UNIDO

Dear UNIDO delegates,

My name is Athina Ntosta, I am a student at the American Community School of Athens, and I will be your Chair. Logos MUN will be my 6th MUN conference and I look forward to spending it with this committee.

Throughout the UNIDO session we will be discussing two topics: “assessing the use of AI in industrial production” and “evaluating the viability of electrical vehicles.” Please use this document as a guide for your research but not as your only source. It is a general overview of the topic, but every delegate should do personal research according to their delegation’s involvement.

If you have any questions, feel free to contact me.

Looking forward to working with all of you,

Athina Ntosta
Chair *of* UNIDO

Email: ntostaa26@stu.acs.gr

Dear Delegates,

My name is Angelos Talpa, and I have the utmost honor to be serving as the Co-Chair of the United Nations Industrial Development Organization (UNIDO) committee at the 1st Logos MUN conference. I am 16 years old and I am currently attending the 11th grade of the Hellenic American Educational Foundation school, known as Athens College. This will be my first time acting as a Student Officer and I am excited to share this experience with you!

In this study guide, we dive into a thorough investigation of the two UNIDO agenda topics. We seek to identify the concrete advantages that AI infusion provides to industrial production by delving into real-world case studies and international projects. Despite these benefits, we must also consider how automation may affect worker dynamics, potential ethical problems, and the need for laws and regulations to enable responsible AI development.

I have to state clearly that this study guide **should not** be your only source of information. You ought to do your personal research on the topic taking always into consideration your delegation's policy.

I will be more than happy to answer any questions or concerns about the topic and help you be the best version of yourselves during the conference. Feel free to contact me or my chair per email for any questions.

I am looking forward to working with all of you soon!

Best regards,

Angelos Talpa
Co-Chair *of* UNIDO

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Forum: United Nations Industrial Development Organization (UNIDO)

Issue: Assessing the use of AI in industrial production

Student Officers: Athina Ntosta (Chair); Angelos Talpa (Co-Chair)

Introduction

A variety of industries have undergone radical transformation as a result of the quick development of technology, with significant effects on industrial production. The integration of artificial intelligence (AI) into the industrial processes is one of the crucial topics at the intersection between technology and industry. The application of AI in industrial manufacturing seems to be a culminating point in technological innovations and has undoubtedly many advantages such as enhanced automation, predictive maintenance, and increased safety. With the new technological innovations, AI algorithms have the ability to completely transform the way businesses make goods, control supply chains, and respond to changing consumer needs as they continue to develop. However, there are some drawbacks that we have to take into prime consideration in order to fully assess AI innovations in industrial production, such as cost of implementation, lack of personnel, and data privacy. It is UNIDO's mission to shed some light on the different ways AI will affect productivity, efficiency, and socioeconomic dynamics.

Definition of Key Terms

Artificial Intelligence

"Artificial Intelligence (AI) is a machine or software that demonstrates human-like intelligence. Arend Hintze, researcher and professor of computer science and engineering at Michigan State University, has defined four main types of AI, two of which are relevant; reactive machines and limited memory AI."

Reactive Machines

"Refer to the most basic level of all AI systems. They perform simple tasks without learning from them, as they do not use past occurrences or form memories to train on, and therefore always deliver the same output for an input. They are unchanged machine learning models that rely on what they know and do not add to it."

Limited Memory

"Limited Memory AI is the next stage in AI. It imitates the way the human brain and its neurons work, getting smarter as it receives more knowledge (data to train on). By looking into the past and adding its observations to its pre-programmed knowledge, it can make predictions and perform complicated categorization tasks."

Industrial Production

"Refers to the output of industrial establishments and covers sectors such as mining, manufacturing, electricity, gas and steam and air-conditioning".

AI race

"The term "AI race" describes a competitive, frequently international competition among nations, groups or other entities to progress, lead, or dominate in the field of artificial intelligence (AI). This "race" includes initiatives to create, use, and utilize AI technology for a variety of goals, including innovation, social advancement, national security, and financial viability".

