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ДИГИТАЛИЗАЦИЯТА: ОТ СВЪРЗАНИЯ КЪМ ДИГИТАЛНИЯ ПОТРЕБИТЕЛ

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DIGITALISATION: FROM CONNECTED TO DIGITAL CONSUMER

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Abstract

The purpose of this article is to take a closer look on the shift from "connected consumers" to "digital consumers". The rapid convergence of information and communication technologies in everyday life has proven to be an evolutionary process taking people from 'just' being online (being "connected"), to the next level being "digital" (joining the "Internet of Things"). This article draws a picture of current developments in Digitalisation and how Digitalisation will become part of the daily life of consumers. The investigated data indicates that established business models will potentially change, due to a high demand for advanced technology and growing (mobile) internet usage. But also the fact that consumer's strive for self-improving use cases will have companies step on unknown grounds and partner up with unfamiliar industries.

Keywords: *Connected Consumer, Digital convergence, Internet of Things*
JEL Codes: *M31*

1. Introduction and Methodology

Digitalisation has conquered people's life in contemporary post-industrial societies, also known as "consumer societies" (Baudrillard, 2002)[6]. More recently, the rapid convergence of information and communication technologies in everyday life has inspired discourses on a new term, the "information society" (Castells & Himanen, 2002)[7], which supposedly points out that there an evolutionary process is observed, taking people from "just" being online, which means "connected", to the next level, of becoming "digital". In 2016, Steve Case[8], one of the most quoted and influential entrepreneurs in the

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[6] (Baudrillard, 2002)
[7] (Castells & Himanen, 2002)
[8] (Hope, 2016)

field of the online business industry and Co-Founder of AOL, claims that while the initial days of the internet involved laying the groundwork, he sees the "Second wave," starting in 2000, as defined by the applications and software—like Google, Facebook, Snapchat—built on top of the internet. Now, he says, we are at the dawn of the "Third wave." The "Third wave", Case believes, is the concept of the "Internet of Everything," where every part of our lives will rely on an internet connection. He sees this new wave defined not by hardware or software but by partnerships. „What I think will be important in this third wave—the notion that revolutionary things happen in evolutionary ways." This statement underlines the researcher's initial point for the need of more scientific insights in this field. The "Third wave" comes with new implications on how consumer will perceive and interact with new technology, namely "digitalisation".

This article takes a deeper look on the shift from "connected consumers" to "digital consumers", which is strongly influenced by digital convergence. The word "convergence" in conjunction with "digitalisation" is most commonly addressed as "infrastructural convergence". It describes how digitalisation influences the chance of material infrastructures in communication. There are two types of convergence, which can be observed: First of all network or "infrastructure convergence" (van Dijk, 2005)[9], which relates to the physical network of wires and tubes in the communication infrastructure. Second, and consequently, "device convergence". This covers how digitalisation leads to the consolidation of multiple media devices into one (Storsul & Fagerjord, 2008)10. The most obvious example here is the smartphone, which nowadays replaces a number of former devices (calendar, address book, calculator, notepad, landline, computer, photo camera, music player, etc.).

Studies, which look into information technology consumption mainly focus on the consumption of the technologies and devices themselves. Researchers ask such questions like e.g. how many households have internet access, and what kind of people use mobile phones most frequently. But the adoption of digital technologies in everyday life has also had a profound influence on the way we experience and deal with this new digital lifestyle. What do consumers expect? What are the implications for the industries involved? The purpose of this article is to research the above mentioned indications and to conclude a potential future scenario in the field Digitalisation. It is structured around the consumer (internet accessibility, smart devices and the usage of smart devices), digital convergence (before and after the Dot Com Bubble) and the "Internet of Things" (IoT), thereby showing how this turns "connected consumers" into "digital consumers". The article ends with a hypothesis on how "IoT" will further evolve and what challenges specific industries potentially face.

[9] (Dijk, 2013)
[10] (Storstul & Fagerjord, 2008)

The article is based on secondary data attained through library research. Current data and up to date insights on the latest developments were found through investigating sources for case studies by business consultant companies like e.g. McKinsey, Deloitte and many more, publications of digital leaders in the field like Google and Amazon, as well as public organizations like e.g. EuroStat., Bitkom etc.

2. Results

2.1 The connected consumer

Since the introduction of the iPhone in 2007, the number of digital devices and use cases for these devices, have significantly increased. Along with this consumer behaviour also changed dramatically, as the following statistics will show. A late statistic by Internet World Stats (2017) reveals the current status quo of internet usage worldwide. Europe's share is 17%, which makes it the second biggest market (respectively region) and thereby highly interesting for all internet driven products and services.

