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SUSTAINABLE TRANSPORTATION, CORPORATE SOCIAL RESPONSIBILITY AND PATENT STRATEGY:IS TESLA'S PATENT PLEDGE A WORK OF SOCIAL VALUE OR A MARKETING DECISION?

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Abstract:

This research presents an interdisciplinary analysis of an element of Tesla's marketing strategy intricately linked to the company's distinctive innovation management and intellectual property protection. The primary objective of this study is to explore the significance of patents in emerging technologies, evaluating the degree to which the automotive industry relies on intellectual property mechanisms as strategic tools for growth and marketing promotion.

The research provides insights into whether an open innovation strategy, such as a patent pledge adopted by Tesla, would be considered an effective and intelligent approach to green marketing. Additionally, it examines whether Tesla's Corporate Social Responsibility (CSR) initiatives are strategically aligned with the company's core values, particularly in relation to innovation management strategy and electric vehicle patents. Finally, it emphasises how Tesla's decision reinforces the importance of a well-defined patent strategy, benefiting both from and contributing to the market simultaneously.

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1. Introduction

The idea for this research stems from earlier studies in which the authors examined patent developments in technology markets and their impact on business growth, competitiveness, and Corporate Social Responsibility initiatives (Shariat & Gholizadehdastjerd, 2022a). The findings of that study prompted the authors to delve further into the application of Technological Social Responsibility in selected cases of new and emerging technologies related to green technology solutions, green intellectual property, smart mobility, and sustainable transport (Shariat & Gholizadehdastjerd, 2022b; Shariat & Gholizadehdastjerd, 2023). The results of prior studies conducted by the authors in the area of green technology, patent protection, and innovation management underscored the necessity for additional interdisciplinary research to connect the dots between green marketing, sustainable transport, and open innovation—particularly the patent pledge promoted by Tesla.

The automotive industry is known as one of the major contributors to emissions (Bonsu, 2020, p. 1). Car manufacturers, including companies involved in the development of emerging technologies in the industry, aim to take steps to reduce their carbon emissions through various strategies (Kushwaha and Sharma, 2015). Tesla Motors, the U.S. electric vehicle and clean energy company, serves as a notable example of a company striving to advance the manufacture of alternative technologies with the aim of reducing greenhouse gas emissions (Whiteford, 2018; Tesla, 2024b). However, the company faces challenges associated with introducing affordable innovations for electric vehicles and meeting the growing demand, including high battery costs and performance competitiveness. Addressing these existing challenges is crucial to making investments in electric vehicles economically viable (McKinsey & Company, 2013).

With an ambitious vision statement, where Tesla portrays itself as 'the most compelling car company of the 21st century by driving the world's transition to electric vehicles' (Tesla, 2014), the company highlights a serious ambition of leading other automobile manufacturers into the electric model future (Witheford, 2018). Tesla places its priority in its mission statement as 'to accelerate the world's transition to sustainable energy' (Tesla, 2014), indicating the company sincerely believes in promoting the transition to electric vehicles and sustainable energy. It is even argued that Tesla's ultimate mission is to 'save the world from climate change' (Dyer and Gregersen, 2016). The company aims to distinguish itself from other players in the market by taking seemingly bold actions in this direction—some of which may raise serious questions for stakeholders.

A controversial decision made by the company is related to a 'patent pledge' announced by Elon Musk, the CEO of Tesla, indicating the intention of the company to allow others to use a number of existing IP properties of Tesla (provided that certain conditions are met).

> *Tesla irrevocably pledges that it will not initiate a lawsuit against any party for infringing a Tesla Patent through activity relating to electric vehicles or related equipment for so long as such party is acting in good faith.* (Tesla, 2014)

The motivation of Tesla for making such a decision was allegedly to promote the 'open-source movement for the advancement of electric vehicle technology' (Tesla, 2014). This claim, however, may invite criticism and disagreement, supporting the notion that Tesla did not relinquish its portfolio of intellectual property rights freely, without any conditions or commercial expectations. Intellectual property rights bear significant value for corporations, and on certain occasions, these assets may hold greater value than the tangible assets of the company (Maskus, 2000). Patents, in particular, provide businesses with a competitive advantage (Caldwell, 2023) and signal a company's success, innovation, and the quality of its products and services (Garavito Hernández and Rueda Galvis, 2021).

