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SCHOOL OF BUSINESS

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ATTENTION BY DESIGN

A critical study of attention economy

Master's thesis in
Marketing Management

VAASA 2019

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Department: Master's Programme in Marketing Management
Year of Entering the University: 2012
Year of Completing the Thesis: 2019 **Pages:** 79

ABSTRACT

Social media and different digital platforms and their effects on users has been studied a lot in recent years. With billions of users worldwide, they have gained an immense power to track and steer peoples' attention and behavior via newly emerged technology. Ethics of these practices and the resulted consequences have now been raised and acknowledged to a growing extent, both in popular media and in academic research. The purpose of this thesis is to critically analyze and frame the core conceptual marketing principles that are applied to compete in the social media environment where consumer attention and its' monetization are paramount. The research is qualitative and deductive in nature. The empirical data for used research method, content analysis, was collected from various sources, where the main emphasis was on highlighting views and insights of industry experts.

In order to fulfil the purpose of the study, following research objectives are set. Firstly, historical evolution of marketing is studied and related technological drivers are being identified in parallel with theories of human cognition and behavior. Second objective is to explore the market configurations of attention economy, noting the scarcity of main competitive resource in this environment; human attention. Thirdly, this thesis aims to increase the overall understanding of the characteristics and meanings of the attention economy in social media context and different asymmetries it creates between platforms and consumers.

The research results show that due to applied ad-based business model and following economic incentives, social media platforms rely on two mutually supportive competitive elements that can be categorized under the main theoretical findings from the thesis. These are business model & design choices and psychology. The interpretation of data revealed and confirmed the highly interconnected relationship between advanced technology applied by platforms to drive their economic incentives and deliberate exploitation of human mind and psychology. Thesis suggests that technological, economical, ethical and moral reframing of social media industry is needed for designing more desirable digital environments.

KEYWORDS: attention, attention economy, artificial intelligence, big data

1. INTRODUCTION

"All of us are jacked into this system. All of our minds can be hijacked. Our choices are not as free as we think they are" - Tristan Harris (2017: 7).

We have all been there, finding ourselves tapping and scrolling social media for too much of our own time. Obviously, this is not something that anyone of us wanted or planned initially, actually one wanted to go bed early or one wanted to write thesis or do things that actually matter to her or him. But these social media platforms make us to want more, and again, this is not something that anyone consciously signed up for when opening Instagram or Facebook or news site, just for a moment. We are hooked to this never ending loop that keeps on delivering until one actively aborts, almost like the choices we make are already made for us. And the truth is, our attention is actually systematically captured by algorithms that know exactly what we individually want. Or not what we want, but what we watch and digitally consume. And how can it be that if the platforms behind these intelligent technology genuinely want to better our lives, it just happens to be that their bonuses are tied to keeping time on site exceptionally high?

How much are people really attached to their phones physically and cognitively has been a focus on numerous studies; on average smartphone users interact with their phones 85 times a day, totaling average of 3,75 hours of daily use (Andrews, Ellis, Shaw & Piwek 2015; dscout 2016). Currently people turn to their phones when confronting everyday choices ranging from who to date, what to eat and what to think about climate change. These hand held devices enable people to download the latest apps, offer on-demand access to friends and family, read Tweets by thousands on Twitter, to browse romantic partners with a flick of finger, grant undeniably easy way to make online purchases, share and watch each other's experiences, in real time, from opposite sides of the globe and much more, representing all the benefits the connected world has to offer (Ward, Duke, Gneezy & Bos 2017: 1). Yet, instead of expanding our understanding of reality and world around us, it seems that these devices and different platforms on them have suppressed into a world behind a screen only (Stanley 2017: 1).

Highlighting this contrast, despite acknowledging the benefits behind these technologies and their potential to improve welfare, worries arise, as Andrew Sullivan (2016) suggests: "we all understand the joys of our always-wired world—the connections, the validations, the laughs, the info, but at the same time we are beginning to get our minds around the costs". Studies have shown that the interconnected world that smartphones push us into makes us feel worse, instead of making us feel better (Angeluci & Huang 2015: 173). Another recent study found that people who visited social media platforms most frequently, had a bigger chance to feel socially isolated than those who visited them fewer times (Primack, Shensa, Sidani, Whaite, Lin, Rosen, Colditz, Radovic & Miller, 2017: 7). These studies and their findings emphasize thoughts of Mick and Fournier (1998) who claim that modernity and postmodernity are both elementally shaped by technology, but which are both also characterized by paradoxes especially in human conditions. This supports another argument made by Järvenpää & Lang (2005) who have studied mobile phone usage and found out that as technology becomes a greater part of users' lives, expectations tend to conflict with performance in reality, concluding that users' experiences with technology are often paradoxical. And as Rosenstein (as cited in Lewis 2017) concludes, this has been the case throughout history since "it is very common for humans to develop things with the best intentions and for them to have unintended, negative consequences". Paradoxical nature of technology has always been the status quo. While the technology does offer incredible benefits, in contrast it is beneficial also to discuss the drawbacks that occur consequently and the backgrounds driving them.

The environment of digital persuasion, a practice intended to change a person's beliefs or behavior by capturing their attention, is amplified by three parallel trends in the last couple of decades. One is the way in which psychology has catalogued all sorts of psychological biases that flatten our brains and these can be punched to get us to think or do certain things. In parallel, advertising as an industry has essentially colonized the internet and turned it into a large scale platform for industrial strength persuasion of measurement, optimization and targeted message delivery, by doing so, amplifying the way the most of the information in the world is being monetized. Furthermore, this persuasive power concentrates in a handful of private companies who provide the infrastructure for these digital experiences, as Tristan Harris (2017) states in his talk,

never before in history have the decisions of a handful of designers working at three companies had so much impact on what millions of people around the world spend their attention to. Thirdly, technology allows platforms and marketers to tap deeper into users' feelings and choices, by utilizing both enormous amount of data available to them and artificial intelligence, thus gaining unseen power to persuade and affect consumer choices.

That is why designing current and to-be digital worlds should be in discussion. These design choices that are backed with so much information, data, tools and control of our attention, that transparency is needed to asses when platforms are acting in good faith to help users and when they are biasing design choices for their own commercial interests (Pasquale 2015: 9).

1.1 Research purpose and objectives

The purpose of this thesis is to critically analyze attention economy, where the focus is in the core conceptual modelling of marketing principles that are applied to compete in the social media environment where consumer attention and its' monetization are paramount. Social media has been studied for years, but this research aims to offer a new perspective to this discussion by highlighting the imperatives driving this highly competitive environment and its asymmetric power relation between service providers and consumers. In order to fulfil the purpose of the study, the following research objectives are set.

The **first objective** for this thesis is to map the main driving forces behind the human obsessive marketing. To achieve this objective different marketing paradigms and paradigm shifts are discussed and presented to understand historical evolution of modern marketing to this day, related technological drivers are also identified and highlighted. Main theories of behavioral economics are presented to provide insight to human cognition and behavior in order to elaborate consumers' irrational biases and choices.

The **second objective** for this thesis is to explore the market configurations of attention economy. The concept of information management that considers human attention as a limited resource, called attention economy, is identified as a main competitive driver in zero sum game between platforms and content providers in the social media context. Digital change and technological disruption are applied in the frame of machine, platform and crowd to lay out new principles of modern attention economy.

The **third objective** for this thesis is to increase the overall understanding of the characteristics and meanings of the attention economy and different asymmetries it creates between platforms and consumers. This is conducted by illustrating examples and analyzing content created by different industry leaders' and academics. The content analysis is categorized in two different manners; firstly by its interpretation of today's environment and secondly by its interpretation of vulnerability and exposed nature of human mind, both reflecting on the theories presented in the earlier chapters.

The **fourth objective** for this thesis is to reflect on findings from theories and content analysis to lay out ethical and responsible foundations for designing digital environments.

1.2. Research method and approach

The analytical model for this thesis is theoretical analysis and its logic is deductive (Tuomi & Sarajärvi 2002: 99–100). The thesis is therefore based on an existing theory, from which is proceeds from larger theoretical entities towards a more detailed analysis (Tuomi & Sarajärvi 2002: 97). In this study, it means that the first theoretical chapters provide the theoretical framework of the human cognition and the limited processing and management of information from the consumers' point of view, as well as the technological configurations of social media in the age of attention economy. The theoretical framework of the research is based on existing cognitive theories and social media theories, and how these theories intersect at the current digital landscape. Based on the theory, empirical data is collected and analyzed in form of content analysis. In turn, empirical material is then analyzed in comparison with previously presented theories.

The theory-based analysis requires that there is prior knowledge of the phenomenon studied, which is utilized in research planning (Tuomi & Sarajärvi 2002: 97–99). Theoretically-based analysis is well suited to testing theory, for example, by studying previous theory in a new context (Tuomi & Sara-Lake 2002: 99). The chosen analytical model therefore describes and models theories, to which the results of the empirical phase will be mirrored (Tuomi & Sarajärvi 2002: 99–100).

The philosophy of science for this thesis is post-positivism. Post-positivism includes an idea of the existence of objective information, but rejects the idea that it could be accurately obtained by scientific methods. According to post-positivism, it is not even necessary, but a good scientific method of post-positivism gives a sufficiently accurate picture of reality that can be used to draw logical conclusions. Post-positivism as a philosophical starting point is suitable for both quantitative and qualitative studies that utilize methods, as well as research that combines them. (Denzin & Lincoln 2005.)

The approach to research in this thesis is qualitative. The empirical method used in the thesis is content analysis. Content analysis focuses on evaluating and interpreting data about platforms competing in the age of attention economy and their applied psychological methods. The secondary data used for the content analysis are in multiple forms; video, audio and text. The data is mostly gathered from Youtube videos, podcasts and articles. The secondary data, for which the content analysis is executed, consists of industry experts', as well as academic professionals' interviews.

1.3. Research structure and framing

The thesis consists of 5 chapters, first being the introduction. In this chapter reader is being introduced to thesis topic by short narrative and brief generalization of topics discussed later. The research question and objectives are introduced as well as the used research methods. The introduction also presents structure and framing of the thesis and keyword definitions.

The second part of the thesis focuses on different theories related to first two objectives of the research. The theory part of the thesis consists of two chapters. The second chapter of the thesis is about the marketing paradigm shifts focusing on the different phases of changing consumer landscape and derived from there the chapter presents the emerging models of consumer mind with insights from behavioral economics. The third chapter characterizes the competitive landscape of digital economy, focusing on attention economy and forces that are behind the digital change; machine, platform and crowd.

