

Internet of Things in the Context of Digital Online Revolution in Marketing of Bosch Campaign LikeABosch

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Abstract: The Internet of Things (IoT) is fundamentally changing our everyday lives. It contributes to improving the quality and prosperity of life. This study aims to analyse the change that technology brings to daily life and on analysing the IoT marketing media campaign LikeABosch between the years 2019 and 2023 within the geographical territory of Brazil, China, France, Germany, India, UK and USA. The study methodology includes collection of secondary data available at the annual Tech Compass Survey. In 2019 Bosch published a campaign LikeABosch promoting Bosch IoT products. Based on the number of views of the media campaign on youtube.com under the brand #LikeABosch the study aims to identify the number of impressions. The results indicate that 70% of respondents see a positive impact of technology. Nevertheless, it is important to mention that there is a decreasing tendency recorded between the years 2022 (global index at 72%) and in 2023 (global index at 75%). Additionally, the results suggest a great success of the media campaign and thus Bosch successfully promotes IoT products. The study disposes of several limitations such as the secondary source of data collected from publicly accessible web sources which exclude other macroeconomic factors. This study contributes to enlarging the knowledge in the area of IoT industry narrowed to the Bosch Group and innovation potential of companies in post COVID-19 era aiming at accelerated media quality and competitiveness.

Keywords: Internet of Things; LikeABosch; Marketing; Technological Progress

1. Introduction

The Internet of Things (IoT) is fundamentally changing our everyday lives. It makes houses intelligent and many companies more productive. It is not only changing the way of living but also modernizing how we live, work and move around while offering new networking options that affect our lives in all areas. The basis for this digital transformation is data, data, data (Keith, 2020). The fourth Industrial Revolution is changing business models, the strategies that companies implement, enterprise organization, value and supply chains, products, and as such, production processes, skills. It presents significant challenges to manufacturing companies from the organizational, technological, economic, social, and management points of view (Gilberto et al., 2021).

1.1. Internet of Things

Every day, even IoT itself is developing fast, with new gadgets, technologies, and features. IoT can change many aspects of our day-to-day life including healthcare, transportation, energy, and manufacturing. For instance, sensors connected to the IoT can keep track of patients' health from afar, allowing doctors to act quickly if needed. Likewise, smart traffic systems can help manage traffic better, easing traffic jams and

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reducing emissions. Beyond industries, IoT includes also smart home gadgets that can take over tasks like adjusting lights, managing temperatures, and keeping an eye on security. Majority enables tech, such as fitness trackers or smartwatches, to monitor the exercise, sleep, and other health-related information (Gowthami & Silvia Priscila, 2024). Moreover, the fifth generation of mobile broadband communication is seen as an enabler of IoT as 5G allows for the transmission of large amounts of data with lower latency and higher reliability over secure links, while also having the flexibility necessary to adapt its communication performance in accordance to the industrial requirements (Meira et al., 2023). Information processing measures promote the prosperity of the information service industry and achieve the intelligence of the information service industry (Tan & Li, 2021).

Based on that the Internet of Things (IoT) is opening doors to new opportunities for businesses to make money. For example, companies can create subscription services for devices that connect to the IoT, giving customers regular updates, maintenance or help. Bosch Group is an example of a company which successfully implemented IoT in many of their product portfolios. An example of such devices can be part of our household for instance a fridge which is connected to internet and has integrated camera so when shopping in a supermarket, it is easy to check what groceries are available at home and which need to be bought; another example is a smart washing machine which is connected to internet and can be turned on remotely so when entering home from work or any other place the washing is finished. There are numerous examples of such products from Bosch Group, these are just some of them.

In the case of enterprises, IoT can provide industrial premises which create a complex system comprising various technologies distributed across the production plant for example. By connecting the different assets (e.g., sensors, devices, machines) available on the shop floor to the industrial network, it is possible to collect a wide variety of factory data (e.g., air quality, travel routes, noise, movements, energy consumption, location, and others). The collected data are then processed to extract information that the management personnel of the factory can use to make informed decisions. These decisions can improve industrial operations'

efficiency, safety, and security, making them more cost-effective and increasing overall productivity (Meira et al 2023).