Timeline of events

Date	Description of Event
1951	The first artificial neural network called SNARC was developed by Marvin Minsky and Dean Edmond. This marks the beginning of the AI industry and AI-centered research.
1965	The first expert system "Dendral" was developed by Edward Feigenbaum, Bruce G Buchanan, Joshua Lederberg, and Carl Djerassi. It helped organic chemists in identifying unknown molecules.
1966	Stanford research develops the predecessor to self-driving cars and drones; the first mobile intelligent robot, called Shakey. It was a combination of AI, navigation, and NLP (Natural Language Processing).
1989	Yann LeCun, Yoshua Bengio, and Patrick Haffner prove that convolutional neural networks (CNNs) can be applied to real situations, by demonstrating how handwritten character recognition.
2011	Apple releases Siri, a personal assistant that generates answers and responds to vocal requests, and a CNN is developed that achieves 'superhuman' performance in a recognition competition.
2016	In Pittsburg, Uber starts a self-driving car pilot program.
2017	The physicist Stephen Hawking warns that "Unless we learn how to prepare for, and avoid, the potential risks, AI could be the worst event in the history of our civilization."
2019	A deep learning algorithm by Google AI and Langone Medical Centre outperforms radiologists in detecting potential lung cancers.

2020	Nvidia announces the beta version of a platform to create 3D models in the physical world, Omniverse. DeepMind develops AlphaFold, a software that can predict protein tertiary structures just by looking at their amino acid sequence.
2022-February 2023	Open AI releases a highly-anticipated preview of ChatGPT based on the GPT 3.5 model, with over a million signatories in the first days. Later, Microsoft Bing adds it's new chatbot feature using the GPT 4.0 model, which is accessible by anyone with Microsoft Bing, and unlike ChatGPT does not require an account/personal information to use it.
2023	A six-month pause on training any AI more powerful than GPT-4 is urged by Elon Musk, Steve Wozniak, and thousands other signatories.

Background information

AI's Integration into Industrial Production

An important turning point in the development of manufacturing procedures is being marked by the use of Artificial Intelligence (AI) into industrial production. Through improved automation, data-driven making and uncommon optimization, artificial intelligence holds the potential to transform numerous industries.

Applications of AI in industrial production include, inter alia, supply chain management, demand forecasting, predictive maintenance, and quality control. AI algorithms may discover patterns and trends in massive amounts of data that were previously unnoticed, increasing operational performance and cost-efficiency. The idea of Industry 4.0, characterized by the combination of digital and physical systems, has sped up the adoption of AI in a number of different industries. Manufacturing processes have been transformed by AI, allowing the development of "smart factories" with autonomous production and real-time modifications.

The AI Race

The "AI race" is currently being led by the USA, but China is swiftly taking the lead. In fact, the Chinese government has made significant investments in AI research and development, attempting to catch up with the USA in this new technological race. Major companies like Alibaba, Baidu, and Tencent are all actively participating in raising the bar for China's AI capabilities, with many of their initiatives yielding ground-breaking outcomes that have pushed the limits of AI to unprecedented heights. Other nations like Canada, Japan, and South Korea have been discreetly moving forward with their own projects in AI technology as China and the US compete for the top.

In 2018, Canada unveiled a $125 million AI Strategy to foster talent development and research. With its "Society 5.0" strategy, which blends AI components into a new vision for national growth, Japan has also just upped its game. A budget of 14 trillion has been promised to increase Japan's level of national competitiveness in the field. South Korea has also committed to become a global leader in artificial intelligence (AI) through partnership between the public and commercial sectors. These developments show that there AI race is global, despite China and the US dominating news around AI innovation.

Advantages

Enhanced Automation

By removing the limits of human involvement, AI is a greater automation that significantly improves the manufacturing process. AI-powered machines are now capable of flawlessly completing repetitive and labor-intensive tasks that were previously "open" to mistakes and irregularities. Higher precision and accuracy are ensured as a result, and human workers are given more time to work on activities that call for creativity, problem-solving, and critical thinking. As a result, a more efficient and productive manufacturing environment is created.

Predictive Maintenance

Unlike previous manufacturing machines or human workers, who are not aware of when they will need a break, AI can tell when it will need maintenance. AI's predictive maintenance can predict when machines will fail/stop working by using algorithms to analyze data from multiple sources such as sensors. As a result, maintenance can be scheduled ahead of it being needed, saving time and money.

