

INTEREST TOWARDS THE BLOCKCHAIN IMPLEMENTATION ON DIGITAL ADVERTISING IN CATALONIA

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Abstract

This thesis argues that there is a lack of knowledge about the interest from the people towards the blockchain implementation in online advertising. The contribution of this investigation to the literature is the first attempt at building a completely new theoretical approach of this interest, focusing on the digital community of Catalonia. The investigation aims to describe the interest of the digital community in Catalonia towards the change of business model in online advertising when blockchain technology it's implemented. Meaning with the implementation of blockchain, the Brave browser usage. The analysis of the data collected from interviews and surveys is based on hypothesis validation. The results indicated that there is a big interest, from the digital community in Catalonia, to start using Brave.

Resumen

Esta tesis argumenta que existe una falta de conocimiento sobre el interés de las personas hacia la implementación de blockchain en la publicidad en línea. La aportación de esta investigación a la literatura es el primer intento de construir un enfoque teórico completamente nuevo de este interés, centrado en la comunidad digital en Cataluña. La investigación pretende describir el interés de la comunidad digital en Cataluña hacia el cambio de modelo de negocio en la publicidad online cuando se implementa la tecnología blockchain. La implementación de blockchain, hace referencia al uso del navegador Brave. El análisis de los datos recopilados de entrevistas y encuestas se basan en la validación de hipótesis. Los resultados apuntan a que existe un gran interés, por parte de la comunidad digital de Cataluña, por empezar a utilizar Brave.

Resum

Aquesta tesi argumenta que hi ha una manca de coneixement sobre l'interès de les persones cap a la implementació de blockchain en la publicitat en línia. L'aportació d'aquesta investigació a la literatura és el primer intent de construir un enfocament teòric completament nou d'aquest interès, centrat en la comunitat digital a Catalunya. La recerca pretén descriure l'interès de la comunitat digital a Catalunya cap al canvi de model de negoci en la publicitat en línia quan s'implementa la tecnologia blockchain. La implementació de blockchain fa referència a l'ús del navegador Brave. L'anàlisi de les dades recopilades d'entrevistes i enquestes es basen en la validació d'hipòtesis. Els resultats apunten a que hi ha un gran interès, per part de la comunitat digital de Catalunya, per començar a utilitzar Brave.

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1. Introduction

Digital Marketing has become an essential pillar for any business strategy during the last decade. Connecting the company with the consumer and creating the conversion funnel needed to convert the sale is fundamental. Advertising is a part of marketing, and it has been evolving through the years to become what is known nowadays as online advertising. Technologies have always forced marketing, and its ramifications, to evolve, and the Blockchain is probable to have the same effect on marketing.

Some issues are being identified in marketing, such as an elevated number of intermediators, fraud in the advertisement delivery, problems when tracking the advertisements, lack of anonymity, personal data management by external companies. With the rise of Blockchain technology in other sectors like the supply chain or the healthcare system, some experts started to relate this technology with the marketing, proposing it as a viable solution for all these issues. By now, the literature about the blockchain technology is scarce and barely developed or tested, but the interest towards it, from the marketing community, is increasing every day.

Even though there are already some investigations being carried out, none of them are focusing on the interest or opinion from the people and professionals of marketing towards this change of business model. There is a lot of misinformation about this technology and a lot of criticism, so it would be interesting to also know how people would react to the Blockchain implementation in online advertising.

Due to the affluent number of ads, consumers take actions that can diminish the earnings of the publishers, these actions include installing ad-blockers and tracking preventers. There are functioning projects, built on the blockchain, which are already trying to solve this problem by creating decentralized and transparent platforms, that allows digital ad exchange and offers the users the choice to decide what kind of ads they want to see. Brave is a search engine, and one of the most popular companies among all of them, due to its backed by JavaScript creator. In this platform, users are provided with an anonymity shield that assures them that their private data will never leave the device.

The research question that is aimed to be answered in this investigation is the following one: Is the digital community of Catalonia interested in the change of business model in online advertising? Meaning with the *change of business model*, the implementation of

blockchain (Brave Browser) into the advertising environment as means for providing transparency, traceability, security and privacy to advertising and a new role to its users.

2. Scientific relevance of the topic investigated

Within the field of digital marketing and publicity, advertising fraud in companies based on a misrepresentation of the accounting of advertising campaign metrics has become a major issue. “Globally, the most conservative data indicate that fraud accounts for 3.8% of advertising investment. This represents an expenditure of \$591 billion in 2019 intended for invalid traffic (IVT)” (Maestro L et al., 2021).

Many press and scientific articles about Blockchain technology depict it as the solution to implement total traceability and transparency whilst maintaining privacy. We talk about the fact that it is a totally disruptive technology just as the Internet was by the time it started to be used (Menon & Mady, 2021). Different theories on how this technology can positively change many areas of digital marketing have been proposed and how it will have to adapt soon (Veysel, 2018).

In the degree of Marketing and Digital communities, it has always been taught that this modality needs to adapt itself to the innovations of the future to keep competitive. From a marketing perspective, it is necessary to keep a consumer-oriented thinking, which means knowing how the consumer is behaving is fundamental for the correct development of an advertising campaign (Tungate, n.d.).

This investigation can help the marketing sector to start having an idea of how to drive all the innovations related to blockchain technology and how to start developing solutions for all the entry barriers that are present nowadays. But mainly, and most important, will give an overall first point of view from the user perspective.

My motivation for this topic starts in a room in the university where I am studying, TecnoCampus. About two years ago, a talk about blockchain technology and its future projection took place there, and I became a total fanatic of its long-term vision. Since then, I have been working on different projects related to it, even though none of them ended up working out. I truly believe that this technology is the next step in human evolution, and that makes me want to think in the milliard ways in which blockchain could improve today's world as we know it. Therefore, I am excited to study the effect that

blockchain could have in marketing digital areas such as digital advertising, due to the degree that I am studying.

3. Background-Theoretical framework

In order to specify how Blockchain technology can improve the advertising sector in digital marketing, it is necessary to review the origins and development of these concepts. This review of literature will introduce the concepts of advertising in digital marketing and Blockchain, investigating into the faults or problems currently posed by advertising in this field to be able to study how to solve them through Blockchain technology.

3.1. Digital marketing

Advertising as is know nowadays has its origins in traditional marketing, there are many definitions of this concept and among the most popular ones is Kotler and Keller's. "Marketing is the social process by which individuals and groups obtain what they need and want through creating and exchanging products and value with others." (Kotler & Keller, n.d.). With traditional marketing the advertising industry was using traditional channels to communicate with the consumers as could be the radio or television, but things have changed (Tungate, n.d.).

Marketing has been evolving since the beginning of its history, adapting itself to the opportunities and needs of the market and the companies that are part of it. The biggest of these changes, so far, has been the disruptive application of the Internet in people's daily life, which forced marketing to turn digital oriented (Bala & Deepak Verma, 2018). "The world has gone digital. A creative idea – the seed of any good advertising campaign – can now be expressed in myriad ways, across numerous media platforms." (Tungate, n.d.). From this point marketing becomes mostly digital, because of this a new type of marketing was born, Digital marketing. "Digital marketing is one type of marketing being widely used to promote products or services and to reach consumers using digital channels." (Harinarayan Mishra, 2020). Thanks to that, marketing evolution and the advertising channels also changed, new search engines like Google appeared and

companies had the opportunity to connect with potential customers from everywhere in the world (Müller, 2018).

3.2. Advertising

Over the past years, a lot of experts tried to define the concept of advertising but none of them agreed. It is complicated to define advertising, so it is easier to refer to it as “marketing communication”, as Schultz said (Schultz, 2016). This communication is focused on persuading the potential customer to convince him to purchase the product/service that is being advertised by any company or individual (Schultz, 2016). The objective of advertising is to create a relationship/bond of trust between the seller and the audience in order to persuade that audience to take the risk of purchasing/contracting some good/service due to positive expectations drawn by the advertising communication. This trust can be generated by reviews from experts in the field, celebrity promotion, collection of testimonials from past customers, brand reputation, and a lot of other factors (Kumar & Gupta, 2016).

During the times before the internet, advertising was basically sales focused. Firms were pushing none-personalized marketing information towards the consumers, what is also called “outbound-marketing” (Kumar & Gupta, 2016). When this advertising was being measured it was usually done by a variation on the sales during a period of time or on the popular recognition of the brand by the audience (Schultz, 2016). Advertising agencies were constantly evolving, a competitive spirit was rising between them to improve their structures and value in order to achieve certain competitive advantage (Lynch, 2019). This industry was growing so fast that the offer of new advertising agencies appeared and then, the internet started to be used.

3.2.1. Online advertising

With the arrival of the Internet as a disruptive technology, marketers had to think twice about the methods and strategies they were using to sell their products/services and adapt a new perspective (Kumar & Gupta, 2016). They realized that sales focused-advertising was not working as well as it used to, and adapted a communication where

the objective was not only converting the buy, but formalizing relationships between the brand and the customers (Kumar & Gupta, 2016; Tungate, n.d.).

Online advertising becomes fundamental for any Internet-based business model, as it opens a full new world of advertising tools like search engines and websites (Müller, 2018). Technology advances in digital advertising were developed as the industry was growing more and more, this made “mass customization” of marketing communication and products a reality, not anymore only a fantasy (Kumar & Gupta, 2016). With all this movement also appeared the belief that advertising agencies could disappear as intermediaries of advertising due to the new technologies. But as Jean-Marie Dru said: “there will always be an intermediary between a product and a potential customer. You may say, “On the internet, that isn’t the case”, but in that environment the web itself is the intermediary” (Tungate, n.d.). It means that advertising agencies were not going to disappear, they just had to adapt and develop their advertising to the Internet technology, websites and search engines.

When Web 2.0 and social media became a reality, online advertising exploded and reached a new level (Bala & Deepak Verma, 2018). “Social media is defined as all web-based applications that build on the ideological and technological foundations of Web 2.0, and that allow the creation and exchange of User Generated Content” (Knoll, 2016). Social media radically changed the online advertising context, as well as the agencies that were working on it (Kumar & Gupta, 2016).

Social networks, of free use for everyone, started to rise; Wikipedia, Facebook and YouTube were some of the first ones (Kaplan & Haenlein, 2010). This created a revolution about how the World Wide Web was used, the USC (user generated content) basically shifted the powers. Consumers started to acquire more power than advertisers thanks to the fact that now they were not just content consumers, but also content creators (Kaplan & Haenlein, 2010; Kumar & Gupta, 2016). Consumers started to have the capacity of sharing their thoughts and opinions within the network, they were able to rate products and services. All this history leads to the present situation.

The measurement of the metrics on advertising has changed a lot since “Google AdWords” and “Facebook Business” were released, two giants like Facebook and Google have become the owners of online advertising monopoly.

3.3. Some issues in the online advertising environment

The online advertising industry is experiencing some issues that remain still unsolved and are damaging the companies in terms of revenues and effectiveness.

Since the appearance of the first banner, digital publicity spaces have been sold everywhere and the calculation of its prices has been exported from analogical channels, like, for example, the cost per thousand/mile impressions (CPM). Lately, it evolved to add some more new metrics that were not the analogical channels, like the famous click through rate (CTR). The problem comes when the big companies who are providing and charging the other companies for this online advertisement start giving fraudulent metrics (Maestro L et al., 2021). This is happening because companies are being paid for achieving certain objectives (ex. Number of impressions), but when these objectives cannot be fully achieved, fake domains and bots are used to fulfill the promised metrics.

Table 1. Advertising fraud 2019

Región	Porcentaje IVT	Gasto Publicitario digital (Millones)	Fraude (Millones)	Cuota de fraude
Norte América	3,30%	79.036 \$	2.608\$	11.6%
China	30,7%	60.931\$	18.675\$	83.4%
EMEA	1,60%	50.220\$	804\$	3.6%
APAC (excl. China y Japón)	1,60%	14.429\$	231\$	1.0%
Latinoamérica	2,7%	2.922\$	79\$	0.4%
Total	10,8%	223.950\$	22.397\$	

Source: GroupM 2019

The Table 1 shows an approximation of the results of 2019, where the total expenses on digital advertisement are 223.950 million dollars and the fraud is estimated at 22.397 million dollars. This means that the fraud represented 10% of the general expenses on the online advertisement during 2019.