A large amount of predictive data is the new direction of digital transformations. Predictive business analytics is a way to improve future predictions or support development of more precise and quality automation tools (Delina & Macik, 2023). There are numerous benefits of the new Industry 4.0 for the company's future and competitiveness (Zgodavova & Sutoova & Cicka, 2019).

The term Internet of Things (IoT) is a combination of two words Internet and Things. In this sense, it refers to a connected network made up of the object we use on daily basis such as home appliances or personal vehicle. The things are associated with physical devices which are connected to internet which create a network that helps exchange the data (Gowthami & Silvia Priscila, 2024). It can be assumed that IoT will greatly change our lifestyle in the next century. There are millions of internet users and experts predict that the number of users applying network technology and IoT user technology will continue and rapidly increase. This creates a large potential IoT user market for companies (Tan & Li, 2021). Such digital developments as IoT created a parallel digital universe that surrounds our physical world. Mobile technologies and IoT are the key technologies that connect physically to the digital world. For Marketing Analytics, a key implication is that firms can obtain far more data, of various kinds for instance regarding the customers, their preferences, frequency of use of certain devices etc. (Rangaswamy & De Bruyn, 2017).

1.2. Internet of Things at Bosch

Today, IoT plays a key role in our everyday lives, letting different devices share and exchange information. This has changed how we live, work, and connect with the world around us. Every day, we witness IoT devices chatting with one another, gathering useful data, and communicating without any help. More everyday items are now linked to the internet than ever before (Gowthami & Silvia Priscila, 2024). The Bosch Group is a great example of such a corporation which is a leading supplier of technology and services. As of 2023, the company generated sales of 91.6 billion euros. Its operations are divided into four business sectors: Mobility, Industrial Technology, Consumer Goods, and Energy and Building Technology. With its business activities,

the company aims to use technology to help shape universal trends such as automation, electrification, digitalization, connectivity, and an orientation to sustainability.

The IoT Suite platform has been central to Bosch's efforts in driving a public-private initiative known as "Industry 4.0," which seeks to bring about a "fourth industrial revolution" by connecting the Internet of Things to traditional industrial manufacturing. Bosch is digitizing and thus driving forward the Industrie 4.0 initiative (Alessi, 2016). Bosch has had experience deploying its IoT sensors and honing its data analytic skills. Aside from installing the sensors in factories, Bosch was also involved in the first electric vehicle testbed where it provided charging infrastructure. Data was collected from the usage of these vehicles and helped authorities understand electric vehicles better (Weilun, 2016).

In this context, Bosch's broad footprint across industries and regions strengthens its innovativeness and robustness. Bosch uses its proven expertise in sensor technology, software, and services to offer customers cross-domain solutions from a single source. It also applies to its expertise in connectivity and artificial intelligence in order to develop and manufacture user-friendly, sustainable products. With technology that is "Invented for Life," Bosch wants to help improve quality of life and conserve natural resources (Mühlroth & Budischin, 2023). "Like a Bosch" is the tagline of a new global image campaign the technology and service company which was launched in 2019. This campaign aims to get the message across that Bosch is the leading provider of connected products and solutions. The main plank of the campaign is a hip-hop video clip featuring a protagonist who is a savvy IoT user.

The corporate "Like a Bosch" campaign changes a few letters in order to put a fresh spin on this internet phenomenon. The young man in the Bosch video is always on top of things, thanks to connected solutions from Bosch. Smartphone in hand, he operates his car, lawn mower, or coffee machine in a cool, smart, and confident way – he's in charge of things "like a Bosch." (Haushalter, 2019).