Increased Safety

Installing AI technologies in the workplace can help manufacturers improve the safety of their workers and prevent accidents. AI can use scanning and computer vision features to detect and identify possible hazards, as well as watch out for the workers. This will allow people to work with more peace of mind.

Disadvantages

The use of AI in industrial production, despite its potential benefits, creates important issues. Discussions regarding the socio-economic effects of this technological change have been triggered by concerns about the automation of jobs, ethical questions about AI's decision-making, and the possibility for bias in algorithms.

Cost of Implementation

AI requires a lot of materials, research, and professionals to create and train it. Materials to build the machines with AI, funding for research to constantly update the technologies, and salaries for the professionals handling the AI technologies and the workers implementing the tech, must all be paid for, in addition to specific things according to the type of technology.

Therefore, many AI technologies can become expensive to implement and smaller manufacturing companies with lower budgets may not be able to invest in the tech because of limited resources. The ability to access such technologies could thus create a huge edge for larger companies and lower the competitiveness of smaller sole proprietors and partnerships.

Lack of Personnel

While AI does have human level intelligence, it constantly needs to be trained and observed by experts, to keep updating and improving its software. Manufacturers may find it difficult to find and hire enough employees to implement, maintain, and handle the technology, as it is a relatively new field of study. Without these personnel, it will be impossible to implement AI in many manufacturing establishments.

Data Privacy

For AI technologies to proficiently contribute to manufacturing, they must gather and analyze data (Big Data). Manufactures may worry about the breaking of privacy regulations and the safety of their data. A break of data privacy could result in a loss of personal information, damage to the company/manufacturer's reputation, and a waste of resources (large fines could be imposed).

Stakeholders

<u>The United States of America</u>

The USA is currently home to some of the largest AI technology companies in the world, such as Facebook, Google, and Microsoft. It is one of the leading nations in the "AI Race," and has a goal of continued leadership in the industry. On January 1st, 2021, the National AI Initiative Act became law and it created a coordinated way for the entire US federal government to increase AI research and implementation for the "nation's economic prosperity and national security." Through this act, the nation has invested a lot in AI and its use in public and private sectors in future years.

People's Republic of China

In China, AI technologies are being implemented in a variety of industries, from the worldwide used social media, TikTok, to technology in factories. Many companies and their factories based in China have invested in AI technologies, mainly robots, to help with heavy work. Startups as well as established leaders in the industry have installed AI such as drones, robots, sensors, etc. to help with jobs ranging from pesticide spraying and weather prediction to carrying out repetitive actions in pharmaceutical labs to ensure hygienic safety. Manufacturers and other industrial companies have put their trust in AI technology to help their workers and companies, resulting in the country's big involvement in the AI industry.

United Nations Development Program (UNDP)

The United Nations Development Program, or the UNDP for short, is a UN agency which aims to help putting an end to poverty and decrease social inequalities. It operates in around 170 countries with a goal of increasing sustainability.

In 2020, a new digital strategy was launched by the UNDP, created to further improve the quality of its support to governments in adjusting to the changing environment, by forming digital capacity within the UNDP. The strategy's aim is to promote the use of (digital) technologies towards achieving the Sustainable Development Goals, while considering the risks that come with the technology.

Relevant UN resolutions, treaties, and events (Previous attempts)

"UNIDO's Groundbreaking Publication on the Adoption of AI by SMEs (Small and medium enterprises)."

An article published by the United Nations Industrial Development Organization (UNIDO) announcing the use of Artificial Intelligence (AI) by small and medium enterprises (SME) in their industrial production.

"UNIDO Launches Global Alliance on AI for Industry and Manufacturing (AIM-Global) at World AI Conference 2023."

An article published by UNIDO announcing their new global alliance on Artificial Intelligence for Industry and Manufacturing (AIM-Global) which was formed at the World Ai Conference in Shanghai, China. It also states UN's positive opinion on using Ai in industrial production.

Possible solutions

Introduce Regulatory Frameworks

AI has only recently been introduced to the industrial sector of the economy, and therefore there are not many regulations regarding it. By encouraging nations to establish legislation surrounding AI, the data it collects, and what it uses it for, the digital privacy of workers can be ensured. As data privacy is currently one of the biggest concerns surrounding AI, establishing specific guidelines is necessary to control it, and this can be done by introducing regulatory frameworks.