3.4. Blockchain

It has been evidenced that online advertising nowadays has some issues to deal with transparency and efficiency and here is where the next technology innovation comes to bring some alternative solutions.

The Blockchain, as its name says, is a chain of blocks and a big accounting book, where each of these blocks are connected and encrypted to protect the security and anonymity of the transactions (Treleaven & Yang, 2017). In other words, it is a decentralized and safe database that can be used in any kind of transactions, which does not need to be economical. "Once a transaction is added to the blockchain no one can modify or alter it, but this transaction can be viewed openly which brings transparency to the system" (Kumar Mohanta & Jena, 2018). Even though this technology was not popular before the famous paper of Satoshi Nakamoto about Bitcoin was published in 2008 (Nakamoto, 2008).

Explaining all the basis of this ledger distributed technology is unnecessary for the purpose of the investigation, so it is necessary to move into the system that makes it reliable and useful for business activity, the "Smart Contracts".

Although much more can be explained about the distributed ledger technology, not all of it is relevant to this research work. Cryptocurrency is the better-known application of the DLT, and others are traceability of processes applicable to logistics or production, maintenance of reliable and secure medical records, gaming, etc. Some of these applications are summarized in section 3.5. However, for the purpose of this investigation, it is important to focus on one of the practical applications of blockchain technology, the "Smart contracts".

3.4.1. Smart contracts

In the traditional economy, when an economic activity is going on through digital channels there is always a chance of being scammed. The purpose of this technology is to change trust for proof (Nakamoto, 2008). In 1994 Nick Szabo introduced the concept of "smart contract", defining it as "a computerized transaction protocol that executes the term of a contract" (Kumar Mohanta & Jena, 2018). The aim of Smart Contract technology is to create an economic model in the online channels where there is no place for fraud or either robbery. "A smart contract is a computer program having self-verifying, self-

executing, tamper-resistant properties” (Kumar Mohanta & Jena, 2018). Basically, it is an immutable contract in the Blockchain that is executing itself and allows contractors to legally negotiate with anyone, without having any chance of being scammed/stolen.

Blockchain based smart contracts are nothing else than a certain number of instructions and scripts coded in the blocks. The Blockchain is the one that has the power to execute all these scripts and turn it real (Kumar Mohanta & Jena, 2018). It is like a literal translation of an actual contract and its clauses into code, in order to minimize the costs of contracting between both sides and making accidents and malicious actions impossible to happen during the agreement (Zou et al., 2021). Even though these contracts are automatable by computer, there is a need of human control in some parts (Clack et al., 2016).

Technology like smart contracts, can be used in infinite fields in order to have fully transparent and secure business activity, allowing the third party on these agreements to be replaced by a computer (Kumar Mohanta & Jena, 2018). Most of the contracts that are being used by companies nowadays are runned in a blockchain called Ethereum, which is famous for its smart contract development (Chen et al., 2017).

3.5. Blockchain applications in the business sector and marketing

Through smart contracts application, blockchain technology adoption into some areas was being discussed during 2018. Today the applications of this technology are starting to be studied, these are some of the applications (Kumar Mohanta & Jena, 2018).

Supply Chain. Blockchain on itself it's not going to replace all the technologies that are being used for supply chain, but it's changing how the information is managed and processed, as well as, how all the material flows are being organized (Dujak & Sajter, 2019).

Internet of things. A big issue of IoT applications is that all its security is centralized, so it is more exposed to external attacks. Blockchain is bringing security and decentralization to the IoT, but still lacking a bit of scalability (Viriyasitavat et al., 2019).

Financial System. Cryptocurrency is aiming to create an economic system that is totally decentralized, transparent, and safe; trying to get rid of the intermediaries in the

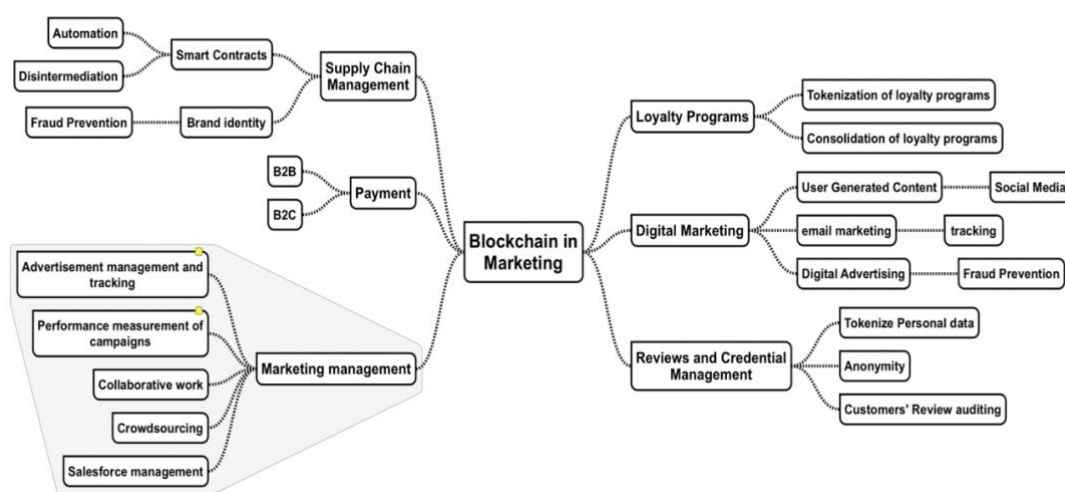
traditional economy (banks) (Treleven & Yang, 2017). The first one was Bitcoin, which is a deflationary currency (Nakamoto, 2008).

Digital Right Management. In the digital right industry, more than one party is involved to create an event, and there is a problem to distribute the percentages of copyright and payments. This can be solved by smart contracts (Kumar Mohanta & Jena, 2018).

Healthcare System. To track all the patients, research and studies data is crucial to work fast and efficiently in the healthcare environment. Blockchain is making that possible and allowing it to run all the background data in compliance with the regulations (Dimitrov, 2019).

Inside the *Digital Marketing* field, there is also a large discussion about the different applications of Blockchain, and all the advances and improvements that could bring given its unique attributes (transparent, immutable, and decentralized) (Gleim & Stevens, 2021).

Figure 1. Blockchain applications in marketing



Source: Antoniadis I. et al., 2019

3.6. Blockchain and advertising

Most of the existing literature about Blockchain and Advertising is just theoretical and scarce. The investigation concluded, by now, that the barriers to the adoption of blockchain technology in the whole advertising environment are diverse: scalability,

token volatility, excessive power consumption, etc (Parssinen et al., 2018). Even the fact that blockchains developments into advertising finds themselves in early stage, a lot of its applications are starting to be studied and tested. One of the advantages that can bring to advertising industry is its transparency, identifying fraudulent traffic and improving the advertising delivery process (Kshetri & Voas, 2019).

Due to the affluent number of ads, consumers take actions that can diminish the earnings of the publishers, these actions include installing ad-blockers and tracking preventers (Wang & Gao, 2018). There are a few platforms, such as Spotify, where these actions cannot be applied or are restricted, instead they are asking the user to pay in order to avoid the ads (Kecskés, 2018). Users are tired of these ads and start to look for new alternatives of free use that are not constantly showing ads or requiring a payment to avoid them. There are functioning projects which are already trying to solve this problem by creating decentralized and transparent platforms, that allows digital ad exchange and offers the users the choice to decide what kind of ads they want to see (Kecskés, 2018; Wang & Gao, 2018). Some of these projects built on blockchain are: AdEx, Adcahin, BAT/Brave, NYIAX, Madhive, and Papyrus (Parssinen et al., 2018).

BAT is a search engine, and one of the most popular companies among them all, due to its backed by JavaScript creator (Kecskés, 2018). In this platform, users are provided with an anonymity shield that assures them that their private data will never leave the device.

Moreover, a similar way of functioning as the one in BAT is being theorized in some papers to be applied into the whole advertisement industry. "Ad points: rewards to engage with ads" presents a theoretical way about how to introduce blockchain technology into advertising through a different complex system of rewards in exchange for the visualization of ads (Wang & Gao, 2018).

3.7. The future of online advertising

There are already existing papers and press articles talking about this revolutionary platform known as BAT/Brave, explaining how it allows users to choose which advertising they want to see and to be rewarded with tokens for watching it (Kaya Ismail,

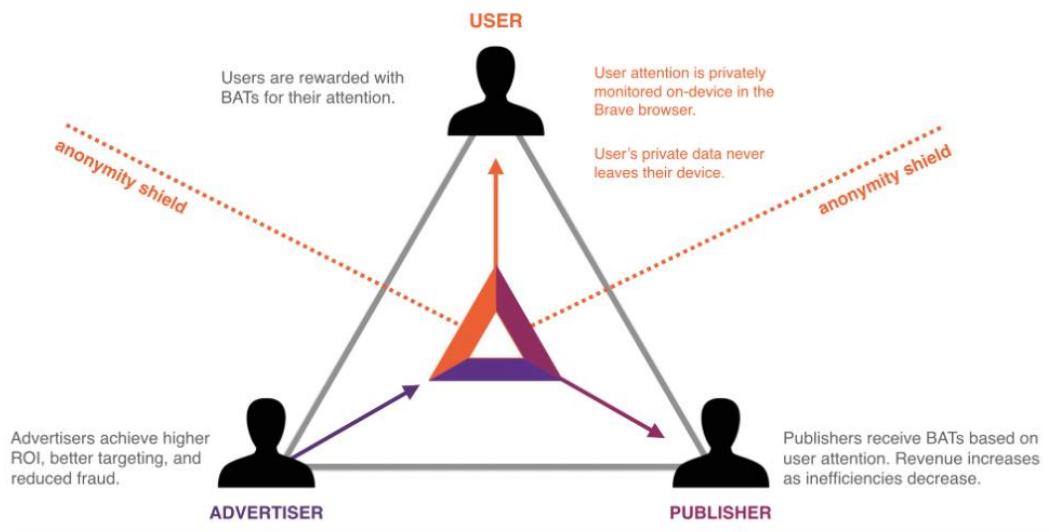
2021). It is the platform with the biggest adoption right now, and allows advertising industry to add privacy, security, and efficiency to the advertising delivery process (Lund, 2020).

Brendan Eich, creator of JavaScript and cofounder of Mozilla (Firefox), and Brian Bondy, a former Mozilla employee, are the co-founders of the Brave Software (Thomassen M, 2021). The idea that the two founders of the software had was to solve all the actual problems in the online advertising industry, like the fraud on the advertisement delivery or the rise of Adblockers usage (Brave Software, 2021).

The Basic Attention Token (BAT) is used on Brave Browser to reward users and publishers that use the platform. These users have the chance to decide if they want to be watching advertisements or not, while watching the advertisements, users are rewarded with BAT tokens (Brave Software, 2021).

The functioning of this search engine can be understood as the Figure 2 is showing; the user chooses what kind of advertising want to be provided with, and is rewarded for its visualization, while the advertiser gets a higher ROI and better targeting (Brave Software, 2021)

Figure 2. BAT/Brave system



Source: Brave Software, 2021

Brave Software has been created with the purpose of improving the online advertising environment from 3 different points of view: the user point of view, the publisher point of view and the advertiser point of view (Brave Software, 2021).

Users: Are provided with a strong privacy and security when viewing advertisements, experience an improved relevance and performance of the advertisement, and profit from the share of tokens (which have monetary value).

Publishers: Have an improved revenue, better reporting, and less fraud potential.

Advertisers: Less expensive customer targeting and attention, less fraud, and better percentage of attribution.

One of the main reasons why Brave Software is built on the Blockchain and is giving BAT tokens as reward, instead of dollars, is to keep the privacy of the users and not reveal any personal or financial information. When a transaction is done in the Blockchain, it becomes public, but not its owner information (Brave Software, 2021).

As in other browsers of the market, Brave also store the user information to improve the advertisement delivery performance, through learning machine technology, and the user experience. The difference is that Brave does not make profit from selling information to a third party, that information/profile does never leave the user's browser and he is always able to delete it (Brave Software, 2021).

