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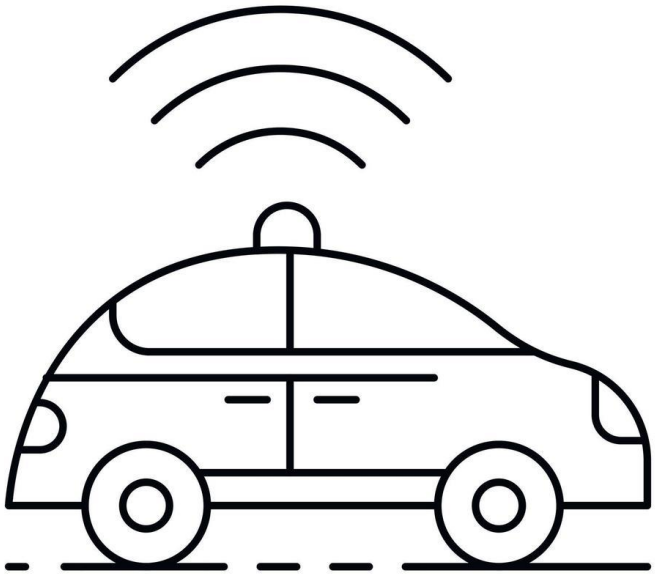

ASSESSMENT TASK 3: POLICY POSITION PAPER: SELF-DRIVING VEHICLE

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CONTENTS

48210 ASSIGNMENT 3 – POLICY POSITION PAPER

Group: 2 (Daoyu Wednesday)

Technology Topic: Self-Driving Vehicle

Stakeholder: Car Manufacturers

1. HOW HAS FEEDBACK BEEN INCORPORATED INTO THIS SUBMISSION

Source	Feedback	How has the feedback been incorporated?
From Task 2 in-class peer review	"Your essay presents a range of interesting points, yet it might benefit from more assertive language. Consider taking a firmer stance on your arguments to enhance you persuasiveness." – Paraphrased (not word for word)	*Adhering to the feedback, I increased some of my low-modality words to higher modality. This way, it makes my points more urgent and firmer.*
In-class presentation	"There seems to be a challenge with the essay's flow. Transition sentences between paragraphs could help create a smoother narrative thread, guiding the reader through your points more seamlessly." – Paraphrased (not word for word)	*In response to the feedback, I have made the transition between sentences and paragraphs, ensuring a more fluid progression of ideas. This revision strategy has improved the narrative flow, allowing for a clearer and more cohesive reading experience throughout the essay.*
Grammarly Feedback	"While your essay is rich in detailed content, the central theme could be more pronounced. Ensuring each paragraph ties back to your main point will improve the essay's coherence." – Paraphrased (not word for word)	The essay has been refined to accentuate the central stakeholder, car manufacturers, more clearly. Each paragraph has been linked back to the stakeholder rather than focusing too much on the automated vehicles and jumbling my points.

2. SUMMARY OF THE ISSUE

Self-driving vehicles are rapidly transitioning into the main road. These advanced cars, guided by state-of-the-art artificial intelligence (AI), sensors, and radars, promise not just a new mode of transportation but a potential upset in environmental sustainability and social inclusion. They're poised to dramatically reduce emissions through optimised routing, offering a cleaner, greener way to travel (Zewe, 2022).

Autonomous vehicles (AV) promise convenience, safer roads, and greater accessibility. They champion individual ease, could slash accident rates, and empower those with disabilities by eliminating the need for a traditional license—aligning with goals for innovation, reduced inequalities, and sustainable communities (Kia, n.d.).

In Australia, this technological leap forward is pushing policymakers to reexamine and rewrite the rulebook of the road to ensure public safety and privacy. Although these vehicles are still in the trial phase, the collaborative efforts between state authorities and the National Transport Commission are developing the groundwork for their integration (National Transport Commission, 2023).

The implementation will also extend beyond environmental benefits, poised to reshape societal norms by enhancing mobility for inaccessible individuals such as the elderly and disabled, potentially improving the quality of life. The careful calibration of ethical and regulatory frameworks remains crucial as this technology braces to make our roads safer and our cities more inclusive, reflecting the aspirations of global sustainability goals.