Increase Government Support of AI Education

Currently, there is limited expert personnel in the AI industry, because of how new the topic is. Students may not even consider AI as an option when choosing what they want to study, since they have not been exposed to the chance to pursue it. By encouraging governments to increase their support of education and courses surrounding AI, people may find interest in learning about it. AI education could even be implemented at an early stage of primary or secondary school, to increase basic knowledge of the technology.

Further reading

1) "United Nations Activities on Artificial Intelligence (AI)."

   An overview of all of the United Nations' activities regarding artificial intelligence, organized by sectors of the UN. It is recommended to read the UNIDO section, as well as the UNDP section.

2) The White House

   A report by the White House, on Artificial Intelligence. Contains background and basic information on AI, as well as specifics on topics mentioned in the guide. Recommended to read if you want more detailed information on a topic written about in the guide.

Bibliography

Hintze, Arend. "Understanding the Four Types of AI, from Reactive Robots to Self-aware Beings." The Conversation, 13 Nov. 2016, theconversation.com/understanding-the-four-types-of-ai-from-reactive-robots-to-self-aware-beings-67616.

Gandhi, Yashoda. "AI in Manufacturing: Uses and Benefits." *Analytics Steps - A Leading Source of Technical & Financial Content*, analyticssteps.com/blogs/ai-manufacturing-uses-and-benefits.

Coursera. "4 Types of AI: Getting to Know Artificial Intelligence." *Coursera*, 10 Jan. 2023, www.coursera.org/articles/types-of-ai.

“Industry - Industrial Production - OECD Data.” *theOECD*, data.oecd.org/industry/industrial-production.htm#:~:text=Industrial%20production%20refers%20to%20the,the%20volume%20of%20production%20output.

"The History of Artificial Intelligence: Complete AI Timeline." *Enterprise AI*, www.techtarget.com/searchenterpriseai/tip/The-history-of-artificial-intelligence-Complete-AI-timeline.

PlanetTogether. "Artificial Intelligence (AI) Improving the Manufacturing Industry and Its Challenges." *PlanetTogether Advanced Planning Scheduling - Digital Manufacturing*, www.planettogether.com/blog/artificial-intelligence-ai-improving-the-manufacturing-industry-and-its-challenges#:~:text=One%20of%20the%20biggest%20challenges,with%20expertise%20in%20AI%20technologies.

Do, Tra. "12 Innovative NGOs Driving the Future of AI for Good." Omdena | Building AI Solutions for Real-World Problems, 14 Nov. 2022, www.omdena.com/blog/innovative-ngos-future-of-ai-for-good/.

"The National Artificial Intelligence Initiative (NAII)." *National Artificial Intelligence Initiative*, 23 Apr. 2021, www.ai.gov/#:~:text=The%20mission%20of%20the%20National,across%20all%20sectors%20of%20the.

"How China Is Using AI to Fuel the Next Industrial Revolution." *Time*, 11 Aug. 2021, time.com/6084158/china-ai-factory-future/

Forum: United Nations Industrial Development Organization (UNIDO)

Issue: Evaluating the Viability of Electric Vehicles (EV's)

Student Officers: Athina Ntosta (Chair); Angelos Talpa (Co-Chair)

Introduction

A significant change is taking place in the transportation sector as we examine the further potential of electric vehicles (EVs). Though EVs have been around for decades, they are currently rising in population, making up more than 50% of the cars in multiple countries. By switching to electric vehicles instead of conventional fuel-powered ones, we want to address environmental issues and cut carbon emissions. This change, however, also prompts crucial queries about the infrastructure, accessibility, and general impact on our daily lives. The viability and practicality of using electric vehicles as a means of transportation are critically examined in this guide. It is our mission to examine the elements that affect EV adoption as well as the advantages, drawbacks, and potential transformation of our transportation systems that these vehicles may bring about.

Definition of Key Terms

Electric Vehicles

"An Electric Vehicle (EV) is a vehicle that uses one or more electric motors to power itself. Currently, there are three types of EVs, full electric vehicles, hybrid electric vehicles, and plug-in hybrid electric vehicles. Full Electric Vehicles are powered solely by electric motors and batteries. Hybrid Electric Vehicles have both an electric motor and a gasoline engine. Plug-in Hybrids function similarly to hybrid EVs, but they can be charged by being plugged in at power sources.

