



**UNIVERSITA' DEGLI STUDI DI PADOVA**

**DIPARTIMENTO DI SCIENZE ECONOMICHE ED AZIENDALI  
"M.FANNO"**

**CORSO DI LAUREA MAGISTRALE / SPECIALISTICA IN  
Entrepreneurship and Innovation**

**TESI DI LAUREA**

**The Impact of Celebrity and Influencer Advocacy on Corporate Social  
Responsibility**

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Firma dello studente



Sayed AminEza Husheanbdr

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## **ACKNOWLEDGEMENTS AND DEDICATION**

I express my sincere appreciation to all those that made this thesis possible. My profound gratitude is sent to my supervisor, Dr. Ambra Galeazzo, whose help has been invaluable to me during this journey.

Moreover, I would like to thank my girlfriend, parent, sister, and friends for this continuous support that has become an endless source of power. I would not have made it that far without your love and constant backing up.

I am dedicating this thesis to the courageous women, girls, and young people in Iran.

I thank every single person who made it possible to reach this destination for walking with me on this path.

Amir

## **Abstract**

This master's thesis titled "The Impact of Celebrity and Influencer Advocacy on Corporate Social Responsibility" seeks to understand the dynamics and interactions between celebrities, influencers, people as the followers, and companies within the realm of CSR and sustainable activities. These focuses on themes like Corporate social responsibility, Brand activism, Environmental, social, governance (ESG) issue, socio-political issues as well as involvement in celebrities and influencers.

The present thesis starts with an extensive systematic literature review on the impact of celebrity and influencer advocacy on corporate social responsibility (CSR) and related activism in order to develop a strong basis for comprehending the topic under consideration. Subsequently, data acquisition is executed by harvesting textual content from Instagram posts of eight selected high-profile individuals in the period between Jan 1st, 2023, and the end of July 2023. Some celebrities selected for this research are Leonardo Di Caprio, Ian Somerhalder, Alicia Keys, Mark Ruffalo, Oprah Winfrey, Serena Williams. The automated data extraction takes place in Python programming. The next stage involves using sustainability related keywords and calculating the percentage involvement score that estimates the level of their engagements with CSR and sustainability activities. Furthermore, sentiment analysis using Python together with appropriate keywords gives General Sentiment Score providing the general sentiments in the captions.

For a closer understanding of the consequences of celebrities' sustainability actions, the research takes its attention into some key CSR-supporting caption headlines and accompanying Instagram posts for additional qualitative evaluation, such as number of likes and comments. The results of this study underscore the complex dynamics between celebrities, influencers, and corporate social responsibility within the context of the modern digital world. Although the precise effect on online responses may not be entirely clear, this research adds to the ongoing academic conversation over the role of celebrities in corporate social responsibility (CSR) and sustainability. This study provides helpful assistance to both firms and people regarding the strategic utilization of their social media platforms to effectively promote positive change, hence cultivating a more responsible and sustainable business environment.

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## Executive Summary

This master's thesis employs a systematic literature review and empirical data analysis on the methodology part to investigate the primary aim of this study is to examine the consequences of celebrities' engagement in corporate social responsibility (CSR) initiatives and their subsequent influence on firms. Additionally, this research seeks to explore the reciprocal relationship between companies and celebrities, specifically examining how corporations affect the activism of celebrities and influencers. This research aims to shed light on the multifaceted relationships at play between these major stakeholders by examining the impact that celebrities have on CSR and the impact that CSR has on celebrities.

A systemic literature review of the linkage among celebrities, influencers, and CSR has been carried out, thus, offering an all-encompassing view prior to and in conjunction with these empirical stages. As indicated by the review of the literature, this could mean that celebrity and influence can become strong advocates for corporate social responsibilities, leading customers to increase brand awareness and be more engaged on sustainability issues. On the other hand, this strategy also creates concerns over genuineness, woke-washing tendency and sustainability of corporate social responsibility practices. While the research study demonstrated that sustainable activities had limited statistical significance in predicting online engagement the findings highlight the complex nature of online reactions. According to the study, likes on Instagram posts are influenced by a variety of external factors, including content quality, audience dynamics, and temporal relevance.

About the data collection, this study will capture the Instagram captions of celebrities and influencers using python automation; posts published after 1st Jan 2023, to the end of July 2023. Leonardo Di Caprio, Ian Somerhalder, Alicia Keys, Mark Ruffalo, Oprah Winfrey, and Serena Williams are among the famous people who have agreed to participate in this study. The research has carried out a detailed content analysis based on sustainability-specific search terms to establish Sustainability Scoring for each of the celebrities' involvement with corporate social responsibility and sustainable projects. The scoring system utilizes numerical values to quantify the level of involvement indicated by a celebrity in CSR and sustainability initiatives. For example, if a celebrity routinely engages in activities such as advocating for environmental conservation, contributing to philanthropic initiatives, and actively participating in sustainability campaigns, their Sustainability Score might be higher, reflecting a significant dedication to social responsibility. On the other hand, a celebrity who sometimes addresses sustainability concerns in their social media content without actively participating in associated

projects may be assigned a lower Sustainability Score, indicating a lesser degree of engagement in social responsibility. By using Python and specific keywords, a sentiment analysis of Instagram captions is conducted and generates General Sentiment Scores. The emotional tone of the content is gauged herein, while also looking into the effect on the viewer's emotions in general.

It then identified and analyzed significant captions with related Instagram posts that featured CSR supported in them. And based on the number of followers per time, and the sustainability score that calculated by dividing the number of posts talking about sustainability initiatives over the total number of posts in the selected period from the first of January 2023 until the end of July 2023, a correlation analysis is conducted to see the trend. Then, Python was used to conduct comprehensive regression analysis of the Instagram engagement data for the prominent celebrities in the study. The independent variables used for post-length analysis include General Sentiment Score, number of Highlighted Sustainability Keywords, number of hashtags, and post-content length.

Finally, this master's thesis provides a thorough examination of the impact of celebrities and influencers on Corporate Social Responsibility. While the research shows no clear correlation between celebrity CSR activity and online activity, it does show how information quality, audience dynamics, and timeliness all play a role in shaping online reactions. This study has wide-ranging implications for both enterprises and individuals, providing new understanding of the complex function of celebrity advocacy in CSR. This finding shows that corporations should approach celebrity endorsements with an awareness of the intricacies and ethical implications involved. The results of this study highlight the importance of continuing research to stay up with the ever-changing landscape of celebrity and influencer participation in affecting CSR outcomes, hence fostering good social and environmental change.



# CHAPTER 1

## Systematic literature review

### 1.1 Introduction

In recent years, Corporate Social Responsibility (CSR) has become an increasingly major aspect of company strategy and decision-making, as corporations have recognized the need to combine financial performance with social and environmental responsibilities. A major development in the area of CSR has been the emergence of celebrity and influencer advocacy, in which prominent individuals utilize their popularity and social media presence to advocate for social and environmental problems and persuade businesses to adopt more sustainable and ethical practices.

The influence of celebrity and influencer advocacy on CSR is a topic that has received considerable attention from academics and industry professionals. On the one hand, proponents claim that advocacy may be a strong tool for raising awareness and creating change, especially among younger generations of customers who are increasingly interested in social and environmental concerns. Critics, on the other side, argue that such advocacy can be shallow, disingenuous, or even harmful, therefore detracting from the legitimate efforts of businesses to promote CSR.

This systematic literature analysis intends to shed light on this problem by answering the study question, "How do companies and celebrities/influencers influence each other's activism?" Particularly, the study intends to identify and evaluate current research on the impact of celebrity and influencer advocacy on CSR, researching the ways in which these high-profile individuals might influence the behavior of companies and consumer views.

To conduct the review, in order to perform the review, a keyword string was created to identify relevant studies published after 2014. The keyword string contains "CSR," "corporate social responsibility," "brand activism," "ESG," and "socio-political issues," in addition to "celebrities" and "influencers." This review seeks to collect the most recent research on this fast expanding area by restricting its search to recent publications.

This study will appeal to researchers and practitioners in the areas of marketing, public relations, and sustainability, as well as anyone interested in the role of celebrities and influencers in promoting social and environmental concerns. This study seeks to give a

complete overview of the impact of celebrity and influencer advocacy on CSR by integrating and assessing current research on the subject, highlighting both the potential advantages and downsides of this increasingly prevalent activity.

## **1.2. Background and definitions**

To comprehend the research question and the results, it is necessary to have a clear understanding of the fundamental concepts of corporate social responsibility, brand activism, and celebrity and influencer advocacy. Corporate social responsibility refers to a company's contribution to society and the environment beyond its financial obligations. Important to brand activism is a company's active engagement in social and environmental issues. Influencer and celebrity advocacy involves promoting causes and practices to a broad audience by leveraging influential individuals. Understanding these concepts is essential for analyzing the impact of celebrity and influencer advocacy to corporate social responsibility (CSR) initiatives and brand activism.

### **1.2.1. Corporate Social Responsibility**

Corporate social responsibility (CSR) as a managerial process essentially covers a firm's assessment and monitoring of social and environmental conditions in accordance with stakeholders' (i.e., consumers) demands, which results in designing policies to enhance the firm's positive impact on society (Schnittka et al., 2022).

Companies operating in the same industry have a tendency, over the period of time, to develop competitive strategies which are remarkably similar to those of their rivals. This is because these companies attempt to narrow the gap between themselves and their competitors by modeling their successful strategies after those of their competitors.

Hence, if one industry is successful in employing certain CSR activities and spending, then other industries that are comparable are likely to adopt techniques that are similar. Yet, different CSR spending may also emerge in industries that are somewhat comparable to one another. It's possible that certain industries spend more on their CSR efforts than other industries that are relatively similar.

It has been considered that the relative level of CSR spending can serve as an indicator of corporations' motivations. If the level of CSR spending in an industry is high compared to a similar industry, consumers are more likely to assume a commercial motive and competitive disadvantage avoidance behind a firm's CSR activities compared with situations in which the level of CSR spending in an industry is low (i.e., firms' perceived pressure to react to their competitors' activities is lower and firms' CSR activities is perceived to be not based on commercial motives) (Schnittka et al., 2022)

Occasionally, a company that already has a high level of consumer satisfaction, trust, and reputation as a result of its CSR activities may not have an incentive to seek positive reactions from its consumers when the company is engaged in CSR activities. This is because the company already has a good reputation within the company as a result of its CSR activities.

### **1.2.2. Brand Activism**

The concept of "brand activism" refers to the practice of businesses and brands taking a stand on social, political, and environmental concerns and utilizing their influence to impact change in these areas. It is a means for businesses to communicate their values and express their dedication to a certain cause, all while strengthening customer loyalty to their brand and drawing customers who are socially conscious.

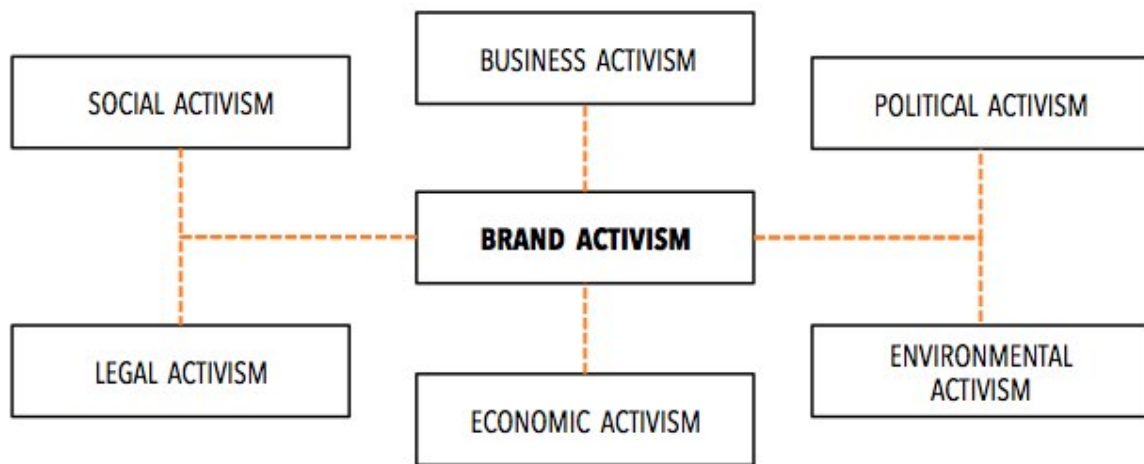
According to Kotler and Sarkar (2017), brand activism 'consists of business efforts to promote, impede, or direct social, political, economic, and/or environmental reform or stasis with the desire to promote or impede improvements in society' (Key et al., 2021) .

Brand activism can take many different forms, such as the establishment of campaigns that aim to increase public awareness of a particular issue, the support of causes through charitable donations or partnerships, the promotion of legislative reform, or the modification of business practices to better align with social and environmental values.

For example, (Key et al., 2021) mentioned that Patagonia is known for its long-time support for conservation and sustainable business practices. The latter refers to a desire for self-promotion over the well-being of stakeholders and the environment. A classic example of this type of impediment to society well-being is big tobacco's constant denial of smoking's adverse health effects and lobbying efforts to stave off legislation and regulations against their products.

More recently, Juul, the e-cigarette giant, has ignored the negative effects of teen nicotine consumption by using decades-old tobacco-industry strategy of downplaying health concerns and portraying their products as healthy alternatives. Advertisements feature stories of consumers who quit cigarettes thanks to e-cigarettes; implicit is that e-cigs are healthy, or at the least more healthy than traditional cigarettes (Neklason, 2019 & Key et al., 2021). They identified six areas that everyone is familiar with, which are as follows:

Figure 1: Brand Activism areas



Source: <https://www.markempa.com/>

- Social activism encompasses a wide range of topics, including equality across categories such as gender, LGBT, race, age, and more. In addition to this, it encompasses broader societal and community concerns such as education, funding for schools, and so on.
- Legal activism focuses on laws and policies that have an effect on businesses, such as those pertaining to taxes, workplace regulations, and employment laws.
- Business activism is about governance, including corporate organization, CEO pay, employee compensation, labor and union relations, governance, and other related topics.
- Economic activism may involve the implementation of a minimum wage and/or tax policies that have an effect on income inequality and the redistribution of wealth.
- Political activism refers to activities such as lobbying, voting, voting rights, and policymaking (gerrymandering, campaign finance, etc).
- Environmental activism is concerned with laws and policies pertaining to conservation, the environment, land use, air pollution, and water pollution.

### 1.2.3. Celebrities

Those who were well-known to the general public were traditionally considered to be celebrities in the past. Their accomplishments in various fields, such as athletics, entertainment, or business, contributed to their notoriety and popularity. But, over time, celebrities' functions have expanded beyond those of merely "famous individuals." Nowadays, celebrities play a variety of roles.

Today, celebrities from all over the world are getting involved in various forms of activism in an effort to establish themselves as moral actors. Celebrities are frequently seen speaking out in support of a variety of causes and taking positions on numerous sociopolitical topics, many of which are controversial. Research has established that celebrities can transform their image by engaging in cause-related initiatives (Sappington et al., 2019).

Celebrities draw the power and influence of their personal brand appeal and can transform society (Jain et al., 2021). When celebrities and brands engage in activism, they often get caught in controversy owing to divided opinions on the issue (they are endorsing), the perceived importance of their role and responsibility towards taking a stand on socio-political causes (Sappington et al., 2019), or an individual's stance on the advocated cause (Mukherjee & Althuizen, 2020).

There are numerous types of celebrities, including entertainers such as actors, musicians, and comedians, as well as athletes and politicians. Moreover, there are a variety of types of business celebrities, such as:

- CEO celebrities: These are the leaders of a company who have earned popularity or reputation outside the organization, typically due to the success of the firm or their own brand. They may be well-known in their industry or even the greater business community.
- Organizational celebrities: These are firm personnel who have earned renown or reputation within their organization, typically owing to their talents, knowledge, or achievements. They may be well-respected in their industry, but their notoriety is restricted to the organization and its stakeholders.
- Entrepreneurial celebrities: These are those who have launched their own successful firms and acquired fame or reputation for their entrepreneurial skills.

- Investor celebrities: These are persons who have acquired popularity or reputation for their investment skills, typically as a result of a successful investment track record or high-profile investments.
- Thought leader celebrities: These are persons who have acquired popularity or reputation for their insights, ideas, and expertise within a certain business or field. They are frequently in demand as presenters, authors, and consultants.
- Philanthropist celebrities: These are individuals who have acquired popularity or reputation for their humanitarian activity, either through substantial donations or leadership within philanthropic organizations.

#### **1.2.4. Summary**

The celebrity's role in product endorsement is well researched. It is generally accepted that the use of celebrities can be a very effective strategy for attracting attention, generating positive emotions, and inducing buys and building loyalty (Cifelli et al., 2020).

As for the communication source, nowadays influencers are important actors in social-mediated CSR communication, connecting organizations and stakeholders by endorsing organizational CSR initiatives through self-generated messages (Sappington et al., 2019). CSR represents business practices intended for the improvement of societal well-being and is regarded as an effective means to positively influence brand attitudes and consumer willingness to buy products (Cifelli et al., 2020).

Despite the increasing exposure of celebrity advocacy around the world, it remains an understudied academic field. This emerging stream of research merits more attention to discern how celebrities' engagement in activist actions affects their brand value – a crucial driver of their power and reputation as celebrities, and combines different beliefs and perceptions about them (Cifelli et al., 2020).

### **1.3. Methods and techniques**

#### **1.3.1. Review principles**

This literature review will focus on the terms "CSR," "corporate social responsibility," "brand activism," "ESG," "socio-political issues," "celebrity," and "influencer" in order to achieve its goal of analyzing the impact of celebrity and influencer advocacy on corporate social responsibility (CSR) has on corporate social responsibility (CSR). The review will be conducted using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses

(PRISMA) guidelines, which provide a comprehensive framework for systematic reviews (Sappington et al., 2019).

Scopus, Web of Science, and ScienceDirect were chosen as the three most important databases to search in order to carry out a systematic literature review that is both thorough and complete. These databases were selected because of their comprehensive coverage of scholarly research and their capacity to give users access to papers that have been thoroughly evaluated by experts in the field.

### **1.3.2. Search String**

During the conduct of the search, however, certain searches were adjusted in order to focus on the papers inside the database that were the most relevant. A keyword string that was carefully developed has been utilized for the purpose of identifying papers that are pertinent to this systematic literature review. The keyword string was created with the intention of targeting articles that specifically investigate the impact that celebrity and influencer advocacy has on corporate social responsibility (CSR), in addition to papers that examine related topics such as brand activism, environmental, social, and governance (ESG), and socio-political issues.

These words were entered into the search engine as part of the final queries: TITLE-ABS-KEY ( "CSR" OR "corporate social responsibility" OR "brand activism" OR "ESG" OR "socio-political concerns" ) AND TITLE-ABS-KEY ( celebrit\* OR influencer\* ) PUBYEAR > 2014. In addition, the search for papers is constrained to only include those that have been published after the year 2014 for the purpose of ensuring that the review is concentrated on the most recent and important research.