Table 1: Internet Users in the world by Regions, June 20, 2017

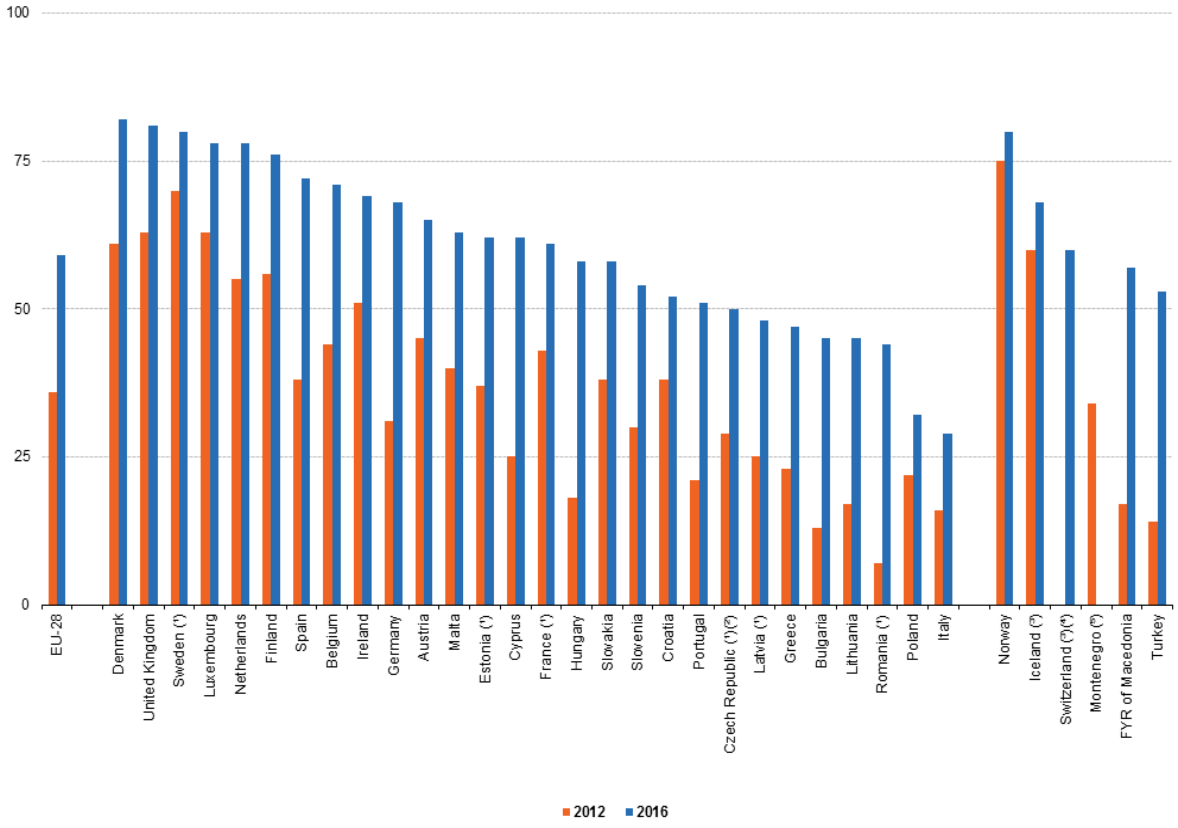
World Regions	Population (2017 Est.)	Population % of World	Internet Users 30. Jun 17	Penetration Rate (% Pop.)	Growth 2000-2017	Internet Users %
Africa	1,246,504,865	16.6 %	388,376,491	31.2 %	8,503.1%	10.0 %
Asia	4,148,177,672	55.2 %	1,938,075,631	46.7 %	1,595.5%	49.7 %
Europe	822,710,362	10.9 %	659,634,487	80.2 %	527.6%	**17.0 %**
Latin America / Caribbean	647,604,645	8.6 %	404,269,163	62.4 %	2,137.4%	10.4 %
Middle East	250,327,574	3.3 %	146,972,123	58.7 %	4,374.3%	3.8 %
North America	363,224,006	4.8 %	320,059,368	88.1 %	196.1%	8.2 %
Oceania / Australia	40,479,846	0.5 %	28,180,356	69.6 %	269.8%	0.7 %
WORLD TOTAL	7,519,028,970	100.0 %	3,885,567,619	51.7 %	976.4%	100.0 %

Source: Internet World Stats (2017)[11]

To illustrate the pace of the overall digital world within just a very short period of time, the following Eurostat's table points out the impressive development: "The figure compares 2012 data, when 36 % of individuals aged 16 to 74 within the EU-28 used a mobile device to connect to the internet, with 2016 data, by which time this share had risen to 59 %. The most common mobile devices for internet connections were mobile or smart phones, laptops, and tablet computers."