The third part of this thesis consists of methodology and the qualitative empiric interpretation in form of a content analysis. In the fourth chapter of the thesis the theory of qualitative research and content analysis is introduced and the different phases of the analysis are identified. The part also includes arguments to support the secondary data selection. The fifth chapter concludes the thesis with findings from both theories and empirical method.

As a preliminary definition, in this thesis the digital economy refers to the collection of those businesses whose business model depend on internet, data and information technology to a greater extend.

1.4. Definitions

Attention

In this thesis attention is broadly defined as a concentration of awareness on some phenomenon to the exclusion of other stimuli (McCallum 2015). Thus, attention is characterized as a cognitive function in which the focus is kept on a specific issue, object, or activity.

Attention economy

Attention economics is a concept of information management that considers human attention as a limited resource. This idea was originally defined by Herbert Simon (1971: 40-41): "*In an information-rich world, the wealth of information means a death of something else: a scarcity of whatever it is that information consumes. What information consumes is rather obvious: it consumes the attention of its recipients. Hence, a wealth of information creates a poverty of attention and a need to allocate that attention efficiently among the overabundance of information sources that might consume it*."

Artificial Intelligence

The modern definition of artificial intelligence (AI) is the study and design of intelligent computational agents where intelligent computational agent is a system that observes its environment and takes actions which maximizes its chances of success in given goal (Poole, Mackworth & Goebel 1998: 1). Broadly defined artificial intelligence is thus computer and sofware's ability to react to variety of situations that normally require human like intelligence (Seikku 2018).

Algorithm

Algorithms are systematic decision-making procedures, based on a set of rules or processes, which are designed to automatically produce outcomes based on data input and decisional specifications (Gal & Elkin-Korren 2016: 5). Simply put, algorithm is a set of instructions, rules and goals given to a computer, for solving a problem.

Big Data

Cambridge dictionary (2019) defines big data as *very large sets of data that are produced by people using the internet, and that can only be stored, understood, and used with the help of special tools and methods.* This definition captures the essence of what is now referred as big data; large set of information that cannot be stored or analyzed with

standard data-processing methods. De Mauro, Greco & Grimaldi (2016: 131) elaborate this definition by stating that *big data is the Information asset characterized by such a high volume, velocity and variety to require specific technology and analytical methods for its transformation into value.* Their definition adds one more beneficial character to big data, value. This leads to useful concept of four V's in which big data can be understood: Volume, Velocity, Variety and Value.

2. IN SEARCH OF BETTER CUSTOMER UNDERSTANDING

"History is not just events and chronology; it is carried forward in the human consciousness. The past is alive in the present and may shape the emerging future."
-Andrew Pettigrew

The world is changing in a fast and disruptive ways. Due to advancements in technology, especially in the areas of information and communication technologies, the boundary between physical and digital worlds is becoming more and more elusive. (Kotler, Kartajaya & Setiawan 2010: 11; Schwab 2017: 7; Fuciu & Dumitrescu 2018: 43.) These changes have profound effects on products, consumers and the markets (Kotler & al. 2010:11; Fuciu & Dumitrescu 2018: 43). According to Kotler et. al. (2010: 11) those changes will demand significant rethinking in marketing since "the concept of marketing can be seen as the balancing concept to that of macroeconomics". Changes in macroeconomic environment and technological advancement has been extensively studied and can be seen inseparable of changes in consumer behavior, markets and society, thus forcing marketing to change (Kotler & al. 2010:11; Jimenez-Zarco, Rospigliosi, Martinez-Ruiz & Izquierdo-Yusta 2017: 94.)

Fuciu & Dumitrescu (2018: 43) suggest that in the context of the ever changing world of today, it is suited to examine the evolution of marketing as a concept in order to apply those changes to current world. In this spirit, this chapter firstly introduces a short summary of the evolution of the marketing concepts from the beginning of marketing as a discipline till today. This will be done by presenting four different paradigms identified by Kotler et. al (2010, 2016). More specifically, the evolution of marketing will be studied in the context of interwoven relationship between technology and marketing and their parallel progress by briefly highlighting the key technological changes adopted by marketers in order to reach, connect to and persuade consumers. Second part of the chapter studies the ways how behavioral economics has been applied to marketing. Main theories and concepts concerning behavioral economics are introduced and contemplated in order to highlight some of the problems they might present for consumers.

2.1. From analogic to algorithmic marketing

This part of the chapter presents the evolution of marketing paradigms. Cambridge dictionary (2019) defines paradigm as *a very clear or typical example used as a model* and *a set of theories that explain the way a particular subject is understood at a particular time.* Thus, marketing paradigm can be defined as principles, techniques, and best practices for a certain kind of business optimization (Katsov 2018: 1). This chapter aims to draw a narrow, but descriptive trajectory of long-term marketing meta tendencies by briefly presenting core ideas of marketing paradigms from marketing 1.0 to marketing 4.0. These remarks are then to be utilized in the remaining chapter. Thus, the aim of this chapter is not to build complete understanding of the evolution of marketing as a discipline, nor to suggest that moving from other paradigm to another means the termination of previous one. In fact, each of these paradigms are still practiced today (Kotler et al. 2016).

Although marketing paradigm shifts can be illustrated multiple possible ways, Kotler et al. (2010, 2016) have presented their interpretation of this evolution in a straightforward and fundamental manner, serving the purpose of this research thoroughly as its' main focus is on the main enabler of the new marketing paradigms, technological advancement. In the following table (table 1.), these paradigms are being presented and summarized, followed by brief description of each paradigm and analysis of unifying factors that can be interpreted from historical change in order to both present state of the marketing and the course of which it might be heading in the future.

	Marketing 1.0 Product-centric Marketing	Marketing 2.0 Consumer-oriented Marketing	Marketing 3.0 Value-driven Marketing	Marketing 4.0
Objective	Sell Products	Satisfy and retain the consumers	Make the world a better place	Influence and steer the behaviour of individual consumers at scale
Enabling forces	Industrial Revolution	Information technology	Social Media, Mobile technologies	Artificial intelligence, Machine Learning, Big Data
How companies see the market	Mass buyers with physical needs	Smarter consumer with mind and heart	Whole human with mind, heart and spirit	Consumer profiling, individual identity, customization
Key Marketing concept	Product development	Differentiation	Values	Online-offline Integration
Company marketing guidelines	Product specification	Corporate and product positioning	Corporate mission, vision and values	Marketing metrics refined with massive amount of information
Value proposition	Functional	Functional and emotional	Functional, emotional and spiritual	Individually targeted message
Interaction with consumer	One-to-many transaction	One-to- one relationship	Many-to-many collaboration	Ubiquitous individual relationship

Table 1. Marketing paradigms (Based on Kotler et al. 2010, 2016)

Marketing started to evolve during the industrial age. During this time, marketing was simply seen as a means to sell manufactured products to anyone in the market. Marketing was essentially focused on selling factory's output without recognizing the needs and wants from the target market. (Jara, Parra & Skarmeta 2012: 854; Fuciu & Dumitrescu

2018: 45; Kotler & al: 3.) Also defined as product-centric approach, the goal was to standardize and scale up in order to bring down the prices to attract as many customers as possible (Kotler & al. 2010: 3). The core idea of marketing 1.0 is best described by Henry Ford who declared that "Any customer can have a car painted any color that he wants so long as it is black" (Kotler & al. 2010: 3). It is notable that, while the origins of modern marketing can be identified in this era, sellers were not intensely influencing or persuading consumers to purchase their product. Regardless, the printing press empowered both masses and marketers, since it finally prompted first marketing channels such as newspapers and direct mail.

The second era of marketing changed marketing radically. The change can be seen to develop in parallel with new broadcasting technologies: radio and television, which permitted mass communication in real-time. These newly developed and adopted information and communication technologies gave consumers more power due to the fact that the information and the availability of that the information regarding the products grew significantly. Thus consumers were able to find and compare information about similar offerings. Therefore, the value of the product was partly defined by consumer instead of the producer. The era of the marketing 2.0 concept is characterized by the objective to find about the needs and wants of the consumers and fulfilling them. (Jara & al. 2012: 854; Fuciu & Dumitrescu 2008: 45; Bernoff 2011: 2.)

Similarly as the previous evolutionary step of marketing was initially powered by technological factors, so was the one to follow. Marketing 3.0 was driven by the raise of the internet and mobile technology that enabled consumers to search information whenever and wherever and form direct relationships with brands and other consumers via social networking sites. (Jara & al. 2012: 854.) The growing power of consumers was forcing companies to view their potential customers in a deeper way, as Kotler & al. (2010: 12) put it: "treating the individuals… as human beings, that have a mind, heart and feelings". Also Plakhin, Semenets, Ogorodnikova & Khudanina (2018: 1) have come to similar conclusions, noting that it becomes absolutely necessary to know the nature of a person, including his emotions. In this era marketing and the delivered value cannot be seen from just as a functional or economical but also as from a more intangible and

idealistic point of view (Fuciu & Dumitrescu 2008: 45). In conclusion Marketing 3.0 complements emotional marketing with human spirit marketing (Kotler & al. 2010).

Lastly, the fourth evolution of the marketing concept presents a way to merge ubiquitous relationship between companies and consumers (Kotler, Kartajaya & Setiawan 2016). It fills the need for companies to integrate consumer-technology, such as mobile technology and social media with analyzing the information about consumers and their preferences, believes and needs (Jiménez-Zarco & al. 2017: 105). Technologies that produce, process and consume consumer information are in the heart of imodern marketing practices (Swieczak 2017: 165). Bernoff & al. (2011: 4) capture the spirit of marketing 4.0 by stating that: "The only source of competitive advantage is the one that can survive technology fueled disruption — an obsession with understanding, delighting, connecting with, and serving customers".

During the evolution of marketing, the key activity can been relatively invariant. Since marketing has manifested itself as activities of defining products and services provided by a company and refining the communication in order to reach current or likely customers. That given, it is relevant to study what has changed in order to perfect that process. One occurring theme in paradigm shifts is information and the growing quantity of it. Notably, it has empowered both company providing the products and services and customers looking for those in the market. Whether it was information needed to refine the offering to the needs and wants of the consumers or the information consumer needed to make a purchasing decision, the available information for both actors has grown as moved from paradigm to another. Only now, there can be observed a massive information asymmetry between these actors. Since, regarding to information processing, consumers are bounded but the companies are not.