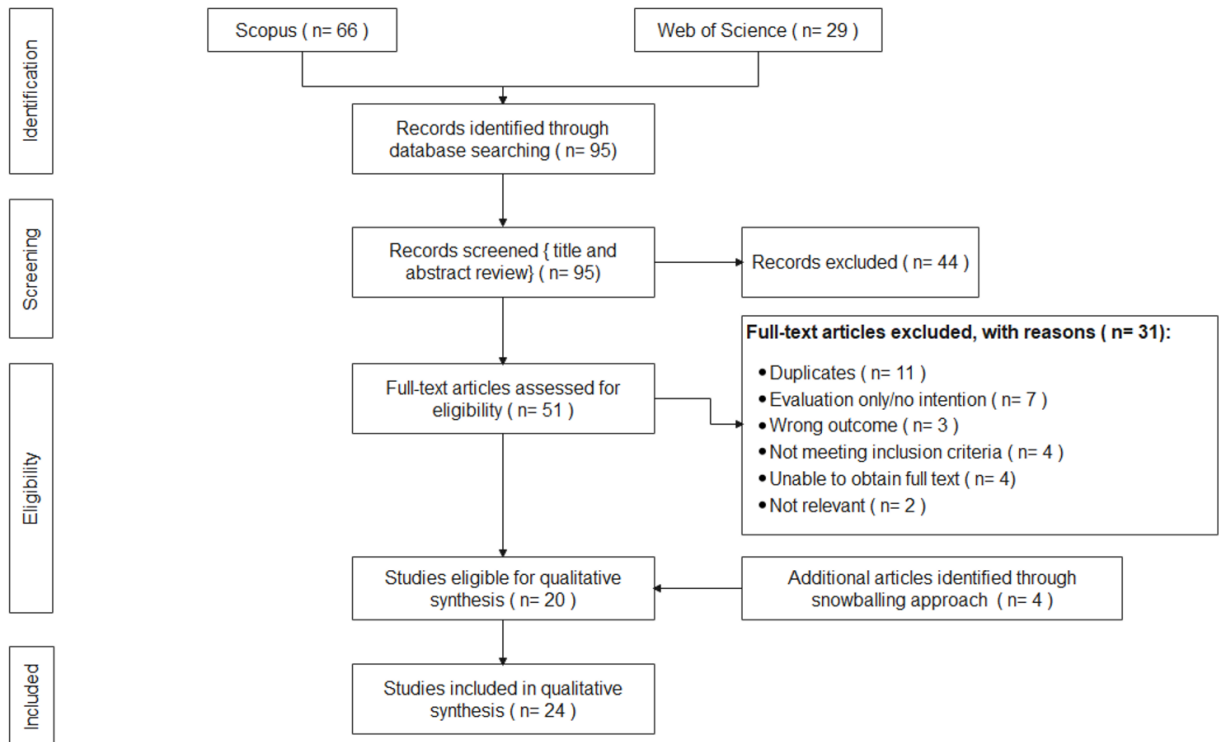
### **1.3.3. Systematic literature review method**

In order to format this article, the procedure that is outlined in the Preferred Reporting Items for Systematic review and Meta-Analysis (PRISMA) guideline was followed. Figure 1 displays the flow chart developed using the PRISMA guidelines, which reports on the various stages of the systematic literature review.

Finally, the findings of the systematic literature review are presented by making use of a flowchart that details the all stages that comprise the review procedure. The flowchart will give an overview of the number of papers that were identified, the number of papers that were excluded, and the reasons why the papers were excluded. In addition to this, the PRISMA

flowchart will provide transparency in the technique, which will make it much simpler for readers to evaluate the validity and dependability of our conclusions.

Figure 2: Search Flow



Source: Based on Personal Search Flow

Figure 2 visualizes the process of the systematic literature review.

In order to carry out an investigation that is both exhaustive and comprehensive, definite criteria for participation and nonparticipation will be devised. The following will serve as the inclusion criteria for the papers that have been collected: (1) papers published between 2014 and the present, (2) papers that focus on the impact of celebrity and influencer advocacy on CSR, and (3) papers that are written in English. On the other hand, exclusion criteria will include: (1) duplicates, (2) papers that are only evaluated without intention, (3) papers that do not report relevant outcomes, (4) papers that do not meet the inclusion criteria, (5) papers that are unable to obtain the full text, and (6) papers that are not relevant to the research question.



## **1.4. Result**

### **1.4.1. CSR and celebrities, cause-related marketing**

In the modern world, customers have an increasing expectation that businesses will take their responsibilities regarding ethics and charitable giving seriously. Brands are responding to this demand in a variety of ways, one of which is by soliciting celebrity endorsement of products related to causes. These types of endorsements require both the brand and the celebrity to act in a socially responsible manner by lending their support to various charitable organizations.

According to research, these activities not only improve the corporate social responsibility practices of brands but also benefit the brand image of the celebrities who participate in them. This is due to the fact that the celebrity endorsement of cause-related items results in the formation of a co-branding partnership involving not only the brand but also the celebrity as well as the cause.

To improve the probability that co-branding partnerships will be successful, brand managers also must choose celebrity co-branding affiliates who are well-known for engaging in philanthropic activities. This will help to improve the credibility of the partnership, as well as the image of both the celebrity and the brand that they represent. In addition, marketers of brands should modify their approaches to corporate social responsibility in order to accommodate the requirements of customers whose priorities and ideals vary. For instance, people who place a higher value on self-transcendence may be more interested in gaining an understanding of the beginnings of particular partnerships or the motivations behind their formation.

The Bulgari Save the Children ring is an excellent illustration of a successful celebrity endorsement of a product that is related to a charitable cause. For the purpose of promoting the ring, the luxury brand Bulgari collaborated with a number of well-known actors and actresses, such as Sting, Ben Stiller, and Jessica Biel. The retail price of the item was \$480, and a donation of \$100 from each sale was made to Save the Children. Save the Children is a philanthropic organization that provides funding for a variety of educational initiatives, including those that promote healing and education through the arts, teacher trainings, and other educationally related projects.

One more illustration of this type of collaboration is the one that exists between TAG Heuer and Leonardo DiCaprio. As of right now, Leonardo DiCaprio serves as a brand ambassador for TAG Heuer. DiCaprio is a highly likable celebrity, as evidenced by the fact that he has almost

17 million likes on Facebook and 16 million followers on Twitter. TAG Heuer is involved with a wide range of charitable organizations, some of which are the United Nations Women's Organization, New York Cares, Wild-CRU.org, and Street Soccer USA. TAG Heuer is able to improve the image of its brand while also contributing to charitable causes by forming a partnership with Leonardo DiCaprio.

Celebrity endorsement of cause-related products is becoming an increasingly popular means for brands to engage in socially responsible conduct and enhance their corporate social responsibility practices. This is due to the fact that celebrities have a significant amount of influence over their respective audiences. Brand managers can ensure the success of such partnerships by selecting celebrity co-branding partners who are already known to engage in philanthropic activities and adapting their strategies to meet the needs of consumers who have differing values. r. On the other hand, It is now much simpler for well-known people to convey their thoughts and perspectives to a large audience thanks to the proliferation of social media and microblogging platforms like Twitter. These platforms provide celebrities with a level of freedom and mass appeal that was not previously available to them; as a result, they are now able to advocate for causes in which they believe with only minimal interference from traditional media outlets.

### **1.4.2. Celebrities endorsement**

In addition, the activism of famous people can be an effective method for bringing about social transformation. Celebrities have the ability to shine a light on issues that may not have otherwise received the attention they deserve if they did not leverage their fame and status in order to do so. In addition, celebrities can use their influence to encourage the people who follow them to take some form of action, such as participating in demonstrations and rallies, signing petitions, or making donations.

Of course, there is also the possibility of negative consequences associated with celebrity activism. Some people believe that celebrities are not always well-informed about the issues that they are advocating for and that they may be using their platforms to advance their own personal interests or agendas. Others believe that celebrities are not always well-informed about the issues that they are advocating for. Some people are concerned that the activism of celebrities can divert attention away from the efforts of committed activists and organizations that have been working on these issues for years.

### **1.4.3. CSR strategies**

Four types of CSR strategies had been indicated in literature, namely, obstructionist, defensive, accommodative, and proactive strategies (Grover et al., 2019).

The concept of Corporate Social Responsibility (CSR) has emerged as a central focus in the discipline of business management. It is the responsibility that a company has toward society in addition to the goals it has set for itself economically. The corporate social responsibility strategy of a company can range from outright opposition to active participation. In this paper, the various CSR strategies and arguments will discuss that proactive engagement is the approach that is both the most effective and the most desirable.

Businesses that pursue an obstructionist strategy are unconcerned with their social and ethical responsibilities in areas that are not directly related to their economic activities. This tactic is not only detrimental to society as a whole, but it also has the potential to present an unfavorable image of the company to outsiders, which can result in a deterioration of both trust and reputation. The failure of these businesses to recognize their place in the larger community can, in the long run, be detrimental to their level of commercial success.

Companies that adopt a defensive strategy have the objective of merely satisfying the legal requirements while ignoring their ethical responsibilities. Even if this strategy is allowed under the law, it is not enough to establish a good reputation or win the trust of customers. Businesses that follow this strategy run the risk of missing out on opportunities to cultivate long-term relationships with various stakeholders, which can have a detrimental effect not only on their reputation but also on their ability to turn a profit.

Companies that follow a strategy known as accommodative are aware of their legal and, in some cases, ethical responsibilities towards various stakeholders. Despite the fact that this strategy is an advancement, it might not have much of an effect on society as a whole. Businesses that follow this strategy run the risk of missing out on opportunities to cultivate long-term relationships with various stakeholders and bring about positive changes in society

Proactive firms, on the other hand, are aware of the social responsibilities that fall under their purview and collaborate with various stakeholders to advance social welfare. These businesses go above and beyond what is required of them ethically and legally, and they actively seek out opportunities to have a positive impact on society. They are able to create long-term value for themselves as well as for society when they incorporate social responsibility into their

business operations. This strategy not only helps build a good reputation, but it also makes a contribution to the growth of a sustainable economy and to the general well-being of society.

Consumers, investors, and other stakeholders in today's society all anticipate businesses to demonstrate some level of social responsibility. Companies that don't do this run the risk of having both their support and their profitability erode. For this reason, it is absolutely necessary for businesses to take a proactive approach to corporate social responsibility. They will have the opportunity to have a positive effect on society, cultivate long-term relationships with stakeholders, and ultimately achieve sustainable success if they take these steps.

High levels of CSR activities has the ability to attract the most qualified employees for the jobs. Choice of CSR activities is positively associated with governance characteristics of the firms such as board independence, institutional ownership, and many more (Grover et al., 2019). Grover , Kar and Ilavarasan (2019) investigated that CSR activities motivate employees and increase their organizational commitment among current employees. This leads to positive relationship bond between employees and the organization. This also enlarges the job satisfaction within the individuals; whereas CR leads to employee retention within an organization. Both CSR and CR attracts better and qualified employees. A firm should communicate its social orientation and environmental involvement intelligently to the public.

There is a need for the firms to satisfy stakeholder demands of CSR (Grover et al., 2019). So, CSR is an essential component of the management of modern businesses. Even though some businesses may make the conscious decision to disregard their social obligations, history has shown that doing so is ultimately detrimental to their level of success. Companies that are aware of their social responsibilities and make an effort to participate in proactive CSR activities are more likely to develop long-term relationships with the stakeholders in their industry and make a positive contribution to society. As a result, it is essential for businesses to adopt a proactive CSR strategy and put the welfare of society ahead of their economic goals in order to be successful.

#### **1.4.4. Different type of celebrities**

The term "celebrity" is widely used in modern society and refers to people in a variety of occupations, including CEOs and chefs. A shift in public interest from traditional Hollywood icons to successful business executives and culinary artists can be seen in the emergence of

chefs and CEO celebrities in popular culture. Despite working in very different fields, chefs and CEOs are both well-known for their accomplishments, influence, and high social status.

Celebrity chefs are people who have become well-known for their culinary knowledge and abilities, frequently through television appearances, cookbook publications, and restaurant endeavors. Not only are these people adept in the kitchen, but they also exude a certain allure and charisma that draws in viewers. Celebrity chefs have grown more and more influential in modern culture, influencing how people view and enjoy food through their distinctive personalities and cooking techniques.

CEO celebrities, on the other hand, are people who have excelled in business and have won widespread acclaim and respect for their leadership abilities and achievements. These people are frequently in charge of large corporations and are seen as trend-setters in their respective fields. Many of them have significant influence outside of their businesses, influencing social, economic, and political policies.

The purpose of this paper part is to review the similarities, differences, and ways in which the two categories of celebrities—chef and CEO celebrities—have influenced popular culture. This essay aims to shed light on the significance of these celebrities and the part they play in influencing modern culture by examining their effects on contemporary society.

#### **1.4.4.1. Chef celebrities and CSR**

Briana Cifelli, Jill Kurp (Maher), Theresa B. Clarke & Irvine Clarke III investigated the celebrity chefs, better known as celebrity personalities on food-oriented television programming, have gained an image as influential public figures in society. Besides possessing expert culinary skills, celebrity chefs have an undisputed power by turning their names into well-known brands and transforming food culture. Books written by celebrity chefs were among the leading best-sellers in Amazon's Trends Report and Gordon Ramsey, with annual earnings estimated at 63M USD, was ranked by Forbes as #35 in The World's Highest-Paid Celebrities. Products and endorsements by celebrity chefs remain globally pervasive and are found in numerous places such as mass media, digital channels, airline menus, cruise ship demos, cookbooks, supermarkets, restaurants, retail stores, and events(Cifelli et al., 2020).

Numerous renowned celebrity chefs are in charge of their own corporate social responsibility (CSR) initiatives, either to promote the consumption of nutritious and environmentally friendly

foods or to aid those in need. Many celebrity chefs are also involved in the causes and efforts of other organizations associated with social, political, and ethical consumption issues such as food sovereignty, animal welfare, and healthy eating (Cifelli et al., 2020).

There emerged four distinct types of CSR engagement, which were subsequently given the following names: founders, supporters, powerhouses, and laggards. The following paragraphs will provide explanations of the four different categories that make up this classification, which is known as the Celebrity CSR Engagement Classification. Table 10 contains an alphabetical listing of all of the chefs, along with their respective CSR affiliations and the category that they fall under according to this classification.

An essential component of the research into the connection between the entertainment industry and society is the division of celebrity chefs into distinct categories according to the extent to which they participate in Corporate Social Responsibility (CSR) initiatives. This essay provides an overview of the classification of celebrity chefs into four categories, based on their level of participation in corporate social responsibility (CSR) activities: founders, supporters, powerhouses, and laggards.

The first group is called Founders, and it is comprised of well-known celebrities that are entirely involved in working with a specific charitable organization that bears their name. These celebrities have charitable organizations that bear their names. One such initiative is Jamie Oliver's "Feed Me Better" campaign, which aims to improve the quality of school meals by introducing healthier options. Oliver's worldwide brand, which is estimated to be worth 213 million USD annually, as well as his high-profile celebrity status have been helpful to him in developing and winning public support for this venture.

The term "supporters" refers to a second type of celebrity chefs who are participating in CSR efforts in an indirect capacity. These chefs have been involved in the community service initiatives of other organizations; however, these initiatives are not directly connected to their identities. An example of a Supporter is the relationship that Bobby Flay has with the Thoroughbred Retirement Foundation, which is one of the largest animal rescue organizations in the world and places horses in correctional facilities so that inmates can learn valuable life skills by taking care of the horses. Another illustration of something that falls into this category is the work that Valerie Bertinelli does with the American Heart Association and the objective that organization has of getting women to care more about their health.

The third group of celebrity chefs who are interested in community service and outreach initiatives is powerhouses. In addition to being heavily involved in a variety of CSR projects, the persons in question are also proprietors of, active participants in, and managers of their own charitable organization. A celebrity who is involved in CSR on numerous levels fits into this category, which is essentially a hybrid of the "Founders and Supporters" group and the previous one. For example, Wolfgang Puck is considered a Powerhouse due to the fact that he founded the Puck-Lazaroff Charitable Foundation, which provides financial support to the Los Angeles Meals on Wheels Foundation. In addition, Wolfgang contributes to charitable organizations such as Meals on Wheels, the Lance Armstrong Foundation, and the Make-A-Wish Foundation.

The third category is called "Laggards," and it is comprised of famous people who do not openly publicize their involvement in any kind of corporate social responsibility effort. Although though some well-known chefs may contribute to charitable causes, this information is typically not made public and it is not directly related to the chefs' standing as well-known celebrity chefs. Due to the absence of information regarding CSR activity that is readily available to the public, a few of the chefs included in this sample were labeled as laggards.

It is important to note that this classification is not restricted solely to well-known chefs with Michelin stars. Celebrities who are not cooks, such as singers, actors, influencers, and online entertainment, can boost their engagement with millennial communities by modeling their public relations and community service efforts after those of chefs. For instance, Beyoncé, a millennial celebrity, launched the Survivor Foundation in order to assist those who had been affected by Hurricane Katrina.

In general, the Celebrity CSR Engagement Classification (Powerhouses, Founders, Supports, and Laggards) offers a comprehensive framework for the evaluation of the level of CSR activity among celebrity chefs. This classification divides celebrity chefs into four groups: powerhouses, founders, supports, and laggards. In addition to chefs, this method can be adapted for use in CSR research involving actresses, singers, and internet personalities who are famous for their work. It is vital to continue improving this technique and test it against other CSR-related events in order to acquire a better understanding of the function that the entertainment industry plays in the overall growth of society.

Moreover, there is a wide range of participation in CSR programs, and the effects of that participation on both public awareness of the program and the celebrity's influence are not uniform across the board. There appears to be a correlation between participation and influence

in charitable work, as it has been observed that those who are less involved have the least amount of influence. In addition, people who are involved in only one charitable organization are more aware than those who are involved in more than one charitable organization. This might be because people who are involved in more than one charity run the risk of having their efforts diluted, which would lead to a lower level of awareness for all of the charities. In subsequent studies, it might be possible to investigate how public awareness and the celebrity's influence are affected when the celebrity's name is included in the CSR brand name. It has been demonstrated that participation by chefs in CSR programs as Supporters increases awareness and engagement among millennials, with Supporters having the most influence compared to those in the Founder role. Supporters are able to increase awareness and engagement among millennials.

#### **1.4.4.2 CEO celebrities and Organizational celebrities**

As organizations engage in corporate social responsibility (CSR) activities, stakeholders develop a positive or negative perception of the firm as a result of the organization's CSR actions and strategies (Turner, 2022). Many businesses hope to improve their reputations, levels of legitimacy, and levels of celebrity in the eyes of their most important stakeholders by participating in corporate social responsibility (CSR) activities. These efforts aim to establish a good perception of the corporation.

While reputation and legitimacy tend to be primarily derived from a historical pattern of actions and the way a firm acts based on the rational expectations of stakeholders, the socio cognitive focus of organizational celebrity is primarily derived from the emotional evaluation of actions among stakeholders (Turner, 2022).

