Introduction

When the first civilizations codified the barter system and introduced money into circulation, commonly understood marketing already existed. According to historians and archaeologists, the ancient Romans understood the concept of advertising and, hundreds of years before the golden age of Madison Avenue, eagerly displayed graphic representations of their offers on the walls of shops and on the weapons and armour of gladiators fighting in the arenas. The earliest examples of marketing come from areas as ancient as Mesopotamia, where, thousands of years before the common era, cuneiform tablets, describing prices and commercial procedures, were already produced. Of course, even then the marketing was tiresome and fraudsters happened everywhere. Marketing has always served one purpose: to increase sales.

The modern definition of marketing says that it is "a societal process by which individuals and groups obtain what they need and want through creating, offering, and exchanging products and services of value freely with others,"[1] but actually the reverse is true. It turns out to be a societal process in which individuals and groups make a profit by creating, offering and freely exchanging goods and services for and with those who need them. Marketing is not conducted by those who want to buy something, it is actually conducted by those who are trying to sell something.

Even for a young girl living on the banks of the Euphrates, whose name has already been forgotten by history several times, it was obvious that she had to get up early and go to the market to advertise her own catch to the first customers in the city that was waking up to life. Thousands of years ago, this girl knew which fish her customers were willing to buy and which they avoided, how to arrange them to make them look attractive, which faces in the crowd pass frequently by her stall, and which ones were those of casual buyers. Even then, to her, any information she could gather about potential customers was worth its weight in gold. Because they directly translated into her earnings.

Information drive and proactivity – the two traits have always formed the basis of the success of a good marketer. However, for a long time the problem was that marketing gains were difficult to quantify. Retailers knew that advertising was necessary, that there was a significant difference in unpromoted and well-promoted sales, but it was impossible to determine actual marketing revenues, especially in multi-channel marketing. How much profit did a screamer in the marketplace praising clay pots bring to a Roman merchant, and how much could the advertisement on the wall of his shop earn? It was impossible to find out, unfortunately, because otherwise he could have hired two screamers instead of paying the artist for the drawing.

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[1]   Ph. Kotler, K.L. Keller, *Marketing Management*, Prentice Hall, 2011.

Therefore, a marketer, a product promotion and campaign specialist, has always been a kind of charlatan. A wizard who knows all sorts of magic tricks to increase his marketing potential, but whose magic remains a secret, even to himself. Fortunately, for our magician, the ability to promote a product was the same skill that allowed him to win the favours of a wealthy investor. In this way, the marketing specialist somehow managed to get through the flow of history, somewhat secretly, half-honestly, all the way to the 20th century. Then his magic was finally revealed.

The arrival of the Internet and the extensive possibilities of web analytics heralded the arrival of great changes. Some kind of spectre, one might say, was circulating in the marketing world. The spectre of automation. Revolution is often a not entirely understood phenomenon. Nowadays, in the third decade of the 21st century, it is generally regarded as something positive: revolutions, at least in assumption, are supposed to result in the improvement of living conditions. In the Western world, one of the two most famous revolutions in the world, the French Revolution, has become a symbol of the Enlightenment's pursuit of truth, science, social equality and, of course, economic liberalism.

However, the revolution, first and foremost, results from a crisis of values and traditions – a moment when certain established patterns of behaviour cannot be continued in the face of social change. Every crisis is, at first, a terrible event. It is no different in marketing. The emergence of automation in an economy based not so much on the creativity of an expert but on a sheer amount of data about buyers has made the marketer-hustler a relic of the past.

In the new marketing, the effects of a marketer's work are dangerously measurable. Thanks to extensive analytical platforms, all metrics are clearly visible. No surprise, then, that while still carrying the burden of the marketing past, only 48.8% of marketing departments in companies use analytical data to prove the positive impact of their activities on business development.

Marketing automation philosophy

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Marketer's new challenges

The world is ever changing. In spite of appearances, this is not a sermon by an apocalyptic prophet or another cliché from a personal development course. It's a simple statement of fact. But, as Vladimir Lenin noted, "There are decades where nothing happens; and there are weeks where decades happen."[1] And the year 2020 was so.

Originally, marketing was a local, unmeasurable and intuitive tool. Nor did the long-forgotten fish trader from the Euphrates know exactly which of her activities, either to what extent they translated into the increase in sales. All she knew was that they were effective. She did not need to build a complicated strategy of conquering new markets. Her buyers operated locally, and references and instructions were communicated through word of mouth.