The functioning of the rewards systems is not complicated. When the user chooses to watch an advertisement while searching, the AI of the browser calculates for how long an advertisement is visible for the user, and the number of pixels that the advertisement is occupying. Based on these variables, the AI calculates the amount of BAT tokens that the user will be rewarded with (Brave Software, 2021).

Problems of compatibility with different websites were totally erased when creating Brave browser, thanks to the fact that was built using Chromium, the open-source software that powers Google Chrome (Brave Software, 2021).

3.7.1. Online advertising data collected by the platform

Brave browser claims that it uses 40% less memory and 58% less data than Chrome. The platform carried out a study where the amount of data saved by mobile advertising

in the Brave browser was being calculated, counted in dollars. The result was a saving of as much as \$23 per month in data charges (Thomassen M, 2021).

Over the past months, the advertisements revenue has grown substantially, as more companies give a chance to the platform and advertise themselves. Companies like The New York Times, Verizon, Evernote, The Home and many more, have started to run a total of more than 2800 campaigns. From these campaigns, Brave reported an average CTR of 9%, in comparison to an industry average of a 2%. A higher engagement has also been reported by these brands (Thomassen M, 2021).

3.8. Conclusions of the Background-Theoretical framework

Regarding the blockchain applications in digital marketing and the whole advertising industry the literature provides mostly theoretical, but also some practical, approaches which describes how this technology can be implemented in the modern marketing and advertising. However, it also describes the several barriers and impediments that are slowing down the adoption of the disruptive technology.

In terms of the relation between blockchain and the business sector the developments in this area are more advanced than in others, reaching the point that some of them are being already tested. The main areas in which the developments are more advanced are the supply chain, the internet of things, the financial system, the digital rights management, and the healthcare system.

Transparency, immutability, and decentralization are the main attributes of the blockchain technology. Due to these attributes, it has been theorized that the technology can help digital marketing in the areas of user generated content, email marketing and online advertising.

Focusing on online advertising, the main advantage being studied in this field is the usability of blockchains transparency, its objective is to be able to **identify fraudulent traffic** and **improve the advertising delivery process**. The barriers of adoption are important and numerous, which is making the experts doubt about the possibility of a real application in a short-term period. These barriers are known as **scalability, token volatility, and excessive power consumption**.

Nevertheless, BAT/Brave system appears to be a functional application of the blockchain technology in the online advertising environment. **Brave is a search engine**, in this

platform, users are provided with an **anonymity shield** that assures them that their private data will never leave the device. This search engine aims to make disappear the intermediaries in online advertising by giving a **more important role to the users** in the advertising process and rewarding them for watching advertisements.

The literature about this topic provides **Brave as a possible blockchain solution** for the actual business model in online advertising but is lacking a consumer point of view approach. This study aim to answer the next question. Which is the interest towards this blockchain implementation in digital marketing, more specifically online advertising, from a consumer point of view.

4. Research question, objectives, and hypotheses

The research question aimed to be answered in this investigation is the following one: Is the digital community of Catalonia interested in the change of business model in online advertising? Meaning with the *change of business model*, the implementation of blockchain (Brave Browser) into the advertising environment as means for providing transparency, traceability, security and privacy to advertising and a new role to its users. These users would have a much more important role where they would be earning rewards for the type of advertising that they choose to see.

4.1. General objective

The investigation aims to describe the interest of the digital community in Catalonia towards the change of business model in online advertising when blockchain technology is implemented.

4.2. Specific objectives

The **first objective** is to identify the percentage of people from this digital community in Catalonia who are tired of the nowadays online advertising, and take actions towards them. This will be measured by the usage of tools to avoid ads like AdBlock. **(O.1)**

The **second objective** is to organize the group of people from the sample who choose to accept this change of business model into different groups according to their level of acceptance, using a "diffusion of innovation theory" approach. **(O.2)**

The **third objective** is to evaluate how businesses and professionals in marketing perceive the implementation of the blockchain technology, and the BAT/Brave business model. **(O.3)**

The **final objective** is to determine which factors have the greatest impact in influencing a consumer decision to adopt the new business model. **(O.4)**

4.3. Hypotheses

For the **general objective** of the study:

- H0 (null): The amount of people from the digital community in Catalonia that would be open to change their current search engine for Brave is less than 30%.
- H1 (alternative): The amount of people from the digital community in Catalonia, that would be open to change their current search engine for Brave is equal or bigger than 30%.

As for the **first specific objective**:

- H0 (null): The amount of people from the digital community in Catalonia that used at least once any adblocker is equal or bigger than 70%.
- H1 (alternative): The amount of people from the digital community in Catalonia that used at least once any adblocker is smaller than 70%.

As to the **second specific objective**:

H0: (null): The proportions of the sample related with “when would they start using Brave” are matching the proportions of the “diffusion of innovation theory”.

H1 (alternative): The proportions of the sample related with “when would they start using Brave” are not matching the proportions of the “diffusion of innovation theory”.

As for the **third specific objective**, it is expected to find a sample which is not concerned about the multiple applications of Blockchain into the online advertising industry. But at the same time, a sample that would be opened to give it an opportunity, in the long term, to show its potential to improve the actual paradigm.

Finally, for the **last specific objective**, it is required to test all the different independent variables that can have an impact on influencing the decision of the consumer to adopt the new business model:

Age

- H0 (null): There is no statistically significant correlation between the choice of changing the business model and the age of the population from the digital community in Catalonia.

- H1 (alternative): There is a statistically significant correlation between the choice of changing the business model and the age of the population from the digital community in Catalonia.

Studies level

- H0 (null): There is no statistically significant correlation between the choice of changing the business model and the level of studies from the digital community in Catalonia.

- H1 (alternative): There is a statistically significant correlation between the choice of changing the business model and the level of studies from the digital community in Catalonia.

Device used

- H0 (null): There is no statistically significant correlation between the choice of changing the business model and the device used for searching by the digital community in Catalonia.

- H1 (alternative): There is a statistically significant correlation between the choice of changing the business model and the device used for searching by the digital community in Catalonia.

Adblocker

- H0 (null): There is no statistically significant correlation between the choice of changing the business model and the usage of any adblocker by the digital community in Catalonia.

- H1 (alternative): There is a statistically significant correlation between the choice of changing the business model and the usage of any adblocker by the digital community in Catalonia.

Blockchain

- H0 (null): There is no statistically significant correlation between the choice of changing the business model and the knowledge about the blockchain term by the digital community in Catalonia.

- H1 (alternative): There is a statistically significant correlation between the choice of changing the business model and the knowledge about the blockchain term by the digital community in Catalonia.

5. Methodology

5.1. Methodology overview: population, sample and method

As pointed out in the research question, the investigation will be focused on the population considered inside the “digital community” in Catalonia. For practical reasons, the Catalonia population has been chosen instead of a bigger population, that is because with a bigger sample, the “n” would be too big for the available resources in this research. The population in Catalonia that is represented as a digital community is defined as: all the people currently living in Catalonia, between 16 and 74 years old, that have been using internet at least once during a period of three months in 2020 (INE, 2021). As it is mentioned in the IDESCAT the population within that age rank in Catalonia is 5.806.311.

It is known that the percentage of population in Catalonia using internet, within a period of three months during 2020, is 95,7% of that 5.806.311. This is leading the investigation to a final population of 5.556.640 (INE, 2021).

The amount of people using internet in Catalonia has been the most accurate metric to describe the “digital community” of Catalonia. Therefore, 2020 has been chosen instead of 2021 due to the lack of available data, during the investigation, compromising this last year.

As the next step, it is needed to calculate the sample for the investigation, which will be representing the population described above:

$n = ?$

$N = 5.556.640$

$p = 50\%$

$m = 5\%$

$Z = 1,96$

$$n = \frac{N * Z_{\alpha}^2 * p * q}{m^2 * (N - 1) + Z_{\alpha}^2 * p * q}$$
$$n = \frac{5.556.640 * 1,96^2 * 0,5 * 0,5}{0,05^2 * (5.556.640 - 1) + 1,96^2 * 0,5 * 0,5} = 384,14$$

$n = 384,14 = 385$ surveys to be done

Quantitative methods, but also qualitative, are chosen for the investigation to answer the objectives explained in the theoretical framework, given the need to acquire accurate percentages that describe the interest of the defined sample towards the blockchain application into online advertising and its implications.

The first method employed is the interview, the number of interviews will be carried on by the data saturation technique. It means that interviews will be carried on till it is considered that no more relevant data for the investigation can be discovered, after reaching this point there will be no more interviews (Busetto et al., 2020). The targets of the interviews will be experienced people in the field of digital marketing that, at the same time, are currently working in this field in a real company.

The second method employed is surveys, and the sample will be the digital community in Catalonia, which has been defined earlier as 385 people living in Catalonia that are between 16 and 74 years old and use internet.

Moreover, a deep analysis of the platform BAT/Brave will be conducted before designing the interview and survey, in order to deeply understand and show how this future business model of online advertising looks like. The choice of this platform before others is justified by its popular adoption within the worldwide digital communities and the public availability of its white paper.

5.2. Data collection techniques and instruments

As mentioned above, qualitative and quantitative methods will be carried on during this investigation. This evolves two techniques: the interview (qualitative) and the survey (quantitative). For these methods it is necessary to introduce which are going to be the techniques and instruments used to collect the data.

5.2.1. The interview technique and instruments

Through the interview collected data it is expected to be able to identify what is the interest towards the implementation of the technology, in order to identify fraudulent traffic and improve the advertising delivery process from a businesses and professionals of marketing perspective. Therefore, the targets of the interviews will be experienced people in the field of digital marketing that, at the same time, are currently working in this field in a real company.

The objective of this method is to validate or refute the third hypothesis of this investigation, because of this, the interview will be semi-structured. This method is also aiming to help in the development of the future survey, so its character will be mainly exploratory. Presential and digital channels will be used to carry on the interviews.

As it has been said, the data saturation technique will be the one chosen to determine the number of interviews needed. The interview, which can be found in Appendix 2, will consist of two parts. At the beginning, the interviewer will try to understand the company background, the interviewed job position, and his experience. After this, the second part will be followed by a short explanation about the Blockchain by the interviewer; in the

second part the objective will be to discover their opinion towards the technology in their field of work.

5.2.2. The survey technique and instruments

Through the survey, the general research question is aimed to be answered. Which refers to describe the interest of the digital community in Catalonia towards the change of business model in online advertising when blockchain technology it's implemented.

The questions of the survey are formulated extracting the gaps of the literature studied, the conclusions from the interviews, and aiming to answer the general objective of the investigation. These questions can be found in the Appendix 3.

Surveys will be carried on by the technique of non-probability sampling, more precisely, snowball sampling or network sampling (de Leeuw & Edith D, 2008). Google forms will be the instrument used to spread the survey through the most popular channel, the internet.

The sample of 385 people, between 16 and 74 years old that are leaving in Catalonia and currently using internet, has been determined by the following variables: a universe (N) of 5.556.640, a margin of error (m) of 0,05, a level of confidence (1- α) of 0,95, a significance (α) of 0,05, and a population proportion (p) of 0,5.

5.3. Methods of data analysis

A quantitative and qualitative analysis will be carried out during the investigation from the data obtained through the surveys and interviews. The raw data for the quantitative technique will be the downloaded excel of the answered surveys, found in Appendix 6. As for the qualitative technique, the raw data will be the transcripts of the records.

5.3.1. Data analysis for the interview

One part of the interview will respond to the third research objective through questions about the real interest of changing the actual business model of online advertising into

one that will be blockchain based. As for the other part of the interview, it will help to develop a more responsive survey for the sample.

Only qualitative analysis of the data will be used to extract conclusions from the interview's results. This qualitative analysis will consist in the individual approach of every transcript, to extract the most important data and be able to come up with conclusions. The objective is to find similar behaviors and thoughts between different persons that are being interviewed, to be able to extract a clear image of the opinion on the actual online advertising business model from a professional point of view.

To develop the survey, the data from the last question "Do you think the consumers of this online advertising would be open to this change of business model?" will be used to create the questions of the survey. More precisely, the points where most of the interviewees are agreeing will be targeted to create specific questions for the survey.

The conclusions from the interview are collected through thematic analysis (Braun & Clarke, n.d.), the data is examined to find common themes in the interviews between the different respondents. Once a common theme is found, is cited, and a conclusion is extracted from it.