3. STAKEHOLDER'S POWER AND INTEREST

These points highlight the dynamic power manufacturers hold and also show the intricate connection between their influence and their interests, encapsulating the complex interactions between innovation, market forces, and regulatory frameworks (Hamadneh et al., 2022; Graf & Sonnberger, 2019).

Power/influence	Interest/how they are affected
• **Pusher of Innovation:** Car manufacturers pioneer the creation and production of self-driving technology, holding the command of how advanced and how safe these vehicles are before they hit the market. • **Gatekeeping the Market:** They wield the power to introduce (or withhold) self-driving vehicles from the automotive market, effectively shaping the future of transport. • **Shapers of Consumer Adoption:** By strategically setting prices and crafting imposing marketing campaigns, manufacturers influence how quickly and widely consumers adopt self-driving vehicles. • **Standard Setter:** These companies are responsible for defining industry standards and ensuring their products comply with evolving regulatory landscapes.	• **Staying Ahead of their Competitors:** Car manufacturers are in a constant battle to outdo each other with the latest tech. Falling behind is not an option if they want to stay relevant. • **Seizing the Market Opportunity:** The potential profits from the self-driving vehicle market are massive. Car manufacturers are eyeing this market, poised to capture as much of the market share as possible. • **Navigating the Regulatory Maze:** As governments draft new rules for self-driving cars, manufacturers must be adaptability to these changes is no longer just about compliance; it's a strategy necessary for the company's survival and success.

4. PUBLIC POLICY INSTRUMENTS

4.1. POLICY INSTRUMENT 1: MANUFACTURER-CENTRIC AUTONOMOUS VEHICLE ADVANCEMENT INITIATIVE

The proposed Manufacturer-Centric Autonomous Vehicle Advancement Initiative (MCAVAI) aims to address this need with a targeted approach to foster innovation and ease the integration of AVs into the market.

4.1.1. POLICY STRUCTURE AND GOAL

MCAVAI is built on three pillars: financial incentives, regulatory streamlining, and collaborative engagement. Initially, the policy would offer R&D grants and subsidies to manufacturers, offsetting the high costs of developing AV technologies (Infrastructure Victoria, 2021). This financial support aims to stimulate innovation and make Australia a free ground for cutting-edge automotive research.

Secondly, the initiative proposes a fast-tracked regulatory process to accelerate the approval of AVs. This component is crucial, as it would shorten the path from conception to commercial reality without compromising safety standards. The idea is to build a robust certification program that assures consumers of the reliability of AVs while enabling manufacturers to roll out new models more efficiently.

4.1.2. IMPLEMENTATION CONSIDERATIONS:

Moreover, MCAVAI advocates for strong public-private partnerships. These would open avenues for manufacturers to collaborate with government and educational institutions, leading to a mutually beneficial partnership where public infrastructure can be used for testing and industry insights can enrich academic research (Kirk & Dooley, 2007). Implementing MCAVAI will require coordinated efforts between various levels of government and industry. A dedicated oversight committee would ensure that the initiative's goals align with national interests and that the roll-out is consistent across jurisdictions. Importantly, the policy would need to be adaptable and responsive to the rapid technological advancements in the AV industry.

4.1.3. ANTICIPATED IMPACTS ON STAKEHOLDERS:

The anticipated impact of MCAVAI is significant. For manufacturers, the initiative represents an opportunity to lead in the AV sector, bolstered by a supportive national framework. The government, in facilitating this, could see economic growth and a stronger global competitive stance. For society, the long-term benefits include potential improvements in road safety accessibility and a forward step into a technologically advanced future (Transport NSW, 2022).

MCAVAI offers a realistic and structured policy tool that aligns with the interests of car manufacturers while also serving the broader goals of national progress and societal benefit. It recognises the complexities of integrating AV technology into the market and addresses them with clear, actionable strategies. Through initiatives like MCAVAI, Australia could not only embrace the AV evolution but become a trailblazer in its implementation and adoption.

4.2. POLICY INSTRUMENT 2: REGULATORY SANDBOX

In response to the fast-evolving autonomous vehicle (AV) sector, Australia's car manufacturers could significantly benefit from the introduction of a 'Regulatory Sandbox' policy. This initiative aims to strike a balance between technological innovation and regulatory oversight, providing a controlled environment for manufacturers to test and iterate AV technologies. The policy would not only streamline the path from development to deployment but also address safety, compliance, and market introduction challenges, preparing manufacturers for global competitiveness. (National Transport Commission, 2023).