Organizational celebrity is defined by (1) the attraction of high levels of attention and (2) the generation of positive emotional responses from stakeholder audiences (Turner, 2022). Organizational celebrity is a concept that has been determined to be of particular significance in this setting due to the evidence presented. This term refers to individuals working for a particular company who, as a result of their accomplishments, personality, or any number of other qualities, are well-known and respected by the company's stakeholders. Although the idea of organizational celebrity has been investigated in some other fields, like the entertainment and sports industries, its potential function in the CSR field has not yet been completely outlined.

In the context of corporate social responsibility (CSR), having a solid understanding of the concept of organizational celebrity is important because it can assist businesses in locating



individuals who are able to effectively communicate their CSR initiatives to stakeholders and who can contribute to the development of trust and credibility within the organization. In addition, businesses can foster a culture of corporate social responsibility (CSR) within their organizations by recognizing and developing organizational celebrities. This can result in long-term benefits not only for the business itself but also for society as a whole.

Celebrity research in the field of corporate social responsibility (CSR) has mainly concentrated on the executive level, specifically looking at how CEOs match their behavior to what the media expects of them and their celebrity identity. According to a study by Lee et al. (2020) that drew on the impression management literature, celebrity CEOs are more likely to take part in CSR activities in order to maintain or enhance their celebrity status among stakeholders.

This study emphasizes how crucial it is to comprehend the driving forces behind celebrity CEO participation in CSR initiatives. It implies that celebrity CEOs might be utilizing CSR projects as a method of image management and reputation building. The significance of media coverage in influencing the public's perception of CSR initiatives is also emphasized by this study, which also emphasizes the role of the media in influencing the expectations and behaviors of celebrity CEOs.

Despite the current focus on celebrity CEOs in the CSR space, more research into the impact of celebrity culture on CSR initiatives is necessary. This study also raises concerns about the efficacy of CSR initiatives when they are motivated by image management rather than a sincere desire to practice social responsibility.

Celebrity status is awarded to CEOs by prominent business media outlets; celebrity CEOs are those executives who have earned a celebrity status by being successful corporate leaders and achieving high firm performance. CEO celebrity provides several benefits, such as signaling good prospects for the firm, improving investor confidence, attracting resources such as quality employees, and boosting stock market performance. Moreover, public certification of a CEO through prominent media awards can provide the CEO personal benefits such as higher compensation and future job prospects (Lee et al., 2020).

Corporate leaders frequently establish executive remuneration policies and governance structures that boost their organization's legitimacy in an effort to conform to prevalent ideologies or institutional logics. This is done in the name of enhancing their organization's legitimacy. They take a proactive approach by utilizing the media to present rationales or

explanations in order to answer the concerns of stakeholders on governance procedures. In order to actively manage the impression that is given to external constituents and to explain the implementation of executive incentive schemes, organizations actively deploy a variety of explanations.

According to recent research, the status and notoriety of a company's CEO may have an impact on the motivations behind CSR engagement.

It is argued specifically that celebrity CEOs may participate in CSR activities more frequently as a way to manage their status and professional identity. These people might be especially interested in safeguarding their reputation and image given the high level of public acclaim and recognition they have attained. They can improve their public image and keep their position as important figures in business by collaborating with socially conscious projects.

Furthermore, when celebrity CEOs perceive a threat to their status and reputation as professionals, the likelihood that they will participate in CSR may be even higher. For instance, the CEO might feel pressured to act if the company receives unfavorable press or criticism in order to restore their reputation. In such circumstances, CSR engagement may be viewed as a strategy for the CEO to show his or her dedication to social responsibility and deflect criticism.

While celebrity CEOs may be more inclined to participate in CSR endeavors, it is crucial to remember that this does not imply that their firms will profit from their efforts. In fact, studies have shown that CSR engagement can affect a company's performance in both positive and negative ways, depending on a variety of variables like the CSR activity's nature and the overall business strategy.

It has been argued by Gilsoo Leea, Sam Yul Choa, Jonathan Arthursa, Eun Kyung Lee at 2020, that celebrity CEOs would feel a greater motivation to participate in CSR activities if they perceived a threat to their status and professional image as a result of their position as a celebrity CEO. As a consequence of this, it is hypothesized that the relationship between celebrity status and activities related to corporate social responsibility (CSR) will be positively moderated by particular circumstances.

The predictions that were made have been validated by the findings of an analysis that compared the CEOs who won awards with those who did not win awards during the period of 1995–2008. The study looked at 274 matching pairs of award winners and non-winners. The results of this study contribute in two different ways:

To begin, the linking of impression management theories to CSR studies contributes to the expansion of the CSR literature. An emerging stream of research on the micro foundations of CSR, specifically the research on the managerial and psychological antecedents of CSR practices, is advanced by the demonstration of how a celebrity CEO's motive for impression management affects a firm's CSR activities.

Second, in order to investigate how CEOs develop an identity as a celebrity and how the celebrity CEO status induces subsequent impression management motives and behaviors, identity theories and literature on impression management are integrated. This was done in two ways. First, the literature on identity theories is integrated with the literature on impression management. By doing so, a new theoretical approach to identifying and understanding additional motives of impression management behavior, particularly of corporate leaders, is provided. This approach is provided as a result of doing the aforementioned.

The findings of this study provide useful insights into how the desire of celebrity CEOs to preserve their identity and status can affect or drive the management decisions made by firms, and the study also provides these insights in the form of useful insights.

## **1.5. Discussion**

The increasingly common phenomenon of celebrities and influential people advocating for Corporate Social Responsibility (CSR) is investigated in this systematic literature review. CSR stands for corporate social responsibility. While corporate social responsibility (CSR) refers to the actions that a company takes to contribute to society and the environment beyond its financial obligations, celebrity and influencer advocacy refers to the use of influential individuals to promote causes and practices to a large audience. The purpose of this research is to identify and assess the existing research on the effects of celebrity and influencer advocacy on corporate social responsibility (CSR). An effort is being made to gain an understanding of how the actions of businesses and the perspectives of customers may be influenced by the high-profile individuals in question.

This in-depth analysis synthesizes and evaluates previous studies conducted on the topic in order to present a comprehensive summary of the effect that celebrity and influencer advocacy has on corporate social responsibility (CSR). This practice's potential advantages as well as its potential drawbacks are discussed, shedding light on its implications for long-term sustainability, public relations, and marketing. Anyone interested in the role that celebrities and

influencers play in promoting social and environmental concerns will find this analysis to be of particular use. Researchers and practitioners working in these fields will find the analysis to be of particular relevance.

## CHAPTER 2

### Methods

#### 2.1. Introduction

In earlier times, celebrities were commonly perceived as people who enjoyed widespread recognition among the public. The individuals' reputation and achievements were commonly associated with their accomplishments in diverse domains such as athletics, performing arts, or commerce. Nevertheless, the notion of celebrities has evolved over time, extending beyond mere notoriety.

In modern times, individuals of notable prominence originating from multiple places across the globe endeavor to position themselves as supporters for ethical and societal matters by actively engaging in activism. More and more celebrities, from Ellen DeGeneres and Colin Kaepernick in the United States to Deepika Padukone, Kangana Ranaut, and Dia Mirza in India, are speaking out in support of causes they care about.

This kind of activism is made easier for celebrities by social media and micro-blogging sites like Twitter, where they may express their unfiltered views to a wide audience. A dispute surrounds the activism of celebrities and brands because of differing views on the subject that are talking about, the importance placed on their shoulders to take a stand on social and political issues, and personal beliefs about the cause being promoted.

Sibai et al. (2021) argue that activism can be a 'double-edged sword' for the brand, as some consumers may perceive such behavior as a signal of the brand's commitment to ethical and social reforms (Wieser et al., 2019), while others may view it as a form of corporate hypocrisy, accusing the brand of 'woke washing' (Eilert & Nappier Cherup, 2020; Moorman, 2020; Sobande, 2019; Vredenburg et al., 2020).

Celebrities can build their brand equity (Liu et al., 2020; Moulard et al., 2015) through 'self-marketing' (Khedher, 2014), which contributes to their brand value. This emerging stream of research merits more attention to discern how celebrities' engagement in activist actions affects their brand value – a crucial driver of their power and reputation as celebrities and combines different beliefs and perceptions about them (Kucharska & Mikołajczak, 2018).

Celebrity activism is predicted to increase in popularity alongside the expansion of social networking systems. Celebrities help people to better understand themselves and the world

around them by shaping their audience's life habits, interests, careers, and skills (Wicks et al., 2007; Zopiatis & Melanthiou, 2019).

For instance, celebrity chefs often initiate their own CSR initiatives to raise awareness about the need of making healthy and environmentally friendly food choices or to aid those in need. Food sovereignty, animal welfare, and healthy eating are just a few examples of social, political, and ethical consumption problems in which many celebrity chefs are actively involved.

In other side, brands are increasingly using celebrity endorsements of cause-related items as a form of CSR. Both celebrities and companies may demonstrate their commitment to social responsibility through their endorsement of cause-related items. When celebrities, who are arguably brands in their own right (Thomson2006), are featured endorsing a cause-related marketing alliance, they form a triadic co-branding partnership featuring the celebrity, cause, and brand (Baxter and Ilicic2015).

CSR is a form of strategic philanthropy (Bronn and Vrioni2001). Strategic philanthropy involves the use of brand resources to attain both organizational and social benefits (Dickinson and Barker2007; Porter and Kramer2006; Saiia et al.2003). Strategic philanthropy benefits brands through enhancing brand image (Robert, 2013) and also benefits society, through support of a social cause (Babiak et al., 2012; Lee et al., 2009). When celebrities are involved in philanthropic activities, they too engage in a form of strategic philanthropy, benefitting their brand image and the causes they support (Baxter and Ilicic2014). For example, Academy Award-winning actor, Leonardo DiCaprio, is a current brand ambassador for TAG Heuer, a brand that is associated with a variety of causes including UN Women, New York Cares', Wild-CRU.org, and Street Soccer USA (Look to the Stars2012). Leonardo DiCaprio's brand image is also enhanced through his association with philanthropic activities.

In order to offer a comprehensive outlook on CSR and sustainability, the present research selected celebrities deliberately ensuring an optimum range reflecting different levels of participation therein. Consideration was given to the following important aspects. First, these include celebrities who are more interested in CSR related projects and sustainability initiatives. Among these selected stars are famous people like Oprah Winfrey, Leonardo DiCaprio, Serena Williams, Mark Ruffalo, Alicia Keys, Jameela Jamil, and Ian Somerhalder who have all been highly dedicated to both humanitarian and ecological causes. These cases were picked for they relate to the subject of sustainability and public action.

Second, these celebrities represent a range of social and environmental issues. Many celebrities have come out openly in support of various initiatives, ranging from education to health and gender equality. For instance, Leonardo DiCaprio who is famous for his environmental activism, like any other star with similar engagement efforts. This diversity allows us to scrutinize each component of corporate social responsibility and advocating for sustainability. Finally, these celebrity picks come with international recognition and boast of millions or millions plus followers in their different Facebook, Twitter, Instagram, YouTube and LinkedIn accounts. They also make good subjects in case studies about the impact that celebrity and influencer activism has on CSR because all the celebrities chosen in line with research's focus on CSR and sustainability are renowned for being champions of moral ethics and societal obligations.

Data about these celebrities' activism comes from publicly available social media posts uploaded on Instagram. There were a number of factors that led to use Instagram as a main data source. To begin, Instagram is a fantastic resource for studying the visual and narrative facets of celebrity and influencer support in CSR and sustainability because of its unique combination of visual and textual information. Second, Instagram's large and active user base makes it a great place to study the results of celebrity endorsements on corporate social responsibility (CSR) by analyzing the resulting user interactions and engagement. Finally, Instagram posts from a wide range of well-known figures whose CSR and sustainability work has been extensively recorded were easily collected because to the platform's open nature. Therefore, I emphasized on posting recent and updated contents on our Instagram accounts, as they had to be published after 1st January 2023 until the end of July 2023 for acceptance.

## **2.2. Sample description**

In this section, a closer look at each celebrity's specific information such as Gender, Occupation, Number of Followers in the end of July 2023, Number of Posts (Jan 2023-July2023), and Number of Posts about Sustainability (Jan 2023-July2023) and other sustainability efforts is taken into consideration.

| <b>Celebrity</b>         | <b>Gender</b> | <b>Occupation</b>   | <b>N. of Followers in Million (End of Jul 2023)</b> | <b>N. of Posts (Jan 2023-July2023)</b> | <b>N. of Posts about Sustainability (Jan 2023-July 2023)</b> |
|--------------------------|---------------|---------------------|---|--|--|
| <b>Oprah Winfrey</b>     | Female        | Television producer | 22.7 M  | 54                                     | 8  |
| <b>Leonardo DiCaprio</b> | Male          | Actor               | 59.8 M  | 86                                     | 50   |
| <b>Serena Williams</b>   | Female        | Athlete             | 16.9 M  | 78                                     | 1  |
| <b>Mark Ruffalo</b>      | Male          | Actor               | 20.8 M  | 67                                     | 12   |
| <b>Jameela Jamil</b>     | Female        | Actress             | 3.8 M   | 98                                     | 15   |
| <b>Alicia Keys</b>       | Female        | Singer              | 26.7 M  | 120                                    | 4  |
| <b>Ian Somerhalder</b>   | Male          | Actor               | 24.6 M  | 44                                     | 4  |

*Table 0: General Information of the Celebrities*

### **2.2.1. Oprah Winfrey**

Oprah Winfrey, with 22.7 million followers on Instagram, is an ardent supporter of sustainability and CSR. It has not a mere statement but an actual action for her to voice out her opinions regarding environmental conservation and corporate responsibility. The national geographic society fights to safeguard the planet and its inhabitants, and she endorses it. She is working together with the World Wildlife Fund, which is seeking to safeguard endangered species and their habitats.

She is one of the founders of OWN, an Oprah Winfrey Network with several programs that focus on sustainability and corporate social responsibility. Besides from being an advocate for sustainability, Oprah is also a great CSR supporter. Her money has gone towards charities and organizations geared towards education, health care and other social issues. She has also used her platform to highlight key social issues such as poverty and racism.

Many look up to Oprah in different parts of the world, and her efforts related to sustainability and CSR are helping in making a positive contribution towards the globe. Oprah's contribution



in the sustainability includes working in the Oprah Winfrey Leadership Academy for Girls in South Africa. Solar power supplies electricity to the school, while other environmentally friendly options like recycled rubber, brick, and steel have been employed in the design process. The school also provides a sustainable and social justice curriculum.

OWN is a network owned by Oprah with featured programs and content on social issues like the environment and sustainability. Her media channel promotes public sensitization on critical issues and the necessary transformations required. Here are some additional examples of Oprah's work on sustainability and CSR:

In 2019, Oprah kick started the Green Your Home Challenge by the Oprah Winfrey Foundation urging people to build sustainability in their homes. In 2020, Oprah joined forces with the National Resources Defense Council to implement the Oprah Winfrey Network's Climate Change Challenge by calling for people to take action against climate change. Oprah established Oprah Winfrey Foundation's Our Heroes Fund in 2021, a fund that helps people working towards creating eco and just communities.

Indeed, Oprah's contribution to sustainability and corporate social responsibility has a great impression on the world. She has been inspiring others to take actions to save the world and building a fairer global world.

### **2.2.2. Leonardo DiCaprio**

One of the most renowned proponents of sustainability and CSR is Leonardo DiCaprio, with 60 million followers on Instagram, an American actor. By using his popularity, he has drawn light on environmental matters and backed up several greenery movements. Here are some key ways in which Leonardo DiCaprio has been involved in promoting sustainability and CSR:

Leo established a non – profit Leonardo DiCaprio Foundation (LDF) focusing on eco matters and green economy. Additionally, LDF supports diverse endeavors like wildlife conservation, mitigation of climate change and promotion of renewable energy among others.

Di Caprio has been a loud voice in tackling issues of carbon emission and climate change. He is always saying that time is running out for us all and he calls it the “doomsday clock”. For example, he mentions how important it is to reduce our CO2 emission levels quickly so that we can move towards renewable energies as fast as possible in order to fight the climate.

Leonardo DiCaprio is one of the actors who have produced and narrated documentaries focusing on environmental problems. Some documentaries, such as “Before the Flood” and “The 11th Hour”, show what is bound to happen if we never take into account the issues that climate change poses and fail to be consciously aware of it and act accordingly.

Leonardo DiCaprio invests in and promotes a number of green, as well as clean, projects. He has demonstrated an interest in the green technologies, sustainable ventures, and programs dedicated to building of the greener world tomorrow.

Through this, DiCaprio’s passion for conserving the planet can be seen in preserving biodiversity and sustaining ecosystems. Preservation of endangered species and habitats, addressing deforestation and encouraging sustainable land use are some of the issues he propounds for.

Sustainability and corporate social responsibility continue to be of high interest with Leonardo DiCaprio, demonstrating his commitment to create a favorable climate and society. The sustainability through his foundation, films, advocacy, invests, amplifies the importance for individuals and organizational to take actions. If you are looking for latest and authentic details refer to his websites and respectful media stations.

One of DiCaprio's most notable contributions to sustainability is his work with the Leonardo DiCaprio Foundation (now re: wild). This organization’s vision of saving the earth for every living thing is in this regard. re: wild funds numerous schemes globally encompassing;

- Protecting elephants in Africa
- Safeguarding forests in California
- The need to conserve marine life in the Galapagos Islands.

In addition to his work with re: Moreover, DiCaprio is actively involved in other preservation endeavors like re: wild. He is one of the founders for the earth alliance with alliances on different environmental issues in protecting the world and sits on the Board of Directors for the National Resources Defence Council, which is an environmental rights group. Also, He has been appointed as a UN messenger of peace on climate change.

Besides his sustainability role, he also advocates for corporate social responsibility. He contributed millions of dollars to the charities and educational institutions geared towards education, health, and other social issues. In addition, he uses his voice to highlight major social predicaments like poor governance and racism.

There are some additional examples of DiCaprio's work on sustainability and CSR such as in 2016, DiCaprio made a documentary called *Before the Flood* in which he played both producer and narrator to explore the effects and possible solutions for Climate change. Leo DiCaprio established his Climate Change Fund in 2017 that finances organizations that are seeking solutions for environmental problems. On one occasion, DiCaprio joined Board of Directors of the Natural Resources Defense Council back in 2020. His CSR efforts are indeed helpful in improving this planet where numerous people emulate him include me.

### **2.2.3. Serena Williams**

One example is Serena Williams, with 16.9 million followers on Instagram, an internationally-known professional tennis player, who has advocated for sustainability and CSR via several different engagements and alliances. Even though she mainly earned recognition through her tennis career, she has leveraged on it to advance sustainability programs and environmental causes. Here are some ways in which Serena Williams has been involved in promoting sustainability and CSR:

Serena Williams released “Eleven” by Venus Williams, her activewear label. Sustainability is inherent in the brand as it uses environmentally friendly materials and promotes environmentally sound practices within the fashion industry.