Gasoline Powered Vehicles

"A Gas-Powered Vehicle (GV) is a vehicle that uses gasoline to power itself."

Timeline of events

Date	Description of Event
1832	The first (small-scale) electric vehicle was made in Scotland by William Morrison.

1900 - 1920	The first EV boom happened due to lower pricing in comparison to GVs, and the EVs creating less noise. It ended 20 years later due to gas prices lowering.
1901	First hybrid EV, created in Canada.
1947	First mass-produced electric cars by Edsel Ford (reintroduced to the market). Failed to gain attention over gasoline cars.
1997	First mass-produced hybrid EV introduced by Honda.
2000	US president Bush announces "FreedomCAR and Fuel" partnership, with the aim of increasing EV use, by providing tax credits for purchasers of EVs and research and development funding for manufacturers.
2008	Tesla released its first electric vehicle, the Roadster.
2013	Electric battery production costs drop. It became more affordable for consumers, and popularity increased.
2016	Norway becomes the first country with plug-in hybrid EVs constituting 5% of their registered cars.

Background information

History of Electric Vehicles

Electric Vehicles are often regarded as new technology that has only been recently introduced to the market. However, the first EV, (a small-scale vehicle that travelled 12 miles per hour), was built in Scotland in 1832. The electric vehicle "boom" started only 70 years later, in 1900, because it was the cheapest option in comparison to gas powered vehicles. While it ended 20 years later when the gas prices lowered, it is important to note this was the first time EVs were big in the market. They were reintroduced through the first mass-produced EV to the aforementioned market in 1947 by Edsel Ford, but failed to gain attention over GVs. However, Honda's mass-produced hybrid EV managed to amaze, due to eco-consciousness and lower prices.

Eventually, EVs were fully popularized and accepted in 2008, when Tesla released its first EV, the Roadster. The newly popularized EVs then became more accessible in 2013, when the electric battery production costs dropped, and they became more affordable. The effect of this affordability and popularization was first seen in Norway in 2016, when it became the first country to have plug-in-hybrids be 5% of all registered cars. This was also supported by the government which provided tax exemptions and charging infrastructure investments as incentives to purchase EVs, and multiple governments are currently following suit.

EVs' Role in Eco Consciousness

In the past few decades electric vehicles (EVs) have become a potential option in the search for ecologically friendly and sustainable transportation. EVs are accelerated by electric motors that run on electricity stored in batteries, as opposed to conventional vehicles that are propelled by internal combustion engines. This shift away from traditional fossil fuels has the potential to transform transportation, addressing urgent issues about urban pollution and climate change.

This type of vehicle contributes to lower air pollution and greenhouse gas emissions by producing little or no tailpipe emissions. The adoption of electric vehicles is gaining pace as a vital step towards a cleaner transportation future as the international community works to fulfil climate targets and enhance air quality.

Popularity of EVs

In recent years, more and more countries are trying to involve electrical vehicles such as cars, bicycles and scooters in their citizens' daily lives. Fortunately, EVs are rising in popularity. The number of fully electric passenger cars in EU countries climbed from 1.9 million in 2021 to 3.1 million in 2022, a 58% increase. They increased by more than 400% between 2019 and 2022. More notably, in the EU, the proportion of EVs increased from 2 per 10,000 vehicles in 2013 to 76 per 10,000 in 2021. All of these statistics point to a necessary change in the European automobile industry.

Infrastructure

The infrastructure for charging electric vehicles is one of the key elements affecting their viability. Unlike conventional GVs, EVs need charging stations to top up their batteries. To enable the broad usage of electric vehicles, it is crucial to provide a reliable and accessible charging network for users in both urban and rural areas.

Advantages

Energy efficiency

The amount of fuel source energy that is transformed into power to drive a vehicle's wheels is referred to as energy efficiency. Full electric vehicles, like those made by Tesla, are far more effective than traditional gas-powered cars: full EV batteries turn 59 to 62 percent of energy into vehicle movement, whereas gas-powered cars only do so to the extent of 17 to 21 percent. Charging a full EV's battery contributes more to actually powering the car than adding gas to the tank.