Vive la revolution

As civilization developed, the world began to shrink. Along with the invention of the printing press the masses gained access to knowledge. The first newspapers became the carrier of advertisements that gave entrepreneurs completely new perspectives. Railroad and motorization allowed for more intensive interactions between countries and made it easier to conquer new markets. The telephone and television have placed a window to the world in the audience's houses.

Every great invention, since the industrial age, through the age of electricity, to the age of information, has reshaped the landscape of the world. Despite the unjustified fear and huge objections that accompanied the introduction of each novelty, sooner or later these goods found their way into a wider circulation.

Today, mobile phones, which in the 1990s were a luxury product for businessmen and celebrities, have become widely available. In 2021 half the world's population – 3.9 billion people – was using smartphones.[2] There are even areas where their popularity far exceeds that of laptops and desktop computers.[3] They are cheaper, lighter, have internet access and

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[1] https://www.journal-of-hepatology.eu/article/S0168-8278(13)00839-8/abstract [access: 1/4/2021].

[2] *Number of smartphone users worldwide from 2016 to 2021*, statista.com, https://www.statista.com/statistics/330695/number-of-smartphone-users-worldwide/ [access: 10/01/2021].

[3] In 2017, there were 4.3 billion smartphones in use on the planet – three times more than desktop devices [from: Ericsson Mobility Report November 2020].

allow one to use most computer functions. What's more, they often exceed their computing power. Smartphones are now more powerful than the NASA computers that were used to land on the Moon. They are better than the ones NASA is using in spaceships nowadays.[4]

What seems to us to be a day-to-day standard is the result of many cultural and technological changes. The turning point on the path to globalization was, of course, the creation of ARPANET.[5] This ancient ancestor of today's Internet was a milestone on the way to connecting the entire world and creating the information society. The network was born as a child of the Cold War and initially connected only a few computers within a single organization. The beginning of the Internet is considered to be the moment of the creation of the first ARPANET nodes in 1969. This course of changes was sealed when the network went abroad in 1973.[6] Since then, the pace of change has been steadily increasing.

The times they are a-changin'[7]

Experts identify five key factors that are changing the modern marketing landscape: the changing character of the consumer, evolving geopolitical dynamics, new patterns of personal consumption, technological advances and structural changes in economy.

How does this relate to marketing? Imagine these great changes are a shark that travels across the ocean. Marketing is as remoras clinging to its sides, benefiting from the giant's actions. Over time, this initial commensalism[8] turns into a more complex relationship, slightly closer to symbiosis.[9] Each new medium, each invention is very quickly adapted to the needs of entrepreneurs. In such a case, both sides win. Entrepreneurs gain new ways to reach consumers, and the media gain sponsors. Media platforms have a chance to survive in the market largely thanks to advertising and marketing money. It is quite an intimate relationship. Therefore, it is so rare to find independent platforms, free from any forms of promotion, which remain on the market for a long time. It is also rare to see entrepreneurs who do not use any form of marketing.

There are some advantages and disadvantages to the situation. The advantage is, of course, the ability to follow the customer. The disadvantage, or perhaps a challenge, is the need to have the finger on the pulse and wisely adapt activities to changing conditions. Antother challenge

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[4] This is what *Business Insider* says in a 2014 article: *Your phone is more powerful than the computer in the spaceship NASA launched this week*, https://www.businessinsider.com/your-phone-is-more-powerful-than-the-orion-computer-2014-12? IR = T [access: 10/01/2021].

[5] Advanced Research Projects Agency Network.

[6] Janet Ellen Abbate describes the phenomenon in her scientific work: *From ARPANET to Internet: A history of ARPA-sponsored computer networks, 1966–1988*, University of Pennsylvania, 1994.

[7] B. Dylan, *The Times They Are a-Changin'*, Columbia Studio A, 1964.

[8] *Encyclopedia Brittanica* defines *commensalism* as a relationship between individuals of two species in which one species obtains food or other benefits from the other without either harming or benefiting the latter (host); https://www.britannica.com.

[9] The dictionary definition of symbiosis is the coexistence of two different species, beneficial to one or both parties.

Table 1.1.