The biggest disruptive force leading to today's paradigm, marketing 4.0, has been shift to and the advancement of digital marketing channels. The rise of mobile technology and the now ubiquitous nature of digital marketing has created an environment where millions of micro-decisions are required to be made, because the scale and the quantity of these decision, they cannot be made by human, thus requiring intelligent marketing software

and algorithms. To efficiently manage and execute functions that are at the core of individual customization such as targeted sales promotions, dynamic pricing, recommendation services and online advertising, advanced methods of economic modeling, data science, and software engineering are needed to gain the full potential of the digital environment. To compete in this fast paced and continually adaptive environment, marketing software systems that make autonomic decisions and act at scale, and depth of analysis are needed to be adapted. (Katsov 2018: 1-2.)

These automatic decision making software are driven by data. Whereas traditional marketing relied on focus groups and surveys and thus being dependent on subjects' dubious reports of their reasons and drivers and needs and wants while in reality being unable to pinpoint them by themselves without biasing subjective interpretation (Nadler & McGuigan 2017: 144). Today marketing practices conceive of big data and as many different data points of information about millions of individuals as possible (Couldry & Turow 2014: 1710). This input data varies depending on the objective, but most marketing applications include customers' personal and behavioral profiles, inventory data, and sales records (Katsov 2018: 14). Thus, marketing practices are drifting away from the long-established and analogic media environments to reach target audiences as masses. Rather, advertising is focusing on targeting individual consumers with technologies that reach them at any given time in any given location with customized advertising messages fit for individual consumers exclusively. (Couldry & Turow 2014: 1710.)

According to Ayres (2008: 44), big data's greatest promise is to "predict what you will want and what you will do". This data-driven control practiced in the industry creates a self-enforcing data loop: the more engagement is generated, the more data is tracked, granting marketers better ability to guide consumer behavior towards desired direction. According to Gal & Elkin-Korren (2016: 2) the next generation of commerce will be heavily affected by algorithms that make purchase recommendations and accurately predict what consumers want. Marketing systems of this sort rely both, on access to personalized customer data, and behavioral research on how and why consumers make decisions.

2.2. Applying behavioral economics to marketing

It seems to be impossible to know why we are doing what we do, because impulses override rational thinking and this is concealed by the rationalization of impulsive actions (Kahneman, 2012)

In this part, the main theories and concepts concerning behavioral economics are introduced. The purpose of presenting insights from behavioral economics is to establish the background for the first research topic by identifying cognitive and affective vulnerabilities in rational decision making, thus understanding that consumer decision making process is open for errors and persuasion via internal and external stimuli, even on subconscious level.

Traditionally, economists have built theories to model economic behavior or causal relations in different scenarios on assumption that people are rational by nature (Baddeley 2017: 1-2). Problem with this view is that it doesn't take account psychology that may drive behavior into other direction. Behavioral economics is one response to this challenge, according to Samson (2015: 1) behavioral economics is defined as "the study of cognitive, social, and emotional influences on people's observable economic behavior".

In order to extend the traditional view of ourselves as economic actors, behavioral economics merge insights from wide-ranging field of studies, such as psychology, sociology, neuroscience and evolutionary biology (Baddeley 2017: 2). The core premise of behavioral economics is the view that the better and more accurate representation of an economic actors will improve the overall realization of economics. Behavioral economics has been up to this task by changing the way the world is being conceptualized by extending standard and traditional framework of economics by adding important characteristics of human behavior that have not been taken into account previously. (Diamond & Vartianen 2007:1.) Behavioral economics challenge the core assumption of classic economic models where humans are seen as being rational by taking into account

mental, social and cognitive models. Behavioral economics also challenge classical economics' view on decision-making, while the latter assumes that decisions are made using rational and calculative cold-headed logic, behavioral economics grants humans for irrational behavior and wide range of biases, and by admitting that, attempts to understand why that is the case (Diamond & Vartianen 2007:2). In a sense, behavioral economics presents and builds an understanding about when and how people make errors in their decision making.

Valuable findings from the field of behavioral economics acknowledge that people have limited cognitive abilities and struggle to exercise self-control, people tend to make choices that do not align with their own preference by choosing the option that has the greatest short-term appeal and reward at the cost of long-term values and goals, such as taking drugs, and overeating. Economist Dan Ariely (2008) characterizes the conception of consumers that behavioral economics offer; according to him consumers are "predictably irrational". This compliments the picture presented above by underlying the assumption that humans normally aim toward decisions that maximize their self-interest but empirical studies expose profound and persistent systematic weaknesses in how we misapprehend our self-interest while making decisions.

According to Nadler & McGuigan (2017: 144) behavioral economics presents three types of means for marketers to better understand their consumer. Firstly, it prioritizes the understanding of the experimental approach for consumer decisions by focusing on research analyzing how decisions are made in the moment instead of uncovering meanings and associations related to consumers' behavior. Secondly, behavioral economics research detail distinctive heuristics, or simple mental shortcuts that people rely upon to form judgments and make decisions. Thirdly, behavioral economics offer a general model of human cognition. Dual system theory offers a behavioral framework based on psychological research, which ultimately theorized that people think in two different and rather distinct ways. Introduced by Kahnemann, dual system theory has been the dominant paradigm embraced by market researchers to interpret decision-making.

2.2.1. Bounded rationality

As argued earlier, behavioral economy has been built on the findings that contradict with common model of consumer behavior and decision making that might be described as too naive and unrealistic. Given the data from the field of studies, humans are lacking rationality in many dimensions, especially in the realm of self-control and self-interest. (Kahneman 2003, Thaler 2017, Diamond & Vartianen 2007.) Individuals are not holistic self-optimizers by nature; rather, actors who interact with their environment and its' demands with insufficient cognitive capability, where decisions are influenced by habits and insufficient heuristics (Nadler & McGuigan 2017: 138-139). This variation between common model of consumer behavior and observed behavior appear because of what Herbert Simon (1957: 198) called 'bounded rationality':

"The capacity of the human mind for formulating and solving complex problems is very small compared with the size of the problems whose solution is required for objectively rational behavior in the real world or even for a reasonable approximation to such objective rationality."

Thus, despite their rational efforts, humans can end up acting irrational in many ways. Even if all the necessary information for decision making is available, the decision maker may not have the capacity to process this information to find the optimal choice. (Kahneman 2003.)

2.2.2. Dual system theory

Much of the influence and inspiration for behavioral economists has been drawn from experimental cognitive psychology, especially research by psychologists Amos Tversky and Daniel Kahnemann. (Nadler & McGuigan 2016: 125). They have performed multiple experiments to study differences between actual human decision-making and predictions made by rational choice theories, thus offering a more realistic general model of human cognition, that is influenced by both sides of the debate about people and their decision making, thus presenting more contextual theory of processes guiding human behavior (Kahneman 2003: 1449). In the center of this research is a general theory of cognition

that divides human mind into two different processes that Kahneman (2011) calls "System 1" and "System 2". System 1 is responsible for making judgments in automatic ways that are experienced as effortless, thus serving as individuals default system, commonly referred as intuition. In contrast, system 2 is slower, representing higher orders of thought and being responsible for self-conscious reflection, difficult calculation and analysis of complex problems. (Kahneman 2011.) Rational choice theory proposes that individual choices, behavior and thoughts are fully calculative and conscious, hence influenced and operated by system 2, but in contrary, system 1, being the very default system is responsible for myriad amount of decisions, frequently leading people to make decisions that override consciousness (Kahneman, 2003; Thaler & Sunstein 2009.) While most of the time these two systems work in harmony, the two systems do clash and then compete to gain the full influence over behavior. Thus, built on the characters of these two systems, reflexive system 1 is mainly responsible for automatic and unconscious behavior, since it triggers fast behavioral responses by processing information rapidly using cognitive and emotional associations and conversely reflective system 2 is responsible for self-regulation and conscious efforts to revoke reasoning and reflection (Soror, Hammer, Steelman, Davis, Limayem 2015: 407-408; Evans 2006: 204.)

Since myriad portion of human behavior is controlled by habits or habit-driven behaviors, the interest towards reflexive processes that govern everyday habits is recently been in rise (Duhigg 2012; Wood & Neal 2007.) This curiosity is fostered partially by the realization that automaticity is not a unitarily built concept in human brain. Thus, automaticity in the context of behavioral responses can be triggered and governed by vast array of impulses (Neal, Wood, Labrecque & Lally 2011: 492). Si 2012.)

Oulasvirta, Rattenbury, Ma & Raita (2011: 2) define habits "as an automatic behavior triggered by situational cues, such as places, people, and preceding actions in frequently repeated manner". Or as Verplanken (1997: 540) puts it: "learned sequences of acts that become automatic responses to specific situations which may be functional in obtaining certain goals or end states". Habits, thus represent the reflexive system's output (Soror, Hammer, Steelman, Davis & Limayem 2015: 406). In this context, habits can be seen as behavior that results from simple stimulus-response links in associative memory, thus,

habits can be prompted and executed with little conscious control or motive (Pinder, Beale, Vermeulen & Hendley 2015: 2). In conclusion, habits are behavioral acts performed with minimal self-regulation or conscious consideration (Hofmann, Friese, & Wiers 2008; Hunt & Martin 1988; Verplanken & Aarts, 1999).

2.2.3. Hook model of habits

The process that creates habits within our brains is a four-step loop. The loop consists of four subsequent but interrelated phases. First, there is a cue, a trigger that activates automatic and reflexive part of the mind, suggesting which heuristic to incorporate and act upon. Second there is action, namely a simplest behavior, a routine, formed awaiting a physical, mental or emotional reward. Thirdly, a received reward, state of fulfillment, leaves brain crave and desire for more. Finally, there is investment or commitment when habit driven individual is putting in work and value back into the driving forces of the loop this phase can be seen as a self-reinforcing mechanism for that particular habit. Over time, this loop; cue, routine, reward, investment becomes automatic. (Eyal 2014.) The uniqueness of the cues and rewards lays in the subtleness, the most of the cues and rewards, arise so quickly and are so small that the subject of the habit is hardly aware of them at all. But the power of habit doesn't lie in the subjective experience, but in neural systems of the brain that notice and act on them. (Duhigg 2012: 5.)