[11] (Miniwatts, 2016)

Figure 1: Individuals who used a portable computer or a handheld device to access the internet away from home or work, 2012 and 2016 (% of individuals aged 16 to 74



Source: EuroStats 2017[12]

The smart phone became the universal device as it offers far more than the standard applications like being telephone and used for messaging. A study published in 2015 by "Bundesverband Informationswirtschaft, Telekommunikation und neue Medien e.V. (Bitkom, 2015)13 it is stated that 8 of 10 smart phone users use the calendar (83%). Another 74% download additional apps and 71% use a short messaging services. Approx.

[12] (EuroStats, 2017)
[13] (Bitcom, 2015)

70 % also access social media platform from their device and round about 86 % listen to music. 67 % read news feeds, 64 % play games and 58 % use the alarm function. 55 % type or read emails and again 55 % use the navigation functionality. 47 % watch videos and 25 % read E-Books. Not very surprising: A 100 % use it as a telephone, too. 93 % surf the web.

In a study published by "thinkwithgoogle.com" (2016)14 the statement that smart phones nowadays can be seen as the "one universal device" is further strengthened. Google claims that actually "more than 40% only use a smartphone in an average day—almost twice as many as those who only use a computer." It is also mentioned that „Over half of users rely on more than one type of device in an average day, with 1/5 of them using another device while concurrently using a computer." It is safe to assume that this other device could of course also be a smart phone.

1.1 Digital Convergence

The Dot-Com Bubble in the year 2000 has been the consequence of an early technology boom with high expectations of sky rocketing stock values. As consumers were magically drawn to the new world of the internet, companies were afraid that not becoming a part of this trend would be a huge mistake.

Digital convergence at the time of the Dot-Com Bubble had its focus on the technological fusion. The term "technological fusion" implying the creation of new markets and new growth opportunities for each participant in the innovation (Shapira, 1994)[15].

However, the technological maturity level had been limited and therefore the break through ended in a crash. The real digital hype started not before the convergence of technology and media. Thereby an even wider range of users could be reached.

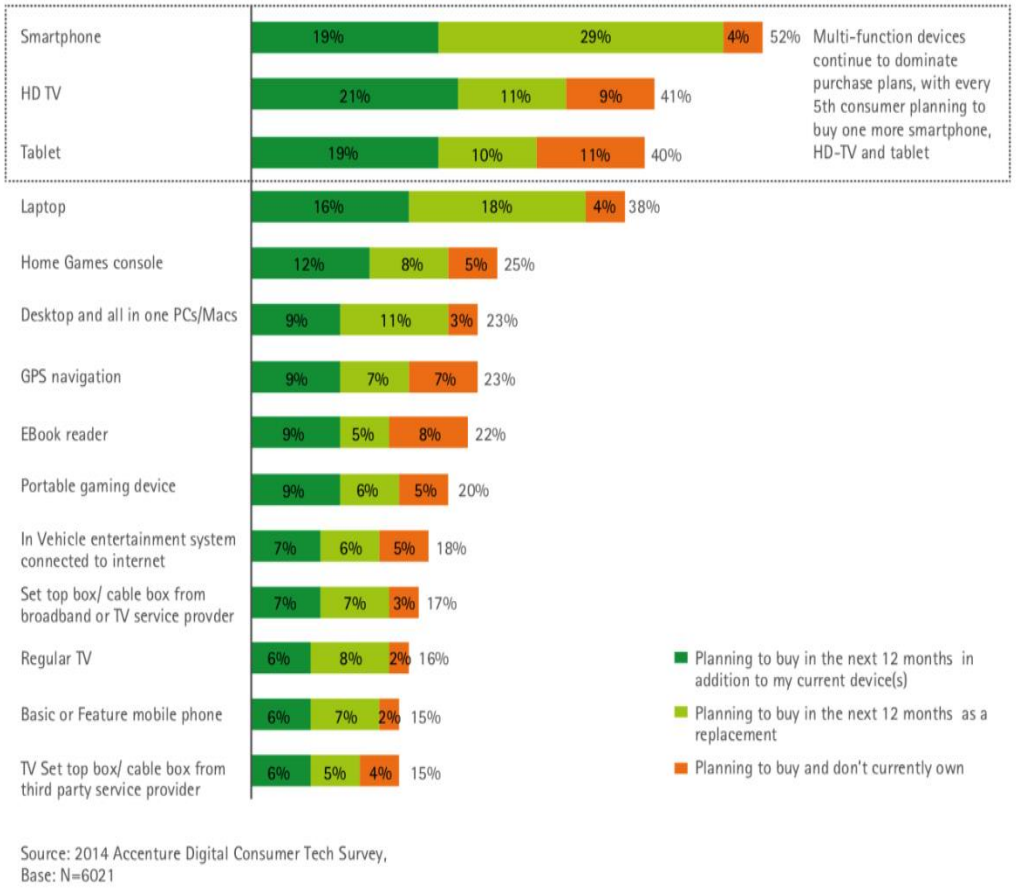
Increasing digitalisation now opens new horizons based on new found connectivity and the linkage of various business fields like e.g. consumer electronics, smart home, entertainment, information technology. To put it in a more benefit and consumer oriented statement "*The term 'digital convergence' means the ability to view the same multimedia content from different types devices and thanks to the digitalisation of content (movies, pictures, music, voice, text) and the development of connections methods."* (Kisokea.net, 2014)[16]