The changing character of the consumer	Evolving geopolitical dynamics	New patterns of personal consumption	Technological advances	Structural changes in economy
■ explosion of the middle class ■ aging society ■ professional activation of women ■ urbanization progressive ■ the wealthy getting richer ■ growing importance of millennials in the consumer market ■ decrease in the size of households	■ rising costs of labour and goods ■ change in the distribution of economic forces ■ internal economic ties ■ climate change	■ increase in the standard of living ■ focus on health and well-being ■ the demand for personalization and hyper-personalization ■ change in spending on „whims" ■ the sharing economy ■ focus on the purchasing experience ■ buying local ■ simplifying choices	■ growing importance of the mobile channel ■ widespread use of Big Data ■ digital profiles and avatars ■ the universality of 3D printing ■ advanced robotics ■ autonomous vehicles ■ advanced analytics for marketing ■ ubiquitous internet ■ consumption based on social media ■ artificial intelligence ■ Internet of Things ■ virtual reality ■ wearables	■ investors-activists ■ direct to consumer sales models ■ the consolidation process ■ a new look at skills and talents

Source: Own elaboration based on: The Sharing Economy, PricewaterhouseCoopers, April 2015, and Activist Insight.

is to make the proper use of the opportunities offered by the market. Obviously, the aim is not to invest a whole lot of funds in promotion, but to get a return on this investment and keep it at least constant.

Welcome to 4D

We said goodbye to the era of marketing long ago, the results of which cannot be estimated. Modern platforms and technologies offer amazing possibilities and a huge amount of information. The traces that accompany each transaction are extremely useful … as long as the marketer knows what to do with them. Data streams build a pretty good picture of real consumers. Funnily enough, digital brushstrokes aren't restricted to 3D.

This picture is painted in four dimensions. All the past behaviours that led to the selection of a particular product lie in front of the keen observer as if on a plate. The picture, however, does not halt there. The digital hand that holds the brush also sketches the future. Looking at such a picture is a bit like those tangled 3D graphics, where you have to squint first so that something completely new emerges from the depths. But once you see it, it's impossible to stop.

This painting is available, but not for everyone – just like other benefits that the modern world offers. Only a small group of marketers will dare to reach for gold. Along the way, they will have to face many challenges in order to make the sweet fruit of victory fall onto them as well.

Mobile first

The *mobile first* philosophy is based on the assumption that a smartphone with internet access is the target device on which services and websites are browsed. That is why websites should first of all be designed with the users of mobile devices at the back of the mind, and only then developed and modified for larger screens.[10] Of course, the question arises whether an investment in a specially designed website is not too much caution? When in doubt, it is best to refer to the data. And they are quite unambiguous.

- During the year, between November 2018 and November 2019, the share of mobile users increased by over 10%. *StatCounter* analysts checked that during this time the use of the Internet on desktop devices decreased from 54.86% to 46.5%, while the share of mobile users increased from 37.38% to 48.33%. Thus, the global number of people who use internet access via smartphones has exceeded the number of those who use computers and laptops for this purpose.[11]

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[10] R.E. Roth, *What Is Mobile First Cartographic Design?*, University of Wisconsin–Madison, Madison 2019.
[11] See https://gs.statcounter.com/platform-market-share/desktop-mobile-tablet [access: 08/12/2020].

- According to the *Statista* study, in 2019, millennials, i.e. people aged 25–34, spent an average of 3 hours and 45 minutes browsing websites on mobile devices, i.e. smartphones and tablets.[12]
- Poles also use the Internet more often on their smartphones. As many as 61% of people prefer this device as a tool for using the Internet.[13]
- In October 2020, there were over 4 billion unique mobile internet users in the world. This is a huge percentage of the entire internet user population, which grew to 4.66 billion in January 2021. Of course, there are many people among them who use various devices, but nevertheless 4.08 billion stand for over 87% of this group![14]
- Global mobile data flow is predicted to increase almost sevenfold between 2017 and 2022. This trend is definitely supported by better quality and decreasing prices of mobile internet. More and more people choose a smartphone as the first device to use the web. This personal command centre is in many respects in line with traditional computers, and in some cases even surpassing them.[15]

In the last decade, smartphones have become extremely popular. They are becoming more and more available to the average user. They are also light, comfortable, intuitive and useful. They can be used anywhere and they guarantee access to the Internet almost anywhere.