5.3.2. Data analysis for the survey

For the analysis of the data coming from the survey, descriptive and inferential statistics will be used to study the results. The investigation will be carried out by processing the data through Stata, a statistics software.

Once the data from the surveys is collected, the variables will be codified to be processed in Stata. As the first step, the **descriptive statistical analysis** will be carried on summarizing the results of the survey and analyzing the general outputs.

Independent variables

- Age
- Studies level
- Search frequency
- Device used for searching
- Feeling
- Adblocker usage
- Search engine

- Blockchain knowledge
- Blockchain applications knowledge

Dependent variables

- Change to brave
- When would you change to Brave

The inferential analysis will be the following step. The first analysis carried on will be the **proportions test**, to answer the general objective and the first specific objective.

To answer the fourth specific objective, two types of analysis will be carried out, depending on the characteristics of the variables. For the dichotomic variables, the **Fisher's exact test** will be used to run the correlation analysis. Finally, for the categorical variables, the **Pearson chi test** will be used to run the correlation analysis. The reason why these two tests are being carried out is because a correlation analysis is needed, to identify which are the factors that can have an impact on influencing the decision of the consumer to adopt the new business model.

6. Results

6.1. Analysis of data obtained from the interviews

The first part of this analysis is focused to answer the third specific objective of this investigation; where the hypothesis was to find a sample not concerned about the multiple Blockchain applications and, at the same time, were opened to give an opportunity to this technology in the long term.

Throughout the 7 different interviews that had been carried on, there hasn't been found any interviewed that admitted knowing what the multiple applications of Blockchain were. In fact, from the 3 participants that showed knowledge of the blockchain term, none of them knew any application of the blockchain further than the cryptocurrency.

"I heard several times about the term Blockchain, but I thought it was only related to scams such as cryptocurrency." (Participant 5)

After the participants heard the explanation given by the interviewer about the multiple applications of Blockchain and the Brave platform, they have got an open-minded point of view about it.

“Nowadays, platforms like Facebook Ads became popular, which made the prices of the advertising and the competition rise. I would be really interested in trying a new platform with a different algorithm and ads delivery process, as soon as possible.” (Participant 2)

Part of the third hypothesis is refuted, as participants show a desire of giving an opportunity to the Brave platform in a short term. On the other hand, the first part of the hypotheses is validated, as participants do not show any knowledge about the different applications of blockchain and show themselves open-minded to this new business model.

As for **the second part of this analysis**, is to create some of the survey questions from the matching opinions of the experts interviewed. Any relevant answer from the interviewer criteria, shared by more than one participant, has been used to formulate a question.

A problem due to the usage of the mobile phone as the main device used to search on the internet has been pointed out by the participants. Defending that the user can use the mobile phone in areas where there are extra inputs, for the consumer of that publicity, that disturbs his attention.

“When programming a Facebook Ads campaign, I personally try to target people that are using Wi-fi connection. So, I have more chances that the people who are watching my advertisements are doing it from home, even if it is from the phone.” (Participant 2)

“One of the problems that we face these days, is that more than 70% of our publicity is being consumed through mobile devices” (Participant 4)

“A lot of people are watching online advertisements from their phones while they are in public places, like public transportation, where they use less than half of their attention capacity” (Participant 7)

It would be interesting to discover if the mobile phone is the most common device used to search on the internet, and what is the relationship with the other variables.

The participants also mentioned that the new and young generations started to use technology to avoid online advertisements to be delivered, like Adblock or other tools. Meaning, there is an existent correlation between the age and the usage of ad blockers.

“For us it is really difficult to have certain impact on the teenagers when publishing a display or video campaign in Google, because a lot of them started to use tools to block the publicity” (Participant 2)

“Adblock and other Chrome extensions are making my campaign analytics get worse and worse, fortunately, the older generations are not using this technology” (Participant 5)

Referring to the last question of the interview, most of the participants agreed that most consumers would not accept this change of business model, as they are too attached to the popular search engines like Google Chrome and Safari.

“I personally think that people would find more attractive the fact of being able to earn money just for using a different search engine, but at the same time, I don't think the amount of money that you are talking about would be enough to persuade most of them.” (Participant 5)

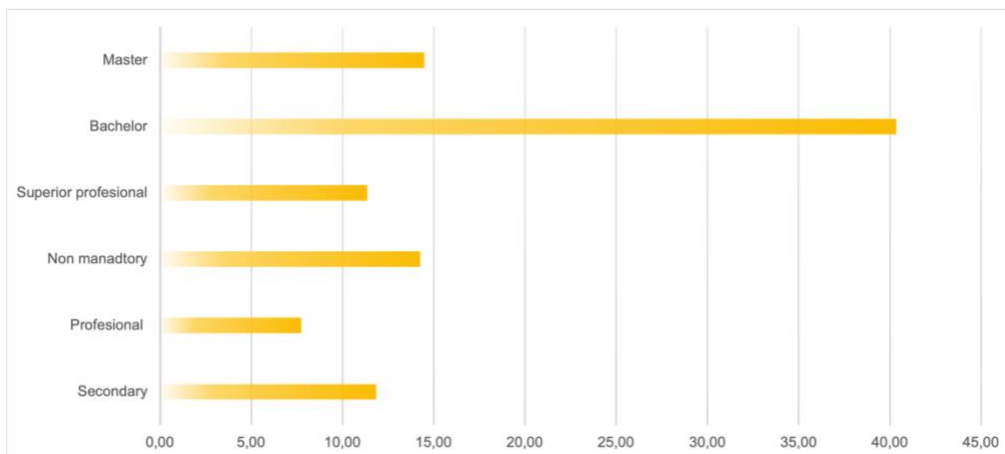
6.2. Analysis of data obtained from the survey

6.2.1. Descriptive statistics

The total number of surveys answered is 414, which is surpassing the minimum sample of 385, which was required with a margin error of 0,05. From these 414 surveys, all the people were between 16 and 74 years old, so no answers have been deleted and the sample of the investigation remains as 414.

Regarding the highest level of education of the respondents, 40,34% have bachelor studies, 14,49% have master studies, 14,25 have non mandatory secondary studies, 11,84% have mandatory secondary studies, 11,35% have superior professional education studies, and 7,73% have medium professional education studies.

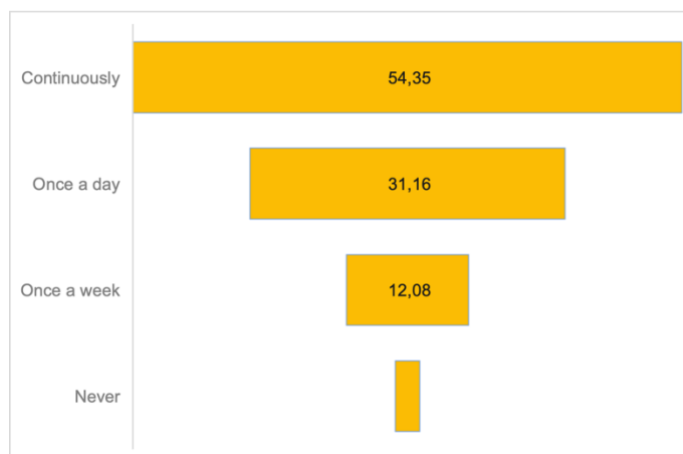
Figure 3. Level of studies



Source: self-created

Regarding the search frequency of the respondents, 54,35% reported a continuous search activity, 31,16% reported searching on the internet once a day, 12,08% reported searching on the internet once a week, and 2,42% reported not searching the on internet at all.

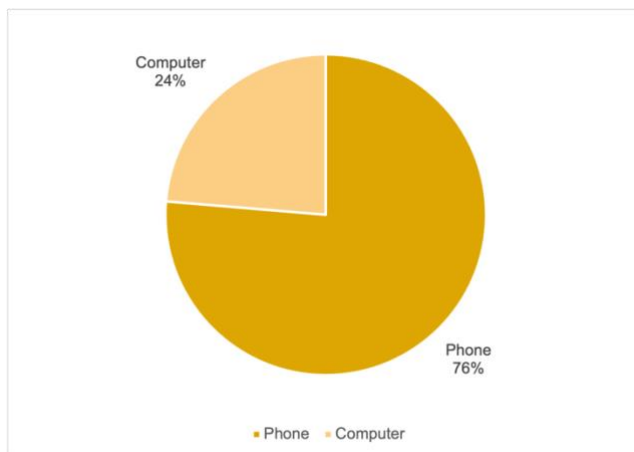
Figure 4. Search frequency



Source: self-created

Regarding the device used by the respondents for searching on the internet, 76,33% reported using the phone for searching on the internet, while 23,67% reported using the computer for searching on the internet.

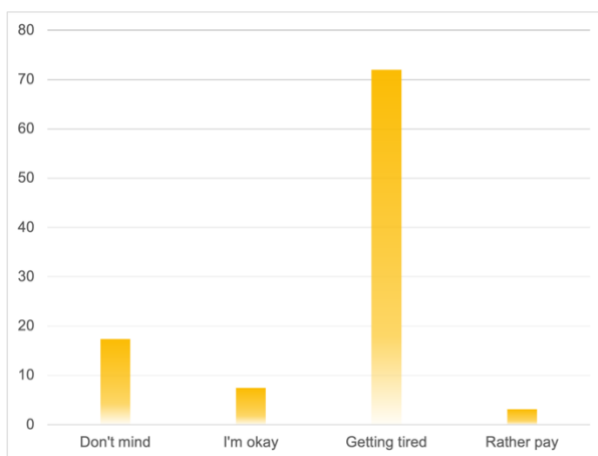
Figure 5. Device used for searching



Source: self-created

Regarding the feeling of the respondents about watching online publicity, 71,98% reported that they are getting tired of it, 17,39% reported that they don't mind, 7,49% reported being okay with it, and 3,14% reported that they prefer to pay to avoid the publicity.

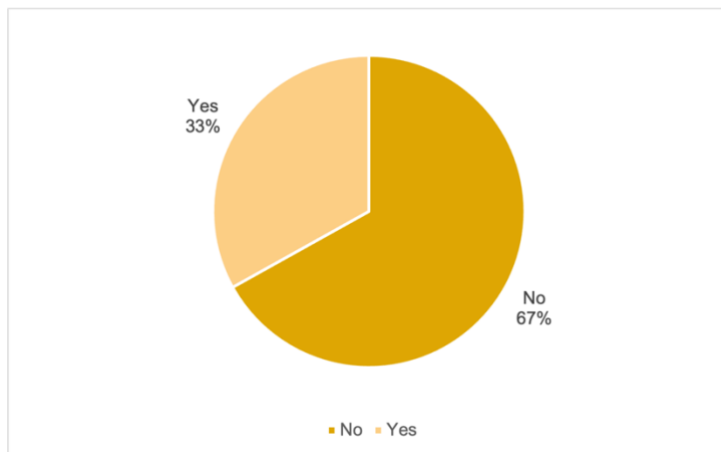
Figure 6. Feeling about watching online publicity



Source: self-created

Regarding if the respondents have ever used an adblocker or not, 66,91% reported never having used an adblocker, while 33,09% reported having used an adblocker.

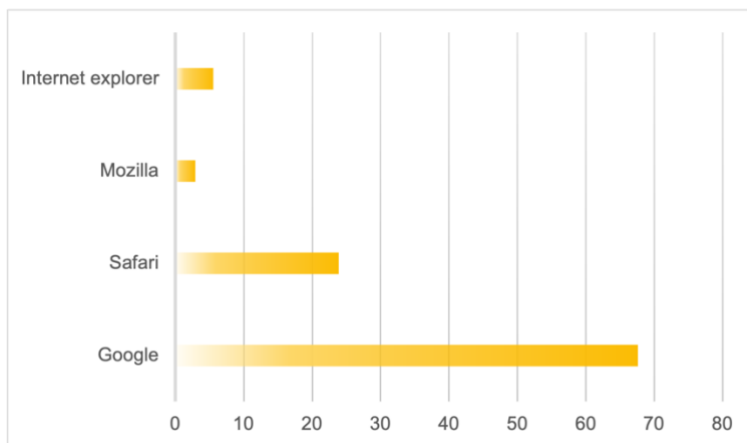
Figure 7. Adblocker



Source: self-created

Regarding the search engine used with the most frequency by the respondents, 67,63% reported using Google Chrome, 23,91% reported using Safari, 5,56% reported using Internet Explorer, and 2,90% reported using Mozilla Firefox.