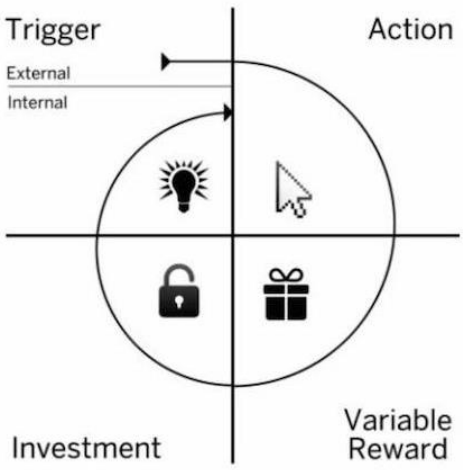

Figure 1. The Hook Model (Eyal 2014)

The hook model relates directly to one of the most prominent design-based approach to shape behavior, called nudging. Nudging is derived from behavioral economics and studies conducted by Thaler and Sunstein, who refer to a nudge being "any aspect of choice architecture that alters people's behaviour in a predictable way without forbidding any options or significantly changing their economic incentives" (Thaler & Sunstein 2008:6). Concept of nudging is heavily influenced by understanding of human decision making and the distinction between the rational actor model of decision-making and the actuality of individual decision making due to use of cognitive shortcuts and heuristics, presented earlier in the chapter. Interpreting these findings, Thaler and Sunstein's research focused on how human decision-making can systematically be influenced and intentionally guided toward specific direction by designing the surrounding choice context.

2.2.4. Reflections on problemacy

In the context of behaviorisms, nudging can be seen ethically problematic. As Hanson & Kysar (1999) argue, that when it is accepted that individuals are prone to systematic non rational behavior, the economic incentive to exploit that bias follows. As consequence, broad market failure occurs since the market actors are forced to leverage that bias or otherwise being in threat to be edged out of the competition (Calo 2014: 1001).

So why is this approach problematic? As presented above, habits develop from the continuous reinforcement of associations between responses, impulses and rewards and both internal and external triggers that have covaried with them in the past (Neal & Wood 2007: 843). Once a habit is formed, contextual triggers trigger the related response, automatically, despite a possibly contradicting goal. When intentions and habits clash, people could hypothetically apply governing control and act on their intentions as proposed by rational theory. Behavioralists' prediction is that people typically do not do so. The disposition for habits to differ from intentions and goals to guide action is logical in the context of dual system theory since interfering automatically cued responses, such as habits, require regulatory control, and such cognitive action turns out to be a limited resource that is easily reduced in daily actions. (Triandis 1977; Muraven & Baumeister

2000; Ji & Wood 2007.) In short, people lack the self-control needed to reduce one's primary impulsive reactions to stimuli (Mischel, Cantor & Feldman 1996). This automaticity in the context of habits means that a habit may be carried out without a person directing conscious awareness towards it (Pinder 2013: 1). As dual process theory argues, the fundamental cognitive limitation responsible for habits to over drive intentions is the finding that myriad portion of habits are out of reach of conscious motivations, choosing or control (Pinder, Beale, Vermeulen & Hendley 2015: 2). As Neal & al. (2011: 201-202) conclude: "habits keep us doing what we have always done, despite our best intentions to act otherwise". Given the myriad proportion of consumer choice mediated by technology designed and personalized by someone else, a powerful and large scale approach to consumer persuasion undermining consumer autonomy can be formulated (Nadler et. al 2016: 125; Calo 2014).

2.3. Out take from chapter 2

The basic promise of the science of marketing can be seen to be to influence consumers' purchasing decisions. But even though consumers have always been the target of persuasive tactics from advertisers, the increasing role of technology mediated marketing and transaction offers marketers a continually expanding capacity to discover consumer preferences and patterns of consumption in more accuracy, scope and scale than ever before. More importantly marketers can alter those aspects to meet their preferred goals with greater efficiency by personalizing every aspect of the transaction. In parallel with technological advancement, the behavioral research empowers firms with exploitable consumer biases, irrationalities and vulnerabilities that may limit each individual consumer's ability to pursue his or her own self-interest.

In conclusion, marketing has evolved in the wake of technological advancement, continually improving the ways and techniques to tap deeper into consumers' physical and psychological needs by extracting, arraying, processing and exploiting more and more information about them. This dynamic has created a significant power asymmetry between companies and consumers, since the tracking of consumers and claiming their

personal data leads to behavioral prediction that is fueled with machine learning and artificial intelligence, making it even more effective to steer people and their habits towards goals that might conflict between the two.

3. ATTENTION ECONOMY

Social networking sites have colonized the web. The rise of digital capitalism is characterized by seemingly boundless resources and boundless production of digital goods, which has "ended scarcity" by making free digital content available to everyone at any time without physical limits, constrained only by human attention available to pay to those products (Webster 2010: 594). Understanding the inherent configurations of this newly emerged landscape of digital economy is pragmatic in order to shed light on the imperatives driving platforms that alter lives and choices of billions of people.

The elements introduced in this chapter developed from basic questions about how platforms powered with persuasive digital technologies have structured digital economy. The goal is to set these platforms in the context of digital economy, understand them as mechanisms to generate profit and draft the tendencies they generate as a result. For purposes of this thesis, this chapter is structured in the following way; first the observation of abundant information constrained by human attention is discussed by presenting the theory of attention economy, after which a brief depiction of attention economy in the context of social media is submitted. Followed from this notion, three principle actors in digital economy are presented and introduced; crowd, platform and machine. These actors are adapted from the conceptual model of Webster (2010; 2011) called "marketplace of attention" and brought to the context by following entitlement made by McAfee & Brynjolfsson (2017). Later section of the chapter examines interaction between the actors, characterized by Nobel Prize winning professor Jean Tirole and Jean-Charles Rochet (2002) as "two-sided market".

3.1. Attention economy

We live in the information age, there is more information around us than ever before but as Herbert Simon (1971) pointed out, when information becomes abundant, the attention becomes the scarce resource and thus the object of competition among most of the digital technologies we use today. The unparalleled abundance of information and instantaneous

access to it in the digital era has led to a world of endless flow of attentional rewards. Yet, moving from information scarcity to abundance informational world still holds one constraint, the capacity one can navigate it. (Williams 2016.) Attention economics is, thus a concept to the management of information that considers human attention as a scarce resource, concluded by Matthew Crawford (2015) attention is a resource; a person has only so much of it. This idea was originally defined by Herbert Simon (1971: 40-41):

"*In an information-rich world, the wealth of information means a death of something else: a scarcity of whatever it is that information consumes. What information consumes is rather obvious: it consumes the attention of its recipients. Hence, a wealth of information creates a poverty of attention and a need to allocate that attention efficiently among the overabundance of information sources that might consume it*." (Simon 1971: 40-41).

Although, this was 40 years ago, Simon was able to foresee the economic interplay between producers and consumers of information; in the future, the value of information would trend toward zero, while the value of attention, the resource owned by consumers that can be capitalized on by companies that can capture it, would only rise. (Rose 2015: 44). In this economic environment, attention might thus be seen as the most valuable resource (Webster 2010: 594).

Emmanuel Kessous (2015: 78) distinguishes attention economy as a distinct market condition of information-rich environment in which economic initiatives differ between access (attention) *to* information and management *of* that information. Thus, attention economy increasingly relates to two-sided market configurations; free access to services and content is financed by advertising, resulting to competitive environment between businesses that prioritizes the capture, measurement and valorization of attention. This was also noted by Richard Lanham (2006: 46): "Assume that, in an information economy, the real scarce commodity will always be human attention and attracting that attention will be the necessary precondition of social change. And the real source of wealth". Webster (2008: 23-24; 2010: 594) also concludes that, when amount of content is practically limitless and increasing at an explosive rate, the only boundary lies in the human attention available to consume those products. The landscape is becoming ever more convergent, meaning that entirely integrated information delivery systems where

digital information is accessible across variable technological platforms have become progressively so fully integrated, that it allows consumers to access them regardless of time and space.

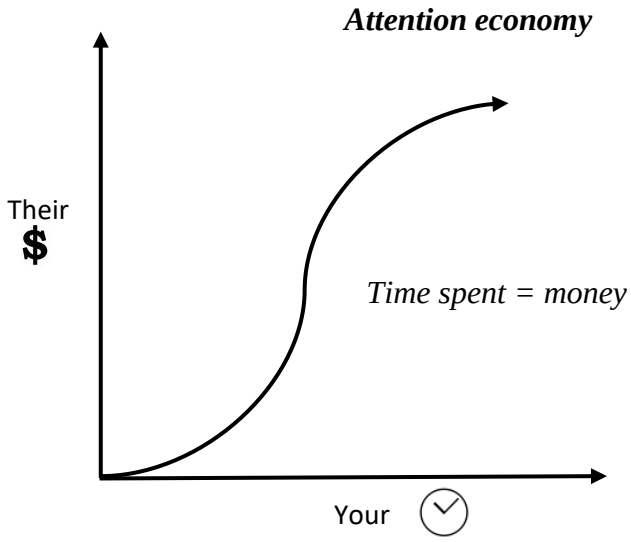

Figure 2. Attention economy

3.2. Outliners of attention economy

In order to present a coherent structure of attention economy, two relevant aspects will be discussed in this part of the chapter. First, basic concept of network effects is presented, followed by elaboration of the market structure that online platforms like Facebook have adopted, a two-sided market.

A network effect is shortly explained as the effect that occurs when additional user of a service or a product adds value to the product simply by using it. Simply put, a network effect is present, when the benefit to the user of the network grows directly with the number of users in the same network..

Weyl (2010) highlights three intrinsic features that two-sided markets possess; first there is a multi-product firm, namely a platform that provides specific services to two sides of

the market. Second there are cross network effects, meaning that users on both sides of the market benefit from participation of one another and thirdly platforms possess bilateral market power, they set prices on both sides of the market. To elaborate on the first feature, as means presented before, platforms operate as the intermediary between two groups of agents: in one side, the crowd, users of the platform make use of the content created by their peers or subjects of interest. On the other side, platforms operate with their partners, providing them with the insight and information about users, in order to allocate advertisers' message to targeted group of individuals. Because the advertisers benefit from the relationship more than the consumers (users would be happy to see no advertising), it naturally occurs that platforms incentivize the consumers with its products. In other words, the price structure matters, and platforms must design it so as to bring both sides on board (Rochet & Tirole 2006: 665). This is where services' like Facebook, Twitter and Instagram business models come in, useful products that are offered for free to consumer in order to make them available to advertisers. Simply put, in case of platforms and as with many other internet based media companies, advertising is used to fund the system offered to users for free. Thus, profits are made through process in which information products are given free to audiences and audiences are sold to advertisers (Napoli 2003: 2-3).