By the way, we are so used to the fact that the Internet is ubiquitous that we treat it as an extension of ourselves. Need information? Quick research in Google. Don't know how to get to the meeting point? Online map. Shopping? Calendar? Entertainment? Work? We are used to the fact that everything is online. No need to carry binders, calendars or notebooks. You don't need to memorize hundreds of pieces of information that will or may not be useful. So if we can use it everywhere, we will do it. We are so determined that we have already overcome the collective distrust of smartphones to the point where we conduct more and more financial transactions with them, and some even use them as a mobile wallet.[16]

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[12] See https://www.statista.com/statistics/416850/average-duration-of-internet-use-age-device/ [access: 08/12/2020].

[13] *E-Poles. What do we do on the internet?* The study conducted on a representative sample of Poles aged over 15, n = 1024, by Kantar Polska in June 2019 at the request of the Ministry of Digitization.

[14] See https://www.statista.com/statistics/617136/digital-population-worldwide/ [access: 08/12/2020].

[15] See https://www.statista.com/statistics/271405/global-mobile-data-traffic-forecast/ [access: 08/12/2020].

[16] The popularity of this form of payment initially grew, to result in a decline in 2019 (according to the Mobile Payment Adoption 2020 report prepared by pymnts.com). However, analysts predict that the COVID-19 pandemic will have an impact on the use of electronic wallets. *Statista* data indicated the growth of the entire mobile payments sector in 2020. The *buyshares* study (*Mobile Wallet Payments to Jump 50% Amid COVID-19 Outbreak and Hit 1.47trn Value in 2020*, https://buyshares.co.uk/) mentions that the dominant upward trend will continue in the next twelve months, and the total value of transactions will exceed $ 2 trillion in 2021. It is also predicted that this amount will double in the next four years, reaching $ 4.1 trillion by 2024.

So what's all the fuss about?

How is mobile design different from traditional design and do you really have to split hairs? On the surface, it might seem unnecessary to discuss this topic. Over the years we have got used to the traditional look and feel of websites. Is it not possible, then, to cleverly reduce them so that they simply appear in the right scale? In no case!

The main difference between a smartphone and a computer is the format and size of the screen. What looks good at nineteen inches will be completely unreadable at six. But that's not all. A rectangular computer screen has a horizontal orientation and slightly different proportions than a vertical, oblong smartphone. Can you imagine the painting of *the Battle of Grunwald* reduced and tucked into the frame of *a Lady with an Ermine*? Sites and pages designed with the *mobile first* assumption must take this specificity into account. Adaptation of solutions to the needs of a new channel works much better here than simple miniaturization.

The second difference is how we use the screen. While sitting at the computer, we keep our distance and have a wide field of view. Even if the website is like a flashing Christmas tree with lots of ornaments, banners and action buttons, we can process it. Using smartphones is a bit more intimate. We hold them close to our face and pay a lot of attention to the content. The screen is small, so we strain our eyesight and focus heavily on the image. All ornaments and glitter are completely unnecessary and are extremely disturbing to the reception. In the case of *mobile first* websites, less means more.

The third difference is the way it is operated. When using a laptop or computer, we have a touchpad or a mouse. We use both hands to get the desired effect. It is also worth noting that the cursor in relation to the screen is very small. Operating on a smartphone looks completely different. Most often, the phone is held with one hand and the image is scrolled with the thumb. The smartphone is controlled by a pair of thumbs (in special cases, we also use the index fingers). That is why most *mobile first* websites have all the important elements within reach of a thumb. Such an approach to design makes it easier for users to navigate the websites and for potential customers to make a purchase. *Mobile first* websites focus primarily on the convenience of the end user.

The fourth difference lies in the circumstances in which we use the Internet on individual devices. We most often use computers and laptops in places with access to land-line Internet. We don't do it on the run, we take our time. Smartphones make it possible to use mobile Internet practically everywhere, but on the way they "consume their own reserves". Moreover, when using the Internet on a smartphone, we often need quick access to information. Therefore, it is unacceptable for the *mobile first* website to load for ten or fifteen seconds. It should be light and fast – the lighter version of the website.

Is it just the design?

The technology itself a few years ago ceased to be a great challenge. The biggest obstacle is seeing smartphones as toys or miniature computers. Rebuilding this mindset is a real challenge. In the case of marketing, this applies not only to the website design itself. The change of mindset must proceed in many dimensions and channels simultaneously.

For over a decade, we have been saying that marketing is transforming from campaign mode to process mode. In practice, this means that marketing activities performed in isolation from other activities are ineffective. Modern marketing is a process that includes recognizing the client's needs, building a relationship and maintaining it through many channels at the same time. Customers value authenticity and brand experience more than "quality at a low price".