In the introduction part of the study the theoretical background to the topic is provided, further in the methodology the study questions and the methods of data collections is explained. In the results part of the study research of the study are analysed in detail which provides a base-ground

for the discussion part of the study where the study questions are answered. Finally, the conclusion summarizes the findings.

2. Methodology

This study aims to analyze the change that technology brings to daily life by the use of data available at the annual Tech Compass Survey published by Robert Bosch GmbH (further referred to as Bosch) in the years 2022, 2023 and 2024. Bosch as a company places a pivotal importance on comprehending how technology shapes the experiences and emotions. Bosch assumes that artificial intelligence has to be part of any conversation about future technologies, which is why Bosch carried out a representative survey for the third year running and asked respondents from several countries to share their views on technological progress. The survey focused on people's general openness to artificial intelligence (AI), AI's impact on our daily lives, and its role in society. The technology report takes a closer look at the different views held by different people in different countries, along with the role played by the key technologies of today.

For this study people aged minimum 18 were surveyed online in seven countries (Brazil, China, France, Germany, India, UK and USA) by Gesellschaft für Innovative Marktforschung mbH (GIM) on behalf of Robert Bosch GmbH. In France, Germany and the United Kingdom, a minimum of 1,000 people each were surveyed, in Brazil, China, India, and the United States, a minimum of 2,000 people each were surveyed. The samples are representative for the respective country in terms of region, gender, and age (BR, DE, FR, UK, USA: 18–69 years/CN, IN: 18–59 years). For global results ("Global Index"), an average was taken across the seven countries, regardless of population size.

Based on the data collected by the Bosch Tech Compass Survey, we define the first study question as follows:

Q1. Does majority of the population believe that technological progress makes the world a better place?

In order to understand the constantly developing shift that Bosch as a company brings to daily lives, the study further focuses on analysis of the Internet of Things (IoT). In 2019 Bosch published a campaign carrying the name LikeABosch promoting Internet of Things and the Bosch smart and connected

products. This campaign went viral and became extremely successful. Due to that, as a second study question, we aim to analyse the number of views of the campaign on youtube.com under the brand #LikeABosch. If possible, we will look for available secondary data sources to be able to identify the number of impressions and thus to calculate the Bosch add click-through rate. Based on the above, we specify the second study question as follows:

Q2. Does Bosch as a company successfully promote IoT via the LikeABosch campaign?

For the purposes of this study, MS Excel was used as a tool to process the collected data. They were further processed into diagrams to visually present the data.

3. Results and Discussion

Bosch can draw from its great technological potential as a diversified industrial group: mobility, capital goods, consumer goods, buildings, and energy. Barely is any other company so diverse, so networked, and so active in central areas of people's lives. Bosch rests on many pillars, and they give it its resilience and ensure its long-term business success. Not only that: Bosch also combines expertise from different industries in order to apply technologies across sectoral domains. A corporate structure such as ours creates a wealth of opportunities, but also challenges. Bosch uses its proven expertise in sensor technology, software, and services to offer customers cross-domain solutions from a single source. It also applies to its expertise in connectivity and artificial intelligence in order to develop and manufacture intelligent, user-friendly, and sustainable products. With technology that is "Invented for life," Bosch wants to help improve quality of life and conserve natural resources. (Bosch Annual Report 2024).

In today's world, we find ourselves in a fast-moving pace with technological advancements. Bosch is a company which identifies itself as one which has understanding for the pivotal importance of comprehending how technology shapes our experiences and emotions, serving as the cornerstone of our commitment to delivering solutions and products that are genuinely 'Invented for Life' (Bosch Tech Compass Report 2024). This is the main driver for conducting the Tech Compass Survey which collect the data from 7 countries namely Brazil, China, Germany, France, India, the United Kingdom, and the United States. One of

the most prevailing theme in the survey results is the constant growth of AI which is seen as an opportunity for innovation of the products and services by Bosch.