4.2.1. POLICY STRUCTURE AND GOAL:

The Regulatory Sandbox would allow car manufacturers to test and iterate AV technologies in real-world scenarios without the typical regulatory constraints. The primary goal of this policy is to catapult innovations by providing practical insights into the technology's impact and facilitating data-driven decision-making for comprehensive legislation. The sandbox would operate under a structured yet flexible regulatory exemption regime, strictly monitored by a dedicated body, ensuring that any risk to public safety is mitigated (Didnenko, 2020).

4.2.2. IMPLEMENTATION CONSIDERATIONS:

To implement a Regulatory Sandbox for car manufacturers, Australia must set clear entry criteria, ensure robust safety monitoring, and establish data feedback mechanisms. Active stakeholder engagement and defined paths from trials to market launch are crucial. Regulatory agility and cross-jurisdictional cooperation will be key, allowing manufacturers to innovate within a supportive framework while aligning with national standards for autonomous vehicle deployment. The implementation is modelled on the regulatory sandbox framework for the energy sector in Australia (Essential Services Commission Victoria, 2022)

4.2.3. ANTICIPATED IMPACTS:

The sandbox approach is particularly advantageous because it permits real-time evaluation and adaptation. As AV technologies evolve, so too would the regulatory environment, informed by ongoing trial data and stakeholder feedback. This adaptability ensures that regulations remain relevant and conducive to technological progression. Regulatory sandboxes have been shown to be heavily beneficial for both the development of technologies and its surrounding communities (Attrey, 2020)

4.2.4. IMPACT ON STAKEHOLDERS

The Regulatory Sandbox offers car manufacturers in Australia a unique platform to trial autonomous vehicle technologies. It accelerates innovation by enabling real-world testing, mitigates risks prior to market release, and grants critical insights into regulatory compliance. This facilitates manufacturers' strategic planning and helps ensure market readiness while boosting investor and consumer confidence. Manufacturers also gain foresight into workforce and insurance challenges, aligning product development with societal expectations (Engler, 2023).

The Regulatory Sandbox for AV technology aligns with national interests by fostering a competitive edge in a burgeoning global industry. Simultaneously, it upholds the government's mandate to protect public welfare.

As a policy instrument, it holds the potential to position Australia at the forefront of AV technology, provided its implementation is balanced with vigilant oversight and proactive stakeholder engagement.

4.3. POLICY INSTRUMENT 3: COOPERATIVE RESEARCH AND DEVELOPMENT FRAMEWORK FOR AUTONOMOUS VEHICLE TECHNOLOGY

To foster an environment conducive to innovation and collaboration, the Australian government must introduce a Cooperative Research and Development (R&D) Framework specifically tailored to AV technology.

4.3.1. STRUCTURE AND GOALS OF THE POLICY:

The core of this policy would be to establish a cooperative R&D fund aimed at encouraging partnerships between car manufacturers, tech companies, and academic institutions. The fund would support research into critical areas such as AI algorithms, sensor technology, and cyber-security frameworks for Avs (Bathla, 2022). The goal is to propel Australia to the forefront of AV technology while ensuring that car manufacturers can remain competitive on a global stage.

4.3.2. IMPLEMENTATION PRACTICALITIES:

To implement this policy, the government would need to:

- Define the criteria for qualifying projects, with an emphasis on innovation, feasibility, and potential for commercialization.
- Ensure a streamlined application process that balances thorough evaluation with an urgency to keep pace with global technological advancements.
- Establish an oversight committee comprising industry experts and academics to ensure the funded projects align with national interests and contribute to the sustainable growth of the AV sector.

4.3.3. ANTICIPATED IMPACT:

The anticipated impact of this policy are:

- Acceleration of AV R&D within Australia, shortening the development cycle from concept to commercial viability.
- Enhanced collaboration across sectors, breaking down silos and fostering a culture of shared knowledge and resources.
- Establishment of Australia as a global hub for AV innovation, attracting investment and skilled talents.