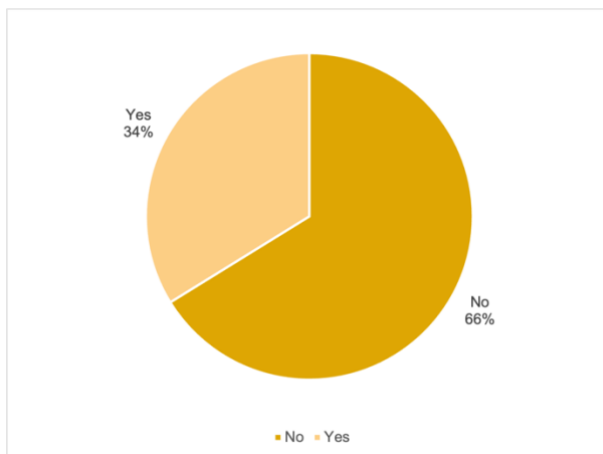
Figure 8. Search engine used



Source: self-created

Regarding the knowledge of the term Blockchain from the respondents, 66,18% reported not knowing about it, while 33,82% reported knowing the term.

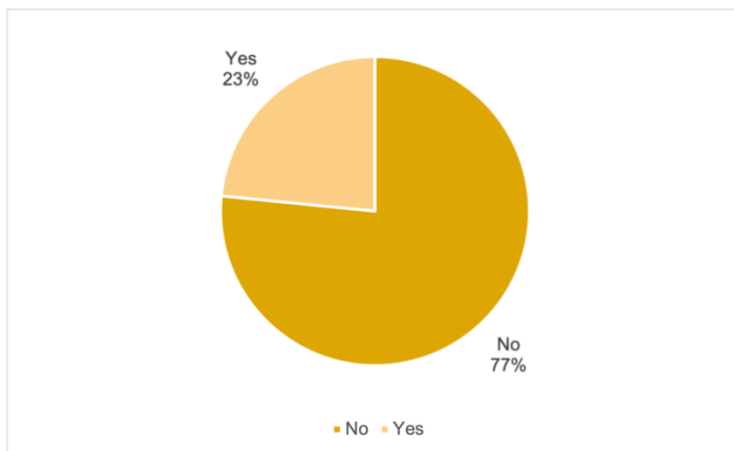
Figure 9. Blockchain



Source: self-created

Regarding the knowledge of the blockchain applications from the respondents, 76,57% reported not having any knowledge of the blockchain applications, while 23,43% reported knowing about the blockchain applications.

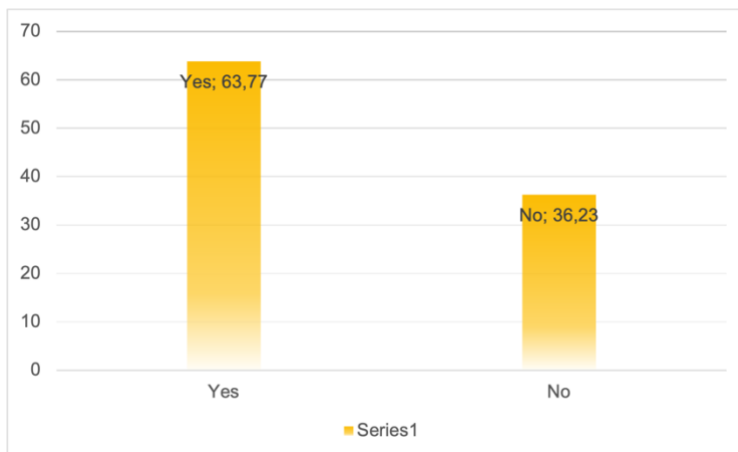
Figure 10. Blockchain applications



Source: self-created

Regarding whether the respondents are open to change their current search engines for Brave or not, 63,77% reported being open to the change of search engine, while 36,23% reported not being open to the change of search engine.

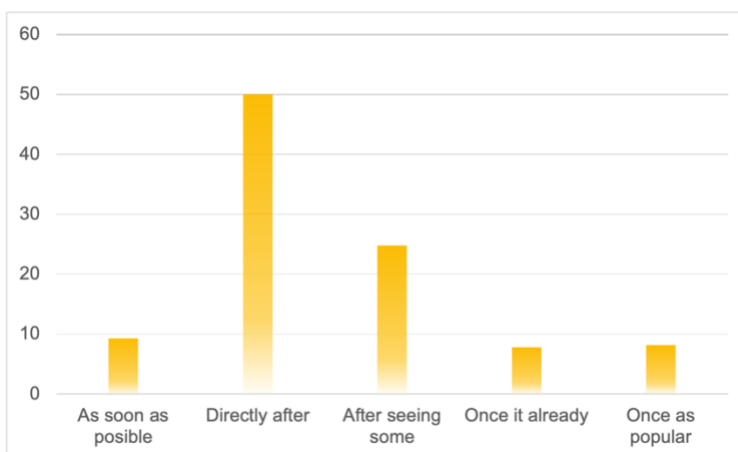
Figure 11. Change to Brave



Source: self-created

Finally, regarding when would the respondents start using Brave, 50% reported that they would start using it directly after short investigation, 24,81% reported that they would start using it after seeing some people already using it, 9,26% reported that they would start using it as soon as possible, 8,15% reported that they would start using it once it is as popular as the other search engines, and 7,78% reported that they would start using it once it became popular.

Figure 12. When to start using Brave



Source: self-created

6.2.2. Inferential statistics

General hypothesis

The general hypothesis argues that the percentage of people that would be open to change their current search engine for Brave is less than 30% of the digital community in Catalonia. In order to run the analysis, the null and alternative hypotheses must be formulated:

- H0 (null): The amount of people from the digital community in Catalonia that would be open to change their current search engine for Brave is less than 30%.
- H1 (alternative): The amount of people from the digital community in Catalonia that would be open to change their current search engine for Brave is equal or bigger than 30%.

The proportions test resulted in a p-value of 0.000 when $H_a: p > 0,3$. Being the p-value smaller than its level of significance, the null hypothesis is rejected.

Table 2. Proportion test change to Brave

Variable	Mean	Std. err.	{95% conf. Interval}
changetobrave	.6376812	.0236237	.5913796 .6839827
p= proportion (brave)			z = 14.9933
H0: p = 0,3	H _a : p < 0.3	H _a : p !=0.3	H _a : p > 0.3
	Pr(Z < z) = 1.0000	Pr(Z > z) = 0.0000	Pr(Z > z) = 0.0000

Source: self-created

With a 95% confidence level, it can be said that the percentage of people from the digital community in Catalonia that would be open to change their current search engine for Brave is equal or bigger than 30%.

Specific hypothesis 1

The first hypothesis argues that the percentage of people using an add blocker is equal or bigger than 70% of the digital community in Catalonia. In order to run the analysis, the null and alternative hypotheses must be formulated:

- H0 (null): The amount of people from the digital community in Catalonia that used at least once any adblocker is equal or bigger than 70%.

- H1 (alternative): The amount of people from the digital community in Catalonia that used at least once any adblocker is smaller than 70%.

The proportions test resulted in a p-value of 0.000 when $H_a: p < 0,7$. Being the p-value smaller than its level of significance, the null hypothesis is rejected.

Table 3. Proportion test Adblocker

Variable	Mean	Std. err.	{95% conf. Interval}
adblocker	.3309179	.023126	.2855918 .3762439
p= proportion (adblocker)			z = -16.3875
H0: p = 0,7	$H_a: p < 0.7$	$H_a: p \neq 0.7$	$H_a: p > 0.7$
	$Pr(Z < z) = 0.0000$	$Pr(Z > z) = 0.0000$	$Pr(Z > z) = 1.0000$

Source: self-created

With a 95% confidence level, it can be said that the percentage of people from the digital community in Catalonia that used at least once any adblocker is less than 70%.

Specific hypothesis 4

Age

The first hypothesis argues that there is no statistically significant correlation between the choice of changing the business model and the age of the population from the digital community in Catalonia. In order to run the analysis, the null and alternative hypotheses must be formulated:

- H0 (null): There is no statistically significant correlation between the choice of changing the business model and the age of the population from the digital community in Catalonia.

- H1 (alternative): There is a statistically significant correlation between the choice of changing the business model and the age of the population from the digital community in Catalonia.

The Pearson chi test resulted in a p-value of 0.000 and a Cramér's V of 0,4245. Being the p-value smaller than its level of significance, the null hypothesis is rejected.

Table 4. Pearson chi test change to Brave with age categories

Agecat	Change to Brave		
	Yes	No	Total
1	117	27	144
	91.8	52.2	144.0
2	70	20	90
	57.4	32.6	90.0
3	61	55	116
	74.0	42.0	116.0
4	16	48	64
	40.8	23.2	64.0
Total	264	150	414
	264.0	150.0	414.0
Pearson chi2(3)		74,6036	
Pr		0.000	
Cramér's V		0.4245	

Source: self-created

With a 95% confidence level, it can be said that there is a statistically significant correlation between the choice of changing the business model and the age of the population from the digital community in Catalonia.

Studies level

The second hypothesis argues that there is no statistically significant correlation between the choice of changing the business model and the level of studies from the digital community in Catalonia. In order to run the analysis, the null and alternative hypotheses must be formulated:

- H0 (null): There is no statistically significant correlation between the choice of changing the business model and the level of studies from the digital community in Catalonia.
- H1 (alternative): There is a statistically significant correlation between the choice of changing the business model and the level of studies from the digital community in Catalonia.

The Pearson chi test resulted in a p-value of 0.000 and a Cramér's V of 0,2424. Being the p-value smaller than its level of significance, the null hypothesis is rejected.

Table 5. Pearson chi test change to Brave with studies level

Studies level	Change to Brave		
	Yes	No	Total
Secondary	17	32	49
	31.2	17.8	49.0
Non mandatory	39	20	59
	37.6	21.4	59.0
Medium	18	14	32
	20.4	11.6	32.0
Superior	32	15	47
	30.0	17.0	47.0
Bachelor	112	55	167
	106.5	60.5	167.0
Master	46	14	60
	38.3	21.7	60.0
Total	264	150	414
	264.0	150.0	414.0
Pearson chi2(5)		24,3351	
Pr		0.000	
Cramér's V		0,2424	

Source: self-created

With a 95% confidence level, it can be said that there is a statistically significant correlation between the choice of changing the business model and the level of studies from the digital community in Catalonia.

Device used

The third hypothesis argues that there is no statistically significant correlation between the choice of changing the business model and the device used for searching by the digital community in Catalonia. In order to run the analysis, the null and alternative hypotheses must be formulated:

- H0 (null): There is no statistically significant correlation between the choice of changing the business model and the device used for searching by the digital community in Catalonia.

- H1 (alternative): There is a statistically significant correlation between the choice of changing the business model and the device used for searching by the digital community in Catalonia.

The fisher's exact test resulted in a p-value of 0.022 and a Cramér's V of 0,1122. Being the p-value smaller than its level of significance, the null hypothesis is rejected.

Table 6. Fisher's exact test change to Brave with device used

Device used	Change to Brave		
	Yes	No	Total
Phone	211	105	316
	201.5	114.5	316.0
Computer	53	45	98
	62.5	35.5	98.0
Total	264	150	414
	264.0	150.0	414.0
Pearson chi2(1)		5,2141	
Pr		0.022	
Cramér's V		0.1122	
Fisher's exact		0.030	

Source: self-created

With a 95% confidence level, it can be said that there is a statistically significant correlation between the choice of changing the business model and the device used for searching by the digital community in Catalonia.

Adblocker

The fourth hypothesis argues that there is no statistically significant correlation between the choice of changing the business model and the usage of any adblocker by the digital community in Catalonia. In order to run the analysis, the null and alternative hypotheses must be formulated:

- H0 (null): There is no statistically significant correlation between the choice of changing the business model and the usage of any adblocker by the digital community in Catalonia.

- H1 (alternative): There is a statistically significant correlation between the choice of changing the business model and the usage of any adblocker by the digital community in Catalonia.

