLABORATION

Digital infrastructures facilitate the exchange and employment of data between different healthcare actors, thereby reducing the redundancy of medical services.

### PERSONALISED THERAPIES

The utilisation of personal data enables delivery of care tailored to patients' individual characteristics. This reduces negative side effects and increases the effectiveness of interventions.

### QUANTIFIED OUTCOMES

Expanding availability of medical data supports the shift towards an outcome-oriented healthcare system, where medical decisions and reimbursements are based on objective outcomes.

### PREVENTIVE AND PREDICTIVE TREATMENTS

Monitoring applications detect health risks and expand opportunities for early interventions and prevention, thereby improving individual health and reducing treatment costs.

## LIMITATIONS



### NEGLECTED DESIRE FOR HUMAN PROXIMITY

The reliance on digital communication tools and interaction with technologies can neglect the relevance of empathy and human interaction in case of high severity or trust.

### LIMITATIONS OF ALGORITHMS TO COPE WITH COMPLEX CHALLENGES

The applicability of machine learning tools is limited to repetitive tasks such as image analysis and pattern recognition. Medical information often is too complex or unstructured.

### LOW-QUALITY INPUT LEADS TO LOW-QUALITY OUTPUT

Inferences drawn from data can be inaccurate or undesirable because the underlying information is unstructured, unreliable or simply lacking.

### INFORMATION OVERLOAD

Patients and practitioners might lack the skills and/or resources to derive relevant interpretations from health data, or the motivation to convert information into behavioural change.

### REDUCED LIFECYCLE AND HIGH OPERATIONAL COSTS OF INFRASTRUCTURE

Digitally enhanced infrastructure increases set-up and maintenance costs and is more difficult to amortise because of shorter lifecycles as well as higher energy costs.

### AUTOMATION CREATES NEW RISKS

Whereas automating medical processes can improve diagnostic quality and patient safety, it can also lead to lack of understanding and biases in the absence of human monitoring.

### QUANTIFICATION HAS ITS LIMITS

The objective evaluation of medical performances along quantitative benchmarks cannot incorporate subjective parameters due to their inconsistent and incomparable nature.

### LOSS OF SYSTEM INTEGRITY AND LOSS OF PRIVACY

The connectivity between digital tools puts pressure on system integrity and increases the negative consequences of possible security breaches and cyberattacks.

## POTENTIALS BEYOND THE HYPE



### DECENTRALISATION OF SOLUTIONS WITH ASSURED QUALITY

Digitalisation enables a decentral and on-demand delivery of healthcare services with lower levels of complexity for which sufficient quality of care can be assured.

### GUIDED EMPOWERMENT

Digitalisation advances health literacy and patient involvement, under the condition of transparent and guided delivery of information.

### PERSONALISED THERAPIES BASED ON QUANTIFIABLE MEDICAL PARAMETERS

Digitalisation supports the development of tailored treatments according to behavioural patterns, preferences or single genetic alterations.

### AUTOMATION OF REPETITIVE PROCESSES AND SERVICES

Digitalisation permits the automation of repetitive tasks, such as pattern recognition in high-quality structured datasets, in which consistent causalities can be reasonably assumed.

### PREVENTION THROUGH ENGAGEMENT

Digitalisation facilitates the application of tools for early-intervention and prevention, provided they are in alignment with individual needs and capable to engage and motivate people.

### OUTCOME-BASED DECISIONS

Digitalisation improves the comparability of treatment outcomes for cases where a clear distinction between objective and subjective quantification is possible.

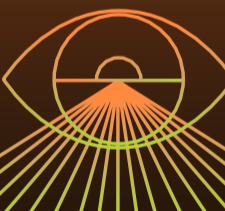
### MONITORED DATA-DRIVEN RESEARCH

Digitalisation assists in the discovery and application of new and more effective treatments, as long as data quality and automation processes are monitored by professionals.

### IMPROVED EFFICIENCY

Digitalisation produces efficiency gains by reducing the occurrence of duplicate tests and cutting out the middlemen by offering direct treatment opportunities.

## FIELDS OF ACTION



### ORGANISING

Invest resources and expertise in the preparation of medical data (aggregating, structuring, selecting, cleaning) and the corresponding infrastructure to improve output quality.

### CERTIFYING

Conduct clinically validated quality assessments and provide corresponding certificates to inform consumers about the effectiveness of digital health products such as wearables.

### REDEFINING

Shift the existing focus on treatments towards a more comprehensive concept of health to all areas of life, ranging from prevention to treatment, rehabilitation, care and palliative care including a self-determined end of life.

### INCLUDING

Truly consider people's needs (e.g. ethical guidelines and values) as a starting point of an electronic health database, which empowers people to manage the usage and dissemination of their individual health data.

### COOPERATING

Provide integrated health offers through new partnerships across sectors. A set of shared values and a common strategic vision need to be established as a prerequisite for those new ecosystems.