Potential investors regard patents as invaluable indicators of future revenue streams, even in the absence of a high valuation of a company's tangible assets (Andrews and de Serres, 2012). The exclusive right associated with a patent provides a monopoly that prevents competitors or other corporations from commercially exploiting the invention without permission (WIPO, 2024). Subsequently, other companies would require formal authorisation and payment of a licence to utilise the service (Day and Schuster, 2020). The patent pledge made by Tesla appears controversial from legal, technological, and business perspectives. One might question the value of such a strategy if it jeopardises the interests of shareholders and commercial returns. While this decision may imply greater access to green technology with less fear of legal repercussions and reduced revenue from patent accounts, this research aims to examine various aspects of such a decision and analyse whether Tesla's patent pledge was a strategic intellectual property and marketing decision.

2. Case Development – The Impact of Tesla's Patent Pledge on Company Interests

This section aims to develop the case of Tesla, particularly around the company's patent pledge, addressing several concerns raised regarding the value or loss caused by the pledge. Despite a decade passing since the decision, uncertainties and complexities surrounding the patent pledge persist. This section examines the case from various business and legal perspectives to shed light on some of the criticisms and questions raised.

2.1. The Positive Image Cultivated for the Company in Addressing Climate Change

The environmentally conscious consumers acknowledge and value Tesla's commitment to fostering eco-friendly transportation and combating climate change (Shariat & Gholizadehdastjerd, 2022b). The implementation of sustainable practices and the formulation of policies aimed at enhancing energy efficiency resonate positively with broader society (Musonera and Cagle, 2019). Particularly, investments in green technologies or initiatives to promote the sector, even at the expense of potential profit loss—illustrated by Tesla's willingness to permit the use of its patents—create recognition and respect within the market, ultimately elevating the brand image (Shariat & Gholizadehdastjerd, 2022a).

Tesla's corporate culture not only nurtures innovation internally but also endeavours to propagate innovative practices within the sector through collaborations with other market players (Fur and Dyer, 2020). The patent pledge has the potential to enhance public admiration for the company, as individuals recognise Tesla's engagement in socially responsible activities and environmentally sustainable practices, thereby promoting access to cutting-edge technologies for car manufacturers **(**Ehrnsperger and Tietze, 2019). It is noteworthy that while Tesla has benefited from the positive image it has created, some scholars interpret the patent pledge more as a public relations statement (Chang and Stach, 2015). In the following sections, we explain how certain issues, such as the legal drafting of the pledge and the potential liability that the use of patents may cause, have actually prevented many manufacturers from utilising the selected patents.

2.2 Green Marketing Strategy

Tesla's patent pledge could also be considered a form of green marketing. The open-source patent strategy adopted by Tesla aims to stimulate the development and widespread adoption of electric vehicles throughout the automotive industry, thereby fostering environmental sustainability and the integration of eco-friendly vehicles into the transportation system (Tesla, 2014).

As previously discussed, the company's innovation and patent policy have cultivated a positive image, portraying Tesla as a corporation committed to environmental responsibility. This commitment extends beyond the production of eco-friendly electric cars, as Tesla actively strives to promote the adoption of sustainable technologies within the automotive manufacturing sector. Moreover, Tesla seeks to stimulate increased innovation and collaboration within the electric vehicle sector (Witheford, 2018), an approach that unequivocally supports the expansion of the green technology market.

Tesla emphasises its commitment to advancing overarching goals, notably the reduction of carbon emissions and the fight against climate change. It is arguable that these objectives are achievable through the utilisation of the company's electric vehicle technologies, which are often protected by a range of Tesla patents. This approach could potentially assist in promoting sustainability and advancing the company's environmental objectives. Such green marketing actions are generally believed to increase brand value, as

they position the company to enhance the value of its products and achieve a competitive advantage in the market (Liu & Meng, 2017). Moreover, they provide an opportunity to enhance the reputation and image of the business, access new markets, and effectively address the environmental concerns of stakeholders (Moravcikova et al., 2017).