A majority of global respondents (64%) believe that AI will be the most relevant technology in the future. This marks a huge increase of 23 percentage points compared to 2023 and 21 percentage points compared to 2022. Also, a majority of the global respondents (55%) see a balanced public debate in their country about the opportunities and risks that AI brings along. However, almost a third (29%) believe that the opportunities AI brings are overestimated and the remaining part (16%) believes that the threats are overestimated.

The Bosch Tech Compass Report 2024 claims that nearly two thirds of respondents worldwide (70%) believe that technology is making the world a better place. Nevertheless, trust in technology has fallen by 5 percentage points compared to the previous year (75%) and by 2 percentage points compared to 2022 (72%). Due to the decrease, we will focus on analysing the evolution of two questions included in the survey where in the first one the respondent specified whether *Technological progress makes the world a better place* and in the second one *whether Global technological progress is being used sufficiently to tackle the major problems of our time*. The results of the survey are presented on figure 1 below.

Source: Authors, based on Bosch Tech Compass Reports

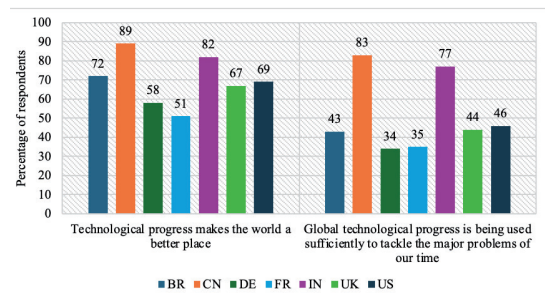


Figure 1: Global Technology Progress

Both surveys in 2024 and in 2023 were conducted in the same manner and for the 7 areas specified. However, the survey in 2022 was conducted for 5 areas only. Therefore, the analysis is further focused on the comparable data and thus analyses the inter year development between 2023 and 2024 for the above specified survey questions. The absolute change in the percentage points can be seen in Figure 2 below.

Source: Authors, based on Bosch Tech Compass Reports

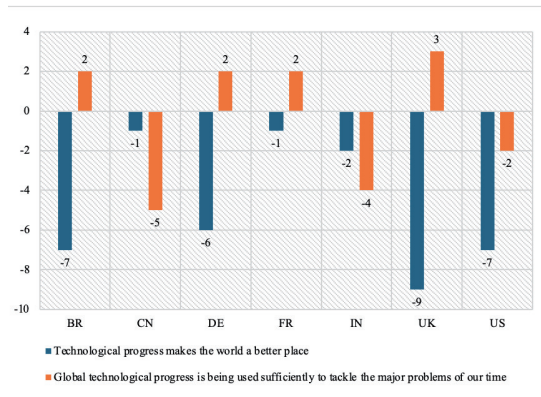


Figure 2: Inter Year Change in the Technology Progress

Figure 2 presents the development between the Bosch Compass Report 2023 and Bosch Compass Report 2023 for the following survey question Technological progress makes the world a better place and Global technological progress is being used sufficiently to tackle the major problems of our time. As can be seen from Figure 2, the change between the years 2023 and 2024 regarding the survey question Technological progress makes the world a better place is mainly negative, or simply said there is decrease in the respondent's perception that technological progress makes the worlds a better place. This can be interpreted as trust in technology has fallen for all the surveyed regions. On the other hand, regarding the second surveyed question, **Global technological progress is being used sufficiently to tackle the major problems of our time** we can both, increasing as well as decreasing tendency between the years. Respondents from Brazil, Germany, France and United Kingdom noted an increase in the tendency to believe that technology is being used sufficiently whereas respondents from China and India noted a slight decrease in the tendency. Nevertheless, it is vital to mention that respondents from China and India contribute to the more significant groups who trust that technology is used sufficiently, i.e. 83% of respondents from China and 77% from India.

In order to understand the change that Bosch as a company brings to our daily lives, the study further focuses on analysis of the Internet of Things (IoT). IoT has been impressively developing lately especially since the development of smart technologies.