4.3.4. POTENTIAL IMPACT ON CAR MANUFACTURERS:

For car manufacturers, this framework would mean access to shared resources, reducing individual cost burdens. It would enable them to leverage cross-industry expertise, improving the sophistication and safety of their AV offerings (Bertoncello et al., 2018). By engaging in collaborative ventures, manufacturers could also broaden their networks, opening new markets and supply chains (Kanter, 1994). Furthermore, the policy could catalyse the creation of high-value jobs, driving economic growth within the sector.

In conclusion, the Cooperative R&D Framework would represent a strategic investment in the future of Australian car manufacturing. By promoting collaborative efforts in AV technology research, the policy would ensure that the industry's growth is robust, inclusive, and reflective of the country's innovation potential.

3. EVALUATION AND RECOMMENDATION

Evaluation Criteria:

- Alignment with the strategic goals of the automotive industry and technological innovation.
- Contribution to economic growth and job creation within the automotive sector.
- Enhancement of the industry's competitive edge globally.
- Promotion of sustainable and environmentally friendly manufacturing practices.
- Facilitation of collaboration between car manufacturers and technology providers.

3.1. INSTRUMENT 1 EVALUATION:

Proposed policy instruments	Pros	Cons
Policy Instrument 1: Manufacturer-Centric Autonomous Vehicle Advancement Initiative	• **Direct Industry Benefit:** The initiative is designed to bolster the capabilities of car manufacturers, potentially leading to innovative breakthroughs in autonomous vehicle	• **Exclusivity:** Smaller enterprises and startups may find it difficult to compete with established manufacturers, potentially limiting the diversity of innovation within the AV field.
	• **Economic Growth:** Focusing on manufacturers may stimulate economic growth by encouraging the expansion of high-tech manufacturing and related jobs.	• **Resource Intensity:** The initiative may require significant investment from both the manufacturers and the government, which could be challenging to sustain in the long term.
	• **Accelerated Development:** The initiative could speed up the development and deployment of AV technologies by providing manufacturers with the resources and framework they need to innovate effectively.	• **Market Disruption:** There's a risk of disrupting current automotive market dynamics, which could negatively affect employment in traditional manufacturing roles as the industry shifts towards automation.

3.2. INSTRUMENT 2 EVALUATION:

Proposed policy instruments	Pros	Cons
Policy Instrument 2: Regulatory Sandbox	• **Strategic Alignment:** The sandbox aligns with the strategic goals of advancing the automotive industry by creating a safe, legal space for innovative AV technology testing, potentially leading to technological breakthroughs.	• **Potential Misalignment:** If not carefully managed, the sandbox could diverge from broader strategic industry goals, focusing on short-term wins over long-term industry viability.
	• **Economic Growth and Job Creation:** It can catalyse new investments in AV research and development, leading to job creation in high-tech sectors and ancillary industries that support the AV ecosystem.	• **Uncertain Economic Impact:** The economic benefits could be uneven, with gains possibly concentrated among participants of the sandbox rather than the broader automotive sector.
	• **Competitive Edge:** By rapidly testing and deploying new technologies, Australian car manufacturers may gain a first-mover advantage in the international market, enhancing their competitive edge.	• **Global Standards Divergence:** If the sandbox leads to a set of national standards that differ significantly from international norms, it could inadvertently hamper the global competitiveness of Australian manufacturers.

3.3. INSTRUMENT 3 EVALUATION:

Proposed policy instruments	Pros	Cons
Policy Instrument 3: Cooperative Research and Development Framework for Autonomous Vehicle Technology	• **Enhancing Global Competitiveness:** By pooling resources and expertise, the framework encourages the development of cutting-edge technologies that can propel Australian car manufacturers to the forefront of the global market.	• **Risk of Uneven Economic Benefits:** Collaboration may not always translate to widespread economic benefits; certain partners could disproportionately reap the rewards, or the commercialization of joint research may be challenging.
	• **Sustainability Promotion:** Joint R&D efforts can prioritise the development of environmentally friendly technologies, reducing the automotive industry's carbon footprint and promoting sustainable practices.	• **Possibility of Competitive Conflict:** While collaboration is encouraged, there can be tensions between proprietary interests and the shared goals of the framework, potentially leading to conflicts and a reduction in competitive edge.
	• **Collaborative Efforts:** This framework provides a structured approach for collaboration, enabling manufacturers and tech providers to jointly tackle complex challenges, share risks, and leverage each other's strengths.	• **Sustainability Commitment Required:** The commitment to sustainability must be integral, or it could be overshadowed by more immediate commercial goals, compromising long-term environmental benefits.