Beyond considerations of brand image and consumer perception, as explored in earlier sections, Tesla's willingness to share selected patented technologies could potentially exert significant influence on the market and competitors. According to Smith (2019), the arrival of certain Tesla products has transformed the automotive and energy utility markets. Products such as large battery-powered electric vehicles and solar roofs, together with Powerwalls, provide customers with green options like driving a solar-powered car. These innovations enable consumers to make informed decisions about their energy consumption and think more critically than before. Furthermore, this influence has the potential to prepare the market for the adoption of similar green practices in the future, effectively reshaping market dynamics and contributing to a more sustainable automotive industry.

2.3 Protecting Shareholders' Interests: The Condition of Acting in 'Good Faith' in Tesla's Patent Pledge

In assessing the legal implications of Tesla's patent pledge, the primary step involves examining the language of the pledge, particularly focusing on the concept of 'good faith' as articulated in the following statement:

> *The Pledge, which is irrevocable and legally binding on Tesla and its successors, is a "standstill," meaning that it is a forbearance of enforcement of Tesla's remedies against any party for claims of infringement for so long as such party is acting in good faith* (Tesla, 2014).

The above statement emphasises the importance of 'good faith' in the patent pledge. This emphasis is further detailed with additional caveats specifying that the company or its affiliated companies, when acting in 'good faith', must not have ever engaged in certain activities. Tesla provides the following list to clarify what actions a company acting in good faith must not have taken:

- *asserted, helped others assert or had a financial stake in any assertion of (i) any patent or other intellectual property right against Tesla or (ii) any patent right against a third party for its use of technologies relating to electric vehicles or related equipment;*
- *challenged, helped others challenge, or had a financial stake in any challenge to any Tesla patent; or*
- *marketed or sold any knock-off product (e.g., a product created by imitating or copying the design or appearance of a Tesla product or which suggests an association with or endorsement by Tesla) or provided any material assistance to another party doing so.* (Tesla, 2014)

The statement indicates that the patent pledge is not freely available to all. If a company does not meet the 'good faith' requirements set by Tesla, it would not be able to benefit from the opportunity provided. Although Tesla aims to promote an open-source IP strategy and a transition toward sustainable electric mobility, the example of Tesla and its strategy demonstrates how a company's strategic utilisation of IP can protect its business model against market competitors, with the ultimate goal of creating a societal impact (Sternkopf et al., 2016).

From a financial standpoint, one might argue that while the patent pledge creates a positive impression of an altruistic strategy, it may not necessarily result in significant expenditure on Tesla's part. The extensive list of qualifying requirements outlined in the patent pledge significantly limits opportunities, primarily favouring Tesla. For Tesla, the definition of 'good faith', as discussed earlier, encompasses entities that have refrained from suing Tesla for IP infringement (beyond Tesla patents alone) or have not been involved in challenging, aiding others in challenging, or having a financial stake in any challenge to any Tesla patent (Tesla, 2014). Despite Tesla presenting this as legally binding, questions have arisen regarding its enforceability, given that it is not a formal contract and might not be legally binding (Hill, 2016). Tesla provides clarification on the terms of the pledge as follows:

> *In order for Tesla to preserve its ability to enforce the Tesla Patents against any party not acting in good faith, the Pledge is not a waiver of any patent claims (including claims for damages for past acts of infringement) and is not a license, covenant not to sue, or authorization to engage in patented activities or a limitation on remedies, damages or claims. Except as expressly stated in the Pledge, no rights shall be deemed granted, waived or received by implication, exhaustion, estoppel or otherwise. Finally, the Pledge is not an indication of the value of an arms-length, negotiated license or a reasonable royalty.* (Tesla, 2014).

As evident from the additional notes provided by Tesla, the company has successfully protected its patents without overly extending the benefits of the pledge. Simultaneously, it affirms that "as long as someone uses our patents for electric vehicles and doesn't do bad things, such as knocking off our products or using our patents and then suing us for intellectual property infringement, they should have no fear of Tesla asserting its patents against them" (Tesla, 2014). While the statement above aims to clarify issues regarding the patent pledge, criticism persists that companies remain in an uncertain position regarding the precise interpretation of the pledge, and signing it may give rise to complications (Hill, 2016).