Bosch continues to expand its position as a leading IoT company. Today, 20 percent of its roughly 27,000 software developers focus exclusively on IoT. Bosch expects the global IoT market to grow by 35 percent a year to reach an annual volume of 250 billion U.S. dollars by 2020. Those prospects have prompted the company to pursue ambitious goals, and it is now aiming to have internet connectivity in all its electronic devices by that time. Moreover, data-based services will be offered for each device, with artificial intelligence set to play a key role here (Haushalter, 2019).

One of the most successful campaigns released by Bosch which promotes IoT Bosch products carries the name "LikeABosch". The campaign LikeABosch has gone beyond a campaign and become a movement. It created a stimulus to find new ways to make life even more practical, sustainable, and simply better with smart technology. The campaign aims to get the message that Bosch is the leading provider of connected products and solutions.

Today's marketers have an unprecedented view of what their customers are doing online. The company can identify key issues and trends by the use of the search terms customers use online to look for the company's offerings. Also, by following the discussions customers have on social media about a product category or brand might enable understanding the content, tone, and frequencies of different search terms (Lilien, 2017). In a nutshell, LikeABosch is a fantastic example of the power of a big idea and how far it can go, if done right even across borders.

For majority of the paid advertisement online on online websites such as google displays paid or sponsored links to the website of advertisers. In order to analyse whether an advert is effective a

Table 1: LikeABosch Campaign.

Bosch Campaign Name	Number of views in mil.
The Internet of Things Presents - # LikeABosch	27
The Internet of Things Presents - Manufacture # LikeABosch	18
The Internet of Things Presents – Heat smart # LikeABosch	15

Source: own processing

click-through rate can be analysed. In that way an advertising company can continuously monitor how many clicks their listings get, along with associated metrics, and based on that promptly react in real time. As a first step in the analysis, the analysis of the LikeABosch campaign with the number of views on youtube.com is examined and presented on Table 1 below.

Based on the table above, we can see the impressive results of the Bosch campaign presented by the number of views. According to Jung von Matt, an independent global creative company, the campaign had 10,5 billion of impressions. In case we would dispose of more details regarding the campaign, it would be possible to calculate the click-through rate which could easily help to identify the costs per click. However, Bosch does not publicly dispose the details regarding the data and thus it is uneasy to conduct a proper calculation. As the main purpose is to declare only valid data, it can be stated that the campaign is considerably successful.

4. Discussion

Based on the collected data, we can now approach the study questions. Firstly, we can try to find an answer to the first study question ***Does majority of population believe that technological progress makes world a better place?*** Based on the analysed data available in Bosch Tech Compass reports during the years 2022, 2023 and 2024, we can claim that for all of the surveyed regions, there is a positive attitude towards advancements in technology. All the studied regions claim to have a positive attitude at a higher value than 50 percent towards the advancements in technology. Additionally, the global index claims that 70% of respondents see positive impact of technology. Despite the positive numbers, it must be mentioned that there is a slight decline in the global index between the years 2022 and 2024. In 2022 the global index was at 72 percentage points and increased to 75 percentage points in 2023 nevertheless declined in 2024 to 70 percentage points. Due to that, we can answer the first study question in the following way: ***majority of population believe that technological progress makes world a better place.***

To summarize, it can be assumed that the study question is correct as majority of population believes that technological progress makes world a better place. Moreover, Artificial Intelligence (AI) plays a crucial role in shaping the future of

the IoT by enabling systems that are smarter and more autonomous by the implementation of machine learning and data analytics. AI is able to skim through vast amounts of data produced by IoT devices and identify patterns and insights that facilitate intelligent decision-making. This synergy significantly boosts the functionality of IoT, making systems more efficient, adaptable, and responsive. As key contributions of AI to IoT can be considered data analytics, automation, and improved decision-making, all of which greatly enhance the performance and efficiency of IoT systems (Shaikh & Banerjee, 2025). However, what is a little bit concerning is that in the latest year, there is a decline in the global index. As a result, it might be necessary to focus on understanding also the reasons what the drivers for the decrease are. This might be seen as a potential area for further study.