3.3. Brief depiction of attention economy in the context of social media

The economy of digital worlds and the environment and competition resulted from internet that is shaped around demands of used advertising models and its' current economic imperative has been characterized by William Kessous (2015: 78); as competition for attention, via industrial systems, has become one of the main drivers of market dynamics where information is a linchpin, competition shifts from products per se towards the attention that consumers pay to that product. Myriad amount of information created by social media services has its' effects on consumers using these products. The asymmetric nature of amounting information and limitations of attention the consumers can pay has led providers of information to contend in zero-sum game (Servia-Rodriguez, Huberman & Asur 2015: 1). What started as an idea to

create purposive platforms that people find real use for have now evolved into, what Tristan Harris (2016) calls, **"**a race to the bottom of the brain stem" to get users' spend as much time as possible on these platforms. Despite the declared high-minded values and goals behind technologies like Facebook, Youtube, Instagram and Snapchat, the business built around internet with its' myriad technological applications is intensive war for consumers' limited time and attention. Users' attention is disputed by companies like Facebook, Instagram, Google, Youtube, Snapchat and Netflix with their offerings that are guided by powerful algorithms and recommendation systems. These companies are doing their everything to persuade users to spend even more time on each of their platforms, from adjusting algorithms to endless media feeds, technology has turned human distraction into its metric of profit (The Economist 2017). Attention is the real currency of businesses and individuals and the longer technology companies can keep it the more they can sell you advertising against it (Davenport & Beck 2001: 2). And as attention is not set, it needs to be fed constantly, thus leading to zero-sum game of acquiring users' time and attention (Kessous 2015: 85). As Lanham (2006: 233) proposes, attention is everything and all consumers do is renting their "eyeballs".

Facebook, Twitter, and a vast majority of other platforms are designed to draw consumers in and steal their attention. These platforms are not optimized to ensure that consumers are getting something meaningful out of used technology, they are designed to keep them engaged. In the 'attention economy,' where technologies win by maximizing the amount of screen time and attention they capture, designs of these platforms increasingly exploit consumers' non-rational psychological vulnerabilities in order to persuade them toward goals that are not aligned with their real self-interests. The awareness that that temptation for customer to reach and stay occupied with their phone is a psychologically hardwired reaction to apps and websites engineered and designed to hit that exact craving in order to get people hooked and obsessed, needs to be understood.

Technology companies exploit people's psychological vulnerabilities by affecting the same neurological pathways as gambling and drug use that activate brain's dopamine pathways, and by doing so, privileging our impulses over intentions. By bulldozing the natural shape of consumers' physical and psychological cognitive limits, these impulses

turn into bad habits. And it is a big moral question, because ultimately what it means is that the inconvenient truth of the attention economy is that its' technologies are not on consumers' side, they are adversarial by nature. James Williams (as cited in Lewis 2017: 8), describes the industry as the largest, most standardized and most centralized form of attentional control in human history. Another Silicon Valley insider, a former vice president for user growth at Facebook, Chamath Palihapitiya (2017) also expressed a concern about what social media platforms have become in his interview at Stanford University by alleging that the short-term, dopamine-driven feedback loops that were created while he was working in Facebook are destroying how society works. In addition these devices effect its' users psychological capacities, including limiting people's ability to focus and also damaging their cognitive capacity (Ward et al. 2017), raising a moral questions in itself, because it might be seen as threat to human autonomy (Verbeek 2006: 1.) The more role these different applications and social media sites garner in our daily lives, without any cognitive decision making, what is lost are the goals consumers have for their lives substituted by the goals technologies are currently designed to produce. Consequently, users are beginning to be viewed as objects whose behavior can be predicted and altered, instead of human agents whose real goals and reasons could be empowered.

3.4. Elements of attention economy

In order to provide conceptual framework for a marketplace of attention three principle actors can be identified. The first is users, the agents who consume information platforms, products and services. The second is providers, who create the structures and resources that users employ. The third is information regimes, who provide the market information needed to observe and manage users' consumption and behavior. (Webster 2010: 596.) Due to relevancy and clarity, these actors are referred as crowd, platform, and machine. Terms coined by Andrew Mcafee and Brynjolfsson (2017). Lastly, to describe the interaction between the actors, the concept of duality (Kessous 2015; Webster 2010) is applied to this framework.

3.4.1. Crowd

Crowd refers to the people who consume the products. In theory they consume and use the products rationally and consciously and at a time and place of their choosing. But in practice usage is often impacted by the routines and habits. Since they deal with the endless amount of choices and information, the marketplace has far too many offerings for any one person to be perfectly aware of his or her options (Webster 2008: 25). Commonly media consumption choices are derived from needs (Rubin 2002), attitudes and beliefs (Stroud 2008), or moods and hedonic impulses (Vorderer, Klimmt, & Ritterfeld 2004). The rationality of consumption is thus characterized by satisfying various impulses and preferences. Applying these heuristics may cause users to miss content or services that might better gratify their needs and desires (Webster 2008: 25). and direct their attention further from their intended goals. In Simon's words (2013: 118), consumers "satisfice" rather than maximize. Crowd is therefore enslaved by limits of their cognitive power, idea discussed as bounded rationality. This interplay between rational choice and consumer bias, presented through behavioral economics, emphasize the driving role of information and design that might turn into standardization of consumer vulnerability. (Calo 2014: 999.)

Next two parts interpret the capabilities of platform companies to increasingly personalize every aspect of the consumer experience.

3.4.2. Platforms

Platforms are digital infrastructures that enable two or more groups to interact. Thus, platforms can be defined as intermediaries that bring together different users: customers, advertisers, service providers, producers, suppliers, and even physical objects (Srnicek 2016: 25). Whereas traditional companies aim to build a marketplace from the ground up by managing majority of the processes and assets, a platform solely provides the basic infrastructure to mediate between different groups (Srnicek 2016: 25). This general model of arranging markets in the digital economy has been adopted by companies such as Facebook and Google. Webster (2010: 26) defines platforms as the systems that people

use to enact their preferences, these systems then include the environment powering technologies, but also the actors providing the content and services. As a consequence, people's preferences are constantly being exploited and swayed within the system to draw their attention towards these provided content and services. In order to do so, the platform sustain a constant monitoring. (Webster 2010: 26.) According to (Srnicek 2016: 25) the key advantage of platforms compared to companies executing traditional business model is their capability to constantly monitor the marketplace. Since a platform acts as an intermediate between users and as the environment in which their activities take place, it has a privileged access to record them, thus giving platform the power to extract and analyze extensive amounts of data.

Platforms, in sum, are an intermediate infrastructure and the core architecture that guide interactions between different user groups by extracting and controlling their data. This data driven approach to persuade and control individual behavior has coined numerous terms such as surveillance capitalism, market manipulation, digital consumer manipulation and hypertargeting (Zuboff 2019; Calo 2014; Manwaring 2017; Yeung 2017). While these terms characterize the adopted system design behind platforms, they do little to explain the methods and techniques driving the system. An examination of the basic and fundamental methods related to platforms are outlined in the following part.

3.4.3 Machine

Both platforms and users depend upon information to navigate through digital environment. Despite the seemingly similar need for information, platforms and users differ from each other in regard of their goals. Platforms need data on consumption patterns to measure performance and manage and monetize public attention. Users on the other hand are increasingly reliant on search and recommendation systems to help them make choices based on their needs and preferences. To serve the latter, platforms are depended on different methods and techniques to collect, structure and present the relevant information. (Webster 2010: 599.) These methods and techniques are being used to shape the choice structure in which individual decision-making occurs, with the goal of channeling attention and decision-making in directions preferred by the choice

architect (Yeung 2016: 4). Thus, digital platforms exploit the social and emotional interaction as the means of the online attention economy, data extracted and analyzed based on behavior, personality, and emotions are constantly feeding artificial intelligence and applied algorithms in order to invoke reaction and more engagement (Stark 2018: 211). Gal & Elkin-Koren (2016) address the essence of this kind of digital commerce by presenting the concept of algorithmic consumers. According to them the role of human consumers is shifting tragically, since algorithmically mediated consumers do not make decisions directly by themselves, but through algorithms, thus reducing the fundamental role they have in decision making.

The directing mechanism of algorithmic consumer choice can be seen as four stage process: data collection, data analytics, decision making and performance. (Gal et. al 2016). Firstly data collection is required in order to determine consumer's needs and preferences. This data can have various sources; directly from the user, for instance age, gender, residency or followed social media accounts. Data can also be extracted from different kind of sensors built in used device, such as GPS, camera and microphone or online actions performed by subject consumer. Extracted data is then collected, updated, stored and organized to provide an accurate and thorough view of the changing needs and preferences of the consumer (Gal et. al 2016: 8.) The power of data as means for better customer understanding and profiling has been demonstrated in numerous research, people's psychological profiles have been correctly predicted from the digital data. For example, people's personality profiles have been predicted from Facebook profiles (Kosinski, Stillwell & Graepel 2013), Twitter messages (Golbeck, Robles, Edmondson & Turner 2011) and Instagram pictures (Segalin, Perina, Cristani & Vinciarelli 2017). The second step, data analytics, is best described by Pasquale (2015: 21): "critical decisions are made not on the basis of the data per se, but on the basis of data analyzed algorithmically". Here algorithm sorts the relevant data to identify consumer preferences and analyzes the choice options in vast and different conditions. In order to execute this, consumers' data is analyzed and partly separated from its individual context and compared with data from enormous number of other context related and similar consumers to make better predictions about the consumer's preferences. (Gal et. al 2016: 8-9.) The third step in the process is decision-making, here the decision between

presented choices is made based on the data analysis performed by algorithms (Gal et. al 2016: 5). Many scholars refer this stage as the choice architecture, which is described as a design of different ways in which choices can be presented to consumers and the impact of that presentation on decision-making (Scheibehenne, Greifeneder & Todd 2010; Yeung 2016). The fourth stage of the process is performance, since algorithms can be understood demonstrating the goal and the purpose of its creators, then their performance can be adjusted, tweaked and perfected according to their capability of meeting those goals. To demonstrate this, let's consider a range of options recommended by carefully designed choice architecture, when a choice is made by the user the choice itself becomes a new digital footprint that feeds the algorithm. This creates a feedback loop, where the output of the algorithm becomes part of its input. To fully grasp this mechanism it is essential to recognize that not to choose any of the options is equal to choosing any of them, thus no choice is a choice. The power of algorithms here is in their ability to make choices, to classify, to sort, to order and to rank. That is, to decide what matters and to decide what should be most visible (Beer 2017: 9).