One of the most important is the mobile channel. Smartphones accompany us at every step. They are the first instance in case of doubt, a personal assistant when shopping and a personal trainer for the morning jogging session. They're making a matchmaker, news aggregate, and a customized entertainment studio. They are a window to the world and a way of exchanging messages. In other words, there is no modern marketing without the mobile channel.

Additional challenges for the mobile channel

There are other aspects of marketing connected with the mobile channel, without which it is impossible to build a modern brand experience. First, it's the location. Telephones move with consumers and send measurable information about their location. This seemingly obvious piece of information offers a wide range of opportunities. In fact, territorial marketing and local marketing are based on sending meaningful and relevant messages based on where the customer is currently located. Location is an important component of the four-dimensional space in which modern marketers operate. Without this information, the client exists in an undefined void.

The second aspect is the appification of the world. And it is not just about the fact that we have an app for everything. Appification is the phenomenon of the transition from simple, stacked data sets (such as Wikipedia) to sets that, on the basis of data, respond to given queries and give an answer that is the result of data synthesis and analysis. As consumers, we are no longer satisfied with the information Do It Yourself (DIY). We try to keep up with the pace of the rushing world and value solutions that help us in it.

An even newer consumer

Until recently, prosumers were loudly discussed as a new wave of consumers replacing the old guard. Indeed, their coming to the foreground has mixed up a lot in both marketing and the overall approach to brand building.

Who is a prosumer?

A prosumer is an aware customer, a person who goes most of the shopping journey independently. This is a person who, prior to making a purchase decision, learns as much as possible about the service or product that interests him/her, as well as about the companies offering them. The prosumer is used to having constant access to information.

A prosumer is assertive and presents strong views. He is a person who cannot be an Eskimo buying ice or caught by marketing tricks … at least in his perception (but more about it in a moment).

The concept of a prosumer was coined by Alvin Toffler in 1980s. This futurologist saw the clients of the future as people consciously and actively seeking knowledge and achieving an expert level in selected fields.[17] These are people who do not rely on marketers and sellers in their search, and they also have no problem with refusal. Prosumers are people who are in opposition to mass consumers of the era of the fledgling Internet – as a group they are a perfect reflection and product of their time. They are the children of capitalism and the information age.

One could say that the emergence and domination of the market by prosumers was a kind of milestone in the modern understanding of marketing. Prosumers are mainly representatives of the Y generation, which remembers the times without the Internet, but cannot really imagine the world without it.[18] It is also a part of the X generation who have assimilated the new rules of the functioning of the world and remembers well the life in information isolation, as well as of the generation Z who vigorously follow millennials.

Prosumers and marketing

Prosumers boast of being immune to cheap marketing gimmicks. Indeed, in-depth research into the products they buy, manufacturers and distributors gave them a weapon in this unequal struggle. However, marketers did not remain defenceless. It was the wave of prosumers that was one of the catalysts for changes in this field. Prosumers require a more individual approach than a comfortable mass client. They value independence and decision-making. To meet them, B2C companies began to adopt various solutions that helped treat mass customers like snowflakes – none was the same. But how to approach hundreds of thousands of people individually? Technology came in help.

Solutions facilitating the personalization of marketing and at the same time operating on massive databases of contacts were not created immediately. Over the past decade and a half, they have evolved from simple systems initially dedicated to B2B marketing. The translation of solutions, so that they correspond to the specifics of the B2C business, developed gradually. Along the way, some functionality was abandoned and new ones were added in their place. Today, powerful algorithms for the AI partnership use huge streams of behavioural data to personalize the message for each individual client. This approach is extremely effective, also in the case of fussy and educated prosumers.

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[17] The term "prosumer" is a combination of the words "producer" and "consumer". Prosumers not only act as consumers of goods and services, but also help to actively shape them thanks to their approach. Thus, they play the role of producers. See A. Toffler, *The Third Wave*, Bantam Books, New York 1984.
[18] A.M. Martínez-Sala et al., *Millennials as prosumers and adprosumers in corporate social networks*, Cuadernos.info 2018, no. 43 (43), pp. 137–159.

Who is going to replace prosumers?