The assessment of 'good faith' should be based on 'common sense and fairness' (Hill, 2016), and those uncertain about the implications or concerned about the risks are suggested to consider the option of entering into simple agreements with Tesla. This suggestion relates to an argument in contract law-related literature that a patant pledge may be claimed not to offer a contractual right, potentially resulting in the transformation of contractual provisions into intellectual property provisions, where the latter may not necessarily hold the same legal standing as traditional contractual provisions (See, for example, the decision of the High Court of Justice in England and Wales in ModernaTX Inc v Pfizer Limited and and Pfizer Inc

-v- ModernaTX, Inc[3], paragraphs 97–102, 103, and 130). This presents a potential legal grey area; if any dispute occurs in the interpretation of the patent pledge, it may fall under IP law, which might not be as legally binding as a formal contract (Hill, 2016).

From a competition point of view, it is arguable that the range of restrictions imposed by Tesla, which could potentially impair a pledgee's ability to utilise its patents, would be considered disproportional if Tesla had a dominant position in the market (Wenger, 2023). Although there is not sufficient space here to further elaborate on the patent and competition law implications of the patent pledge, there could be interesting debates about how the pledge has created an unreasonable control position in the market for Tesla. There could also be controversial arguments regarding Tesla's intention to neutralise the patent system and that the pledge has caused increased opportunities for patent hold-up (Wenger, 2023).

The absence of clarity in this context and the uncertainties raised might result in fewer companies availing themselves of the opportunities provided by Tesla. However, the significant public impact resulting from the announcement of the patent pledge would persist. It is also conceivable that a company, while accepting Tesla's offer, could make a mistake that potentially subjects it to future litigation in a dispute with Tesla. Furthermore, comparing Tesla's offer to an open-source software innovation, it is arguable that while using open-source software may only require a computer and some programming skills (Marshall, 2012), more extensive facilities and sophistication are needed, for instance, to work on Tesla's battery designs or potentially create any improvements. Not only do such actions require a wider range of tools and skills to be effective, but if Tesla intended to make the technology truly open-source, it is also argued that the company would need to disclose its engineering documentation in addition to its patent (Wharton, 2014). This issue, coupled with the strict drafting of the pledge and the potential legal implications for future pledgees, reinforces the perception of Tesla as a company driven by 'business objectives', leading to the view that the pledge is more of a strategic legal manoeuvre (Vimalnath et al., 2018) to expand the company's market (Roberts, 2014).

3. Questions/issues for discussion

Considering the issues raised in the development of the case in section two, there are three key questions to address in this section.

Question 1: Can Tesla's patent pledge be considered an effective marketing mechanism to boost the sales of Tesla's patented innovations?

The first question is whether Tesla's patent pledge could be deemed a responsible decision to enhance the brand image in the market. Additionally, did Tesla effectively protect the interests of shareholders while

[3] ModernaTX, Inc v Pfizer Ltd and Pfizer Inc v ModernaTX, Inc [2024] EWHC 1648 (Pat) and [2024] EWHC 1695 (Pat) https://www.bailii.org/ew/cases/EWHC/Patents/2024/1648.html.

acting responsibly towards society and the environment? Overall, can Tesla's patent pledge be considered an effective marketing mechanism to boost the sales of its patented innovations?

In addition to the discussions in Section 2.5, it is crucial to delve into the issue concerning the availability of future protection for Tesla in the event of alleged patent infringements by other companies. The 'free will' condition set in Tesla's patent pledge could also have other positive implications for the company. The terms in the patent pledge would enable Tesla to potentially bypass any claims made by other companies in a situation where it is allegedly infringing on their patents. The reluctance of other companies to take action against Tesla could be attributed to the fact that they may be in possession of Tesla's intellectual property.