This offers an explanation on why consumers strive for owning more than just one device. The demand of having multiple options to choose from, always looking for the

[14] (think with Google, 2016)
[15] (Shapira, 1994)
[16] (Kisokea.net , 2014)

most comfortable device at the time, became a matter of convenience. Or as Accenture (2014)[17] claims "*a digital lifestyle".*

Figure 2: Purchase Intentions
Digital Consumer grave more



Source: Digital Consumer Tech Survey, Accenture (2014)

Latest research by Google indicates that „a significant amount of our daily lives is spent on devices, with smartphones leading the way. Those who use a smartphone spend almost three hours per day on it." (ThinkwithGoogle, 2016)[18]

[17] (Accenture, 2014)
[18] (think with Google, 2016)

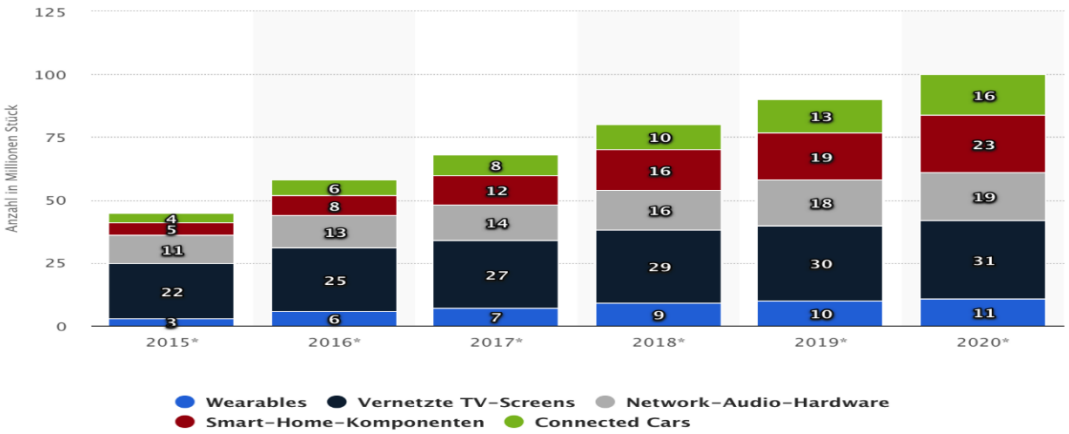
Figure 2: Average time spent on devices used in an average day
Average time spent on devices used in an average day

Source: think with Google (2016)

Furthermore: new and even more intelligent devices are predicted to be on the rise. The consulting company Accenture (2015)[19] claimed that by 2020 there will be a 28% rise in ownership of wearable fitness monitors, 17% rise in ownership of home connected surveillance cameras and 14% rise in ownership of in-vehicle entertainment systems.

This estimate also gets confirmed Statista (2018)[20], which came up with similar research results for the German market: a strong increase of ownership in Wearables, Smart TVs, Smart Home, Connected Cars etc. This development is the next step within the digitalisation process.