Among consumers, the representatives of the Z generation constitute an increasing part. They are those for whom the behaviour of prosumers was obvious and the starting point for developing their own attitudes. These people grew up in a relatively stable environment and relative prosperity.[19] Capitalist ideals no longer impress them. They are a bit spoiled and expect that brands provide them with a personalized message. This generation is made up of idealists for whom authenticity is the highest value. Authenticity of experiences, messages or relationships. This new type of consumer has even developed a kind of banner blindness.[20]

This group of consumers wants to buy products from brands that share similar values and act in accordance with them. They are customers who screen the brands much further and deeper than prosumers imagined in their wildest dreams. And finally, they are consumers who efficiently jump between different channels and expect a consistent message and experience of contact with the brand in each of them. They crave experience more than the products themselves. They want a relationship and a sense of belonging.

At the same time, consumers on the market are preoccupied with the pursuit of immediate gratification. They want it all right now. These are the people who will abandon the store in no time if they find an option with faster or cheaper delivery and with a more attractive bonus. These are people who have adapted a mobile lifestyle and are used to having the whole world at their fingertips. They are very demanding and look a bit like children two minutes before their tantrums explode.

Consumers of the new era are still somewhat vulnerable to the marketing that worked for their predecessors. The developed standard is a benchmark and you cannot go any lower. However, this is no longer enough. Simple personalization will not convince anyone that there are real people behind the brand logo. That's why you need a new toolkit for special tasks.

The ideal solution would be a concierge who will take care of the needs of each client separately. The perfect butler who sees needs before they are even realized. Someone to suggest an umbrella (ethical, manufactured with a low carbon footprint) before going for a walk on a sunny morning on the rainiest day of the season. For obvious reasons this is not possible.

It is a natural instinct to assign as many of these tasks as possible to technology: from getting to know the customer himself, recognizing his motivations, through analysing purchasing behaviour, to anticipating needs. Here, however, the usual mechanisms of marketing automation[21] do not work. A boost is necessary. Wherever man failed, a powerful, self-learning, accurate, and infinitely patient mechanism was put to work: artificial intelligence.

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[19] S. Wood, *Generation Z as Consumers: Trends and Innovation*, Institute for Emerging Issues: NC State University 2013, no. 119(9).

[20] J.W. Owens et al., *Text advertising blindness: The new banner blindness?*, *Journal of Usability Studies* 2011, no. 6(3).

[21] There are two versions of this concept in the present publication. Lower case letters – marketing automation – denote the type of marketing, while capital letters – Marketing Automation – define the methodology and name of the system or platform.

Of course, one cannot forget about a global event that is changing the face of the mass consumer to a large extent. Of course, we are talking about the global COVID-19 pandemic, which has locked people at home and partially forced a change in consumer habits. As long as the pandemic continues, it is difficult to judge what kind of landscape we will find in the new world, but it can be assumed that some habits (increasing the frequency and amount of online shopping, eliminating contact with sellers, transferring many activities to the network, deepening globalization) will remain with us for longer. For now, online sales are experiencing a profound renaissance.

Hyper-personalization

Surrounded by equipment, we lose the boundaries between what is private and what is public. While three or four decades ago we had full control over how much life we show to the world and how much information we put online, today we are exposed like a lonely tree in the desert. On the one hand, we go through countless points of contact between us and the world every day. We constantly broadcast a stream of information that soaks into a vulnerable tissue: via social media, watching a series on Netflix, searching for a route on Google, or simply moving around the store with a phone in your pocket. On the other hand, we are constantly exposed to an uninterrupted, broad stream of information.

Too much information

Our brains are unable to receive and analyse this amount of data. Blind to the banners, we delete newsletters from inboxes and ignore notifications. However, there is one aspect that keeps marketers hoping for a better day.

One of the drivers of change in today's world is the growing demand for personalization. It is an understandable and logical trend. Consumers connected to an increasing number of devices are fully aware that their private lives and consumer choices do not belong only to them. This, however, raises legitimate objections. According to a 2019 study by the Advertising Research Foundation, the number of people willing to provide their home address fell from 41% to 31% in 2018–2019, and those willing to provide their spouse's name fell from 41% to 33%. Meanwhile, only 54% said they wanted to share their e-mail address – compared to 61% in 2018.[22]

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[22] See https://www.forbes.com/sites/martyswant/2019/08/15/people-are-becoming-more-reluctant-to-share-personal-data-survey-reveals/?sh=2642f95a1ed1 [access: 09/12/2020].