3.4. RECOMMENDATION:

Through evaluating the different policies, the "Manufacturer-Centric Autonomous Vehicle Advancement Initiative" should be prioritised for immediate implementation. It offers direct benefits to car manufacturers, supports economic growth, and encourages sustainable practices. This initiative is most likely to deliver immediate and measurable impacts to the stakeholders. Furthermore, it offers a balanced and staged approach and will likely create a robust ecosystem for autonomous vehicle technology development in Australia.

REFERENCES

Attrey, A. M. (2020). *The role of sandboxes in promoting flexibility and innovation in the digital age.* Retrieved from Going Digital Toolkit Note: https://goingdigital.oecd.org/data/notes/No2_ToolkitNote_Sandboxes.pdf

Bathla, G. B. (2022, June 06). Autonomous Vehicles and Intelligent Automation: Applications, Challenges, and Opportunities. *Graph-based Intelligence for Industrial Internet-of-Things, 2022*. doi:doi.org/10.1155/2022/7632892

Bertoncello, M., Husain, A., & Moller, T. (2018, November 02). *Setting the framework for car connectivity and user experience*. Retrieved from McKInsey & Company: https://www.mckinsey.com/industries/automotive-and-assembly/our-insights/setting-the-framework-for-car-connectivity-and-user-experience

Didnenko, A. N. (2020, September 1). A BETTER MODEL FOR AUSTRALIA'S. *UNSW Law Journal, 44*(3).

Engler, A. (2023, April 25). *The EU and U.S. diverge on AI regulation: A transatlantic comparison and steps to alignment*. Retrieved from Brookings: https://www.brookings.edu/articles/the-eu-and-us-diverge-on-ai-regulation-a-transatlantic-comparison-and-steps-to-alignment/

Essential Services Commission Victoria. (2022, May 17). *Implementing a regulatory sandbox framework for the energy sector*. Retrieved from Engage Victoria: https://engage.vic.gov.au/implementing-a-regulatory-sandbox-framework-for-the-energy-sector

Graf, A., & Sonnberger, M. (2019). Responsibility, rationality, and acceptance: How future users of autonomous driving are constructed in stakeholders' sociotechnical imaginaries. *Public Understanding of Science, 29*(1).

Hamadneh, J., Duleba, S., & Esztergár-Kiss, D. (2022). Stakeholder viewpoints analysis of the autonomous vehicle industry by using multi-actors multi-criteria analysis. *Transport Policy, 126*, 65-84.

Infrastructure Victoria. (2021). *Driving down emissions: accelerating Victoria's zero emission vehicle uptake.* Infrastructure Victoria.

Kanter, R. M. (1994, August). *Collaborative Advantage: The Art of Alliances*. Retrieved from Harvard Business: https://hbr.org/1994/07/collaborative-advantage-the-art-of-alliances

Kia. (n.d.). *Are self-driving cars safe?* Retrieved from Kia: https://www.kia.com/dm/discover-kia/ask/are-self-driving-cars-safe.html

Kirk, D., & Dooley, L. (2007). University-industry collaboration: Grafting the entrepreneurial paradigm onto academic structures. *European Journal of Innovation Management*. doi:10.1108/14601060710776734

Nabil, R. (2023, October 06). *Reforming the European Union's Proposed AI Regulatory Sandbox*. Retrieved from Australian Institude of International Affairs: https://www.internationalaffairs.org.au/australianoutlook/reforming-the-european-unions-proposed-ai-regulatory-sandbox/

National Transport Commission. (2023). *Guidelines for trials of Automated Vehicles in Australia 2023.* Retrieved from National Transport Commission: https://www.ntc.gov.au/codes-and-guidelines/automated-vehicle-trial-guidelines

Transport NSW. (2022). *Future Transport Strategy.* Retrieved from Transport NSW: https://www.future.transport.nsw.gov.au/sites/default/files/2022-09/Future_Transport_Strategy_2.pdf

Zewe, A. (2022, May 17). *On the road to cleaner, greener, and faster driving.* Retrieved from MIT News: https://news.mit.edu/2022/ai-autonomous-driving-idle-0517