Figure 3: *Prognosis on ownership of consumer IoT devices in Germany from 2015 to 2020 by category (in Mio)*
Prognosis on ownership of consumer IoT devices in Germany from 2015 to 2020 by category (in Mio)



Source: Statista.com (2018)

[19] (Accenture, 2015)
[20] (Statista.com, 2018)

The statistic shows a forecast of ownership on consumer devices which predicts 23 Mio Smart Home components in 2020.

2.2 New possibilities for consumer

Nowadays, there are already multiple options of everyday objects and products enhanced with programmable sensors that communicate with other devices and consumers through the internet, which presents new opportunities for interaction. (OECD, 2015)[21] Thanks to nearly everywhere available wireless LAN and therefore network connectivity, previously unrelated objects and products will now work together. Data collection (and transmitting), will be part of all kind of objects found in and around the home, or worn on or in the body and used for the benefit in consumption activities involving entertainment, shopping, transportation, wellness and so on. New properties and capacities will emerge that have the potential to vastly expand the range of what consumers - and objects - can do, and what can be done to and for them. (DeLanda 2011; 2016)[22].

2.3 The Internet of Things (IoT)

„The Internet of Things (IoT) represents a new phase of the internet where consumers can not only interact with smart devices, but devices can interact with each other. Consumers can interact with smart devices like wearables, thermostats, lights and more, devices can interact with other devices, and devices can even interact with content on the internet." (Novak & Hoffman, 2016)[23]

The so called „Internet of things" is more than just a trend label, it is a connectivity trend where all technology driven industries (e.g. media, telecommunication, consumer electronics, white goods etc.) put their main focus on. „Internet of Things" is not new. Connected devices and applications already existed for years:

„Many devices and sensors have been able to communicate with each other, normally through wires and using technologies such as SCADA (supervisory control and data acquisition). Occasionally they have been connected through wireless radio signals over certain broadcast frequencies. As cellular phone systems were rolled out in the 1980s at different frequencies, they generally transmitted voice conversations but not data for machines. As 3G was deployed from 2001, it became relatively easy to have a

[21]

[22] (DeLanda, 2011)

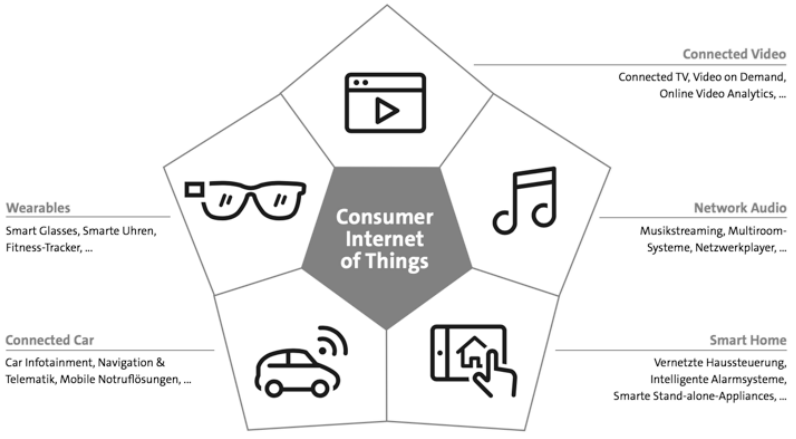
[23] (Novak & Hoffman, 2016)

machine or sensor communicate over the now-data-friendly cellular network. Industry analysts needed to distinguish between the two types of traffic, so everything involving voice calls was put in one category, and every data-only device into another, called Machine-to-Machine or M2M. Over time, M2M became a broad category encompassing all telematics over cell networks on trucks, smart utility meters, eReaders, tablets and PC modems, but not smartphones." (Barker & Lee, 2015)[24].

In the early days of the Internet of Things (IoT), much of the focus has been on industrial applications, such as improving operations with autonomous machines, or standalone consumer products, like a Fitbit. (Harvard Business Review, 2015)[25]

Just lately it is possible to see a more human-centric category of IoT activity starting to emerge. The tendency now is towards personal augmentation and less about automation. The product offer for people to program and connect is on the rise. Smart devices become handy "service units" for everyone every day. In Deloitte's table (2015)[26] the fields of consumer Internet of Things are illustrated as following:

Figure 4: Consumer IoT Market Segments



Source: Deloitte (2015)[27]

2.4 Digital Consumer and IoT

Before 2007, when outside their homes, consumers were still limited in their access to online information sources, they mostly relied on laptops or stationary PCs.