Rogan presents a strong argument regarding companies utilising Tesla's technology, asserting that "using Tesla's technology would essentially render any other company's intellectual property rights redundant" (Rogan, 2020). Tesla stands to benefit from this arrangement, as the company will have the right to incorporate any improvements made to its technology by another party. Additionally, Tesla anticipates that other companies using its patents will refrain from litigating against Tesla or imposing licensing fees when Tesla incorporates their similarly valued technology (Hill, 2016).

It seems that while Tesla has cultivated a positive image as a responsible business, this strategy has not imposed significant burdens. The legal framework of the pledge, including elements such as the 'good faith' condition, justifies and presents the strategy as reasonable for shareholders. It ensures that the company will not be disadvantaged by actions taken regarding its selected patents. Tesla is shielded by the patent pledge in a way that, if another company benefits from Tesla's patented technology and patents the result, preventing Tesla from using the technology, the company will have the option to sue the competitor for infringement. This claim would be based on the assertion that the competitor has not satisfied the requirements of 'good faith' as explained in the terms of the patent pledge (Lucek, 2014). Companies choosing to accept Tesla's offer are advised to use a Creative Commons patent licence to maintain some degree of control (Hill, 2016). [4]

Furthermore, the qualifying requirements in defining 'good faith' protect Tesla's interests in circumstances where another company is selling 'knock-off products', essentially marketing items produced using Tesla's

[4] Furthermore, the doctrine of equitable estoppel has been suggested as a potential legal safeguard for companies considering Tesla's offer. The doctrine of equitable estoppel is evaluated using a three-part test, where the defendant must demonstrate that: "1) the patentee, through misleading conduct, leads the alleged infringer to reasonably infer that the patentee does not intend to enforce its patent against the alleged infringer, 2) the alleged infringer relies on that conduct, and 3) due to this reliance, the alleged infringer will be materially prejudiced if the patentee is allowed to proceed with its claim" (Hill, 2016, p.11). See Hill (2016, p.11) and the reference to *Ecolab, Inc.*, 264 F.3d at 1371, which cites Scholle Corp. v. Blackhawk Moulding Co., 133 F.3d 1469, 1473 (Fed. Cir. 1998).

patents as if they were Tesla products (Tesla, 2014). This serves as further evidence for shareholders that the company places significance on business interests, mirroring the importance attributed to corporate values and social responsibility. Moreover, Tesla has anticipated additional protection for the company in its dealings with Original Equipment Manufacturers (OEMs). The implication of the patent pledge for an automotive OEM, upon signing the patent, grants Tesla the right to use technology within the scope of the OEM's patent portfolio. In cases where an automotive OEM does not align with the patent pledge, Tesla maintains the option to enforce its patents against the automotive OEM (Kontos, 2021).

Overall, while Tesla's patent pledge may extend some benefits to the public, it also serves effectively to protect the company. As expressed by Hill (2016, p.198), "Tesla opening up their patents is good for both the company and the public by allowing others to use and transform the technology (Bailey, 2014), and recognising the need for communal innovation allows for a better realisation of the future value when dealing with a high-tech sector of a traditional good" (Bar-Gill & Parchomovsky, 2003).

Question 2: Are Tesla's Corporate Social Responsibility (CSR) initiatives strategically aligned with the company's core values, particularly concerning its innovation management strategy in relation to the electric vehicle patents discussed in this paper?

The second question focuses on the alignment of social responsibility with the company's core values. Tesla's strategy for advancing electric vehicle technology and promoting sustainable transport is well aligned with the company's CSR initiatives and core values. Tesla emphasises its core values of "doing the best, taking risks, respect, constant learning, and environmental consciousness" (Tesla, 2024a). The company's innovation management strategy (in relation to patents) appears to be in line with its core values. This alignment gives the impression to the market and customers that the company genuinely integrates CSR initiatives and socially responsible practices into its operations, reflecting its commitment to these core values. As Tesla recognises and aims to promote 'environmental consciousness' (Tesla, 2024b) and sustainability, it is expected that the company will implement CSR initiatives—including the management of its innovation and portfolio of intellectual property—that protect the environment and promote access to green, eco-friendly technology (Shariat & Gholizadehdastjerd, 2022b).

