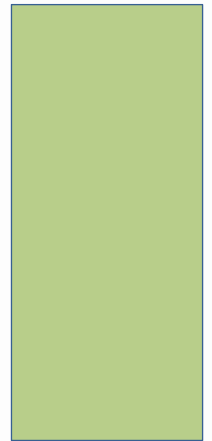


WEARABLES: THE SHAPE OF THINGS TO COME

AUGMENTED REALITY,
MULTIDISCIPLINARY & SMART CLOTHING

INSIGHT FROM BEECHAM RESEARCH. WRITTEN BY SAVERIO ROMEO,
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As we move towards the Internet of Things, everyone is desperately searching for the next monumental shift in how we interact with technology in our everyday lives. Leading the way is the world of wearable technology. With new innovations entering the market at an exponential rate, it seems that wearables are set to take over in a big way.

This whitepaper will focus on three aspects of the Wearable Technology industry: Smart Clothing, Multidisciplinary and Augmented Reality.

AUGMENTED REALITY AND WEARABLE DEVICES – THE B2B FUTURE

It is not a surprise that the connection between augmented reality and wearable devices, primarily hands free device, is a promising one. Initially, it was an idea in the hands of science fiction writers and visionary technology thinkers, but today it is not just promising, it is desirable and it is real.

“In these wearable devices augmented reality technology pushes the boundary of human-computer interaction, and shifts the context into a human-environment interaction that is enriched by computer systems”

Tremendous evolution in enabling technologies such as battery, user interfaces, sensors and processing has turned that connection into real products. And those real products are proving their positive impact in enterprises obliterating the common, but false, understanding that AR and wearable devices were technologies just for gaming. Additionally, we are not talking about project testing, but, we are talking about commercial deployments. The testing phase has proved that AR and wearable devices can enable easy access to knowledge systems in complex contexts, process optimization and new levels of remote collaboration.

Heads up displays are used in manufacturing production systems for ensuring the right job procedure, in collaborative product design and prototyping, in remote assistance of distant specialised workers, and in surgery theatres for enabling the surgeon to access relevant data without being distracted from his or her main activities. In these wearable devices augmented reality technology pushes the boundary of human-computer interaction, and shifts the context into a human-environment interaction that is enriched by computer systems.

The market landscape behind that evolution and those business cases is rich and diverse in terms of players. The period 2015-2017 will be particular significant in terms of growth. New commercial projects will be put in place. Certainly, some issues have to be faced such as the different speed of technological change the hardware and the software parts are experiencing. In theory, software is far more capable of what hardware allows. But, the rich and cutting-edge landscape of players will certainly solve those problems.

“It is not a surprise that the connection between augmented reality and wearable devices is a promising one”

MULTIDISCIPLINARY – THE KEY WORD FOR THE WEARABLE DEVICE MARKET

Wearable devices are not mainstream. The hype of wearable device is mainstream. So, where is the gap? Let's go back to the early days of wearable devices in the market, smart bands, the first smart watches, and the excitement around Google Glass. Those early days were purely engineering days. Finally, enabling technologies were available and affordable. Wearable computing scientists and engineers were there with their ideas and enthusiasm. The first products came out, but they did not tell much to a non-techie audience. They were just nice pieces of technology. The first reflection on the status-quo came from the smart band world that identified a niche market space around the people with healthy lifestyle. And, the quantified-self movement came making the Sport/Fitness and Wellness – as defined in Beecham Research Wearable Technology Application Map* – the first commercial sectors for wearable technologies.