Reduced car emissions

One more advantage of all-electric vehicles is their lower emissions and carbon footprint, which also includes less gasoline consumption. EVs are powered by rechargeable batteries, which do not produce exhaust emissions, a significant source of pollution all over the world, especially in countries with high vehicle usage due to increased population such as the United States, China, India, etc. All energy can be obtained domestically and from green sources.

Noiseless and smooth operation

Electric vehicles are notable for their exceptionally quiet and seamless functioning. Unlike conventional internal combustion engine (ICE) vehicles, which rely on noisy, EVs use quiet electric motors. Driving is more relaxing when there is no engine or exhaust system noise, especially in cities with major noise pollution. When travelling slowly or idling, this silent functioning is especially notable and helps to create a "friendlier" environment for both drivers and pedestrians.

Regenerative braking

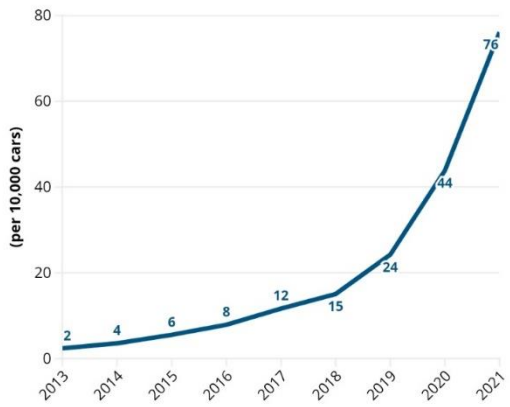

Figure 1: Share of battery-only electric passenger cars among all passenger cars in the EU (per 10,000 cars)

EVs often employ regenerative braking, which enhances both the overall efficiency and driving enjoyment of these cars. Using this technique, EVs can decelerate while converting kinetic energy into electrical energy. Unlike conventional ICE cars, which produce heat and lose energy when braking, EVs can capture this energy and transmit it back to the battery for later use. Regenerative braking helps to slow down the car while also recharging the battery by converting the electric motor into a generator. This procedure increases energy efficiency, while reducing friction and brake wear and tear. This increases the lifespan of the brakes. More importantly. the vehicle can be powered by the energy that was captured.

<u>Disadvantages</u>

While EVs have many advantages, there are still issues to be resolved. Discussions about the viability of EVs for everyday usage focus on battery technology, vehicle range, and charging periods. Affordability, government incentives, and regulatory frameworks also have a significant impact on the expansion of the sector. Another issue is the danger posed by silent engines to pedestrians.

Limited driving range

The limited driving range that electric vehicles can achieve on a single charge is one of their main drawbacks. Even while EV range has been continuously increasing thanks to advances in battery technology, it is still a crucial factor for prospective purchasers, especially for those who frequently drive long distances. Range anxiety, or the worry that the battery will run out before you get to a charging station, is a legitimate worry, especially in places with a lack of adequate charging infrastructure. The ease and adaptability that drivers are used to with ICE vehicles, where refueling is quick and easy to do at petrol stations, may be impacted by this restriction.

Refueling time

A typical gasoline vehicle needs to be refueled far less frequently than an electric vehicle. Fast charging stations are available, but they still take longer than filling up with gasoline, while being able to offer a sizable charge in a short period of time. This prolonged fueling period might be annoying, especially for drivers who are rushing or on long drives. Potential EV users must consider this trade-off because more frequent and slower recharging periods can affect travel plans. While improvements in charging technology are making charging periods shorter, it is crucial for consumers to compare this disadvantage to the advantages of EV ownership.

Charging stations and infrastructure

The lack of robust and large charging infrastructure continues to be a barrier to the mainstream adoption of EVs. Although they are becoming more common, particularly in cities, charging stations are still not as common as conventional gas stations. For people who reside in places with few charging stations, such as rural or less developed areas, this might be a considerable disadvantage. EV users may struggle to locate convenient and reachable charging stations in “charging deserts”, which are areas where the availability of charging infrastructure is unevenly distributed. Governments, private businesses, and utility suppliers must work together and invest a large amount of money to close this building gap.