As with any decisions that companies make, a patent strategy—and the waiver of any IP portfolio—must be justified to determine the extent of any social and economic benefits arising from a given strategy. In the context of patents, patent rights generally facilitate exports from other markets, and the development and effective enforcement of intellectual property rights are intended to positively impact economic growth (Panda et al., 2020). However, countries with relatively weak economies that are net importers of patented technologies are subject to unavoidable costs arising from the enforcement of patent monopolies (Hoekman

et al., 2004). Challenges of this nature may impede the diffusion of innovation (Strobel, 2013), potentially causing a slowdown significant enough to delay the establishment of domestic innovation capacity in developing nations, especially when patent protections are strengthened. This constraint primarily affects the imitation phase, wherein local technical knowledge emerges through the process of replicating new products. Consequently, this restriction is likely to contribute to the exacerbation of existing international inequalities.

It is, however, questionable whether other companies would choose a completely open model of patent-sharing. As this is a rare choice in the market, there is limited evidence to analyse the actual economic impact of such a decision on a company. Interestingly, evidence from other sectors, including environmental innovation and healthcare technologies, demonstrates that there is no serious willingness to accept the commercial disadvantages of an open-source IP strategy, even on occasions where public interest is seriously at stake. Within the context of environmental inventions, it is also interesting that the open-source strategy was not used in the case of any inventions featured in the European Inventor Awards (EIA) between 2006 and 2020 (Vimalnath et al., 2020). In the case of the Covid vaccine, although it was believed that "global inequity would lead to many more deaths" (Josephs, 2022, quoting Tedros Ghebreyesus, the head of the World Health Organisation), this argument still did not convince shareholders of vaccine manufacturing companies. The idea of Moderna undertaking a feasibility study into transferring intellectual property and technical know-how to manufacturers in low- and middle-income countries was supported by only 24% of shareholders. In Pfizer, 27% of shareholders were in favour of a similar course of action, and Johnson and Johnson, although not disclosing a number, had the proposal fail among shareholders (Josephs, 2022). Although in October 2020, Moderna announced a patent pledge confirming that the company would not enforce COVID-19-related patents against companies making pandemic-fighting vaccines, the case was, however, not as straightforward as expected. It became the subject of a dispute regarding the use of its patents by Pfizer/BioNTech, leading to a judgment issued by the High Court of Justice in England and Wales in July 2024 (ModernaTX Inc v Pfizer Limited and Pfizer Inc v ModernaTX Inc). [5]

The findings of previous research (e.g., Melo & Galan, 2010, p. 435) are relevant to the discussion of Tesla here, as they establish that certain social responsibility practices, including eco-friendly mechanisms, can potentially lead to measurable returns for companies—although such actions or mechanisms may not necessarily be tangible and can positively affect corporate brand value (Melo & Galan, 2010, p. 435). The connection between Corporate Social Responsibility initiatives and core values contributes significantly to the brand image and attracts admiration from the public (Marin & Ruiz, 2006); however, consumers do pay attention to the motivation behind companies' actions—whether it is for a genuine cause that the company

[5] Knowledge sharing is a practice seen in the software business, and there have been academic comments regarding the potential benefits of such a system to avoid the creation of overlapping and mutually problematic 'patent thickets' (see Lerner & Tirole, 2005).

values or whether the firm is following certain strategies for public relations reasons. If a company is known to be acting for reasons other than integrity, such actions may lose their potential effectiveness as a marketing tool. Therefore, it is crucial, when developing policies and making any management decisions (including those on innovation and IP management), to take into account 'broader societal demands and expectations' (Vallentin, 2002).

Overall, the corporate strategy concerning open-source patents, designed to facilitate access to Tesla's innovation system, aligns well with the company's core values. This approach, coupled with a commitment to open and transparent communication, fosters trust (Shariat & Gholizadehdastjerd, 2022a). Tesla openly shares its values, achievements, and challenges, leading to the creation of a positive image and strengthening its reputation among customers and stakeholders.

Question 3. How is Tesla's decision reinforcing the importance of an appropriate patent strategy in both benefiting from the market and offering benefits to the market simultaneously?