Serena Williams has voiced her concerns about global warming effects and other environmental problems like pollution. She has employed her sway at raising the attention of these challenges and emphasizing the need for sustainable approaches.

However, she has an indirect link with sustainable development as she supports equal pay and women empowerment. They play a major role in corporate social responsibility since it strives for a just world.

The education, health, and community development-related philanthropy of Serena Williams. Although she may not be exclusively involved in sustainability, her philanthropic works are part of the wider social responsibility area.

Her participation in sustainability and CSR shows that she is conscious and responsible in fashion activities, being environmentally conscious too. Although she might not carry out elaborate sustainability efforts like many other celebrities do, her influence enables the communication of crucial messages on issues related to sustainability and social responsibility.

To get the most accurate and up-to-date information, one should refer to her official websites, as well as reliable news sources. Sustainability and CSR are promoted by Nike, as the firm has worked with Serena Williams for a longer period. In 2019, Nike built its most sustainable building ever dubbed as the Serena Williams Building. The constructed building has been awarded with a LEED Platinum certificate and it is equipped with multiple solar panels, green roofs, and rainwater harvesting system. Nike is not left behind as it has utilized recycled materials for various products such as in Serena Williams' signature line of clothes and shoes. This can be illustrated in an example, as demonstrated by the NikeCourt Flare 2 Serena Williams shoe which consists of at least 20% recycled materials.

Besides partnering with Nike, Serena Williams is actively engaged in numerous other sustainable efforts and corporate social responsibility initiatives. For instance, she has been associated with the One Tree Planted group which plants a tree for every sold item in SerenaWilliams.com website.

#### **2.2.4. Mark Ruffalo**

A significant proponent of sustainability, climate action, CSR as American actor, producer, and environmentalist Mark Ruffalo, with 20.7 million followers on Instagram. A lot of people know him as an icon because he takes up the environment's space as his own platform and uses his influence to advocate for positive changes. Here are some ways in which Mark Ruffalo has been involved in promoting sustainability and CSR:

Mark Ruffalo has also been very vocal in championing various environmental causes like dealing with climate change and utilization of other forms of renewable energy systems as alternatives to fossil fuels. He was part of The Solutions Project, which aims at mitigation through a hundred percent renewable energy pathway.

Ruffalo is one of hydraulic fracturing's major critics, enlightening the world about the associated environmental and public health consequences. He has brought into light ways of generating alternative and cleaner energies. As part of this, Ruffalo also is supportive and advocates for clean energy endeavors, stressing on the importance of moving away from oil and natural gas into wind power, solar energy, and geothermal. Ruffalo participates in Water Defense, a company that promotes safe use of water. Sustainability and environmental stewardship incorporate conserving water and protecting it.

Ruffalo continues his advocacy work for reformist agenda aimed towards solving environmental problems to include clean energy plans, green jobs and sustainable development. In essence, he fights back by leveraging on his public platform toward advocating for appropriate laws in line with these objectives. Despite that, in the recent years, Mark Ruffalo has constantly supported the cause of clean environment and sustainable development. By doing so he capitalizes on his celebrity status in order to broadly communicate about these same environmental issues and call for personal, community, and policy level responses. It will therefore be appropriate to cite on his official channels and reliable news outlets for the most updated data. There are some additional examples of Ruffalo's work on sustainability and CSR such as, in 2013, collaborated in the making of, *Before the Flood*, a documentary movie that focuses on the issues of climate change's consequences, and possible solutions. A case in point is the creation of Ruffalo's Water Defense Fund in 2016. This is a funding organization aimed at financing other organizations striving to safeguard clean water sources. He has been in the board of Greenpeace USA, a Non-Profit eco group since he joined in 2020.

### **2.2.5. Jameela Jamil**

A sustainability and CSR campaign has also seen support from Jameela Jamil, with 3.8 million followers on Instagram, a British actress, activist and ex-host. She has become associated with raising awareness on different social and environment issues based on her platform. Here are some ways in which Jameela Jamil has been involved in promoting sustainability and CSR.

The 'I Weigh' movement was popularized by Jameela Jamil who advocates that people should define themselves according to what they can achieve or what kind of a person they are or what they do and not by their weight or looks. Body positivity, mental health and self-value constitute the basis of movement. They create a more inclusive and socially responsible world.

Since the beginning, Jamil is an open proponent of sustainable and ethical fashion. She advocates for conscious consumerism through promoting various sustainable clothing lines. Through this, she promotes the need for a culture that ensures people buy responsibly so as to minimize the negative effects of the fashion industry on the environment.

Jameela Jamil has commented on climate change and protecting our planet asking for steps against climate change. Social media has also been a platform that she has used for raising awareness about the need for sustainability, conservation as well as choosing environmentally friendly options. Although it has no relationship with sustainability, Jamil's campaign on

mental health awareness and stigma reduction represents a kind of social obligation. She fosters mental wellness thereby improving an empathetic and caring society. Jamiila Jamil's campaigns and lobbying are based on the principle that a society that is kinder to all its members will be a better place with more inclusiveness and sustainability. However, for the latest and most precise information about her, you need to read her official pages or reliable news outlets.

### **2.2.6. Alicia Keys**

Alicia Keys, with 26.7 million followers on Instagram, an American artist who is also involved in CSR and sustainability efforts for many years. Here are some ways in which Alicia Keys has been involved in promoting sustainability and CSR:

Together with other celebrities, Alicia Keys founded "Keep a child alive," which is a non-governmental organisation providing healthcare, nutrition and psychosocial services for children infected or affected by HIV-AIDS in Africa and Asia. On its part, the organization stresses on healthcare accessibility and sustainability as major strategies towards preventing HIV/AIDS spread. He has been a proponent of environmentalism and sustainable development. By leveraging her position, she has sensitized people to climate change, renewable energy among others, and why future generations need a protected environment.

Alicia Keys co-founded the We are here movement that advocates for actions on such social issues as climate change through art and culture. They seek to achieve better conditions via campaigning for sustainable initiatives which support ethical business practices. Keys may not be specifically linked to sustainability but she speaks on behalf of women's issues and gender equality. Social responsibility and sustainable development must include gender equity.

Through her songs, Alicia Key highlights the need for sustainable living that is fair for everyone. Users interested in more recent information should consult her authentic channels and reliable news outlets.

In fact, one of Keys' milestone achievements in sustainability is her collaboration with Green Rider. GreenRider is a set of environmental and social requirements by Keys, which should be met at every of her shows or events. The green rider promotes various ways of reducing wastes and saving energies plus it offers a support for the local communities or people.

### **2.2.7. Ian Somerhalder**

Ian Somerhalder, with 24.6 million followers on Instagram, one of America's most renowned actors, models, and CSR proponent's In doing so, he has utilized his platform to educate people on different environmental problems while at the same time advocating for responsible production and consumption habits. Here are some ways in which Ian Somerhalder has been involved in promoting sustainability and CSR:

One of the founders of the Ian Somerhalder Foundation (ISF) is Ian Somerhalder who happens to be an actor. This foundation funds project on the topic of environmental conservation, renewable energy, education, and welfare for animals. Somerhalder is vocal on the need for renewables and encourages the switch from fossils. He stresses the need for renewable energy options like solar and wind energy. Ian Somerhalder is also involved in different environmental camps aimed at sensitizing people on the effects of global warming, trees cutting down, sea saving and other paramount matters to the living things. That's how he reaches out to his audience through social media and public engagements.

Somerhalder partners with similar minded projects, organizations as well as movements that strive towards sustainable development and protection of the environment. He collaborates with others to make changes that will improve tomorrow's environment. Ian Somerhalder's involvement in sustainability and CSR emphasizes his desire to contribute towards preserving the environment and uplifting the society. His Foundation pushes people to join movement towards the green earth and global climate change through his advocacy work.

### **2.3. Data collection**

In this study, I investigate how these influential people and companies affect one another when it comes to CSR and sustainable business practices. Terms like "corporate social responsibility," "brand activism," "ESG" (environmental, social, and governance), and "socio-political issues" are central to this study. I relied extensively on Instagram as our major data source because of the rich visual and written content it offers. This study describes the methods used to acquire the data, focusing on the selection of Instagram as the platform, the extraction of captions, the use of sentiment analysis, and the quantitative analysis that followed.

The core of the data gathering method was the meticulous selection of eight celebrities who are all widely recognized for their dedication to corporate social responsibility and environmental sustainability. The likes of Leonardo DiCaprio, Ian Somerhalder, Alicia Keys, Jameela Jamil, Mark Ruffalo, Oprah, Serena Williams, and Shailene Woodley are among the

famous people on the list. These people were selected because of their powerful support for a wide range of social and environmental problems, guaranteeing that our study is representative of the whole range of celebrity engagement. I determined the data gathering period as any post made by the chosen celebrities after January 1, 2023, to guarantee that the information it include is as current as possible. This time period was chosen in order to shed light on advancements and shifts in CSR and sustainability advocacy in the recent past.

I used Python scripting to automate the data extraction procedure. Instagram posts' textual data was automatically extracted using Python modules like Instaloader. To provide a comprehensive data gathering strategy, the extraction method included not just captions but also information connected with each post.

After all relevant data had been extracted, a content analysis was conducted. Sustainability-related keywords and phrases were used to identify and classify CSR and sustainability-related posts and captions. The goal was to evaluate the celebrities' level of involvement in issues like social justice and environmental protection through their social media activity.

I used Python to do sentiment analysis on the captions. Sentiment, corporate social responsibility, and sustainability-related keywords were introduced at this stage. This allowed to determine if the overarching tone of the captions was favorable, negative, or neutral in regard to CSR and sustainability issues. This gave a sense of the celebrities' and influencers' overarching advocacy tone. To further the investigation, I conducted a quantitative analysis of the most prominent CSR-supported captions and the accompanying Instagram photos. As a result, I was able to do a more thorough quantitative study, which included looking at measures of user interaction like likes and comments. Then, a comparative analysis to see how these data varied among pieces is used, illuminating the connection between the subject matter and reader engagement.

This study seeks to give a comprehensive knowledge of the effect of celebrity and influencer endorsement on CSR by combining content analysis, sentiment analysis, and engagement measures. I took use of Instagram's features to provide a thorough analysis of the impact and engagement of these personalities on CSR and sustainability-related material. To promote a more sustainable and responsible society, the findings of this research are intended to contribute to a more in-depth knowledge of the mutual impact of celebrities and companies in the context of CSR and associated activities.



## 2.4. Variables

This research uses a variety of performance indicators and control variables to investigate the effect that celebrity and influencer advocacy has on CSR. The interplay between celebrity endorsements and CSR-focused Instagram posts is complex, and each variable serves a distinct function in this exploration. These factors include features of the posts and the celebrities, which may impact engagement and sentiment, allowing for a more complete study. These variables also allow for a more accurate representation of the data.

**Number of Highlighted Sustainability Keywords:** This indicator counts the occurrences of sustainability-related terms in the captions of the chosen celebrities' Instagram posts. Keywords that relate to environmental or social sustainability are called sustainability keywords that is mentioned for each celebrity. To assess celebrities' interest in corporate social responsibility and environmental sustainability, I analyze the frequency with which they use specific terms in their Instagram postings.

**General Sentiment Score:** The overall emotion score is a numerical measure of the mood conveyed by Instagram post captions as a whole. Whether the feeling is good, negative, or neutral, sentiment analysis can classify it. The overall sentiment score is a tally of how people feel about CSR and sustainability-related topics as a whole.

**Number of Comments:** This metric displays the total number of comments made on Instagram posts by the chosen celebrities. As a reflection of the degree of interaction and interest produced by the material, comments are a key engagement measure. This variable is used in the study to determine how involved the public is in CSR-related posts.

**Number of Likes:** The amount of likes on an Instagram post is another important statistic of engagement. It's a measure of how much people enjoyed and agreed with the presentation. This research uses the amount of likes on CSR-related postings as a proxy for audience interest and approval.

**Followers by Date:** The number of people who follow a certain celebrity on a given date is recorded here. It shows how the celebrity's fan base has grown or shrunk over time. The impact of CSR-related posts on celebrities' reach and influence may be evaluated by looking at changes in followers over certain dates and finding correlations with the publication of CSR-related posts.

**Captions:** The captions of Instagram posts are used as a unit of measurement. Using this variable, it is examined the text for sustainability-related keywords, sentiment, and other characteristics. Captions assist to evaluate the tone and substance of CSR-related postings by providing context and storytelling.

**Number of Posts:** The total number of posts serves as a crucial independent variable. It's a tally of how many times each celebrity was mentioned in an Instagram post within the time period. It's vital for figuring out how much material each celebrity creates and how often they post about CSR.

**Highlighted Sustainability Keywords:** This variable, like the one in the performance indicators, counts the occurrences of certain terms linked to sustainability in the captions. Control variables, on the other hand, include thinking about everything is posted, not just the CSR-related stuff. This enables to evaluate the sustainability emphasis of various forms of media.

**CSR Keywords:** CSR keywords include phrases directly connected to Corporate Social Responsibility, such as "sustainability," "philanthropy," and "ethical business practices." Captioning postings with CSR-related keywords allows us to find those that are directly about CSR-related projects and ideas.

**Gender:** "Gender" refers to the celebrity' self-identified gender. By controlling for this factor, it may investigate whether or not there are any disparities in the level of celebrity involvement in CSR and sustainability initiatives depending on gender.

**Occupation:** Occupation stands in for the chosen celebrities' professions, which may include acting, music, sports, or other fields. This factor is useful for figuring out how various professions affect CSR advocacy.

**Post Length (Number of Words):** The length and breadth of celebrity endorsements may be gauged by looking at the text accompanying their photos. There may be more information about CSR and sustainability problems if the caption is longer.

**Post Timestamp:** Each Instagram post includes a timestamp with the exact time and date it was uploaded. Important for analyzing the time and frequency of CSR-related posts, this variable is essential for monitoring the temporal elements of celebrity advocacy.

**Number of Hashtags:** Hashtag usage in Instagram posts may be quantified by counting the number of times the hashtag appears in the post's caption. Hashtags are frequently used to label

and promote online material. Using this metric, I can analyze how celebrities use hashtags to promote causes and organize their material.

**Number of Tags:** A tag in an Instagram post indicates the user or account that posted it. In the context of CSR and sustainability advocacy, the quantity of tags gives us insight into the degree to which celebrities, businesses, and organizations collaborate and network with one another.

**Content Type (Image, Video, Text-Image):** This variable categorizes the nature of each Instagram post. pictures indicated by 1, videos indicated by 2, or a mix of text and pictures indicated by 3, are all acceptable post formats. By categorizing material, I may investigate how the variety of media formats affects interaction with the target audience and the dissemination of CSR-related messages.

**Total Number of Posts Monthly:** The total quantity of Instagram posts posted each month by the identified celebrities is tracked by this control variable. Posting frequency has the potential to be monitored over time, revealing patterns in advocacy for CSR and sustainability.

**Number of Posts about Sustainability Monthly:** The Number of Posts about Sustainability Instagram postings about sustainability and corporate social responsibility are tracked on a monthly basis. This monthly monitoring makes it possible to analyze trends in sustainability advocacy of the celebrity over time.

**Sustainability Score Monthly:** The monthly Sustainability Score is determined by dividing the Number of Posts about Sustainability Monthly over the total number of posts published that month. As a measure of the celebrities' dedication to CSR and sustainability, it provides insights regarding the monthly ratio of posts devoted to these topics.

## **2.5. Measurement**

This robust framework for the data collection and analysis is provided by these carefully selected performance indicators and control variables for the following correlation and regression analysis in the next part of this study. This enables a comprehensive assessment of the mutual influence that celebrities and CSR have on one another, which ultimately contributes to a deeper understanding of the impact that celebrity and influencer advocacy have on CSR and sustainability.

The selection of independent variables, or predictors, for this study's correlation and regression analysis was a deliberate and reasoned procedure that aligned with the research aims and the nature of the dataset. The major goal was to look into the potential impact of sustainable activities on people's visibility and reactions on social media platforms. The hypothesis is "Do sustainability activities influence visibility?". The following variables are selected between all the variables that defined for the vast qualitative and quantitative insights.

### **2.5.1. Reasons for Variable Selection in Correlation Analysis**

The selection of these factors was based on their capacity to provide a thorough understanding of the numerous dynamics involved in celebrity support for CSR and sustainability on Instagram. The date and number of followers provide temporal and audience dimensions, while the sustainability score, number of likes, number of comments, and post length are helpful for assessing the quality and depth of the advocacy. These variables, when combined, allow for a comprehensive examination of the impact and complexities of celebrity engagement with sustainability concerns, contributing to a more profound knowledge of this important relationship of entertainment, activism, and social media.

**Time and Date:** As a temporal component, 'Date' indicates when month the chosen celebrities' Instagram posts were published. It's a crucial piece of information for piecing together how their CSR and sustainability activism has changed throughout the time period covered by the data.

**Number of Followers:** Each celebrity's Instagram following is represented by the 'Number of Followers' variable. It's a metric for how many people are exposed to their content on the platform. To what extent a larger number of followers indicates a greater commitment to CSR and sustainability, there is a need to investigate the correlation between the two.

**Sustainability Score Monthly:** The 'Sustainability Score Monthly' measures the monthly percentage of Instagram posts that focus on sustainability and CSR topics. It is determined by dividing the monthly total of posts by the monthly total of those that are "about sustainability." This measure represents the extent to which celebrities advocate for sustainability in their respective bodies of work. More effort was put into CSR and sustainability during that month, as shown by a higher Sustainability Score Monthly.

**Number of Likes (Monthly Average) and Number of Comments (Monthly Average):** The number of likes and comments were chosen as user engagement metrics since they show the audience's reaction to celebrity postings. These measures indicate the levels of interactions

and involvement in sustainable content. Analyzing the link between user participation and its relationship with a concentration in sustainability helps evaluate the effectiveness of such programs.

**Post Length:** Length of Instagram post was taken in as one of the variables with intent to find out whether depth and breadth of content are determinants of users' attentivity for sustainability. This allows looking into a possible connection between content length and the sustainability score for longer postings made by celebrities.

### **2.5.2. Reasons of Variable Selection for Regression Analysis**

These variables were chosen because they jointly represent several aspects of sustainability communication and social media content. The goal was to thoroughly examine how content qualities, sentiment, thematic alignment, and post structure affect celebrities' online engagement with sustainability concerns. While these factors were chosen based on their theoretical relevance, it is important to note that their impact may differ for different celebrities and circumstances. The inclusion of these variables intended to explain the complexities of the relationship between sustainable activities and online involvement.

The objective in including these factors in the regression study was to learn how celebrities' sustainability-related posts affect their online visibility, follower reaction rates, and engagement metrics.

**Number of HSK (Highlighted Sustainability Keywords):** This metric was included to show how frequently and to what degree sustainability-related terms were used in Instagram content. The presence of sustainability themes in posts has the potential to engage or resonate with the audience because of the increasing importance of these themes in the current socio-environmental context. The celebrities are making an effort to promote sustainable practices, as evidenced by their use of sustainability-related phrases.