The fisher's exact test resulted in a p-value of 0.000 and a Cramér's V of 0,2097. Being the p-value smaller than its level of significance, the null hypothesis is rejected.

Table 7. Fisher's exact test change to Brave with Adblocker

Adblocker	Change to Brave		
	Yes	No	Total
Yes	107	30	137
	87.4	49.6	137.0
No	157	120	277
	176.6	100.4	277.0
Total	264	150	414
	264.0	150.0	414.0
Pearson chi2(1)		18,2090	
Pr		0.000	
Cramér's V		0.2097	
Fisher's exact		0.000	

Source: self-created

With a 95% confidence level, it can be said that there is a statistically significant correlation between the choice of changing the business model and the usage of any adblocker by the digital community in Catalonia.

Blockchain

The fifth hypothesis argues that there is no statistically significant correlation between the choice of changing the business model and the knowledge about the blockchain term by the digital community in Catalonia. In order to run the analysis, the null and alternative hypotheses must be formulated:

- H0 (null): There is no statistically significant correlation between the choice of changing the business model and the knowledge about the blockchain term by the digital community in Catalonia.

- H1 (alternative): There is a statistically significant correlation between the choice of changing the business model and the knowledge about the blockchain term by the digital community in Catalonia.

The fisher's exact test resulted in a p-value of 0.000 and a Cramér's V of 0,2308. Being the p-value smaller than its level of significance, the null hypothesis is rejected.

Table 8. Fisher's exact test change to Brave with blockchain

Blockchain	Change to Brave		
	Yes	No	Total
Yes	111	29	140
	89.3	50.7	140.0
No	153	121	274
	174.7	99.3	274.0
Total	264	150	414
	264.0	150.0	414.0
Pearson chi2(1)		22,0461	
Pr		0.000	
Cramér's V		0.2308	
Fisher's exact		0.000	

Source: self-created

With a 95% confidence level, it can be said that there is a statistically significant correlation between the choice of changing the business model and the knowledge about the blockchain term by the digital community in Catalonia.

7. Discussion

7.1. Summary of findings and implications

In this research project, a structured analysis of the results was conducted. The choice of the analysis method was based on the main research question: **“Is the digital community of Catalonia interested in the change of business model in online advertising?”**. In this case, the “change of business model” means a change in the user's role and providing better transparency, traceability, security, and privacy by implementing blockchain technology (Brave Browser) into the advertising environment.

The results obtained in the interviews and the surveys have been used to carry on the investigation and answer the research question, through specific objectives and hypotheses.

1. Most of the interviewed professionals from the marketing sector are open to the idea of changing the business model by choosing the Brave search engine. However, they also pointed out that it would be very difficult to persuade people to use another search engine since the popular ones are well rooted in the user's community.
2. Moving to the surveys, the percentage of participants that reported being opened to change their actual search engine for Brave, represented 63,8% of the sample.
3. The amount of people that are using an adblocker shows the percentage of people that are taking actions to avoid the ads, which should lead to a bigger predisposition to start using Brave. The results have shown that just 33% of the sample have ever used an adblocker.
4. There is an existing lack of knowledge towards blockchain technology and its applications. There were 66% of the respondents who did not know about the blockchain technology and 77% of the respondents who did not know about the different blockchain applications.
5. The distribution of the answers referring to the last question of the survey "when would you start using brave" does not match with the "diffusion of innovation theory" percentages. This indicates that there is a difference between the predisposition to change to Brave and taking the action of changing to Brave. This means that a lot of people confirmed they would be able to change their current search engines for Brave, but in reality, while users having to take the action and change their search engine, the number would probably not be as high as it is now according to the research.
6. The factors that could be more influential in having a better predisposition towards the change in the business model have been explored through correlation analysis; variables that showed correlation were: age, education, navigation device, use of adblockers, and knowledge of blockchain. Age is the factor with the biggest correlation among them, the younger the customer is, the higher the chance is of him to use Brave.

The results of this research give an approach of which would be the acceptance towards changing the business model in the search engine marketing (SEM), by proposing a new

search engine, based on blockchain technology, as the new business model. The investigation has been useful to describe the percentage of the digital community in Catalonia that would be open to make the change of business model. This information is also important for some other marketing fields, such as customer behavior, new tendencies in marketing (innovation), and internet positioning.

As a conclusion, 63,8% of the digital community in Catalonia is interested in the change of business model in online advertising and shown predisposition to change their usual search engines for Brave. Nevertheless, the predisposition to change does not necessarily mean that all the people, from that 63,8%, would really change their search engine and start using Brave.

7.2. Limitations

From the interview part, the main limitation has been the lack of knowledge about the blockchain term from the respondents. Some of them did not even know what the meaning of the term was, but the ones that knew, were only associating it to cryptocurrency and showed rejection towards it.

Moving to the survey data, when trying to validate the hypothesis made about “the diffusion of innovation theory”, where it has been said that the percentages would match, the results turned out to be far from that, not being even close to match these percentages. Having no explanation for these results, the problem remains unsolved, which means a limitation for this investigation and a reason to carry on future investigations.

The last limitation has been the fact of not having a big enough expected frequency in the “search engines” question of the survey, which led to not being able to make any statistically significant conclusion about it.

7.3. Suggestions for future research

There are a few results that doesn't match with the big number of respondents that answered being open to start using Brave. For example, the adblocker usage, just a 33% of the participants are taking actions to change the actual business model by using an

adblocker, but 63,8% answered that they would take actions to change it by starting to use Brave.

As it has been said, the predisposition from the respondents to start using Brave, does not mean that the respondents would really make any effort to start using it and change the nowadays online advertising delivery. For this reason, that future investigation with an experiment to analyze which percentage, of the population, would really make this effort to change to Brave, should be carried on. Also aiming to answer why there is such a big percentage of the population tired of the nowadays online advertising delivery, more than 70%, but just a few are taking actions to change it, 33%.

Another future investigation would be to discover which is the characteristic of Brave, from all the exposed, that motivates the respondents to make the change.

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9. Appendixes

Appendix 1. Schedule

Action	Starting Date	Finishing date
Final methodology defined	10/01/2022	16/01/2022
Research for investigation	17/01/2022	15/02/2022
Processing data from investigation	16/02/2022	02/03/2022
Creating slides for mid-term presentation	03/03/2022	06/03/2022
Preparing the mid-term presentation	07/03/2022	20/03/2022
Analyzing the results from investigation	21/03/2022	14/04/2022
Conclusion	15/04/2022	22/04/2022
Creating slides for final presentation	23/04/2022	01/05/2022
Preparing the final presentation	02/05/2022	27/06/2022
Correcting the mistakes and improving the final thesis based on the feedback from the teacher and tribunal	22/04/2022	19/06/2022

Appendix 2. Interview

TECNOCAMPUS UNIVERSITY

Name of the interviewed: _____

Place where the interview took place: _____

City: _____ Country: _____ Date: _____

Number of interview: _____.

To the interviewed:

This interview has the objective to discover the point of view from the professionals of marketing towards the change of business model in online advertising “application of blockchain technology”. The information obtained will be only used for academic purposes.

Part 1

1.- Which is your position in the company?

2.- For how long have you been working in the marketing industry?

3.- How much do you spend in online advertising (monthly)?

4.- Have you ever suspected that the money that you spend in online advertising companies (example: Facebook Ads, Google AdWords) is not totally representative of the results that you get?

5.- Have you ever thought on trying other online advertising systems or platforms that would allow you a higher transparency and more accurate results, instead of using the most popular ones?

6.- Do you know what is the Blockchain? If yes, give me a short definition.

Part 2

Short explanation of what is the Blockchain, what its application can bring to online advertising, and a fast representation of the BAT/Brave system functioning...

7.- Which are the advantages that you think this technology can bring to the online advertising?

8.- Which are the disadvantages that you think this technology can bring to the online advertising?

9.- Would you be opened to use this technology and implement it in your daily work? If yes, in what period? If not, why not?

10.- Do you think the consumers of this online advertising would be open to this change of business model?

Thank you for your cooperation!

Appendix 3. Survey

1. Gender

- A) Male
- B) Female
- C) Other
- D) I prefer not to answer

2. Age

....

3. Level of studies

- A) Secondary education (ESO)
- B) Non mandatory secondary
- C) Professional education
- D) Superior professional education
- E) Bachelor's degree
- F) Master

4. How often do you use internet for your own purposes (not work)?

- A) Never
- B) Once a week
- C) Once a day
- D) Continuously

5. From which device do you usually use internet?

- A) Phone
- B) Computer
- C) Other

6. How do you feel about having to watch advertisements to access contents or applications free of charge?

- A) I don't mind at all
- B) I'm ok with it
- C) I'm getting tired of it
- D) I only stand it if I really need access to it
- E) I rather pay to access contents or applications)

7. Have you ever used an Ad Blocker (tool to avoid watching online advertisement)?

- A) Yes
- B) No

8. Which explorer engine do you use the most?

- A) Google Chrome

- B) Safari
- C) Mozilla
- D) Internet Explorer
- E) Others

9. Are you familiar with the term of blockchain?

- A) Yes
- B) No

10. Did you know that blockchain technology is applicable to other purposes besides cryptocurrency?

- A) Yes
- B) No

“Brave” is a new Blockchain based searching engine where the user chooses if to watch Ads or not (in case of watching them, is being rewarded with an average of 5\$ in cryptocurrency monthly) and where there is total privacy, without your personal data being sold. It is also faster than the other ones when is not displaying Ads.

11. Would you be open to exchange your usual search engine for “Brave”?

- A) Yes
- B) No

12. In case you answered “yes”, when would you start using it?

- A) As soon as possible, even that no one is using it yet
- B) Directly after a short investigation about it
- C) After seeing some people is already using it
- D) Once it already became popular
- E) Once it is as popular as the other searching engines

Appendix 4. Table of weights

IDESCAT weights

	Male	Female	Total
16 - 29	11,7%	11,0%	22,7%
30 - 44	12,0%	11,5%	23,5%
45 - 59	12,7%	12,6%	25,2%
60 - 74	14,3%	14,3%	28,6%
Total	50,7%	49,3%	100,0%

Survey weights

	Male	Female	Total
16 - 29	12,8%	19,3%	32,1%
30 - 44	9,7%	12,1%	21,7%
45 - 59	16,4%	13,3%	29,7%
60 - 74	10,1%	6,3%	16,4%
Total	49,0%	51,0%	100,0%

Appendix 5. Code book

Question name	Question number	Code
Gender	1	= 0 Female = 1 Male = 2 Other = 3 I prefer not to answer
Age groups	2	= 1 age < 30 = 2 age > 29 & age < 45 = 3 age > 44 & age < 60 = 4 age > 59
Studies level	3	= 1 Secondary education (ESO) = 2 Non mandatory secondary = 3 Medium professional education = 4 Superior professional education = 5 Bachelor degree = 6 Master

Interest towards the Blockchain implementation on Digital Advertising in Catalonia

Search frequency	4	<ul style="list-style-type: none"> = 1 Never = 2 Once a week = 3 Once a day = 4 Continuously
Device used	5	<ul style="list-style-type: none"> = 1 Phone = 2 Computer = 3 Other
Feeling towards nowadays online advertising	6	<ul style="list-style-type: none"> = 1 I don't mind at all = 2 I'm ok with it = 3 I'm getting tired of it = 4 I rather pay to access contents or applications
Adblocker	7	<ul style="list-style-type: none"> = 0 Yes = 1 No
Search engine	8	<ul style="list-style-type: none"> = 1 Google Chrome = 2 Safari = 3 Mozilla = 4 Internet Explorer = 5 Others
Blockchain	9	<ul style="list-style-type: none"> = 0 Yes = 1 No
Blockchain applications	10	<ul style="list-style-type: none"> = 0 Yes = 1 No

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Change to Brave	11	= 0 Yes = 1 No
When would you start	12	= 1 As soon as possible, even that no one is using it yet = 2 Directly after a short investigation about it = 3 After seeing some people is already using it = 4 Once it already became popular = 5 Once it is as popular as the other searching engines