Tesla's choice of an open-source patent strategy not only reflects the company's value system and environmental strategy but also reinforces the significance of having an appropriate intellectual property strategy, particularly in relation to patents. While the right strategy protects innovation and sustains a competitive advantage, the 'right' strategy does not always mean the 'strictest' (Shariat & Gholizadehdastjerd, 2022b). In this case, Tesla has made a choice that benefits the market, the environment, and a broader range of stakeholders from a holistic perspective. However, this does not imply that the company has generated less value—whether financial or non-financial—or that it has acted against the interests of its shareholders.

Given the intense competition in the market, market penetration poses a significant challenge for start-up companies, particularly in the context of the substantial investment required to establish a new car manufacturing business. In the case of electric vehicles, a new company also faces the additional need to invest in infrastructure, such as battery charging stations and battery replacement services, to ensure the smooth operation of the electric vehicle network. [6] Consequently, a collaborative approach involving partnerships with other manufacturers in the same industry, aimed at sharing knowledge and potentially certain facilities, becomes an attractive option for many companies (Bhargava et al., 2021). Tesla has

[6] On this matter, refer to the comments by Eric Lane from Thomas Jefferson School of Law, who emphasises: "Ultimately, the impact of Musk's decision may turn on to what extent other such players will be motivated to invest in manufacturing vehicles, batteries, etc. using Tesla's patented and patent-pending technology, with the obvious upside being the proven innovation that technology brings and the downside being no exclusivity. Instead, they may invest in their own R&D and patent protection, where the upside could be exclusivity, but the downside may involve inferior or unproven technologies." Available at [https://greenpatentblog.com/2014/06/14/elon-musk-launches-the-tesla-patent-commons/], Accessed 20 December 2023.

effectively implemented such a strategy by fostering cooperation with other companies in the sector. The company has developed a strategic alliance network encompassing suppliers, research and development, and other crucial aspects, positioning itself to derive multiple benefits across various areas of its operations.

It is, therefore, questionable whether Tesla's patent pledge has emerged purely from altruistic motives. It was unlikely that Tesla alone could bring about a drastic change in the electric vehicle market. The company emphasised the need for accelerated innovation within the electric vehicle manufacturing industry and maintained that its open innovation strategy would not hinder its 'innovative progress' in the market (Tesla, 2014).. Tesla acknowledges that it cannot manufacture electric cars at a sufficient rate to address environmental issues, such as the carbon crisis, on its own. Statistics from 2014 demonstrate that approximately 320,000 new electric vehicles were registered globally that year (Allen, 2015). A decade later, the market had changed significantly, with 14 million new electric cars registered globally in 2023, and 1 in every 5 cars sold was electric. This brought the total number of electric cars on the road to 40 million in 2023, closely aligning with sales forecasts from the Global EV Outlook (IEA, 2024). Interestingly, it has been argued that revenue from electric vehicle sales constituted more than 81% of Tesla's total income (Di Pizzio, 2024).

The strategy of making selected patents available to other companies could potentially provide a greater opportunity for those companies considering a transition to electric vehicle engines. The information disclosed in earlier patents will be an integral part of future emerging technologies, particularly in areas such as electric vehicles. Tesla's electric vehicles are viewed as occupying the higher end of the market, making it difficult for competitors or smaller companies to innovate in a way that creates a completely distinct competitive system (Hill, 2016, pp. 199-200). However, increasing competition in the electric vehicle market may significantly change this trend. For instance, the Chinese competitor BYD overtook Tesla as the world's top-selling electric carmaker, and in 2024, Tesla's production was surpassed by BYD for the second consecutive year (Sweney & Simpson, 2024). Although Tesla's strategic planning ensures the company holds considerable patent value, it must continuously assess and develop its patent strategy to align with evolving business goals and market dynamics.