4. METHODOLOGY

The research question of this thesis is to critically analyze attention economy, where the focus is in the core conceptual modelling of marketing principles that are applied to compete in the digital environment where consumer attention and its' monetization are paramount. Earlier, this has been studied with literature review method, where the main focus was in the frailty of consumers and in the conceptual structure of the digital economy. In this part of the thesis the focus will be shifted to research method of the thesis, content analysis.

The research method used in this thesis is a qualitative research methodology: content analysis. This chapter introduces the fundaments of qualitative research and content analysis. Position of the research and phases of the content analysis are introduced as well as the arguments to support the data selection.

The third objective of this thesis is to systematically transform a large amount of content into an organized and concise summary of key results on persuasive design and different asymmetries it creates between platforms and consumers by using content analysis method. The content analysis conducted in this thesis is an illustration and interpretation of transcribed interviews and public lectures by the experts and academics both discussing and describing the earlier presented environment and the consequences of that from the critical view point. The content analyzed is classified to two different themes based on their topic specific elements after which the meaning units within them are analyzed and reflected to meet the fourth objective of the thesis, which is to lay out ethical and responsible foundations for designing digital economy, in the concluding chapter.

4.1. Qualitative research theory

Qualitative research is a form of social science where the focus is on understanding lifeworld, interpreting lived experiences and generated meanings. Qualitative approaches to research are based on a holistic world view and on the assumption that there is not a

single, universal reality. Lifeworld consist of numerous subjective perceptions that are different for each person and that change over time. In essence, what can be known has meaning only within that given situation or context. (Gupta & Awasthy 2015: 13.)

4.2. Content analysis

Content analysis is based on the paradigm of social constructivism. According to social constructivism, reality cannot be faced, so called, clearly and is always seen through a different meaningful perspective. Things, objects, feelings and institutions are always defined with spoken or written language in a way that the researcher can conduct them only through the symbols and meanings they generate. The objective of the content analysis is to analyze the text and the meanings within in order to gain a summary and generalized description of the matter under consideration, without losing the information value of the material. (Tuomi & Sarajärvi 2002: 102.)

In content analysis, the material is examined separately, searching for and matching the similarities and differences. As with discourse analysis, content analysis is a textual analysis that looks at pre-textual or modified data. The texts to be studied can be almost anything: books, diaries, interviews, speeches and conversations. Content analysis aims to provide a concise description of the phenomenon being studied, which connects the results to a wider context of the phenomenon and other research findings on the subject. (Tuomi & Sarajärvi 2002: 105.)

Content analysis begins with the selection of an analysis unit, which is usually a word or a combination of words. After selecting the analysis unit, the material is reviewed several times and this creates the basis for the analysis. The next step in the analysis is collecting word lists and grouping words. After that, the analysis is continued by giving the top categories a name that best describes the content of the keywords. As a result of the content analysis research, a conceptual map of the main categories is usually produced. (Kyngäs & Vanhanen 1999: 5-10; Tuomi & Sarajärvi 2006: 102-103, 105, 110)

4.3. Position of the researcher

The researcher has expertise in marketing, a bachelor degree from University of Vaasa. The researcher does not have any prior academic or professional expertise in psychology, artificial intelligence or discussed technology before to this research. The researcher has been most likely influenced by the critical interpretations around the phenomenon of platform industry and digital economy, which creates a bias towards certain kind of reasoning.

4.4. Content analysis on digital platform economy

The rising concerns of the ad based digital economy fueled by powerful technologies, that focuses on the undermining of the consumers attention in order to gain both control and monetary value has recently reached the mass media, raising attention in the public discourse as well as in professional discourse.

For the thesis the researcher immersed himself in wide variety of sources to find industry experts who would represent different professional roles inside and outside of the now problematically characterized technology industry. These experts were then divided based on their positions related to that industry. Thus, for the purposes of the content analysis, two groups were formed: The first group consists of technology insiders, including two sub-groups, first being former executives and second being designers. The second group is technology outsiders, academics and outspoken authors specialized in the other disciplines. After the grouping, the content analysis consists of 11 experts. These 11 experts are seen to represent a comprehensive range of opinions and interpretations on research topic and phenomena. The selection of these experts and material is mainly rationalized by their exposure in the media and the availability of the content in which the content analysis is based on, emphasizing the importance of the related insights and experience. The categorization and the grouping of the experts can be seen in the following table, table also showcases the secondary data source.

Name	Position/Role	Secondary data source			
Technology insiders		**Podcast** (length)	**Article**	**Public presentation** (length)	**Interview** (length)
Roger McNamee	Early investor		**X X X**		
Chamath Palihapitiya	Former executive				**X** (56 min)
Sean Parker	Former executive				**X** (2 min)
Reed Hastings	Executive		**X**		
Tristan Harris	Designer	**X** (1h45min)	**X X**		**X** (13 min) **X** (56 min)
Jaron Larnier	Designer			**X** (14 min)	
James Williams	Designer		**X X**		
Ramsay Brown	Scientist				**X** (13 min)
Technology outsiders					
Yval Noah Harari	Professor/Author				**X** (56 min)
Zeynep Tufekci	Professor/Author			**X** (14 min)	
Nir Eyal	Author/Consultant		**X X**		

Table 2. Categorization and the grouping of the experts

Following the different phases of content analysis and after identifying the subjects relevant for the context, the secondary data used by the relevant subjects was identified. Third phase focused on understanding the phenomenon holistically, meaning that all the

data is analyzed as a whole. After transcription of the relevant data the researcher was led to view the phenomenon from different perspectives and meaning systems, which in turn generated different themes and categories, this process and its' findings are being summarized in the following table. Followed by discovering the underlying categories in content analysis, they are being analyzed and illustrated.

Categories	**Subcategories**
Business model & Design choices	Attention capturing Monetary imperative Platforms' goal ≠ Consumers' goals Dehumanization
Psychology	Exploitability of human mind Manipulation & Hacking Industry level adaptation / scalability

Table 3. The interpreted categories in digital platform economy

Business model & design choices category consists of following subcategories: Attention capturing, monetary imperative, different goals between platforms and consumers and dehumanization. Psychology category consists of following subcategories: Exploitability of human mind, manipulation and hacking and industry level adaptation and scalability.

5. ATTENTION CAPTURING BY DESIGN

The research question of this thesis is to critically analyze attention economy, where the focus is in the core conceptual modelling of marketing principles that are applied to compete in the digital environment where consumer attention and its' monetization are paramount. Earlier, this has been studied in theory chapter, where the main focus was in the frailty of consumers and in the conceptual structure of the digital economy. In this chapter the focus will be shifted to research method of the thesis, content analysis.

5.1. Business model & Design choices

The theoretical framework of the thesis highlights the core business model and the imperative of gaining attention as the main driver of the digital economy and for the platforms operating within. This was also reoccurring theme throughout the data, leading to the first category interpreted from the overall analysis. The core reason behind the current state of the business and the problems arising was back tracked to adopted business model in numerous cases. The strongest voices can be heard from tech insiders who were involved in the development of the platforms in the early stages and thus witnessed the effect that ad-based business model had on the product and the dynamic of the market as a whole.

"The problems are not isolated. They are systemic. They're related to a business model that has worked extraordinarily well for investors and horrifically for everyone else. It's bigger than Facebook. This is a problem with the entire internet platform industry."
Roger Mcnamee (2019a.)

In an article written by himself, Roger Mcnamee points out the exact business model referred in the first citation:

"The business model depends on advertising, which in turn depends on manipulating the attention of users so they see more ads."

Roger Mcnamee (2019b)

Roger Mcnamee was an early investor of Facebook, thus he knows how the profits are made through internet platforms. He emphasizes that the underlying business model, adapted by the whole industry, exploits consumers in order to provide value for investors. Notably, both citations are seemingly critical towards the business model and the industry. This viewpoint of industry level attention capturing in pursuit of profits and economic value is also elaborated by former Google designer Tristan Harris in a more explanatory, yet adversarial tone.

"*There is many sources of revenue, but it all comes down to, whether it is data or everything else, it comes down to advertising and time. Because of the link that more of your attention or more of your time equals more money, they have an infinite appetite in getting more of your time. This is the thing that is missing is that people don't realize, cause there is this most common narrative, I mean we hear this all the time, that technology is neutral and it is just up to us to choose how we want to use it, and if it happens, if people do fake news or if people start wasting all their time, that is just peoples' responsibility. What this misses is that, because of the attention economy, which is every basically business, whether if it is meditation app ort New York Times, or Facebook or Netflix or Youtube, you are all competing for attention. The way you win is by getting someone's attention and by getting it again tomorrow and by extending it for long as possible.*"
Tristan Harris (2017)

Another technology insider, who worked as strategist in the Google and who was responsible for building the metrics system for search advertising business there, James Williams, refers the industry blatantly and clearly in dystopian manner:

"*Largest, most standardized and most centralized form of attentional control in human history*"
James Williams (2017)

Sean Parker who was the first president of Facebook reflected on the early times in the company and the core driving idea behind the platform in interview by stating:

"*The thought process that went into building these applications, Facebook being the first of them, was all about: 'How do we consume as much of your time and conscious attention as possible?*"'
Sean Parker (2017)

Stripped down from excessive linguistics, this citation gives a concise description of baseline intention behind the creation of social media industry. This rational of the industry is perhaps best summarized by straightforward commentary by Ramsay Brown:

"*You don't pay for Facebook. Advertisers pay for Facebook. You get to use it for free because your eyeballs are what's being sold there*."
Ramsay Brown (2017)

In the light of these examples, the overall context of the industry can be clearly interpreted, but critical conceptualizations build the comprehensive understanding only so much. Harnessing the attention of users, as Sean Parker mentioned, is a process where attention itself becomes the objective thus means of capturing it should be the interest of anyone partaking in competition of that property.