Secondly, based on the collected data regarding the Bosch campaign LikeABosch, we can proceed to answering second study question ***Does Bosch as a company successfully promote the IoT via the LikeABosch campaign?*** According to the number of views of the different LikeABosch campaigns on youtube.com, the most successful promotion video 'The Internet of Things Presents - # LikeABosch' scores 27 million views, second most successful promotion video 'The Internet of Things Presents - Manufacture # LikeABosch' recorded 18 million views followed by 'The Internet of Things Presents - Heat smart # LikeABosch' which records 15 million views. According to Jung von Matt, an independent global creative company, the campaign had tremendous success. Similarly, according to Bosch itself, the campaign was considered a successful one.

Additionally, Bosch created the add with a prominent support and proven expertise: DIE FANTASTISCHEN VIER are the founders of German-language hip-hop. The band is also the stars of the Bosch commercials and both, Bosch and DIE FANTASTISCHEN VIER share the aspiration to make life better – be it with technology, music, or the pursuit of greater sustainability. Due to that, we can proceed to answering the second study question. As all the sources refer to the campaign only with positive associations, it is inevitable to confirm the study question and claim that Bosch as a company successfully promotes IoT via the LikeABosch campaign. As a result, we can answer the second study question in the following way: ***Bosch as a company***

does successfully promotes IoT via the LikeABosch campaign.

Bosch leverages its B2C corporate communications on IoT and smart home to promote factory applications and Industry 4.0 with a B2B videos as presented on Table 1. which garnered widespread attention of 15 - 27 million views. The success of this approach can be explained by the potential of media. Based on the aforementioned B2B corporate videos, their use, and their different perceptions, the described convergence of marketing communication and PR functions in corporate communications is traced and analysed (Banholzer, Siebert, 2023).

Furthermore, this study provides an outlook into the change that technology brings to our daily life also via the use of IoT. The example of Bosch and their campaign LikeABosch is great example of how to use technology to enhance competitiveness. The implementation of digitalization of processes, investment into data analytics and artificial intelligence, cloud solutions, cyber security, innovation of the products and portfolio via technology are all great examples of recommendations for companies to increase their competitiveness.

5. Conclusions

To summarize, the Internet of Things plays a vital role in the day-to-day life of individuals as well as causal business operations of enterprise. Technological progress is a key driver for the improvements and steps forward in advancement. As presented in the study, Bosch Group is a great example of a company which continuously works on the development of intelligent products which serve customers by the use of intelligent technological advancement. As presented in the Bosch campaign LikeABosch, numerous products which are used on daily basis casually are presented in the commercials. The campaign successfully presents itself as well as their IoT product portfolio.

Inter of Things is a field of study which has not yet been analysed in a great depth in terms of the intelligent and connected devices which can support our day to day life whether in the case of households or industries. Due to that, there is an added value seen in enriching the current status of the theoretical background. Additionally, there are also implications which can be noted as beneficial for companies operating in the IoT industry and trying

to promote smart products. They are presented in the research results and discussion part of the study.

Additionally, this study also disposes of several limitations such as the source of data which is taken from the Bosch Annual Reports, The Bosch Tech Compass Report and secondary data collected from publicly accessible web sources. Other factors in the study are excluded and thus may be perceived as limitation of the study. This includes for example other macroeconomic factors that Bosch was facing during the studied period of time. Apart from that, there may be different factors which may impact on the results but are excluded from this study. Nevertheless, despite the results of this study, it can be assumed that the Bosch Group is a very successful company with proven results and thus the campaign is undoubtedly successful as well. As of the future study, the focus may be placed on the long-term effectiveness of the researched topic and also compared across other companies operating in the industry.

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