Appendix 6. Database

Gender	Age	Studies level	Search frequen	Device used for searchin	How do you feel about watching public	ADBlocker	Search engine	Blockchain	Blockchain applicatio	Change to Brav	When would you start using Br
0	53	6	4	2	3	1	1	0	1	0	2
1	53	6	4	2	3	0	1	0	0	0	3
0	44	6	3	1	3	0	1	1	1	0	3
1	28	6	4	1	3	0	1	1	1	0	2
1	33	6	4	1	3	1	1	0	0	0	2
0	22	5	4	1	4	1	2	0	0	1	
0	18	5	2	1	3	0	1	1	1	0	3
1	21	3	4	1	1	0	1	0	0	0	2
0	20	4	4	1	3	1	1	1	1	0	3
1	23	6	3	1	3	0	1	0	0	1	
0	23	5	2	2	3	0	1	0	0	0	4
1	35	5	4	1	1	1	2	0	0	1	
0	21	5	4	1	3	1	1	0	0	1	
0	35	5	4	1	3	0	1	0	0	0	2
1	43	6	3	1	3	1	1	1	1	0	4
0	32	6	4	1	3	1	1	1	1	0	3
1	37	6	4	1	3	1	2	1	1	0	4
0	26	6	4	1	3	1	1	1	1	1	
0	37	6	4	1	3	1	1	1	1	0	2
1	44	5	2	1	3	0	1	1	1	0	4
0	44	6	3	1	3	1	1	0	0	0	5
1	20	2	4	1	2	0	1	0	0	0	2
0	27	6	4	1	3	0	1	0	0	0	3
0	49	6	3	2	3	1	2	0	1	0	2
0	49	6	3	2	3	1	2	0	1	0	2
0	42	5	4	1	3	1	2	1	1	0	1
0	35	4	4	1	3	1	1	1	1	0	2
1	26	5	4	1	1	0	1	0	0	0	2
1	34	6	4	1	2	0	3	0	1	0	2
0	17	2	4	1	3	1	2	1	1	0	1
0	37	6	2	1	3	1	1	1	1	0	2
1	20	5	4	2	3	0	2	1	1	1	
0	21	5	4	1	3	1	2	1	1	1	
0	23	5	4	1	3	1	2	0	0	0	
0	58	2	4	1	3	1	1	1	1	0	2
0	37	6	4	1	3	1	1	1	1	0	3
1	35	5	4	1	2	0	1	0	0	0	2
0	21	5	3	1	2	1	1	0	0	0	3
1	25	6	4	1	1	0	1	0	0	0	2
0	35	5	4	1	2	1	1	0	0	0	2
0	26	5	4	1	3	1	1	1	1	0	4
0	24	5	4	1	4	0	2	0	0	0	1
0	41	5	4	1	3	1	1	1	1	0	2
0	22	5	4	1	3	1	1	0	1	0	2
1	21	5	4	2	3	0	2	1	1	1	
0	25	6	4	2	3	0	1	0	0	0	2
0	20	5	4	1	3	0	1	1	1	0	4
0	26	5	2	1	3	0	2	1	1	0	3
0	20	5	4	2	3	1	2	0	0	1	
1	18	2	4	1	3	0	1	0	0	0	1
0	32	1	3	2	3	0	2	0	0	0	1
1	18	5	3	1	3	0	1	1	0	0	3
1	30	6	4	1	3	0	1	0	0	0	2
0	53	2	3	1	3	1	1	1	1	0	5
1	39	4	4	1	3	0	1	1	1	0	1
0	26	5	3	1	3	0	1	0	0	0	2
0	21	5	4	1	3	1	2	1	1	0	2
0	20	2	3	2	3	1	2	1	1	1	

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0	37	4	4	1	3	1	1	1	1	1	
1	19	2	4	1	3	0	1	1	1	0	2
1	52	2	3	1	2	1	1	1	1	0	5
1	51	1	2	1	3	0	1	0	0	0	2
1	51	5	4	1	3	1	2	1	1	0	5
0	49	5	4	1	3	0	1	0	0	0	2
1	62	3	4	1	3	1	2	1	1	1	
1	52	1	3	1	3	1	1	1	1	1	
1	47	1	4	1	3	1	2	1	1	0	2
0	22	5	3	1	3	1	2	1	1	0	1
0	56	2	3	1	1	1	1	0	1	1	
0	24	5	4	1	3	1	1	1	1	0	3
1	62	5	3	1	3	1	1	1	1	1	
0	53	5	4	2	3	1	1	1	1	1	
1	55	2	3	1	3	1	1	1	1	1	
0	62	4	4	1	3	1	2	1	1	0	2
1	55	1	4	1	1	1	1	1	1	1	5
1	53	5	3	1	3	1	2	1	1	1	
0	18	2	4	1	3	1	2	1	1	0	2
0	62	6	4	1	3	1	1	1	1	1	
1	22	5	4	1	3	1	4	1	3	0	2
0	50	5	3	1	3	1	4	1	1	1	
1	53	5	4	2	3	0	1	0	0	0	2
1	19	5	4	1	3	1	1	1	1	1	
1	30	5	3	1	3	0	1	0	0	0	3
1	58	1	3	1	3	1	2	1	1	1	
0	62	3	4	1	3	1	1	1	1	1	
1	51	3	4	1	3	1	1	1	1	0	2
1	54	2	3	1	3	1	1	1	1	0	3
0	44	5	4	1	3	1	1	1	1	1	
0	46	6	3	1	3	0	1	0	1	0	5
1	51	5	2	1	3	0	1	1	1	1	
1	53	4	3	1	3	1	2	1	1	1	
0	54	3	4	1	3	1	1	1	1	1	
0	22	5	4	2	3	0	2	1	1	0	2
1	26	5	4	2	3	0	1	1	1	0	2
1	53	5	4	2	1	1	1	0	0	1	
0	52	5	4	1	3	0	1	0	0	0	2
0	52	4	3	1	3	1	2	1	1	0	3
0	48	4	2	1	3	1	2	1	1	0	2
1	56	2	4	1	3	0	1	0	1	1	5
0	34	5	4	1	3	1	2	1	1	1	
1	49	5	4	2	3	1	1	1	1	1	
0	34	1	3	1	3	1	1	1	1	1	
1	43	4	4	1	3	1	1	1	1	1	
0	49	3	2	1	3	1	1	1	1	1	
0	54	3	4	1	3	1	1	0	0	0	3
0	53	6	4	1	3	1	1	1	1	1	
0	19	5	3	1	3	1	1	1	1	0	3
1	42	6	3	1	4	0	1	0	0	1	
1	52	4	4	1	2	0	1	1	1	0	2
0	24	6	4	1	2	0	1	0	0	0	1
1	53	5	4	1	3	1	1	0	0	1	
0	42	6	4	1	1	1	2	1	1	0	2
0	25	6	4	1	3	1	1	1	1	1	
0	53	3	4	1	3	1	1	1	1	0	2
0	60	1	4	1	1	1	1	1	1	1	
0	54	5	4	1	3	0	1	0	1	1	
0	48	3	4	1	3	1	1	1	1	0	1
0	26	5	3	1	1	0	1	1	1	1	
1	19	2	4	1	3	1	2	1	1	0	1
0	47	5	4	1	3	0	1	1	1	0	2

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1	53	4	4	1	1	1	1	1	1	0	2
0	54	5	2	1	3	1	1	1	1	0	3
0	37	6	4	1	3	1	1	1	1	0	3
0	37	5	3	1	1	1	2	0	0	0	2
0	27	5	4	1	3	0	2	0	1	1	4
0	25	6	4	2	1	0	1	0	0	0	2
0	31	6	3	1	3	1	1	1	1	0	2
0	53	3	2	1	3	1	1	1	1	1	
1	53	6	4	1	3	1	1	1	1	1	
1	61	5	3	2	3	1	2	1	1	1	
1	55	3	3	2	1	1	4	1	1	1	
1	55	1	4	2	3	0	1	1	1	0	3
1	29	5	4	1	3	0	1	0	0	0	2
0	30	6	3	1	3	1	2	1	1	0	3
0	60	2	4	1	3	1	1	1	1	1	
0	54	2	4	1	3	1	1	1	1	1	
1	54	5	2	1	3	1	1	1	1	1	
0	42	2	2	1	3	1	1	1	1	0	2
0	54	2	3	1	3	1	1	1	1	1	
1	53	5	3	1	3	1	1	1	1	1	
1	26	5	4	1	2	0	2	0	0	0	2
1	42	6	4	1	2	1	2	0	0	0	5
0	52	5	3	2	3	1	1	0	0	0	2
0	53	4	1	1	3	1	1	1	1	1	
0	53	1	3	1	3	1	1	1	1	0	2
0	52	6	3	1	3	1	1	1	1	1	
0	42	6	3	2	3	1	1	1	1	1	
0	33	5	3	1	3	0	1	1	1	0	2
0	16	1	3	1	2	1	1	1	1	0	1
0	55	5	2	1	3	1	1	1	1	0	3
1	52	5	4	1	3	1	2	0	0	0	2
0	63	2	3	1	3	1	1	1	1	0	5
1	42	3	3	1	3	1	1	1	1	0	2
0	37	5	4	1	3	1	1	1	1	0	1
0	20	4	4	1	4	1	1	1	1	0	2
1	63	5	3	2	4	0	1	0	1	0	2
0	53	4	4	2	3	1	1	1	1	1	
0	52	2	3	1	3	1	1	1	1	0	4
0	63	5	3	2	3	1	1	1	1	1	
1	60	1	4	2	3	1	1	1	1	1	
1	63	4	4	1	1	0	2	0	0	0	2
1	65	2	4	1	3	1	1	1	1	1	
0	35	5	3	1	3	1	1	1	1	1	
0	42	5	3	1	3	1	1	1	1	0	3
1	46	3	3	1	3	1	1	1	1	0	3
1	27	2	4	1	1	0	1	1	1	0	2
0	20	5	4	1	1	0	1	1	1	0	2
1	50	6	3	1	1	0	2	0	0	0	2
0	17	2	4	1	3	0	2	1	1	0	3
0	52	1	4	1	3	1	1	1	1	0	3
0	17	3	4	1	3	1	2	1	1	0	3
0	36	6	3	1	3	1	1	1	1	0	2
0	49	3	3	2	3	1	1	1	1	0	4
1	53	5	4	1	3	1	1	0	0	1	
0	49	5	4	2	3	1	1	1	1	1	
0	41	4	4	1	3	1	1	1	1	1	
0	26	5	4	1	3	1	1	1	1	0	3
1	56	5	4	2	3	1	1	1	1	0	3
1	54	3	4	1	3	1	1	1	1	0	4
1	50	4	4	1	3	0	1	0	0	1	
1	55	6	4	2	3	0	2	0	0	0	2
0	18	4	3	1	3	0	1	0	0	0	2
1	22	5	4	2	3	0	1	0	0	0	2