**General Sentiment Score:** The `General_Sentiment_Score` is a sentiment analysis metric that can be used to get insight into the underlying emotional tone of Instagram communications. A more positive audience reaction could be expected if the author's mood was also positive. Knowing how readers feel about the content can help you improve it.

**Number of Hashtags:** A post's categorization and discoverability can be assessed by the quantity of hashtags it contains. The use of hashtags increases the potential audience for a post,

beyond only the celebrity's following. It was theorized that more hashtags would boost the post's discoverability and engagement.

## CHAPTER 3

### Results

#### 3.1 Descriptive Analysis

Understanding the data's trends and patterns requires first doing a descriptive analysis, which elucidates the data's properties and behaviors. In this part, three tables summarizing crucial statistics relating to Instagram engagement for each celebrity are presented within the framework of this study. Monthly averages for both the number of followers and the number of posts about sustainability are included in these tables, in addition to the table of correlation analysis for each celebrity.

Table 1 presents a snapshot of the selected celebrities' monthly average number of followers. Using this chart, it can see how their activism in the areas of CSR and sustainability may be correlated with changes in their follower count over time. Moreover, the popularity of a celebrity's advocacy for CSR and sustainability concerns may be reflected in the regularity with which they post about these issues, and this study might help shed light on that. Also, in the Average Number of Posts about Sustainability column it is demonstrated when the celebrities were particularly vocal about CSR and environmental issues thanks to this handy chart.

| <b>Celebrity</b>         | <b>Average Number of Followers (Monthly)</b> | <b>Average Number of Posts (Monthly)</b> | <b>Average N. of Posts about Sustainability (Monthly)</b> |
|--------------------------|--|--|---|
| <b>Oprah Winfrey</b>     | 22,337,953                                   | 8  | 1   |
| <b>Leonardo DiCaprio</b> | 58,076,028                                   | 12                                       | 7   |
| <b>Serena Williams</b>   | 16,544,123                                   | 11                                       | 1   |
| <b>Mark Ruffalo</b>      | 20,793,463                                   | 9  | 2   |
| <b>Jameela Jamil</b>     | 3,786,509                                    | 14                                       | 2   |
| <b>Alicia Keys</b>       | 25,954,483                                   | 17                                       | 1   |
| <b>Ian Somerhalder</b>   | 24,282,061                                   | 6  | 1   |

*Table 1: Average Number of Followers, Posts, Posts about Sustainability by Month for Each Celebrity*

### 3.2. Correlation Analysis

A correlation study was performed to get a deeper comprehension of the interplay between time, audience participation, and celebrities' and influencers' support for sustainable practices. This part set out to examine the correlations between the time of day Instagram posts were made, the number of followers, and the Sustainability Score Monthly, a key metric reflecting the content creators' commitment to sustainability. The objective was to see whether any connections or patterns could be established between these factors.

It's important to point out that correlation coefficients can take on values between -1 and 1, with 0 denoting no association at all. Weak correlations suggest that the variables are not very linearly connected to each other. This information is useful as it continues to investigate the link between Instagram celebrities' CSR and sustainability activism and their followers' participation with such causes. By looking at the links between each celebrity and sustainability problem on an individual basis, it is possible to acquire a more nuanced view of how these dynamics play out for each advocate.

Following this explanation, the result of each celebrity's correlation analysis is provided in the next sections.

#### Oprah Winfrey

The correlation research produced the following conclusions for Oprah Winfrey, a very powerful public figure:

|  | 1        | 2        | 3        | 4 | 5 | 6 |
|--|----------|----------|----------|---|---|---|
| <b>1. date</b>                             | 1        |          |          |   |   |   |
| <b>2. Followers</b>                        | 0.996    | 1        |          |   |   |   |
| <b>3.sustainability score</b>              | -0.29802 | -0.31825 | 1        |   |   |   |
| <b>4. Number of Likes (Monthly AVG)</b>    | 0.20122  | 0.26084  | -0.68781 | 1 |   |   |
| <b>5. Number of Comments (Monthly AVG)</b> | N        | N        | N        | N | 1 |   |

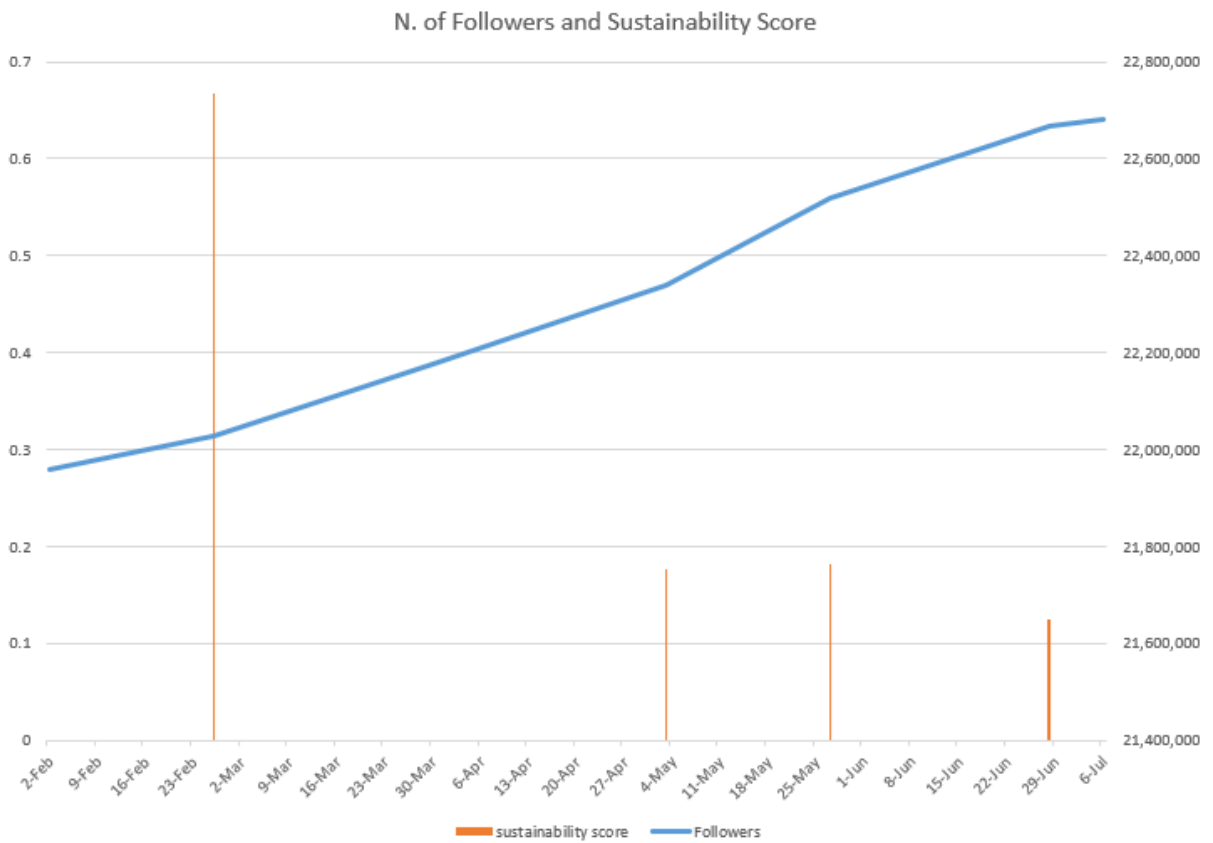


|                       |          |          |         |         |   |   |
|-----------------------|----------|----------|---------|---------|---|---|
| <b>6. Post length</b> | -0.57792 | -0.59543 | 0.92232 | 0.42516 | N | 1 |
|-----------------------|----------|----------|---------|---------|---|---|

Table 2: Correlation Analysis for Oprah Winfrey

The data shows in Table 2 that Oprah Winfrey's Instagram following has been steadily increasing over time, with a positive correlation between the date and the number of followers (0.996). In a similar approach, the Monthly Average number of likes shows a positive association with the date (0.201), indicating that his postings, on average, earn more likes as time goes on. Consistent with a gradual decline in sustainability advocacy over time, the Sustainability Score Monthly has a significant negative correlation with the date (-0.298). The somewhat negative connection between the date and the number of comments (Monthly Average) (-0.687) is consistent with this pattern, suggesting a decline in involvement with articles addressing CSR and sustainability issues. Longer posts are more likely to address sustainability issues because of the positive link between post length and the monthly Sustainability Score (0.922). However, a negative connection (-0.595) is shown between post length and monthly average comment count, suggesting that shorter postings may generate more discussion. Monthly average likes have a negative connection with post length (-0.578), suggesting that shorter posts are preferred.

Figure 3: Number of followers and Sustainability Score for Oprah Winfrey



Source: Based on my Personal Visualization

Figure 3. revealed a strong positive connection between the date and the number of followers for Oprah Winfrey, indicating constant growth in her following over time. A little negative association between the number of followers and the Sustainability Score Monthly demonstrated that increasing sustainability attention did not always correspond to improved follower growth.

### Leonardo DiCaprio

It discovered the following correlation coefficients for Leonardo DiCaprio:

|              | 1        | 2 | 3 | 4 | 5 | 6 |
|--------------|----------|---|---|---|---|---|
| 1. date      | 1        |   |   |   |   |   |
| 2. Followers | 0.997181 | 1 |   |   |   |   |

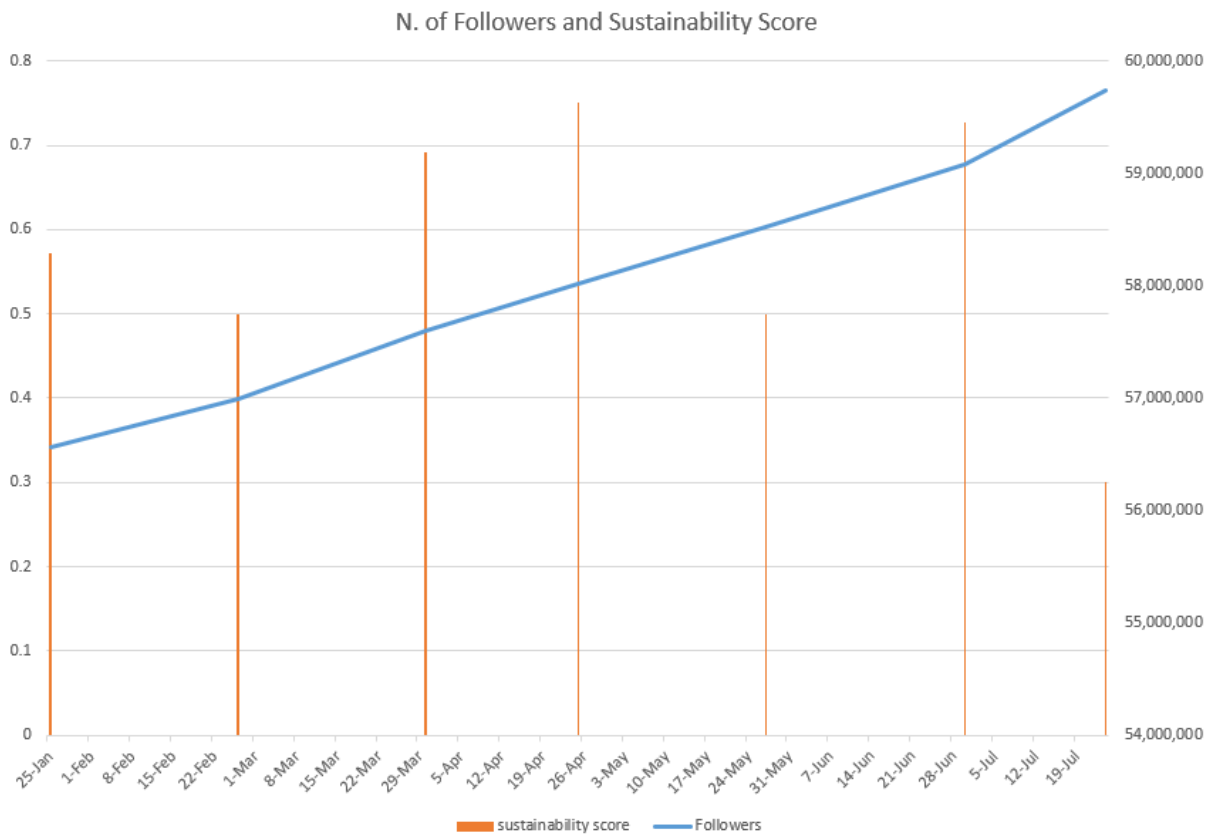
|  |          |          |          |         |         |   |
|--|----------|----------|----------|---------|---------|---|
| <b>3.sustainability score</b>              | -0.24673 | -0.29154 | 1        |         |         |   |
| <b>4. Number of Likes (Monthly AVG)</b>    | -0.44808 | -0.45177 | -0.47239 | 1       |         |   |
| <b>5. Number of Comments (Monthly AVG)</b> | 0.59146  | 0.60137  | -0.71157 | 0.38868 | 1       |   |
| <b>6. Post length</b>                      | -0.28931 | -0.32639 | 0.29150  | 0.42516 | 0.03448 | 1 |

*Table 3: Correlation Analysis for Leonardo DiCaprio*

In Table 3. Leonardo DiCaprio's correlation analysis displays an excessive number of connections between various variables. A positive correlation between the date and the number of followers (0.997) is highly significant and indicates of a steadily expanding following over time. Meanwhile, a weak inverse correlation between time and Sustainability Score (about -0.247) suggests a diminishing attention on sustainability with time. The monthly averages of both the number of likes and comments also show strong relationships with the other factors. The negative correlations between these indicators and the Sustainability Score (varying from -0.292 to -0.712) underline that an increase in the number of likes and comments is related with a diminished sustainability focus. Number of Comments (Monthly AVG) has a positive correlation with Number of Likes (Monthly AVG) (0.601), suggesting that as engagement metrics like comments grow.

Posts that are longer tend to have more involvement, as seen by a weakly positive association between Post Length and the Monthly Average Number of Likes and Monthly Average Number of Comments. But the longer the post, the less likely it is to focus on sustainability, according to the -0.326 association between Post Length and Sustainability Score. This result is also indicated in this chart:

Figure 4: Number of followers and Sustainability Score for Leonardo DiCaprio



Source: Based on my Personal Visualization

There was a statistically significant positive association between the date and the number of Leonardo DiCaprio's followers, suggesting a gradual but steady increase in his Instagram audience. Although not strongly related, a little negative connection between the date and the Sustainability Score Monthly indicated a tiny tendency toward less emphasis on sustainability over time. Similar to how there appears to be a little inverse link between the number of followers and the Sustainability Score Monthly, suggesting that as the number of followers rises, less focus is placed on sustainability, a slight negative correlation between the two variables suggests.

### Serena Williams

The other highlighted celebrities, Serena Williams, is used to demonstrate our correlation analysis methodology.

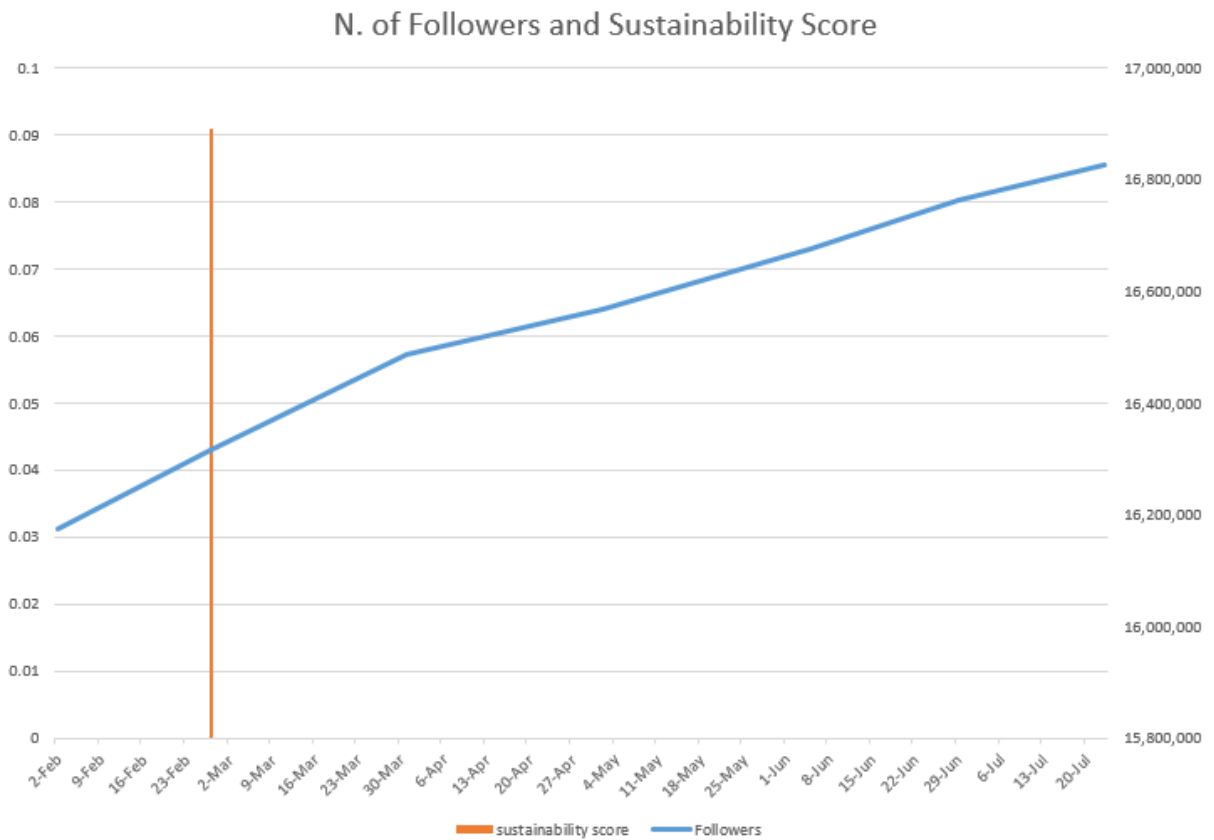
|  | 1       | 2       | 3        | 4       | 5      | 6 |
|--|---------|---------|----------|---------|--------|---|
| <b>1. date</b>                             | 1       |         |          |         |        |   |
| <b>2. Followers</b>                        | 0.9909  | 1       |          |         |        |   |
| <b>3.sustainability score</b>              | -0.4329 | -0.4231 | 1        |         |        |   |
| <b>4. Number of Likes (Monthly AVG)</b>    | 0.5909  | 0.5788  | -0.34004 | 1       |        |   |
| <b>5. Number of Comments (Monthly AVG)</b> | 0.4840  | 0.4648  | -0.21821 | 0.9765  | 1      |   |
| <b>6. Post length</b>                      | 0.1451  | 0.2587  | 0.32369  | 0.20122 | 0.1861 | 1 |

Table 4: Correlation Analysis for Serena Williams

In Table 4. considering the 0.9909 positive connection between the date and Serena Williams' amount of Instagram followers, it's clear that her fan base has been steadily and noticeably expanding over time. The success of her activism for CSR and sustainability in attracting new fans is shown by her endorsement. The date and Sustainability Score Monthly have a significant negative association ( $r=-0.4329$ ). Based on this correlation, it appears that Serena Williams' focus on sustainability has diminished with time. The reduction is noticeable, but not precipitous, suggesting that there was some variation in her Instagram postings about sustainability across the data collecting period. The correlation coefficient of -0.4231 between the number of followers and the Sustainability Score Monthly demonstrates a notable negative association. This suggests that as Serena Williams' Instagram following increased, she paid less attention to environmental issues. This interesting discovery shows that she may have to make a choice between expanding her fan base and advocating for environmental sustainability.