4. Concluding remarks

Patents are designed to encourage innovative activities by providing financial incentives in exchange for the disclosure and dissemination of information related to novel technologies. The patent system is intended to function for the improvement of society by "encouraging inventors to share their innovations with others" (Boss, 1999), involving a trade-off between inventors and society (Mattioli, 2014). Furthermore, a company's possession of patents is argued to promote future investment from external entities and assist in recovering the costs associated with inventions, including research and development expenses. By incentivising innovation, a strong net positive effect is created, contributing to both economic and societal benefits. This indicates that a company's innovation plays a pivotal role in fostering economic growth

(Benhabib et al., 2014). Tesla decided not to initiate any patent litigation against companies that use its patented technology, as long as they satisfy the requirements of 'good faith' outlined in the pledge (Tesla, 2014). The ultimate goal of this strategy was seemingly to pave the way for the widespread manufacturing and adoption of electric cars.

In this research, the authors examined several potential costs and benefits for the company related to the patent pledge from both business and legal perspectives, some of which are highlighted below.

Patent Pledge and the Green Marketing Philosophy: While the primary intention behind the patent pledge appears to be Tesla's commitment to accelerating the adoption and promotion of electric vehicles in the automotive market—potentially limited or constrained by certain patent rights—the company's strategy also aligns with the principles of green marketing and the preferences of environmentally conscious consumers. It holds the potential to promote sustainability, collaboration, and a positive environmental impact.

Benefits of the Pledge versus Costs: Although Tesla manoeuvred towards the wider societal benefits of such a strategy and gained from the positive image and enhanced brand reputation (IP Osgoode, 2021) created through these decisions, the benefits of the strategy for Tesla seemingly outweigh the costs (Rojas, 2020; IP Osgoode, 2021). These benefits are safeguarded through careful drafting of the pledge, providing a good opportunity for Tesla in the future, particularly in cases where it could potentially be infringing on another company's patented technology.

Strategic Alignment of CSR Initiatives and IP Management with the Company's Core Values: The research also emphasises that acting as responsible corporate citizens in the auto manufacturing sector, although it may, in certain circumstances, lead to less direct profit (e.g., through reduced licensing, as in the case of Volvo seat belts) (Benhabib et al., 2014), can indirectly yield further benefits through enhanced brand reputation, which results from the broader societal benefits provided by the company. The alignment of CSR initiatives, core values, and overall corporate strategy positions Tesla advantageously to exert a positive impact on the electric vehicle industry and society while adhering to its foundational principles.

Addressing Complex Moral, Environmental, and Economic Questions in the Management of Patent Portfolio: While the authors observed a good range of protected benefits for Tesla in this case, decisions regarding patents in general must be made with caution, as there could be existential risks for the company, as seen in cases like IBM when offering mutual cooperation (Cortada and Cherry, 2021). In weighing the company's obligations towards shareholders against broader societal benefits, Tesla—or any other corporation considering a decision similar to Tesla's—must take into account complex moral, environmental, and economic questions. The robust legal safeguards in place to protect Tesla's interests in the future help address concerns about unfettered altruism from company directors. Such concerns, if

unmanaged, have the potential to subvert the intended function of the free market and may be construed as neglecting responsibilities to shareholders. While compliance with shareholder primacy is crucial, it may place decision-makers in a position where a diverse range of concerns regarding the corporation's social accountability remain unanswered. Tesla has effectively managed to justify the decision, which may seem purely altruistic at first glance, to shareholders. This was made possible through various actions taken to support the interests of the company, most importantly the legal drafting of the patent pledge.

Recommendations for Future Research: The study of patent pledges deserves further investigation and calls for future research, particularly multidisciplinary studies. The current research analyses Tesla's patent pledges a decade after it was announced in 2014. The main objective was to examine the decision, its potential for the market, the risks it may pose for the company, and the benefits it may offer from both a legal and commercial perspective. While it is crucial to conduct interdisciplinary studies in innovation and IP management decisions like Tesla's patent pledge, there are challenges in predicting certain legal implications of the patent pledge, considering the limited judgments in this context. We, however, recommend more empirical studies on the topic to investigate the actual statistics concerning the use of Tesla's selected patents, and some technical research into the contributions the patents may have had in manufacturing new products by other car manufacturers, as well as any issues, challenges, or disputes that could be analysed for further development of the topic.

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