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0	49	5	4	1	3	0	1	1	1	1	1	
0	48	5	4	1	3	1	1	1	1	1	1	
0	26	5	4	1	3	0	1	1	1	1	0	3
0	22	5	4	1	3	0	1	1	1	1	1	
0	23	4	4	1	3	1	1	1	1	1	0	3
1	22	5	3	1	3	0	2	2	0	0	0	2
0	59	6	3	2	3	1	1	1	1	1	0	2
0	43	5	4	1	3	1	1	1	1	1	1	
1	54	6	3	2	3	1	1	1	0	0	0	2
0	52	4	4	1	3	1	1	1	1	1	0	2
1	52	5	4	2	3	1	1	1	1	1	0	2
0	53	5	4	1	3	1	1	1	1	1	0	2
0	50	2	4	1	3	1	2	1	1	1	1	
1	29	6	3	1	3	1	2	0	0	0	0	2
0	40	5	4	1	3	0	1	1	1	1	0	2
1	44	5	3	1	3	1	1	1	1	1	0	3
0	37	5	4	1	3	1	1	1	0	1	0	2
0	37	5	4	2	3	1	2	0	0	1	0	3
0	28	6	4	1	3	0	1	1	0	1	0	1
1	27	6	3	1	3	1	2	0	0	1	0	1
0	27	6	4	1	3	1	4	1	0	1	1	2
1	53	6	3	2	3	1	1	1	1	1	0	2
1	53	5	3	2	3	1	1	0	0	0	0	2
1	53	5	3	2	3	1	1	0	0	0	0	2
1	22	3	3	1	3	0	1	0	1	1	0	2
1	53	5	3	1	3	1	1	1	1	1	1	
1	51	5	4	1	3	1	1	1	1	1	1	
1	37	5	4	1	3	0	1	1	0	1	0	4
0	51	1	3	1	1	1	1	1	1	1	0	2
1	23	5	4	1	3	1	2	1	1	1	0	5
1	19	2	4	1	2	0	4	0	0	0	0	1
0	51	4	3	1	2	0	1	0	0	1	1	
1	49	2	3	1	3	0	1	1	1	1	1	
0	41	5	3	2	3	1	1	1	1	1	0	3
1	29	6	4	1	3	0	2	0	0	0	1	
1	55	3	3	1	3	0	1	1	1	1	1	
0	25	5	4	1	3	1	2	1	1	1	0	4
1	29	5	4	1	3	0	1	0	0	0	0	3
1	22	5	4	1	1	0	1	1	0	0	0	2
1	27	4	4	2	2	0	1	0	0	1	0	2
1	29	5	4	1	3	0	2	0	0	1	0	2
0	34	6	3	1	3	0	1	1	0	0	1	
1	27	4	4	1	3	1	2	1	1	1	0	2
1	22	5	3	1	3	1	2	0	1	1	0	2
1	32	6	4	2	1	0	1	0	1	1	0	1
0	32	5	3	1	1	0	1	1	1	1	0	2
0	21	5	4	1	2	1	1	0	1	1	0	3
0	26	4	4	1	3	0	1	1	1	1	0	2
0	21	5	3	2	3	1	2	1	1	1	0	4
0	31	5	4	2	3	0	2	0	0	0	0	2
0	50	6	3	1	3	0	3	0	0	0	0	2
1	37	5	4	1	3	0	1	0	0	1	0	3
1	26	4	4	1	3	0	2	1	1	1	0	4
1	28	6	4	2	4	0	1	0	1	1	0	5
0	41	4	2	2	2	1	4	1	1	1	1	
1	56	5	3	1	2	0	4	0	1	1	0	2
0	25	3	4	1	3	0	2	0	0	0	0	3
0	64	2	2	2	1	1	3	1	1	1	1	
1	68	3	1	2	1	1	4	1	1	1	1	
1	29	4	4	2	3	0	1	0	0	0	0	2
0	39	6	3	2	4	0	4	1	1	1	0	5
1	55	3	2	2	1	1	3	1	1	1	1	

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1	69	2	1	2	1	1	4	1	1	0	4
0	33	4	4	1	3	0	2	0	1	0	3
1	38	5	3	1	4	0	1	1	1	0	2
1	29	4	4	1	3	0	2	0	1	0	4
1	59	2	2	1	2	1	1	1	1	0	3
0	64	5	2	2	1	1	4	1	1	0	5
1	31	6	4	1	3	0	1	1	1	0	3
1	40	4	3	1	2	1	2	1	1	0	4
1	54	1	2	1	1	1	1	1	1	1	
1	65	1	2	1	1	1	1	1	1	1	
1	65	1	2	1	1	1	1	1	1	1	
1	55	1	1	2	1	1	4	1	1	1	
0	56	4	3	1	2	0	2	0	1	0	5
1	57	2	3	2	4	1	2	1	1	1	
1	58	5	2	1	3	1	2	1	1	0	5
1	58	4	3	1	1	1	2	1	1	1	
1	59	3	4	2	3	1	1	1	1	1	
0	60	5	2	1	1	1	2	1	1	1	
1	61	1	1	1	1	1	4	1	1	1	
1	62	1	1	2	1	1	4	1	1	1	
1	63	1	2	1	1	1	1	1	1	1	
1	64	2	2	1	1	1	1	1	1	1	
0	65	5	2	1	2	1	1	1	1	1	
0	66	1	2	1	3	1	1	1	1	1	
1	67	3	3	1	3	1	1	1	1	1	
1	67	2	4	2	3	1	1	1	1	1	
0	68	5	2	1	1	1	1	1	1	1	
0	68	1	3	1	1	1	1	1	1	0	3
0	69	2	2	1	1	1	1	1	1	1	
1	70	1	3	2	1	1	4	1	1	1	
1	71	5	1	1	1	1	1	1	1	1	
0	72	1	3	1	3	1	2	1	1	0	5
1	73	5	1	1	1	1	1	1	1	1	
1	73	1	1	1	1	1	4	1	1	1	
1	74	3	2	2	2	1	4	1	1	1	
0	74	1	3	2	2	1	1	1	1	1	
1	65	3	3	1	2	1	1	1	1	0	3
1	66	1	2	1	3	1	1	1	1	1	
0	67	1	2	1	2	1	1	1	1	1	
1	68	3	2	1	1	1	4	1	1	1	
0	68	5	3	2	3	1	1	1	1	1	
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1	69	5	2	2	1	1	3	1	1	0	2
0	70	2	2	1	1	1	1	1	1	1	
1	70	1	2	1	2	1	1	1	1	1	
1	71	1	2	1	1	1	3	1	1	1	4
1	72	5	4	2	3	1	1	1	1	0	5
1	73	1	3	1	1	1	1	1	1	1	
1	74	1	2	1	1	1	1	1	1	1	
0	70	1	1	2	1	1	4	1	1	1	
0	71	5	2	1	1	1	1	1	1	1	
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0	73	1	3	1	1	1	3	1	1	1	
0	73	1	2	2	3	1	3	1	1	0	5
0	74	1	3	1	1	1	1	1	1	1	
1	67	1	3	2	4	1	1	1	1	0	3
1	32	3	3	1	3	1	1	1	1	0	2
0	23	5	4	1	3	0	1	0	1	1	
1	32	4	4	2	3	0	1	0	0	1	
1	20	5	4	1	3	0	1	0	1	0	3
1	38	1	2	2	3	1	2	1	1	0	1
1	32	5	4	1	3	0	1	0	0	0	1

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0	32	5	4	1	3	0	2	0	0	0	1
1	32	5	4	1	1	0	1	0	0	0	2
0	16	2	2	1	2	0	2	1	1	0	4
0	16	2	3	1	3	1	2	1	1	0	3
1	16	2	3	1	3	1	1	1	1	0	2
0	18	2	4	1	3	1	2	1	1	0	4
0	16	2	2	1	3	0	1	1	1	0	2
1	49	5	3	1	3	1	1	0	0	1	5
1	65	5	3	1	3	1	1	0	0	0	2
1	47	5	4	1	3	1	1	0	1	0	3
1	49	1	4	1	3	0	2	1	1	1	
1	65	1	4	2	3	0	1	1	1	0	2
1	42	5	4	1	3	1	1	1	1	0	2
1	47	5	4	1	3	1	4	1	1	0	2
1	54	4	4	2	3	1	1	1	1	1	
0	20	4	2	1	1	1	1	1	1	0	1
1	21	3	4	1	4	1	2	1	1	0	5
0	21	5	3	1	1	0	1	1	1	0	3
1	52	2	3	2	3	1	2	1	1	1	
0	21	5	4	1	3	0	1	1	1	0	1
0	20	4	4	1	3	1	1	1	1	0	3
0	20	2	4	1	3	1	2	0	1	0	2
1	23	2	4	1	3	0	1	0	0	1	
1	21	5	4	2	3	1	1	1	1	0	3
0	21	5	4	1	1	1	1	0	0	0	3
0	38	5	4	1	3	0	2	0	0	0	2
1	18	2	4	1	3	1	1	1	1	0	1
0	32	5	4	1	3	1	1	1	1	0	3
0	32	5	4	1	3	0	1	0	0	0	2
0	32	4	4	1	3	0	2	1	1	1	
1	22	2	4	1	3	1	1	0	1	0	2
0	18	2	3	1	3	1	2	1	1	0	2
1	19	2	4	1	3	0	1	1	1	0	3
1	17	2	4	1	3	0	1	1	1	0	2
0	38	5	4	1	3	0	1	0	0	0	3
0	19	5	3	1	3	1	2	1	1	0	2
0	18	5	3	2	3	0	3	0	0	0	2
1	38	5	4	1	2	0	1	0	1	0	2
0	22	5	4	1	3	0	1	1	1	0	3
1	22	5	3	1	2	1	1	0	0	0	2
0	18	2	4	1	3	1	1	1	1	0	3
0	38	5	4	1	3	1	2	0	1	0	3
1	53	5	2	2	3	1	1	1	1	1	
0	22	4	4	1	3	1	2	1	1	0	3
1	47	6	3	1	1	1	1	1	1	0	
0	16	1	3	1	1	1	1	1	1	0	1
0	38	5	4	1	3	1	2	1	1	0	3
0	31	5	3	1	3	1	1	0	0	0	2
1	38	6	3	1	3	0	1	0	0	0	2
0	26	5	4	2	3	1	2	0	0	0	2
0	24	5	4	1	2	0	2	1	1	0	2
1	53	2	4	1	3	1	1	1	1	0	2
1	20	5	4	1	2	0	1	0	0	1	
0	20	4	4	1	3	1	1	0	1	0	2
0	18	5	3	1	3	0	1	1	1	0	5
1	47	5	3	2	1	1	1	1	1	1	
0	18	2	3	1	3	1	2	1	1	0	2
1	45	1	3	1	3	1	1	4	1	1	
1	21	5	3	1	3	1	1	0	0	0	3
1	23	5	4	1	1	1	1	0	0	0	3
0	19	5	3	1	3	1	2	0	1	1	
1	31	5	4	1	3	0	1	4	1	1	

Interest towards the Blockchain implementation on Digital Advertising in Catalonia

0	31	5	4	1	3	1	1	1	1	0	2
1	21	4	4	2	3	1	1	0	0	0	1
0	20	5	4	1	3	0	1	0	1	0	3
1	41	5	4	1	3	1	1	1	1	0	2
1	56	5	4	1	3	1	1	1	1	1	
1	31	6	4	2	2	0	1	0	1	1	
1	49	5	4	2	1	1	1	0	0	0	2
0	21	5	4	1	3	1	1	1	1	1	
0	21	5	3	1	3	1	2	1	1	0	2
1	41	1	4	2	3	0	1	0	0	0	2
1	31	2	4	2	1	0	2	0	0	0	
0	18	2	3	1	3	1	1	1	1	0	3
0	20	1	3	1	3	0	1	0	1	1	
0	19	2	3	1	3	1	1	1	1	0	3
0	22	5	4	2	3	0	1	1	1	1	
1	57	6	3	2	3	0	3	0	0	0	2
1	62	1	1	2	3	1	1	1	1	1	
0	19	5	4	1	3	0	2	1	1	1	
0	24	5	4	1	4	0	1	0	0	1	1
1	42	2	3	2	1	1	4	1	1	1	
1	57	6	3	2	3	0	3	0	1	0	2
1	49	3	3	1	3	1	2	1	1	1	
1	36	6	4	1	3	1	1	1	1	0	2
1	44	4	4	1	1	0	1	0	0	0	2
1	53	4	4	1	3	1	1	1	1	0	5
1	53	3	4	1	3	1	1	1	1	0	4
1	44	5	4	2	3	1	1	0	1	0	2
1	47	5	2	2	3	1	1	1	1	1	
1	19	4	4	2	3	0	1	0	1	0	2
1	20	4	4	1	3	1	2	0	0	0	1
0	22	5	4	1	3	1	1	0	0	0	2
0	19	5	4	1	3	1	2	1	1	0	2
1	40	6	4	1	3	1	2	0	0	0	2
0	18	3	3	1	3	1	1	0	1	0	2
1	61	1	4	2	1	1	1	0	1	1	
1	44	4	3	1	3	1	1	1	1	1	
1	21	3	3	1	3	0	1	0	0	0	2
0	16	2	2	1	3	1	2	1	1	0	2
0	17	2	2	1	3	1	2	1	1	0	1
0	16	1	3	1	3	1	2	1	1	0	2
0	17	2	4	1	1	1	1	1	1	0	3
0	17	2	4	1	3	1	2	1	1	0	2
1	67	2	4	1	1	1	1	1	1	1	
0	22	4	3	1	1	1	1	1	1	0	3
0	18	4	3	1	3	1	1	1	1	0	3
1	59	5	4	1	3	0	1	0	0	0	1