### GUIDING

Offer orientation for patients and practitioners in the interpretation of their health data and recommend relevant actions.

### NAVIGATING

Guide and manage individual healthcare across the lifespan, including the support of healthy behaviour, treatment recommendations and the promotion of adherence.

### EDUCATING

Redesign educational programs to provide patients with the skills required to take advantage of the digital tools and health data at their disposal.

## FUTURE NEEDS



### AFFORDABILITY

Deliver cost-effective and affordable treatments to ensure a sustainable consumption of public resources.

### HIGHEST QUALITY

Strive for the highest quality of care to safeguard the best possible health outcome.

### ACCESS

Offer a broad range of treatments available to everyone, with a minimised degree of waiting time.

### PRIVACY

Protect and recognise the disclosure of personal data as an essential part of individual identity.

### PERSONALISATION

Provide treatments tailored to distinctive physical characteristics, lifestyles and preferences.

### SOLIDARITY

Endorse the awareness of collectively shared interests and promote a sense of societal unity.

## SALON SANTÉ

Salon Santé is an initiative of Interpharma in collaboration with the think tank W.I.R.E., intended to foster an interdisciplinary dialogue on the innovation of the Swiss healthcare system. A selected circle of decision-makers, industry executives and experts contribute as thought leaders to discuss social, scientific and policy innovations that can move the healthcare system forward. The dialogue is held under Chatham-House-Rules.

The focus of attention of the yearly event is on emerging trends and technologies that have the potential to reshape fundamental structures of the Swiss healthcare system. The dialogue essentially contributes to the healthcare agenda setting through a differentiated understanding of future healthcare needs. It thereby lays the groundwork for dealing with arising challenges and future opportunities in healthcare in a sustainable way.

## FUTURE HEALTHCARE – BEYOND THE DIGITAL HYPE

Digitalisation is on everyone's lips in the healthcare sector, promising anything from automated diagnostics to the development of new treatments and decentralised care. In response to increasing cost pressure and a growing need for innovative solutions, digital applications are presented with great expectations and, sometimes, airy hope. Still and all, digitalisation is not a magic bullet.

A differentiated and long-term perspective – beyond the hype – is therefore required in order to develop a more realistic assessment of the digital potential in healthcare. Recognising the technical and medical limitations of digital applications can improve their effective utilisation and help to separate the wheat from the chaff. Understanding the individual and societal needs and the alignment of innovation with these needs assures the generation of real value. Moreover, a nuanced perspective on digitalisation in healthcare acknowledges the trade-off between societal demands and the necessity of prioritisation. Greater transparency through the collection and

dissemination of health data might come at the cost of individual privacy, just as striving for the highest quality of care can be in conflict with the ambition of an affordable healthcare system.

Finally, understanding the potentials of digitalisation beyond the hype leads to a reassessment of human potential. The more we know about the actual capacities of digital applications, the more we become aware of how crucial human qualities remain for effective healthcare, such as providing emotional support and developing innovative solutions.

What remains beyond the hype are digital solutions that can be effectively utilised for meeting individual and societal future needs. Various fields of action are necessary preconditions for the successful merging of digital and human strengths. Just as all that glitter is not gold, all that is digital will not hold.

## THINK TANK W.I.R.E.

W.I.R.E. is a leading interdisciplinary think tank. In ten years of engaging with global trends in business, science and society, the Swiss idea laboratory has focused on early identification of new trends and their translation into strategies and areas of action for private companies and public institutions.

Set at the interface between academic research and practical application, W.I.R.E.'s critical mindset and political neutrality mark it as distinctive. Its key topics are digital economy, social innovation and future-proofing. The think tank provides its expertise to serve the general public, private enterprises and public agencies, in fields ranging from life sciences, financial services and media to food and manufacturing.

[thewire.ch](http://thewire.ch)

**W.I.R.E.**

WEB FOR INTERDISCIPLINARY RESEARCH AND EXPERTISE

THINK TANK FOR BUSINESS, SCIENCE AND SOCIETY

## INTERPHARMA

Interpharma is the association of the research-based pharmaceutical industry in Switzerland. The 23 member companies account for in total more than 90% of the market share for patented medicines in Switzerland and invest 6.5 billion Swiss francs per year in research and development in Switzerland.

Interpharma is the driving force behind an efficient and high-quality healthcare system that offers patients rapid access to innovative therapies and the best possible care. In Switzerland and abroad, we are committed to creating conditions that provide patients with first-class healthcare, reward innovation and allow our industry to make a significant contribution to prosperity, growth and competitiveness in Switzerland.

[interpharma.ch](http://interpharma.ch)

interpharmaph

"I DO NOT FEAR COMPUTERS.  
I FEAR THE LACK OF THEM."

Isaac Asimov