[24] (Barker & Lee, 2015)
[25] (Wilson, Shah, & Whipple, 2015)
[26] (Böhm & Esser, 2015)
[27] (Böhm & Esser, 2015)

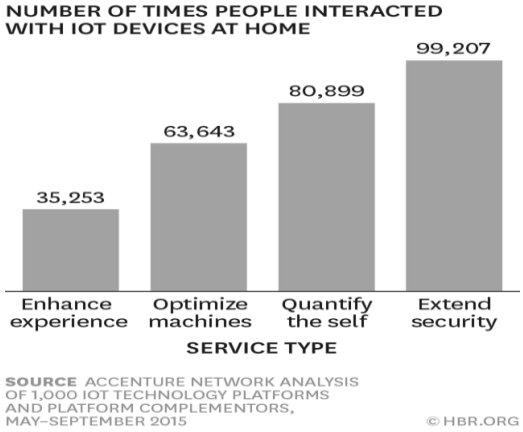
With new digital activities growing swiftly everywhere, consumer behaviour and expectations have changed forever. With –literally- "smart" devices in their pockets, consumers can connect, access information and gain immediate answers whenever and wherever. In a digitalised world, people seek and expect interaction at their fingertips.

It is plausible to assume that consumer's demand will grow with the possibilities at hand. As Wilson, Shah and Whipple write in their publication in the Harvard Business Review (2015)[28]:

„*The human-centered applications that are so popular in our sample of early IoT adopters generally relate to home activities. But the larger trend—of personalized services that take up residence alongside us, so to speak, and learn from our behaviours—is context-agnostic. People at work, no less than people at home, are going to want this. So maybe the way to think about these human-aware home applications is that we're looking through a peephole. What we're getting a glimpse of now are digital services that will increasingly live with us at home, at work, anywhere in the future. The data show that the most heavily used IoT programs are ones that make home life easier, more distinctive, and more pleasant. Respondents also show a big preference for services that don't require them to go out of their way to make something work. People using the Internet of Things increasingly prefer interfaces that are more natural and less visible (and attention-sapping) than screens. In other words, they don't want to type instructions on a tablet, interact with a device, or mess with settings on a cell phone to get what they want. Instead, they value these technologies as "living services" that anticipate their wants and act on them."*

Figure 5: What people really want from the Internet of Things

What people really want from the Internet of Things



Source: Harvard Business Review (2015)

[28] (Wilson, Shah, &Whipple, 2015)

3. Conclusion

Digitalisation is not a trend. It is a new era in time that effects consumer and industries at enormous pace. After a subtle start, which could be marked, with the launch of the first smartphones, Digitalisation more and more becomes a part of daily life. Given the need for advanced technology and growing (mobile) internet usage, consumer strive for self-improving use cases.

Consumers get triggered by the industries showing multiple, attractive use cases and inspire purchases among early adaptors. As Accenture Consulting (2015)[29] is pointing out, it is important to gain consumer confidence that will move products and services from early adoption to mainstream use, thereby "including providing a level of security and privacy that will inspire consumer trust".

The general outlook in the field of „Internet of Things" is promising, but complex. Connected smart devices will shape the digital future, however the implementation will not happen in a consistent pace over all industries. Major success drivers are identified to be (Bitkom, 2015)[30]:

- meaningful use cases,
- mobile handling,
- additional convenience,
- universal access,
- security,
- must-have-effect.

It remains to be seen how the already successful and established industries of e.g. connected audio & connected video services, will deal with consumer expectations and with which –even more revolutionary- use cases they can further proceed and keep the level of attractiveness high. Also in the sector of smart home where applications and devices are predicted to show the biggest potential for growth, lots of groundwork still needs to be done, especially when it comes to slow moving industries, the so called "white goods" meaning kitchen home appliances. A technology clash and the unequal pace of - for example- "white goods" compared to "brown goods" (Consumer electronics) offers the potential for new (cross-industry) partnerships and collaborations. The IoT is the future, based on multiple growth scenarios. Connected devices will shape technology driven industries. Information in form of consumer data will lead the way. In consequence business models will change. There will be no key player, who will be able to do it alone. The supplier of the IoT development will need to step on unknown grounds and partner up with unfamiliar industries. The shift from silo business industries

[29] (Accenture, 2015)
[30] (Bitcom, 2015)

to new digital industries, will also be seen looking at the behaviour of consumer in the information society.

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