"*Try to imagine what your technologies' goals are for you. What do you think they are? I don't mean the companies' mission statements and high-flying marketing messages – I mean the goals on the dashboards in their product design meetings, the metrics they're using to direct your attention, to define what success means for your life. From their perspective, success is almost always defined in the form of low-level "engagement" goals, as they're often called. These include things like maximizing the amount of time you spend with their product, keeping you clicking or tapping or scrolling as much as possible, or showing you as many pages or ads as they can.*"
James Williams (2018)

Williams harshly dismisses the reasoning behind the existence of internet companies on behalf of themselves as cover up or misleading marketing jargon. Instead he indicates that the sole operation is build relaying on monotonous metrics. This citation relates to another identified category, design, which also happens to play in favor of platforms rather than people consuming them as can be interpreted from citation by Nir Eyal:

"*The technologies we use have turned into compulsions, if not full-fledged addictions. It's the impulse to check a message notification. It's the pull to visit Youtube, Facebook, or Twitter for just few minutes, only to find yourself still tapping and scrolling an hour later. None of this is an accident, it is all just as their designers intended*"
Nir Eyal (2017)

The notion of technology not being neutral that was put forward by Tristan Harris gets backed up here; the consumer is seen as subject of behavior, where the used technology is the mean to a goal executed by a design choices made by designer of the platform. The preferred goal then follows the underlying economic incentive, resulting to asymmetric persuasive environment where every aspect of design choice can be altered and modified. as Roger Mcnamee suggests:

"*Technology has the power to persuade, and the financial incentives of advertising business models guarantee that persuasion will always be the default goal of every design. Every pixel on every screen of every Internet App has been tuned to influence user's behavior*"
Roger Mcnamee (2019b)

He even went on and described the method called growth hacking, which was purely designed to gain more and more users' attention:

"*From late 2012 to 2017, Facebook perfected a new idea, growth hacking, where it experimented constantly with algorithms, new data types and small changes in design, measuring everything. Growth hacking enabled Facebook to monetize its oceans of data so effectively that growth-hacking metrics blocked out all other considerations. In the*

world of growth hacking, users are a metric, not people. Every action a user took gave Facebook a better understanding of that user–and of that user's friends–enabling the company to make tiny "improvements" in the user experience every day, which is to say it got better at manipulating the attention of users."
Roger Mcnamee (2019b)

The notion that platforms don't consider users as people, but as a metric or a subject that can be manipulated to act in the desired way is also mentioned by Ramsay Brown:

"*You're part of a controlled set of experiments that are happening in real time across you and millions of other people. There's some algorithm somewhere that predicted, hey, for this user right now who is experimental subject 79B3 in experiment 231, we think we can see an improvement in his behavior if you give it to him in this burst instead of that burst.*"
Ramsay Brown (2017)

This technologically mediated behavior manipulation and dehumanization of users can thus be seen to orient completely towards the goals of the designer rather than the users':

"*There is a fundamental conflict between what people need and what companies need" "I realized: This is literally a million people that we've sort of nudged or persuaded to do thing that they weren't going to otherwise do*"
James Williams (2017)

Early executive at Facebook, Chamath Palihapitiya, Tristan Harris and Jaron Lanier have a more radical take on the conflict between the goals of platforms and the goals of the user's:

"*Inadvertently, whether they want to or not, they are shaping the thoughts and feelings and actions of people. They are programming people."*
Tristan Harris (2017b)

"*Your behaviors, you don't realize it, but you are being programmed"*

Chamath Palihapitiya (2017)

"*What started out as advertising really can't be called advertising anymore. It turned into behavior modification. And so I can't call these things social networks anymore. I call them behavior modification empires."*
Jaron Lanier (2018)

One common argument could easily follow, that it is eventually the user who makes the choice, thus the responsibility of choice and resulting consequence should be laid on them, but as interpreted by Tristan Harris:

"*Companies say, we're just getting better at giving people what they want. But the average person checks their phone 150 times a day. Is each one a conscious choice? No. Companies are getting better at getting people to make the choices they want them to make*"
Tristan Harris (2016)

While the similar kind of argument as mentioned below, can be put forward on behalf of any company supporting undesired behavior, it doesn't erase the accountability of the company as can be understood through the blunt analogue drawn by Roger Mcnamee:

"*Facebook and Google assert with merit that they are giving users what they want, the same can be said about tobacco companies and drug dealers*"
Roger Mcnamee (2017)

Some of the executives are not too shy to state that their goals might be in conflict with user' goals, as Netflix CEO Reed Hastings has claimed, their rivals aren't necessarily other platforms, but humane goals that we hold in our everyday life:

"*You know, think about it, when you watch a show from Netflix and you get addicted to it, you stay up late at night. We're competing with sleep, on the margin*."
Reed Hastings (2017)

5.2. Psychology

The second category interpreted from the overall content analysis around the digital economy is related to psychology. This category is characterized with more specific and detailed methods directed to users by persuaders. This includes insights from human mind and behavioral economics, drawing a link between first theory chapter and methodology.

The trajectory of internet economy, which relies on attention of its users is simply drawn:

"*What starts as an honest competition to make useful things that people spend time on, devolves into a race to the bottom of the brain stem to maximize the time we spend.*"
Tristan Harris (2016)

The worrying aspect raised here is that no matter how useful or beneficial the platform might be, the competitive nature of the market drives the imperative to exploit the human psychology to the maximum where the only limit is our understanding of the human mind and psyche. As Yuval Noah Harari points out, that limit will be pushed forward as growing psychological understanding is continually applied to technological designs:

"*To hack a human being is to understand what's happening inside you on the level of the body, of the brain, of the mind, so that you can predict what people will do. You can understand how they feel and you can, of course, once you understand and predict, you can usually also manipulate and control and even replace."*
Yuval Noah Harari (2018)

"*I think that AI gets too much attention now, and we should put equal emphasis on what's happening on the biotech front because in order to hack human beings, you need biology and some of the most important tools and insights, they are not coming from computer science, they are coming from brain science. And many of the people who design all these amazing algorithms, they have a background in psychology and brain science because this is what you're trying to hack."*
Yuval Noah Harari (2018)

The other noteworthy feature of human mind, which was also introduced in the first chapter, is its' use of heuristics when making choices, thus in that light the following line by Tristan Harris becomes a truism:

"*All of us are jacked into this system, all of our minds can be hijacked. Our choices are not as free as we think they are*"
Tristan Harris (2017)

Yuval Noah Harari goes to great lengths verbally to support this counterintuitive statement. Simply put, there is nothing divine about human minds, rather we've been believing to this false narrative that no one could never interfere our subjective cognitive processes:

"*Our society is built on the ideas that the voter knows best, that the customer is always right, that ultimate authority is with the feelings of human beings and this assumes that human feelings and human choices are these sacred arena which cannot be hacked, which cannot be manipulated. Ultimately, my choices, my desires reflect my free will and nobody can access that or touch that. And this was never true. But we didn't pay a very high cost for believing in this myth in the 19th and 20th century because nobody had a technology to actually do it. Now, people—some people—corporations, governments are gaining the technology to hack human beings*"
Yuval Noah Harari (2018)

Jaron Lanier, who was involved in the early days of digital culture helped craft a vision for the internet as public commons where humanity could share its knowledge, reflects the psychological foundations on which the social networks were built upon:

"*So with behaviorism, you give the creature, whether it's a rat or a dog or a person, little treats and sometimes little punishments as feedback to what they do. So if you have an animal in a cage, it might be candy and electric shocks. But if you have a smartphone, it's not those things, it's symbolic punishment and reward. So on social networks, social*

punishment and social reward function as the punishment and reward. And we all know the feeling of these things. You get this little thrill -- "Somebody liked my stuff and it's being repeated." Or the punishment: "Oh my God, they don't like me, maybe somebody else is more popular, oh my God." So you have those two very common feelings, and they're doled out in such a way that you get caught in this loop. As has been publicly acknowledged by many of the founders of the system, everybody knew this is what was going on."
Jaron Lanier (2018)

This links directly to theories presented in the chapter 1, humans are prone to external and internal stimuli, rewards and punishments, and when these stimuli are variably delivered it creates this loop of continuous usage through common human feelings that fabricate our social settings. Nir Eyal emphasizes this in article:

"*When you are feeling uncertain, before you ask why you are uncertain, you ask Google. When you are lonely, before you are even conscious of feeling it, you go to Facebook. Before you know you're bored, you're on Youtube. Nothing tells you to do these things, The user trigger themselves.*"
Nir Eyal (2016)

Noteworthy, Lanier also raises the notion that this kind of human conditioning was by no means an accident, but a conscious choice when building these social networking platforms. All this is very clearly articulated in the interview of ex-president of Facebook, Sean Parker:

"*And that means that we need to sort of give you a little dopamine hit every once in a while, because someone liked or commented on a photo or a post or whatever. And that's going to get you to contribute more content, and that's going to get you ... more likes and comments. It's a social-validation feedback loop ... exactly the kind of thing that a hacker like myself would come up with, because you're exploiting a vulnerability in human psychology. The inventors, creators — it's me, it's Mark [Zuckerberg], it's Kevin Systrom*

on Instagram, it's all of these people — understood this consciously. And we did it anyway."
Sean Parker (2017)

Psychological exploitation is proved to be such a powerful tool to attract consumers that it has been adopted widely by internet platforms, making it a default tactic in the industry:

"*Consumer internet businesses are about exploiting psychology and that one is where you want to fail fast because you know people are predictable and so we want to psychologically figure out how to manipulate you as fast as possible and then give you back that dopamine hit. We did that brilliantly at Facebook, Instagram has done it, Whatsapp has done it, Snapchat has done it, Twitter has done it, Wechat is doing it."*
Chamath Palihapitiya (2017).

What can be interpreted from the citation is that once one knows how to exploit human psychology, it can be scaled radically, as Professor and techno-sociologist Zeynep Tufekci concludes in her public talk:

"*In the digital world, though, persuasion architectures can be built at the scale of billions and they can target, infer, understand and be deployed at individuals one by one by figuring out your weaknesses, and they can be sent to everyone's phone private screen.*"
Zeynep Tufecki (2017)

And with scalability, the whole context of the problem shifts from individual to societal:

"*Behavioral design can seem lightweight, because it's mostly just clicking on screens. But what happens when you magnify that into an entire global economy? Then it becomes about power*"
Tristan Harris (2016b)

5.3. Interpretation

Regarding to content, attention is drawn to the fact that speech in citations is very declarative, issues are presented as facts and generalizing truths. This is underlined by the present-day form of speech, which reinforces the perception that the actions described by the actors are perceived as a constant state of the present. The tone of the content is very criticizing and frustrated, which implies that the actions of the platforms are not desirable or admirable. It is also interesting that even though the speech is heavily biased and generalized, the speakers do not attach themselves to the description. Speech often stays at the meta level, as if the speakers were looking at the issues from the distance. On the other hand, given the background of the experts who once were working inside of the industry, it is only natural that their take on the subject and the style of the speech is generalizing and biased. Since one of their goals is to raise the occurring dilemmas and problems, that they witnessed, to public debate in understandable and relatable manner.