As shown by a correlation coefficient of 0.9765 (very high) between monthly averages of likes and comments, the two metrics are highly correlated with one another. This suggests that postings that obtain more likes on average also receive more comments on average. It exemplifies how Serena Williams' CSR and sustainability information is being utilized by her audience. As shown by a positive association of about 0.32369 between Serena Williams' monthly Sustainability Score and Post Length, lengthier captions may indicate a greater focus on sustainability. Based on this data, it seems plausible that caption length may be used as a proxy for the breadth and depth of information related to sustainability. Posts with longer captions tend to obtain a higher average number of likes, as indicated by a positive correlation of roughly 0.20122 between the Number of Likes (Monthly Average) and Post Length. This indicates that longer, more detailed subtitles may be better received by the audience. Posts with longer captions also tend to draw a larger average number of comments, since there is a positive correlation of roughly 0.1861 between the two metrics of Post Length and Monthly Average Number of Comments. This shows that Serena Williams' audience engages in more in-depth conversation and participation due to the length of captions.

Figure 5: Number of followers and Sustainability Score for Serena Williams



Source: Based on my Personal Visualization

As shown in Figure 5, the number of followers has been increasing, with a strong positive correlation between the date and the same. However, there was an odd pattern shown in which sustainability consideration declined over time, depicted by a very negative link between Monthly Sustainability score and Month. The same was further evidenced by the negative correlation between the monthly Sustainability Score and its followers, suggesting perhaps an antagonistic relationship between popularization and eco-activism.

### Mark Ruffalo

The results of the correlation study for Mark Ruffalo are as follows:

|         | 1 | 2 | 3 | 4 | 5 | 6 |
|---------|---|---|---|---|---|---|
| 1. date | 1 |   |   |   |   |   |

|  |         |         |        |         |         |   |
|--|---------|---------|--------|---------|---------|---|
| <b>2. Followers</b>                        | -0.9262 | 1       |        |         |         |   |
| <b>3.sustainability score</b>              | -0.6363 | 0.3740  | 1      |         |         |   |
| <b>4. Number of Likes (Monthly AVG)</b>    | -0.0819 | 0.0587  | 0.3109 | 1       |         |   |
| <b>5. Number of Comments (Monthly AVG)</b> | -0.2284 | -0.0053 | 0.5214 | -0.2543 | 1       |   |
| <b>6. Post length</b>                      | -0.6801 | 0.6181  | 0.5993 | 0.0705  | -0.1433 | 1 |

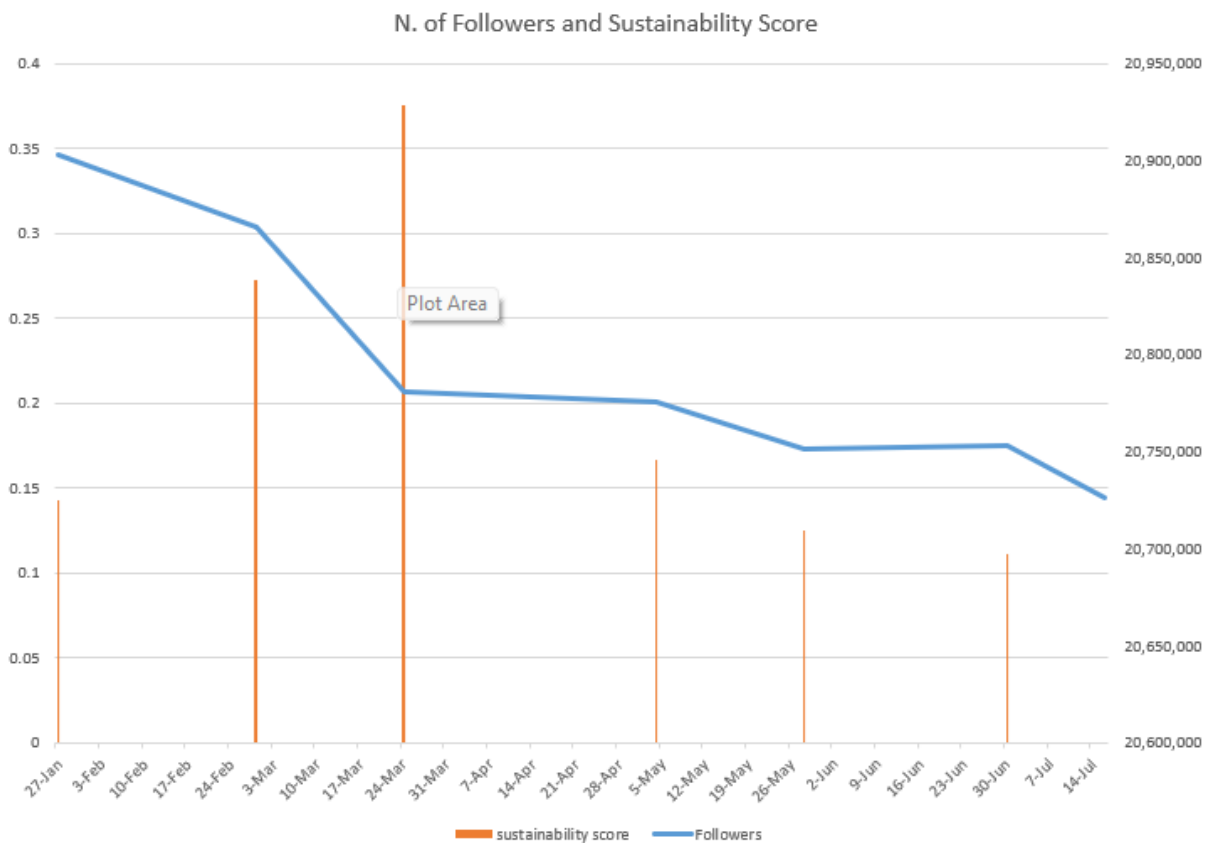
Table 5: Correlation Analysis for Mark Ruffalo

Table 5's correlation matrix shows all the interconnections between the chosen variables for Mark Ruffalo. The magnitude and direction of the linear relationships between the variables are represented by the Pearson correlation coefficients. There is a large inverse connection between the date and the number of followers, as indicated by the statistically significant -0.9262 correlation coefficient. This suggests that there was a steady decline in the number of followers across the time period of the study. The correlation value of -0.6363 demonstrates a moderate negative link between the date and the Sustainability Score. The connection with fans is stronger than the one with the diminishing sustainability emphasis over time. With a value of -0.0819, the date has a modest negative association with the average monthly number of likes. Despite the lack of statistical significance, this trend is suggestive of a gradual decline in popularity.

There is a moderately negative link between the date and the Monthly Average Number of Comments (-0.2284). This indicates a slow but steady decrease in comments over time. Date and Post Length have a very adverse relationship, as seen by the large negative correlation value of -0.6801. This shows that, on average, post length has been decreasing across the time period covered by the data.



Figure 6: Number of followers and Sustainability Score for Mark Ruffalo



Source: Based on my Personal Visualization

Mark Ruffalo’s data in Figure 6. exhibited a highly significant inverse correlation with the date and number of followers implying a steady drop in the number of followers along the data-gathering process. Although the trend lines for Sustainability Score monthly and the date correlated similarly, but not as greatly, it was apparent that the Sustainability Score monthly fell in a less pronounced fashion over time. While this association was not very strong, a modest positive association between Followers and the Sustainability Score Monthly showed that the sustainability score declined in correspondence with the followers that decreased. Thus it indicated that maybe the quantity of the people who follow Mark Ruffalo in his environmental activities is not decisive on his environmental activism.

### Jameela Jamil

For Jameela Jamil, the correlation study found fascinating relationships between date, followers, and Sustainability Score Monthly. The correlation in Table 6. shows the relationships:

|  | 1       | 2       | 3      | 4      | 5      | 6 |
|--|---------|---------|--------|--------|--------|---|
| <b>1. date</b>                             | 1       |         |        |        |        |   |
| <b>2. Followers</b>                        | 0.9059  | 1       |        |        |        |   |
| <b>3.sustainability score</b>              | 0.2666  | 0.3618  | 1      |        |        |   |
| <b>4. Number of Likes (Monthly AVG)</b>    | -0.7859 | -0.6094 | 0.2525 | 1      |        |   |
| <b>5. Number of Comments (Monthly AVG)</b> | -0.5629 | -0.4134 | 0.4247 | 0.9381 | 1      |   |
| <b>6. Post length</b>                      | -0.0621 | -0.1727 | 0.6428 | 0.3799 | 0.4846 | 1 |

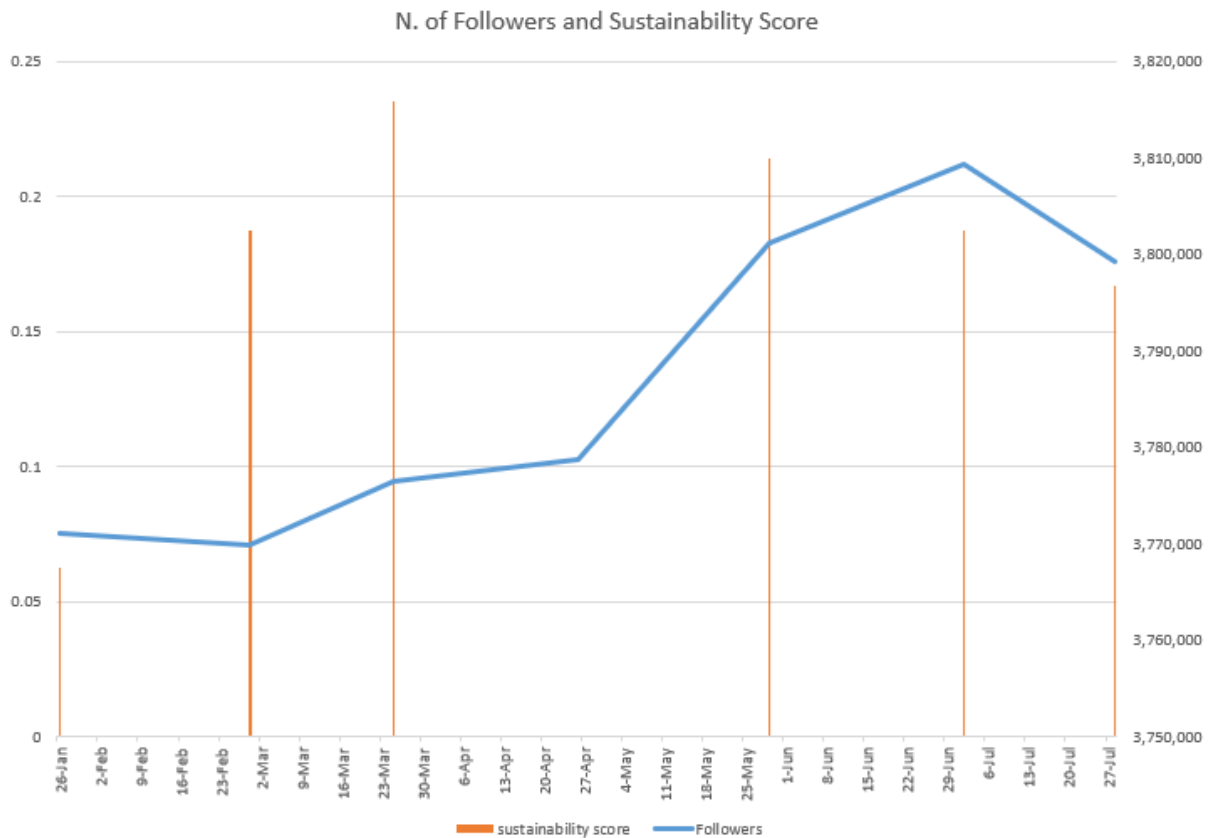
Table 6: Correlation Analysis for Jameela Jamil

There is a strong positive relationship between the date and the number of followers, as indicated by the correlation coefficient of 0.9059. Jameela Jamil's Instagram following is growing, suggesting a positive association between her advocacy work and the size of her audience. The modest yet positive association is indicated by the correlation value of around 0.2666. This would indicate that Jameela Jamil's advocacy activities have been in sync with a gradual shift in focus toward sustainability in her Instagram postings over time.

As the monthly Sustainability Score increases, the average number of likes per post decreases, as seen by the correlation coefficient of -0.7859. This may indicate that material that emphasizes sustainability is less likely to be liked than other types of information. With a value of -0.5629, the correlation coefficient represents a highly negative association. As the Sustainability Score Monthly grows, the number of comments per post tends to drop, showing that postings with a stronger sustainability focus may elicit fewer comments, presumably due to their specialized content. A correlation value of 0.6428 indicates a very strong positive relationship. More sustainability-oriented material may necessitate more in-depth explanations

or debates, as indicated by a correlation between post length and the Sustainability Score Monthly.

Figure 7: Number of followers and Sustainability Score for Jameela Jamil



Source: Based on my Personal Visualization

According to Figure 7. Jameela Jamil's Instagram audience has steadily grown as she has been advocating for CSR and sustainability, with a high positive connection between the date and the number of followers. She appears to be putting more of an emphasis on sustainability in her Instagram posts, since there is a positive, albeit weaker, link between the date and the Sustainability Score Monthly. Celebrities may be encouraged to provide more information regarding sustainability if there is a favorable association between the Sustainability Score Monthly and the number of followers they have.

## Alicia Keys

Useful insights into these connections were revealed by the correlation analysis results for each star. Alicia Keys was used as an another example in the analysis, and the results showed the correlation Table 7. below:

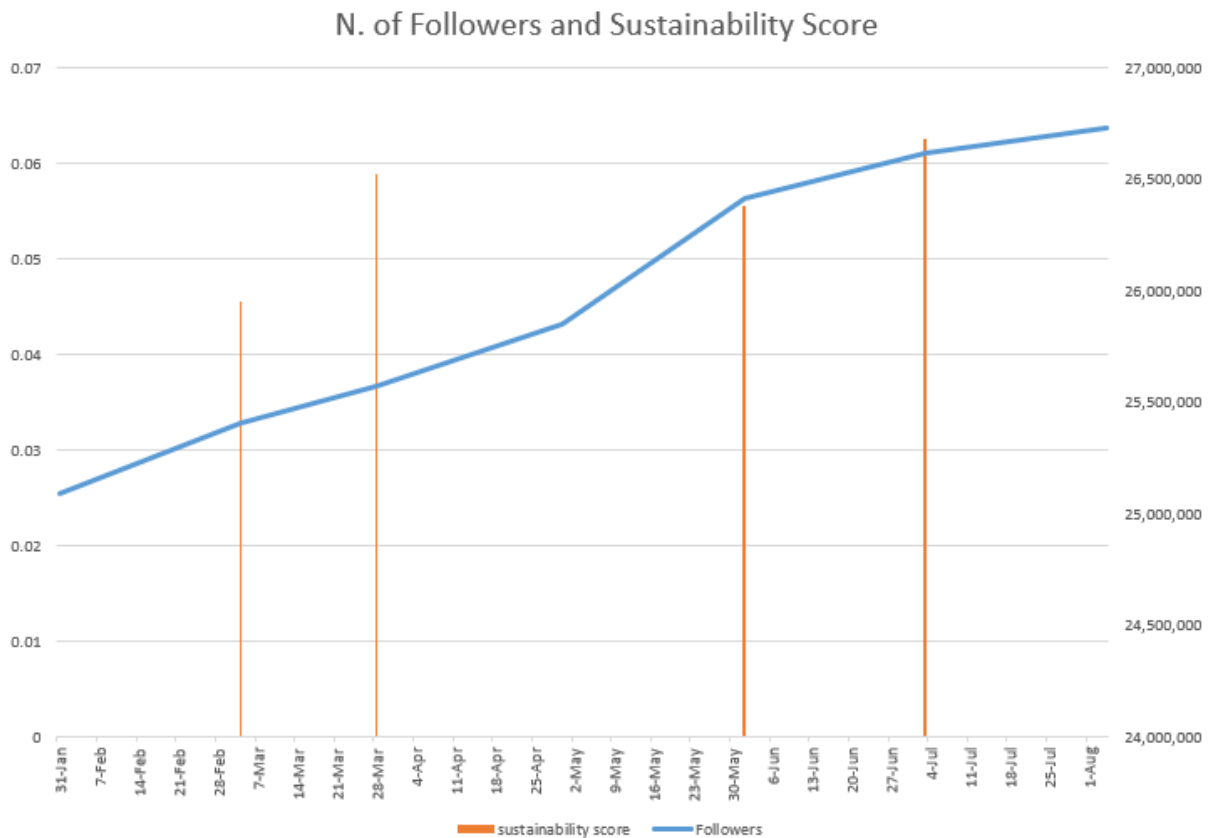
|                                     | 1       | 2       | 3       | 4      | 5       | 6 |
|-------------------------------------|---------|---------|---------|--------|---------|---|
| 1. date                             | 1       |         |         |        |         |   |
| 2. Followers                        | 0.9876  | 1       |         |        |         |   |
| 3.sustainability score              | 0.0691  | 0.1713  | 1       |        |         |   |
| 4. Number of Likes (Monthly AVG)    | 0.1521  | 0.2211  | 0.0689  | 1      |         |   |
| 5. Number of Comments (Monthly AVG) | 0.1356  | 0.1564  | -0.1148 | 0.9081 | 1       |   |
| 6. Post length                      | -0.2734 | -0.1715 | 0.7991  | 0.0771 | -0.1606 | 1 |

Table 7: Correlation Analysis for Alicia Keys

The increasing trend in the number of followers was shown by a correlation coefficient of 0.9876. There was a temporal trend in celebrity involvement on Instagram, with the number of followers rising as the date went on. Time had a slight impact on the monthly sustainability score, as indicated by the small positive correlation between date and score (0.0691). Advocating for sustainability may be influenced more by other variables. A positive but modest connection was shown by the value of 0.0689 for the correlation coefficient. There was a little correlation between the sustainability score and the average number of likes, suggesting that when sustainability advocacy gained more likes, celebrities may be encouraged to produce more such material.

The average number of comments was negatively correlated with the sustainability score (-0.1148), although this was not statistically significant. The number of responses to sustainability-related posts also fell, although only slightly. A substantial positive correlation of 0.7991 suggested that sustainability emphasis in Instagram postings grew as post length extended. According to the data, there is a strong correlation between post length and sustainability-related content. There was a -0.1606 association between the length of the post and the number of comments. The correlation was small, but it did suggest a link between longer posts and more interaction from readers. It was found that there was a negative association of 0.0771 between the length of a post and the number of likes it received. This correlation suggested a complex link between the length of a post and its reception.