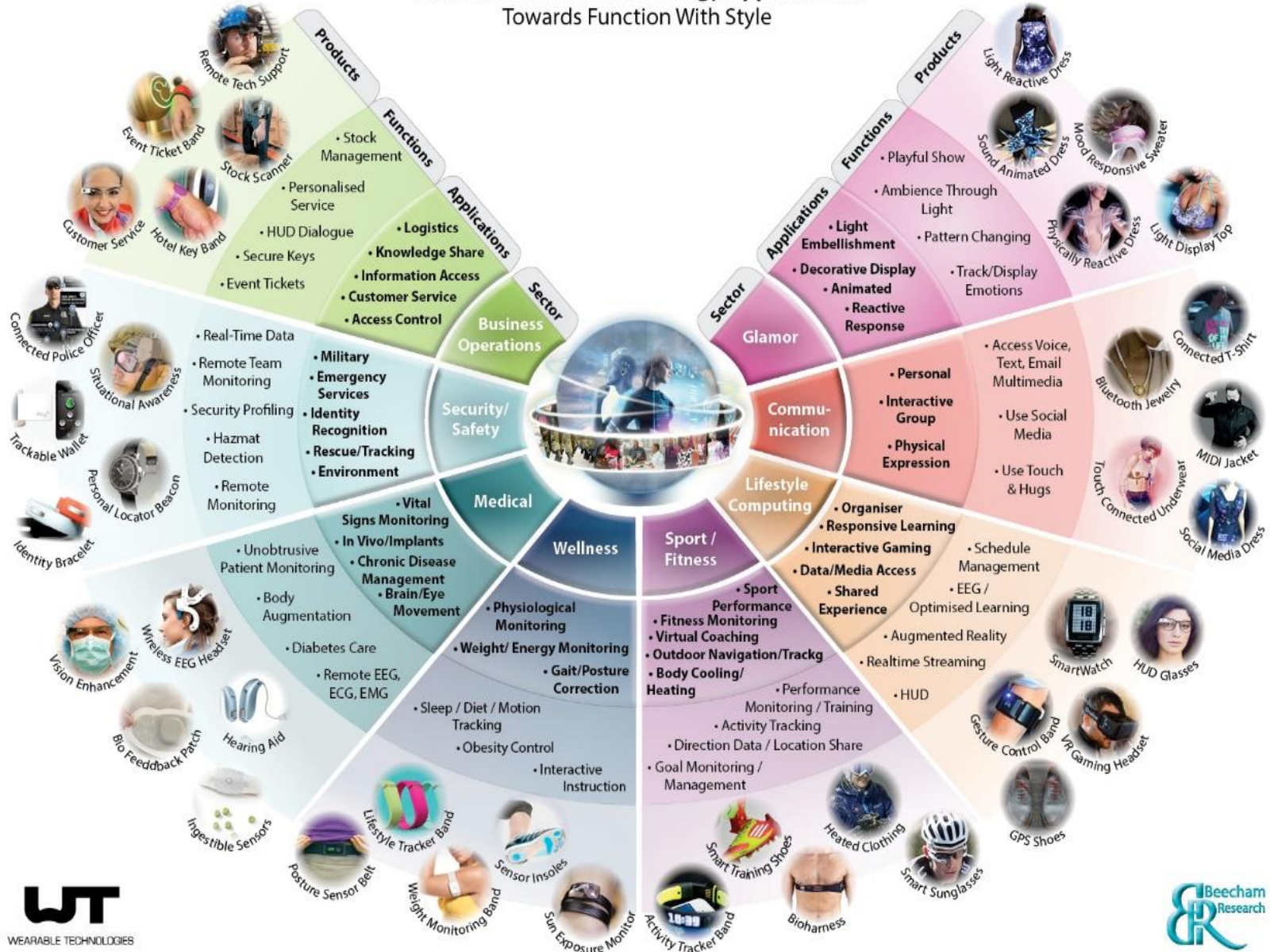
During the period 2013-2014, the wearable device market continued to be largely focused on the Wellness and Sport/Fitness sectors. During last months, smartwatches, launched by several key device manufacturers, have tried to move the attention towards the Lifestyle Computing sector, but also embedding Sport/Fitness and Wellness functionalities in their products. The market for the quantified-self starts to become crowded and there is a clear move from a device-centric business model towards a

service-centric business model. But, despite this dynamics, the wearable device market for consumers can be still considered at an early stage. A key reason for this is the technology-centric approach that has dominated the wearable device community. In wearable device, there is a strong non technological component that is around aesthetics and meaning of the device for the self. And, in order to design a desirable wearable device, technology has to work together with the fashion tech community.