Yet, the content analysis presented very clearly the highly interconnected relationship between advanced technology applied by platforms to drive their economic incentives and the exploitable nature of human mind and psychology, which were the theoretical frameworks of this thesis, presented in the earlier chapters. The undeniable advantage of gaining more psychological insight in order to form a deeper customer understanding has led platforms to compete in that newly emerged frontier with technological capabilities never seen before.

The business model and design choices category emphasizes competition and motivation to attract users' attention. Citations overwhelmingly consists of radical language that implies that this orientation is not restricted to individual companies but is deeply rooted in the industry in highly systematic manner as a core competitive mechanism. All experts involved in this category are former tech-insiders who have a firsthand experience of building these platforms, thus making them reliable source of identifying and exposing practices that had previously been hidden from the public. Notably, citations are heavily critical towards the business model and the industry embracing it. This viewpoint of industry level attention capturing in pursuit of profits and economic value is marked with

talk implying greed and intentionality. Due to this, it is flatly highlighted that users of these platforms are no longer the target audience, but a mean to attract advertisers which of whom the monetary profits are collected. Relating to this, content analysis is bringing forward the notion that platforms have dehumanized their users. This dystopian point of view is supported by objective examples and language, such as, programming, metric and modification. This followed by derived rational that since platforms don't see users as people, they can't have humane goals, thus nudging and persuading them to act in a ways that benefit platforms rather than users. This debunks the very common narratives provided by platforms that "technology is neutral", since it is rather very capable of guiding consumers to act in certain ways. This opens up an optimistic point of view to designing these platforms though; if companies and the industry rethink the metrics by which they measure success they can direct consumers to that direction, rather than only measuring engagement and time on site. Thus they are capable of creating demand and incentives for technological solutions that respect consumers' agency and more humane goals. Blatantly interpreted, platforms have a power to design their products by dehumanizing their users in order to follow current economic incentives and metrics or designing them to see consumers as individual humans with goals not shown on dashboards in form of numbers.

The psychology and human mind category emphasizes the vulnerability and exposed nature of human mind. As with the earlier category, also this category is dominated by strong and generalizing language, again implicating that discussion topics represent the current state of the affairs in objective, but taunting manner. Strong argument is presented, that our subjective experiences, feelings and interpretations of reality are indeed just objectively measurable cognitive processes. The first out take from this category is the framing of human mind as product of psychology and biology, indicating that as any process, also it can be hacked and controlled. This kind of terminology effectively delivers the wanted message: there is nothing divine about human mind, the perceived extraordinariness is just an illusion that was carried by our gullibleness and a lack of deeper understanding. This argument is repeated more tangibly by comparing humans and rats, both can be seen to be driven by various stimuli that reinforce their behavior. In the context of social media platforms this effect can be seen in unconscious reflexes to

our internal triggers, such as feelings. This understanding of vulnerable human mind is, by observation, argued to be built into and championed by the platforms in complete awareness, even when some ethical or moral reflection might have taken place.

6. CONCLUSIONS

The purpose of this thesis was to critically analyze attention economy, where the focus is in the core conceptual modelling of marketing principles that are applied to compete in the social media environment where consumer attention and its' monetization are paramount. The research proceeded deductively from the theoretical part to the content analysis of the empirical part.

The purpose of the research was approached through four objectives. The first objective for this thesis was to map the main driving forces behind the human obsessive marketing by drawing theories from historical evolution of marketing as discipline, the growing role of technology in consumer understanding and human cognition, especially focusing on irrational biases and choices. Initially, marketing paradigms where introduced, after which the main drivers and enablers of evolution where sought and interpreted. Marketing was found to be evolved in parallel with desire to understand consumers better and more deeply and technological advancement, particularly information technologies, offering this growing insight. Thus, the evolution of marketing practices can be concluded to be drifting away from the traditional approach where the focus is on using generic media environments to reach target audiences as masses. Rather, marketing practices today are focusing on reaching individual consumers, powered with technologies that can reach them at any given time in any given location with highly customized advertising messages fit for individual consumers exclusively. This recently emerged paradigm relies almost entirely on information technologies and their capability to extract, analyze and store massive amounts of data on consumers, logically so, since the more marketers know about individual consumer the better the marketing message can be tailored to appeal and shape the consumption choices.

In order to complete the theoretical framework of better consumer understanding, theories from behavioral economics was applied. Behavioral economics was found to offer valuable insights for marketers to better understand their consumer. Firstly, it was argued that consumers are bounded in many dimensions, particularly in their rationality, self-control and self-interest; consumers' decisions are guided by heuristics rather than cold

headed pondering of long-term interest. These cognitive limitations responsible for large amount of consumer behavior was seen to embody worrying implication; consumer choices are driven by impulses instead of intentions, exposing them to persuasion that might undermine their autonomy.

The second objective for this thesis was to explore the market configurations of attention economy. This goal was met in the second theory chapter, where this newly emerged competitive environment was first summarized as the consequence of ever growing amount of information and content and the stagnant resource consumers possess to pay for them, attention. The economy of social media and the resulted environment where capturing consumers' attention is paramount was recognized to have resulted from used advertising model; advertising is used to fund the product offered to consumers for free. Working on both sides of the market, consumer attention has become so competitive that attention was regarded as a new currency of business.

Drawing from theories of attention economy, three participating actors where identified. The crowd, referring to consumers of social media was discussed in the context of theories offered by behavioral economics. It was construed, that since consumers deal with the endless amount of choices and information no one can be perfectly aware of his or her options, thus leaving them vulnerable to exploitation of different choice architectures. This refers to platforms that acts as an intermediate infrastructure and the core architecture that guide interactions of crowd by extracting and controlling their data and using enhanced algorithms to sort and analyze it in order to build feedback loops that continuously shape the choice architecture to nudge and persuade users and draw their attention to serve commercial interests.

The third objective for this thesis was to increase the overall understanding of the characteristics and meanings of the attention economy and different asymmetries it creates between platforms and consumers. This was conducted by illustrating examples and analyzing content created by different industry leaders' and academics. The content analysis divided the topic in two different categories and their subcategories; first category being the interpretation of today's business model and design choices and

second being the interpretation of vulnerability and exposed nature of human mind, namely psychology. This analysis, together with earlier presented theories formed a coherent picture of structure of attention economy and its driving incentives. The interpretation of data revealed and confirmed the highly interconnected relationship between advanced technology applied by platforms to drive their economic incentives and deliberate exploitation of human mind and psychology. Design choices of platforms across the industry were seen to be driven by goals focusing on attention capturing that in turn were resulted from monetary rewards generated by adopted business model. Followed by this core structure and design, it was widely acknowledged by experts that platforms' goals are by nature different to consumers' goals since consumers are not necessarily regarded as individuals with humane goals but rather as dehumanized objects of attentional control. This view was thoroughly supported by analysis of psychology category, where the exploitation and manipulation of human psychology was put forward to being one of the main drivers of social media businesses. The platforms operating in this environment use the understanding of human psychology in manipulative, if not in straightforwardly fraudulent ways that systematically exploit the cognitive weaknesses which can be scaled with ease, leaving billions of consumers vulnerable to manipulation and coercion.

This thesis argues that the industry-scale attention harvesting performed by big social media platforms is concerning, not due to its implications for marketing and advertising, but due to the exceptional nature in which that approach is being applied to shape consumers' decision making to benefit those social media platforms rather than consumers. The fundamental claim is that in spite of the complexity and tact technological methods and deeply rooted insights of human cognitive processes, these platforms rely on relatively simple business model that is based on selling advertising against their traffic and engagement. This business model does depend on successful methods of influencing and nudging consumers by constructing and personalizing the consumers' choice context, through powerful algorithms and massive amounts of data that offer such amount of personal information about their customers that no institution or market actor has ever possessed, such as interests, habits and emotional states. The main issue is that this business model is meant to direct consumer choice towards the choice architecture

preferred by platforms, not by the persuaded consumers, thus structurally undermining human autonomy.

6.1. Looking forward

"*Ask yourself whether your technology persuades users to do something you wouldn't want to be persuaded to do yourself*." Berdichevsky & Neuenschwander (1999:51)

This thesis suggests two issues on which the improvements to current state can be drawn upon and of which one is rather invariable and the other is variable and continuously advancing. The first, invariable, issue is human psychology. Fundamentally, our cognitive capabilities and weaknesses are the same as in the past, certain judgements and conclusions are hardwired in our minds. Although dual system theory is by no means a complete description of human mind, it serves as a good and simplistic way of understanding irrationalities in human behavior since it puts forward the notion that most of the time humans are subject to fast, reflexive and unconscious, rather than slow, reflective and conscious decision making. Accordingly, the first implication of the present thesis is to further develop more realistic and deeper understanding of ourselves. The more is learnt about human mind, both vulnerabilities and capabilities, the better our guidelines for technology could be.

The second issue regards of technological realm where progress is status quo. Progress in artificial intelligence, brain sciences and psychology is inevitable. This suggests that it is essential to recognize the capacities and risks of those technologies that continually get better at influencing and controlling human behavior. Yet, it is practical to note that technology itself has no intentions or goals, it is a tool which can be applied by designers and platforms towards *their* goals. Thus, there is nothing deterministic about the human-technology relationship, relationship that is proved to be both elevating and devastating. When it comes to setting the limits for technology, that causes or might cause harm to its users, it is generally a matter of design choices, adapting to intended and unintended consequences and forming guiding and protective policies around them.

During the past few years, the knowledge in this research area and key issues surrounding it has increased on both, societal and industrial level. As the reach of new technologies that tap deep into peoples' minds grow, questions on both, methodology and ethics, drawn from the underlying fields of psychology and computational sciences need to be acknowledged. These are also issues that call for technological, economical, ethical and moral reframing. Wide range of questions needs to be asked, answered and understood since more examples of technologies designed to change human attitudes and behaviors are to be seen. Understanding what is going on today with rising role of technology driven platforms and its consequences on individual and collective level can help to foresee the future with all of its potential and peril. These platforms could be so that they enhance the world outside the digital world, not contrary.

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8. APPENDIX

8.1. Secondary data used for the content analysis

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