Figure 8: Number of followers and Sustainability Score for Alicia Keys



Source: Based on my Personal Visualization

Statistics on this Figure 8. show a positive link between the date and the number of followers, suggesting steady expansion of her fan base over time. Time had a small but beneficial effect on the monthly sustainability score, as indicated by the positive but weak correlation between the date and the score. There was a moderate positive association between monthly

Sustainability Score and total number of followers, suggesting that popularity may have a modest effect on sustainability advocacy.

### Ian Somerhalder

The results of the correlation study for Ian Somerhalder were as follows:

|   | 1       | 2       | 3       | 4      | 5      | 6 |
|---|---------|---------|---------|--------|--------|---|
| <b>1. date</b>                            | 1       |         |         |        |        |   |
| <b>2. Followers</b>                       | 0.996   | 1       |         |        |        |   |
| <b>3.sustainability score</b>             | -0.126  | -0.118  | 1       |        |        |   |
| <b>4. Number of Likes (Monthly AVG)</b>   | -0.8405 | -0.8289 | 0.0955  | 1      |        |   |
| <b>5.Number of Comments (Monthly AVG)</b> | -0.7899 | -0.7929 | -0.2837 | 0.9172 | 1      |   |
| <b>6.Post length</b>                      | -0.2825 | -0.3296 | 0.546   | 0.0694 | -0.044 | 1 |

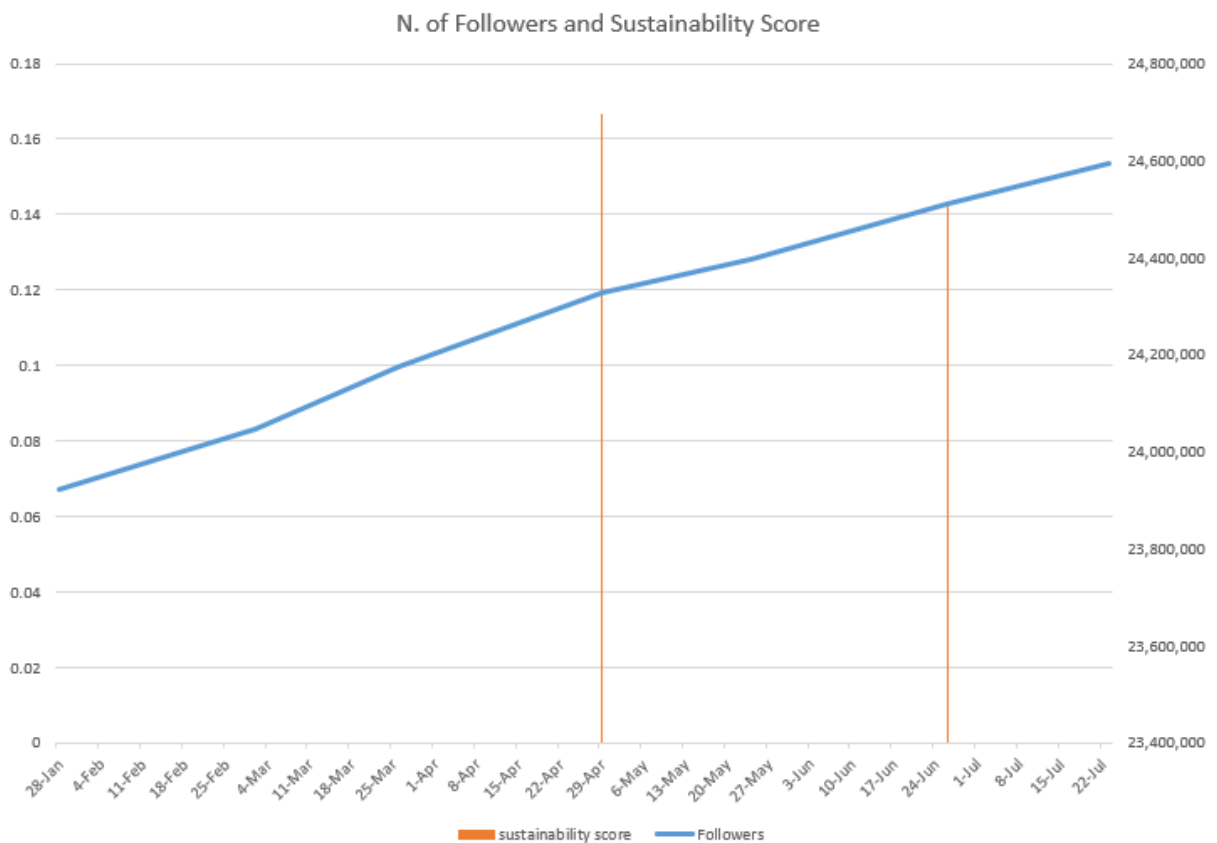
Table 8: Correlation Analysis for Ian Somerhalder

The correlation coefficient of about 0.996 between the date and followers reveals a substantial positive link, demonstrating a constant growth in Ian Somerhalder's Instagram followers over time. This highly significant link indicates that his audience has been steadily expanding over time. There is a slight correlation between the date and the Sustainability Score Monthly (about -0.126). Although the correlation is weak, it does suggest that the sustainability rating will gradually decrease with time. This means that Ian Somerhalder's postings may shift in terms of their focus on sustainability. There is a positive connection between the two metrics, with a correlation value of 0.9172 indicating a high degree of linkage between the two measures.

This data reveals that postings that receive more likes on average also receive more comments. This indicates a strong connection between user interaction in the form of likes and comments.

The coefficients of around 0.0955 and -0.2837 for the monthly Sustainability Score and the monthly averages of likes and comments, respectively, are much lower. These results indicate a weak correlation between the sustainability score and engagement. A positive correlation suggests a modest improvement in the sustainability score in tandem with a rise in the number of likes, while a negative correlation suggests that an increase in the number of comments may result in a decline in the sustainability score. There is a moderately positive relationship between post length and Sustainability Score Monthly ( $r=0.546$ ). This indicates that more extensive material may be more conducive to sustainability advocacy, as longer articles are associated with a higher sustainability score.

Figure 9: Number of followers and Sustainability Score for Ian Somerhalder



Source: Based on my Personal Visualization

According to Figure 9. Ian Somerhalder's followers have steadily grown over time, with a positive link between the date and the number of followers. Slightly decreasing sustainability advocacy over time was shown by a weak negative association between the date and

Sustainability Score Monthly. A similar negative link between followers and the Sustainability Score Monthly was also seen, but at a lesser strength.

In conclusion, these correlation results show CSR and sustainability are complex phenomenon that the social media can only complicate further. This means that for each celebrity, the correlations between the date, the number of followers, and the Sustainability Score Monthly differ and show different patterns and trends. While some celebrations gain audiences that steadily expand, other audiences evolve in a much more inconsistent manner. The relationship between them is complex, meaning that some factors other than audience size and activity levels influence CSR and sustainability advocacy on social media. The obtained data will provide a strong basis for subsequent Regression analysis on the correlation between the above-mentioned groups of factors and the other related criteria.

### **3.3. Regression Analysis**

In this part, a multiple linear regression analysis is applied to inquire into the possible impact of sustainable actions on people's online profiles and responses. To determine if the General\_Sentiment\_Score, the number of HSK (highlighted sustainability keywords), the number of HASHTAGS, and the post text (utilized for post length analysis) substantially predict the dependent variable, the number of likes, an analysis was conducted. This approach is designed to shed light on whether sustainable activities, as reflected in these independent variables, exhibit a statistically significant association with the number of likes received on Instagram posts.

Number of Likes =  $\beta_0 + \beta_1 * \text{General Sentiment Score} + \beta_2 * \text{number of Highlighted Sustainability Keywords (HSK)} + \beta_3 * \text{Number of Hashtags} + \beta_4 * \text{post text (for post length analysis)} + \epsilon$ .

Hypothesis: This regression analysis is based on the following sets of null and alternative hypotheses:

Null Hypothesis (H0): Sustainable actions do not significantly influence the number of likes (reactions) acquired on Instagram posts.  $\beta_1$  (the coefficient for General\_Sentiment\_Score),  $\beta_2$



(the coefficient for number of HSK),  $\beta_3$  (the coefficient for NUMBER OF HASHTAGS), and  $\beta_4$  (the coefficient for post text) are all equivalent to 0 in the context of statistics.

Alternative Hypothesis (H1): Sustainable actions have a significant influence on the number of likes (reactions) of Instagram posts. In statistical concepts, at least one of the coefficients  $\beta_1$ ,  $\beta_2$ ,  $\beta_3$ , or  $\beta_4$  is not equal to zero.

#### Interpretation and Implications:

This regression analysis will be critical in exposing the correlation between sustainability activities and “likes” extended by supporters. This means that a refusal of H0 implies that the independent variables, which represent sustainable behaviors, affect a person’s Instagram profile and activity.

Alternatively, rejecting H0 implies that the number of likes and the independent variables do not yield a statistically significant relationship. If the above claim holds true, then there is very scant evidence indicating that advancing green endeavors enhance Instagram visibility and participation.

The statistical significance of the coefficients and the R-squared value, which measures how much of the variation in the number of likes can be attributed to the independent variables, will guide the interpretation of the results. It is also important to think about the implications of the findings in light of the particular dataset and the constraints of the regression model. This study will add to the ongoing discussion about the role of sustainability in shaping public engagement on social media platforms if the null hypothesis is rejected, indicating a statistically significant relationship between sustainable activities and social media reactions. If the correlation isn't substantial, then it's clear that further study is needed to fully understand what aspects contribute to online exposure and interaction. The importance of sustainable activity determinants on each celebrity's Instagram engagement will be discussed below, along with the regression findings for each celebrity.

The number of likes obtained by each celebrity's Instagram posts was the subject of each regression investigation. Individual regression summary for each celebrity were generated using the Python code. Regression results were computed for each celebrity's dataset with the use of this code, which included the computation of coefficients, p-values, R-squared values, and other statistical indicators.

It's worth noting that including individual celebrity regression summaries helps accomplish the aforementioned goal of delivering a more all-encompassing analysis by taking into account the wide range of participant behaviors and traits. This method provides a comprehensive comprehension of the ways in which sustainable actions may affect the profile and response of various celebrities on Instagram.

## Oprah Winfrey

The following assessment of the hypothesis is provided based on the results of the regression analysis performed for Oprah:

Figure 10: Regression Analysis for Oprah Winfrey

| OLS Regression Results              |                  |                     |         |       |           |          |
|-------------------------------------|------------------|---------------------|---------|-------|-----------|----------|
| Dep. Variable:                      | number of likess | R-squared:          | 0.123   |       |           |          |
| Model:                              | OLS              | Adj. R-squared:     | 0.051   |       |           |          |
| Method:                             | Least Squares    | F-statistic:        | 1.718   |       |           |          |
| Date:                               | Mon, 23 Oct 2023 | Prob (F-statistic): | 0.161   |       |           |          |
| Time:                               | 20:15:20         | Log-Likelihood:     | -732.56 |       |           |          |
| No. Observations:                   | 54               | AIC:                | 1475.   |       |           |          |
| Df Residuals:                       | 49               | BIC:                | 1485.   |       |           |          |
| Df Model:                           | 4                |                     |         |       |           |          |
| Covariance Type:                    | nonrobust        |                     |         |       |           |          |
|                                     | coef             | std err             | t       | P> t  | [0.025    | 0.975]   |
| const                               | 2.294e+05        | 6.36e+04            | 3.606   | 0.001 | 1.02e+05  | 3.57e+05 |
| number of HSK                       | -1.022e+05       | 7.68e+04            | -1.330  | 0.190 | -2.56e+05 | 5.22e+04 |
| General_Sentiment_Score             | -1.514e+05       | 1.04e+05            | -1.463  | 0.150 | -3.59e+05 | 5.66e+04 |
| NUMBER OF HASHTAGS                  | -7.186e+04       | 6.4e+04             | -1.123  | 0.267 | -2e+05    | 5.67e+04 |
| post text(for post length analysis) | 639.8762         | 649.260             | 0.986   | 0.329 | -664.861  | 1944.613 |

Source: Based on my Personal Calculation

In Figure 10. the analysis hypothesizes that sustainable activities, as measured by General\_Sentiment\_Score, number of HSK (highlighted sustainability keywords), number of hashtags, and post text ( utilized for post length analysis), significantly affect Oprah's Instagram post likes.

R-squared Value: The independent variables explain 0.123 of the variation in likes. This implies that the model explains only a minor portion of such variability in the number of likes.

The coefficients for General\_Sentiment\_Score, number of HSK, NUMBER OF HASHTAGS, and post text have p-values of 0.150, 0.190, 0.267, and 0.329, respectively. None of the coefficients on the independent variables are statistically significant at the generally used 0.05 threshold of significance. The evidence is insufficient to infer that these independent variables affect Oprah's social media likes.

The investigation of Oprah's dataset suggests that the assessed sustainable actions (independent variables) do not significantly affect her Instagram likes. The p-values, which indicate the random chance likelihood of observing the inferred connections, exceed 0.05.

These results suggest that Oprah's Instagram posts do not receive a significant influence from sustainable activities, as measured by General\_Sentiment\_Score, the number of HSK, the number of HASHTAGS, and the post text.

### Leonardo DiCaprio

The hypothesis is evaluated as follows, based on the regression analysis performed for Leonardo DiCaprio in the Figure 11:

Figure 11: Regression Analysis for Leonardo DiCaprio

| OLS Regression Results              |                  |                     |         |       |           |          |
|-------------------------------------|------------------|---------------------|---------|-------|-----------|----------|
| Dep. Variable:                      | number of likes  | R-squared:          | 0.028   |       |           |          |
| Model:                              | OLS              | Adj. R-squared:     | -0.020  |       |           |          |
| Method:                             | Least Squares    | F-statistic:        | 0.5911  |       |           |          |
| Date:                               | Mon, 23 Oct 2023 | Prob (F-statistic): | 0.670   |       |           |          |
| Time:                               | 19:34:36         | Log-Likelihood:     | -1154.6 |       |           |          |
| No. Observations:                   | 86               | AIC:                | 2319.   |       |           |          |
| Df Residuals:                       | 81               | BIC:                | 2332.   |       |           |          |
| Df Model:                           | 4                |                     |         |       |           |          |
| Covariance Type:                    | nonrobust        |                     |         |       |           |          |
|                                     | coef             | std err             | t       | P> t  | [0.025    | 0.975]   |
| const                               | 1.481e+05        | 5e+04               | 2.960   | 0.004 | 4.86e+04  | 2.48e+05 |
| number of HSK                       | -1.008e+04       | 2.2e+04             | -0.459  | 0.648 | -5.38e+04 | 3.36e+04 |
| General_Sentiment_Score             | 3.903e+04        | 1.49e+05            | 0.262   | 0.794 | -2.57e+05 | 3.35e+05 |
| NUMBER OF HASHTAGS                  | -9103.3534       | 7286.353            | -1.249  | 0.215 | -2.36e+04 | 5394.204 |
| post text(for post length analysis) | 248.8467         | 274.068             | 0.908   | 0.367 | -296.462  | 794.156  |

Source: Based on my Personal Calculation

The analysis's null hypothesis is that the number of likes (reactions) on Leonardo DiCaprio's Instagram posts is not related to the number of sustainable activities (as measured by General\_Sentiment\_Score, the number of HSK (highlighted sustainability keywords), the NUMBER OF HASHTAGS, and the post text utilized for post length analysis).

The R-squared value is about 0.028, which indicates that the independent variables account for about 0.028 of the total variation in the number of likes. This indicates that the model explains a negligible proportion of the observed variation in the total number of likes. General\_Sentiment\_Score, number of HSK, NUMBER OF HASHTAGS, and post text all carried p-values of 0.794, 0.648, 0.215, and 0.367, respectively.

None of the coefficients for the independent variables are statistically significant at the generally used 0.05 level of significance. This means that the data is not strong enough to establish that these factors significantly affect the amount of likes Leonardo DiCaprio's social media postings receive.

There is no statistically significant link between the number of likes on Leonardo DiCaprio's Instagram postings and the observed sustainable actions (independent variables), according to the analysis of his dataset. There is more than a 5% chance that the calculated correlations were observed by chance, as indicated by the p-values, which are larger than the conventional 0.05 threshold.

These results suggest that, for the model and dataset used in this analysis, there is no significant correlation between the number of likes on Leonardo DiCaprio's Instagram posts and his participation in sustainable activities (as measured by General\_Sentiment\_Score, the number of HSK, the number of HASHTAGS, and the post text). The dataset and model utilized should be taken into account when interpreting these findings, and it's possible that other factors or subtleties are at play when it comes to the success of his Instagram posts.

### Serena Williams

This hypothesis evaluation is based on the results of a regression study performed on Serena Williams in Figure 12.

Figure 12: Regression Analysis for Serena Williams

| OLS Regression Results              |                  |                     |         |       |           |          |  |
|-------------------------------------|------------------|---------------------|---------|-------|-----------|----------|--|
| Dep. Variable:                      | number of likes  | R-squared:          | 0.037   |       |           |          |  |
| Model:                              | OLS              | Adj. R-squared:     | -0.016  |       |           |          |  |
| Method:                             | Least Squares    | F-statistic:        | 0.7031  |       |           |          |  |
| Date:                               | Mon, 23 Oct 2023 | Prob (F-statistic): | 0.592   |       |           |          |  |
| Time:                               | 20:50:51         | Log-Likelihood:     | -1056.9 |       |           |          |  |
| No. Observations:                   | 78               | AIC:                | 2124.   |       |           |          |  |
| Df Residuals:                       | 73               | BIC:                | 2136.   |       |           |          |  |
| Df Model:                           | 4                |                     |         |       |           |          |  |
| Covariance Type:                    | nonrobust        |                     |         |       |           |          |  |
|                                     | coef             | std err             | t       | P> t  | [0.025    | 0.975]   |  |
| const                               | 1.213e+05        | 3.08e+04            | 3.932   | 0.000 | 5.98e+04  | 1.83e+05 |  |
| number of HSK                       | 4795.1186        | 1.38e+05            | 0.035   | 0.972 | -2.71e+05 | 2.8e+05  |  |
| General_Sentiment_Score             | 4.088e+04        | 1.06e+05            | 0.386   | 0.701 | -1.7e+05  | 2.52e+05 |  |
| NUMBER OF HASHTAGS                  | 2.879e+04        | 1.98e+04            | 1.455   | 0.150 | -1.07e+04 | 6.82e+04 |  |
| post text(for post length analysis) | 471.0580         | 915.030             | 0.515   | 0.608 | -1352.595 | 2294.711 |  |

Source: Based on my Personal Calculation

The R-squared value is around 0.037, which indicates that 37% of the variation in the total number of likes can be accounted for by the independent factors. As a result, it appears that the

model explains just a tiny fraction of the variation in the number of likes. Coefficients for General\_Sentiment\_Score, number of HSK, NUMBER OF HASHTAGS, and post text all have p-values of 0.701, 0.972, 0.150, and 0.608, respectively. At the commonly used 0.05 level, none of the coefficients for the independent variables are significant. Because of this, it cannot infer that any of these independent factors significantly affect the amount of likes that Serena Williams' Instagram postings receive.

