

Next giant leap

The upcoming generation of digital developments will help people manage their health through tailoring information as well as facilitate monitoring via interconnecting objects



Digital channels are playing an increasingly large part in everyday life. Everyone is connected and able to search, select, rank, generate and exchange content with ease and it should be no surprise that the web is used for health issues, both to find information about them and communicate, not only by consumers, but by all healthcare stakeholders, including physicians.

The web and digital communications in general are evolving rapidly and some of the key trends are relevant to new approaches in healthcare. It is hard to say whether digital is changing health or health and life sciences are influencing digital behaviour.

New information and communication technologies have facilitated the emergence of rapid, dynamic interactions, driven by the active participation of users who generate content and, more recently, services.

Web applications (platforms, podcasts, RSS feeds, social networks) have assisted access to information and made the internet an open and collaborative space. This has given the web user not only the role of information consumer but the role of producer as well. The internet has evolved from a computer network into a people network,

where people live, work and interact as they would in their lives offline. Society is moving from observation to participation and this culture is spreading across languages and diverse systems, moving emphasis from broadcasting to 'multi-point casting'.

Furthermore, the internet has a role to play in the move to personalise medicines to the needs of individual patients. If personalised medicine is defined as products and services that leverage the science of genomics and proteomics (directly or indirectly) and the trends towards wellness and consumerism are taken into account to enable tailored approaches, people will be faced with an unprecedented amount of information to process in order to manage their health. Physicians and healthcare providers will be affected even more greatly.

So, increasingly, management of health data will be a compromise between relevance and information overflow.

New tools

The next generation of web tools aims to facilitate and accelerate not only access to this increased amount of information and data, but also the ways consumers will be able to embrace and employ the new healthcare options on

offer. Semantic web, encompassing technologies to allow machines to understand the meaning of information online, along with personalised search, openness, communities, intelligent tools, content and data integration are some of the pillars set to support these new requirements.

Internet of Things

Internet of Things (IoT), also known as Internet of Objects, refers to the idea of creating a network of everyday objects. IoT is seen by many as the next big evolution in the digital environment.

For example, assume that each individual is surrounded by between 1,000 and 5,000 physical objects, each of which could be connected by sensors to the web and could carry content from, or communicate with, the others. Such technology could transform lives. Through the interconnection, the content provided by each object could supply information about its nature, ingredients or constituents, origin and disposal. In addition, it would be easy to retrieve information about the scope or the applications of each object.

The health-related applications for IoT are countless. It could be used to assist patient compliance, for example, which is critical to the success of any

therapy. With the growing importance of digital media and access to medical information, compliance is being replaced by patient adherence. This new vocabulary describes patient compliance from the patient's perspective, in a more active role as collaborator with his or her own therapy, backed by personally researched information. The content is already available, but IoT could make the health web something tangible with which people could interact. Self-monitoring could become a common habit. Scales could send weight data to personal health records, alarm clocks could track the duration and quality of sleep, kitchen appliances and accessories could record what is eaten, while an active box would be able to remind about and track the administration of therapies. IoT could make data available in ways not seen before, from qualitative and quantitative standpoints.

Once tracked, stored and organised, this data could be processed and integrated with content already available on the web, providing an object 'ecosystem' resource of data and content. This ecosystem would allow the efficient monitoring of the evolution of pre-conditions, optimally

manage a therapy or simply help an individual to follow a healthier lifestyle seamlessly as part of a daily routine.

Similarly to the way social networks work currently, people would be able to contact others sharing the same concerns or issues, but in a more concrete and tangible way by connecting through the objects around them.

“Digital is co-driving some of the key transformations in health”

Semantic web and IoT are only two of many examples of how digital is co-driving some of the key transformations in health and medicine.

What does this mean for the pharmaceutical industry? These next steps represent a potential revolution which will impact brand marketing far more than social media does today.

The development of personalised medicines will multiply the numbers

of drugs and indications and this, in turn, will require management of highly segmented content in order to provide only relevant information and services to each niche, and potentially to each individual.

This complexity will only be managed through a robust global semantic architecture, coupled with new concepts on medical education or content generation. When objects interact with consumers, patients and physicians, at the very least, the concept of therapy will be enriched by services and there will be new interactions between the various stakeholders.

Only five years ago the impact of social media was disputable, as was the role of digital media in the pharmaceutical industry. Now, with medicine and digital communications evolving along surprisingly similar paths, it is evident that we have only begun to scratch the surface of what lies ahead in our digital health future.

The Authors

Alain Sarraf is president Europe, Publicis Healthcare Communications Group and **Roberto Ascione** is president, Publicis Healthware International.

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