“The nature of the wearable device is multidisciplinary “

During the early days, this thinking was almost absent. But, the market is seeing an increasing interest from the fashion community on the wearable device market and an increasing number of multidisciplinary collaboration. This will help re-define the directions of the wearable technology market towards more lifestyle and glamour oriented one and open the market to different group of consumers. This change of direction is not easy, but it is expected to start during the period 2015-2017.

World of Wearable Technology Applications: Towards Function With Style



During the same period, we will see an increasing attention from enterprises and organisations in wearable devices. We are moving from test scenarios to commercial deployments in Business Operations such as manufacturing and logistics and in Public Safety and Security. The combination of wearable devices and augmented reality is significant in terms of access to knowledge, remote collaboration, and workflow management. The medical sector will also be affected. It will be interesting to see how the boundary between the Wellness and the Medical sectors will be reshaped.

“Despite the dynamics, the wearable device market for consumers can be still considered to be at an early stage”

The Wearable Device market shows positive signs, but the community has to be realistic and not carried away by unnecessary hype. The role of the fashion community is critical and the role of other specialism as well (ethicists, medical specialists, security specialists, business strategists, just to mention some of them). The nature of the wearable

device is multidisciplinary and multidisciplinary partnerships are the way for moving on.

SMART CLOTHING – PRESENT, FUTURE AND FASHION’S ROLE

It is not so long ago that the phrase ‘Smart Clothing’ would simply connote formal dress, but now, as we explore the possibilities of wearable technology and its growing role in connecting people to the Internet of Things, these words have become imbued with new layers of meaning. Clothing that can keep us connected, sense danger, diagnose illness and change colour at will is no longer the preserve of fairytales, and as Richard Nicoll’s recent collaboration with Studio XO shows, Tinker Bell’s dress is now a certain and desirable reality.

The current explosion of Wearable Technology devices onto the consumer market has drawn focus to the pivotal role that clothing, already an essential everyday product, could have in this exciting market. Smart Clothing is a particularly attractive avenue for wearable technology as it holds the promise to make technology truly wearable and ambient, diminishing the reliance of wearables on the adoption of accessories and allowing us to move unencumbered through the increasingly smart and connected spaces in which we live. So far though this remains a largely undelivered promise and we have only seen hints of the potential to come.

Although there has been interest shown by both the technology and fashion industries in the potential of Smart Clothing, the prevailing drive has come from the technology industry and there has been an absence of real collaborative development between the leaders of these two industries.

This technology drive has led to a notable emphasis on the creation of products in function driven ranges such as sport/fitness and wellness, where often excitement over new technology has detracted from other important considerations. The challenge for technologists is that Smart

Clothing, as with all Wearable Technology, is not only a technology product. It facilitates new interactions with our own self and also the people and spaces around us. Therefore aesthetics, an important expression of self, becomes an essential consideration and even a function in its own right. New business models need to be considered inline with the unique challenges of the market such as security, consumer expectations, retailing and branding.

“Smart Clothing is a particularly attractive avenue for wearable technology as it holds the promise to make technology truly wearable and ambient, diminishing the reliance of wearables on the adoption of accessories”

The huge focus on technology, not always with the understanding of clothing designers and manufacturers needs, has also resulted in the fashion industry struggling to meaningfully engage with this market much beyond its use as a niche promotional tool. The challenge for fashion players is to understand which technologies might be most relevant to them, and how to viably integrate and support these technologies and the services they might enable. Much development within the fashion industry has come from small independent fashion brands and designers. The challenge for these smaller brands and designers is that their impact and influence on the wider market is limited, and this remains for now a niche industry area.