Analyzing the data for Serena Williams, no evidence of a correlation between the independent variables (Serena's sustainable actions) and the dependent variable (the amount of likes on her Instagram postings) using the model described is found. When compared to the commonly used p-value of 0.05, the likelihood of seeing the calculated correlations by chance is too high.

These results imply that sustainable activities, as measured by General\_Sentiment\_Score, the number of HSK, the number of HASHTAGS, and the post text, do not have a substantial influence on the number of likes received by Serena Williams' Instagram posts using the specific model and dataset used in this analysis. These findings should be interpreted in light of the dataset and model employed, and it is possible that other factors or subtleties contribute to the success of her social media posts.

## Mark Ruffalo

The following assessment of the hypothesis is provided based on the regression analysis performed for Mark Ruffalo in Figure 13:

Figure 13: Regression Analysis for Mark Ruffalo

| OLS Regression Results              |                  |                     |         |       |           |          |
|-------------------------------------|------------------|---------------------|---------|-------|-----------|----------|
| Dep. Variable:                      | number of likes  | R-squared:          | 0.186   |       |           |          |
| Model:                              | OLS              | Adj. R-squared:     | 0.133   |       |           |          |
| Method:                             | Least Squares    | F-statistic:        | 3.532   |       |           |          |
| Date:                               | Tue, 24 Oct 2023 | Prob (F-statistic): | 0.0116  |       |           |          |
| Time:                               | 07:51:42         | Log-Likelihood:     | -920.24 |       |           |          |
| No. Observations:                   | 67               | AIC:                | 1850.   |       |           |          |
| Df Residuals:                       | 62               | BIC:                | 1862.   |       |           |          |
| Df Model:                           | 4                |                     |         |       |           |          |
| Covariance Type:                    | nonrobust        |                     |         |       |           |          |
|                                     | coef             | std err             | t       | P> t  | [0.025    | 0.975]   |
| const                               | 2.53e+05         | 6.24e+04            | 4.058   | 0.000 | 1.28e+05  | 3.78e+05 |
| number of HSK                       | -3.242e+04       | 4.43e+04            | -0.732  | 0.467 | -1.21e+05 | 5.61e+04 |
| General_Sentiment_Score             | 1.718e+05        | 1.07e+05            | 1.599   | 0.115 | -4.29e+04 | 3.87e+05 |
| NUMBER OF HASHTAGS                  | -2.159e+04       | 2.54e+04            | -0.850  | 0.398 | -7.23e+04 | 2.92e+04 |
| post text(for post length analysis) | -1288.0106       | 785.168             | -1.640  | 0.106 | -2857.539 | 281.518  |

Source: Based on my Personal Calculation

The R-squared value is about 0.186, which indicates that the independent variables account for about that much of variation in the number of likes. This indicates that just a small fraction of the variation in the number of likes is explained by the model. Coefficients for the General\_Sentiment\_Score, the number of HSKs, the number of HASHTAGS, and the post text all have p-values of 0.115, 0.467, 0.398, and 0.106, respectively. The coefficients for the independent variables, with the exception of the constant term, are not statistically significant at the generally used level of significance (often set at 0.05).

Statistically, the observed sustainable actions (independent variables) do not affect the number of likes Mark Ruffalo's Instagram postings obtained within the defined model, according to the study of his dataset. Except for the constant term, all the p-values (which indicate the likelihood of seeing the predicted connections by random chance) are larger than the conventional significance level of 0.05.

These results suggest that Mark Ruffalo's Instagram likes are not significantly affected by his participation in sustainable activities, as measured by General\_Sentiment\_Score, the number of HSK, the number of HASHTAGS, and the post text. But it's important to keep in mind that these are the conclusions of a very particular investigation, and that other elements may also contribute to Instagram engagement and exposure that weren't considered.

## Jameela Jamil

Jameela Jamil's regression analysis provided the data for the following hypothesis test in Figure 14:

Figure 14: Regression Analysis for Jameela Jamil

| OLS Regression Results              |                  |                     |         |       |           |          |
|-------------------------------------|------------------|---------------------|---------|-------|-----------|----------|
| Dep. Variable:                      | number of likes  | R-squared:          | 0.102   |       |           |          |
| Model:                              | OLS              | Adj. R-squared:     | 0.063   |       |           |          |
| Method:                             | Least Squares    | F-statistic:        | 2.640   |       |           |          |
| Date:                               | Mon, 23 Oct 2023 | Prob (F-statistic): | 0.0387  |       |           |          |
| Time:                               | 19:51:24         | Log-Likelihood:     | -1234.7 |       |           |          |
| No. Observations:                   | 98               | AIC:                | 2479.   |       |           |          |
| Df Residuals:                       | 93               | BIC:                | 2492.   |       |           |          |
| Df Model:                           | 4                |                     |         |       |           |          |
| Covariance Type:                    | nonrobust        |                     |         |       |           |          |
|                                     | coef             | std err             | t       | P> t  | [0.025    | 0.975]   |
| const                               | 7.446e+04        | 1.02e+04            | 7.315   | 0.000 | 5.42e+04  | 9.47e+04 |
| number of HSK                       | -3.086e+04       | 2.19e+04            | -1.406  | 0.163 | -7.44e+04 | 1.27e+04 |
| General_Sentiment_Score             | -1.677e+04       | 3.26e+04            | -0.515  | 0.608 | -8.15e+04 | 4.79e+04 |
| NUMBER OF HASHTAGS                  | -1.35e+04        | 1.08e+04            | -1.256  | 0.212 | -3.49e+04 | 7852.744 |
| post text(for post length analysis) | 266.3998         | 92.245              | 2.888   | 0.005 | 83.219    | 449.580  |

Source: Based on my Personal Calculation

The R-squared value is about 0.102, which indicates that the independent variables account for about 10% of the variation in the total number of likes. This indicates that only some of the variation in the number of likes is explained by the model. Coefficient p-values are 0.608 for General\_Sentiment\_Score, 0.163 for the number of HSK, 0.212 for the number of HASHTAGS, and 0.005 for the post text. Only "post text (for post length analysis)" has a statistically significant coefficient at the generally used level of significance (often set at 0.05), among the independent variables. There is additional statistical significance in the constant term.

According to Jameela Jamil's dataset analysis, the number of likes on her Instagram posts is not significantly correlated with her sustainable activities (as measured by General\_Sentiment\_Score, the number of HSK, and the NUMBER OF HASHTAGS) within the specified model. The quantity of likes, however, appears to be statistically affected by the length of the post's text.

These results suggest that Jameela Jamil's Instagram likes are not significantly influenced by sustainable activities, as measured by General\_Sentiment\_Score, the number of HSK, and the number of hashtags used in posts. These factors may not have a significant effect, as their p-values are larger than the conventional 0.05 threshold.

## Alicia Keys

Based on the regression analysis performed for Alicia Keys, the following hypothesis evaluation is presented in Figure 15:

Figure 15: Regression Analysis for Alicia Keys

| OLS Regression Results              |                  |                     |         |       |           |          |
|-------------------------------------|------------------|---------------------|---------|-------|-----------|----------|
| Dep. Variable:                      | number of likes  | R-squared:          | 0.034   |       |           |          |
| Model:                              | OLS              | Adj. R-squared:     | 0.000   |       |           |          |
| Method:                             | Least Squares    | F-statistic:        | 1.001   |       |           |          |
| Date:                               | Mon, 23 Oct 2023 | Prob (F-statistic): | 0.410   |       |           |          |
| Time:                               | 19:41:36         | Log-Likelihood:     | -1643.0 |       |           |          |
| No. Observations:                   | 120              | AIC:                | 3296.   |       |           |          |
| Df Residuals:                       | 115              | BIC:                | 3310.   |       |           |          |
| Df Model:                           | 4                |                     |         |       |           |          |
| Covariance Type:                    | nonrobust        |                     |         |       |           |          |
|                                     | coef             | std err             | t       | P> t  | [0.025    | 0.975]   |
| const                               | 2.093e+05        | 3.11e+04            | 6.739   | 0.000 | 1.48e+05  | 2.71e+05 |
| number of HSK                       | 5.743e+04        | 1.13e+05            | 0.510   | 0.611 | -1.66e+05 | 2.81e+05 |
| General_Sentiment_Score             | 3318.5043        | 7.63e+04            | 0.043   | 0.965 | -1.48e+05 | 1.54e+05 |
| NUMBER OF HASHTAGS                  | -5.334e+04       | 2.99e+04            | -1.785  | 0.077 | -1.13e+05 | 5858.557 |
| post text(for post length analysis) | -224.7038        | 494.384             | -0.455  | 0.650 | -1203.982 | 754.575  |

Source: Based on my Personal Calculation

The R-squared value, which indicates how much of a change in the sample mean can be attributed to changes in the independent variables, is around 0.034. This indicates that only some of the variation in the number of likes is explained by the model. Coefficient p-values for General\_Sentiment\_Score (0.965), the number of HSK (0.611), the number of HASHTAGS (0.077), and the post text (0.650) are all quite large. None of the coefficients associated with the independent variables are statistically significant at the 0.05 level of analysis. Statistically, the constant term matters.

According to the data for Alicia Keys, sustainable actions do not have a statistically significant effect on the number of likes her Instagram posts receive within the specified model, as measured by General\_Sentiment\_Score, the number of HSK, and the NUMBER OF HASHTAGS. Significantly high p-values for these variables indicate they are not statistically significant.

In addition, the p-value for the correlation between post length and likes is rather high, suggesting that this is not a relevant factor.

These results suggest, based on the model and dataset used for this analysis, that Alicia Keys' Instagram likes are not significantly influenced by sustainability-related activities or metrics such as sentiment scores, highlighted keywords, hashtags, and post text length.



## Ian Somerhalder

The following assessment of the hypothesis is provided based on the results of a regression analysis performed on the dataset linked to Ian Somerhalder in Figure 16:

Figure 16: Regression Analysis for Ian Somerhalder

| OLS Regression Results              |                  |                     |         |       |           |          |
|-------------------------------------|------------------|---------------------|---------|-------|-----------|----------|
| Dep. Variable:                      | number of likess | R-squared:          | 0.101   |       |           |          |
| Model:                              | OLS              | Adj. R-squared:     | 0.009   |       |           |          |
| Method:                             | Least Squares    | F-statistic:        | 1.098   |       |           |          |
| Date:                               | Tue, 24 Oct 2023 | Prob (F-statistic): | 0.371   |       |           |          |
| Time:                               | 07:48:01         | Log-Likelihood:     | -656.34 |       |           |          |
| No. Observations:                   | 44               | AIC:                | 1323.   |       |           |          |
| Df Residuals:                       | 39               | BIC:                | 1332.   |       |           |          |
| Df Model:                           | 4                |                     |         |       |           |          |
| Covariance Type:                    | nonrobust        |                     |         |       |           |          |
|                                     | coef             | std err             | t       | P> t  | [0.025    | 0.975]   |
| const                               | 6.058e+05        | 2.08e+05            | 2.908   | 0.006 | 1.84e+05  | 1.03e+06 |
| number of HSK                       | -2.99e+05        | 4.55e+05            | -0.658  | 0.514 | -1.22e+06 | 6.2e+05  |
| General_Sentiment_Score             | 2.938e+05        | 3.79e+05            | 0.776   | 0.442 | -4.72e+05 | 1.06e+06 |
| NUMBER OF HASHTAGS                  | -6.607e+04       | 9.5e+04             | -0.695  | 0.491 | -2.58e+05 | 1.26e+05 |
| post text(for post length analysis) | 3836.2476        | 2184.126            | 1.756   | 0.087 | -581.564  | 8254.059 |

Source: Based on my Personal Calculation

The R-squared value is about 0.101, which indicates that the independent variables account for about 10% of the variation in the number of likes. This indicates that only some of the variation in the number of likes is explained by the model. Coefficient p-values for General\_Sentiment\_Score, number of HSK, NUMBER OF HASHTAGS, and post text are all relatively high at 0.442, 0.514, 0.491, and 0.087, respectively. None of the coefficients associated with the independent variables are statistically significant at the 0.05 level of analysis. The statistical significance of the constant term is 0.006.

For Ian's dataset, the analysis suggests that sustainable activities do not have a statistically significant impact on the number of likes received on his Instagram posts when using the specified model, which includes General\_Sentiment\_Score, the number of HSK, the number of HASHTAGS, and the post text. Significantly high p-values for these variables indicate they are not statistically significant.

Although the constant term is not directly connected to the sustainability-related independent variables, its significance at 0.006 suggests that there is some statistical relationship between the intercept and the number of likes.

Based on the methodology and data utilized in this study, these results suggest that Ian's Instagram likes are not significantly influenced by his pursuit of sustainability or by measures linked to sustainability.

### 3.4. Conclusion

Oprah Winfrey, Leonardo DiCaprio, Serena Williams, Mark Ruffalo, Jameela Jamil, Alicia Keys, and Ian Somerhalder were all included in this extensive regression analysis that analyzed the correlation between sustainable activities and online engagement. The major goal was to ascertain if sustainable actions, as shown by General\_Sentiment\_Score, the quantity of HSK (highlighted sustainability keywords), the number of HASHTAGS, and the length of post content, significantly influenced online engagement. Sustainable activities, as defined by the selected variables, were found to have a small effect on online participation, as measured by the number of likes on Instagram posts, across the entire sample of people analyzed.

| <b>Celebrity</b>         | <b>R-squared</b> | <b>P-Value number of HSK</b> | <b>P-Value General_Sentiment_Score</b> | <b>P-Value number of HASHTAGS</b> | <b>P-Value post Length</b> |
|--------------------------|------------------|------------------------------|--|-----------------------------------|----------------------------|
| <b>Oprah Winfrey</b>     | 0.123            | 0.190                        | 0.150                                  | 0.267                             | 0.329                      |
| <b>Leonardo DiCaprio</b> | 0.028            | 0.648                        | 0.794                                  | 0.215                             | 0.367                      |
| <b>Serena Williams</b>   | 0.037            | 0.972                        | 0.701                                  | 0.150                             | 0.608                      |
| <b>Mark Ruffalo</b>      | 0.186            | 0.467                        | 0.115                                  | 0.398                             | 0.106                      |
| <b>Jameela Jamil</b>     | 0.102            | 0.163                        | 0.608                                  | 0.212                             | 0.005                      |
| <b>Alicia Keys</b>       | 0.034            | 0.611                        | 0.965                                  | 0.077                             | 0.650                      |
| <b>Ian Somerhalder</b>   | 0.101            | 0.514                        | 0.442                                  | 0.491                             | 0.087                      |

Table 9: overview of the Regression Analysis

In Table 9. in most cases, independent factors like General\_Sentiment\_Score, number of HSK, NUMBER OF HASHTAGS, and post-text length did not seem to be statistically

significant predictors of the number of likes, as shown by the regression analysis. The results were not statistically significant, as indicated by the high p-values. The R-squared values, which measure the proportion of variance explained by the model, were often low, indicating that only a tiny fraction of the variation in the number of likes could be accounted for by the specified independent variables. Some of the constants had statistically significant values, suggesting a correlation between the intercept and the amount of support they received. However, this did not have any direct bearing on the independent factors concerned with sustainability.

Based on the data and models used in the studies, it appears that sustainable behaviors had little effect on people's propensity to participate in online fora. Likes on Instagram posts probably aren't only a result of the factors that were analyzed. These results highlight the layered structure of sustainable activities and the complexities of online involvement. A number of external factors, audience dynamics, content quality, and timeliness may impact Instagram reactions, even if the variables considered for this research did not reveal a significant association with online engagement.

### **3.5. Recommendations**

To further understand the interplay between environmentally responsible actions and digital participation, more study is necessary. Further insight into this connection may be gleaned by widening the range of variables included, examining a more comprehensive dataset, and taking into account contextual elements unique to each user's Instagram presence.

Although the present regression analyses did not find a significant relationship between sustainable activities and online engagement, these results should be interpreted in light of the particular models and datasets used, and further research is encouraged to explore this relationship more comprehensively.

## Chapter 4

### 4. Conclusion

CSR has become one important issue related to modern business, indicating that it is vital to incorporate social and ecological concerns in business policies. Nowadays, celebrities and influencers are used as means of propagating the messages pertaining to the CSR initiatives; this offers opportunities that will increase the companies' reputations, deepen relationship with the consumers and yield beneficial social and environmental returns. Nevertheless, the combination of celebrities and influencers with CSR strategy is a careful process which must be undertaken with great care.

Systematic literature review confirmed that celebrity and influencers' advocacy in corporate social responsibility can be successful. They include better brand perceptions, higher levels of customer involvement and real benefits for society and environment. Concurrently, the possible downsides related to the involvement of celebrities and influencers in the marketing process is revealed, which may damage company's reputation in case of immoral behaviours of famous persons. Moreover, there is a risk of advertisement of insincere or while involving celebrities and influencers can be an added advantage, it also comes with perils hence the need to balance the situation. The crucial role played by various factors in the organization for successful cause related marketing with celebrities and influencers has been highlighted through our analysis. Such factors as aligning values and goals with the brand, the influencer and CSR, authenticity and transparency, and monitoring with evaluating results. In addition, there was an indication that greater studies are necessary for a deeper appreciation of the complex nexus between celebrity/influencer advocacy and CSR results. Future studies could examine different types of celebrities and influencers, multiple types of communication channels and messages, and the impact of social networking sites on people's understanding of CSR.

An intensive regression analysis has been carried out into the Instagram account of top figures like Oprah Winfrey, Leonardo DiCaprio, Serena Williams, Mark Ruffalo, Jameela Jamil, Alicia Keys, and Ian Somerhalder with an aim This study aimed at establishing whether variables like General Sentiment Score, sustainability keywords, hashtags, and post content length affected online engagements. These independent factors had limited statistical significance in prediction the number of 'likes' on Instagram photos.

The study could not establish a direct relationship between environmental activities and online participation, but this needs further interpretation on how each model as well as dataset was applied. This does not conclude that the findings will prove to be final answers but is just the beginning of further extensive studies on this relationship. Through this analysis, the intricacy involved in online interactions became evident, revealing that posts receive likes for different reasons such as the quality of the posts' content, audience dynamics, time factor, and the complexity of the online interaction process.

To conclude, involvement of celebrity's and influencers can enhance such endeavours, however, it will never be magic bullet. However, a careful approach based on the points mentioned above should be adopted for the optimization of benefits and prevention of risks. Therefore, this work suggests that further studies should go beyond the current scope, addressing issues such as larger arrays of variables, greater data sets and additional specificities in different contexts. Such undertakings enable the exploration of how well people perceive celebrity and influencer advocacy as a means of improving CSR outcomes for better corporate sustainability.

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