Battery degradation

Battery degradation is a natural occurrence that over time impacts how well EV batteries work. EV batteries eventually lose capacity as a result of internal chemical processes that take place during charge and discharge cycles. As the battery “ages”, this capacity loss results in a reduction in the vehicle’s driving range, which means the car can travel less miles on a single charge. This steady loss of capacity is reflected in the States of Health (SoH), a metric used to evaluate the battery’s general health. In order to evaluate the battery’s efficiency in relation to its initial capacity when newly purchased, manufacturers and EV users track SoH.

Stakeholders

The United States of America

In an effort to cut greenhouse gas emissions, advance energy efficiency, and switch to greener transportation options, the US has made tremendous progress in the adoption of electric vehicles. Numerous states and the federal government have created various incentives to promote EVs. These financial rewards, such as tax credits, rebates, and grants, assist in reducing the higher initial expenses of EVs. For instance, for qualified EVs, the federal government's Plug-In Electric Drive Vehicle Credit offers a tax credit of up to $7,500, making them more affordable.

Norway

In 2016, Norway became the first country with 5% of their registered cars to be plug-in hybrid EVs. This was, in part, because of the government's support of EVs through tax exemptions and charging station investments as incentive to purchase them. In 2022, 4 of 5 cars sold in Norway were fully EVs. Norway's population and government have invested a lot in electric vehicles, and are therefore an important country to remember when considering the viability of EVs.

People's Republic of China

China has been producing EVs of a quality and cost that has western automakers on edge in recent years, trying to take the lead in the EV market. Compared to 13% globally, more than 25% of new automobiles sold in China last year were electric or hybrid vehicles. More than half of the 850 000 electric passenger cars imported into Europe in 2022 originated in China.

The goal of China's presidency is to achieve zero carbon emissions by 2060. China is moving quickly to decarbonize the streets using electric vehicles. Compared to 6% internationally, 13% of China's fleet is anticipated to be totally electric or hybrid by 2025. Additionally, a substantial percent of the world's lithium is in China (and in Chinese mines in the Democratic Republic of Congo), and therefore in China's possession. Since lithium is an essential factor in the creation of EV batteries, China has leverage and its decisions have a big effect on the EV market and industry.

France

In an effort to cut greenhouse gas emissions, combat air pollution, and make the transition to cleaner, more sustainable transportation, France has been actively pushing EVs. A variety of incentives has been put in place (e.g., financial rewards for people who buy electric and plug-in hybrid vehicles), along with financial penalties for high-emission automobiles. The benefits can dramatically lower the cost of EV ownership, thereby increasing consumer access to the technology.

Relevant UN resolutions, treaties, and events (Previous attempts)

Paris Declaration on Electro-Mobility and Climate Change & Call to Action

The Paris Declaration on Electro-Mobility and Climate Change was published by the UN and urges member states to start using EV's to help in terminating air pollution.

United Nations Climate Change 26th Conference (COP26)

The UN's 26th conference on climate change in UK in 2021, involved a presentation of member states' action plan for zero emission vehicles. There was consensus on obtaining less fuel-powered cars and improving air quality by using EV's.

Sustainable Development Goals (SDGs)

One of the 17 Sustainable Development Goals which clearly states the UN's position towards EV's, supporting their use and urging member states to promote their use.

Possible solutions

Charging Infrastructure

It is often difficult for EV owners to find charging stations and infrastructure for their vehicles, making owning one an inconvenience in many places. In comparison to EV charging stations, gas stations are much more common and easier to find, and therefore using gas powered vehicles becomes the easier solution. Investing in and increasing charging infrastructure in urban as well as rural areas may encourage people to purchase and support EVs, as they would seem less inconvenient. This could be done by adding charging stations to gas stations, or creating separate stations for EVs. Member states could also approach this issue on a community level, by ensuring that all areas of a city have access to charging stations. In some cases, states could invest in central charging hubs, as, for instance, in national highways.

Investment in research regarding electric motors and batteries

Currently, the average electric vehicle needs to be charged multiple times a week to run well. While hybrids may still remain functional if not charged, full EVs will not work if they do not get plugged in throughout the week. This creates an inconvenience, since it must charge for a relatively long period of time. Investing in research and development of electric motors and batteries to increase longevity would eliminate this inconvenience, by finding ways to decrease battery degradation, or increasing the limited driving range. Additionally, research needs to be conducted regarding renewable energy sources to increase green energy production. If EVs run on non-renewable power grids, then their use is still not eco-friendly.

Further reading

1) "Discussion Paper - Best Practices in Electric Mobility." UNIDO | United Nations Industrial Development Organization.

   A discussion paper written in Vienna (2019) by UNIDO in collaboration with PricewaterhouseCoopers (PwC) Pvt. Ldt. Parts 2 (Drivers for Electric Vehicle (EV) adoption) and 8 (Recommendations) are relevant, and recommended for further information on the topic.

2) Electric future | UNFCCC. (2022, May 23)

   An article by the UNFCCC, about its expectations surrounding EVs. Touches on the history of electric cars, recent statistics, and problems with its viability, specifically surrounding battery production, which are all well connected to our committee topic.

3) "COP26 Backs Electric Vehicles to Reduce Climate Change."

   An article on how different countries support electric vehicles, covering the United Nations' Climate Change Conference support of EVs.

Bibliography

Yanatma, Servet "Electric Cars: Which European Countries Have the Most?" Euronews, 8 May 2023, www.euronews.com/green/2023/05/08/norway-germany-uk-which-european-countries-have-the-biggest-share-of-electric-cars.

James, "The History of the Electric Vehicle", *History Cooperative*, February 6, 2022, https://historycooperative.org/history-of-the-electric-vehicle/. Accessed September 3, 2023

Jain, Deepty. "Viability assessment of electric cars for personal use in India." Science Direct, International Association of Traffic and Safety Sciences, www.sciencedirect.com/science/article/pii/S0386111221000686.

Murphy, Jason. "Are Electric Vehicles Worth It?" Forbes Advisor Australia, 13 July 2023, www.forbes.com/advisor/au/personal-finance/are-electric-vehicles-worth-it/.

Tallodi, John. "Seven Disadvantages of Electric Cars." *Carwow.co.uk*, 15 Dec. 2022, www.carwow.co.uk/guides/choosing/disadvantages-of-electric-cars#gref.

Mcaleer, Brendan. "The Pros and Cons of Electric Cars." Car and Driver, 29 Sept. 2022, www.caranddriver.com/features/a41001087/pros-and-cons-electric-cars/.

Spencer, Alison, Ross, Stephanie, & Tyson, Alec. "How Americans View Electric Vehicles." Pew Research Center, 13 July 2023, www.pewresearch.org/short-reads/2023/07/13/how-americans-view-electric-vehicles/.

Hawkings, Amy. "Battery Power: How China Could Take Charge of the Electric Vehicle Market." The Guardian, 29 July 2023, www.theguardian.com/environment/2023/jul/29/battery-power-how-china-could-take-charge-of-the-electric-vehicle-market.

"Electric Future | UNFCCC." 23 May 2022, unfccc.int/blog/electric-future.

"COP26 Backs Electric Vehicles to Reduce Climate Change." Trend Micro, 23 Nov. 2021, www.trendmicro.com/en_fi/research/21/k/cop26-rallies-behind-evs-to-mitigate-climate-change.html.

"New Research: Economic Viability of Electric Vehicles is Strong and Improving in Many Developing Countries." World Bank, 11 Nov. 2022, www.worldbank.org/en/news/press-release/2022/11/11/new-research-economic-viability-of-electric-vehicles-is-strong-and-improving-in-many-developing-countries#:~:text=The%20viability%20of%20electric%20vehicles,infrastructure%20may%20become%20more%20ubiquitous.

Li, Zihao. "Chinese lepidolite integral to global lithium supply." Fastmarkets, 15 May 2023, https://www.fastmarkets.com/insights/chinese-lepidolite-integral-to-global-lithium-supply#:~:text=China's%20lithium%20reserves%20total%202,rights%20in%202022%2C%20Zhao%20said.

Wu, Amy. "The Story Behind Tesla's Success (TSLA)." Investopedia, 27 May 2023, https://www.investopedia.com/articles/personal-finance/061915/story-behind-teslas-success.asp#:~:text=Elon%20Musk%2C%20co%2Dfounder%20of,first%20electric%20car%2C%20the%20Roadster.

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